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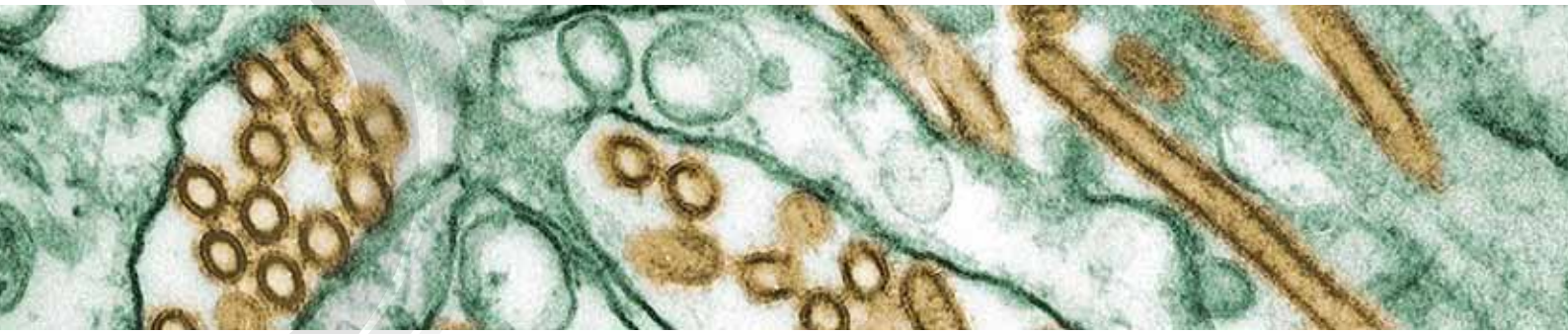
SURVEILLANCE REPORT



Annual epidemiological report on communicable diseases in Europe

2009

Revised edition

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This edition has been revised to correct a number of errors in the data from Austria. The changes affect the following parts of Chapter 3: Legionnaires' disease, *Chlamydia trachomatis*, gonorrhoea, HIV infection, syphilis, botulism, campylobacteriosis, echinococcosis, leptospirosis, salmonellosis, trichinellosis, Q fever.
Figure 3.3.16 was also corrected.
This edition was further revised to correct Figures 3.6.1-3 and 3.6.5.

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Preface

This third edition of the Annual Epidemiological Report on Communicable Diseases in Europe provides a comprehensive summary of surveillance data in 2007 and the threats monitored in 2008.

The data presented show that the major threats to the health of European citizens from infectious diseases have not changed substantially since ECDC began its work in 2005. It confirms the importance of the five areas initially identified as priorities for ECDC's activities, namely respiratory tract infections (in particular influenza and tuberculosis); HIV infection; vaccine-preventable diseases (in particular pneumococcal infections); healthcare-associated infections and antimicrobial resistance.

This year, the Annual Report gives special attention to vaccine-preventable diseases and immunisation programmes in the European Union (EU) and European Economic Area (EEA) countries. Vaccination has been an increasingly effective weapon in the fight against infectious diseases since their first development in the 19th century. The worldwide elimination of smallpox is a good example and a well-known success story. Indeed, vaccination has been so effective that in most European countries the incidence of formerly common childhood diseases, such as measles and rubella, is low and their detrimental effects are extremely rare. This has been achieved through continuous high levels of vaccination coverage, and the resulting high immunity in the population needs to be maintained. However, it can be said that vaccination has, in some respects, become victim of its success because many Europeans no longer perceive the threat from a number of vaccine-preventable diseases and therefore might opt not to get vaccinated or to vaccinate their children. The figures in the report show, however, that suboptimal vaccine coverage allows these diseases, with their serious consequences, to return. All of the seven deaths from measles that were recorded in Europe in 2006 and 2007 were in people who had not been vaccinated.

Since the publication of ECDC's first Annual Epidemiological Report in 2007, the quality of the data is improving year on year, allowing increasingly meaningful analyses of the European situation. For the 2009 report, the process of data collection and validation was greatly facilitated by the full use of the online 'The European Surveillance System' (TESSy) by the Member States. ECDC is confident that with the commitment and collective efforts by all, the remaining discrepancies and comparability issues with the data will continue to progressively decrease over the coming years.

In addition to the routine surveillance, ECDC undertakes round-the-clock monitoring of potential health threats, both for established diseases subject to routine surveillance as well as new, emerging and changing diseases, to enable rapid public health action. In 2008, ECDC monitored threats ranging from emerging oseltamivir-resistant influenza A(H1N1) to Crimean-Congo haemorrhagic fever and from measles to Marburg virus infection and provided on numerous occasions rapid scientific assessments of the threats posed to Members States.

ECDC was founded in the wake of the disruption caused by the severe acute respiratory syndrome (SARS) outbreak and the global threat of a pandemic influenza. The lessons learnt following the SARS outbreak – and the importance of multidisciplinary technical agencies maintaining international partnerships and coordinating integrated surveillance – inspire the work of the Centre. Similarly the current influenza pandemic has highlighted the importance of close cooperation and coordination on an international scale and the value of sharing timely and accurate data to inform public health decisions in a rapidly changing environment.

This report is the result of the concerted effort of many colleagues from all over Europe, who work at various levels, to ensure the countries' strong surveillance of communicable diseases. This report could not have been prepared without their efforts. It is not possible to list all those who contributed, in the Member States and at ECDC, but the coordinators of this report acknowledge all of their endeavours and greatly appreciate their hard work and support.

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List of abbreviations and acronyms

AEFI	Adverse events following immunisation
AI	Avian influenza
AIDS	Acquired Immune Deficiency Syndrome
AMR	Antimicrobial resistance
ARI	Acute respiratory infection
BSE	Bovine spongiform encephalopathy
BSI	Bloodstream infections
CCHF	Crimean-Congo haemorrhagic fever
CISID	WHO's centralised information system for infectious diseases
CJD	Creutzfeldt-Jakob disease
CRI	Congenital rubella infection
DDD	Defined daily doses
DEFRA	UK Department for Environment, Food and Rural Affairs
DIPNET	Diphtheria surveillance network
DSN	Dedicated surveillance network
DTP	Diphtheria, tetanus, pertussis
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
GAVI	Global Alliance for Vaccines and Immunization
Gideon	Global Infectious Disease and Epidemiology Network
GISN	Global Influenza Surveillance Network
GIVS	Global Immunization Vision and Strategy
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 prosthesis
HPV	Human papillomavirus
HUS	Haemolytic and uremic syndrome
IBI	Invasive bacterial infections
ICU	Intensive care units
IDU	Injecting drug users
IHR	International Health Regulations
ILI	Influenza-like illness
IPD	Invasive pneumococcal disease
IPSE	Improving Patient Safety in Europe
IPV	Inactivated polio vaccine

LPAI	Low pathogenic avian influenza
MDR	Multi-drug resistance
MedISys	Medical Information Systems
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
OPV	Oral poliovirus vaccine
PCV7	Heptavalent pneumococcal conjugate vaccine
PN	Pneumonia
PNSP	Streptococcus pneumoniae
ProMED-mail	Program for monitoring emerging diseases
RTE	Ready-to-eat foods
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
TALD	Travel-associate Legionnaires' disease
TB	Tuberculosis
TESSy	The European Surveillance System
TOM	Treatment outcome monitoring
TTT	Threat tracking tool
UNICEF	United Nations Children's Fund
VAPP	Vaccine-associated paralytic poliomyelitis
vCJD	Variant Creutzfeldt-Jakob disease
VDPV	Vaccine-derived polioviruses
VENICE	Vaccine European New Integrated Collaboration Effort
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
WPV	Wild poliovirus
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

In 2007 ECDC proposed that the frequency of a comprehensive Annual Epidemiological Report (AER) covering, in depth, all areas under ECDC surveillance would be every three to five years. This was supported by the ECDC Advisory Forum. The current edition is thus a broad compilation of the situation as regards communicable diseases in the European Union, but only gives an in-depth analysis of one area: the vaccine-preventable diseases. It provides data on incidence of diseases for 2007 in standard tables and graphs with limited commentary, and assesses health threats during 2008.

Major public health burden from infectious diseases

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

- antimicrobial resistance;
- healthcare-associated infections;
- vaccine-preventable diseases, with particular emphasis on pneumococcal infections;
- respiratory tract infections, with particular focus on influenza (pandemic potential as well as annual seasonal epidemics) and tuberculosis;
- HIV infection.

Summary of communicable disease surveillance 2007

Chapter 3 collects and presents all cases reported for 2007 from the 27 EU Member States plus the three EEA/EFTA countries Iceland, Liechtenstein and Norway. As many of the individual disease sections of that chapter point out, comparisons of incidence between countries should be made cautiously. Surveillance systems differ, and the relationship between reported and actual incidence varies from country to country for many diseases. In most instances, it is more relevant to focus comparisons on trends over time, since this is a more stable feature of a surveillance system.

With this in mind, some of the main findings from EU-wide surveillance of infectious diseases are summarised below for the main disease groups and/or conditions of concern.

Antimicrobial resistance and healthcare-associated infections (AMR/HCAI)

In 2007, methicillin-resistant *Staphylococcus aureus* (MRSA) remained a significant problem all over Europe. Nevertheless, in some of the high endemic countries, MRSA proportions seemed to be stabilising, and decreasing trends were actually observed in a few countries.

Penicillin non-susceptibility in *Streptococcus pneumoniae* (PNSP) showed a heterogeneous picture in Europe with most northern European countries reporting low levels, and relatively high levels reported by southern European and Mediterranean countries. However, overall, the levels for penicillin non-susceptibility and erythromycin resistance remained stable in most countries.

With the spread of clonal complex 17, outbreaks of vancomycin-resistant *Enterococcus faecium* continued to affect more hospitals in various countries.

Resistance to fluoroquinolones, aminopenicillin, aminoglycoside and third generation cephalosporins in *Escherichia coli* has increased significantly in nearly all reporting countries in recent years. This is an important observation because it signals a development towards increasingly multidrug-resistant Gram-negative bacteria, and even towards totally resistant strains.

The decreasing trend of surgical site infections after hip prosthesis was confirmed in 2007, illustrating the important role of surveillance, including inter-hospital risk-adjusted comparisons, in HCAI prevention and control.

Vaccine-preventable diseases

In 2007, the rate of notification of invasive *Haemophilus influenzae* disease remained stable in Europe, and well below one per 100 000. The Hib vaccine continued to have a significant effect on the incidence of this disease in all countries where it has been introduced.

The overall notification rate of invasive meningococcal disease in 2007 was one per 100 000, similar to that in 2006, and serogroups B (77 %) and C (16 %) remained the major cause of invasive meningococcal disease in Europe. The vaccine commonly in use covers only the serogroup C.

Compared with the previous year, in 2007 there were significant increases in the numbers of confirmed cases of invasive pneumococcal diseases (IPD) reported by Austria and Slovenia, most likely due to recent improvements in their surveillance systems. Overall, the notification rates were difficult to compare across Member States due to the wide heterogeneity in the IPD surveillance systems in the EU. The heptavalent pneumococcal conjugate vaccine (PCV7) was licensed in the EU in 2001, but use of this vaccine varies across countries.

In 2007, a lower number of measles cases were reported in the EU and EEA/EFTA countries than during 2006, but measles remained a public health priority with 2795 confirmed cases, including one fatal case and two cases of encephalitis. Only four countries have been measles-free during the last three years.

In 2007 mumps remained a vaccine-preventable disease with one of the highest notification rates in Europe but the overall decreasing trend continued and in fact the mumps notification rate in 2007 was the lowest reported since 1995.

Similar to the situation in 2006, the reported rates of confirmed rubella cases in 2007 were low.

The situation as regards vaccine-preventable diseases in the EU is analysed in detail in Chapter 2.

Respiratory tract infections

The 2007–08 influenza season in Europe was characterised by moderate clinical activity with an influenza A(H1N1) circulation peak followed by an influenza B peak. There were only a few A(H3N2) strains isolated.

An important new phenomenon was the occurrence of the first seasonal influenza virus strain resistant to the antiviral drug oseltamivir: A(H1N1-H247Y). This strain was fully able to transmit from human to human, but its distribution varied greatly across the region – from well over half of all isolated strains in some countries to just a few per cent in others. The appearance and spread of this resistant virus could not be explained by previous use of antivirals.

As in 2006, there were a series of outbreaks of highly pathogenic avian influenza reported in birds in Europe, predominately in domestic poultry, but no associated human cases were reported. One outbreak of low pathogenic animal avian influenza A(H7N2) occurred in the United Kingdom in May 2007 with several associated cases of influenza-like illness and/or conjunctivitis in humans.

The notification rate of Legionnaires' disease in the EU and EEA/EFTA countries in 2007 remained stable at 1.1 per 100 000 population. The number of reported cases of travel-associated Legionnaires' disease was increasing compared with 2006, probably attributable to better surveillance and reporting; whereas the number of travel-associated clusters was decreasing, which may reflect the impact of the EWGLINET guidelines for the control of Legionnaires' disease.

For tuberculosis (TB), steady downward trends of notification rates have been reported in 25 countries since 2003. Twenty per cent of the total cases were in persons of foreign origin, as in 2006, predominantly from Asia or Africa. Multi-drug resistance (MDR) remained more frequent in the Baltic States than in the other countries; and generally more common in cases of foreign origin. Data continue to reflect the heterogeneity of the TB situation, with low-incidence countries where cases are increasingly diagnosed in foreign-born populations, other countries with moderate-to-high notification rates but where MDR TB is as yet uncommon, and countries with relatively high notification rates and a high proportion of MDR TB cases. Overall, in 2007, the EU and EEA/EFTA countries reported 41 205 confirmed cases of TB (8.2 per 100 000).

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

In 2007 HIV infection remained of major public health importance in Europe with no signs of a decrease in the number of reported newly diagnosed cases. However, the number of AIDS cases diagnosed continued to decline, except in some eastern and central European countries. Predominant transmission mode varied by country and geographical region, illustrating the wide diversity of the epidemiology of HIV in Europe.

In 2007, *Chlamydia trachomatis* infection continued to be the most frequently reported STI (and the most common reportable disease in Europe in general). Over a quarter of a million confirmed cases of *C. trachomatis* infection were reported by 22 of the EU and EEA/EFTA countries, which translated into an overall rate of 122.6 per 100 000 population. Chlamydia continued to mainly affect young persons between 15 and 24 years of age. The true incidence of *C. trachomatis* infection was likely to be higher and the notification rates were more likely to reflect screening practices and testing volume rather than true incidence.

Remarkably, Sweden reported a 45 % increase in the number of cases from 2006, probably due to new testing methods to detect the new variant of *C. trachomatis* first reported in Sweden in November 2006. An EU-wide survey revealed that the spread of this variant was restricted to Sweden or to sexual partners of Swedes in other countries.

Most European countries have surveillance systems for hepatitis B and C, but due to their differences, particularly in system structures, reporting practices, data collection methods and case definitions used, the surveillance data are difficult to compare across countries.

Food- and waterborne diseases and zoonoses

Campylobacteriosis remained the most commonly reported cause of gastrointestinal disease in the EU and EEA/EFTA and in 2007 the notification rate increased by over 15 % compared with 2006. The wide variability in reporting systems between countries combined with a high degree of underreporting known to occur in some countries makes direct comparisons between them very difficult.

In 2007, the notification rate of salmonellosis remained high in the EU and EEA/EFTA countries but the decreasing trend observed since 2004 continued.

A total of 13 952 confirmed cases of hepatitis A were reported by 29 of the EU and EEA/EFTA countries in 2007, and the epidemiological picture of hepatitis A varied greatly across the region. An outbreak of hepatitis A in Latvia started in November 2007 (see Chapter 4).

Environmental and vector-borne diseases

In August 2007, an outbreak of chikungunya fever was reported from Italy with 217 laboratory-confirmed cases. 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.

In 2007 a total of 637 confirmed Q fever infections were reported from 22 of the EU and EEA/EFTA countries, a figure similar to that from 2006 (583). Outbreaks of Q fever were reported in the Netherlands and Slovenia, involving 168 and 86 cases, respectively.

A total of 40 confirmed viral haemorrhagic fever cases, mostly Hantavirus infections, were reported from seven Member States.

Summary of threats 2007

Since the start of the epidemic intelligence activities in July 2005, ECDC has monitored 696 threats up to the end of 2008. In 2008, ECDC monitored 250 threats, of which 227 (91%) were opened in 2008, 14 (6%) were carried over from 2007, and nine (4%) represent recurrent threats. Recurrent threats were related to avian influenza worldwide and in the European region, the worldwide situation of chikungunya fever, poliomyelitis, dengue fever, cholera and measles, as well as new variant Creutzfeldt-Jakob disease and extensively drug-resistant tuberculosis.

In more detail, some of the monitored threats included:

- oseltamivir-resistant influenza A(H1N1) viruses among twenty-one Member States, with proportions ranging from less than 1% in Italy up to 68% in Norway;
- five hepatitis A outbreaks of international concern were monitored in 2008, which represented a significant increase on previous years;
- an outbreak of *Shigella sonnei* affecting more than 140 employees exposed at their office cafeteria in Sweden;
- eighty-five clusters of legionellosis recorded in 2008;
- eleven measles outbreaks reported in 2008 in the EU and EEA/EFTA, resulting in secondary cases in other Member States despite the decrease in incidence of measles in Europe since 2006. This represented an increase of reported outbreaks compared with 2007 (seven) and 2006 (two);
- eleven tuberculosis-related threats evaluated in 2008. The events were all linked to movement of patients suffering from tuberculosis: seven through air travel and three related to maritime travel;
- lethal Marburg virus infection in a tourist returning from Uganda to the Netherlands in July 2008;
- the first case of Crimean-Congo Haemorrhagic fever (CCHF) confirmed in northern Greece in July 2008.

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 and EEA/EFTA have not changed substantially since the previous edition of the AER, but several points need to be emphasised.

The data from 2007 show that antimicrobial resistance constitutes an increasingly important public health hazard in Europe. International travel and trade facilitate the 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.

In the area of healthcare-associated infections, an EU-wide point prevalence survey is needed to assess the burden of all types of infections in healthcare settings in Europe. The elaboration of a European standardised protocol for this prevalence survey is now in the ECDC work programme and will offer an opportunity for different national HCAI prevalence protocols to be adapted so as to allow international comparisons.

In the area of vaccine-preventable diseases, concerns continue to be raised over the possibility that, after introduction of the vaccine, serotypes covered by the pneumococcal conjugated vaccine may be replaced by serotypes not covered, as has already been observed in the United States. For this purpose, more enhanced surveillance, also involving laboratory surveillance, may be necessary in the EU.

As expected, almost 90% of measles cases reported in EU and EEA/EFTA were unvaccinated; a sign that measles is still a problem for population groups with low vaccine coverage. Moreover, all fatal or complicated cases occurred in unvaccinated subjects. Therefore, raising the coverage level in Europe remains a public health priority, even though elimination may not be attained in 2010.

Breakthrough mumps infections sometimes occur in individuals that have received two doses of the MMR vaccine, and this needs to be further explored.

Greater effort has been made by Member States to confirm all the rubella cases they notified, with few exceptions. Improving the sensitivity and specificity of rubella surveillance is paramount in view of the WHO 2010 elimination goal.

The unusual feature of the 2007–08 influenza season was the emergence of the oseltamivir-resistant influenza A(H1N1) virus. This was the first ever observation of a human seasonal influenza virus resistant to a neuraminidase inhibitor which was fully able to transmit from human to human. Surveillance of antiviral resistance among seasonal influenza viruses should continue to monitor the possible re-emergence of resistant strains.

In the area of TB control – within the heterogeneous epidemiological setting in the EU and EEA/EFTA countries – the number of countries with high/intermediate TB incidence remained the same and despite their progress in curbing the epidemic, serious attention from a control point of view is required, including optimisation of surveillance. In some low incidence countries the data showed a continued decline in domestic cases and a clear shift of the epidemic to more vulnerable populations such as migrant populations. The reporting of TB/HIV co-morbidity remained incomplete, coverage of drug susceptibility testing needs to be further expanded, as well as reporting and analysis of resistance to second-line drugs.

The development and implementation of enhanced surveillance of hepatitis B and C are ECDC priorities. Better surveillance data are essential to provide the necessary information for monitoring the trends, to understand the differences in epidemiology and to evaluate prevention programmes in the EU. However, the chronic nature of both these diseases makes it difficult to disentangle incidence from prevalence – just as for HIV infection – and there is no easy solution to this problem.

Finally, in the area of food- and waterborne diseases, future reports will attempt to more clearly separate the data on vero/shiga toxin-producing *Escherichia coli* (VTEC) serogroup O157 and non-O157, as these have very different priorities in the countries' systems and therefore have different coverage – with O157 clearly better covered than the other serogroups.

Table A. Overview of the general trend, EU notification rate and main age groups affected for communicable diseases reported in the EU and EEA/EFTA in 2007. Number of reporting countries (n=30)

Disease	General 10-year trend	EU notification rate per 100 000 (2007)	Main age groups affected (2007)
Respiratory tract infections			
Influenza	⟷	No data	Insufficient data
Avian influenza	↑	0	No cases
Legionnaires' disease (legionellosis)	↑	1.1	65+
Tuberculosis	↓	8.2	25–44
HIV, sexually transmitted infections and blood-borne viral infections			
Chlamydia infection	↑	122.6	15–24
Gonorrhoea	⟷	9.5	15–24
Hepatitis B	↓	1.5	25–44
Hepatitis C	↑	6.9	25–44
HIV	↑	6.0	25–44
AIDS	↓	1.2	25–44
Syphilis	↑	4.4	25–44
Food- and waterborne diseases and zoonoses			
Anthrax	⟷	<0.01	Insufficient data
Botulism	⟷	<0.1	25–44
Brucellosis	↓	0.1	25–64
Campylobacteriosis	↑	46.7	0–4
Cholera	↓	<0.01	25–44
Cryptosporidiosis	↓	2.4	0–4
Echinocccosis	↓	0.2	45–64
Verocytotoxin-producing *Escherichia coli* (VTEC/STEC)	⟷	0.6	0–4
Giardiasis	Insufficient data	61.7	0–4
Hepatitis A	↓	2.8	5–14
Leptospirosis	⟷	0.2	45–64, 25–44
Listeriosis	↑	0.4	65+
Salmonellosis	↓	34.3	0–4
Shigellosis	↓	2.1	0–4
Toxoplasmosis	↓	0.8	5–14
Trichinellosis	⟷	0.2	25–44
Tularaemia	⟷	0.3	45–64
Typhoid/paratyphoid fever	↓	0.2	0–4
Variant CJD	Insufficient data	<0.01	15–24
Yersiniosis	↑	2.9	0–14

Disease	General 10-year trend	EU notification rate per 100 000 (2007)	Main age groups affected (2007)
Emerging and vector-borne diseases			
Malaria	⟷	1	25–44
Plague	Insufficient data	0	No cases
Q Fever	↓	0.2	15–24, 45–64
Severe acute respiratory syndrome (SARS)	Insufficient data	0	No cases
Smallpox	Insufficient data	0	No cases
Viral haemorrhagic fevers (VHF)	Insufficient data	Insufficient data	Insufficient data
Chikungunya	Insufficient data	<0.01	Insufficient data
West Nile Fever	Insufficient data	<0.01	> 15
Yellow fever	Insufficient data	0	No cases
Vaccine-preventable diseases			
Diphtheria	↓	<0.01	45–64, 5–14
Invasive *Haemophilus influenzae* infection	⟷	0.5	65+, 0–4
Invasive meningococcal disease	↓	1.0	0–4
Invasive pneumococcal infection	⟷	6.3	65+, 0–4
Measles	↓	0.6	0–4
Mumps	↓	4.3	5–14
Pertussis	↓	4.4	5–14
Poliomyelitis	Insufficient data	0	No cases
Rabies	Insufficient data	<0.01	Insufficient data
Rubella	↓	1.2	0–4
Tetanus	↓	<0.1	65+
Antimicrobial resistance and healthcare-associated infections			
AMR	↑	Not applicable	No data
Nosocomial infections	↑	Not applicable	No data

1 Introduction

1.1 Background

The ECDC long-term strategy for surveillance of communicable disease in Europe[1] relies on a two-pronged approach: the 'indicator-based surveillance' gathering data routinely collected on communicable diseases under mandatory notification, and the 'event-based surveillance' gathering data on emerging threats though epidemic intelligence.

This report aims to give an overview of the situation of communicable diseases in Europe, using data on the 47 communicable diseases and two health issues for which surveillance is mandatory in the EU and three EEA/EFTA countries (indicator-based surveillance) as well as communicable disease threats detected through routine epidemic intelligence at ECDC (event-based surveillance). The report is based on data collected for 2007 from the surveillance systems of the Member States and uploaded into The European Surveillance System (TESSy); selected data and reports made available by the Dedicated Surveillance Networks (DSNs); reports from the Member States though the Early Warning and Response System (EWRS); epidemic intelligence information collected by ECDC in 2008 from other sources such as international stakeholders (e.g. WHO) and the media; and various technical and scientific reports and publications related to the epidemiological situation of communicable diseases in 2007 and the threats they posed during 2008.

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 prevention and control programmes and plans dealing with these diseases.

1.2 Structure of the report

A more comprehensive Annual Epidemiological Report will be produced every three years; otherwise a more focused report, as is this report, will be published. The report comprises:

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 vaccine-preventable diseases across Europe. Together with a discussion of the major challenges in this area it also explores measures for prevention and control.

Chapter 3 is the section containing the epidemiological situation of communicable diseases in Europe in 2007, 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.

Chapter 4 summarises the main communicable disease threats identified and investigated by the Member States through the EWRS and by ECDC through epidemic intelligence during 2008.

References are listed after each chapter or sub-chapter.

1.3 Description of methods for chapter 3

This section describes the main data sources and their limitations. This Epidemiological Report on Communicable Diseases in Europe has continued to show improvements in the harmonisation of systems, definitions, protocols and data at the EU level. Nevertheless, the basic epidemiological data provided by the Member States still show a number of inconsistencies. There are several 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.

Data collection

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) and additional data validation was conducted by ECDC staff. The deadline for updates and corrections to the data was 31 January 2009.

For the description of the 2007 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 (in some cases updating what they had previously submitted to the DSN) as cases or aggregate numbers directly to ECDC. The ECDC data managers helped the Member States to validate their submission. All data were made available to the Member States for overview of the data submissions in online overview tables. 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 where the case categories were not available, 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 comprehensive 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' as true estimates of incidence require further studies and information than can be supplied by the routine surveillance system) for all countries that provided information throughout the whole of 2007. This table suffers from the limitation that some countries report figures that were collected by sentinel systems or by voluntary notification systems that are known not to be nationally representative. These figures would then be 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 then 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 database 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 2007. For the age- and gender-dependent rates, age- and gender-specific population data from EUROSTAT were again used: the 'Population by sex and age as on 1 January of each year' dataset for 2007. 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 2007, 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, date of notification, or any other date the country uses in its report.

1.4 Description of methods for chapter 4

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.

When it became operational in 2005, ECDC started to gather and analyse data and information on emerging public health threats. For this purpose a monitoring tool (Threat Tracking Tool – TTT) was created to keep track of the epidemic intelligence activities. Epidemic intelligence activities consist of screening news from public and confidential sources, filtering the relevant ones, validating them, assessing their public health impact to the EU and communicating the findings. The monitoring is done on a 24 hour basis, seven days a week, 365 days a year. Since November 2007, ECDC has been assisting the European Commission by hosting and operating the EWRS.

Approximately 600 news items from several thousand sources are screened every day by ECDC analysts. Based on the judgment of the analyst, relevant items are filtered out and reported events are then validated and become 'signals' or 'potential threats'. Approximately 25 to 30 signals are brought daily to the round table meeting where they are assessed by a panel of experts.

As a result of this initial assessment, threats meeting a criterion for monitoring (see below) are entered in the TTT. In addition, all events reported through the EWRS are entered into the TTT. If further actions beyond monitoring are requested, an internal response team is assembled and requested to feed back to the 'round table' experts. Such response activities include obtaining further information from health authorities, conducting a threat assessment, or informing the European Commission or other relevant stakeholders in the event that rapid control measures have to be implemented. Other response activities include field missions or organisation of expert meetings.

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.).

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[2] 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.

Hence, the criteria for considering potential threats to be monitored are:

- more than one Member State is affected (reported cases or exposure);
- new disease or unknown disease, even without cases in the EU;
- request from any Member State or from third parties for ECDC to deploy a team;
- request for ECDC to prepare an assessment of the situation;
- documented failure in control measure including vaccination or treatment;
- documented change in the clinical/epidemiological pattern of the disease including changes in the severity, transmission, etc.;
- matching any of the criteria under the International Health Regulations;
- matching any criteria for notification to EWRS;
- potential for high media impact at EU level.

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.

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 Regulations (2005).
- 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.

References

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

2 Vaccine-preventable diseases and immunisation programmes

2.1. Introduction

Preamble

Vaccination is one of the most cost-effective measures for the prevention and control of infectious diseases. In a recent exercise carried out in the United States, the childhood vaccination schedule ranked first in terms of health impact and cost effectiveness among a large selection of 25 clinical preventive services, that included public health measures like tobacco reduction, cancer screening, etc[1].

Under certain conditions vaccination can even lead to complete disease eradication as demonstrated in the case of smallpox. The single last natural case of smallpox occurred 1977 in Somalia[2]. Immunisation efforts have also led to the elimination of polio in most regions of the world including Europe. Despite continuing circulation of wild polio virus in a few countries (Nigeria, India, Pakistan, and Afghanistan) the worldwide incidence has fallen by 99 % in less than 20 years; from 350 000 cases in 1988 to 2 000 cases in 2006[3,4].

According to the World Health Organization (WHO) and the United Nations Children's Fund's (UNICEF) 2007 *Immunization Summary*[5], more than 2.5 million deaths a year are prevented in all age groups as a result of vaccination against four diseases: diphtheria, tetanus, pertussis and measles.

Which diseases are preventable by vaccination?

A large number of communicable diseases can be currently prevented by vaccination and several new vaccines are in development.

Diseases for which vaccination forms part of most childhood immunisation schedules in Europe are diphtheria, tetanus, polio, pertussis, measles, mumps, rubella, *Haemophilus influenzae* type b infections, and hepatitis B. Those diseases primarily will be discussed in this chapter.

However, according to the availability of vaccine products on the market, the list of vaccine-preventable diseases contains an additional 20 or more infectious diseases: influenza, tuberculosis, hepatitis A meningococcal and pneumococcal disease, human papillomavirus infection, rotavirus infection, varicella/zoster, rabies, typhoid fever, cholera, yellow fever, tick-borne encephalitis, Japanese encephalitis, and even more. Further, a number of important vaccines are under development for diseases such as HIV/AIDS and malaria.

Sometimes the term 'vaccine/vaccination' is improperly used when referring to other immunological treatments. That is why very often we read 'vaccine against asthma' or even 'vaccine for cancer treatment'. In many cases they are specific therapeutic treatments that involve products like allergens, immunoglobulins and monoclonal antibodies.

This can create confusion because *real* anti-cancer vaccines are already extensively used in public health, namely vaccines against hepatitis B infection (the leading cause of liver cancer) and human papillomavirus infection (a cause of cervical cancer).

In summary, a wide spectrum of diseases are 'vaccine-preventable'. They can be caused by viruses, bacteria, protozoa; they can be more or less severe; they can be transmitted in a variety of ways; they can primarily affect people belonging to different age groups or living in different geographical areas; it may or may not be possible to eliminate them. Yet all of them have a common characteristic: they can be prevented with a pharmaceutical product that is intended to be administered to healthy subjects, very often children, in order to protect them from future disease and/or infection.

This common characteristic distinguishes vaccine-preventable diseases from other infectious diseases and makes it worth approaching them collectively as an overarching priority issue in the public health panorama.

A story of success and challenges

The great social value of vaccination has been widely recognised since the nineteenth century. For example, there is abundant historical evidence of monarchs all over Europe who provided economic support for those people that could not afford the cost of smallpox vaccination.

The success of smallpox elimination was due to strong political and financial international commitment.

Building on that success, increasingly ambitious targets have been set in the field of infectious disease prevention worldwide. The Expanded Programme of Immunisation (EPI), launched by WHO in the 1980s, targeted tuberculosis, polio, diphtheria, tetanus, pertussis, and measles, and provided technical and financial support for a large group of eligible countries. In 2000, a new public-private partnership, the Global Alliance for Vaccines and Immunization (GAVI), was launched with the aim of supporting the WHO goals by facilitating access to immunisation through an innovative funding system. At present 72 countries are GAVI-eligible worldwide. Only seven of them are part of the European Region of the WHO. No EU country is today eligible for any GAVI financial support[6].

More recently, WHO and UNICEF developed the Global Immunization Vision and Strategy (GIVS). In brief, GIVS aims to assist countries to immunise more people, from infants to seniors, with a greater range of vaccines. It covers the period 2006–15[7].

GIVS goals for 2010 are to:

1. *Increase coverage*. Countries will reach at least 90 % national vaccination coverage and at least 80 % vaccination coverage in every district or equivalent administrative unit.

2. *Reduce measles mortality.* Globally, mortality due to measles will have been reduced by 90% compared with the 2000 level.

Notwithstanding such international mobilisation, several challenges are ahead of us[8]: measles still remains a leading cause of death among children (in 2006, 242 000 measles deaths were estimated globally); more than one million child deaths could be prevented if pneumococcal and rotavirus vaccines could be provided globally; and last but not least, several obstacles are still hindering polio eradication.

Vaccination in the EU and EEA/EFTA countries

Vaccination, together with overall socioeconomic improvements, has had a dramatic impact on the infectious disease burden in the EU, as in other industrialised countries. Polio has been eliminated, tetanus and diphtheria are under control, the incidence of pertussis decreased tenfold after vaccine introduction, and measles and rubella are targeted for elimination. However, in these countries vaccination is a victim of its own success. In fact, the virtual disappearance of severe vaccine-preventable diseases like polio, tetanus and diphtheria has meant that vaccines nowadays evoke a mixed and often confused response from the public. Very often the perception of the risk has shifted from the disease to the vaccine.

As a result, public health authorities have to face a paradoxical situation worldwide: in developing and transition-economy countries they are fighting against the chronic lack of resources in order to meet the demand for vaccination; by contrast, in industrialised countries, where vaccination typically represents only 1% of global pharmaceutical expenditure, very often the biggest task is to provide effective communication to reassure the public about vaccine safety and effectiveness.

In the following sections facts and data will be discussed in order to provide a summary picture of the overall situation of the vaccination programmes in the EU, including both success already achieved and the big challenges ahead.

2.2 Vaccination programmes in the EU and EEA/EFTA countries

Vaccination programmes in the EU are set exclusively at national level, as vaccination policy is the exclusive competence of the Member States. As a consequence,

Table 2.2.1. Overview of the vaccine offer in EU and EEA/EFTA countries

Country	DTP, Polio, MMR	Hib	HBV	PCV7	HPV
Austria	Yes	yes	universal	universal	introduced
Belgium	Yes	yes	universal	universal	introduced
Bulgaria	Yes	not yet	universal	none	recommended
Cyprus	Yes	yes	universal	universal	no decision
Czech Republic	Yes	yes	universal	risk-based	no decision
Denmark	Yes	yes	risk-group	universal	recommended
Estonia	Yes	yes	universal	none	no decision
Finland	Yes	yes	risk-group	none	no decision
France	Yes	yes	universal	universal	introduced
Germany	Yes	yes	universal	universal	introduced
Greece	Yes	yes	universal	universal	introduced
Hungary	Yes	yes	universal	risk-based	no decision
Iceland	Yes	yes	risk-group	risk-based	no decision
Ireland	Yes	yes	universal	universal	suspended
Italy	Yes	yes	universal	universal/risk-based*	introduced
Latvia	Yes	yes	universal	none	no decision
Lithuania	Yes	yes	universal	none	no decision
Luxembourg	Yes	yes	universal	universal	introduced
Malta	Yes	yes	universal	risk-based	no decision
Netherlands	Yes	yes	risk-group	universal	no decision
Norway	Yes	yes	risk-group	universal	recommended
Poland	Yes	yes	universal	none	no decision
Portugal	Yes	yes	universal	none	introduced
Romania	Yes	not yet	universal	none	no decision
Slovakia	Yes	yes	universal	universal	recommended
Slovenia	Yes	yes	universal	risk-based	recommended
Spain	Yes	yes	universal	risk-based	introduced
Sweden	Yes	yes	risk-group	universal	no decision
United Kingdom	Yes	yes	risk-group	universal	introduced

Source. VENICE.
* PCV7 offer is different among the Regions.

vaccine offer, delivery services, access to vaccination, and immunisation schedules differ widely, reflecting the differences in the way healthcare, education and childcare are organised in each country.

Vaccination offer in childhood and adolescence

The VENICE project in 2007 conducted an EU-wide survey in order to collect information on childhood and adolescent immunisation programmes in 29 countries (EU-27 plus Iceland and Norway)[9]. As a part of that survey a general description of the programme was provided by each country. Those descriptions are also available on the ECDC website, published in the bi-weekly V&I Newsletter[10]. What the VENICE survey shows is a very large variation in the vaccination offer.

Table 2.2.1 gives a summary of the vaccination offer in EU and EEA/EFTA countries, according to the available sources of data.

A small group of vaccines constitute the common basis of the vaccination schedules in all Member States: polio, DTP (diphtheria, tetanus, pertussis), MMR (measles, mumps, rubella).

Hib vaccine is offered in almost all countries with the exception of Romania and Bulgaria, where discussion is ongoing and the inclusion of Hib in the national programmes is only a matter of time.

Hepatitis B vaccine (HBV) is offered—either as infant, newborn or adolescent universal vaccination—in most EU countries. However, a number of Member States in northern Europe have not yet introduced HBV into their routine programmes, because of controversial results from cost-effectiveness studies[11]. In those countries strategies focusing on risk groups have been implemented instead. Risk-group vaccination has also been introduced as a complementary part of the HBV immunisation programmes in those countries where universal vaccination is in place.

By 2008, universal childhood vaccination with the conjugate 7-valent pneumococcal vaccine (PCV7) was part of the national programme in 15 countries[12]. This compares favourably with 2006, when universal vaccination was recommended in only 11 countries[13].

As of January 2008, 15 European countries have recommended the introduction of human papillomavirus (HPV)

Table 2.2.2 Vaccination coverage in the EU and EEA/EFTA countries. Average of period 2003–07

Country	DTP3	Polio3	Hib3	MMR1	MMR2
Austria	85.2	85.2	85.2	80.1	60.2
Belgium	95.8	97.2	95.0	87.2	No data
Bulgaria	95.3	95.6	—	95.6	92.0
Cyprus	97.4	97.1	70.5	86.5	93.0
Czech Republic	97.6	97.3	97.8	98.0	96.9
Denmark	90.4	90.4	90.4	95.2	89.2
Estonia	95.0	95.2	61.8	95.6	96.9
Finland	97.8	96.6	96.9	97.2	No data
France	96.7	96.7	80.9	88.3	66.7
Germany	94.8	95.0	91.7	93.3	65.9
Greece	88.0	87.0	88.0	88.0	No data
Hungary	99.8	99.9	99.8	99.9	99.6
Iceland	97.0	97.0	97.0	93.2	91.8
Ireland	89.7	89.8	89.6	83.4	No data
Italy	95.0	95.5	92.8	85.3	No data
Latvia	98.0	97.9	95.4	96.9	96.8
Lithuania	94.2	92.5	59.1	97.2	94.2
Luxembourg	99.1	98.7	98.4	95.6	No data
Malta	80.0	80.4	77.2	87.3	56.2
Netherlands	96.9	97.5	96.8	96.0	96.0
Norway	91.6	91.6	93.4	89.0	90.8
Poland	98.8	98.6	46.7	97.9	86.6
Portugal	96.2	95.2	96.0	95.1	95.0
Romania	97.1	97.1	—	97.0	96.3
Slovakia	99.0	98.8	99.0	98.4	98.5
Slovenia	93.3	93.9	93.9	93.1	98.8
Spain	97.0	97.1	96.8	97.1	93.0
Sweden	98.7	98.7	98.4	95.3	95.1
United Kingdom	91.2	91.4	91.4	82.8	75.6

Source: WHO-CISID.

vaccine; an official decision by national authorities has subsequently been taken in 10 of them, all favouring vaccine introduction[14].

By contrast, national authorities have so far delivered recommendations in favour of rotavirus vaccination in very few EU countries. Similarly, there is very limited experience of universal varicella vaccination in the EU.

Finally, universal influenza vaccination of children 6–35 months old was introduced in Finland in 2007, the only country in Europe to have done so to date.

Vaccination coverage

There is no standardised system in the EU for collecting data on vaccination coverage. Among the systems used are administrative methods, surveys and computerised records systems. Further, coverage is assessed at different ages and with different timings. Clearly this makes any comparison between countries difficult.

Table 2.2.2 shows data collected by the WHO European Regional Office through the centralised information system for infectious diseases (CISID)[15], that at present is the only available consolidated source of data. An average of data for the five-year period 2003–07 has been used in order to make the estimate more stable.

Vaccination coverage for three doses of DTP, polio and Hib vaccines is high all over the EU; nevertheless 10 countries have coverage levels below 95 %, of which four are below 90 %.

Sixteen EU and EEA/EFTA countries report coverage of one-dose MMR vaccine at over 95 %, but only 10 have the same levels for the second dose. No data on coverage with two doses of MMR vaccine were available from six countries.

2.3 An overview of the epidemiology of vaccine-preventable diseases in the EU and EEA/EFTA countries

Poliomyelitis

The EU and EEA/EFTA countries have been officially polio-free since 2002. Vaccination, together with disease surveillance and environmental control, have been highly effective in eliminating polio. The last large polio outbreak affected the Netherlands in 1992–93, when 79 persons were infected, 59 had paralysis and two died. The virus was imported from India, via the Middle East and Turkey and spread among a community that refused (and still refuses) vaccination for religious reasons. The last imported cases in the EU were three babies in 2001 living in Bulgaria and belonging to a Roma ethnic community[16]. In the pre-vaccination era about 30 000 annually were affected by polio paralysis in the WHO European Region.

Tetanus and diphtheria

Tetanus and diphtheria vaccination was introduced in Europe in the 1960s. Since then, good control has been achieved for both diseases. Nevertheless, both tetanus and diphtheria still pose several challenges. In the EU and EEA/EFTA Member States, between 100 and 200 tetanus cases are still reported every year, the majority of them in non-vaccinated adults and elderly people. Diphtheria is under control in the whole western part of Europe. Since 1995, most of the cases have occurred in the Baltic States, particularly in Latvia, connected with the large outbreak that involved the Russian Federation in the 1990s. Currently, Latvia is still observing a small number of cases, and sporadic imported cases are notified by other EU countries. Sero-epidemiological studies have been carried out at European level (ESEN Study). There are large differences among countries in the proportion of adults with insufficient levels of protection against diphtheria: for example, 35 % of 50–60 year-olds were found to be seronegative in Finland compared with 70–75 % in the same group in the United Kingdom[17].

Pertussis

The availability of acellular pertussis vaccines has considerably improved the control of this disease in the EU and EEA/EFTA over the last decade.

In recent years, the overall trend of pertussis showed a decline, from over 11 reported cases per 100 000 population to 4.4 per 100 000 in 2007[18,19].

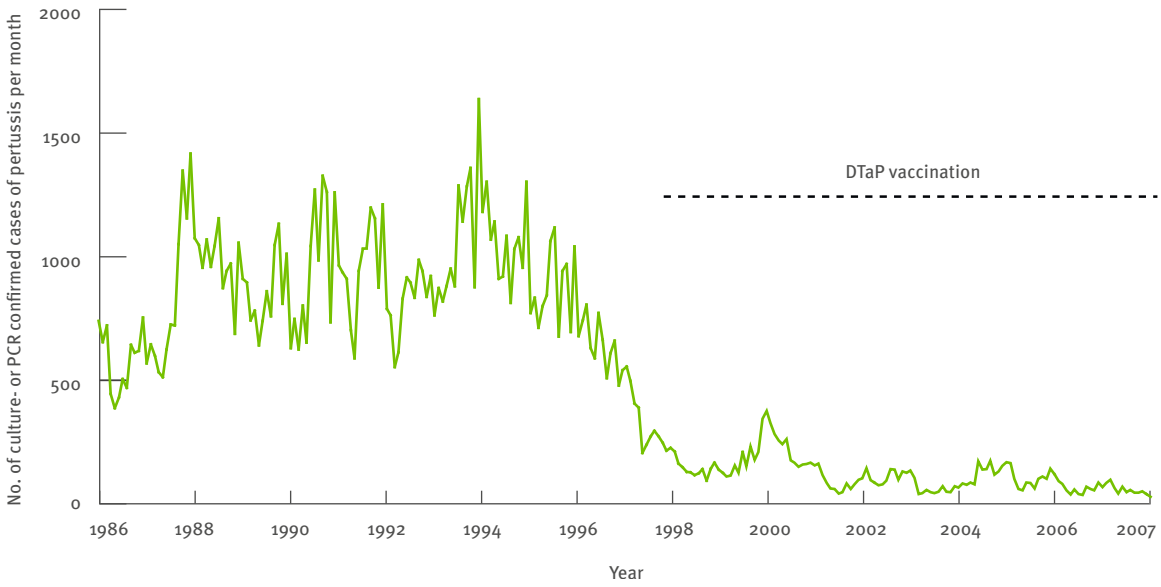
Sweden has recently published the results of ten years' surveillance of pertussis, being one of the few examples of a surveillance system dedicated to pertussis. Sweden, together with Italy, has been one of the first countries that introduced acellular vaccines into the childhood schedule and a thorough evaluation has been carried out since the beginning of the vaccination programme. A dramatic drop of laboratory-confirmed cases was the result of the vaccination programme in Sweden (see Figure 2.3.1). On the other hand the study showed waning protection from five years after the third dose. This explains a resurgence of pertussis cases among adolescents.

Measles, mumps and rubella

Notwithstanding the elimination goal set for 2010 for measles and congenital rubella, measles is still endemic in many EU countries as a result of sub-optimal MMR coverage levels and insufficient catch-up policies. As recently as 2006, 7 232 confirmed measles cases were reported by the EU and EEA/EFTA Member States. Remarkably, six measles-related deaths were reported in the same year from Romania (three), UK (one) and Germany (two). In addition, acute encephalitis linked to measles infection was reported in a further eight cases[19,20].

The numbers of reported cases of measles fluctuate from one year to another: 2 817 in 2007 (see Chapter 3.5)

Figure 2.3.1. Number of monthly laboratory-confirmed cases of pertussis in Sweden, 1986–2007



Source: Pertussis surveillance in Sweden. Progress Report October 1, 1997 – December 31, 2007. Swedish Institute for Infectious Disease Control. Full report accessible at the following link: http://www.smi.se/in-english/activities/the-swedish-vaccination-program/pertussis-surveillance/

and 5688 in 2008[i], and most EU countries continue to report annual incidence rates very far from the elimination goal that is set to 'less than 1 case per 1000000 population'[20]. The burden of disease for measles in the EU is discussed further in section 2.5, below.

Similarly, both rubella and mumps are still a priority in the EU. In 2006 over 50000 mumps cases and over 25000 rubella cases were reported by 25 countries[19].

Hepatitis B

In the early 1990s hepatitis B infection showed different patterns of endemicity in Europe from very low (less than 0.5%) to medium levels (2–7%) of chronic carriers among the population. After the introduction of HBV vaccination programmes in most EU countries, the endemicity patterns changed considerably. Effectiveness of HBV vaccination on disease incidence has been largely demonstrated both in Europe and worldwide, especially in medium endemicity countries[21,22]. In northern Europe, vaccination of risk groups has been considered effective for disease control. Nevertheless, a recent re-evaluation of hepatitis B epidemiology (see Figure 2.3.2) led to a change of vaccination policy in Ireland, which switched to a universal vaccination programme in 2008. 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 100000 population[19]. 2007 data are available in Chapter 3.

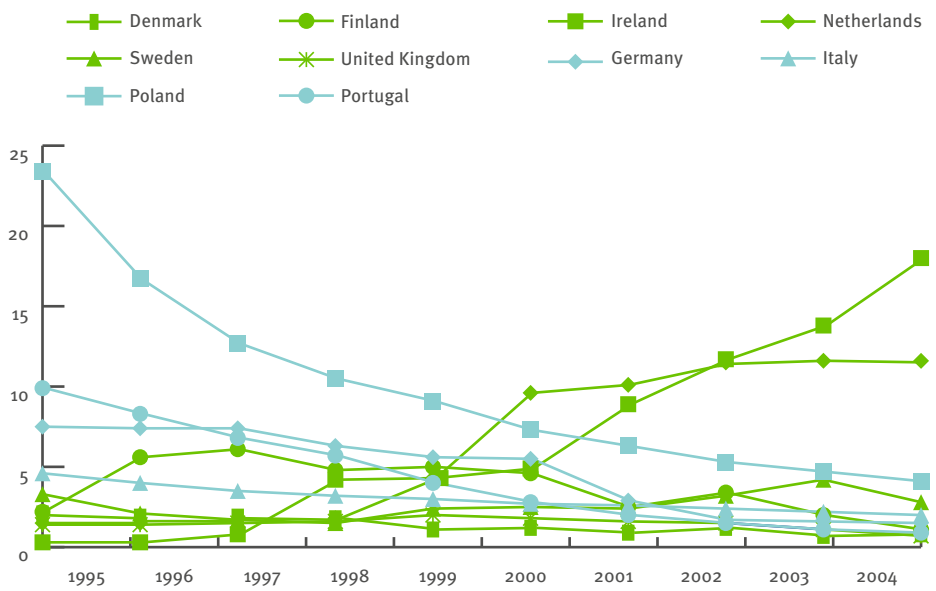
Haemophilus influenzae type b

Unfortunately, available data on Hib incidence are patchy and strongly depend on the quality of the surveillance systems. According to the EU-IBIS report, the invasive Hib incidence in children under 15 years varied in 2006 between 0.00 per 100000 in Hungary, Iceland, Latvia and Malta to 12.02 per 100000 (eight cases) in Estonia, with the next highest incidence being 2.62 (eight cases) in Ireland, and Czech Republic and UK also having incidences above 1 per 100000. The European average incidence in those under five years of age in 2006 was 0.58 per 100000 population[23]. In 2007 78 Hib invasive infection cases were reported in 0–4 year-old children.

The experience of the UK is that after the implementation of an accelerated vaccination programme in 1992, the disease has been nearly eliminated thanks to a strong 'herd immunity' effect[24]. However, since 1999 a new increase in the number of cases of Hib had been observed in the UK[25]. This led to the introduction of a booster Hib vaccine dose into the schedule that re-established the herd immunity and the subsequent control of the disease[26]. Studies conducted in many other countries after Hib vaccine introduction demonstrated a dramatic impact on the disease incidence[27,28].

i Provisional data from EUVAC.NET.

Figure 2.3.2. Acute hepatitis B notification rates per 100 000 population, 1995–2004 in selected EU countries



Countries with universal HBV vaccination shown in turquoise, countries with HBV immunisation strategies for risk groups only shown in green.

2.4 Surveillance of vaccine-preventable diseases in the EU and EEA/EFTA

Vaccine-preventable diseases in the EU legislation

The list of diseases for European-wide surveillance includes a large number of vaccine-preventable diseases: diphtheria, pertussis, tetanus, hepatitis B, poliomyelitis, measles, mumps, rubella, rabies and invasive bacterial diseases due to *Haemophilus influenzae, Neisseria meningitidis* and *Streptococcus pneumoniae*.

The legal basis is Commission Decision 2000/96/EC Annex 1, which lists a number of diseases that should be notified at EU level[29]. This list has subsequently been updated by Decisions 2003/534 and 2007/875[30,31]. It was prepared with the aim of facilitating the activities of the community networks and defining the diseases that should be covered by those networks, for surveillance and epidemiological activities.

This Decision is therefore complementary to Decision 2119/98[32] of the European Commission, which delineates a sets of rules and criteria to set up EU networks for the epidemiological surveillance and control of communicable diseases in order to collect, update, analyse and disseminate Member States' data on such diseases and to work with national and international agencies on these matters, as well as to set up an early warning and response system for prevention and control.

Decision 2119/98 follows the resolution of the European Parliament on public health policy after Maastricht[33], and both of them have been written to promote cooperation and coordination between the Member States, with the assistance of the Commission, with a view to improving the prevention and control in the Community of the list of the diseases under the EU surveillance.

However, until now, some diseases, such as varicella, rotavirus and human papilloma virus (HPV), for which vaccines have only recently become available on the EU market[34], are not included in the Commission list and are therefore not monitored at EU level.

Dedicated Surveillance Networks (DSN) in the EU for vaccine-preventable diseases

In 1999, on the basis of Decision 2119/98, two VPD networks were set up by a consortium of national public health institutes in the Member States and funded by the European Commission, with the main aim of improving comparability of data across Member States and producing overall incidence trends for the EU.

The first one, the European Union Invasive Bacterial Infection Surveillance Network (EUIBIS), carried out the surveillance of *Haemophilus influenzae* and *Neisseria meningitidis* in Member States from 1999 to 2006[35].

The hub was based at the immunisation department of the national public heath institute of the UK (the Health Protection Agency) until October 2007, when the coordination of the network was transferred to ECDC. The network comprised both epidemiological and laboratory components.

The epidemiological activities were focused on collecting and collating epidemiological data from Member States

on cases of *Neisseria meningitidis* and *Haemophilus influenzae* infection as well as on evaluating the impact of vaccination programmes with conjugate vaccines on the epidemiology of both diseases.

The laboratory component was mainly focused on strengthening the laboratory capacity to accurately characterise the isolates of *N meningitidis* and *H. influenzae* using standardised methods in the countries, mainly through EQA and training.

The network worked in close collaboration with the European Monitoring Group on Meningococci (EMGM) to integrate epidemiological and molecular components of the surveillance of meningococcal disease in the EU.

The surveillance of *N. meningitidis* and *H. influenzae* is currently coordinated by the Surveillance Unit of ECDC. The epidemiological component of the former EUIBIS network has been integrated into the EU database developed by ECDC (TESSy) while the laboratory one has been outsourced to a consortium of European laboratory experts.

The other VPD network created in 1999 and funded by the European Commission until October 2008 is the European Vaccine Network (EUVACNET)[36]. Its hub is based in the national public health institute of Denmark (Statens Serum Institut). The network is now funded by ECDC and coordinates the EU surveillance of measles, rubella, pertussis, mumps and varicella.

The current activities are mainly focused on measles reporting and quarterly reports are available on the EUVACNET website[37]. The network also maintains a private forum where national gatekeepers can report information on clusters and outbreaks of the diseases under surveillance, to be shared with the network members. An inventory of sentinel physician/paediatrician networks in Member States was also carried out by the network in order to estimate/measure accurate denominators for these systems.

EUVACNET is currently working in close collaboration with WHO to support the goal of the measles elimination in the coming years and recently published an epidemiological assessment of measles in the EU, pointing out that, due to suboptimal vaccination coverage in many Member States, there are serious doubts that the WHO goal of elimination by 2010 can be achieved[38].

In 2006 another network was created and funded by the European Commission, the Diphtheria Surveillance Network (DIPNET)[39], which aims to create a European group of experts for the prevention of diphtheria and other related infections caused by toxigenic and non-toxigenic strains of *Corynebacterium diphtheriae* and *Corynebacterium ulcerans*.

In liaison with ECDC, DIPNET is undertaking an extensive assessment of public health surveillance for diphtheria within all EU Member States and associated countries.

Another important activity of DIPNET is to develop novel tools for integrating molecular epidemiological characterisation into routine surveillance to gain a clearer understanding of the spread of epidemic clones throughout the European Region.

DIPNET was evaluated by ECDC in early 2009 and the activities of the hub will be transferred to ECDC in November 2009.

Surveillance of VPD in the Member States

Each Member State has its own surveillance system and its own practices, sometimes long-established, for each of the VPD included in the EU list of notifiable diseases.

National surveillance systems and methods are quite heterogeneous in terms of type of surveillance in place, population covered, source of data, type of data collected, minimum dataset available, and reporting systems (e.g. different reporting levels, ranging from the local physician/laboratory level to the regional and national level before reaching the international level).

Table 2.4.1. Overview of the main characteristics of VPD surveillance systems by disease in the EU and EEA/EFTA countries

Disease	Compulsory/ Voluntary Reporting		Comprehensive/Sentinel System		Active/ Passive Reporting		Case based/ Aggregated Records		Source (Hospital, Physician, aboratory, Other)				National coverage	
	C	V	C	S	A	P	CB	A	H	Ph	Lab	O	Yes	No
Diphtheria	28	2	30	1	2	29	29	1	18	26	22	9	30	1
Tetanus	23	0	23	1	2	22	22	1	16	22	14	6	23	1
Pertussis	26	3	28	2	3	27	28	1	16	23	21	7	29	1
Measles	28	4	31	2	4	29	32	0	20	28	24	10	32	1
Mumps	24	1	24	3	5	22	24	2	16	23	17	6	25	1
Rubella	26	2	27	2	3	26	26	2	17	25	19	7	28	1
Hepatitis B	27	2	27	2	3	26	26	2	17	26	20	8	28	1
Haemophilus influenzae b	25	3	26	3	4	25	28	1	18	23	21	8	27	2
Polio	28	3	31	1	3	29	30	1	21	29	23	11	31	1

Source: Tessy, 2007 data.

Some countries may have basic surveillance in place for a certain disease while others have a more enhanced system for the same disease.

In addition, there are also country-specific differences in the way healthcare systems are organised, and variability in the facilities and equipment available for diagnostics. All these factors contribute to the great diversity of national surveillance systems. This is illustrated in Table 2.4.1, which shows the main characteristics of the surveillance systems in place for each VPD in each country. Focus has been put on the description of the following parameters: compulsory versus voluntary system, comprehensive versus sentinel, active versus passive surveillance, case-based versus aggregated reporting, population covered and source of data (physician, laboratory, hospital and other sources).

Therefore, it is often difficult to compare data across Member States and pooled data for trends analysis should be interpreted with caution.

ECDC role in the VPD EU surveillance

A new surveillance approach for the EU
One of the key responsibilities of ECDC is surveillance: on the one hand to consolidate the European surveillance activities of the past years and integrate the relevant elements into ECDC and on the other hand, to take further the European vision of surveillance and to develop a strategy for outlining the transition from the project-based approach distinctive of the networks funded by the Commission to a more coordinated, and sustainable approach managed by ECDC.

In fact, due to the heterogeneity of the surveillance systems across Europe, a more harmonised surveillance strategy[40] is necessary to improve the comparability of data, enhance the detection of international outbreaks, ensure the inclusion of diseases under surveillance according EU priorities, and allow easier access to, and use of, data.

The European Surveillance System
Therefore, ECDC has been developing a system for infectious disease indicator-based surveillance at the European level, called 'The European Surveillance System (TESSy)'. TESSy is now in its first year of activity and is a valuable tool to improve the collection, validation, storage and dissemination of surveillance data from the EU Member States and other EEA countries.

Basic and enhanced surveillance for VPD
With regard to the VPD, TESSy is currently collecting a core minimum amount of data on each one (basic surveillance), in order to provide a basic picture of the epidemiology of the disease in each Member State. The core set of indicators can thus be compared across countries by disease, time, place and person.

For invasive bacterial infections (IBI), which were covered by the former EUIBIS surveillance, TESSy, on the basis of the former EUIBIS dataset, developed a more detailed set of variables in order to better define the laboratory information collected (enhanced surveillance).

Data on IBI for 2007 have been collected by using this enhanced meta-dataset and a report with the main results is under preparation. By the end of 2009, 2008 data will also have been collected.

Who are the VPD surveillance contact points in the Member States?
With the integration of the coordination of the work of DSNs into ECDC, some changes have been necessary. In accordance with Regulation (EC) No 851/2004[41], Member States have nominated Competent Bodies to work in various areas within ECDC's remit, including surveillance[42]. This means that ECDC relies on the Competent Bodies for surveillance to confirm (or replace) the current DSN members and to nominate epidemiological and laboratory contact points for each of those diseases where no network is in place (with one person possibly covering more than one disease).

With regard to IBI, disease experts, both epidemiologists and microbiologists, have been nominated by the Competent Bodies for surveillance in each Member State.

A new case definition adopted
Since 2008 an updated EU case definition has been available for all communicable diseases, including VPD.

In accordance with Article 9 of Regulation (EC) No 851/2004, ECDC provided, at the request of the Commission and in agreement with its Advisory Forum, a technical document on case definitions aiding the Commission in the development of intervention strategies in the field of surveillance and response. The technical document was the basis for Commission Decision 2008/426/EC[43], amending also Decision 2002/253/EC[44].

These case definitions should be used for case notification so as to achieve uniformity in reporting.

Challenges at ECDC for the VPD surveillance by 2010

As for the other communicable diseases, the main challenges for the coming years are: to improve comparability of data across Member States; to facilitate the integration of the epidemiological and laboratory surveillance; and to promote the standardisation of laboratory tests to be used in the routine surveillance of VPD.

A set of variables for the enhanced surveillance of diseases as measles, rubella and pertussis will be created and shared with WHO EURO.

Disease-specific experts will be nominated by the Competent Bodies for those diseases that are now included in the EUVACNET and DIPNET, soon after their transition.

Streptococcus pneumoniae and IBI surveillance
So far there is no enhanced surveillance for *Streptococcus pneumoniae* at the EU level.

Between 2000 and 2003 the EU-funded project Pnc-Euro tried to assess the epidemiology of *S. pneumoniae* prior to the introduction of the conjugate vaccines. As part of this project, in 2003 an inventory of the EU systems was done and the main results were published in a peer-reviewed journal in 2006[45,46].

In 2007, ECDC launched a project to continue the activities in this field through outsourcing. A new survey was conducted among Member States in 2008 to update the inventory already available and to highlight strengths and weaknesses of each surveillance system. A report has been prepared and the main results will be published in 2009.

One of the main goals for IBI surveillance is to delineate a set of variables for EU enhanced surveillance by 2010 after being tested in a pilot phase. Following that, EU surveillance covering *H. influenzae*, *N. meningitidis*, and *S. pneumoniae* will be built up which will have both epidemiological and laboratory components, including more advanced molecular typing methods for the case diagnosis.

More diseases under EU surveillance
It is advisable to include diseases such as varicella and rotavirus in the list of notifiable diseases in the EU, due to their relatively high incidence and the availability of vaccines on the EU market. ECDC will discuss this process with Member States and advocate it with the Commission.

2.5. Measles and congenital rubella elimination

In 2002 the WHO Regional Office for Europe developed and implemented a strategic plan targeting the elimination of measles and the prevention of congenital rubella infection (CRI).

In 2005, at the 55th session of the WHO Regional Committee for Europe, a resolution was approved on strengthening national immunisation systems through measles and rubella elimination and the prevention of CRI. In the resolution, the Regional Committee urges Member States to 'to commit themselves and give high priority to achieving measles and rubella elimination and congenital rubella infection prevention targets by 2010'[47].

According to the WHO, substantial successes have been achieved within the European Region regarding the control of measles and rubella:

- all 53 countries of the Region now have a routine 2-dose measles vaccination programme;
- all but one country has introduced rubella vaccine;
- reported measles incidence in the European Region in 2008 dropped almost 90 % from 2006 level; and
- the number of countries reporting measles incidence of <1 per 1 000 000 population increased to 26 in 2008 from 19 in 2006[48].

Unfortunately, the biggest results have been achieved only in the eastern part of the Region, where most of the efforts of the international community have been focused in recent years. One of the biggest challenges to reaching the elimination goal is, in fact, the current resurgence of indigenous measles in some EU countries.

The impact of MMR vaccination became evident in the EU countries in the late 1990s, when the incidence of measles decreased from almost 35 per 100 000 before 1997 to less than 10 per 100 000 after 1998[49].

Nevertheless, the epidemiological situation for measles is widely varied across EU countries: although some countries have reported rates below 0.1 per 100 000 population in recent years, (in line with the elimination goal), others have still reported unacceptably high rates.

As indicated in a recent report published by EUVAC.NET, most of the cases reported in the EU during 2006–07 were from four countries: Romania, Germany, UK, and Italy. In addition, notification rates of over one case per 100 000 were also reported from Estonia, Greece and Ireland for the same period[50].

So far, only four EU countries (Finland, Iceland, Slovakia and Slovenia, accounting for less than 3 % of the EU population) have achieved 'zero-reporting' status for a period longer than three years (see Chapter 3.5: Measles).

Six fatal cases were reported in 2006 and one in 2007, all of them were laboratory confirmed and none of them was vaccinated[50]. Eleven cases of measles with acute encephalitis were reported in the period 2006–07 in the EU.

Only a minority of EU cases are imported (usually less than 10 % of those with known importation status) but more than half are imported from another EU country.

A number of cross-border outbreaks have been investigated during recent years with the aid of molecular typing[51]. In particular, in spring 2008, a large outbreak originating from cases imported from Switzerland spread easily across some provinces in Austria and affected some communities in southern Germany. Four cases linked to the same outbreak were reported in Norway. A total of 259 cases were reported as part of this outbreak[52].

Some EU countries have also been responsible for exporting measles cases to the US, as indicated in the last report by the US CDC[53].

The highest incidence of measles in the EU is reported among those under five years old and about 80 % of

cases are unvaccinated. These findings clearly suggest that measles spreads in populations with sub-optimal vaccination coverage rates and it could be prevented with an extraordinary effort to reach those pockets of the population with catch-up programmes.

As previously stated, 13 EU Member States report MMR vaccination coverage below 95 %; in ten of those, vaccination coverage is lower than 90 %. Data about the second MMR dose are not available for six countries.

The performance of the EU vaccination programmes can also be evaluated by seroprevalence studies. Sixteen countries in the EU collected large national serum banks between 1996 and 2004, as part of the European Sero-Epidemiology Network 2 (ESEN2). Those sera were tested for measles IgG and the results were used to perform an inter-country comparison.

Seven out of the 16 participating countries showed higher susceptibility to measles in several age groups, including young children (2–4 years). This has led to the proportion of children susceptible to measles exceeding the WHO susceptibility targets that are: <15 % in the age group 2–4 years, <10 % in the age group 5–9 years, and <5 % in the older age groups[54].

Vaccine acceptance is the main cause of suboptimal vaccination coverage in the EU. Another challenge is presented by vulnerable minority groups that have poor access to preventive services.

Strong advocacy activities are needed in this phase of the elimination programmes to urge the Member States to make the extra efforts needed to reach those population subgroups that are poorly immunised.

Communication plays an important role in such a scenario. Opponents to vaccination, whether for religious or philosophical reasons, are difficult to approach in an effective way. But they represent only a minority. Vaccine skeptics, i.e. those who do not reject vaccination in principle, but may have concerns regarding certain vaccines especially in terms of safety, can be efficiently targeted by reliable and consistent communication.

Reliable data on vaccine effectiveness and safety is the basis for effective communication. Hence the current implementation of vaccine registers and monitoring systems for adverse events following immunisation are a priority for the EU Member States.

Many countries have planned and implemented specific national programmes for measles and CRI elimination[55], but concerted EU action is needed if the elimination goal is to be reached within a reasonable timeframe. In particular, the following areas would benefit greatly from concerted EU action:

EU-wide data collection and monitoring. There is currently little co-operation between Member States to provide comparable data relating to vaccination. Even though some Member States have well-developed data systems, these are not always compatible with each other, and some Member States have very limited data.

Cross-border spread of measles. In this area, it is crucial that all countries are actively engaged and cooperate at EU level to put in place a more efficient response mechanism in the event of multi-state outbreaks.

Developing communication strategies. Due to the availability of globalised information provided by modern media, a concern regarding vaccination can spread easily and quickly throughout Europe and beyond. Therefore, coordination is needed at EU level to ensure that communication is transparent, consistent, timely and accurate.

Monitoring and managing adverse events. There is a need for a quick and effective response to unexpected adverse events. Such a response requires resources that may not always be available nationally (e. g. specialised laboratory support or other technical expertise) and also requires that information is quickly shared with other concerned Member States so that the appropriate public health measures can be taken in a timely manner.

Migrating populations with limited access to healthcare. Migrating populations often have limited access to healthcare in the different Member States. Coordination is needed to plan and implement a targeted strategy to better reach these populations.

EU bodies can play an active role by providing political weight and visibility, thus putting childhood immunisation higher on the list of Member States' health priorities, and by facilitating the exchange of best practice. This latter point is particularly important in the field of communication where by effective monitoring and sharing relevant information communication to the public and healthcare professionals can be significantly improved.

2.6. Current and future challenges

Polio eradication

Following the experience with smallpox, polio was the second infectious disease for which a global initiative was launched to eradicate it through vaccination (resolution WHA41.28, 1988)[56].

Most polio infections with poliovirus serotypes 1, 2 or 3 remain asymptomatic, and although paralytic poliomyelitis is a rare outcome (1:100 to 1:1 000), it was one of the leading causes of permanent disability before the introduction of vaccines, and 5–10 % of the patients with paralytic disease died[57]. In Europe, the last indigenous paralytic wild polio case occurred in 1998, and the region was declared polio-free by the World Health Organization in 2002[58].

Since the start of the global eradication initiative in 1988 the number of reported cases of paralytic polio

has dropped continuously from 350 000 in 125 infected countries to an all-time low of fewer than 500 cases in 10 endemic countries in 2001[59]. Yet despite huge worldwide efforts, the goal of global eradication has not so far been met. Currently, four countries are considered still endemic for wild poliovirus type 1 and/or 3 (WPV): India, Pakistan, Afghanistan, and Nigeria, and since 2002 several already polio-free countries have been re-infected through importation from endemic regions. 1652 cases were reported in 2008 from 18 countries, with endemic countries accounting for more than 90 % of the cases. However, 146 cases occurred in 14 re-infected countries, mostly in countries neighbouring the endemic regions[60].

The backbone of global eradication continues to be immunisation with oral poliovirus vaccine (OPV, Sabin vaccine strain)[61]. The oral vaccines contain attenuated live virus, and the most severe adverse event is vaccine-associated paralytic poliomyelitis (VAPP), which occurs in less than 1 case per 3.3 million OPV doses[57]. WHO estimates 2–4 cases per one million birth cohort in countries using OPV (250–500 cases worldwide per year)[62]. Vaccine-derived polioviruses (VDPV) show ≥1 % sequence difference from the parental Sabin strain[63]. Although the risk cannot be quantified at the moment, molecular and animal experiments, as well as several outbreaks in countries with low vaccination coverage, clearly show the potential of VDPV for seroconversion into virulent strains, sustained circulation in a community, and person-to-person transmission[64–67].

After eradication of the wild poliovirus in Europe a lot of countries replaced OPV with inactivated polio vaccine (IPV), and currently most EU countries exclusively use IPV in their routine immunisation. However, some countries have only recently moved from OPV to IPV[68], and there are still mixed OPV-IPV schedules in a few countries in Europe (at present OPV is only used in Cyprus, Malta and Poland)[69].

There have been several reports on VDPV from European countries. The most recent one was the finding of highly divergent VDPV in sewage water in Tampere, Finland[70]. In 2002, one case of acute flaccid paralysis in Romania was attributed to VDPV[71]. No further paralytic cases attributed to wild or vaccine-derived poliovirus have so far been reported since Europe was declared polio-free in 2002.

The European perspective

When the global eradication initiative was launched in 1988, optimism was high that this goal could be reached by 2000, and that vaccination could be stopped completely thereafter. The first years were indeed promising; the worldwide number of reported paralytic cases fell dramatically and poliovirus type 2 was last isolated in 1999. However, despite these initial successes, the eradication deadline was postponed until 2005 but this deadline was not met either.

The occurrence of VDPV-associated single paralytic cases in Europe and adjacent regions, worldwide outbreaks in communities with low vaccination coverage and the continuing circulation of wild poliovirus in the few remaining endemic countries resulting in re-importation in formerly polio-free regions, clearly show the need for the maintenance of high vaccination coverage.

As long as OPV continues to be used worldwide, VDPV will emerge. To lower the potential risk resulting from VDPV the shift towards the exclusive use of IPV should be encouraged. Even though re-importation of wild-virus has so far mainly been reported from countries neighbouring endemic regions, migration and travel habits cannot completely rule out that the wild poliovirus could also reappear in Europe.

High vaccination coverage and continuing clinical and laboratory surveillance are crucial to keep Europe polio-free and to be able to respond in a timely and adequate way in the event of polio re-emergence.

Monitoring and managing adverse events following immunisation

The introduction of vaccines against infectious diseases has been a success. Diseases that only a few decades ago resulted in death or long-term sequelae are disappearing. These results have encouraged the development of new vaccines, a number of which were recently licensed for use in the European Union. This development of both new vaccines and new combination vaccines using conventional and new technology is likely to continue.

Robust vaccine safety systems are therefore needed more than ever in order to minimise the occurrence of serious adverse events from routinely administered vaccines and, should they occur, detect them in a timely manner. While common adverse events are likely to be detected during the clinical trials (phases I–III), rare events are more likely to appear after marketing a vaccine product (phase IV). Unexpected events can also be due to programme errors and can occur at any stage of the vaccination programme. Therefore, post-marketing surveillance of vaccine products and programmes are essential.

Currently, a number of new vaccines are being included in national programmes for all age groups. These new vaccines may be a single vaccine against new diseases (e. g. rotavirus, pneumococcal disease) or be a new combination vaccine (several vaccines combined in one vial, e. g. measles, mumps, rubella *and* varicella). In addition, a number of new adjuvants with immune-stimulating properties are being included with the goal of being antigen sparing and providing longer immunologic memory.

Many of the surveillance systems in place for adverse events following immunisation (AEFI) detection in the European Union are based on spontaneous reporting. However, new methods are being developed to increase sensitivity, specificity and timeliness of reporting.

Enhancing the current vaccine safety systems is important for a number of reasons: new age groups are being targeted in the immunisation programmes, more combination vaccines and vaccines provided simultaneously will become available. It is important to be able to differentiate between genuine reactions to the vaccine and events only observed coincidentally. Therefore, studies of background incidence of medical events that could be associated with a vaccination should be performed prior to the introduction of new vaccines.

The first attempt to describe such background incidence in adolescent and young females was recently described, providing interesting findings[72]. Further studies of females and males in different age groups and of different geographical and ethnical distribution are needed.

To maintain public confidence in immunisation programmes vaccine safety must be a focus for all stakeholders in the vaccine and immunisation enterprise including governments, manufacturers and vaccine providers.

Dealing adequately with AEFI requires at least the existence of a sensitive and timely system for rapid detection of AEFI and AEFI clusters, and the technical capacity to carry out valid and reliable investigations at individual and population levels.

While WHO has produced extensive guidelines on reporting and investigation of AEFI[73], the level of compliance with these guidelines and the feasibility of their application in the EU have yet to be investigated in a systematic way.

Many initiatives are currently ongoing at EU level to optimise the different phases of the process of dealing with AEFI.

The European Medicines Agency (EMEA) has set up an electronic database for reporting adverse reactions to medicinal products, including vaccines, in the EEA, called EudraVigilance. Guidelines for the use of statistical signal detection methods in the Eudravigilance data analysis system have also recently been produced. The reporting obligations of the various stakeholders are defined in the Community legislation, in particular Regulation (EC) No 726/2004, Directive 2001/83/EC as amended and Directive 2001/20/EC.

In addition, the Brighton Collaboration[74], with the support of the ECDC, has initiated development of case definitions for reporting AEFI that are intended to enhance data comparability within and across clinical trials, surveillance systems, and retrospective epidemiological studies.

In 2007, ECDC initiated collaboration with EMEA and WHO's Department of Immunization, Vaccines and Biologicals on vaccine safety.

As part of that project ECDC launched a call for tender for the development of a self-assessment tool, consisting of a series of questions, that will enable Member States to evaluate the robustness of their AEFI reporting systems; to establish guidance for evaluating of causal associations between immunisation and AEFI; and establish guidance on risk communication to the public and professionals. This project should help the Member States to share best practice on AEFI management and thereby strengthen their vaccine safety surveillance systems.

The possibility of establishing a global vaccine safety data network, was discussed at an international meeting in September 2007. The goals of the meeting were to assess current capabilities and interest in establishing such a network, to explore the infrastructure and funding required to bring such a project to fruition, and to discuss the best approach to implementation[75]. As yet there has been no final decision taken.

Underused and newly licensed vaccines

There are currently 19 vaccine-preventable diseases affecting Europe: diphtheria, invasive *Haemophilus influenzae*, hepatitis A, hepatitis B, human papillomavirus infection, influenza, measles, invasive meningococcal disease, mumps, pertussis, invasive pneumococcal disease, polio, rotavirus-associated gastroenteritis, rubella, tetanus, tick-borne encephalitis, tuberculosis, varicella and herpes zoster. In addition, vaccines against a number of diseases that occur in other parts of the world are recommended for travellers. The number of vaccines included in different national immunisation programmes for different age groups vary across EU Member States.

The number of diseases that can now be prevented by vaccination has increased dramatically in recent years. During the period 2006–07 alone, vaccines were licensed against the following diseases for which no vaccine previously existed: human papillomavirus infection, herpes zoster and rotavirus-associated gastroenteritis.

Other vaccines licensed during the same period were for diseases where a vaccine previously existed but utilising new technology to improve the vaccines or broaden the age groups/patient groups that are eligible for the vaccines. Examples include influenza (cell-based inactivated trivalent influenza vaccine) for use in egg-allergic patients; and combination vaccines against measles, mumps, rubella and varicella (MMR-V) for use in young children; and diphtheria, tetanus, pertussis and polio (Tdap) for use in children 14–15 years of age and adults.

It is expected that during the coming 3–5 years further new vaccines will be licensed in the European Union such as a 10-valent conjugated pneumococcal vaccine, a 13-valent conjugated pneumococcal vaccine, a 4-valent conjugated meningococcal vaccine, live attenuated trivalent intranasal influenza vaccine and an intradermal inactivated trivalent influenza vaccine.

Most European national immunisation programmes for infants, children and teenagers contain vaccines against 9–10 diseases. Important factors to be considered before including a new vaccine are the burden of disease in the country, the severity of the disease and a cost-benefit analysis. The vaccines currently evaluated for inclusion in many Member States are those against hepatitis A, hepatitis B, human papillomavirus, influenza, pneumococcus, rotavirus, and varicella. These vaccines have been shown to be efficacious and safe in clinical trials and in post-marketing studies in several countries, but cost-effectiveness studies have either not been performed or shown controversial results.

Increased healthcare costs in Member States hamper introduction of new vaccines to paediatric programmes because of competition from other healthcare-related interventions. Similarly, the coverage of influenza vaccination among the elderly is significantly below what is recommended. Not surprisingly, countries that provide the influenza vaccine free of charge have obtained the highest vaccination coverage.

Vaccination against invasive pneumococcal disease among the elderly is under evaluation in a number of countries and specific technical guidance has been produced by ECDC[76].

A vaccine against herpes zoster has been licensed but lack of production capacity makes it difficult to obtain in most Member States.

ECDC is actively engaged in supporting the decision-making process in the Member States by providing evidence-based guidance on the introduction of new vaccines.

Through a new VENICE project[9], further information will be collected and shared. In 2009 a series of EU-wide surveys are already planned – the very first on the use of tick-borne encephalitis vaccine in central northern Europe. Results from VENICE work will be available to relevant public on both the VENICE and ECDC websites.

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3 Epidemiology of communicable diseases in Europe, 2007

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, invasive *haemophilus influenzae* disease, invasive meningococcal disease, invasive pneumococcal infections, measles, mumps, pertussis, poliomyelitis, rabies, rubella and tetanus.

3.6 Antimicrobial resistant pathogens and healthcare-associated infections
Antimicrobial resistant pathogens and healthcare-associated infections.

Figures below 10 are presented to two significant figures, with numbers above 10 given as integers only. However, the overall European notification rates are given in full.

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

An alphabetical list of diseases and special health issues is given overleaf, for ease of reference.

Alphabetical list of diseases and special health issues

3.1 Respiratory tract infections

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

Influenza

- The 2007–08 influenza season in Europe started in January, was characterised by moderate clinical activity and a pattern of progression from west to east.
- The distribution of virus detections was bimodal with an influenza A(H1N1) peak followed by an influenza B peak.There were few A(H3N2) viruses.
- About 60% of all characterised isolates were similar to the components of the recommended 2006–07 northern hemisphere vaccine.
- The first seasonal influenza viruses resistant to the antiviral oseltamivir A(H1N1-H247Y), and fully able to transmit from human to human, were observed initially in Europe, but their distribution varied greatly across the region. Later they were found to have spread across the globe.
- The distribution and spread of the resistant viruses could not be explained by use of antivirals. They were not resistant to the other neuraminidase inhibitor in use, zanamivir.

Enhanced surveillance – EISS epidemiological and virological data for 2007

During the 2007–08 influenza season, consultation rates for influenza-like illness (ILI) or acute respiratory infection (ARI) were consistently reported by 23 countries[i] and the rates were first reported to exceed baseline levels in Spain (week 51/2007) and in France (week 2/2008). By week 2, the majority of countries reported either medium (10/23: France, Hungary, Ireland, Italy, Luxembourg, Netherlands, Portugal, Slovenia, Spain and UK), or high intensity (Austria and Bulgaria) as compared to historical data, followed by eastern Europe in late January and northern Europe in February. High intensity influenza activity was reported only by Austria, Bulgaria, Hungary and Luxembourg during the whole season. A spatial analysis based on peak influenza activity data from 30 countries revealed a pattern of progression from west to east, as opposed to the south-north trend observed in 2006–07[1]. A study looking at European influenza seasons from 1999 to 2007 had found a west-east progression in four winters, with or without an element of south-north progression in three winters and no significant pattern in three winters[2]. Consultation rates in most countries had returned to levels seen outside the winter period by mid-March 2008. The highest consultation rates for ILI and/or ARI were observed among children under 14 years of age.

Based on (sub)typing data of all influenza virus detections from sentinel and non-sentinel sources (n = 16 808), 10 055 (60%) were influenza A and 6 753 (40%) were influenza B.

Of 5 628 influenza A viruses that were subtyped, 5 401 (96%) were A(H1) (of which the N-subtype was determined in 3 260 and all were N1) and 227 (4%) were A(H3) (of which the N-subtype was determined in 128 and all were N2) (Table 3.1.1). The temporal distribution of virus detections for Europe as a whole showed a bimodal pattern with influenza A peaking in week 4 and influenza B peaking in week 8 (Figure 3.1.1).

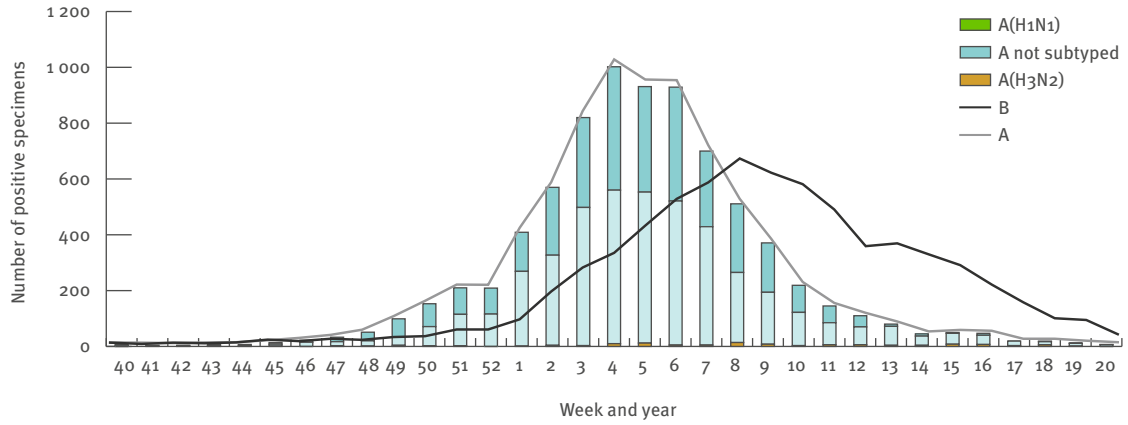
i Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden and UK.

Table 3.1.1. Sentinel and non-sentinel influenza virus detections by season, Europe, 1996–97 until 2007–08

Season	Influenza virus detections			N-subtyped viruses		
	Total (n)	% of total positive for		Total (n)	% of total positive for	
		influenza A	influenza B		A(H1N1)	A(H3N2)
2007–08	16808	60	40	3388	96	3.8
2006–07	18278	97	2.8	4712	11	89
2005–06	11303	42	58	1108	48	52
2004–05	15295	83	17	2569	18	82
2003–04	14025	99	0.9	4284	0.5	99
2002–03	7616	63	36	2987	9.7	89
2001–02	7296	75	25	2718	3.8	87
2000–01	6352	70	30	1357	97	3.1
1999–2000	7663	99	1.2	4093	1.8	98
1998–99	6950	72	28	2760	0.4	100
1997–98	6008	93	7.3	2155	4.4	96
1996–97	5503	80	20	1339	1.0	99.0

Source: EISS database as on 24 February 2009.

Figure 3.1.1. Total number of sentinel and non-sentinel specimens positive for influenza A and B virus by week, type and subtype, Europe, 2007–08



Source: EISS database as of 24 February 2009.

Of 4306 influenza virus isolates that were antigenically and/or genetically characterised, 2492 (58%) were A/Solomon Islands/3/2006 (H1N1)-like and 1628 (38%) B/Florida/4/2006-like (B/Yamagata/16/88 lineage). Altogether, 60% of characterised isolates were similar to the three components recommended by the World Health Organization for the northern hemisphere influenza vaccine for 2007–08[3] (Table 3.1.2).

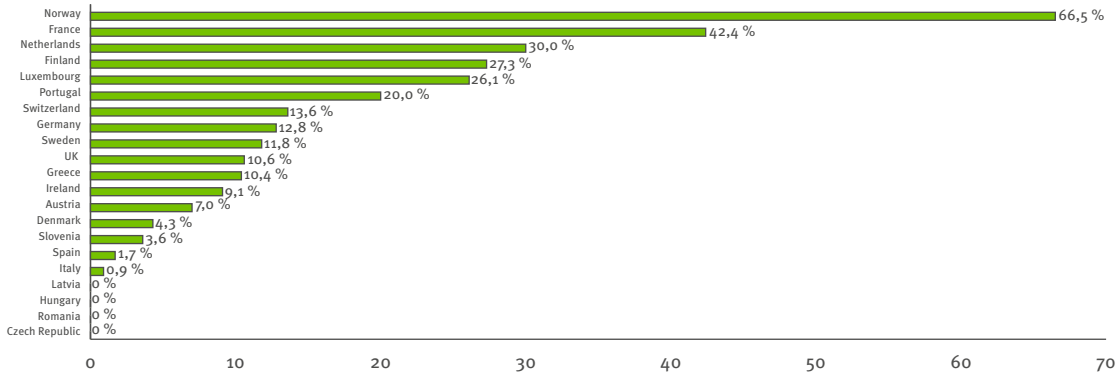
Table 3.1.2. Antigenic and genetic characterisation of influenza virus isolates (n = 4306), Europe, 2007–08

Strain	n	%	2007–08 vaccine component
A/Solomon Islands/3/2006 (H1N1)-like virus	2492	58	yes
B/Florida/4/2006-like virus (B/Yamagata/16/88 lineage)	1628	38	no
A/New Caledonia/20/99 (H1N1)-like virus	65	1.5	no
A/Brisbane/10/2007 (H3N2)-like virus	63	1.5	no
A/Wisconsin/67/2005 (H3N2)-like virus	36	0.8	yes
B/Malaysia/2506/2004-like virus(B/Victoria/2/87 lineage)	22	0.5	yes

Source: EISS database as of 24 February 2009.

In late January 2008, national authorities in Norway alerted Europe and the rest of the world of the first detection of human seasonal influenza A(H1N1) viruses that were highly resistant to oseltamivir[4–6]. The strains, designated A(H1N1-H274Y) were in significant numbers; initially representing 70 % of all A(H1N1) viruses detected in Norway. This indicated that they had to have been transmitting efficiently from human to human[6]. The picture varied from country to country but in some countries resistant viruses represented significant proportions of all transmitting seasonal influenza, especially early in the season when there were few B viruses (Figures 3.1.1, 3.1.2). There was no indication that the clinical picture presented by the resistant viruses differed from other circulating seasonal influenza A(H1N1) viruses. Outbreaks were noted and there were deaths in especially susceptible individuals[7], which is to be expected during usual seasonal influenza epidemics. The new viruses were sufficiently similar to previously circulating A(H1N1) so that pre-existing immunity would be expected to provide protection against the resistant viruses and there was also a reasonable match of both oseltamivir-sensitive and oseltamivir-resistant A(H1N1) viruses with the A(H1N1) component of the vaccines in use at the time[6]. I.e. though these were novel viruses they did not, and still do not, constitute a pandemic strain. None of the resistant A(H1N1) viruses were also reported to be resistant to zanamivir, the other neuraminidase inhibitor in use in Europe[6]. The few A(H3N2) viruses observed and tested for markers of antiviral resistance were resistant to M2 inhibitors such as amantadine but sensitive to the neuraminidase inhibitor.

Figure 3.1.2. Prevalence of resistant A(H1N1) as a proportion of all A(H1N1) in EU and EFTA countries, 24 April 2008



Figures for countries with fewer than 10 test results are available but not shown graphically.
Countries with fewer than 10 test results in which resistance has been found: Belgium.
Countries with fewer than 10 test results in which no resistance has been found: Bulgaria and Slovakia.
EU and EFTA countries in the EISS network for which no test results are available: Cyprus, Estonia, Lithuania, Malta, Poland, Iceland.

Source: Data were provided by the European Influenza Surveillance Scheme [http://www.eiss.org/index.cgi] and the VIRGIL Project [http://www.virgil-net.org]. Funding for the VIRGIL project was from the European Union FP6 Research Programme [http://ec.europa.eu/research/health/influenza/proj13_en.html] and EISS was supported by ECDC. Laboratories in EISS contributed to the Global Influenza Surveillance Network managed by WHO.

Discussion

The unusual feature of the season was the emergence of the oseltamivir-resistant virus. This was the first ever observation of human seasonal influenza viruses resistant to a neuraminidase inhibitor and fully able to transmit from human to human. Otherwise this was an unremarkable mixed A(H1N1) and influenza B season starting early in 2008. Through the Global Influenza Surveillance Network (GISN), WHO rapidly determined that though the resistant viruses were first detected in Europe, where they were also most prevalent, they were part of a global phenomenon with the same types of viruses in North America, Japan and in one or two equatorial areas such as Hong Kong[8]. In North America during the same season, A(H1N1) viruses were less commonly reported overall, where the predominant viruses were of the A(H3N2) subtype[9]. The variability among European countries of the proportions of A(H1N1) viruses that were resistant was striking, ranging from nearly zero to 70 % (Figure 3.1.2) and with increasing proportion during the season within a number of countries[6]. This suggests the resistant viruses were entering Europe this season, spreading and displacing non-resistant A(H1N1) in a manner difficult to predict. Oseltamivir-resistant seasonal influenza viruses had been seen before, especially in children on oseltamivir treatment in Japan. However, the viruses in Japan had not persisted when oseltamivir therapy was terminated in those infected[10]. It was also notable in Europe that there were hardly any reports of oseltamivir use by the infected persons or their contacts. Further, the proportions of A(H1N1) viruses that were resistant were considerably lower in Japan and the USA than in a number of European countries, showing an inverse correlation with the volumes of use of oseltamivir[11], i.e. the high levels of resistant viruses and their penetration and spread was not being driven by use of antivirals. This has further been suggested by a study in Norway[12]. There must have been other advantages for the A(H1N1-H274Y) viruses over the non-resistant A(H1N1) viruses.

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Surveillance systems overview

Country	Data Source Description	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	Data from Reference labs	O	Se	A	C	Y	N	N	N	—
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	—	—	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Mandatory country-wide CDs surveillance system	Co	Co	P	A	Y	Y	Y	N	Y
Estonia	Sentinel Network	V	Se	A	A	Y	Y	N	N	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	Sentinel network	V	Se	P	A	N	Y	Y	N	Y
France	National reference Centres	V	Se	P	C	Y	N	N	N	Y
Germany	German AGI Sentinel	V	Se	A	A	Y	Y	N	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-Influenza Surveillance	Cp	Se	P	A	Y	Y	N	Y	Y
Iceland	Mandatory surveillance of notifiable diseases in Iceland	Cp	Co	P	A	Y	Y	N	—	Y
Latvia	Visums	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Malta	Infectious Disease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS-Influenza	Cp	Se	A	A	N	Y	N	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	National sentinel surveillance system for influenza	V	Se	—	A	Y	Y	N	N	N
Spain	ES-Influenza	V	Se	P	C	Y	Y	Y	N	N
Sweden	SmiNet/ Influenza module	V	Se	P	A	Y	Y	Y	N	Y

Avian influenza

- As in 2006, there were a series of outbreaks of highly pathogenic avian influenza reported in birds in Europe, predominately in domestic poultry. However, there were no associated human cases reported, due to the effective response by the veterinary services.

Highly pathogenic avian influenza A(H5N1) in animals

The outbreaks of highly pathogenic avian influenza (type H5N1) in the EU in 2007 are summarised in Table 3.1.3.

As the table below shows, the wild cases were generally clustered over the summer period, whereas the farm cases were mostly reported at the beginning and end of the year. The fact that no wild cases were reported over the winter period might be due to the fact that surveillance of this type of bird is not as intense or productive in winter as it is when the weather is milder and birds are migrating. It certainly does not represent an association between wild cases in summer and domestic flock cases over winter.

Human cases of low pathogenic avian influenza

One outbreak of low pathogenic animal avian influenza affecting humans occurred in the United Kingdom in May 2007[2]. Influenza A(H7N2) of low pathogenicity, was identified as the cause of the poultry outbreak by the UK Department for Environment, Food and Rural Affairs (DEFRA)[3]. Several cases of influenza-like-illness (ILI) and/or conjunctivitis in humans were linked to this outbreak of avian influenza in poultry on a smallholding in northern Wales in the UK. Despite this being a low pathogenicity outbreak, three of the cases were hospitalised without having any underlying illness and the admissions were not for precautionary purposes[4]. This was unusual because human infection with low pathogenicity viruses usually only results in flu-like illness and conjunctivitis[5]. It must be noted that the terms 'high pathogenicity' and 'low pathogenicity' refer to the viral behaviour in birds and does not necessarily reflect how humans are affected. This outbreak was also informative as it was handled somewhat differently (though successfully) from classical outbreaks of highly pathogenic avian influenza. The handling of low pathogenicity outbreaks or all outbreaks not involving A(H5N1) may need to be reviewed in the light of this experience.

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Table 3.1.3. Reported outbreaks of H5N1 animal avian influenza cases in the EU during 2007

Country	Type of bird[a]	Time of the year
Czech Republic	Farm birds	June
Czech Republic	Wild birds(1)	June
France	Wild birds(3)	July
Germany	Wild birds(1)	June
Germany	Farm birds	July
Germany	Farm birds	December
Hungary	Farm birds	January[b]
Poland	Farm birds	December
Romania	Farm birds	November
United Kingdom	Farm birds	February[b]
United Kingdom	Farm birds	November

Source: World Organisation for Animal Health [www.oie.int].
[a] The number within brackets represents the number of affected wild birds in wild bird outbreaks.
[b] The two outbreaks were found to be linked according to the genetic sequencing results of the H5N1 specimens from affected birds in Hungary and UK (99.96% similarity)[1].

Legionnaires' disease (legionellosis)

- The notification rate in the EU and EEA/EFTA countries remains stable at 1.1 per 100 000 population.
- The number of reported cases of travel-associated Legionnaires' disease is still increasing, whereas the number of travel-associated clusters decreased in 2007 compared to 2006.

Epidemiological situation in 2007

Of the 5 498 cases of Legionnaires' disease reported across 28 EU and EEA/EFTA countries in 2007, 5 313 cases were confirmed. Data were not available from two countries (Czech Republic and Liechtenstein). The overall notification rate was 1.1 per 100 000 population (Table 3.1.4). The individual country rates varied little between < 0.1 and 2 cases per 100 000 population, with the exception of Malta that reported 4.2 cases per 100 000 population.

Table 3.1.4. Number and notification rate of reported cases of Legionnaires' disease in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	108	97	1.2
Belgium	C	77	77	0.73
Bulgaria	A	1	1	< 0.1
Cyprus	C	1	1	0.13
Czech Republic	—	—	—	—
Denmark	C	126	126	2.3
Estonia	C	3	3	0.22
Finland	C	46	46	0.87
France	C	1428	1336	2.1
Germany	C	530	530	0.64
Greece	C	26	24	0.21
Hungary	C	20	12	0.12
Ireland	C	16	15	0.35
Italy	C	936	936	1.6
Latvia	A	2	2	< 0.1
Lithuania	A	2	2	< 0.1
Luxembourg	C	5	5	1.1
Malta	C	17	17	4.2
Netherlands	C	325	300	1.8
Poland	A	28	5	< 0.1
Portugal	C	82	78	0.74
Romania	C	1	0	0.0
Slovakia	C	2	2	< 0.1
Slovenia	C	31	31	1.5
Spain	C	1012	1012	2.3
Sweden	C	130	130	1.4
United Kingdom	C	496	486	0.80
EU total		**5451**	**5274**	**1.09**
Iceland	C	12	4	1.3
Liechtenstein	—	—	—	—
Norway	C	35	35	0.75
Total		**5498**	**5313**	**1.08**

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

Age and gender distribution

Cases of Legionnaires' disease are mainly reported in persons from the older age groups: in 2007, 4 303 (83 %) were at least 45 years old. The sex ratio male to female is 3:1. The notification rates increased with age, from < 0.1 per 100 000 in the under 15 year olds to 2.6 per 100 000 in persons aged 65 years and above (4.0 per 100 000 in males and 1.3 per 100 000 in females) (Figure 3.1.3).

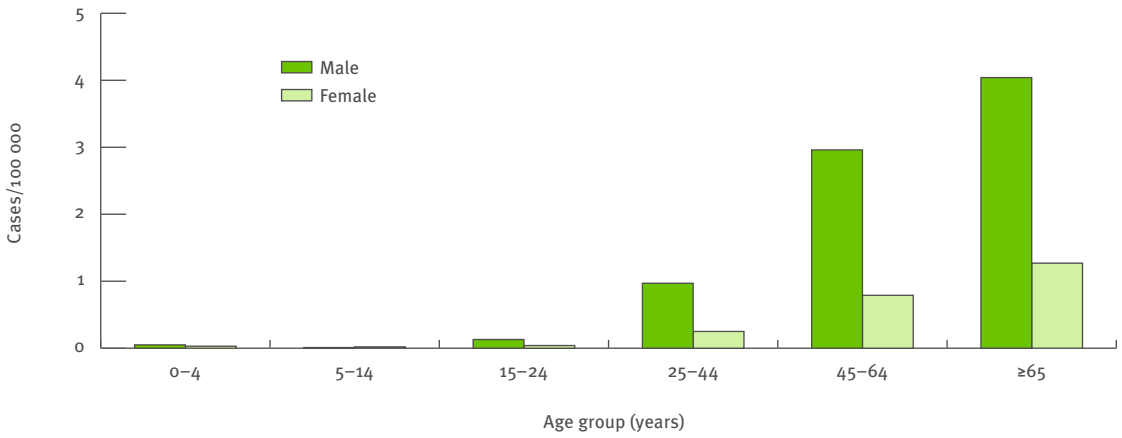
Seasonality

A clear trend in the monthly reports can be observed across all countries, with cases increasing in May and June, peaking in July and then decreasing gradually throughout the winter months. In 2007, 580 cases of Legionnaires' disease were reported in the month of July compared with around 200 cases per month from January to April (Figure 3.1.4).

Enhanced surveillance in 2007

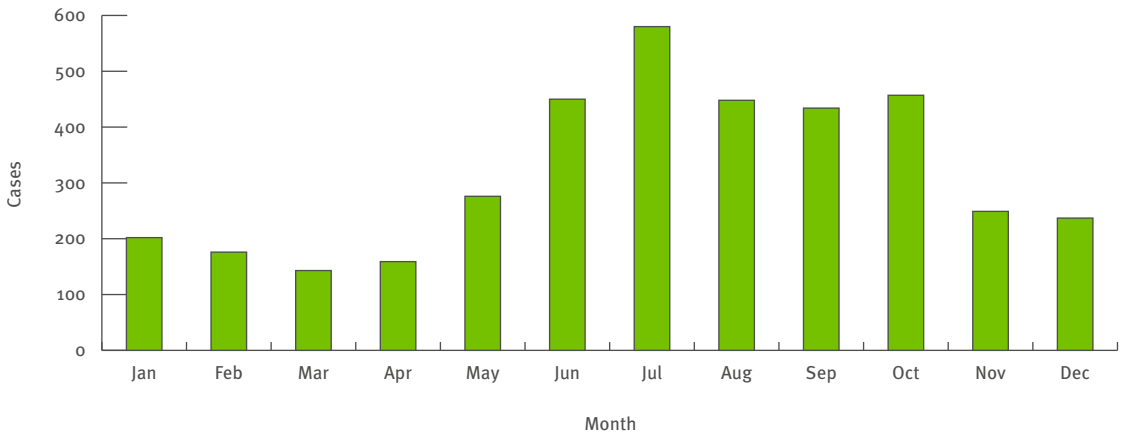
EWGLINET is the EU's dedicated surveillance network collecting data on cases of Legionnaires' disease in the EU and travel-associated Legionnaires' disease (TALD). In 2007, 24 of 35 countries collaborating in the EWGLINET scheme reported a total of 1283 individual TALD cases resulting in 113 TALD clusters (275 cluster cases) being identified. While the number of reported individual cases has shown an increasing trend since the inception of EWGLINET, the number of TALD clusters detected in 2007 decreased from 123 such clusters in 2006.

Figure 3.1.3. Notification rates of Legionnaires' disease cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 5 196)



Source: Country reports: Austria, Belgium, 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 3.1.4. Seasonal distribution of Legionnaires' disease cases in EU and EEA/EFTA countries, 2007 (n = 3 811)



Source: Country reports: Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Iceland and Norway.

Discussion

The notification rate of reported Legionnaires' disease across the EU and EEA/EFTA remained stable in 2007. Seasonality, age and gender distributions of cases are similar to those observed in previous years. The increasing trend of TALD cases can probably be attributed to better surveillance and reporting. The decrease in TALD clusters may indicate that the EWGLINET guidelines for the control of Legionnaires' disease are being widely applied and the effect of their implementation has started to show. Close observation is required over the coming years to determine whether this decrease continues.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	—	—	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Legionellosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	—	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	Laboratory based surveillance system	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious Disease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Legionellosis Surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Legionellosis Surveillance System	O	Co	A	C	Y	N	Y	Y	Y

Tuberculosis

- In 2007, 30 EU and EEA/EFTA countries reported 84 917 tuberculosis (TB) cases with an overall notification rate of 17 per 100 000 (range: 5.4 in Cyprus to 118 cases per 100 000 in Romania); 41 205 of these cases were confirmed (8.2 per 100 000).
- Between 2003 and 2007, overall notification rates decreased by 4 % annually, reflecting a decline in previously untreated TB cases. Steady downward trends have been reported in 25 countries since 2003.
- In 2007, 20 % of the total cases (country range: 0–78 %) were in persons of foreign origin, two thirds of whom were from Asia or Africa and 6 % from the former Soviet Union.
- Multi-drug resistance (MDR) remained more frequent in the Baltic States (primary MDR: 7–17 %) than in the other countries (0–2 %); MDR was generally more common in cases of foreign origin.
- Twenty-one countries reported treatment outcome monitoring (TOM) data for definite pulmonary TB cases in 2006. For the cases included in the TOM cohorts, among previously untreated cases 80 % had a successful outcome.

Epidemiological situation in 2007

In 2007, a total of 84 917 cases (of which 41 205 were confirmed) were reported by all the EU and EEA/EFTA countries, with an overall notification rate of 8.2 confirmed cases per 100 000 (17 per 100 000 for total cases) (Table 3.1.5). There was a slight decrease of 3 196 cases (4 %) from 2006. Almost 60 % of all confirmed cases occurred in the five countries that reported more than 3 500 cases each (Germany, Poland, Romania, Spain, and United Kingdom).

The notification rates for confirmed cases were lower than 10 per 100 000 in 22 countries and higher than 15 per 100 000 in six countries: Lithuania (50), Latvia (44), Estonia (28), Romania (19), Portugal (19) and Bulgaria (18). When considering the total notification rates, the order changes slightly to Romania (118), Lithuania (71), Latvia (55), Bulgaria (40), Estonia (36) and Portugal (30).

The overall notification rate was lower than in 2003, reflecting a net downward trend in 25 countries. The average annual decrease in rates from 2003–07 was calculated at 4 %, much higher than the decline recorded from 1999–2003 (1.3 %).

Table 3.1.5. Number and notification rate of reported cases of tuberculosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate of confirmed cases per 100 000 population (notification rate for total cases per 100 000 population)**
Austria	C	874	541	6.5 (11)
Belgium	C	1028	809	7.6 (9.7)
Bulgaria	C	3052	1408	18 (40)
Cyprus	C	42	33	4.2 (5.4)
Czech Republic	C	871	565	5.5 (8.5)
Denmark	C	391	294	5.4 (7.2)
Estonia	C	487	381	28 (36)
Finland	C	313	226	4.3 (5.9)
France	C	5588	2535	4.0 (8.8)
Germany	C	5020	3523	4.3 (6.1)
Greece	C	659	206	1.8 (5.9)
Hungary	C	1752	766	7.6 (17)
Ireland	C	478	237	5.5 (11)
Italy	C	4527	4527	7.7 (7.7)
Latvia	C	1255	993	43 (55)
Lithuania	C	2408	1686	50 (71)
Luxembourg	C	39	39	8.2 (8.2)
Malta	C	38	19	4.7 (9.3)

Country	Report type*	Total cases	Confirmed cases	Notification rate of confirmed cases per 100 000 population (notification rate for total cases per 100 000 population)**
Netherlands	C	960	591	3.6 (5.9)
Portugal	C	3127	1986	19 (30)
Romania	C	25491	4147	19 (118)
Slovakia	C	682	441	8.2 (13)
Slovenia	C	218	189	9.4 (11)
Spain	C	7767	3949	8.9 (18)
Sweden	C	491	365	4.0 (5.4)
United Kingdom	C	8417	5075	8.3 (14)
EU total		**84591**	**40943**	**8.27 (17.1)**
Iceland	C	14	11	3.6 (4.6)
Liechtenstein	C	5	5	14 (14)
Norway	C	307	246	5.3 (6.6)
Total		**84917**	**41205**	**8.24 (17.0)**

Source: Country reports.
*A: Aggregated data report; C: Case-based report; —: No report, U: Unspecified.
** Both the rates of 'confirmed' and 'total' cases are listed here for ease of comparability with other published reports, as many TB reports focus only on 'total' cases.

Age and gender distribution

Confirmed cases of TB were more frequently reported in males (overall rate of 10 per 100 000), especially adult males, than females (5.2 per 100 000) in nearly all countries and this feature is more marked among nationals than among cases of foreign origin (overall male-to-female ratio 2.0:1 in nationals versus 1.4:1 in cases of foreign origin).

The highest overall notification rates of confirmed cases were seen in those aged 25 to 44 years (10 per 100 000) and rates remain relatively high in the older age groups (Figure 3.1.5). Paediatric cases represented 4 % of total notifications, both in cases of national and foreign origin. By contrast, the middle-aged (45–64 years) and the elderly (≥ 65 years) together represented more than half of the total cases of national origin but only 26 % of cases of foreign origin. Most cases of foreign origin were reported among younger adults, especially in the 25–44 year age group (56 %).

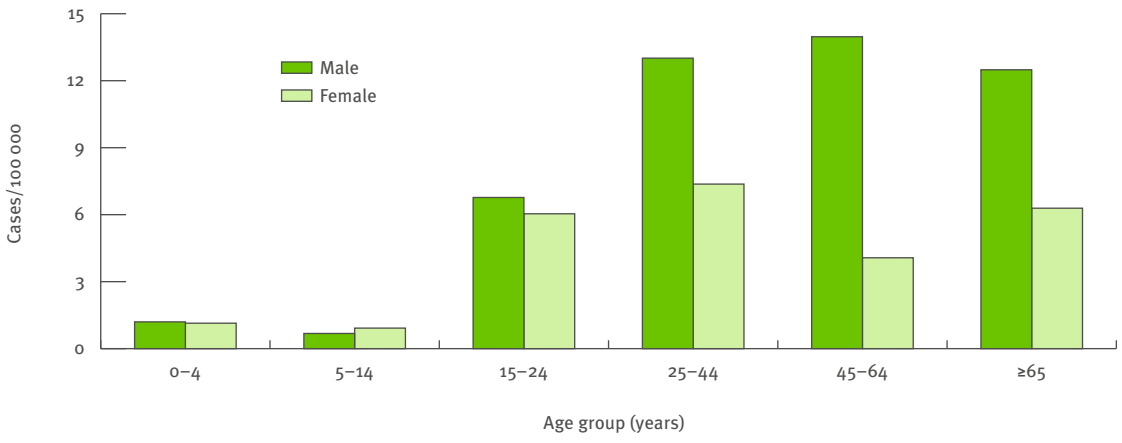
Seasonality

The data on seasonality is not relevant for TB as the process of diagnosis may take up to two months and notification rules on the preferred time of notification differs among countries. In any case 13 countries (43 %) did not report either the month of notification or of diagnosis.

Enhanced surveillance in 2007

In 2007, 27 EU and three EEA/EFTA countries contributed to the joint surveillance network of TB in the WHO European Region[1]. Pulmonary TB was reported in 80 % of total cases and 20 % exclusively had extra-pulmonary

Figure 3.1.5. Notification rates of tuberculosis cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 38 558)



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

disease. Sputum smear-positive rates were lower than 5 per 100 000 population in 21 countries. These rates were consistently higher than 10 in the Baltic States, Portugal, Bulgaria and Romania. Where rates were < 2 cases per 100 000, the proportion of pulmonary cases with a positive sputum smear was less than 40%, suggesting underreporting.

In 2007, 79% of the reported cases had not previously received anti-TB treatment, with wide variation among countries. This proportion has not changed markedly in recent years, but the total number of new cases has decreased progressively and is probably the main reason for the decline of TB in the EU and EEA/EFTA countries.

TB cases of foreign origin

In 2007, 21% of total reported TB cases were of foreign origin[i] (Table 3.1.6). This proportion is the same as for 2006 but is much higher (31%) if data from Bulgaria and Romania are excluded. Overall, 32% of cases of foreign origin originated from Asia, 26% from Africa, 10% from other countries of the EU, EEA/EFTA or non-EU countries of Europe and 6% from former Soviet Union countries other than the Baltic States (data from 27 countries, no cases of foreign origin in Romania). Between 2001 and 2007, the number of notifications among nationals decreased in nearly all countries but the number of cases of foreign origin increased up to 2005 and then decreased in 2006 and 2007. A drop in foreign cases was observed in Germany and Italy between 2006 and 2007, after an increase in previous years; while a steadier decline has occurred since at least 2003 in the Netherlands and Portugal. Cases in foreigners have been increasing in the United Kingdom since at least 2003.

Table 3.1.6. Total tuberculosis cases in EU and EEA/EFTA countries, by origin of the case, 2007

Country	Origin						Total
	National		Foreign		Unknown		
	n	(%)	n	(%)	n	(%)	n
Austria	555	(64)	319	(36)	0	(0)	874
Belgium	541	(53)	487	(47)	0	(0)	1028
Bulgaria	3047	(100)	5	(0)	0	(0)	3052
Cyprus	11	(26)	31	(74)	0	(0)	42
Czech Republic	718	(82)	153	(18)	0	(0)	871
Denmark	150	(38)	241	(62)	0	(0)	391
Estonia	410	(84)	77	(16)	0	(0)	487
Finland	254	(81)	59	(19)	0	(0)	313
France	2790	(50)	2505	(45)	293	(5)	5588
Germany	2760	(55)	2089	(42)	171	(3)	5020
Greece	425	(64)	219	(33)	15	(2)	659
Hungary	1668	(95)	84	(5)	0	(0)	1752
Ireland	277	(58)	181	(38)	20	(4)	478
Italy	2308	(51)	1904	(42)	315	(7)	4527
Latvia	1178	(94)	66	(5)	11	(1)	1255
Lithuania	2332	(97)	76	(3)	0	(0)	2408
Luxembourg	13	(33)	24	(62)	2	(5)	39
Malta	14	(37)	24	(63)	0	(0)	38
Netherlands	359	(37)	597	(62)	4	(0)	960
Poland	8561	(99)	55	(1)	0	(0)	8616
Portugal	2,696	(86)	424	(14)	7	(0)	3,127
Romania	25491	(100)	0	(0)	0	(0)	25491
Slovakia	670	(98)	12	(2)	0	(0)	682
Slovenia	180	(83)	38	(17)	0	(0)	218
Spain	4876	(63)	2029	(26)	862	(11)	7767
Sweden	110	(22)	381	(78)	0	(0)	491
United Kingdom	2165	(26)	5454	(65)	798	(9)	8417
EU total	**64559**	**(76)**	**17534**	**(21)**	**2498**	**(3)**	**84591**
Iceland	5	(36)	9	(64)	0	(0)	14
Liechtenstein	4	(80)	0	(0)	1	(20)	5
Norway	64	(21)	243	(79)	0	(0)	307
Total	**64632**	**(76)**	**17786**	**(21)**	**2499**	**(3)**	**84917**

i The geographical origin of TB cases is classified according to place of birth (born in the country/foreign born) or, if unavailable, citizenship (citizen/non-citizen).

Tuberculosis and HIV infection

Aggregated data on HIV sero-status of TB cases reported in 2004 or later were available for 19 countries. The completeness of information varied widely due to differences in testing policies and in data collection. The proportion of TB cases with positive HIV sero-status (for the latest available year in the period 2004–07) was highest in Iceland (15%; but only two cases in 2006), Portugal (15%) and Estonia (11%). This proportion has increased since 2001 in Estonia (from 0.1% to 11%) and Latvia (from 0.7% to 4.4%). This was to be expected as both countries experienced a sharp increase in HIV infection in the early years of this decade

Multidrug-resistant tuberculosis

Cases resistant to one or more first-line anti-TB drugs were reported by all countries of the EU. The Baltic States, Bulgaria, Germany, Spain, Romania, Bulgaria and the United Kingdom had 50 or more multidrug-resistant (MDR) cases. Overall, the proportion of cases with MDR TB in the 22 countries was 4.0%. The proportion of combined MDR TB cases (i.e. including both newly diagnosed cases and those that have relapsed and required retreatment) is high and stable in the Baltic States (range: 10–21% from tested cases). It decreased in Latvia (2004–07) but this trend remained insignificant for primary MDR cases. This suggests that retreated cases are decreasing faster than incident ones in these countries.

Treatment outcome

Twenty-one countries reported treatment outcome monitoring (TOM) data for new confirmed pulmonary TB cases reported in 2006. However, the TOM for these countries suggests sub-optimal coverage. Overall, out of a total of 40959 culture-confirmed pulmonary cases reported in 2006 (updated for 2007 report), 92% (37646) reported a treatment outcome.

For the cases reported in the TOM cohorts, among previously untreated cases, 80% had a successful outcome, 7% died, 2% failed or continued treatment beyond 12 months, and 9% were lost to follow up (defaulted, transferred or no known outcome).

Among previously treated cases, the overall success rate (54%) was lower than among new cases. Cases with pulmonary TB were less likely to have a successful treatment outcome and more likely to die than extrapulmonary cases.

Discussion

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

- Low-incidence countries with cases increasingly aggregating in the foreign-born population;
- Countries with relatively moderate to high notification rates that are declining, with MDR TB as yet uncommon.
- Countries with relatively high notification rates and with a high proportion of MDR TB cases, but again with declining overall TB rates.

Most countries in the EU and EEA/EFTA have continued to experience a steady decrease in overall TB notification over the last few decades. Several epidemiological indicators such as age distribution, notifications of paediatric TB cases and TB meningitis trends seem to suggest that the downward trend is real and has been sustained over the past five years.

Treatment monitoring and reporting needs to be improved in countries with sub-optimal coverage of TOM and a success rate of 80% (below the 85% target) in the sub-cohort of pulmonary culture-confirmed cases reported in 2006.

In addition the following issues should be highlighted:

1. Within this heterogeneous epidemiological setting, the number of high/intermediate TB incidence countries remains the same. Despite their progress in curbing the epidemic, serious attention from a control point of view is required, including optimisation of surveillance.
2. In some low incidence countries the data show a considerable shift of the epidemic to more vulnerable populations such as migrant populations.
3. The reporting of TB/HIV co-morbidity remains incomplete, not allowing a thorough assessment of the dual epidemic.
4. Coverage of drug susceptibility testing needs to be further expanded, as well as reporting and analysis of resistance to second line drugs, for better assessment of the level of extensive drug resistance.
5. Finally, epidemiological and surveillance peculiarities arising in selected countries need to be further evaluated in more detail to clarify interpretation. This would include further assessment of sustained increases in paediatric cases and/or overall notifications in specific countries.

It should be also noted that the TB case definition for surveillance purposes was revised and published in 2008 by the European Commission and should be adopted for 2009 data. Several countries have already adopted this definition but with varying interpretation resulting, in some instances, in unclear classification of cases and possible errors in this important parameter.

References

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Surveillance systems overview

Country	Data Source Description	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	TUBERKULOSEGESETZ 1968	Cp	Co	A	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Belgium	Belgian TB register	Cp	Co	A	C	Y	Y	Y	Y	Y
Bulgaria	Ministry of Health	Cp	Co	A	C	Y	N	Y	N	Y
Cyprus	System for Mandatory Notified Diseases – TB	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	Register of tuberculosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting TBC	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Tuberculosis surveillance	Cp	Co	P	C	Y	Y	N	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Iceland	Mandatory surveillance of tuberculosis	Cp	Co	A	C	Y	Y	Y	N	Y
Ireland	TB	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	TB surveillance system	Cp	Co	P	C	Y	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	–	C	Y	Y	Y	–	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Lithuania	Lithuania TB registry	–	–	–	–	–	–	–	–	–
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	OSIRIS NLS TB Register	–	Co	P	C	N	Y	N	N	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	Central Register of Tuberculosis	Cp	Co	P	C	Y	Y	Y	N	Y
Portugal	Tuberculosis Surveillance System	Cp	Co	P	C	Y	Y	Y	Y	Y
Romania	National TB surveillance system	Cp	Co	P	C	N	Y	N	Y	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovakia	National Register for Tuberculosis	Cp	Co	–	C	–	Y	Y	–	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Slovenia	TUBERCULOSIS	Cp	Co	A	C	Y	Y	N	N	Y
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
Sweden	Swedish Tuberculosis Register	Cp	Co	A	C	–	–	–	–	–
United Kingdom	Tuberculosis Surveillance System	Cp	Co	A	C	Y	N	Y	Y	Y

3.2 STIs, including HIV and blood-borne viruses

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

Chlamydia trachomatis infection

- Chlamydia continues to be the most frequently reported STI and reportable disease in Europe, accounting for the majority of all STI reports. In 2007, 253 386 confirmed cases of *Chlamydia trachomatis* infection were reported by 22 EU and EEA/EFTA Member States, with an overall rate of 122.6 per 100 000 population. The true incidence of *C. trachomatis* infection is most likely higher than these reported rates.
- Chlamydia mainly affects young persons between 15 and 24 years of age, with a notification rate of 367 per 100 000 population; young women are diagnosed more often than young men, but notification rates are more likely to reflect screening practices and testing volume rather than true incidence.
- Sweden reported a 45 % increase in the number of cases from 2006. This increase is probably due to new testing methods that are able to detect the new variant of *C. trachomatis* first reported in Sweden in November 2006. An EU-wide survey revealed that the spread of this variant was restricted to Sweden or to Swedes' sexual partners in other countries.

Epidemiological situation in 2007

In 2007, 22 EU and EEA/EFTA Member States reported 257 740 cases, with 253 386 of these confirmed, giving an overall notification rate of 122.6 per 100 000. The highest notification rates were reported by Iceland (588 per 100 000), Sweden (517 per 100 000), Norway (488 per 100 000) and Denmark (474 per 100 000) (Table 3.2.1). About 90 % of all the reported confirmed *Chlamydia trachomatis* infections were reported by five countries: the United Kingdom, Sweden, Denmark, Norway and Finland (in descending order).

National surveillance systems for STIs are heterogeneously based on a mixture of voluntary or mandatory reporting, sentinel or national coverage, clinical or laboratory reporting. Comparison between countries is hampered by these differences in reporting. Comparison of Chlamydia notifications is further hampered by the diagnostic methods used, the amount of testing and screening for *C. trachomatis* infections, and the proportion of underreporting. The availability of a screening programme in dedicated STI services or targeted at (sub)groups of the population can significantly affect the reported number of *C. trachomatis* infections. This means that the true incidence and prevalence are likely to be higher than the ones here reported.

Table 3.2.1. Number and notification rate of reported cases of Chlamydia in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	—	—	—	—
Belgium	C	2480	2480	23
Bulgaria	—	—	—	—
Cyprus	U	0	0	0.0
Czech Republic	—	—	—	—
Denmark	A	25795	25795	473
Estonia	A	2480	2480	185
Finland	C	13965	13965	265
France[a]	A	4620	4620	—
Germany	—	—	—	—
Greece	—	—	—	—
Hungary	A	699	699	6.9
Ireland	A	3714	0	0.0
Italy	—	—	—	—
Latvia	A	711	711	31
Lithuania	A	403	403	12
Luxembourg	U	—	—	—
Malta	A	72	72	18
Netherlands	A	7801	7801	48
Poland	A	627	0	0.0
Portugal	—	—	—	—
Romania	A	115	115	0.5
Slovakia	C	91	78	1.4
Slovenia	A	201	201	10
Spain[a]	C	223	223	—
Sweden	A	47101	47101	517
United Kingdom	A	121986	121986	201
EU total		**233084**	**228730**	**113.22[b]**
Iceland	C	1809	1809	588
Liechtenstein	—	—	—	—
Norway	C	22847	22847	488
Total		**257 740**	**253386**	**122.60[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report, U: Unspecified.
[a] Data not representative for the whole country.
[b] Rate calculated excluding the French and Spanish data.

Age and gender distribution

Data on age were available for 202324 of the reported confirmed cases (80%). The highest age-specific rate and the highest number of cases by far were reported in the age group 15–24 years (rate 367 per 100000; 134349 cases). This accounts for two thirds of all cases for which data on age were available. Denmark, Norway, Finland, Iceland and the United Kingdom reported the highest age-specific rates among the 15–24 year-olds, ranging from 3024 to 994 per 100000. *C. trachomatis* infection in the age group 25–44 years accounted for 63882 cases (32%) with a notification rate of 79 per 100000.

Information on gender was available for 253102 cases (only 284 unknown cases). The overall male-to-female ratio was 1:1.2 with rates of 75 per 100000 for men (113740 cases) and 88 per 100000 in women (139362 cases).

In the age group 15–24 years, 43013 cases were reported in men (208 per 100000) and 65839 cases in women (328 per 100000) (Figure 3.2.1). These figures suffer from a known ascertainment bias due to the higher index of suspicion and more screening possibilities for young women (not apparent among those aged 25 years and over).

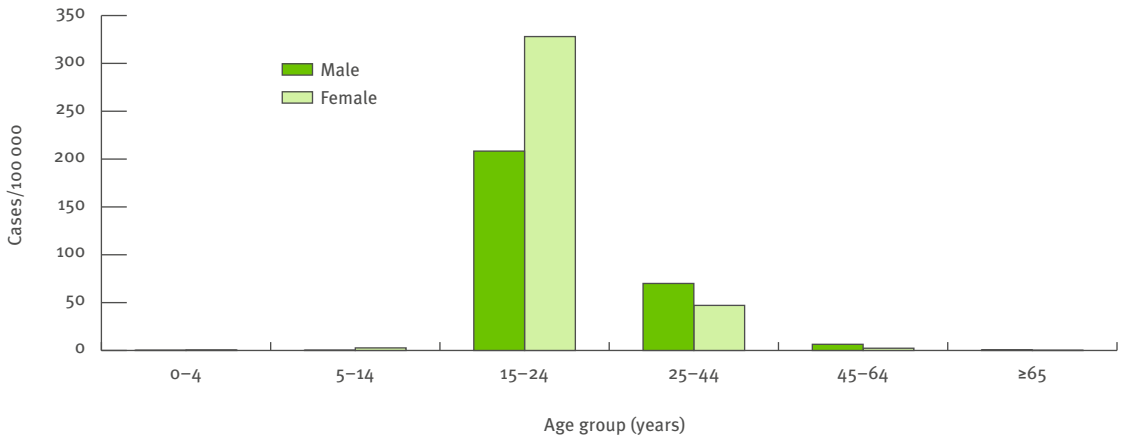
Seasonality

Only a few countries report cases by month. No seasonal trends could be observed for the reported *C. trachomatis* infections in 2007, although – similar to the data of previous years – there were slightly higher numbers reported from August to October.

Enhanced surveillance

In November 2006, a new variant of *C. trachomatis* was reported in Sweden. It had been detected following an unexpected 25% decrease in the number of infections observed in Halland county, in southwest Sweden. The variant could spread easily in those counties that primarily used nucleic acid amplification tests as these were unable to detect it. Reported *C. trachomatis* infection rates have increased considerably since the diagnostic

Figure 3.2.1. Notification rates of Chlamydia cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 165 020)



Source: Country reports: Belgium, Estonia, Finland, Hungary, Slovakia, Spain, UK, Iceland and Norway.

methods were changed and this may account for the observation that Sweden has reported an increase of 44 % over the previous year (32 518 cases for 2006; 47 101 for 2007). This increase could also be due to more persons being offered testing, although a true increase in the prevalence of Chlamydia cannot be excluded.

An EU-wide survey revealed that the spread of this mutant strain was restricted to Sweden or to Swedes' sexual partners from other countries with only few cases occurring outside Sweden[1,2].

Discussion

In many European countries, the notification rates of *C. trachomatis* infection have increased over the past 10 years[3], partially due to more effective screening programmes. However, in many European countries *C. trachomatis* infection is still not a notifiable disease. Opportunistic screening for asymptomatic *C. trachomatis* infection, contact tracing and mandatory notification can explain the high notification rates in Scandinavian countries compared with other European States.

C. trachomatis infections mainly affect young people between 15 and 24 years of age. In order to control the *C. trachomatis* infection disease burden in Europe, screening programmes targeting young people are crucial for early detection and treatment of all infected individuals and their partners.

Surveillance systems for Chlamydia differ even more across countries than for other STI (e. g. gonorrhoea and syphilis). Several countries have not yet established surveillance systems for Chlamydia. Comparison between countries is hampered due to differences in surveillance systems, their coverage, as well as in the organisation of health services including diagnostic methods, amount of testing and screening, and access to care. Data presented here must be interpreted with caution because the proportion of Chlamydia cases that are actually diagnosed and reported is likely to differ greatly across countries.

References

1. Herrmann B. A new genetic variant of *Chlamydia trachomatis*: a thrilling story in Sweden with global impact. Sex Transm Infect. 2007;83(4):253-4.
2. 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.
3. ESSTI: Sexually Transmitted Infections Surveillance in Europe; Annual Report No. 3. London: Health Protection Agency 2008

Surveillance systems overview

Country	Data Source Description	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	Sentinella System for STI	V	Se	A	C	Y	N	N	N	–
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting HCV, Chlamydia	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	Sentinel laboratory network	V	Se	A	C	Y	N	N	N	Y
Hungary	STD surveillance	Cp	Se	P	A	N	Y	N	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	Aggregate STI Surveillance System	Cp	Co	P	A	Y	Y	Y	–	Y
Latvia	STI and skin infections surveillance system	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	National coverage of STI clinics, SOAP	V	Co	A	C	N	Y	N	N	Y
Norway	MSIS (group C-diseases: chlamydia)	Cp	Co	A	A	Y	N	N	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	N	Y	N	N	Y
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	GUM	Cp	Se	P	A	N	N	N	Y	Y

Gonorrhoea

- In 2007, a total of 29 443 confirmed cases of gonorrhoea were reported by 27 EU and EEA/EFTA countries, with an overall rate of 8.4 per 100 000 population.
- Compared to 2006, the overall number of reported gonorrhoea cases has slightly decreased although no consistent pattern is observed across countries.
- Gonorrhoea is more commonly reported in men, who account for 73 % of all cases reported in 2007. Over half of the cases were reported in people older than 25 years.
- The proportion of reported gonorrhoea cases among men who have sex with men appears to have increased over the last few years.

Epidemiological situation in 2007

In 2007, 27 EU and EEA/EFTA countries reported 29 892 gonorrhoea cases (of which 29 443 were confirmed), with an overall notification rate of 9.5 per 100 000 (Table 3.2.2). No data were available from Bulgaria, Germany or Liechtenstein. The majority of the cases (18 710) were reported from the United Kingdom (64 % of confirmed cases).

The notification rate varies widely among countries, ranging from less than 1 case per 100 000 in Cyprus, Italy, Luxembourg, Poland and Portugal to approximately 30 cases per 100 000 in Latvia and the United Kingdom. National surveillance systems for all STIs are heterogeneous, with a mixture of voluntary or mandatory reporting, sentinel or national coverage, clinical or laboratory reporting. Major variations in surveillance systems across countries in terms of coverage, completeness and representativeness hamper meaningful comparisons. Hence comparing numbers and reported rates between countries may be misleading given these major differences in reporting systems and reporting behaviour. Underreporting may also be considerable in some countries.

Age and gender distribution

Data on age were available for 27 750 of the confirmed cases. The highest proportion of confirmed gonorrhoea cases was reported in the age groups 15–24 (46 %; 12 650 cases) and 25–44 years (47 %; 13 111 cases). Age-specific reporting rates are highest in the age group 15–24 years for both genders: 23 per 100 000 for men and 19 per 100 000 for women (Figure 3.2.2). Men account for 73 % of all gonorrhoea cases (11 per 100 000 compared with 3.8 per 100 000 in women). The male-to-female ratio was 2.8:1. This pattern was observed in all countries except in Austria and Estonia where two thirds of the cases (74 % and 64 %, respectively), were reported in women.

Seasonality

Data on seasonality were available from 11 countries, but no seasonal trends were apparent.

Enhanced surveillance in 2007

In the annual report of the European network for STI surveillance (ESSTI) based on the 2007 data, the probable route of transmission was reported by nine countries: Cyprus, Czech Republic, Denmark, Greece, Netherlands, Norway, Slovenia, Sweden and the United Kingdom. In 2007, the proportion of gonorrhoea cases reported in men having sex with men (MSM) ranged from 19 % in Greece to 69 % in the Netherlands and Slovenia. The number of cases of gonorrhoea in MSM has increased in the Czech Republic (14 %), Netherlands (1 %), Norway (18 %) and Slovenia (100 %) in the past year, but has decreased in Denmark (14 %), Greece (31 %), Sweden (5 %) and the United Kingdom (15 %).

Since 1997 there has been a steady increase in the number of gonorrhoea cases among MSM in all six countries that consistently reported for this period. The proportion of cases among MSM has fluctuated over the years but the overall trend is slightly increasing[1].

Discussion

Gonorrhoea mainly affects men and, in many countries, MSM in particular. Comparison between countries is hampered due to differences in surveillance systems as well as in the organisation of healthcare services, including diagnostic methods, amount of testing and screening, and access to care. Data presented here must be interpreted with caution because the proportion of gonorrhoea cases that is actually diagnosed and reported is likely to differ greatly across countries.

References

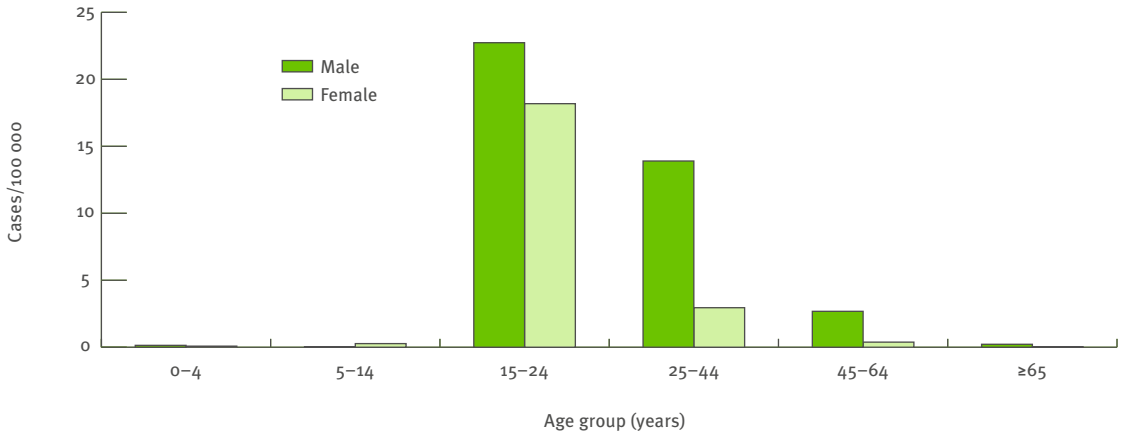
1. ESSTI. Sexually Transmitted Infections Surveillance in Europe. Annual Report No. 3, 2007. London: Health Protection Agency 2008.

Table 3.2.2. Number and notification rate of reported cases of gonorrhoea in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria[a]	C	142	131	—
Belgium	C	585	585	5.5
Bulgaria	—	—	—	—
Cyprus	A	5	5	0.6
Czech Republic	A	1149	1149	11
Denmark	C	353	353	6.5
Estonia	A	174	174	13
Finland	C	195	195	3.7
France[b]	A	891	891	—
Germany	—	—	—	—
Greece	A	201	201	1.8
Hungary	A	1041	1041	10
Ireland	A	416	—	—
Italy	C	243	243	0.4
Latvia	C	669	669	30
Lithuania	A	471	471	13.9
Luxembourg	C	1	1	0.2
Malta	A	53	53	13
Netherlands	A	1827	1827	11
Poland	A	330	330	0.9
Portugal	C	74	72	0.7
Romania	A	815	815	3.8
Slovakia	C	101	81	1.5
Slovenia	C	39	39	1.9
Spain[b]	C	504	504	—
Sweden	A	642	642	7.0
United Kingdom	A	18710	18710	31
EU total		**29631**	**29182**	**9.57[c]**
Iceland	C	23	23	7.5
Liechtenstein	—	—	—	—
Norway	C	238	238	5.1
Total		**29892**	**29443**	**9.50[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 labs; notification rate per 100 000 cannot be calculated.
[c] Rate calculated excluding the Austrian, French and Spanish data.

Figure 3.2.2. Notification rates of gonorrhoea cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 22494)



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

Surveillance systems overview

Country	Data Source Description	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	Sentinella System for STI	V	Se	A	C	Y	N	N	N	–
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	National STD register	Cp	Co	P	C	Y	Y	Y	Y	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Denmark	STI clinical	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Gonococc	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Hungary	STD surveillance	Cp	Se	P	A	N	Y	N	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	Aggregate STI Surveillance System	Cp	Co	P	A	Y	Y	Y	–	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	STI and skin infections surveillance system	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group B diseases)	Cp	Co	P	C	Y	Y	Y	—	Y
Netherlands	National coverage of STI clinics, SOAP	V	Co	A	C	N	Y	N	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Gonococcal Infections Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	N	Y	N	N	Y
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	GUM	Cp	Se	P	A	N	N	N	Y	Y

Hepatitis B

- In 2007, 6 481 confirmed cases of hepatitis B were reported by 27 EU and EEA/EFTA Member States, a rate of 1.51 per 100 000 inhabitants.
- The most affected age groups are those between 25 and 44 years old with 52 % of cases (3.0 cases per 100 000), followed by the 15–24 year-olds (2.6 cases per 100 000).
- The overall number of cases is lower than for 2006. Moreover, the huge differences in the sensitivity of each country's surveillance system for this disease, as well as changes in reporting systems and testing practices implemented in 2006, may have influenced this overall figure.
- The development and implementation of enhanced surveillance of hepatitis B is essential to provide the necessary information for monitoring the trends, the differences in epidemiology and to evaluate the prevention programmes in the EU.

Epidemiological situation in 2007

In 2007, 6 804 cases of hepatitis B virus infection were reported by 27 EU and EEA/EFTA Member States (Czech Republic, United Kingdom and Liechtenstein did not report). Of these, 6 481 were confirmed giving an overall notification rate of 1.51 per 100 000 population (Table 3.2.3)

The highest notification rates were observed in Bulgaria (10 cases per 100 000), Latvia (7.2 per 100 000), Denmark (5.1 per 100 000) and Romania (4.3 per 100 000). Among countries that reported cases in both years, the number of hepatitis B cases increased by 7 % in 2007 on 2006.

Age and gender distribution

In 2007, 3 091 confirmed cases of hepatitis B were reported among males (1.8 per 100 000) and 1 404 among females (0.76 per 100 000), with a male-to-female ratio of 2.3:1. The majority of the hepatitis B cases were reported in the age group 25–44 years (51 % of the total) that also had the highest rate at 2.4 per 100 000 (Figure 3.2.3) followed by the 15–24 year-olds (2.04 per 100 000). The highest rates among young people aged 15–24 years were reported in Iceland (13 per 100 000), Romania (11 per 100 000) followed by Denmark (6.8 per 100 000).

Seasonality

Data on seasonality were available from 21 countries, with 5 287 cases reported, but as expected 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. There are a number of children born to infected mothers that are at a higher risk of becoming infected and more likely to be reported. Newborns and infants are also at risk of acquiring infection from chronically infected household members.

Interpretation of the trends is hampered by differences between surveillance systems, recent changes in reporting, low numbers in some countries, undiagnosed cases, possible differences in case definitions used (with different use and/or interpretation of hepatitis B markers, for example) and incomplete reporting in some countries. Also, some countries do not distinguish between reports of acute and chronic cases of hepatitis B and this, together with the high rate of asymptomatic cases, leads to a mix of data that cannot really be compared between countries.

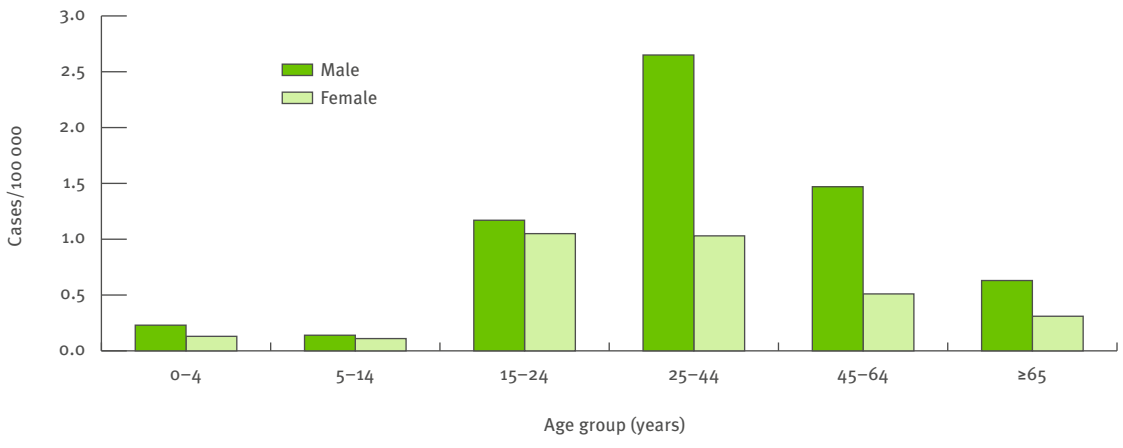
Enhanced surveillance of hepatitis B will be essential to provide the necessary information with which to monitor the trends, to account for differences in epidemiology and to evaluate prevention programmes. Furthermore, the harmonisation of hepatitis B and hepatitis C surveillance at the European level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

Table 3.2.3. Number and notification rate of reported cases of hepatitis B infection in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	86	19	0.2
Belgium	A	146	0	0.0
Bulgaria	A	753	751	9.8
Cyprus	C	13	13	1.7
Czech Republic	–	–	–	–
Denmark	C	278	278	5.1
Estonia	C	44	44	3.3
Finland	C	24	24	0.5
France	C	161	156	0.2
Germany	C	1008	1008	1.2
Greece	C	85	77	0.7
Hungary	C	81	81	0.8
Ireland	C	52	52	1.2
Italy	C	1097	1097	1.9
Latvia	A	165	165	7.2
Lithuania	A	84	84	2.5
Luxembourg	C	14	14	2.9
Malta	C	2	2	0.5
Netherlands	C	224	224	1.4
Poland	A	364	269	0.7
Portugal	C	64	64	0.6
Romania	A	927	927	4.3
Slovakia	C	103	103	1.9
Slovenia	C	16	16	0.8
Spain	C	645	645	1.5
Sweden	C	201	201	2.2
United Kingdom	–	–	–	–
EU total		**6 637**	**6 314**	**1.49**
Iceland	C	47	47	15.28
Liechtenstein	–	–	–	–
Norway	C	120	120	2.6
Total		**6 804**	**6 481**	**1.51**

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

Figure 3.2.3. Notification rates of hepatitis B cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 4 316)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	—	—	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting HBV, Giardiasis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	—	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Hepatitis B Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	N	Y	N	N	Y
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y

Hepatitis C

- In 2007, 26 840 confirmed cases of hepatitis C were reported by 27 EU and EEA/EFTA Member States, with an overall rate of 6.87 per 100 000 population.
- 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 and EEA/EFTA countries.
- The most affected age group is the 25–44 year-olds (10 cases per 100 000).
- The development of enhanced surveillance of hepatitis C is needed to provide the necessary information with which to monitor the trends, show differences in epidemiology and to evaluate prevention policies and programmes in the EU and EEA/EFTA. However, practical issues, such as correctly determining recent infection remains a problem.

Epidemiological situation in 2007

In 2007, 27 591 cases of hepatitis C virus (HCV) infection were reported by 27 EU and EEA/EFTA Member States, of which 26 840 were confirmed, giving an overall notification rate of 6.87 per 100 000 population. No data were available from France, Liechtenstein or Norway (Table 3.2.4).

There is wide variation in notification rate, ranging from less than one per 100 000 in Austria, Greece, Hungary, Italy, Malta, the Netherlands, Portugal, Romania and Slovenia; to the highest notification rates in Ireland (36 per 100 000), Iceland (27 per 100 000), Sweden (23 per 100 000), Finland (22 per 100 000) and the United Kingdom (16 per 100 000). However, comparisons between countries are of limited value as surveillance systems, testing and screening practices and reporting behaviour vary widely: Finland, for example, includes all cases newly recognised, regardless of the clinical presentation (screening, chronic, acute, etc.), while many other countries like Denmark only report those cases confirmed as having an acute infection.

Age and gender distribution

In 2007, 16 968 confirmed cases of hepatitis C were reported in men (63 %) and 9 467 in women (35 %), with rates of 8.2 and 4.4 per 100 000, respectively (male-to-female ratio 1.8:1). Slightly more than half of the hepatitis C cases were reported in the age group 25–44 years (52 % of the total). The highest rates in that age group were observed in Ireland (81 per 100 000), Iceland (54 per 100 000), Finland (44 per 100 000), Sweden (36 per 100 000) and the United Kingdom (35 per 100 000). The highest rates in young adults aged 15–24 years were reported in Finland (375 cases; 57 per 100 000) and Iceland (24 cases; 54 per 100 000) (Figure 3.2.4).

Similarly to hepatitis B, there are a number of children born to infected mothers that are at a higher risk of becoming infected (and are also at risk of acquiring infection from other household contacts) and these are more likely to be reported and appear in the distribution below.

Seasonality

There are no seasonal trends observed for hepatitis C.

Discussion

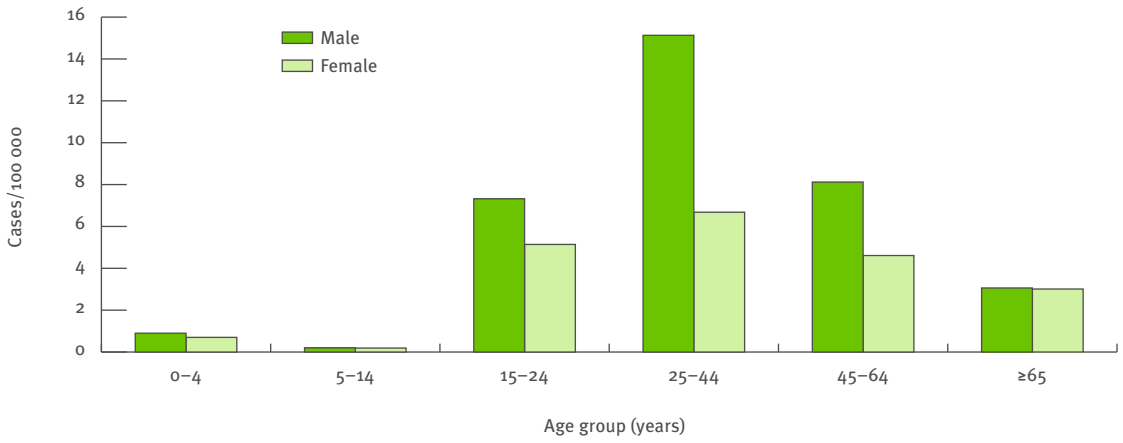
Most European countries have implemented surveillance systems for hepatitis C, but due to their differences, particularly in system structures, reporting practices, data collection methods and case definitions used, the surveillance data are difficult to compare across countries. Similarly, interpretation 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 of acute and chronic cases of hepatitis C. Hence, surveillance data cannot as yet be used to describe the true incidence or trends of the disease. Nevertheless, enhanced surveillance of hepatitis C needs to be developed to provide the necessary information with which to monitor the trends and differences in epidemiology. The harmonisation of hepatitis B and hepatitis C surveillance at the European level is needed to obtain a better picture of the epidemiology of hepatitis C.

Table 3.2.4. Number and notification rate of reported cases of hepatitis C in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	301	4	0.1
Belgium	A	442	0	0.0
Bulgaria	A	98	98	1.3
Cyprus	C	9	9	1.2
Czech Republic	C	980	980	9.5
Denmark	C	366	366	6.7
Estonia	C	36	36	2.7
Finland	C	1164	1164	22
France	–	–	–	–
Germany	C	6858	6858	8.3
Greece	C	20	11	0.1
Hungary	C	22	22	0.2
Ireland	C	1558	1558	36
Italy	C	308	308	0.5
Latvia	A	103	103	4.5
Lithuania	A	46	46	1.4
Luxembourg	C	58	58	12
Malta	C	1	1	0.3
Netherlands	C	44	44	0.3
Poland	A	2753	2753	7.2
Portugal	C	57	56	0.5
Romania	C	90	90	0.4
Slovakia	C	338	336	6.2
Slovenia	C	14	14	0.7
Spain[a]	C	214	214	–
Sweden	C	2096	2096	23.0
United Kingdom	C	9533	9533	16
EU total		**27 509**	**26 758**	**6.85[b]**
Iceland	C	82	82	26.7
Liechtenstein	–	–	–	–
Norway	–	–	–	–
Total		**27 591**	**26 840**	**6.87[b]**

Source: Country reports. * A: Aggregated data report; C: Case-based report; –: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from the Spain.

Figure 3.2.4. Notification rates of hepatitis C cases by age and gender, in the EU and EEA/EFTA countries, 2007 (n = 26 199)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	—	—	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting HCV, Chlamydia	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Hepatitis C Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	N	Y	N	N	Y
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Hepatitis C Surveillance System	O	Co	A	C	Y	N	Y	N	Y

HIV/AIDS

- HIV infection remains of major public health importance in Europe with no signs of a decrease in the number of reported newly diagnosed cases of HIV infection[i]. By contrast, the number of AIDS cases diagnosed has continued to decline (although these figures were not adjusted for reporting delays). However in several eastern and central European countries the number of AIDS cases is still increasing.
- In 2007, 26 029 newly diagnosed cases of HIV infection were reported in 28 Member States (excluding Austria and Liechtenstein), with a rate of 6.0 per 100 000 population.
- The highest proportion of the total number of newly diagnosed HIV cases in EU and EEA/EFTA countries was reported to have been transmitted among men who have sex with men (39 %) followed by individuals infected heterosexually (29 %) and injecting drug users (9%).
- Among the 25 EU and EEA/EFTA countries that have consistently reported HIV data since 2000, the rate of reported cases of HIV infection has increased from 4.4 per 100 000 in 2000 (14 483 cases) to 4.9 per 100 000 (19 435 cases) in 2007.

Epidemiological situation in 2007 for HIV infection

In 2007, 26 029 newly diagnosed cases of HIV infection (all confirmed) were reported by 28 EU and EEA/EFTA Member States (Austria and Liechtenstein did not report), giving an overall notification rate of 6.0 per 100 000 population (Table 3.2.5). The highest notification rate was observed in Estonia (47 per 100 000) followed by Latvia (15 per 100 000) and the United Kingdom (13 per 100 000). All other reporting countries reported less than 10 cases per 100 000.

Compared with 2006, there appears to have been no change in the overall number or rate of reported cases of HIV infection (when only countries that reported for both years are taken into account).

Age and gender distribution of HIV infection

In 2007, 17 891 newly diagnosed cases of HIV were reported in men and 8 033 in women, with overall rates of 8.4 and 3.7 per 100 000, respectively (calculated excluding Spanish and Italian sub-national data) (male-to-female ratio 2.3:1). The majority of the newly diagnosed cases of HIV infection were reported among the 25–44 year-olds (68 %), 19 % among the 45–64 year-olds and 14 % in the 15–24 year age group. The main differences in the age-sex rates are seen in the age group 25–44 years, (16 per 100 000 in men and 7.6 per 100 000 in women) (Figure 3.2.5).

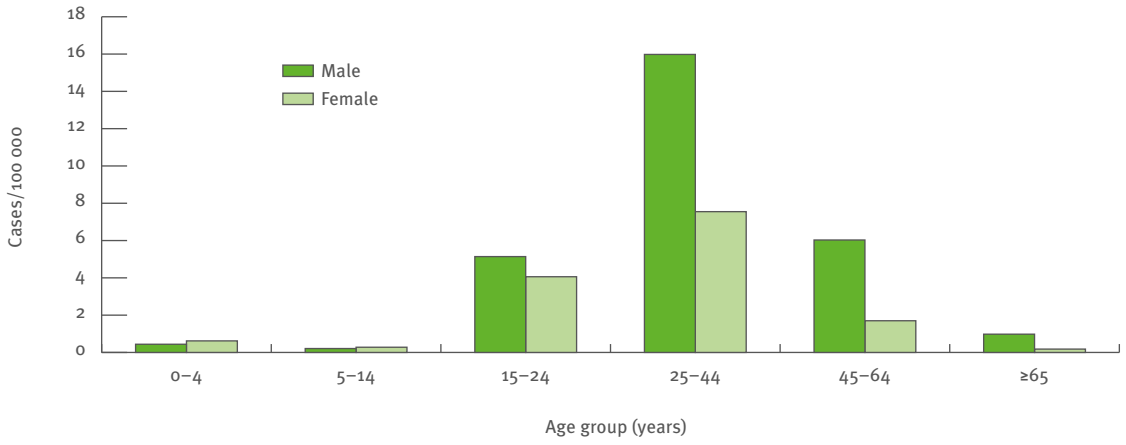
i This term is used to also mean 'newly reported cases'.

Table 3.2.5. Number and notification rate of newly diagnosed cases of HIV infection in the EU and EEA/EFTA countries, 2007

Country	Report type*	Confirmed cases	Notified cases per 100 000 population
Austria[a]	—	—	—
Belgium	C	1052	9.9
Bulgaria	C	126	1.6
Cyprus	C	46	5.9
Czech Republic	C	122	1.2
Denmark	C	306	5.6
Estonia	C	633	47
Finland	C	187	3.5
France	C	5138	8.1
Germany	C	2752	3.3
Greece	C	516	4.6
Hungary	C	119	1.2
Ireland	C	362	8.4
Italy[b]	A	1607	—
Latvia	C	350	15.3
Lithuania	C	106	3.1
Luxembourg	C	47	9.9
Malta	C	16	3.9
Netherlands	C	1094	6.7
Poland	C	717	1.9
Portugal	C	894	8.4
Romania	C	172	0.8
Slovakia	C	39	0.7
Slovenia	C	36	1.8
Spain[c]	C	1057	—
Sweden	C	540	5.9
United Kingdom	C	7734	13
EU total		**25768**	**6.0[d]**
Iceland	C	13	4.2
Liechtenstein	—	—	—
Norway	C	248	5.3
Total		**26 029**	**6.0[d]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report.
[a] HIV is not a notifiable disease in Austria.
[b] Regional data are reported for Italy (and Spain; see note (c)) and known not to be nationally representative.
[c] In Spain, HIV reporting exists in some of the 19 autonomous regions but data are only available for eight regions (Balearic Islands, Basque Country, Canary Islands, Catalonia, Ceuta, Extremadura, La Rioja, and Navarre) for 2007. The notification rate would be 7.5 cases per 100 000 population, based on the population of these eight regions (14.15 million in 2007, 32 % of total population).
[d] Rate calculated excluding data from Spain and Italy.

Figure 3.2.5. Notification rates of newly diagnosed cases of HIV infection by age and gender, in EU and EEA/EFTA countries, 2007 (n = 25 262)



Source: Country reports: 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, Norway.

Epidemiological situation in 2007 for AIDS diagnoses

In 2007, 5833 newly diagnosed AIDS cases were reported (all confirmed) by 29 EU and EEA/EFTA Member States (Liechtenstein did not report) (Table 3.2.6). Only Iceland reported zero cases. The highest rates in AIDS diagnoses were reported by Estonia (57 cases; 4.3 per 100 000), Portugal (320 cases; 3.0 per 100 000) and Italy (1569 cases; 2.7 per 100 000), followed by Latvia (54 cases; 2.4 per 100 000) and Spain (893 cases; 2.0 per 100 000). However, the majority of the EU and EEA/EFTA countries (19/30) reported rates equal to or less than 1 per 100 000 population. This figure is a significant drop (17 %) from the figures in 2006 (7035 cases) and probably represents better and earlier access to anti-retroviral drugs.

Age and gender distribution of AIDS diagnoses

The age distribution in AIDS cases shows a peak in the age group 25–44 (2.4 per 100 000), similar to that for HIV (Figure 3.2.6). Males accounted for 74 % of all reported AIDS cases, with a rate of 1.8 per 100 000, which is three times higher than the rate among females (0.6 per 100 000).

Table 3.2.6. Number and notification rates of new AIDS diagnoses in the EU and EEA/EFTA countries, 2007

Country	Report type*	Confirmed cases	Notified cases per 100 000 population
Austria	C	64	0.77
Belgium	C	81	0.77
Bulgaria	C	8	0.10
Cyprus	C	4	0.51
Czech Republic	C	23	0.22
Denmark	C	32	0.59
Estonia	C	57	4.3
Finland	C	33	0.63
France	C	810	1.3
Germany	C	287	0.35
Greece	C	77	0.69
Hungary	C	23	0.23
Ireland	C	31	0.72
Italy	C	1569	2.7
Latvia	C	54	2.4
Lithuania	C	28	0.83
Luxembourg	C	10	2.1
Malta	C	2	0.49
Netherlands	C	241	1.5
Poland	C	183	0.48
Portugal	C	320	3.0
Romania	C	261	1.2
Slovakia	C	6	0.11
Slovenia	C	9	0.45
Spain	C	893	2.0
Sweden	C	73	0.80
United Kingdom	C	645	1.1
EU total		**5 824**	**1.18**
Iceland	U	0	0.0
Liechtenstein	—	—	—
Norway	C	9	0.19
Total		**5 833**	**1.17**

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

Enhanced surveillance in 2007

Mode of transmission of HIV

In 2007, 27 EU and EEA/EFTA countries contributed to the joint surveillance network of HIV in the WHO European Region[1]. No cases were reported from Austria, Italy or Liechtenstein. Information on mode of transmission (data missing for 5285 cases; 21%) was available for 20221 HIV cases:

- Heterosexual contacts account for half of the cases (10089). However, when HIV cases reported in persons from countries with generalised epidemics (4295 cases) are excluded, this percentage decreases to 29%;
- The predominant mode of transmission in EU and EEA/EFTA countries is by sex between men: 39% of the infections were diagnosed among MSM[i] (7906 cases);
- Nine per cent of the HIV cases were reported among injecting drug users (1880 cases);
- The remaining cases (2%) included 262 cases of HIV infected through mother-to-child transmission (many of which were acquired outside of the EU) and 84 cases by other routes (nosocomial infection, transfusion or use of other blood products);
- The number of HIV reports attributed to unknown transmission category has increased[ii] by 72% from 3033 in 2003 to 5212 in 2007.

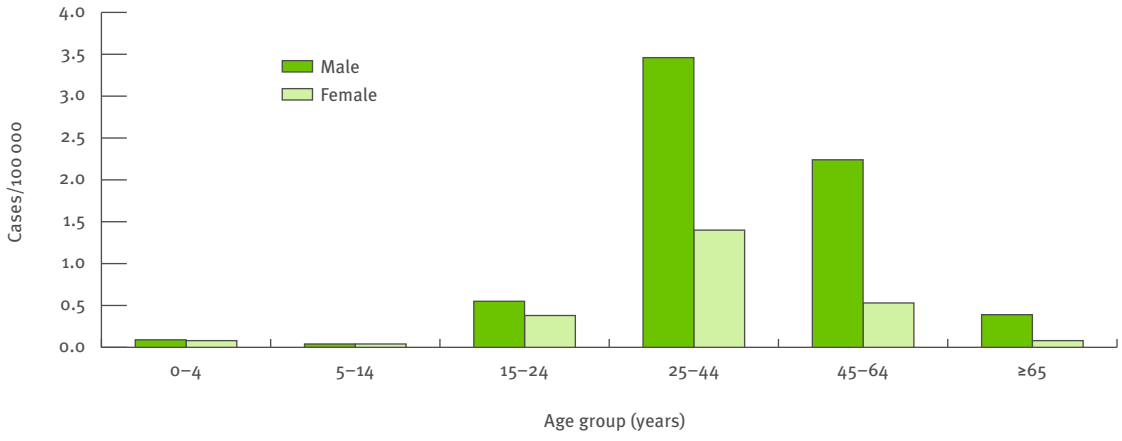
Trends in HIV reporting

Among the 24 EU and EEA/EFTA countries that have consistently reported HIV data since 2000, the rate of reported cases of HIV infection has increased from 4.3 per 100000 in 2000 (13900 cases) to 5.7 per 100000 (18662 cases) in 2007. Rates of reported HIV infection have doubled in six countries (Bulgaria, Czech Republic, Hungary, Slovakia, Slovenia and Sweden).

Twenty-five EU and EEA/EFTA countries have consistently reported data on HIV transmission mode since 2003 (Estonia only provides information regarding injecting drug users (IDU)). Since 2003, trends in transmission group indicate the following (Figure 3.2.7):

- Among countries reporting more than 50 cases of heterosexually acquired infection in 2007, a more than 20% decrease was reported in the Netherlands and Ireland. An increase of more than 50% was reported in the Czech Republic, Lithuania and Latvia.
- The proportion of cases originating from countries with generalised epidemics among heterosexually acquired cases varied between 38% and 41% between 2003 and 2007, although this information is underreported and therefore likely to be an underestimate.
- The number of HIV reports among MSM has increased by 39% (from 5722 in 2003 to 7906 in 2007).
- The number of HIV reports among IDU has declined by 29% from 2655 in 2003 to 1880 in 2007. Data were not available for this period for Italy, where major epidemics among IDU have been reported in the past.

Figure 3.2.6. Notification rates of AIDS diagnoses by age and gender, in the EU and EEA/EFTA countries, 2007 (n = 5826)



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, Norway.

i This term refers to the mode of transmission (rather than the sexual preference) that is sometimes termed 'sex between men' or 'homosexual contact' or 'homosexual transmission'.

ii These are likely to be a mix of all transmission categories that are non-reported, rather than a new category.

AIDS cases in the EU and EEA/EFTA, 2007

Since 2000, the number of AIDS cases newly diagnosed in 28 EU and EEA/EFTA countries (no data available from Italy or Liechtenstein) has declined by more than half, from 8 915 cases (2.1 per 100 000) to 3 957 cases (0.9 per 100 000) in 2007, most likely due to improved and earlier access to care in these countries. During this period, the number of AIDS cases diagnosed has increased in eight countries. Of the six countries that reported more than 30 AIDS cases diagnosed in 2007, the largest increase was reported by Estonia, from three cases in 2000 (0.2 per 100 000) to 57 (4.3 per 100 000) in 2007. Other substantial increases (doubled or more) were observed in Finland, Ireland, Latvia and Poland. Decreases in the number of AIDS cases of more than 50 % over the period 2000 to 2007 were reported by five countries: Spain, Portugal, France, Germany and Romania, although these decreases were not adjusted for reporting delays.

Discussion

HIV infection remains of major public health importance in the EU and EEA/EFTA countries with no signs of a decrease in the number of reported newly diagnosed cases of HIV infection. By contrast, the number of AIDS cases diagnosed (not adjusted for reporting delays) has continued to decline, although in the eastern part of Europe the number of AIDS cases continues to increase.

The data indicate evidence of continuing transmission of HIV in many countries. However, the predominant transmission mode varies by country and geographical region, illustrating the wide diversity of the epidemiology of HIV in Europe. Nevertheless, some common trends may be found. The quality of surveillance data needs to be further addressed, as the increasing proportion of missing data on suspected mode of transmission hinders interpretation of surveillance data.

In EU and EEA/EFTA countries the highest proportion of the total number of HIV cases was reported among MSM. National prevention programmes aimed at reducing HIV transmission should have a strong focus on MSM. In addition, although heterosexual HIV transmission remains important and is increasing in several countries, around 40 % of heterosexually acquired cases were diagnosed in persons originating from countries with generalised epidemics.

Migrant populations should also be targeted in national prevention programmes and their access to treatment and care services should be ensured. Although there seems to be a decline in the number of new diagnoses among IDU, this is still the predominant transmission group in the Baltic States.

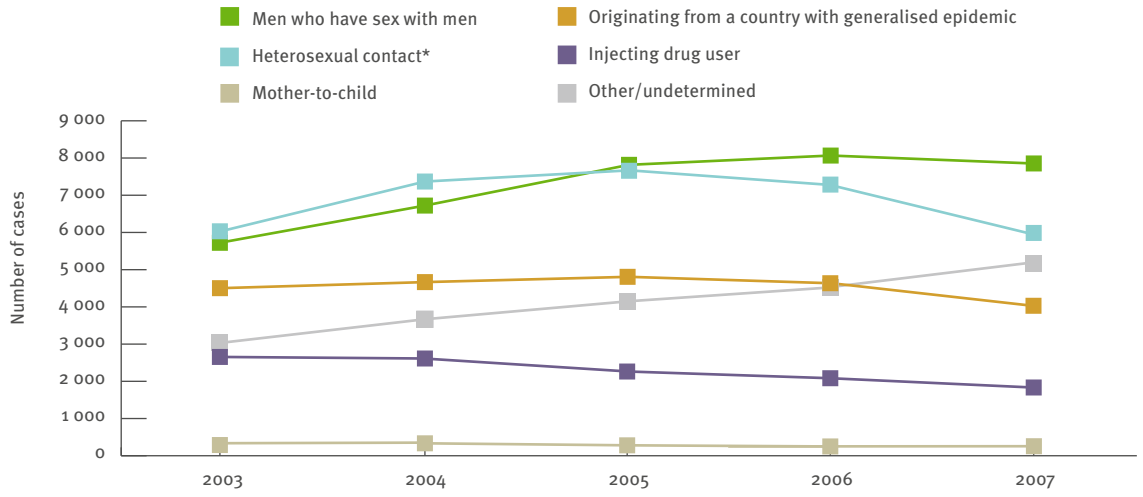
In the central European countries, the nature of the epidemic demonstrates a wide diversity, with heterosexual transmission dominating in some countries, while transmission among MSM predominates in others.

Surveillance of HIV and AIDS in Europe is essential to provide the information that is necessary to monitor the epidemic and evaluate the public health response to control the transmission of infections. In order to achieve this aim, countries in Europe need to ensure that surveillance data is of high quality, and need to provide, in particular, complete case reports with HIV and AIDS surveillance data. Further, more accurate risk factor information is needed to better inform the direction of the prevention and control interventions.

References

1. European Centre for Disease Prevention and Control/WHO Regional Office for Europe: HIV/AIDS surveillance in Europe 2007. Stockholm, European Centre for Disease Prevention and Control, 2008.

Figure 3.2.7. Number of reported HIV infections by transmission mode and origin in EU and EEA/EFTA countries, 2003–07



Source: Country reports: Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia (IDU only), Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK, Iceland, Norway.
* Excludes cases originating from countries with generalised epidemic.

Surveillance systems overview (AIDS)

Country	Data Source Description	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	AIDS-Gesetz 1993	Cp	Co	P	C	Y	Y	Y	N	Y
Belgium	HIV/AIDS registry	V	Co	A	C	Y	Y	Y	–	Y
Bulgaria	AIDS	Cp	Co	A	C	N	N	Y	N	Y
Cyprus	HIV/AIDS	Cp	Co	A	C	N	N	Y	N	Y
Czech Republic	Report of HIV/AIDS	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	Y	Y	N	N	Y
Estonia	Obligatory, countrywide AIDS Surveillance System	Cp	Co	P	C	Y	N	Y	N	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	AIDS	Cp	Co	P	C	N	Y	Y	N	Y
Germany	AIDS	V	Co	–	C	N	Y	Y	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HIV/AIDS surveillance	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	HIV/AIDS	V	Co	P	C	Y	Y	Y	N	Y
Italy	COA Center of National AIDS Surveillance – Istituto Superiore di Sanità 00161 Roma	Cp	Se	P	–	Y	N	Y	–	N
Latvia	AIDS Surveillance system	V	Co	P	C	N	Y	Y	N	Y
Lithuania	HIV/AIDS	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	AIDS	V	Co	P	C	Y	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	N	Y
Netherlands	HIV/AIDS registry	V	Co	P	C	N	Y	Y	N	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	AIDS	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	HIV infection and AIDS Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian surveillance system	Cp	Se	A	C	N	Y	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	HIVSUR – AIDS	Cp	Co	P	C	N	Y	N	N	Y
Spain	AIDS Register	Cp	Co	P	C	N	Y	N	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
Sweden	Swedish HIV Register	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	AIDS Surveillance system	V	Co	A & P	C	Y	Y	Y	Y	Y

Surveillance systems overview (HIV)

Country	Data Source Description	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
Belgium	HIV/AIDS registry	V	Co	A	C	Y	Y	Y	N	Y
Bulgaria	HIV	Cp	Co	P	C	Y	N	N	N	Y
Cyprus	HIV/AIDS	Cp	Co	A	C	N	N	N	Y	Y
Czech Republic	Report of HIV/AIDS	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	HIV surveillance	Cp	Co	P	C	Y	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting HIV	Cp	Co	P	C	Y	Y	Y	N	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases – HIV	Cp	Co	P	C	Y	Y	Y	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI – 7.3 (1) HIV	Cp	Co	P	C	Y	Y	N	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HIV/AIDS surveillance	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	HIV/AIDS	V	Co	P	C	Y	Y	Y	N	Y
Italy	COA Center of National AIDS Surveillance – Istituto Superiore di Sanità 00161 Roma	Cp	Se	P	–	Y	N	Y	–	N
Latvia	HIV surveillance system	V	Co	P	C	N	Y	Y	N	Y
Lithuania	HIV/AIDS	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	HIV	V	Co	P	C	Y	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	N	Y
Netherlands	HIV/AIDS registry	Cp	Co	P	C	N	Y	Y	N	Y
Norway	MSIS (group B diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	HIV	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	HIV infection and AIDS Surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian surveillance system	Cp	Se	A	C	N	Y	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	HIVSUR – HIV	Cp	Co	P	C	Y	Y	N	N	Y
Spain	HIV	Cp	Co	P	C	Y	Y	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
Sweden	Swedish HIV Register	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	HIV infection Surveillance System	V	Co	A	C	Y	Y	Y	Y	Y

Syphilis

- In 2007, 17 603 confirmed cases of syphilis were reported by 27 EU and EEA/EFTA Member States.
- An overall rate of 4.39 per 100 000 was reported, and three quarters of the cases were diagnosed in men, influenced by an ongoing epidemic in men who have sex with men in several major cities in Europe.
- Syphilis mainly affects persons between 25 and 44 years old (7.2 cases per 100 000) especially men.
- As compared with 2006, the total number of reported syphilis cases has slightly decreased but it is not possible to conclude on a definite trend.

Epidemiological situation in 2007

For 2007, 27 EU and EEA/EFTA countries reported 17 651 syphilis cases (17 603 were confirmed). No data were available from Bulgaria, Ireland or Liechtenstein. The overall notification rate was 4.39 per 100 000 population (Table 3.2.7). There is a wide variation in notification rates ranging from less than one case per 100 000 population in Austria and Portugal to higher notification rates in Romania (23 per 100 000), Latvia (13 per 100 000), Lithuania (8.1 per 100 000) and the Czech Republic (8.0 per 100 000). National surveillance systems for all STIs are heterogeneous, with a mixture of voluntary or mandatory reporting, sentinel or national coverage, clinical or laboratory reporting. Major variations in surveillance systems across countries in terms of coverage, completeness and representativeness hamper meaningful comparisons. Hence comparing numbers and reported rates between countries may be misleading given these major differences in reporting systems and reporting behaviour. Underreporting may also be considerable in some countries.

Age and gender distribution

In 2007, 12 498 cases of syphilis were reported in men and 4 673 in women with rates of 5.4 and 1.9 per 100 000, respectively (male-to-female ratio 2.9:1).

Information on age was available for 15 842 reported cases. The majority (62 %) was reported in the age group 25–44 years (9 843 cases; 7.1 per 100 000); followed by 19 % reported among those aged 15–24 years (5.0 per 100 000) and then the older age group 45–64 years (2.0 per 100 000).

The age-specific notification rates for men are much higher than for women (Figure 3.2.8). The highest age-specific notification rates were reported from Romania for the age groups 15–24 years (43 per 100 000) and 25–44 years (41 per 100 000).

Enhanced surveillance in 2007

In the annual report of the European network for STI surveillance (ESSTI) using 2007 data[1], the number of syphilis cases by probable route of transmission is reported by ten countries: Cyprus, Czech Republic, Denmark France, Germany, Netherlands, Norway, Slovenia, Sweden and the United Kingdom. In the western European countries a high proportion of male syphilis cases were reported among men who have sex with men (MSM). The few central European countries with available information reported a significantly lower but increasing number of cases among MSM. Compared with 2006, the number of cases of syphilis among MSM has increased or remained stable in all countries. Since 1998 the number of syphilis cases reported among MSM has increased dramatically in all five countries with consistent reporting (Czech Republic, Denmark, Norway, Sweden and UK) ranging from a 200 % to 640 % increase. The proportion of total cases that were reported among MSM has similarly increased during the same period, from 2–30 % in 1998 to 32–90 % on 2007.

Discussion

Until the mid-1990s, syphilis 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. Initially occurring predominantly among MSM, outbreaks have since been reported among various other populations including commercial sex workers and their clients, migrant communities and among heterosexual adults.

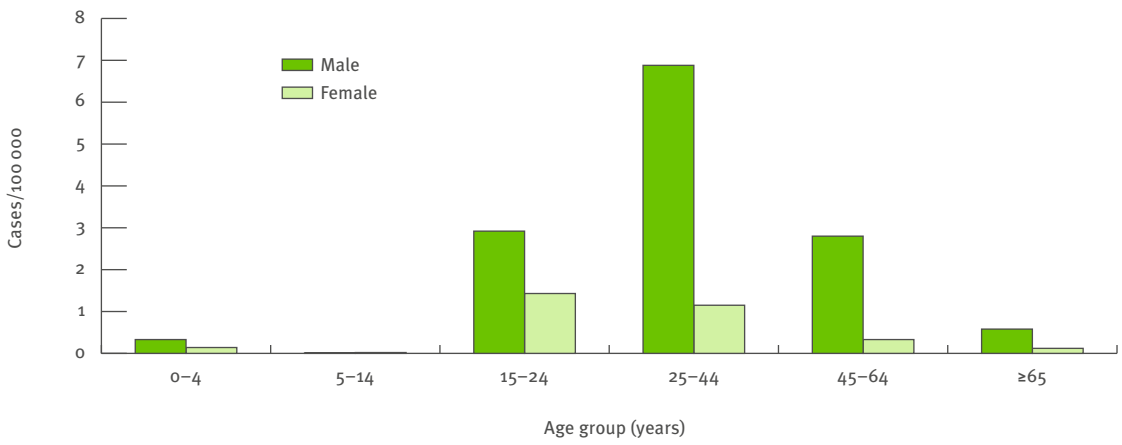
In the central and eastern European countries, high rates of syphilis were observed in the early 1990s. The increases were related to the behavioural and socioeconomic changes in this region. A decrease in incidence was then observed in the following years. This could have reflected a true decrease but could possibly be linked to underreporting.

Table 3.2.7. Number and notification rate of reported cases of syphilis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	61	61	0.7
Belgium	C	403	403	3.81
Bulgaria	—	—	—	—
Cyprus	A	10	10	1.3
Czech Republic	A	822	822	8.0
Denmark	C	90	90	1.7
Estonia	A	76	76	5.7
Finland	C	188	188	3.6
France[a]	A	570	570	—
Germany	C	3258	3258	4.0
Greece	A	197	197	1.8
Hungary	A	396	396	3.9
Ireland	—	—	—	—
Italy	C	1010	1010	1.7
Latvia	C	301	301	13
Lithuania	A	275	275	8.1
Luxembourg	C	14	14	2.9
Malta	A	12	12	2.9
Netherlands	A	559	559	3.4
Poland	A	851	851	2.2
Portugal	C	112	103	1.0
Romania	A	4887	4887	23
Slovakia	C	191	152	2.8
Slovenia	C	28	28	1.4
Spain[b]	C	358	358	—
Sweden	A	240	240	2.6
United Kingdom	A	2680	2680	4.4
EU total		**17 589**	**17 541**	**4.43[c]**
Iceland	C	1	1	0.33
Liechtenstein	—	—	—	—
Norway	C	61	61	1.3
Total		**17 651**	**17 603**	**4.39[c]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report, U: Unspecified.
[a] Sentinel surveillance system without national coverage.
[b] Sentinel surveillance system based on a limited number of selected laboratories.
[c] Overall rate excludes data from Spain and France.

Figure 3.2.8. Notification rates of syphilis cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 9096)



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

Compared with 2006, the total number of confirmed syphilis cases has decreased by 3.3% but a coherent trend cannot be confirmed. Changes in reporting behaviour, reporting systems, case definitions and underreporting should also be considered. Further work to improve the enhanced surveillance of syphilis across countries in Europe is needed to ensure that surveillance data is of higher quality. In addition, further harmonisation at the European level is needed to improve comparability of trends. Special attention should also be given to the surveillance of congenital syphilis as this is important for the evaluation of strategies for prevention of mother-to-child transmission.

References

1. ESSTI: Sexually Transmitted Infections Surveillance in Europe; Annual Report No. 3. London: Health Protection Agency 2008.

Surveillance systems overview

Country	Data Source Description	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	Sentinella System for STI	V	Se	A	C	Y	N	N	N	–
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech republic	National STD register	Cp	Co	P	C	Y	Y	Y	Y	Y
Denmark	STI clinical	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Pertussis, Shigellosis, Syphilis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	National reference Centres	V	Se	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI – 7.3 (1)	Cp	Co	P	C	Y	Y	N	N	Y
Hungary	STD surveillance	Cp	Se	P	A	N	Y	N	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	—	Y
Latvia	STI and skin infections surveillance system	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	National coverage of STI clinics, SOAP	V	Co	A	C	N	Y	N	N	Y
Norway	MSIS (group B diseases)	Cp	Co	P	C	Y	Y	Y	—	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Syphilis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	N	Y	N	N	Y
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	GUM	Cp	Se	P	A	N	N	N	Y	Y

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 uncommon disease in the European Union.

Epidemiological situation in 2007

In 2007, 29 EU and EEA/EFTA countries provided data (only Liechtenstein did not report). A total of six cases of anthrax were reported (four confirmed), this is a significant decrease compared with the number of reported cases (16) in 2006, although both numbers are very small and there is some degree of underreporting of this disease. Confirmed cases were reported from Romania (2) Spain (1) and Bulgaria (1).

Age and gender distribution

All of the confirmed cases were male. Of these confirmed cases one case was in a person 25–44 years of age, two cases were 45–64 years of age and one case was over 65 years old.

Seasonality

The month of disease was known for all four confirmed cases: May, July, August and December 2007.

Discussion

Anthrax continues to be a very rarely reported disease in the European Union. Cases continue to be sporadic and most of them associated with occupational exposure. In 2007 no significant outbreaks of anthrax were reported.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Anthrax Surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Anthrax Surveillance System	Cp	Co	A	C	Y	N	Y	Y	Y

Botulism

- The reported number of botulism cases was slightly higher (8 % more) in 2007 than in 2006.
- Adults (25–44 years old) are the most affected age group.
- The notification rate is almost twice as high in men as in women.

Epidemiological situation in 2007

In 2007, a total of 171 cases were reported by 26 EU Member States together with Iceland and Norway (Czech Republic and Liechtenstein did not report). Of the reported cases, 129 were confirmed. This represents a slight increase on the 109 confirmed cases reported by 28 EU and EEA/EFTA countries in 2006. Sixteen countries reported zero cases (Table 3.3.1).

Only six countries reported 10 or more confirmed cases: Romania, Poland, Italy, United Kingdom, France and Portugal. Romania reported the highest notification rate (0.14 per 100 000), followed by Lithuania (0.12 per 100 000), while the overall notification rate was 0.03 per 100 000.

Table 3.3.1. Number and notification rate of reported cases of botulism in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	0	0	0.0
Belgium	U	0	0	0.0
Bulgaria	A	1	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	—	—	—	—
Denmark	U	0	0	0.0
Estonia	U	0	0	0.0
Finland	U	0	0	0.0
France	C	11	10	< 0.1
Germany	C	9	9	< 0.1
Greece	C	1	1	< 0.1
Hungary	C	5	5	< 0.1
Ireland	U	0	0	0.0
Italy	C	16	16	< 0.1
Latvia	U	0	0	0.0
Lithuania	A	4	4	0.12
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	C	1	1	< 0.1
Poland	C	49	24	< 0.1
Portugal	C	10	10	< 0.1
Romania	C	38	31	0.14
Slovakia	U	0	0	0.0
Slovenia	U	0	0	0.0
Spain	C	4	4	< 0.1
Sweden	U	0	0	0.0
United Kingdom	C	22	14	< 0.1
EU total		**171**	**129**	**0.03**
Iceland	U	0	0	0.0
Liechtenstein	—	—	—	—
Norway	U	0	0	0.0
Total		**171**	**129**	**0.03**

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 for all 129 confirmed cases. Of these, the highest number of cases (n = 53) were reported in the age group 25–44 years, which was also the age group with the highest notification rate (0.04 per 100 000 population (Figure 3.3.1). A considerably higher number of males (n = 85) than females (n = 44) were reported, with a male-to-female ratio of 1.9:1. Males had the highest notification rates in all age groups except for the 0–4 year-olds, where there was no real difference.

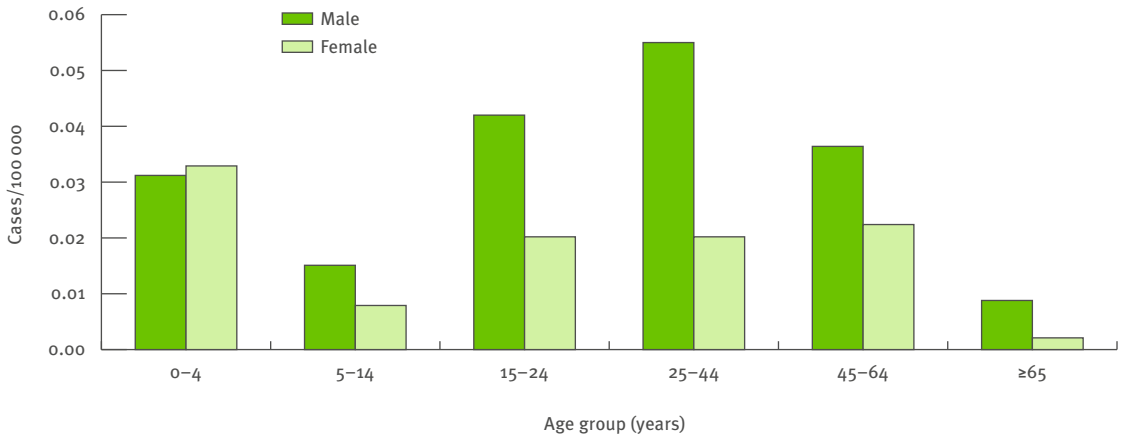
Seasonality

In 2007, seasonal data were available for all 129 confirmed cases reported by 28 EU and EEA/EFTA countries. Botulism does not show any seasonal trend (Figure 3.3.2) although if there were any seasonal differences, the numbers are most likely too small to detect them.

Discussion

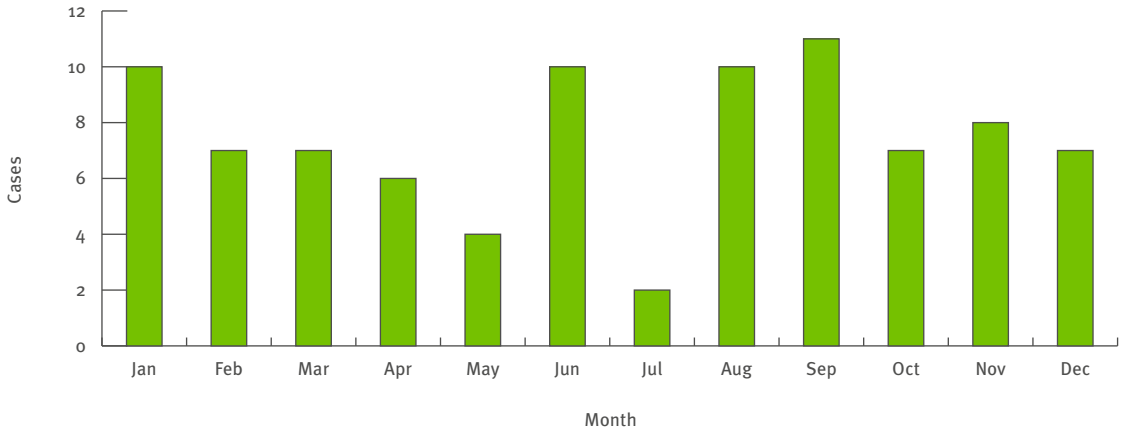
Botulism remains a relatively uncommon communicable disease in the EU.

Figure 3.3.1. Notification rates of botulism cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 129)



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

Figure 3.3.2. Seasonal distribution of botulism cases in EU and EEA/EFTA countries, 2007 (n = 129)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Botulism	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Botulism Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Botulism Surveillance System	Cp	Co	P	C	Y	N	Y	Y	Y

Brucellosis

- Compared with 2006, there is a decrease in the overall and country-specific notification rates.
- The highest notification rates are reported from Mediterranean countries.
- The male-to-female ratio is 2:1.

Epidemiological situation in 2007

In 2007, a total of 836 cases, of which 645 were confirmed, were reported by 29 EU and EEA/EFTA countries (Denmark did not report). Eighteen out of the 29 countries reported cases for 2007. The overall notification rate was 0.13 per 100 000 population (down from 0.2 per 100 000 in 2006) and 11 countries reported zero cases. This represents a decrease of 35 % in the overall rate of reported cases of brucellosis.

The highest notification rates of brucellosis were reported from Greece (0.9 per 100 000), Italy, Portugal and Spain (Table 3.3.2). However, in all the countries the notification rate was lower than that for 2006.

Age and gender distribution

Fifteen out of the 18 countries that reported cases also provided information on the age and gender distribution of the confirmed cases of brucellosis. Out of the 624 confirmed cases of brucellosis with this information, 431 (69 %) were in males and 193 (31 %) were in females, giving a male-to-female ratio of more than 2:1.

Table 3.3.2. Number and notification rate of reported cases of human brucellosis in the EU and EEA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	1	1	< 0.1
Belgium	A	3	3	< 0.1
Bulgaria	A	57	9	0.12
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	—	—	—	—
Estonia	U	0	0	0.0
Finland	C	2	2	< 0.1
France	C	14	14	< 0.1
Germany	C	21	21	< 0.1
Greece	C	151	101	0.90
Hungary	C	1	1	< 0.1
Ireland	C	28	7	0.16
Italy	C	179	179	0.30
Latvia	U	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	C	5	5	< 0.1
Poland	C	2	1	0.0
Portugal	C	75	74	0.70
Romania	C	4	2	< 0.1
Slovakia	U	0	0	0.0
Slovenia	C	1	1	< 0.1
Spain	C	269	201	0.45
Sweden	C	10	10	0.11
United Kingdom	C	13	13	< 0.1
EU total		**836**	**645**	**0.13**
Iceland	U	0	0	0.0
Liechtenstein	U	0	0	0.0
Norway	U	0	0	0.0
Total		**836**	**645**	**0.13**

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

The highest notification rate in males was recorded in persons in the age groups 25–44 years and 45–64 years (0.25 and 0.22 per 100 000, respectively). In females the highest notification rate of brucellosis occurred among the 45–64 years and over 64 years age groups with 0.10 and 0.09 per 100 000, respectively (Figure 3.3.3).

Seasonality

Fifteen countries provided information on seasonality. Brucellosis cases were reported in each month of the year. Brucellosis does not show any strong seasonality, although there appears to be a tendency for a higher frequency of cases during the summer months (Figure 3.3.4).

Discussion

In 2007, the number of reported cases of brucellosis decreased again compared with previous years, although this disease has been classified as re-emerging in the Balkan region[1]. The majority of the burden of disease appears in countries in the Mediterranean parts of Europe. Adults over the age of 25 comprise the majority of reported cases and men are more affected than women, suggesting a link to some occupational exposure.

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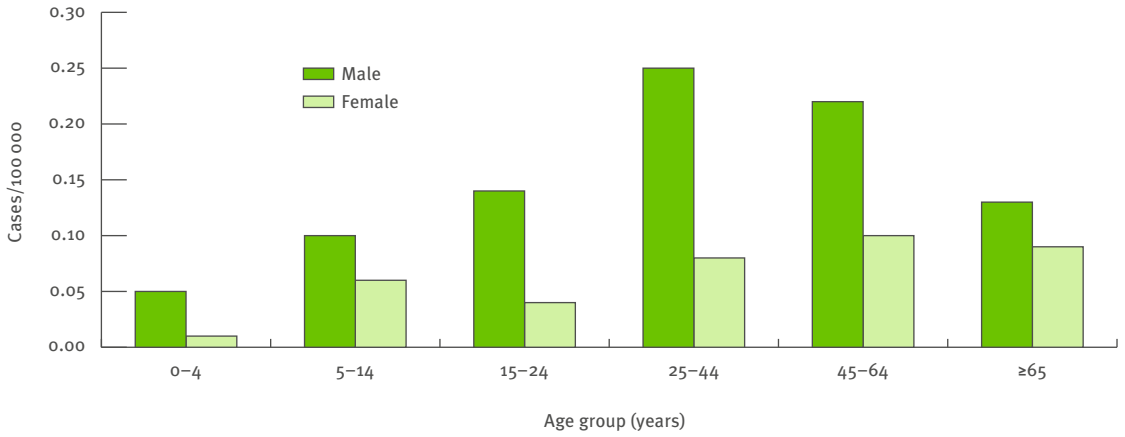
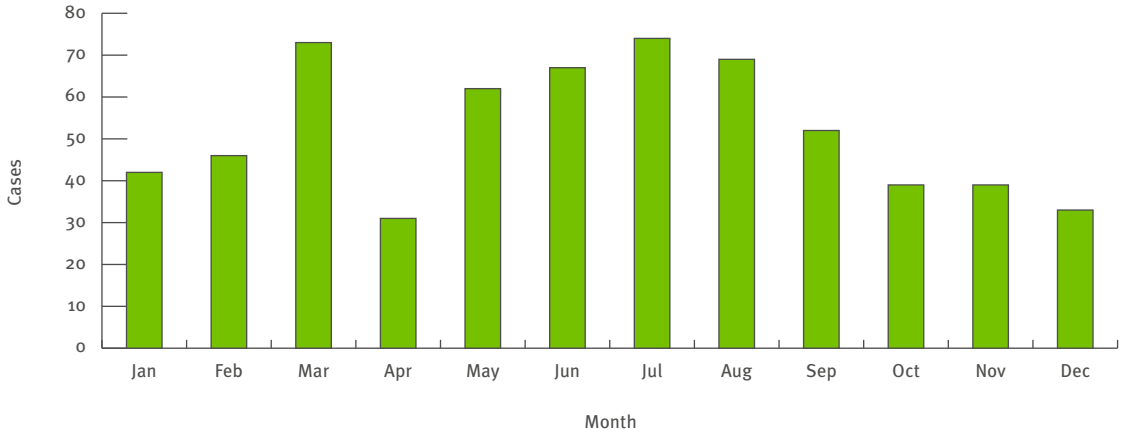
Figure 3.3.3. Notification rates of brucellosis cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 617)



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

Figure 3.3.4. Seasonal distribution of brucellosis cases in EU and EEA/EFTA countries, 2007 (n = 627)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	Ministry of Health	Cp	Co	A	C	Y	N	Y	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Brucellosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	–	C	Y	Y	Y	–	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Brucellosis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Brucellosis Surveillance System	O	Co	A	C	Y	N	Y	Y	Y

Campylobacteriosis

- Although known to be a commonly underreported disease, the notification rate of campylobacteriosis has increased in 2007 (over 15 % higher than in 2006) and it was the most commonly reported cause of gastrointestinal disease in the EU.
- The most affected age group was 25–44 years (28 % of reported cases), while the highest notification rate was seen in the age group under five years.
- The notification rate was higher among men than women in 21 countries.
- Campylobacteriosis shows a characteristic seasonality, with the highest numbers reported in the summer, from June to September.

Epidemiological situation in 2007

In 2007, 204 105 cases (203 709 confirmed) were reported by 25 EU Member States (Table 3.3.3), Iceland, Liechtenstein and Norway (Greece and Portugal did not report). This is 14 % more than the 179 510 confirmed cases reported in 2006. The overall notification rate was 46.73 per 100 000 (up from 39.5 in 2006), with the highest notification rates reported in the Czech Republic (235 per 100 000) and the United Kingdom (95 per 100 000). Latvia and Liechtenstein were the only countries to report zero confirmed cases.

Data on the importation status of reported cases (n = 140 152) were available from 21 EU Member States, Iceland and Norway. This shows that the infection is mainly domestically acquired (89 % of all cases). In Cyprus and Spain all reported cases (100 %) were domestic. In the Czech Republic, Hungary, Lithuania, Malta, Poland and Slovakia, over 99 % of reported cases had domestically acquired infection, whereas four Scandinavian countries (Finland, Sweden, Denmark and Norway) reported high proportions of imported cases (75 %, 68 %, 55 % and 55 % respectively).

Table 3.3.3. Number and notification rate of reported cases of campylobacteriosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	5822	5822	70
Belgium	C	5895	5895	56
Bulgaria	A	38	38	0.49
Cyprus	C	17	17	2.2
Czech Republic	C	24252	24137	235
Denmark	C	3868	3868	71
Estonia	C	114	114	8.5
Finland	C	4107	4107	78
France	C	3058	3058	4.8
Germany	C	66107	66107	80
Greece	—	—	—	—
Hungary	C	5856	5809	58
Ireland	C	1891	1885	44
Italy	A	676	676	1.1
Latvia	U	0	0	0.0
Lithuania	A	564	564	17
Luxembourg	C	345	345	72
Malta	C	98	98	24.03
Netherlands[a]	C	3462	3289	—
Poland	C	192	192	0.50
Portugal	—	—	—	—
Romania	C	0	0	0.0
Slovakia	C	3421	3380	63
Slovenia	A	1127	1127	56
Spain[b]	C	5331	5331	—
Sweden	C	7106	7106	78
United Kingdom	C	57815	57815	95
EU total		**201162**	**200780**	**46.59[c]**
Iceland	C	93	93	30
Liechtenstein	C	14	0	0.0
Norway	C	2836	2836	61
Total		**204105**	**203709**	**46.73[c]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] The coverage of the Dutch sentinel system is about 50 %.
[b] Sentinel surveillance system based on a limited number of select laboratories.
[c] The overall rate excludes data from the Netherlands and Spain.

Age and gender distribution

Data on age groups were available from 27 countries. The highest proportion of reported campylobacteriosis cases was similar to that in 2006, in the age group 25–44 with 56619 cases (28 %, 41 per 100000). However, the rate among the under five year-olds was reported to be more than double that (112.5 per 100000). Eighteen countries had their highest notification rates among children under five years of age, four countries (Denmark, the Netherlands, Sweden and Norway) had highest notification rates in the age group 15–24 years, whereas Finland reported highest notification rate in adults between 25 and 44 years of age.

Data on gender were available from 28 countries. The male-to-female ratio was 1.2:1, with an overall notification rate of 46.4 per 100000 among men compared with 39.9 per 100000 among women.

Data on gender by age groups were available for 199515 cases. The notification rate was highest in male children (age group 0–4 years) with 118 per 100000, while in females of the same age it was slightly less (99 per 100000) (Figure 3.3.5).

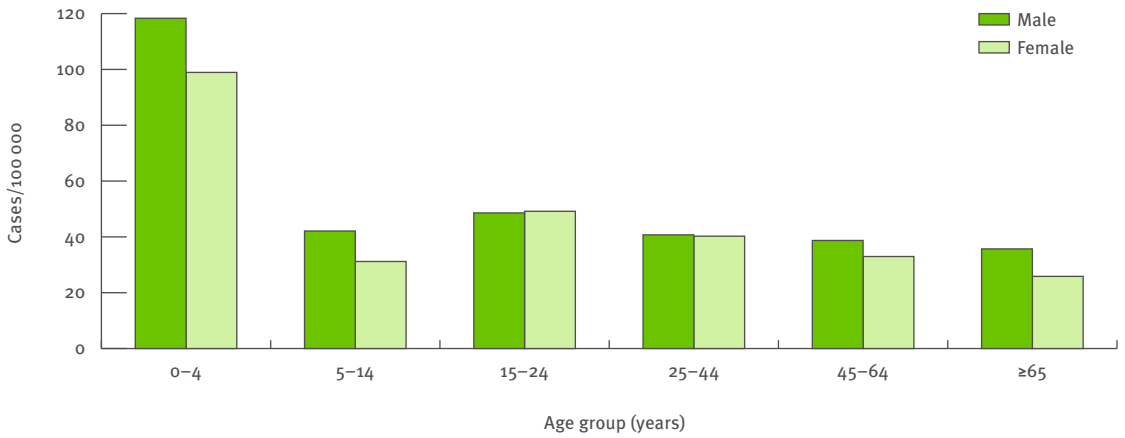
Seasonality

Data on seasonality were available from 28 countries. As is typical for campylobacteriosis, cases were mostly reported in the summer months between June and August (Figure 3.3.6).

Campylobacter species

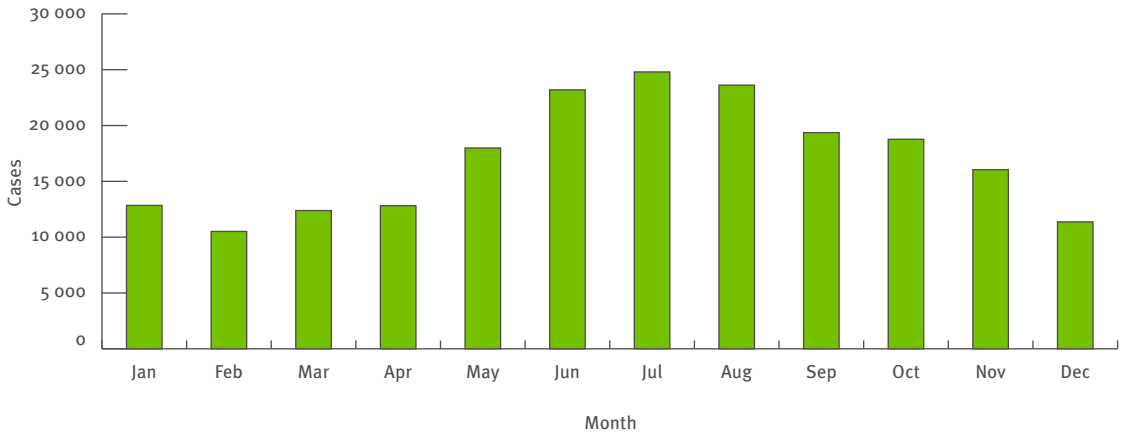
The data on species were available from the Zoonoses Report 2007[1]. The most frequently reported *Campylobacter* species in 2007 was *C. jejuni* (44.3 %), while *C. coli* accounted for 2.7 % of *Campylobacter* isolates. Other species, including *C. lari* (0.3 %), accounted for 6.9 % of the isolates. Forty-six percent of 194563 *Campylobacter* isolates were not speciated or were unknown[1].

Figure 3.3.5. Notification rates of human campylobacteriosis cases, by age and gender in EU and EEA/EFTA countries, 2007 (n = 199 515)



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

Figure 3.3.6. Seasonal distribution of human campylobacteriosis cases in EU and EEA/EFTA countries, 2007 (n = 203 701)



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

Discussion

In 2007, as the year before, and despite a very high rate of underreporting, *Campylobacter* was the most frequently reported cause of human gastrointestinal disease in the EU. There is a wide variability in reporting systems between countries and this, combined with the high degree of underreporting known to occur in some countries, makes direct comparisons between them very difficult. The completeness of reporting in terms of the number of reporting countries improved as Italy and Liechtenstein were able to report cases. There seems to be a consistent difference in notification rates by gender with higher rates reported for men than women, warranting further analysis.

Data from the Zoonoses Report 2007 suggest that fresh poultry meat seems to be the most important food-borne source of *Campylobacter* as the occurrence of the bacteria (26 % of food samples were positive) remained at high levels throughout the food chain, from live animals to meat retail level[1]. This might explain the high incidences in adult age groups, but is less likely implicated in the high incidences among children.

Denmark reported one outbreak related to contaminated drinking water involving 140 cases in January 2007[2]. Finland experienced a large outbreak with 8 000 human cases of which 187 were admitted to hospital[3].

References

1. European Food Safety Authority (EFSA), European Centre for Disease Prevention and Control (ECDC). The Community Summary Report on Trends and Sources of Zoonoses and Zoonotic Agents in the European Union in 2007. The EFSA Journal (2009) 223.
2. Vestergaard LS, Olsen KE, Stensvold CR, Böttiger BE, Adelhardt M, Lisby M, et al. Outbreak of severe gastroenteritis with multiple aetiologies caused by contaminated drinking water in Denmark, January 2007. Euro Surveill. 2007;12(13):pii=3164. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3164.
3. European Food Safety Authority (EFSA), European Centre for Disease Prevention and Control (ECDC). The Community Summary Report on Food-borne Outbreaks in the European Union in 2007. The EFSA Journal (2009) 271.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Campylo	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	ENTERNET	V	Se	P	C	Y	N	N	N	–
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	—	C	Y	Y	Y	—	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	LSI: laboratory surveillance infectious diseases	V	Se	P	C	Y	N	N	N	N
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Campylobacteriosis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Cholera

- Cholera continues to be a rare disease in the European Union.
- The most affected group was adults over 25 years of age. This is most likely associated with a higher proportion of people in this age group travelling to countries with a high risk of cholera.

Epidemiological situation in 2007

In 2007, 17 cholera cases were reported in the EU and EEA/EFTA countries; all of them were confirmed. Data on importation status were not reported although some information (see Discussion, below) was obtained from other sources. These cases were notified by seven European countries: France (four cases), the United Kingdom (four cases), the Netherlands (three cases), Germany (two cases), Spain (two cases), Slovenia (one case), and Norway (one case).

Age and gender distribution

Most of the cases (82 %) were among adults over 25 years of age (Figure 3.3.7). The gender distribution varied across age groups but the number of cases in the groups was too small to draw any conclusions. The cholera cases were evenly distributed by gender; nine male and eight female cases were reported.

Seasonality

There was no seasonal trend observed in 2007, due to the low number of cases reported.

Discussion

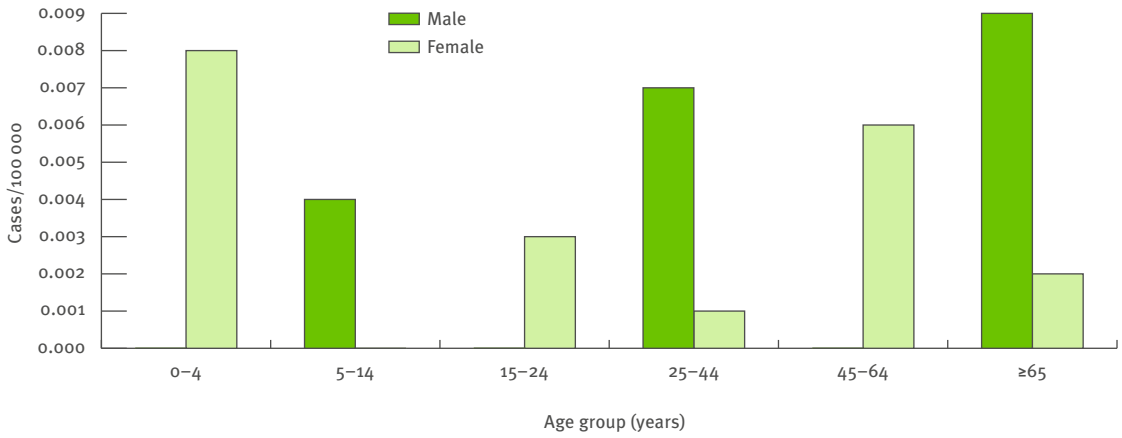
Two French travellers were hospitalised in late March 2007 for cholera caused by *Vibrio cholerae* serogroup O1 serotype Ogawa[1]. In a separate event, a third case was hospitalised in early April 2007. All three travellers had returned from a trip to India (Rajasthan). Both Spanish cases were imported: one from India and the other Turkey.

According to the World Health Organization, cholera is an imported disease in the EU and EEA/EFTA countries[2]. The high proportion of cholera cases in adults over 25 years of age could be associated with a larger number of people in this age group that travel to countries where cholera is endemic.

References

1. Tarantola A, Quilici ML. *Vibrio cholerae* O1 strains with decreased susceptibility to fluoroquinolones in travellers returning from India (Rajasthan) to France, April 2007. Euro Surveill. 2007;12(18):pii=3186. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3186
2. WHO. Cholera, 2007. Wkly Epidemiol Rec. 2008 Aug 1;83(31):269-83.

Figure 3.3.7. Distribution of confirmed cholera cases by age and gender in the EU and EEA/EFTA, 2007 (n = 17)



Source: Country reports: France, Germany, Netherlands, Spain, Slovenia, UK and Norway.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	ENTERNET	V	Se	P	C	Y	N	N	N	—
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	—	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Cholera Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Cholera Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Cryptosporidiosis

- Cryptosporidiosis data are lacking from 11 out of 30 EU and EEA/EFTA countries and the disease is likely to be underreported in those countries that did provide data.
- Cryptosporidiosis mainly affects children under five years of age.
- The seasonal trends again suggest a peak in late summer/early autumn, indicating that there is most likely persistent behavioural exposure of the general public to *Cryptosporidium* at this time of year, mainly involving the younger children.

Epidemiological situation in 2007

In 2007, 6 253 cases (all confirmed) were reported by ten EU and EEA /EFTA countries providing data, while a further nine countries reported zero cases. Ireland reported the highest notification rates (14 per 100 000) followed by the United Kingdom (6.0 per 100 000) (Table 3.3.4). The overall notification rate was 2.42 per 100 000 population.

Table 3.3.4. Number and notification rate of reported cases of cryptosporidiosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	9	9	0.11
Belgium	C	259	259	2.5
Bulgaria	U	0	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	—	—	—	—
Denmark	—	—	—	—
Estonia	U	0	0	0.0
Finland	C	11	11	0.21
France	—	—	—	—
Germany	C	1459	1459	1.8
Greece	—	—	—	—
Hungary	C	6	6	< 0.1
Ireland	C	609	609	14
Italy	—	—	—	—
Latvia	U	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	—	—	—	—
Poland	U	0	0	0.0
Portugal	—	—	—	—
Romania	—	—	—	—
Slovakia	U	0	0	0.0
Slovenia	C	1	1	< 0.1
Spain[a]	C	136	136	—
Sweden	C	110	110	1.2
United Kingdom	C	3653	3653	6.0
EU total		**6253**	**6253**	**2.42[b]**
Iceland	—	—	—	—
Liechtenstein	—	—	—	—
Norway	—	—	—	—
Total		**6 253**	**6 253**	**2.42[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from the Spain.

Age and gender distribution

Of the 6 220 confirmed cases with age data available, the highest notification rates were in the 0–4 year-olds (11 per 100 000) followed by the 5–14 year-olds (4.6 per 100 000) (Figure 3.3.8). Of the 6 196 cases for which data on gender were available, no difference was observed in notification rates between males and females (both at 2.1 per 100 000).

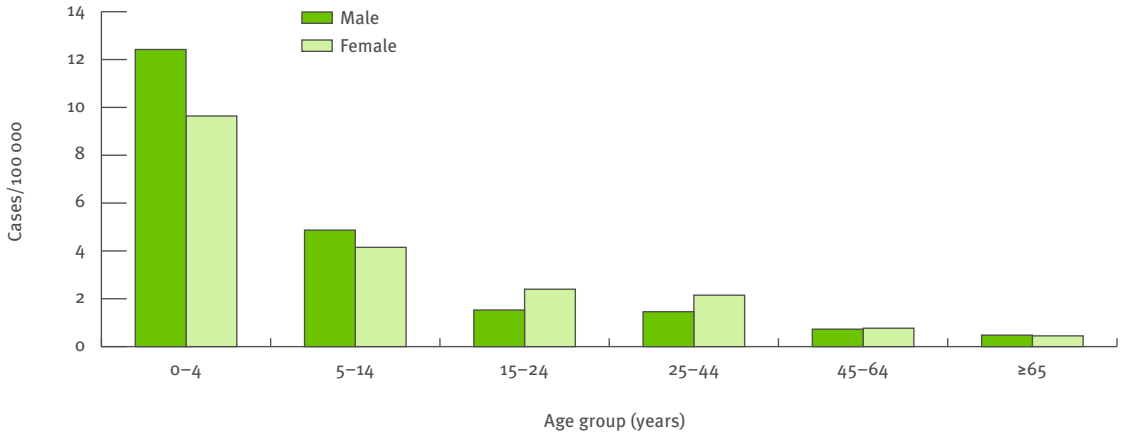
Seasonality

The overall monthly case distribution suggests a peak in late summer and autumn (Figure 3.3.9). This trend was observed in most countries. However, Ireland saw a strong increase in reported cases during the spring.

Discussion

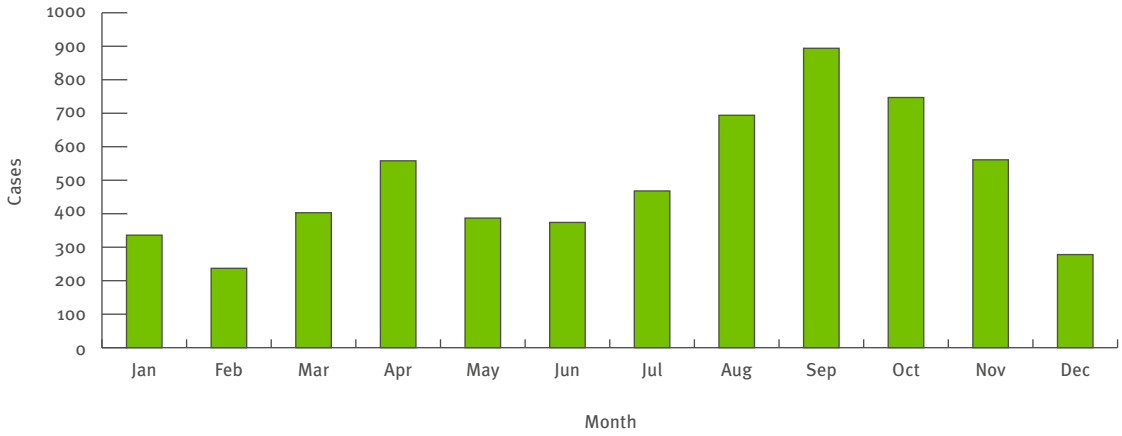
Cryptosporidiosis remains an underreported disease despite the increased coverage in terms of the number of reporting countries. Young children (0–4 years old) had the highest notification rates of cryptosporidiosis.

Figure 3.3.8. Notification rates of cryptosporidiosis cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 6 167)



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

Figure 3.3.9. Seasonal distribution of cryptosporidiosis cases in EU and EEA/EFTA countries, 2007 (n = 5 937)



Source: Country reports. Reports with seasonal data were available from: Austria, Belgium, Finland, Germany, Hungary, Ireland, Spain, Slovenia, Sweden and UK. Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, Poland and Slovakia all reported zero cases.

Surveillance systems overview

Country	Data Source Description	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	Data from Reference labs	O	Se	A	C	Y	N	N	N	–
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Cryptosporidiosis	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Cryptosporidiosis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Echinococcosis

- The number of echinococcosis cases reported in the EU and EEA/EFTA has remained low and has not changed in 2007 compared with 2006.
- Echinococcosis is still a rare disease in most EU and EEA/EFTA countries.
- Bulgaria reported the highest number of cases (47%) and the highest notification rate (6 per 100 000).

Epidemiological situation in 2007

In 2007, 27 EU and EEA/EFTA countries reported a total of 974 echinococcosis cases of which 969 (99%) were confirmed, which is almost identical to the reports in 2006 (966 confirmed cases) (Table 3.3.5). Five countries reported zero cases, while Denmark, Italy and Iceland did not report. The overall notification rate was 0.22 per 100 000. The highest notification rate was reported in Bulgaria (6.0 per 100 000) with 47% of all the reported cases, while all other countries reported rates of less than 1 per 100 000.

Table 3.3.5. Number and notification rate of reported cases of echinococcosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	17	17	0.18
Belgium	A	1	1	< 0.1
Bulgaria	A	461	461	6.0
Cyprus	C	4	4	0.51
Czech Republic	C	3	3	< 0.1
Denmark	—	—	—	—
Estonia	C	2	2	0.15
Finland	C	1	1	< 0.1
France	C	27	27	< 0.1
Germany	C	89	89	0.11
Greece	C	10	10	< 0.1
Hungary	C	8	8	< 0.1
Ireland	U	0	0	0.0
Italy	—	—	—	—
Latvia	C	12	12	0.53
Lithuania	A	12	12	0.35
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	A	11	6	< 0.1
Poland	C	40	40	0.10
Portugal	C	10	10	< 0.1
Romania	A	99	99	0.46
Slovakia	C	4	4	< 0.1
Slovenia	C	1	1	< 0.1
Spain	C	131	131	0.29
Sweden	C	24	24	0.26
United Kingdom	C	7	7	< 0.1
EU total		**974**	**969**	**0.23**
Iceland	—	—	—	—
Liechtenstein	U	0	0	0.0
Norway	U	0	0	0.0
Total		**974**	**969**	**0.22**

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

Age and gender distribution

Data on age groups were available from 20 countries representing 89 % (n = 861) of confirmed cases. The notification rate increases with age (Figure 3.3.10), peaking in the 45–64 year-olds (0.27 per 100 000). This is most likely related to the long incubation period, which can vary from 12 months to several years before developing a symptomatic disease.

There was no difference in the notification rate of reported cases between men and women (0.13 and 0.12 per 100 000 population respectively) in the 499 reports with this information.

Seasonality

Data by month were available from 19 countries (861 cases). Echinococcosis does not show a seasonal trend, which is to be expected because of the long incubation period.

Discussion

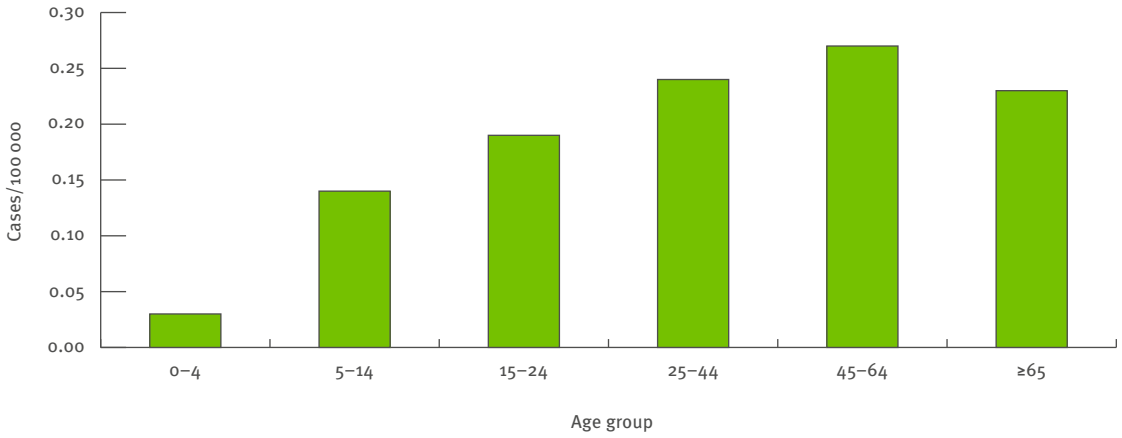
Echinococcosis remains a rare disease in most of the EU countries (except Bulgaria). Data from the Zoonoses Report[1] for 2007 shows that in humans, *Echinococcus granulosus* accounts for 87 % (n = 724) of all cases, while *Echinococcus multilocularis* represents only 0.04 % (n = 73).

The age distribution suggests an age cohort effect; showing higher risk of infection when those who are now adults were young. It could also be the effect of the usually long incubation period (12 months to 15 years), resulting in more clinical cases in the older age groups, though the highly variable incubation period does not allow further conclusions to be made from this data.

References

1. European Food Safety Authority (EFSA), European Centre for Disease Prevention and Control (ECDC). The Community Summary Report on Trends and Sources of Zoonoses and Zoonotic Agents in the European Union in 2007. The EFSA Journal (2009) 223.

Figure 3.3.10. Age-specific notification rates of echinococcosis cases in EU and EEA/EFTA countries, 2007 (n = 861)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	Obligatory, countrywide Echinococcosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Echinococcus: “FranceEchino”	V	Co	P	C	Y	Y	Y	Y	Y
Germany	SurvNet@RKI – 7.3 (1)	Cp	Co	P	C	Y	N	N	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	–	C	Y	Y	Y	–	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	National Mycobacteria Reference Unit	–	–	–	–	–	–	–	–	–
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Echinococcosis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Echinococcosis Surveillance System	V	Co	P	C	Y	N	Y	Y	Y

Vero/shiga toxin-producing *Escherichia coli* (VTEC/STEC) infection

- VTEC/STEC infection mainly affects very young children, under five years old, with a notification rate of 4.7 per 100 000 population.
- The majority of haemolytic uraemic syndrome cases also occur in the younger age groups (0–14 year-olds), with most of the cases being associated with serogroup O157.
- There is a clear seasonal distribution of VTEC/STEC cases with a peak in the summer months.

Epidemiological situation in 2007

In 2007, 3 036 VTEC/STEC cases (2 945 confirmed) were reported by 25 EU Member States, Iceland and Norway (Table 3.3.6) (Czech Republic, Portugal and Liechtenstein did not report). The overall notification rate was 0.61 per 100 000 population, which is slightly lower than in 2006 (0.74 per 100 000 population). The highest notification rates were observed in Iceland (4.2 per 100 000), followed by Sweden (2.9 per 100 000), Denmark (2.9 per 100 000) and Ireland (2.7 per 100 000). All other EU and EEA/EFTA countries that reported data had notification rates below 2.0 per 100 000 population.

Of the 1 854 cases in the EU for which importation status was known, the majority of cases (79 %) were domestically acquired.

Table 3.3.6. Number and notification rate of reported cases of VTEC/STEC cases in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	82	82	0.99
Belgium	C	47	47	0.44
Bulgaria	U	0	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	—	—	—	—
Denmark	C	161	156	2.9
Estonia	C	3	3	0.22
Finland	C	12	12	0.23
France	C	57	57	< 0.1
Germany	C	870	870	1.1
Greece	C	1	1	< 0.1
Hungary	C	1	1	< 0.1
Ireland	C	167	115	2.7
Italy	C	61	27	< 0.1
Latvia	U	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	C	1	1	0.21
Malta	C	4	4	0.98
Netherlands	C	88	88	0.54
Poland	C	2	2	< 0.1
Portugal	—	—	—	—
Romania	C	0	0	0.0
Slovakia	C	6	6	0.11
Slovenia	C	4	4	0.20
Spain	C	19	19	< 0.1
Sweden	C	262	262	2.9
United Kingdom	C	1149	1149	1.9
EU total		**2 997**	**2 906**	**0.61**
Iceland	C	13	13	4.23
Liechtenstein	—	—	—	—
Norway	C	26	26	0.56
Total		**3 036**	**2 945**	**0.61**

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

Age and gender distribution

The notification rate was highest among small children (0–4 year-olds) with a rate of 4.0 per 100 000, followed by those aged 5–14, with a notification rate of 0.9 per 100 000. There was no difference in overall notification rates between males and females in the EU (0.6 cases per 100 000) (Figure 3.3.11).

Seasonality

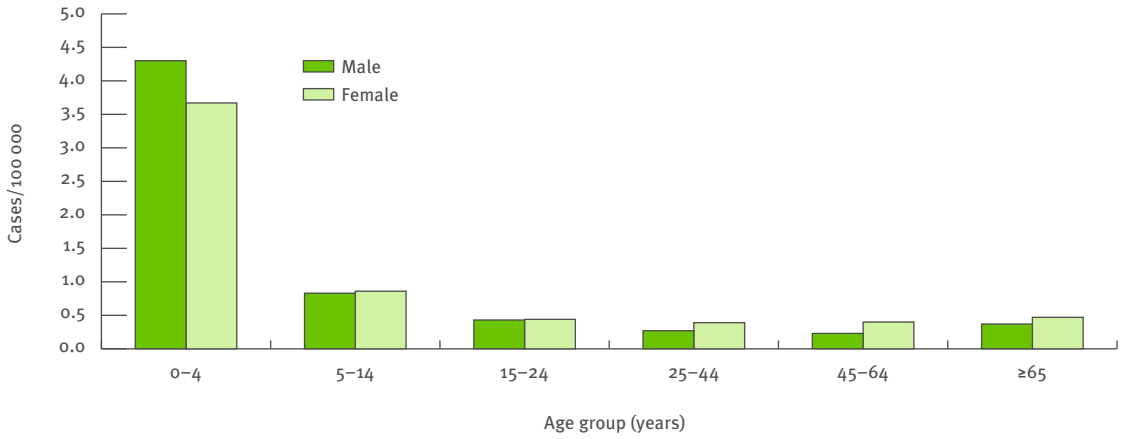
There was a clear seasonal distribution of VTEC/STEC cases with a marked peak in the summer months, followed by a gradual decline into the autumn (Figure 3.3.12). Though not apparent from this figure, an outbreak of *E. coli* O145 and O26 occurred in Belgium in October 2007, associated with contaminated ice cream[1].

Enhanced surveillance in 2007

For the purposes of reporting for the Zoonoses Report, enhanced datasets are available for VTEC/STEC for 2007[2]. Over half (54 %) of the reported confirmed human VTEC infections in the EU in 2007 were associated with the O157 serogroup. The United Kingdom accounted for 71 % of the O157 cases, though they focus their surveillance mainly on identifying this serogroup. Of the 1932 cases with known serogroup, 19 % were non-O157, with serogroups O26 and O103 being the most frequently reported[2] after O157.

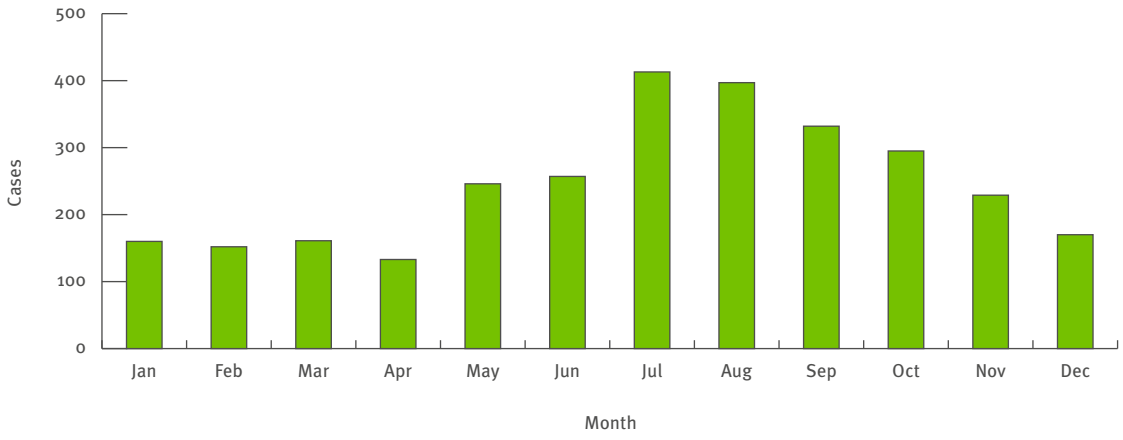
In 2007, a total of 103 haemolytic uremic syndrome (HUS) cases associated with VTEC infections were reported in the EU. The majority of HUS cases were in children 0–14 years old and most of these (49 %) were associated with the VTEC O157 infections[2].

Figure 3.3.11. Notification rates of VTEC/STEC cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 2 885)



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

Figure 3.3.12. Seasonal distribution of VTEC/STEC cases in EU and EEA/EFTA countries, 2007 (n = 2 945)



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

Discussion

According to the data, young children are the most affected by VTEC/STEC infections and experiencing the most HUS. VTEC O157 remains the most commonly reported serogroup, associated with most of the HUS cases. Future reports will attempt to more clearly separate the data on O157 and non-O157, as these have very different priority in the countries' systems and therefore have different coverage – with O157 clearly better covered than the other serogroups.

References

1. K De Schrijver, G Buvens, B Possé, D Van den Branden, O Oosterlynck, L De Zutter, et al. Outbreak of Verocytotoxin-producing *E. coli* O145 and O26 infections associated with the consumption of ice cream produced at a farm, Belgium, 2007. Euro Surv. 2008; 13 (7): pii=8041. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=8041
2. European Food Safety Authority (EFSA), European Centre for Disease Prevention and Control (ECDC). The Community Summary Report on Trends and Sources of Zoonoses and Zoonotic Agents in the European Union in 2007. The EFSA Journal (2009) 223.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting EHEC	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	VTEC E.coli	Cp	Co	P	C	Y	Y	N	N	Y
Italy	ENTERNET	V	Se	P	C	Y	N	N	N	–
Latvia	Visums	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	National Health Laboratory – Microbiology unit	V	Co	P	C	Y	N	Y	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Active surveillance Enterohaemorhagic E.coli	Cp	Co	A	C	Y	Y	N	N	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Spanish National Reference Laboratory	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	E. coli Surveillance System	O	Co	A	C	Y	N	Y	Y	Y

Giardiasis

- Giardiasis is probably an underreported disease, with surveillance for this infection needing to be strengthened if a more accurate picture is required at the European level.
- The notification rate varies considerably throughout the EU and EEA/EFTA countries.
- The giardiasis cases in Romania disproportionately increased the average EU notification rate from 5.4 per 100 000 (without Romania) to 53.5 per 100 000.

Epidemiological situation in 2007

In 2007, a total of 175 685 cases were reported by 22 EU and EEA/EFTA countries (Table 3.3.7). Of these, 173 072 were confirmed cases. The highest notification rate by far was observed in Romania (734 per 100 000 population, responsible for more than 90 % of all the reported cases), followed by Estonia (31 per 100 000), Sweden (16 per 100 000) and Iceland (15 per 100 000). The overall notification rate was 61.7 per 100 000 population.

Table 3.3.7 Number and notification rate of reported cases of giardiasis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	66	66	0.80
Belgium	C	1081	1081	10
Bulgaria	A	2582	0	0.0
Cyprus	C	4	4	0.51
Czech Republic	—	—	—	—
Denmark	—	—	—	—
Estonia	A	418	418	31
Finland	C	294	294	5.57
France	—	—	—	—
Germany	C	3651	3651	4.4
Greece	—	—	—	—
Hungary	C	86	86	0.85
Ireland	C	62	62	1.4
Italy	—	—	—	—
Latvia	A	34	34	1.5
Lithuania	A	23	23	0.68
Luxembourg	U	0	0	0.0
Malta	C	10	10	2.5
Netherlands	—	—	—	—
Poland	A	3011	2981	7.8
Portugal	—	—	—	—
Romania	A	158 306	158 306	734
Slovakia	C	123	122	2.3
Slovenia	C	17	17	0.85
Spain[a]	C	904	904	—
Sweden	C	1419	1419	16
United Kingdom	C	3257	3257	5.4
EU total		**175 348**	**172 735**	**62.66[b]**
Iceland	C	47	47	15
Liechtenstein	—	—	—	—
Norway	C	290	290	6.2
Total		**175 685**	**173 072**	**61.66[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[a] Overall rate excludes data from Spain.

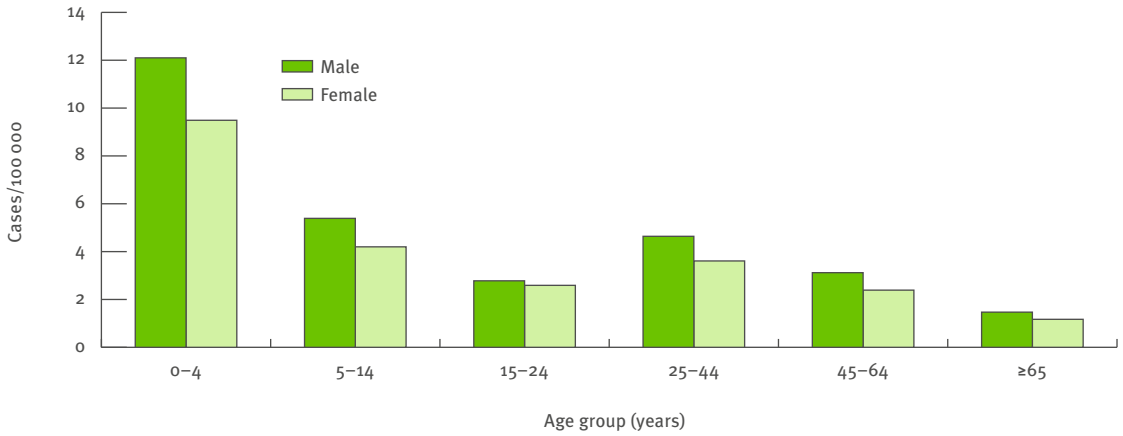
Age and gender distribution

Of the 11580 confirmed cases of giardiasis for which data on age groups were available, the highest notification rate was among the 0–4 year-olds (14 per 100000). This figure is based on only 6 % of the total number of confirmed cases. Of the 169892 cases with gender data available, the notification rate was slightly higher in men (62 per 100000) than women (57 per 100000). This pattern was seen across all age groups for which the data on both age and gender were available (Figure 3.3.13).

Seasonality

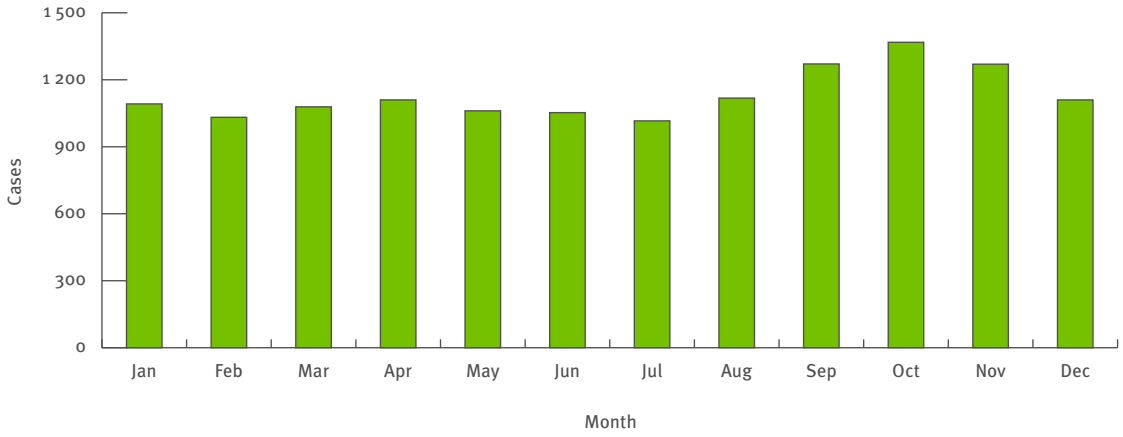
Data on seasonality were available from 17 countries. Most cases of giardiasis were reported in the autumn months between September and November (Figure 3.3.14), but the data represent only a minority of reported cases.

Figure 3.3.13 Notification rates of giardiasis cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 11 407)



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

Figure 3.3.14 Seasonal distribution of human giardiasis cases in EU and EEA/EFTA countries, 2007 (n = 13 580)



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

Discussion

The notification rates of giardiasis in European countries vary widely. The information on surveillance systems similarly shows a variety of designs, from voluntary, sentinel systems to compulsory and comprehensive ones that further confound any attempts at comparing the country notification rates. No major threats or outbreaks of giardiasis were reported in 2007.

Surveillance systems overview

Country	Data Source Description	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	Data from Reference labs	O	Se	A	C	Y	N	N	N	–
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting HBV, Giardiasis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Giardiasis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Hepatitis A

- Notification rates in 2007 vary greatly per country, reflecting different epidemiological patterns for hepatitis A in these countries.
- Children aged 5–14 years have the highest notification rates, which underestimates the true burden in children as younger children under five years old often have asymptomatic hepatitis A infections.
- The second half of the year (late summer and autumn) shows the highest number of reported cases, probably reflecting infections occurring during the summer holidays.

Epidemiological situation in 2007

In 2007, a total of 13 990 cases of hepatitis A (13 952 confirmed cases) were reported by 29 countries in the EU and EEA/EFTA (Liechtenstein did not report) (Table 3.3.8). The overall notification rate was 2.8 per 100 000 population which is slightly lower than the rate in 2006 (3.9 per 100 000). Bulgaria (36 per 100 000, almost one third of their rate for 2006) and Romania (23 per 100 000) again reported the highest notification rates, followed by Slovakia with 7.1 per 100 000. All other countries reported notification rates below 3 per 100 000.

Table 3.3.8. Number and notification rate of reported cases of hepatitis A in the EU and EEA/EFTA countries, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	11	5	< 0.1
Belgium	C	209	209	1.97
Bulgaria	A	2 800	2 790	36
Cyprus	C	4	4	0.51
Czech Republic	C	128	126	1.2
Denmark	C	306	306	5.6
Estonia	C	10	10	0.75
Finland	C	15	15	0.28
France	C	1 010	1 010	1.6
Germany	C	937	937	1.1
Greece	C	300	286	2.6
Hungary	C	252	251	2.5
Ireland	C	30	29	0.67
Italy	C	1 159	1 159	2.0
Latvia	A	15	15	0.66
Lithuania	A	23	23	0.68
Luxembourg	C	1	1	0.21
Malta	C	3	3	0.74
Netherlands	C	168	165	1.01
Poland	C	36	36	< 0.1
Portugal	C	17	17	0.16
Romania	A	4 982	4 982	23
Slovakia	C	384	383	7.1
Slovenia	C	15	15	0.75
Spain	C	698	698	1.6
Sweden	C	69	69	0.76
United Kingdom	C	377	377	0.62
EU total		**13 959**	**13 921**	**2.81**
Iceland	C	2	2	0.65
Liechtenstein	—	—	—	—
Norway	C	29	29	0.62
Total		**13 990**	**13 952**	**2.79**

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

Age and gender distribution

The highest notification rate occurred in children 5–14 years of age (7.3 per 100 000) followed by children under five years-old at 4.3 per 100 000. The overall notification rate was slightly higher in men (1.5 per 100 000) than in women (1.1 per 100 000), but this information was only available for 6 145 cases (Figure 3.3.15).

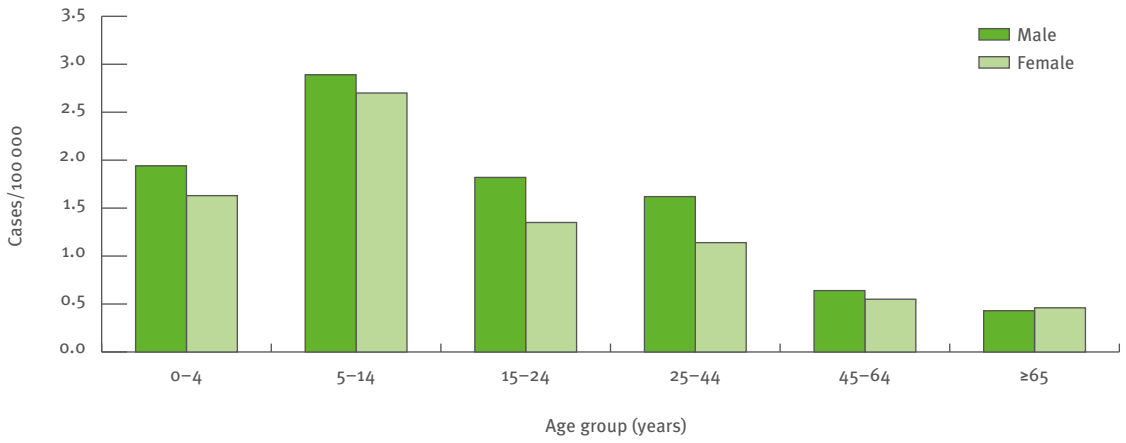
Seasonality

In 2007, a peak in reported cases was clearly observed in the autumn, with the highest number of cases in October, having risen from a low in the late spring (Figure 3.3.16). This is most likely a result of infection occurring while holidaying in high-prevalence countries but manifesting in the home country.

Discussion

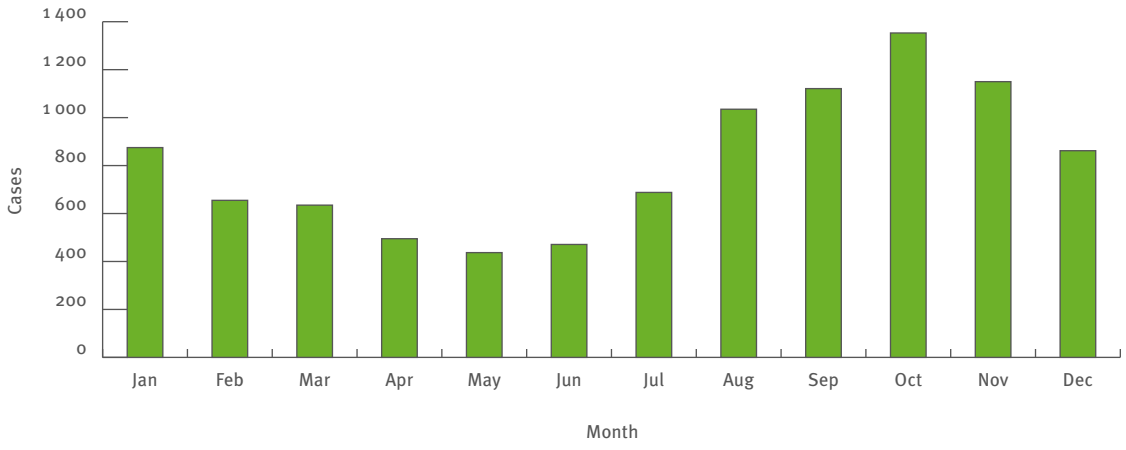
The epidemiological picture of hepatitis A varies greatly across countries in the EU and EEA/EFTA. Even though the highest notification rates are reported in children under 14 years old, it is likely that these greatly underestimate the true incidence of hepatitis A in this age group as children are often asymptomatic for this infection. With regards to seasonality, the picture is consistent with that for previous years where many countries see a peak in notification rates in the early autumn (corresponding to persons returning from summer holidays in highly endemic countries). An outbreak of hepatitis A in Latvia appears to have started in November 2007 (see Chapter 4).

Figure 3.3.15. Notification rates of hepatitis A cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 6 109)



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

Figure 3.3.16. Seasonal distribution of hepatitis A cases in EU and EEA/EFTA countries, 2007 (n = 9 777)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	—	—	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting HAV	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	—	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Hepatitis A Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Hepatitis A Surveillance System	O	Co	P	C	Y	N	Y	N	Y

Leptospirosis

- Leptospirosis continues to be a relatively rare disease in the EU and EEA/EFTA countries.
- Reporting rates in 2007 were almost four times higher in men than in women.

Epidemiological situation in 2007

In 2007, 851 cases, of which 841 were confirmed, were reported from 26 EU and EEA/EFTA countries (Table 3.3.9). This gives an overall notification rate of 0.22 per 100 000 population, which is only marginally higher than that reported in 2006 (0.18 per 100 000). Four countries did not provide data for 2007; these were France, Liechtenstein, Iceland and Norway.

Table 3.3.9. Number and notification rates of reported cases of leptospirosis in the EU and EEA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000
Austria	A	9	9	0.11
Belgium	A	8	8	< 0.1
Bulgaria	A	16	16	0.21
Cyprus	U	0	0	0.0
Czech Republic	C	24	24	0.23
Denmark	C	8	8	0.15
Estonia	C	2	2	0.15
Finland	C	2	2	< 0.1
France	—	—	—	—
Germany	C	165	165	0.20
Greece	C	13	13	0.12
Hungary	C	34	31	0.31
Ireland	C	22	22	0.51
Italy	C	45	45	< 0.1
Latvia	A	2	2	< 0.1
Lithuania	A	6	6	0.18
Luxembourg	U	0	0	0.0
Malta	C	1	1	0.25
Netherlands	C	37	37	0.23
Poland	C	12	7	< 0.1
Portugal	C	39	38	0.36
Romania	A	296	296	1.4
Slovakia	C	18	17	0.32
Slovenia	C	7	7	0.35
Spain[a]	C	3	3	—
Sweden	C	1	1	< 0.1
United Kingdom	C	81	81	0.13
EU total		**851**	**841**	**0.22[b]**
Iceland	—	—	—	—
Liechtenstein	—	—	—	—
Norway	—	—	—	—
Total		**851**	**841**	**0.22[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from Spain.

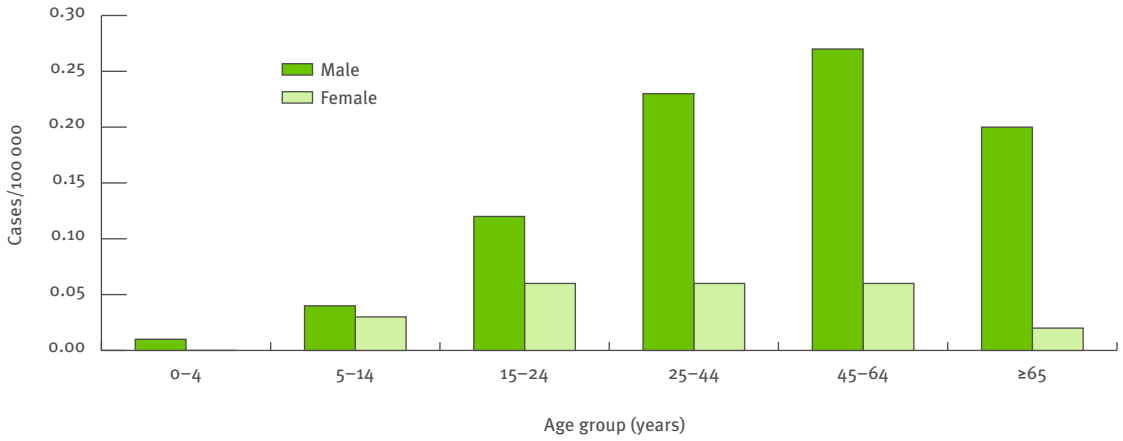
Age and gender distribution

Out of the 520 confirmed cases for which information on gender was known, 414 were reported in males and 106 in females (male-to-female ratio of 3.9:1). Information on age was included for 823 confirmed cases. The notification rate was highest in the age groups 25–44 years and 45–64 years, with rates of 0.24 and 0.25 per 100 000, respectively (Figure 3.3.17).

Seasonality

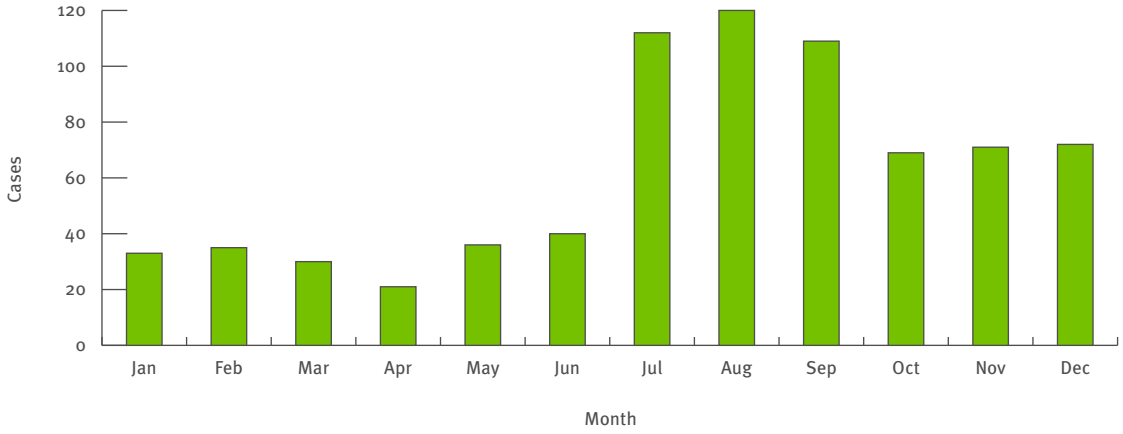
Information on seasonality was provided for 793 reported cases (95 % of confirmed cases). The majority of confirmed cases in 2007 were reported between July and September. This is in line with earlier annual reports, showing a higher frequency of cases in the second half of the year, particularly during the autumn months (Figure 3.3.18).

Figure 3.3.17. Notification rates of leptospirosis cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 503)



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

Figure 3.3.18. Seasonal distribution of leptospirosis cases in EU and EEA/EFTA countries, 2007 (n = 793)



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

Discussion

The reported incidence of leptospirosis in EU and EEA/EFTA countries in 2007 remained low and similar to values reported in previous years. Men and adults between 25 and 64 years of age continue to carry the highest burden of disease.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Leptospirosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	—	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Leptospirosis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Leptospirosis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Listeriosis

- The majority of listeriosis cases are reported in those over 64 years of age.
- Most listeriosis cases are domestically acquired.
- The seasonal trends indicate a peak between July and October and another clear peak in January.
- Listeriosis had a relatively high overall mortiality rate (20 %) with a high proportion of these deaths amongst older people.
- There was a high proportion of newborn babies among the cases of listeriosis.

Epidemiological situation in 2007

In 2007, 1639 cases (1635 confirmed) were reported by 29 countries (Table 3.3.10) (Portugal did not report any data). Cyprus, Malta, Romania and Liechtenstein reported zero cases. The overall notification rate was 0.35 per 100 000 population. The highest rates of confirmed cases were seen in Iceland (1.3 per 100 000, but only four cases), Luxembourg (1.3 per 100 000, but only six cases), followed by Denmark (1.06 per 100 000) and Norway (1.05 per 100 000); all other countries reported less than 1 per 100 000.

Most of the cases (75 %) were reported to be domestically acquired.

Table 3.3.10. Number and notification rate of reported cases of listeriosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	20	20	0.24
Belgium	C	57	57	0.54
Bulgaria	A	11	11	0.14
Cyprus	U	0	0	0.0
Czech Republic	C	51	51	0.50
Denmark	C	58	58	1.1
Estonia	C	3	3	0.22
Finland	C	40	40	0.76
France	C	319	319	0.50
Germany	C	356	356	0.43
Greece	C	10	10	< 0.1
Hungary	C	9	9	< 0.1
Ireland	C	21	21	0.49
Italy	C	89	89	0.15
Latvia	C	5	5	0.22
Lithuania	A	4	4	0.12
Luxembourg	C	6	6	1.3
Malta	U	0	0	0.0
Netherlands	C	72	68	0.42
Poland	C	43	43	0.11
Portugal	—	—	—	—
Romania	C	0	0	0.0
Slovakia	C	9	9	0.17
Slovenia	C	4	4	0.20
Spain[a]	C	82	82	—
Sweden	C	56	56	0.61
United Kingdom	C	261	261	0.43
EU total		**1586**	**1582**	**0.34[b]**
Iceland	C	4	4	1.30
Liechtenstein	U	0	0	0.0
Norway	C	49	49	1.1
Total		**1639**	**1635**	**0.35[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from Spain.

Age and gender distribution

Of the 1627 confirmed listeriosis cases with information on age, 55 % occurred among individuals 65 years of age and over (Figure 3.3.19). This age group also had the highest notification rate of 1.08 per 100 000 population. In the age group under the age of five (0.49 cases per 100 000), 85 % of cases were in newborns.

The male-to-female ratio was 1.3:1 (0.37 per 100 000 in males and 0.29 per 100 000 in females) for confirmed cases. By age group, however, this ratio varied between the two genders, being lowest (0.30:1) in the age group 25–44 and highest (2.2:1) in the elderly (65 years or older). The difference is probably explained by the higher detection of infection in fertile and pregnant women.

Seasonality

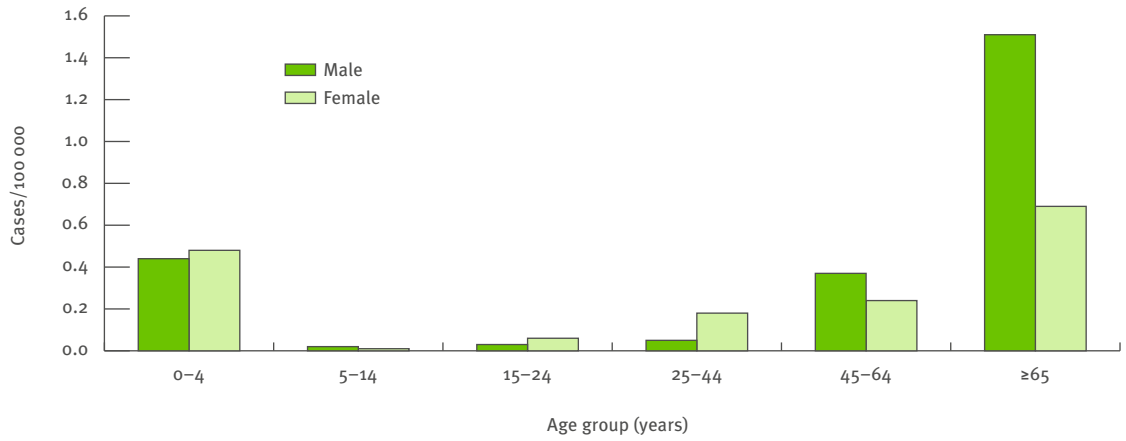
The number of reported cases seems to be highest from July to October although a clear peak was seen in January (Figure 3.3.20).

Discussion

The completeness of reporting has improved with more countries reporting data by month. A seasonal trend is suggested with higher numbers reported in the late summer/early autumn. The peak in January may be related to the Christmas excesses when salmon, meat and cheese products are widely consumed.

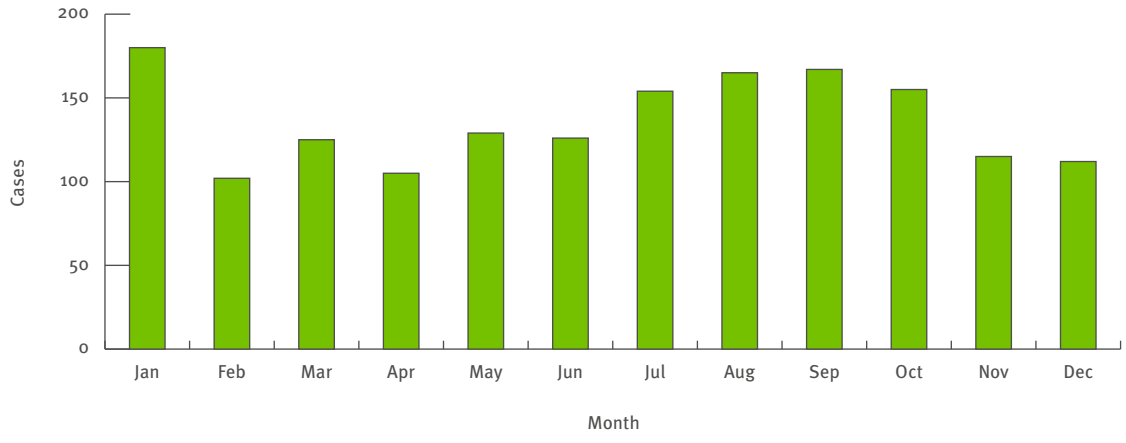
According to the Zoonoses Report 2007, about 20 % of cases (160/795) with known reported outcome died[1]. The Community legislation (Regulation (EC) No 2073/2005) lays down food safety criteria regarding listeria in ready-to-eat (RTE) foods. The food categories with the highest proportions of non-compliant products in 2007 were RTE smoked fish products, RTE meat products and cheeses[1].

Figure 3.3.19. Notification rates of listeriosis cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 1635)



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

Figure 3.3.20. Seasonal distribution of confirmed listeriosis cases in EU and EEA/EFTA countries, 2007 (n = 1 635)



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

References

1. European Food Safety Authority (EFSA), European Centre for Disease Prevention and Control (ECDC). The Community Summary Report on Trends and Sources of Zoonoses and Zoonotic Agents in the European Union in 2007. The EFSA Journal (2009) 223.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	Ministry of Health	Cp	Co	A	C	Y	N	Y	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Listeriosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	EPIBAC, Community invasive infections hospitalized	V	Se	A	C	Y	N	Y	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	–	C	Y	Y	Y	–	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Active surveillance Listeria monocytogenes	V	Co	A	C	Y	N	N	N	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Listeriosis Surveillance System	V	Co	A	C	Y	N	Y	Y	Y

Salmonellosis

- The notification rate of salmonellosis remains high in the EU and EEA/EFTA countries. However, since 2004, there has been a decreasing trend in the EU.
- The highest rates of infection were observed in children, in particular in the 0–4 year-olds.
- The seasonal distribution showed a clear increase in cases over the summer months, peaking in August.
- The percentage of cases that were imported in 2007 was 10.8 %.

Epidemiological situation in 2007

In 2007, a total of 157 750 salmonellosis cases were reported, of which 155 577 were confirmed, by all EU and EEA/EFTA countries (Table 3.3.11). The overall notification rate was 34.26 per 100 000 population; no change from that in 2006 (34 per 100 000). The Czech Republic (172 per 100 000) and Slovakia (155 per 100 000) reported the highest notification rates. Five countries reported fewer then 10 cases per 100 000 population, namely France, Greece, Portugal, Romania and Liechtenstein.

Since 2004, the case reports of salmonellosis have shown a statistically significant decreasing EU trend over this four year period[1].

In 2007, the proportion of cases in the EU that were imported was 10.8 % of all confirmed cases with known importation status (n = 108 850). However, the proportion of cases that were imported was over 75 % in the Nordic countries of Finland, Denmark, Sweden and Norway. The importation status was not known for 29 % of the confirmed cases.

Age and gender distribution

In 2007, the age-specific notification rate was very high in children, in particular in the 0–4 year old age group, where the overall notification rate for salmonellosis was the highest (167.6 per 100, 000 population) (Figure 3.3.21). As expected, there were no differences in the overall rates between males and females (32.2 and 32.4 per 100 000, respectively) in the EU and EEA/EFTA countries.

Seasonality

There is a clear seasonal trend for salmonellosis cases (Figure 3.3.22), with rates increasing over the summer months, peaking in August, and then decreasing gradually.

Enhanced surveillance in 2007

Data from enhanced surveillance from 2007 shows that in humans, as in previous years, the two most common *Salmonella* serovars in the EU were *S*. Enteritidis and *S*. Typhimurium, representing 64.5 % and 16.5 %, respectively, of all known serotypes (Table 3.3.11). As has been observed in past reports, *S*. Enteritidis has a much more prominent summer/autumn peak than the other serovars[1].

Table 3.3.11. Top five *Salmonella* serovars reported in 2007 (n = 126 281)

Serovar	n	%
Enteritidis	81 472	64.5
Typhimurium	20 781	16.5
Infantis	1310	1.0
Virchow	1068	0.8
Newport	733	0.6

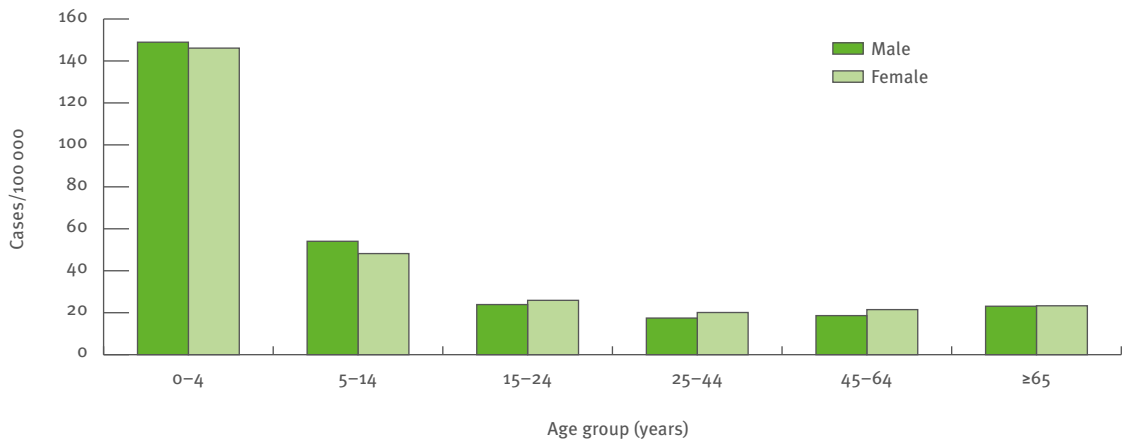
Source: Zoonoses Report[1].

Table 3.3.12. Number and notification rate of reported cases of salmonellosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	3386	3386	41
Belgium	C	3915	3915	37
Bulgaria	A	1179	1136	15
Cyprus	C	163	158	20
Czech Republic	C	17910	17655	172
Denmark	C	1648	1648	30
Estonia	C	428	428	32
Finland	C	2737	2737	52
France	C	5313	5313	8.4
Germany	C	55400	55400	67
Greece	C	727	706	6.3
Hungary	C	6891	6574	65
Ireland	C	457	440	10
Italy	C	6731	6731	11
Latvia	C	619	619	27
Lithuania	A	2330	2270	67
Luxembourg	C	163	163	34
Malta	C	86	86	21
Netherlands[a]	C	1224	1224	—
Poland	A	11704	11155	29
Portugal	C	460	438	4.1
Romania	A	620	620	2.9
Slovakia	C	9241	8367	155
Slovenia	C	1336	1336	66
Spain[b]	C	3842	3842	—
Sweden	C	3930	3930	43
United Kingdom	C	13557	13557	22
EU total		**155997**	**153834**	**34.26[c]**
Iceland	C	93	93	30
Liechtenstein	C	11	1	2.8
Norway	C	1649	1649	35
Total		**157750**	**155577**	**34.26[c]**

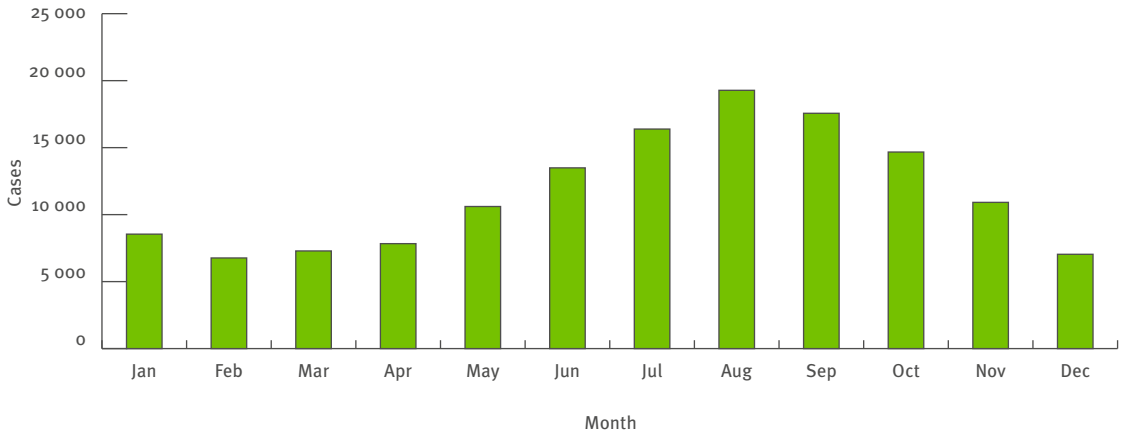
Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Coverage by the Dutch sentinel system is about 64 %.
[b] Sentinel surveillance system based on a limited number of select laboratories.
[c] Overall rate excludes data form the Netherlands and Spain.

Figure 3.3.21. Notification rates of salmonellosis cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 132 950)



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

Figure 3.3.22. Seasonal distribution of salmonellosis cases in EU and EEA/EFTA countries, 2007 (n = 140 384)



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

Discussion

Although salmonellosis continues to have a high notification rate in the EU countries (31 per 100 000 population), there has been a statistically significant decreasing trend observed since 2004. Differences among countries persist, however, limiting the possible interpretation. *Salmonella* continued to be the cause of a number of outbreaks at international, national and sub-national levels in 2007. Among others, one outbreak of *S.* Senftenberg affecting the United Kingdom, Denmark, the Netherlands and the United States, occurred in 2007 and was associated with contaminated pre-packaged basil[2]. The importation status of Salmonellosis cases in the EU is also an important factor, because in certain countries the majority of cases are imported, while in other countries, the majority of cases are reported to be domestic. However, countries may have difficulty in systematically obtaining data on whether a case is imported or not.

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Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Salmonellosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	ENTERNET	V	Se	P	C	Y	N	N	N	–
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	–	C	Y	Y	Y	–	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	National Health Laboratory – Microbiology unit	V	Co	P	C	Y	N	Y	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	LSI: laboratory surveillance infectious diseases	V	Se	P	C	Y	N	N	N	N
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Salmonellosis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Salmonellosis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Shigellosis

- The overall notification rate of shigellosis in 2007 was 1.9 per 100 000 population.
- The most affected are children in the age group 0–4 years, but five countries had highest notification rates among adults (25–44 years old), several of which were possibly related to travel.
- As in previous years, the total number of reported cases peaked in the late summer and autumn months.

Epidemiological situation in 2007

In 2007, a total of 8 163 shigellosis cases were reported in 26 EU and EEA/EFTA countries (Table 3.3.13) (Czech Republic, Denmark, Italy and Liechtenstein did not report), 8 079 of which were confirmed. This represents an increase of 25 % compared with 2006. The overall notification rate was 2.09 per 100 000 population (Table 3.3.13). The highest notification rates were reported by Bulgaria (13.96 per 100 000), Slovakia (9.73 per 100 000), Estonia (8.49 per 100 000) and Sweden (5.16 per 100 000).

Data on importation status were not available.

Table 3.3.13. Number and notification rate of reported cases of shigellosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	136	136	1.7
Belgium	C	360	360	3.4
Bulgaria	A	1072	1072	14
Cyprus	U	0	0	0.0
Czech Republic	—	—	—	—
Denmark	—	—	—	—
Estonia	C	114	114	8.5
Finland	C	112	112	2.1
France	C	827	827	1.3
Germany	C	867	867	1.1
Greece	C	49	49	0.44
Hungary	C	67	62	0.62
Ireland	C	43	43	1.0
Italy	—	—	—	—
Latvia	A	73	73	3.2
Lithuania	A	150	150	4.4
Luxembourg	C	8	8	1.7
Malta	U	0	0	0.0
Netherlands	C	384	359	2.2
Poland	A	64	53	0.14
Portugal	C	12	12	0.11
Romania	A	733	733	3.4
Slovakia	C	568	525	9.7
Slovenia	C	39	39	1.9
Spain[a]	C	119	119	—
Sweden	C	470	470	5.2
United Kingdom	C	1746	1746	2.9
EU total		**8 013**	**7 929**	**2.08[b]**
Iceland	C	2	2	0.65
Liechtenstein	—	—	—	—
Norway	C	148	148	3. 2
Total		**8 163**	**8 079**	**2.09[b]**

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from Spain.

Age and gender distribution

The notification rate was highest among small children (0–4 year-olds) with 9.3 cases per 100 000 population (Figure 3.3.23). In this age group, Bulgaria and Slovakia reported notification rates as high as 160 and 98 cases per 100 000, respectively. In five countries, Finland, Latvia, the Netherlands, Sweden and United Kingdom, the highest notification rates were among those aged 25–44 years.

There was a very slight difference in notification rates between men (1.6 per 100 000) and women (1.8 per 100 000) for the 6 112 cases which included this information.

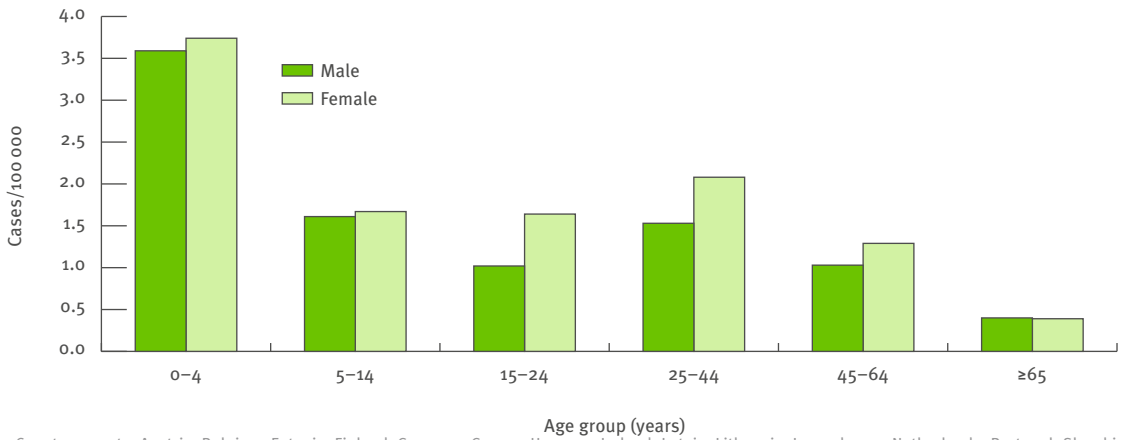
Seasonality

A clear peak in the total number of reported cases was seen in August (Figure 3.3.24), continuing into the autumn months.

Discussion

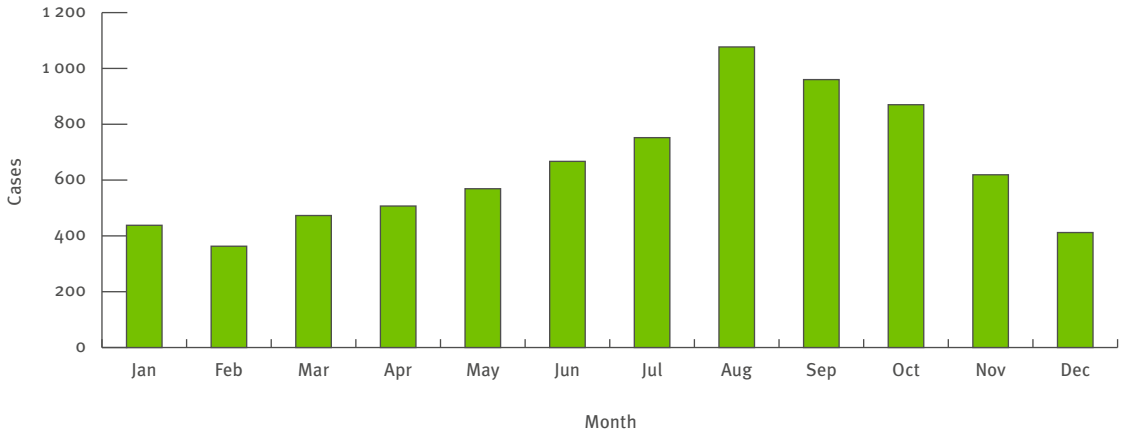
Shigellosis still has a high morbidity among the very young, with the highest notification rates among children under five years old. The available data for 2007 did not include information on imported cases, but 12 countries reported high numbers of cases in the age group 25–44, possibly reflecting the importance of an association with travelling. In Sweden, the explanation for the highest notification rate among middle-aged adults is believed to be travel[1,2]. Outbreaks were described in Norway[3] and Denmark[4], related to travel in Russia and Australia, respectively. Cross-border collaborations for investigation and exchange of information proved valuable in these events.

Figure 3.3.23. Notification rates of shigellosis cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 5 134)



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

Figure 3.3.24. Seasonal distribution of shigellosis cases in EU and EEA/EFTA countries, 2007 (n = 7 707)



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

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Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Pertussis, Shigellosis, Syphilis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	ENTERNET	V	Se	P	C	Y	N	N	N	–
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Shigellosis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Shigellosis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Toxoplasmosis

- Toxoplasmosis remains an underreported disease despite the increase in the number of countries reporting.
- Surveillance systems for toxoplasmosis do not exist in several EU countries.
- Toxoplasmosis is diagnosed more among women than men, most likely due to screening of pregnant women in some countries.

Epidemiological situation in 2007

In 2007, 1851 toxoplasmosis cases were reported by 14 EU and EEA/EFTA countries and five countries (Cyprus, Luxembourg, Malta, Spain and Iceland) reported zero cases (Table 3.3.14). Of these, 1517 cases were confirmed. Slovakia had the highest notification rate (4.7 per 100 000 population) followed by Lithuania (2.0 per 100 000 population). The overall notification rate was 0.83 per 100 000. The total notification rate is still a crude estimate due to the limited numbers of countries reporting data on toxoplasmosis (66 % of the countries).

Table 3.3.14. Number and notification rate of reported cases of toxoplasmosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	5	1	< 0.1
Belgium	—	—	—	—
Bulgaria	A	113	113	1.5
Cyprus	U	0	0	0.0
Czech Republic	C	1	1	< 0.1
Denmark	—	—	—	—
Estonia	C	1	1	< 0.1
Finland	C	36	36	0.68
France	—	—	—	—
Germany	—	—	—	—
Greece	—	—	—	—
Hungary	C	69	69	0.69
Ireland	C	49	49	1.1
Italy	—	—	—	—
Latvia	A	9	9	0.39
Lithuania	A	67	67	2.0
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	—	—	—	—
Poland	A	752	423	1.1
Portugal	—	—	—	—
Romania	C	326	326	1.5
Slovakia	C	254	253	4.7
Slovenia	C	20	20	0.99
Spain[a]	U	0	0	—
Sweden	—	—	—	—
United Kingdom	C	149	149	0.24
EU total		**1851**	**1517**	**0.83[b]**
Iceland	U	0	0	0.0
Liechtenstein	—	—	—	—
Norway	—	—	—	—
Total		**1851**	**1517**	**0.83[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories and reporting only congenital toxoplasmosis.
[b] Overall rate excludes data from Spain.

Age and gender distribution

Data on age groups only was available for 604 cases (40 % of all confirmed cases). This means that the information on age groups is only a crude estimate of the true picture. The highest notification rate was detected in the 5–14 year-olds (0.86 per 100 000 population) while congenital toxoplasmosis was definitely reported in 16 cases reported by seven countries (denominator not available for rates).

Of 977 cases with data on gender, 566 cases were female (58 %) and 411 were male (42 %). In younger individuals, the notification rate was higher in males than females, while in individuals between 15 and 44 years of age, the notification rate was substantially higher in females (Figure 3.3.26).

Seasonality

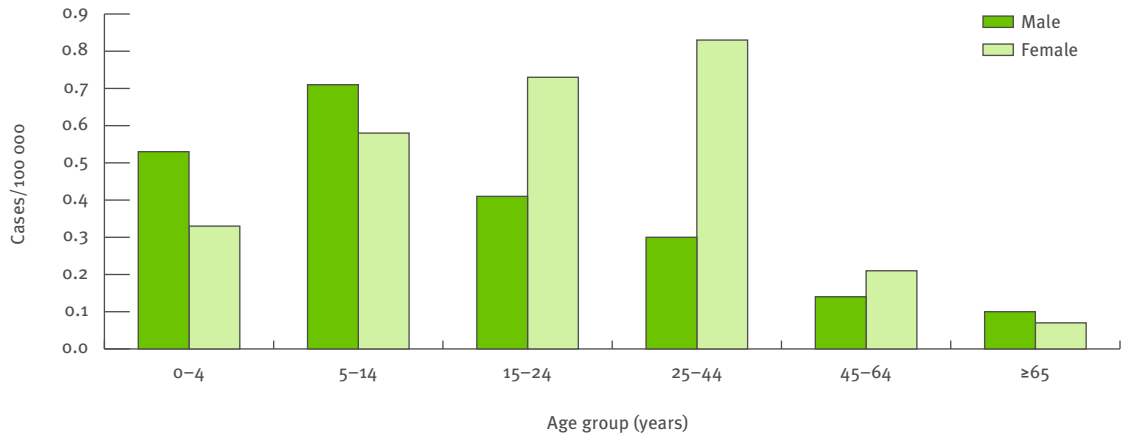
The suggested seasonal trend in Figure 3.3.26, with an increase in the notification rates from late autumn to early spring is not consistent with the picture seen in previous years and should be interpreted with caution.

Discussion

Of all 30 EU and EEA/EFTA countries, 11 do not report data for toxoplasmosis and several that do report did not provide detailed information on the cases (specifying whether 'congenital toxoplasmosis' or 'all cases of toxoplasmosis'). As a result it is difficult to obtain a complete overview of the situation. Further, the infection is rarely diagnosed because it is usually asymptomatic, so the current epidemiological picture presented here describes more the degree of effort by the surveillance system to seek out cases, rather than the true prevalence of infection.

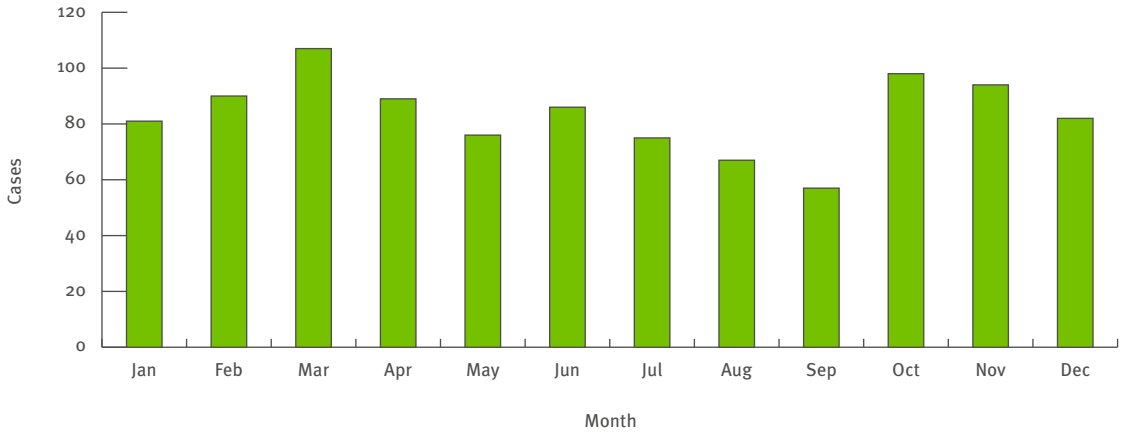
The high frequency of female cases in the age groups 15–24 and 25–44 years is most likely due to the screening of pregnant women for *Toxoplasma* infection.

Figure 3.3.25. Notification rates of toxoplasmosis cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 602)



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

Figure 3.3.26. Seasonal distribution of toxoplasmosis cases in EU and EEA/EFTA countries, 2007 (n = 1 002)



Source: Austria, Czech Republic, Estonia, Finland, Hungary, Ireland, Poland, Slovakia, Slovenia and UK. Cyprus, Luxembourg, Malta, Spain, and Iceland reported zero cases.

Surveillance systems overview

Country	Data Source Description	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	Data from Reference labs	O	Se	A	C	Y	N	N	N	–
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Toxoplasmosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of notifiable diseases in Iceland	Cp	Co	P	A	Y	Y	N	–	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Toxoplasmosis Surveillance System	V	Co	P	C	Y	N	Y	Y	Y

Trichinellosis

- Trichinellosis cases are relatively rare in the EU, but outbreaks do still occur.
- In 2007, the most affected age group was that of 25–44 years, while Romania and Bulgaria reported 63 % of cases.

Epidemiological situation in 2007

In 2007, 787 cases were confirmed out of the 875 cases reported by 27 EU and EEA/EFTA countries. Thirteen countries reported zero cases (Table 3.3.15). Denmark, Iceland and Liechtenstein did not report. The overall notification rate was 0.16 per 100 000 population. Romania (2.0 per 100 000), followed by Bulgaria (0.81 per 100 000), reported the highest incidence rates. Romania, with 432 cases, accounted for 49 % of the total number of cases in the EU.

Table 3.3.15. Number and notification rate of reported cases of trichinellosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	0	0	0.0
Belgium	A	3	3	< 0.1
Bulgaria	A	70	62	0.81
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	—	—	—	—
Estonia	U	0	0	0.0
Finland	U	0	0	0.0
France	C	1	1	0.0
Germany	C	10	10	< 0.1
Greece	U	0	0	0.0
Hungary	C	2	2	< 0.1
Ireland	C	2	2	< 0.1
Italy	C	1	1	0.0
Latvia	C	4	4	0.18
Lithuania	A	13	8	0.24
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	U	0	0	0.0
Poland	C	292	217	0.57
Portugal	U	0	0	0.0
Romania	A	432	432	2.0
Slovakia	C	8	8	0.15
Slovenia	U	0	0	0.0
Spain	C	36	36	< 0.1
Sweden	C	1	1	< 0.1
United Kingdom	U	0	0	0.0
EU total		**875**	**787**	**0.16**
Iceland	—	—	—	—
Liechtenstein	—	—	—	—
Norway	U	0	0	0.0
Total		**875**	**787**	**0.16**

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

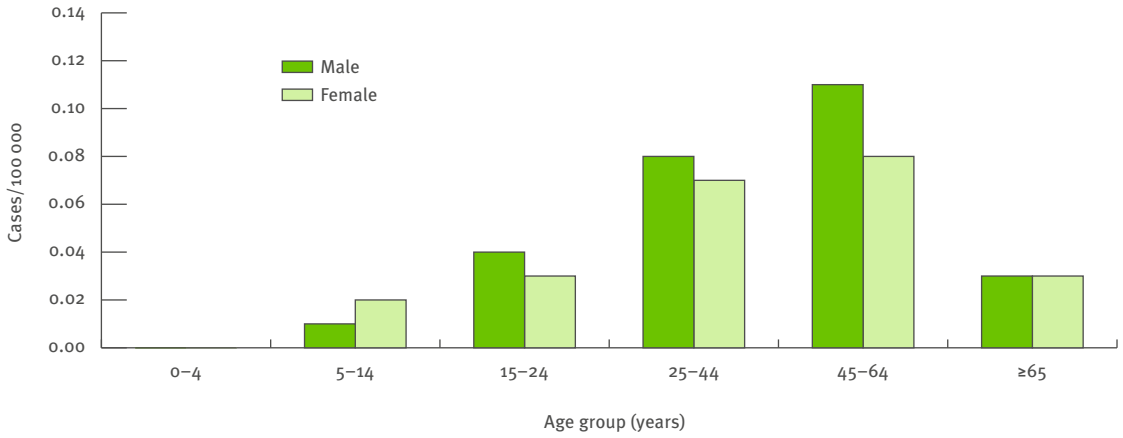
Age and gender distribution

Eleven European countries supplied age-specific data. Of the 714 reported trichinellosis cases with age data available, the notification rate was highest in the group 25–44 years old (0.19 per 100 000) followed by the age group 45–64 years (0.17 per 100 000). Data on both age and gender were available from ten countries (for just 282 cases). These show a higher proportion of males in all age groups except for 5–14 year-olds (Figure 3.3.27) and a slightly higher proportion of males (55.6 % of cases; rate of 0.07 per 100 000) over females (44.3 %; 0.05 per 100 000).

Seasonality

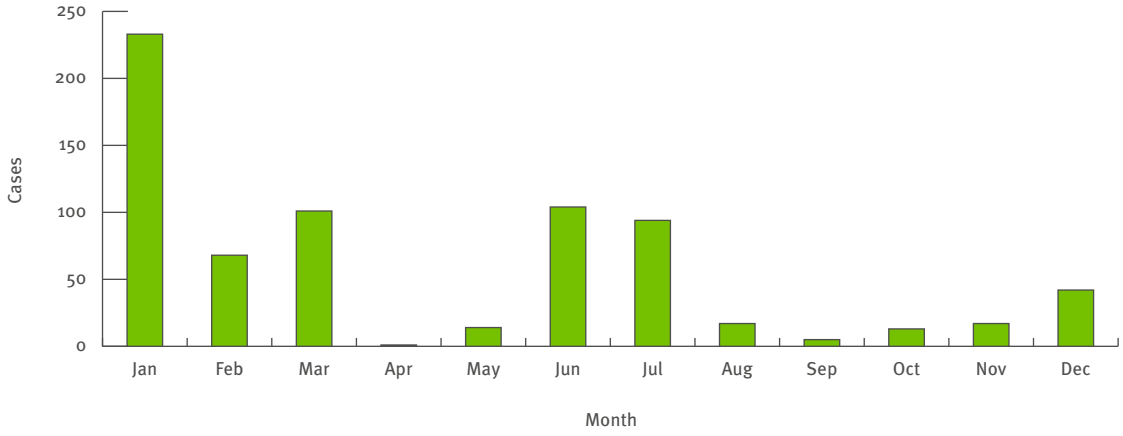
Data on seasonality were available from eleven of the EU countries that reported (709 cases). As was seen last year, most of these cases were reported in January (Figure 3.3.28), most likely related to traditional habits of consumption of pig and wild boar meat during the winter season.

Figure 3.3.27. Notification rates of trichinellosis cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 282)



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

Figure 3.3.28. Seasonal distribution of trichinellosis cases in EU and EEA/EFTA countries, 2007 (n = 709)



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

Discussion

Generally, few cases of *Trichinella* in humans are reported in the EU, but an increase in the notification rate has been observed in 2007, compared with 2006. Romania reported nearly half of the total number of cases in 2007 (432 cases) and a slight increase compared with 2006 (n = 350 cases). In 2007, Romania reported 0.01% of positive samples from pigs and 0.71% of positive samples from wild boar (also caught wild, not farmed)[1].

An outbreak with 21 cases of trichinellosis, related to consumption of home-made wild boar sausage from Spain, affected both Spain and Sweden in January 2007[2]. Another outbreak, with 201 cases, was reported in Poland in June 2007, related to raw pork meat and meat products from one meat processing plant. Ireland and Germany had cases linked to this outbreak, after visits to relatives in Poland[3]. Consumption of undercooked or raw meat, particularly from wild animals, still poses a risk of infection.

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1. European Food Safety Authority (EFSA), European Centre for Disease Prevention and Control (ECDC). The Community Summary Report on Trends and Sources of Zoonoses and Zoonotic Agents in the European Union in 2007. The EFSA Journal (2009) 223.
2. Gallardo MT, Mateos L, Artieda J, Wesslen L, Ruiz C, García MA, et al. Outbreak of trichinellosis in Spain and Sweden due to consumption of wild boar meat contaminated with *Trichinella britovi*. Euro Surveill. 2007;12(11):pii=3154. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3154
3. Golab E, Szulc M, Sadkowska-Todys M. Outbreak of trichinellosis in north-western Poland, June 2007. Euro Surveill. 2007;12(28):pii=3234. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3234

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	–	C	Y	Y	Y	–	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Trichinosis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Trichinosis Surveillance System	V	Co	P	C	Y	N	Y	Y	Y

Tularaemia

- Tularaemia is more commonly reported in the older age groups.
- The notification rate among males is twice that among females.
- A large number of cases reported in 2007 were due to a large outbreak in Spain, otherwise this is an infection mainly affecting the Scandinavian countries.

Epidemiological situation in 2007

In 2007, 1230 cases of tularaemia were reported by 24 countries providing data (Table 3.3.16); all cases were confirmed. Czech Republic, Denmark, Netherlands, Portugal, Iceland and Liechtenstein did not report. The total number is slightly more than the number of cases reported for the previous year (1048 confirmed cases, 2006). Finland reported the highest notification rate (7.6 per 100 000 population), followed by Sweden (1.9 per 100 000) and then Spain and Norway (1.1 each per 100 000). The overall notification rate was 0.27 per 100 000, similar to the previous year.

Table 3.3.16. Number and notification rate of reported cases of tularaemia in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	4	4	< 0.1
Belgium	A	0	0	0.0
Bulgaria	A	3	3	< 0.1
Cyprus	U	0	0	0.0
Czech Republic	—	—	—	—
Denmark	—	—	—	—
Estonia	C	2	2	0.15
Finland	C	403	403	7.6
France	C	48	48	< 0.1
Germany	C	20	20	< 0.1
Greece	U	0	0	0.0
Hungary	C	20	20	0.20
Ireland	U	0	0	0.0
Italy	U	0	0	0.0
Latvia	U	0	0	0.0
Lithuania	A	1	1	< 0.1
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	—	—	—	—
Poland	C	1	1	0.0
Portugal	—	—	—	—
Romania	U	0	0	0.0
Slovakia	C	11	11	0.20
Slovenia	C	1	1	< 0.1
Spain	C	493	493	1.1
Sweden	C	174	174	1.9
United Kingdom	U	0	0	0.0
EU total		**1181**	**1 181**	**0.26**
Iceland	—	—	—	—
Liechtenstein	—	—	—	—
Norway	C	49	49	1.05
Total		**1 230**	**1 230**	**0.27**

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

Age and gender distribution

Thirteen countries that reported confirmed cases also provided information on the age and gender of their cases. Out of the 1218 confirmed cases with gender information, 799 (66 %) were in males and 419 were in females (34 %), with a male-to-female ratio of 2:1. The highest notification rate occurred in the age group 45–64 years for both males and females; among males, 0.64 cases per 100 000 and among females, 0.32 cases per 100 000 (Figure 3.3.29).

Seasonality

Thirteen out of 14 countries reporting confirmed cases also provided seasonality data. The summer months account for the majority of tularaemia cases: 72 % of all cases were reported in July, August and September (Figure 3.3.30).

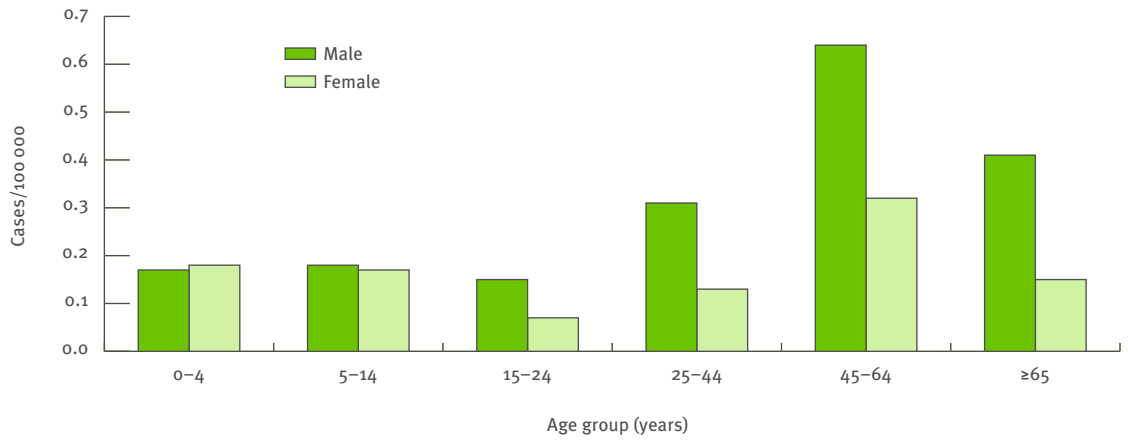
Discussion

A very high proportion of the reported cases of tularaemia (507 cases laboratory-confirmed) were due to an outbreak in Spain between June and December 2007[1]. Diagnosed patients responded favourably to antibiotic treatment and no fatal cases were reported.

References

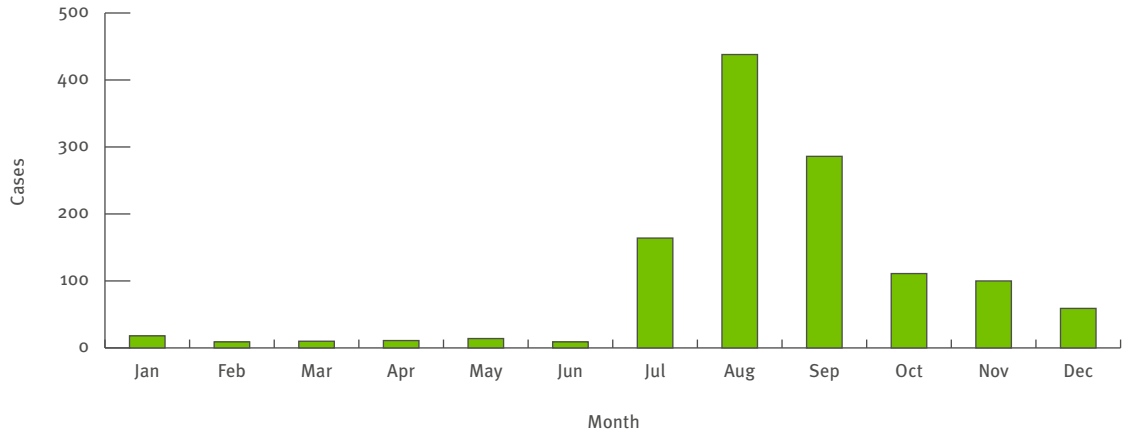
1 Allue M, Sopeña CR, Gallardo MT, Mateos L, Vian E, Garcia MJ, et al. Tularaemia outbreak in Castilla y León, Spain, 2007: an update. Euro Surveill. 2008 Aug 7;13(32). pii: 18948 Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18948

Figure 3.3.29. Notification rates of tularaemia cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 1 217)



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

Figure 3.3.30. Seasonal distribution of tularaemia cases in EU and EEA/EFTA countries, 2007 (n = 1 229)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Tularemia Surveillance System	V	Co	P	C	Y	N	Y	Y	Y

Typhoid/paratyphoid fever

- Typhoid/paratyphoid fever mostly affects 0–4 year-olds.
- The majority of cases occur in the late summer and early autumn, and just under half of the cases are known to be imported.

Epidemiological situation in 2007

In 2007, a total of 456 human typhoid or paratyphoid cases (all confirmed) were reported by 21 EU Member States and Iceland (Czech Republic, Germany, Italy, Lithuania, Luxembourg, Poland, Liechtenstein and Norway did not report) (Table 3.3.17). This is a considerably lower number of cases than that reported in 2006. However, this is almost certainly due to incomplete reporting as several countries that normally report relatively large numbers of cases did not report data for 2007. Of the 22 countries that did report cases, Sweden reported the highest notification rate (0.52 per 100 000 population), followed by Slovenia and Portugal (0.50 and 0.42 per 100 000, respectively). The overall notification rate was 0.16 per 100 000 population. Based on the data from these 22 countries, 45 % of the reported cases with known importation status (n = 126) were imported.

Table 3.3.17. Number and notification rate of reported cases of typhoid/paratyphoid fever in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	0	0	0.0
Belgium	C	42	42	0.40
Bulgaria	C	0	0	0.0
Cyprus	C	1	1	0.13
Czech Republic	—	—	—	—
Denmark	C	14	14	0.26
Estonia	C	2	2	0.15
Finland	C	20	20	0.38
France	C	167	167	0.26
Germany	—	—	—	—
Greece	C	18	18	0.16
Hungary	C	1	1	< 0.1
Ireland	C	12	12	0.28
Italy	—	—	—	—
Latvia	C	1	1	< 0.1
Lithuania	—	—	—	—
Luxembourg	—	—	—	—
Malta	C	0	0	0.0
Netherlands	C	21	21	0.13
Poland	—	—	—	—
Portugal	C	44	44	0.42
Romania	C	2	2	< 0.1
Slovakia	C	1	1	< 0.1
Slovenia	C	10	10	0.50
Spain[a]	C	33	33	—
Sweden	C	47	47	0.52
United Kingdom	C	20	20	< 0.1
EU total		**456**	**456**	**0.16[b]**
Iceland	C	0	0	0.0
Liechtenstein	—	—	—	—
Norway	—	—	—	—
Total		**456**	**456**	**0.16[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from Spain.

Age and gender distribution

Age and gender data were reported by 20 EU and EEA/EFTA countries (Figure 3.3.31). The highest notification rate (0.34 per 100 000) was reported for those under than five years of age. There was no real difference in the total number of cases or notification rates (both 0.15 per 100 000) between males and females. When stratified by age group, males had higher notification rates among the 0–4 year-olds, while females had higher notification rates in those 45 years and older.

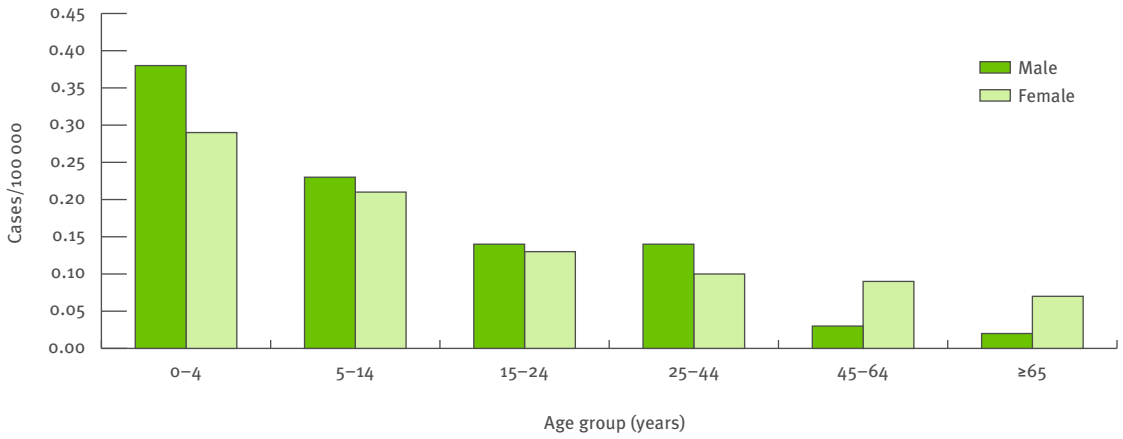
Seasonality

The number of reported cases shows a peak in autumn with the highest number of reported cases in August and September (Figure 3.3.32). This is most likely related to travel to high risk countries, with disease manifesting on return.

Discussion

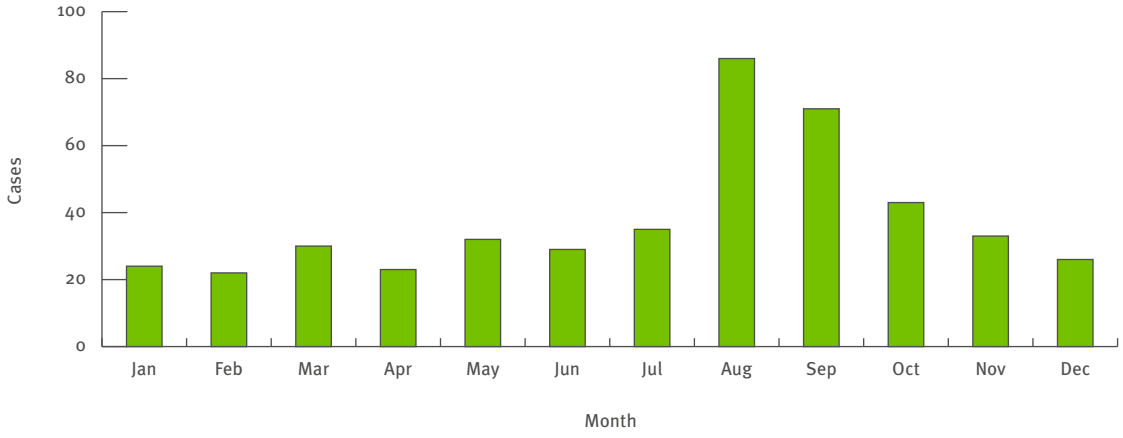
Typhoid and paratyphoid fever remains a rare infection with a higher burden in late summer and early autumn, potentially related to travel to high-risk areas.

Figure 3.3.31. Notification rates of typhoid/paratyphoid fever cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 283)



Source: Country Reports: Belgium, Cyprus, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden and UK. Austria, Bulgaria, Malta and Iceland reported zero cases.

Figure 3.3.32. Seasonal distribution of typhoid/paratyphoid fever cases in EU and EEA/EFTA countries, 2007 (n = 454)



Source: Country Reports: Belgium, Cyprus, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Latvia, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden, UK and Iceland. Austria, Bulgaria, Malta, and Iceland reported zero cases.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Italy	ENTERNET	V	Se	P	C	Y	N	N	N	–
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y

Variant Creutzfeldt-Jakob disease (vCJD)

- Variant CJD is a rare but fatal disease.
- Surveillance for CJD of all types needs to continue due to the uncertainty about the future trend and to monitor different types of exposure, including blood transfusion.
- Since the peak in the number of reported cases (and deaths) in 2000, the number of deaths from vCJD in the UK and in other EU countries has declined[1].

Epidemiological situation in 2007

In 2007, a total of 10 vCJD cases died in four EU Member States (Table 3.3.18), which is three less than those reported in 2006. Half of the cases were confirmed. Five cases were reported by the UK, three by France, one by Portugal and one case was reported from Spain. The overall mortality rate remains low at 0.02 per 1 000 000 population.

Age and gender distribution

Five cases (50 %) occurred in the age group 15–24 years (Figure 3.3.33). The age of the cases ranged from 14 to 75 with a median of 24 years.

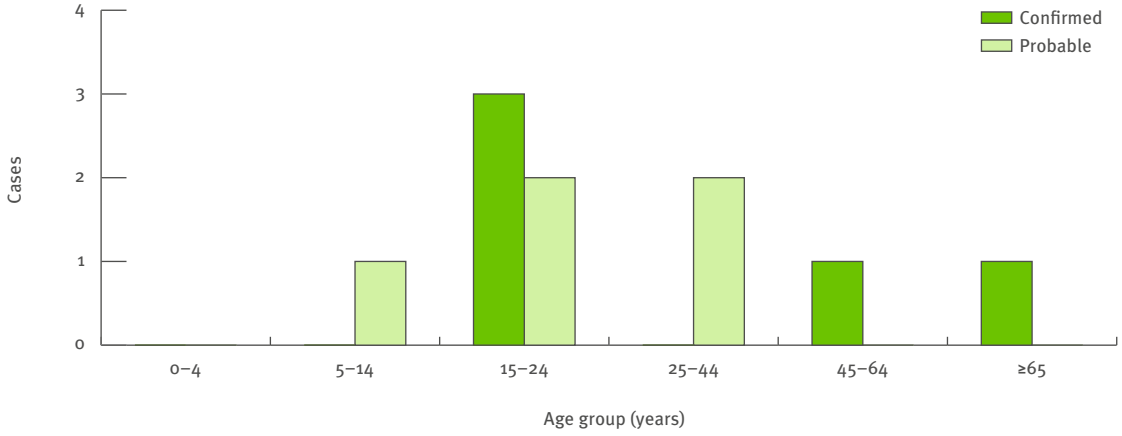
Six of the cases were men and four women.

Table 3.3.18. Number of vCJD deaths in the EU and EEA/EFTA, 2007

Country	Gender	Diagnosis	Year of death	Age at death	Blood donor	Blood recipient
France	Male	Confirmed vCJD	2007	22	no	no
France	Male	Probable vCJD	2007	24	no	no
France	Male	Probable vCJD	2007	36	no	no
Portugal	Male	Probable vCJD	2007	14	no	no
Spain	Female	Confirmed vCJD	2007	50	no	no
UK	Female	Confirmed vCJD	2007	23	yes	no
UK	Female	Confirmed vCJD	2007	18	no	yes
UK	Female	Probable vCJD	2007	27	no	no
UK	Male	Confirmed vCJD	2007	75	no	yes*
UK	Male	Probable vCJD	2007	24	no	no

*Blood transfusion case.
EUROCJD countries contributing reports of zero deaths: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Greece, Iceland, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Slovakia, Slovenia and Sweden.

Figure 3.3.33. Number of probable and confirmed vCJD deaths by age group, in UK, Spain, Portugal and France, 2007 (n = 10)



Source: EuroCJD.

Seasonality

Variant CJD shows no seasonal trends due to the prolonged incubation period, so cases occur throughout the year.

Discussion

Countries throughout Europe continue surveillance of vCJD through collaboration within the EuroCJD network[2]. Methods for case classification have been harmonised and risk factors are investigated by a common questionnaire.

The transmission of bovine spongiform encephalopathy (BSE) to humans in the form of variant CJD through prions in the food chain has had profound political, social and economic implications. Nevertheless, since the peak in 2000, the numbers of reported deaths from vCJD in the UK and in the rest of the EU continue to decline.

However, evidence of transmission of vCJD through blood transfusion is a matter of concern[3]. In 2007, the fourth case of probable transfusion transmission of vCJD infection (3/4 were symptomatic) in the UK was reported, related to the same donor as the third case[4].

Surveillance of variant CJD and all types of CJD is crucial due to uncertain incubation periods and to monitor different types of exposure[1].

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Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	ES-vCJD	Cp	Co	P	C	N	Y	N	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y

Yersiniosis

- The highest burden of yersiniosis is in children under 15 years of age (59 % of reported cases), with the highest notification rate among the younger children under five years old.
- The majority of yersiniosis infections are domestically acquired.
- *Yersinia enterocolitica* is the most commonly reported species in human infections.

Epidemiological situation in 2007

In 2007, a total of 8 877 cases (8 874 of which were confirmed) of human yersiniosis were reported by 22 EU countries and by Norway (Table 3.3.19). This is 2 % less than the total number reported in 2006. Cyprus, Malta and Romania reported zero cases. The overall notification rate was 2.88 per 100 000. The highest rate was reported by Lithuania (17 per 100 000 population) followed by Finland (9.1 per 100 000). The majority of infections in cases with available data (97 %; n = 7 467) were domestically acquired.

Table 3.3.19. Number and notification rate of reported cases of yersiniosis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	142	142	1.7
Belgium	C	248	248	2.3
Bulgaria	A	8	8	0.10
Cyprus	U	0	0	0.0
Czech Republic	C	576	576	5.6
Denmark	C	274	274	5.0
Estonia	C	76	76	5.7
Finland	C	480	480	9.1
France	—	—	—	—
Germany	C	4 987	4 987	6.1
Greece	—	—	—	—
Hungary	C	55	55	0.55
Ireland	C	6	6	0.14
Italy	—	—	—	—
Latvia	C	41	41	1.8
Lithuania	A	569	569	17
Luxembourg	C	22	22	4.6
Malta	U	0	0	0.0
Netherlands	—	—	—	—
Poland	C	182	182	0.48
Portugal	—	—	—	—
Romania	C	0	0	0.0
Slovakia	C	74	71	1.3
Slovenia	C	32	32	1.6
Spain[a]	C	381	381	—
Sweden	C	567	567	6.2
United Kingdom	C	86	86	0.14
EU total		**8 806**	**8 803**	**2.90[b]**
Iceland	—	—	—	—
Liechtenstein	—	—	—	—
Norway	C	71	71	1.52
Total		**8 877**	**8 874**	**2.88[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes the data from the Spain.

Age and gender distribution

The data on age were available for 8 810 cases (99 % of all reported cases). The highest burden of disease was in children under 15 years of age who constituted 59 % of all reported cases. The notification rate was highest in young children under five years of age followed by the age group 5–14 years (17 per 100 000 and 6.3 per 100 000 respectively) (Figure 3.3.34).

Distribution data by gender were available for 8 814 (99 %) cases. No real differences in notification rates were seen between men (2.9 per 100 000) and women (2.4 per 100 000).

Seasonality

Yersiniosis cases showed no clear seasonal pattern (Figure 3.3.35).

Discussion

The highest burden of yersiniosis remains among children below 15 years of age who amount to almost two-thirds (59 %) of all reported cases. This suggests the need to focus on food served in daycare centres and schools. According to the Zoonoses Report 2007, *Yersinia enterocolitica* was the most common species (93.8 %) reported in human confirmed cases. *Y. pseudotuberculosis* represented only 0.7 % of all isolates, while the remaining 5.5 % were other species, not further speciated or unknown (n = 8 784)[1]. In animals, *Yersinia enterocolitica* serotype O:3 was mainly isolated in pigs[1].

References

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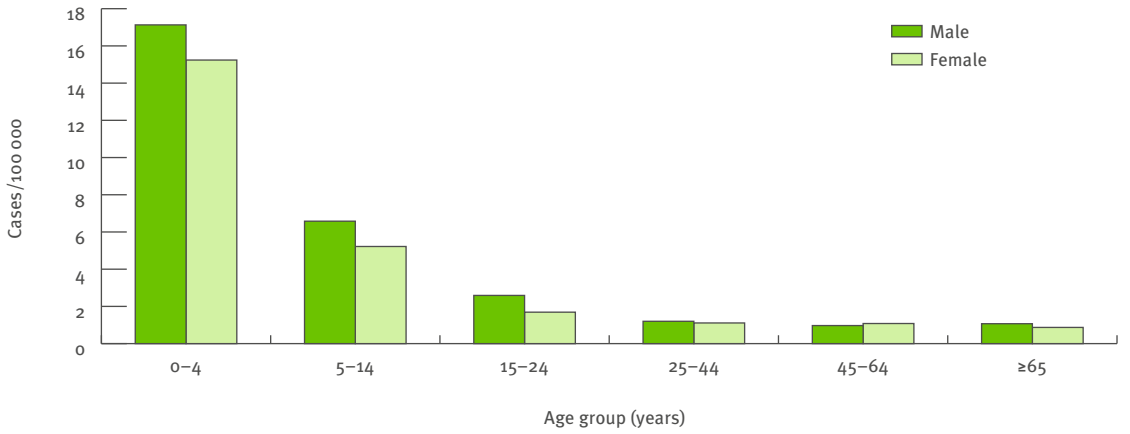
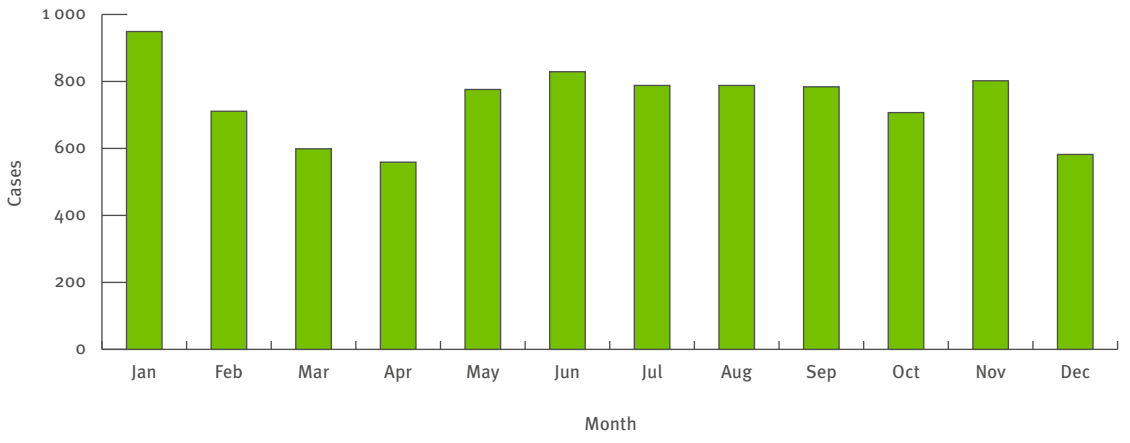
Figure 3.3.34. Notification rates of yersiniosis cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 8 810)



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

Figure 3.3.35. Seasonal distribution of yersiniosis cases in EU and EEA/EFTA countries, 2007 (n = 8 874)



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

Surveillance system overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	—	—	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	Ministry of Health	Cp	Co	A	C	Y	N	Y	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Yersiniosis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	ENTERNET	V	Se	P	C	Y	N	N	N	—
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	—	C	Y	Y	Y	—	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Yersinosis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

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

- The notification rate of malaria cases reported by EU and EEA/EFTA countries continues to decrease.

Epidemiological situation in 2007

In 2007, 3836 cases of malaria (all confirmed) were reported by 26 EU and EEA/EFTA countries. Seventy percent of the cases (2663) were reported by three countries (Germany, Italy and United Kingdom) (Table 3.4.1).

Table 3.4.1. Number and notification rate of reported cases of malaria in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	34	34	0.41
Belgium	C	193	193	1.8
Bulgaria	A	4	4	< 0.1
Cyprus	C	1	1	0.13
Czech Republic	—	—	—	—
Denmark	—	—	—	—
Estonia	C	5	5	0.37
Finland	C	22	22	0.42
France	—	—	—	—
Germany	C	540	540	0.66
Greece	C	21	21	0.19
Hungary	C	7	7	< 0.1
Ireland	C	71	71	1.7
Italy	C	575	575	0.97
Latvia	A	3	3	0.13
Lithuania	A	4	4	0.12
Luxembourg	C	4	4	0.84
Malta	C	3	3	0.74
Netherlands	C	210	210	1.3
Poland	C	11	11	< 0.1
Portugal	C	43	43	0.41
Romania	C	24	24	0.11
Slovakia	C	1	1	< 0.1
Slovenia	C	9	9	0.45
Spain	C	385	385	0.87
Sweden	C	89	89	0.98
United Kingdom	C	1548	1548	2.6
EU total		**3807**	**3807**	**0.92**
Iceland	A	1	1	0.33
Liechtenstein	—	—	—	—
Norway	C	28	28	0.60
Total		**3836**	**3836**	**0.91**

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

Data were not available for Czech Republic, Denmark, France and Liechtenstein. The overall notification rate was 0.91 per 100 000. The individual country rates varied between < 0.1 and 2.6 cases per 100 000 population.

No information on country of infection was available for this dataset, but a few autochthonous cases of malaria have been reported in continental Europe over the last 10 years[1–5].

Age and gender distribution

The notification rate of malaria is twice as high in males as in females (1.21 and 0.60 per 100 000, respectively), with the age group 25–44 years having the highest rates (1.49 per 100 000) (Figure 3.4.1). This is consistent with the picture described in 2006 and likely reflects population travel patterns than other risk factors.

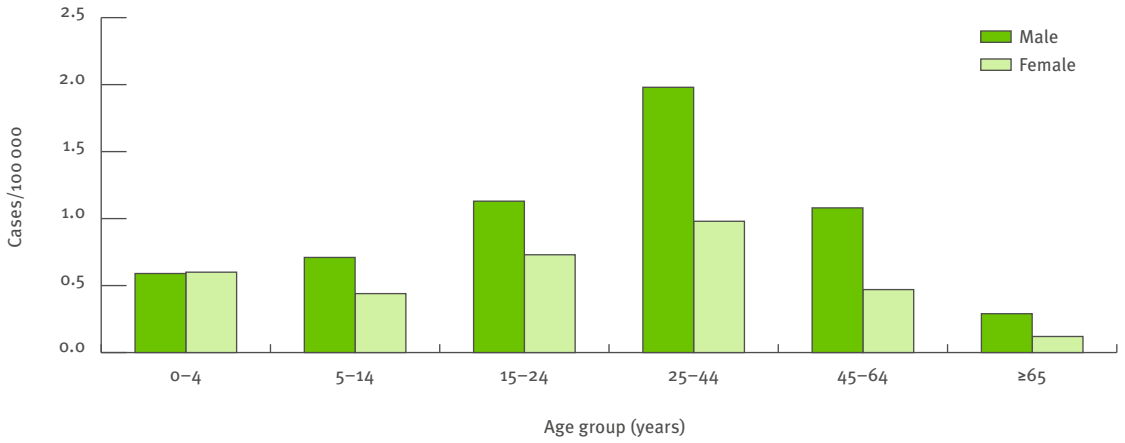
Seasonality

A clear seasonal trend in monthly reports is observed across all countries, with cases increasing during the summer holiday months and in January, possibly related to the winter holiday period (Figure 3.4.2). These observations likely reflect travel to malaria endemic countries.

Discussion

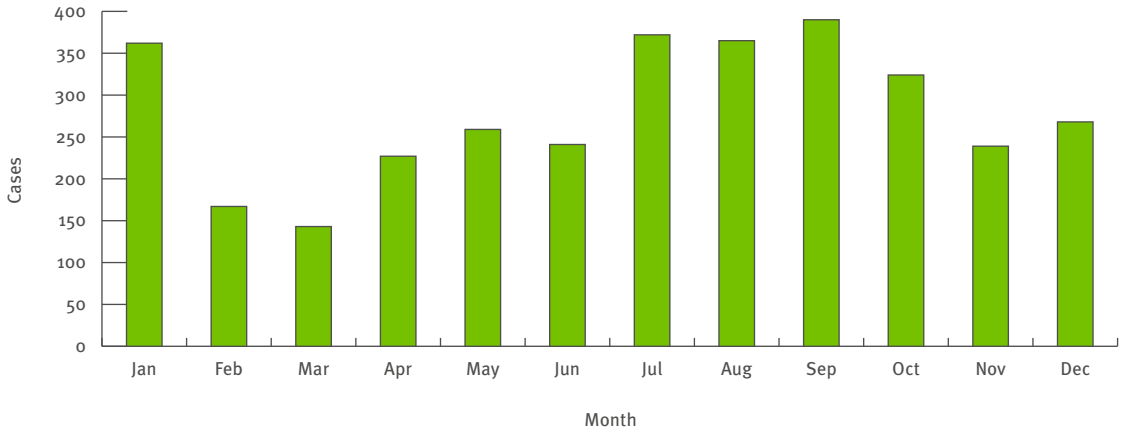
Historically, malaria was endemic in Europe, but has been eliminated in most parts. Cases of autochthonous transmission of malaria in the EU and EEA/EFTA have been reported over the last 10 years[1–5], but sustained local transmission has not been identified to date.

Figure 3.4.1. Notification rates of malaria cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 3584)



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

Figure 3.4.2. Seasonal distribution of malaria cases in EU and EEA/EFTA countries, 2007 (n = 3 357)



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

The notification rate of reported malaria cases diagnosed in the EU and EEA/EFTA decreased in 2007. Seasonality, age and gender distribution of cases are as observed in previous years. Surveillance of malaria continues to be important both in identifying possible indigenous transmission within EU and EEA/EFTA countries, but also to support assessment of prophylaxis recommendations for travel medicine.

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Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	Lab based surveillance	Cp	Co	P	C	Y	N	N	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI – 7.3 (1)	Cp	Co	P	C	Y	N	N	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of notifiable diseases in Iceland	Cp	Co	P	A	Y	Y	N	–	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Malaria Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Malaria Surveillance System	O	Co	A	C	Y	Y	Y	Y	Y

Plague (*Yersinia pestis* infection)

- There were no case of indigenous plague reported in the EU during 2007.

Epidemiological situation in 2007

No cases of plague were reported by 28 EU and EEA/EFTA countries in 2007. No reports were available from Czech Republic or Liechtenstein.

Discussion

The risk of transmission of bubonic plague in the EU is practically non-existent. However, plague is still endemic in several countries in Africa, in the former Soviet Union and the Americas and Asia[1]. The latest suspected plague outbreak reported by WHO was in the Democratic Republic of Congo in November 2006.

On 15 June 2007, the International Health Regulations (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 the former IHR (1969).

References

1. WHO. Human plague in 2002 and 2003. *Wkly Epidemiol Rec*. 2004 Aug 13;79(33):301-6.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Hemorrhagic fevers	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Plague Surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Plague Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Q fever

- A total of 637 confirmed Q fever infections were reported in 2007 from 22 EU and EEA/EFTA countries (eight of them reporting zero cases).
- This figure is at a similar level as the number reported in 2006 (583) and remains lower than in previous years.
- Outbreaks of Q fever were reported in the Netherlands and Slovenia, involving 168 and 86 cases, respectively.

Epidemiological situation in 2007

Twenty-two EU and EEA/EFTA countries reported a total of 669 cases of Q fever in 2007 (eight countries reported zero cases), 637 of which were confirmed (Table 3.4.2). It is not known whether any of those cases were imported. The overall notification rate was 0.16 per 100 000 population. In the two countries with rates over one per 100 000, Slovenia (4.6 per 100 000) and the Netherlands (1.03 per 100 000), their high rates were due to outbreaks[1,2].

Table 3.4.2. Number and notification rate of reported cases of Q fever in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria[a]	—	—	—	—
Belgium	A	14	0	0.0
Bulgaria	A	36	33	0.43
Cyprus	C	8	8	1.0
Czech Republic	—	—	—	—
Denmark	—	—	—	—
Estonia	U	0	0	0.0
Finland	C	2	2	< 0.1
France	—	—	—	—
Germany	C	83	83	0.10
Greece	U	0	0	0.0
Hungary	C	7	7	< 0.1
Ireland	C	17	4	< 0.1
Italy	—	—	—	—
Latvia	U	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	—	—	—	—
Malta	U	0	0	0.0
Netherlands	C	168	168	1.03
Poland	U	0	0	0.0
Portugal	C	10	8	< 0.1
Romania	A	6	6	< 0.1
Slovakia	C	1	1	< 0.1
Slovenia	C	93	93	4.6
Spain[b]	C	159	159	—
Sweden	U	3	3	< 0.1
United Kingdom	C	62	62	0.10
EU total		**669**	**637**	**0.16[c]**
Iceland	—	—	—	—
Liechtenstein	—	—	—	—
Norway	U	0	0	0.0
Total		**669**	**637**	**0.16[c]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report, U: Unspecified.
[a] Q fever is not a notifiable disease in Austria.
[b] Sentinel surveillance system based on a limited number of select laboratories.
[c] Overall rate excludes data from Spain.

Age and gender distribution

The highest rates were seen in the age groups of 15–24 year-olds and 45–64 year-olds, with notification rates of 0.24 and 0.23 per 100 000 population, respectively (Figure 3.4.3). Only seven of the 501 cases for which such information was available were reported among children under the age of 15.

The overall rate was higher in men than in women (0.23 and 0.13 per 100 000, respectively), with a male-to-female ratio of 1.78:1.

Seasonality

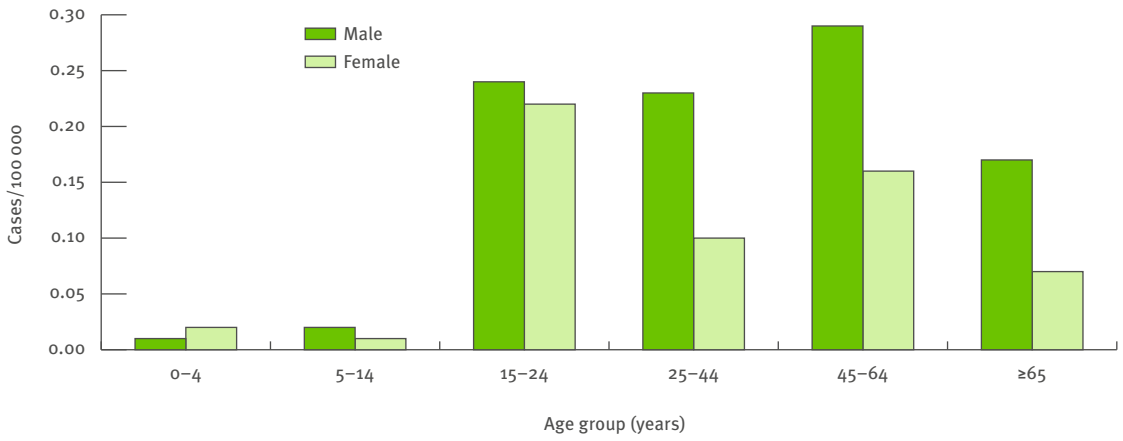
The information on seasonality was available for 585 confirmed cases (Figure 3.4.4).

The months with the highest number of reported cases were July and August (84 and 69 cases, respectively). In 2006 the majority of cases occurred during June and July which is the lambing season in many European countries, although it can be much earlier in others (February–April). The distribution by date of notification of cases is not very useful as day of onset of illness can be earlier than day of notification for such an insidious disease. So, for example, no such link was observed in the 2007 data.

Discussion

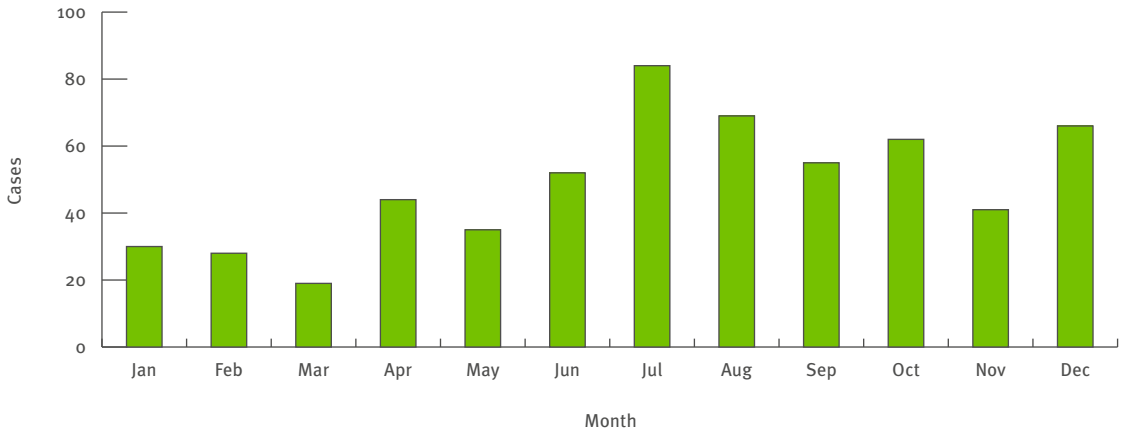
The notification rate for Q fever in the EU and EEA/EFTA has remained at the same level as in 2006. Cases were only reported by 14 countries, while a further eight

Figure 3.4.3. Notification rates of Q fever cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 494)



Source: Belgium, Cyprus, Finland, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Malta, Netherlands, Norway. Poland, Portugal, Romania, Slovakia, Slovenia, Spain, UK.

Figure 3.4.4. Seasonal distribution of Q fever cases in the EU and EEA/EFTA, 2007 (n = 585)



Source: Belgium, Bulgaria, Cyprus, Finland, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, UK.

countries reported no cases. However, Q fever is generally known to be an underreported 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.

An outbreak of Q fever was reported in the Netherlands between March and December 2007 with 168 confirmed cases[2]. Slovenia experienced two outbreaks. The first was detected among high school students and students who worked on a sheep farm in the southwest part of Slovenia. Q fever was serologically confirmed in 83 patients[1]. In the second outbreak, a family from Slovenia working on a sheep farm in Croatia, was infected. Q fever was serologically confirmed in three patients.

References

1. Grilc E, Socan M, Koren N, Ucakar V, Avsic T, Pogacnik M, et al. Outbreak of Q fever among a group of high school students in Slovenia, March-April 2007. Euro Surveill. 2007;12(29):pii=3237. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3237.
2. Schimmer B, Morroy G, Dijkstra F, Schneeberger PM, Weers-Pothoff G, Timen A, et al. Large ongoing Q fever outbreak in the south of The Netherlands, 2008. Euro Surveill. 2008;13(31):pii=18939. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18939.

Surveillance systems overview

Country	Data Source Description	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
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Hemorrhagic fevers	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Q- fever Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Q Fever Surveillance System	V	Co	P	C	Y	N	Y	Y	Y

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 surveillance should be maintained in the inter-epidemic period.

Epidemiological situation in 2007

For 2007, despite ongoing surveillance, there were zero reports of the SARS virus infection in humans from 29 EU and EFTA/EEA countries (Liechtenstein did not report). Neither were there any reports of SARS virus infection in humans worldwide.

Threat reports

No threats related to SARS were reported in 2007.

Discussion

SARS is believed to have been an animal virus that recently crossed the species barrier to infect humans.

Bats have been identified as potential reservoir hosts of coronaviruses associated with SARS (SARSCoV) in different studies[1].

References

1. Wang LF, Shi Z, Zhang S, Field H, Daszak P, Eaton BT. Review of bats and SARS. Emerg Infect Dis. 2006 Dec;12(12):1834-40. Review.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech republic	Mandatory notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting SARS	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Surveillance System for SARS	Cp	Se	P	C	Y	Y	–	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	SARS Surveillance System	V	Co	A	C	Y	N	Y	Y	Y

Smallpox

- There were no reports of smallpox or potential smallpox in the EU and EEA/EFTA countries (or world-wide) in 2007.

Smallpox is a systemic infectious disease, unique to humans, caused by either of two virus variants, *Variola major* and *Variola minor*. In 1980, the World Health Organization declared smallpox eradicated from the world.

Smallpox viruses are considered as one of the viruses most likely to be used as a biological weapon and a European clinical guideline has been issued by the European Commission.

Legitimately the virus exists in only two WHO reference laboratories in the world. Any new case of smallpox would have to be the result of human accidental or deliberate release.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	—	N	Y	Y	—	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Smallpox Surveillance System	O	Co	A	C	Y	N	Y	Y	Y

Viral haemorrhagic fevers (VHF)

- A total of 45 VHF cases (of which 40 were confirmed) were reported from seven Member States. The most commonly reported confirmed viruses were Hantaviruses. Among these, the Puumala virus (reported by Estonia, Hungary and Slovenia), was followed by Dobrava virus (reported by Hungary and Slovenia).

Epidemiological situation in 2007

In 2007, seven EU and EEA/EFTA Member States reported a total of 45 cases of VHF[i] (33 confirmed), giving an overall notification rate of 0.007 per 100 000. The majority of the notifications were Hantanviruses (Puumala (14), Dobrava (7), Hantaan (1), Hantavirus not further differentiated (10), Crimean-Congo haemorrhagic fever (CCHF) (2), and dengue (1) (Table 3.4.3). No data on VHF were available from the Czech Republic, Portugal, or Liechtenstein.

No information on the definitive cause of infection was available for seven of the VHF cases reported by Slovenia, two of the VHF cases reported by Bulgaria and the one VHF case reported by the United Kingdom. In addition, Sweden reported 2 195 cases of nephropathia epidemica in 2007, but there was no information as to how many of these cases (if any) involved a haemorrhagic syndrome.

The majority of VHF cases were reported in males (83 %) and in the younger adults aged 25–44 years (68 %), probably indicating specific risk behaviour or exposures in this age group.

Chikungunya

In August 2007, an outbreak of the tropical disease chikungunya fever was reported from Italy. Following the initial notification on 30 August 2007, 217 laboratory-confirmed and 30 probable cases were reported 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.

Discussion

The group of VHF is a diverse one, and specifications on the exact cause of infection are not systematically provided. This group will be reviewed in the coming year to improve the categorisation and interpretation of the data. This makes it difficult to draw any conclusions but modifications are being made to The European Surveillance System to enable better identification of the type of virus from the data. In 2006, the most frequently identified virus was CCHF, but the numbers were, again, very small.

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. For example 1 273 imported dengue cases were reported through the TropNet Europe Sentinel surveillance network[1] in 2007, but they do not appear in these data collected from the same countries for the Annual Epidemiological Report.

References

1. http://www.tropnet.net/reports_friends/pdf_reports_friends/mayo8_dengueo7_friends.pdf

i The group of diseases considered here as VHF is currently under review, but for ease of reference they have been grouped together in this report, even though some of them may not necessarily have had a haemorrhagic presentation.

Table 3.4.3. Number and notification rate of reported cases of VHF in the EU and EEA/EFTA, 2007

Country	Report type*	Hantaviruses				Dengue	CCHF	Unspecified or unknown	Confirmed	Total cases	Overall notification rate per 100 000 population
		Puumala	Dobrava	Hantaan	Species not specified						
Austria	U	0	0	0	0	0	0	0	0	0	0.0
Belgium	U	0	0	0	0	0	0	0	0	0	0.0
Bulgaria	A	0	0	0	0	0	2	2[a]	0	4	0.0
Cyprus	U	0	0	0	0	0	0	0	0	0	0.0
Czech Republic	—	—	—	—	—	—	—	—	—	—	—
Denmark	U	0	0	0	0	0	0	0	0	0	0.0
Estonia	C	7	0	0	0	0	0	0	7	7	0.52
Finland	U	0	0	0	0	0	0	0	0	0	0.0
France	U	0	0	0	0	0	0	0	0	0	0.0
Germany	U	0	0	0	0	0	0	0	0	0	0.0
Greece	C	0	0	0	1	0	0	0	1	1	0.01
Hungary	C	2	5	1	2	1	0	0	11	11	0.11
Ireland	U	0	0	0	0	0	0	0	0	0	0.0
Italy	U	0	0	0	0	0	0	0	0	0	0.0
Latvia	U	0	0	0	0	0	0	0	0	0	0.0
Lithuania	U	0	0	0	0	0	0	0	0	0	0.0
Luxembourg	U	0	0	0	0	0	0	0	0	0	0.0
Malta	U	0	0	0	0	0	0	0	0	0	0.0
Netherlands	U	0	0	0	0	0	0	0	0	0	0.0
Poland	U	0	0	0	0	0	0	0	0	0	0.0
Portugal	—	—	—	—	—	—	—	—	—	—	—
Romania	U	0	0	0	0	0	0	0	0	0	0.0
Slovakia	C	0	0	0	7	0	0	0	7	7	0.13
Slovenia	C	5	2	0	0	0	0	7	7	14	0.70
Spain	U	0	0	0	0	0	0	0	0	0	0.0
Sweden	U	0	0	0	0	0	0	0	0	0	0.0
United Kingdom[b]	C	0	0	0	0	0	0	1	0	1	0.0
EU total		**14**	**7**	**1**	**10**	**1**	**2**	**10**	**33**	**45**	**< 0.01**
Iceland	U	0	0	0	0	0	0	0	0	0	0.0
Liechtenstein	—	—	—	—	—	—	—	—	—	—	—
Norway	U	0	0	0	0	0	0	0	0	0	0.0
Total		**14**	**7**	**1**	**10**	**1**	**2**	**10**	**33**	**45**	**< 0.01**

Source: Country reports: *A: Aggregated data report; C: Case-based report; —: No report, U: Unspecified.
[a] These were probable cases of haemorrhagic fever with renal syndrome.
[b] These data are based on official disease notifications rather than laboratory reporting, and the definitions of viral haemorrhagic fever for inclusion under the UK Public Health (infectious Diseases) Regulations 1988, SI 1988/1546 reg 2(1) are very broad and include Junin, Machupo, chikungunya, Crimean-Congo, dengue, ebola, hantavirus/Hantaan, Kyasanur Forest, Lassa, Marburg, Omsk, and Rift Valley fever.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Hemorrhagic fevers	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Viral Haemorrhagic Fever Surveillance System	O	Co	A	C	Y	N	Y	Y	Y

West Nile fever

- Although sporadic outbreaks have occurred within the EU, data and reporting are still scarce.
- A total of 11 confirmed cases of West Nile virus infection were reported across the EU/EFTA and EEA countries in 2007: two cases in France, four in Hungary, four in Romania and one case in the United Kingdom.

Epidemiological situation in 2007

A total of 11 confirmed cases of West Nile Virus (WNV) infection were reported in 2007 by 20 EU and EEA/EFTA countries. No data are available for Austria, the Czech Republic, Denmark, Germany, Luxembourg, the Netherlands, Portugal, Sweden, Iceland or Liechtenstein.

All cases occurred in individuals older than 15 years, with the two youngest cases reported from France (both imported). The majority of cases (n = 10) were male. The importation status of the remainder of the cases was not reported. All cases were reported between June and September 2007, the majority of them (seven cases) in August.

Discussion

Since the first large outbreak of West Nile fever in Romania in 1996, in which 835 patients were hospitalised and 393 had laboratory-diagnosed West Nile fever[1], WNV has been recognised as a major public health concern in Europe[2]. Indigenous WNV outbreaks in the Czech Republic in 1997[3] and France in 2003[4] further demonstrate the need for awareness about WNV. In addition, sporadic imported cases have been reported in several European countries over the past years, with the origin of infection of most of them being the United States.

References

1. Tsai TF, Popovici F, Cernescu C, Campbell GL, Nedelcu NI. West Nile encephalitis epidemic in southeastern Romania. Lancet. 1998 Sep 5;352(9130):767-71.
2. Gubler DJ. The continuing spread of West Nile virus in the western hemisphere. Clin Infect Dis. 2007 Oct 15;45(8):1039-46.
3. Hubálek Z, Lukácová L, Halouzka J, Sirůcek P, Januska J, Precechtelová J. Import of West Nile virus infection in the Czech Republic. Eur J Epidemiol. 2006;21(4):323-4.
4. Institut de Veille Sanitaire (French Institute for Public Health Surveillance). Annual Report 2003. Saint-Maurice (France): Institut de Veille Sanitaire; 2003.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Hemorrhagic fevers	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
France	West Nile virus infection	V	Se	A	C	Y	Y	Y	Y	N
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	West Nile fever	V	Co	P	C	Y	N	N	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	West Nile Fever Surveillance System	V	Co	A	C	Y	N	Y	Y	Y

Note: in Cyprus West Nile virus was not a mandatory notifiable disease in 2007.

Yellow fever

- No cases of yellow fever were reported in the EU and EEA/EFTA countries in 2007.
- Yellow fever has not caused any outbreaks in Europe for more than a century.
- In 2007 no cases were reported as imported through travel from endemic regions.
- There is a theoretical risk of future 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.
- Despite the lack of reported imported cases, non-vaccinated travellers travelling to affected areas without the effective protection of yellow fever 17D vaccination expose themselves to risk of infection.

Epidemiological situation in 2007

No cases of yellow fever were reported in the EU and EEA/EFTA countries in 2007.

Worldwide outbreaks in 2007

The latest data published by WHO on the yellow fever situation worldwide was up to 2006[1] in the Weekly Epidemiological Record[1]. Three laboratory-confirmed yellow fever cases were reported in Togo and a mass vaccination campaign has followed[2].

Discussion

Yellow fever is commonly underreported in the affected areas since the symptoms may be easily misinterpreted and most areas are lacking effective surveillance systems. WHO estimates that there are approximately 200 000 cases of yellow fever every year resulting in 30 000 deaths[1].

Yellow fever is one of the diseases given special focus in the International Health Regulations (IHR) (2005). As such, vaccination against yellow fever is required for all travellers leaving an area from where there is risk of transmission. Further, 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, who is unable to produce a valid certificate of vaccination against yellow fever, be quarantined.

References

1. WHO. Yellow fever in Africa and South America, 2006. Wkly Epidemiol Rec. 2008 Feb 22;83(8):60-76.
2. WHO. Yellow fever, Togo – update. Wkly Epidemiol Rec. 2007 Feb 16;82(7):50.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Hemorrhagic fevers	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Yellow fever Surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Yellow Fever Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

3.5 Vaccine-preventable diseases

Diphtheria, invasive *Haemophilus influenzae* disease, invasive meningococcal disease, invasive pneumococcal disease, measles, mumps, pertussis, poliomyelitis, rabies, rubella, tetanus.

Diphtheria

- In 2007, 21 cases were reported across the EU. About 70 % of cases were reported from Latvia.
- The majority of cases occurred in the age group 45–65 years.
- National vaccination programmes should be able to keep the overall incidence of diphtheria across the EU below 1 case per 10 000 000.

Epidemiological situation in 2007

Four countries reported a total of 21 confirmed diphtheria cases in 2007 (Table 3.5.1). Overall, 29 EU and EEA/EFTA countries provided reports, with an overall notification rate of 0.0042 per 100 000 population. The most cases (15) were reported by Latvia (overall incidence 0.66 per 100 000). Sporadic cases were reported by France (1), Germany (2) and UK (3).

The overall figure is an improvement on the previous year, when 38 cases were reported (including 32 cases from Latvia).

Age and gender distribution

The most affected age group was the 45–65 year-olds (0.005 cases per 100 000) and all the males were in this age group. The next most affected age group was the 5–14 year-olds with 0.002 cases per 100 000, and cases were reported in all the other age groups apart from the under 5 year-olds.

No cases were reported during the first five years of age. Information on gender was available for all 21 cases. The male-to-female ratio was 1:4.1.

Seasonality

No seasonal trend is evident due to the small numbers.

Enhanced surveillance

The DIPNET network[1], launched on 1 November 2006, is a 38-month programme bringing together 25 EU partner countries (24 EU Member States and Turkey) and collaborating countries beyond Europe in a global dedicated surveillance network for diphtheria and related infections caused by *Corynebacterium diphtheriae* and *Corynebacterium ulcerans*.

Discussion

Epidemiological data show that diphtheria appears to be under control in the EU. Latvia is still experiencing the tail of a larger epidemic in the Baltic region that occurred in recent years. Possible problems linked to low efficacy of the vaccination programme are under investigation in that country. The data available show no difference between cases due to *C. ulcerans* (zoonosis) and those due to *C. diphteriae* (human transmission), more information on this can be obtained from the DIPNET report[1].

The presence of cases in the older age groups needs to be kept under close review as it may suggest reviewing adult booster policies across Europe.

Reference

1. DIPNET, the Diphtheria Surveillance Network. Available at: www.dipnet.org

Table 3.5.1. Number and notification rate of reported cases of diphtheria in the EU and EEA/EFTA, 2007

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	1	1	< 0.01
Germany	C	2	2	< 0.01
Greece	U	0	0	0.0
Hungary	U	0	0	0.0
Ireland	U	0	0	0.0
Italy	U	0	0	0.0
Latvia	A	15	15	0.66
Lithuania	U	0	0	0.0
Luxembourg	U	0	0	0.0
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	C	0	0	0.0
Slovakia	U	0	0	0.0
Slovenia	U	0	0	0.0
Spain	U	0	0	0.0
Sweden	U	0	0	0.0
United Kingdom	C	3	3	< 0.01
EU total		**21**	**21**	**0.0042**
Iceland	U	0	0	0.0
Liechtenstein	—	—	—	—
Norway	U	0	0	0.0
Total		**21**	**21**	**0.0042**

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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Anthrax, Cholera, Diphtheria, Malaria, Smallpox, Trichinosis. Tularaemia, Typhoid fever	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Diphteria Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Diptheria Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Invasive *Haemophilus influenzae* disease

- The rate of invasive *Haemophilus influenzae* disease remains stable in Europe, with an notification rate well below one per 100 000.
- The Hib vaccine has had a significant effect on the incidence of this disease in all countries where it has been introduced[1].

Epidemiological situation in 2007

In 2007, a total of 2 058 cases (2 051 of which were confirmed) of all serotypes (not just serotype b) were reported by 27 countries (Table 3.5.2). The overall notification rate was 0.48 per 100 000 population. This figure cannot be compared with the figures given in the previous year's report as only serotype b (Hib) was included in that report on 2006 data.

Norway and Sweden reported the highest notification rates with 1.77 per 100 000 and 1.58 per 100 000, respectively. Cyprus, Latvia and Lithuania reported zero cases.

Table 3.5.2. Number and notification rate of reported cases of invasive *Haemophilus influenzae* disease in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	4	4	< 0.1
Belgium	C	55	55	0.52
Bulgaria	A	20	19	0.26
Cyprus	U	0	0	0.0
Czech Republic	C	13	13	0.13
Denmark	C	15	15	0.28
Estonia	C	2	1	0.22
Finland	C	54	54	1.02
France	A	658	658	1.04
Germany	C	93	93	0.11
Greece	C	7	7	< 0.1
Hungary	C	2	2	< 0.1
Ireland	C	31	31	0.72
Italy	C	33	33	< 0.1
Latvia	U	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	C	1	1	0.21
Malta	C	1	1	0.25
Netherlands	—	—	—	—
Poland	C	43	38	0.11
Portugal	C	16	16	0.15
Romania	—	—	—	—
Slovakia	C	6	6	0.11
Slovenia	C	13	13	0.65
Spain[a]	C	66	66	—
Sweden	C	144	144	1.6
United Kingdom	C	696	696	1.1
EU total		**1 974**	**1 967**	**0.46[b]**
Iceland	C	1	1	0.33
Liechtenstein	—	—	—	—
Norway	C	83	83	1.77
Total		**2 058**	**2 051**	**0.48[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from Spain.

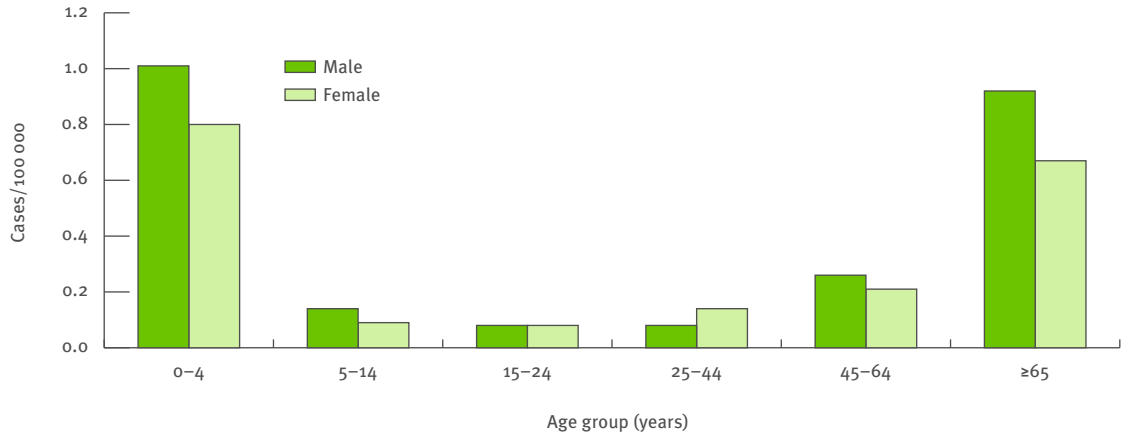
Age and gender distribution

The most affected age groups for all serotypes were the youngest and the oldest. Children under five years old had a notification rate of 1.2 per 100 000, similar to the over 65 year-olds (1.21 per 100 000) (Figure 3.5.1). The latter age group represented 46 % of all reported cases, with highest notification rates in this age group reported by Sweden (5.3 per 100 000), the United Kingdom (3.2 per 100 000), and France (3.1 per 100 000). The most commonly reported serotype in this oldest age group (≥ 65) was non-capsulated with 67 % (244 cases). Serotype b was the most frequently reported serotype within the age group 0–4 years with 50 % (78 cases) of all reported serotypes.

The youngest age group was also the most affected by serotype b, representing 43 % (78 cases) of all serotype b notifications. The notification rate for serotype b among 0–4 year-old children was highest in Estonia with 1.5 per 100 000 (one case only), followed by UK with 1.2 per 100 000 (44 cases). The two oldest age groups (45–64 and ≥ 65 years) accounted for 16 % (30 cases) of all reported serotype b notifications.

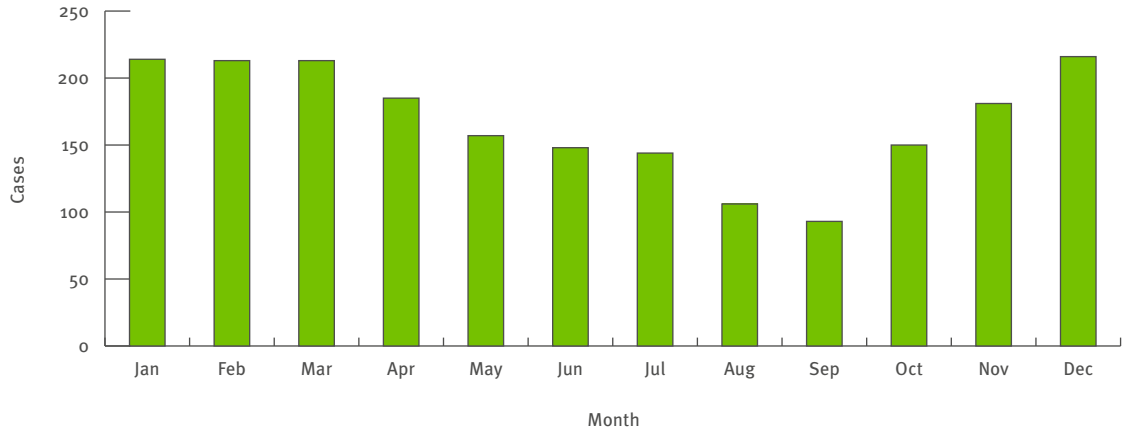
The overall reported distribution between males and females was even with a ratio of 1:1.

Figure 3.5.1. Notification rates of invasive *Haemophilus influenzae* disease cases by age and gender, in the EU and EEA/EFTA countries, 2007 (n = 1 355)



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

Figure 3.5.2. Seasonal distribution of invasive *Haemophilus influenzae* disease in the EU and EEA/EFTA countries, 2007 (n = 2 020)



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

Seasonality

The highest numbers of observed invasive *Haemophilus influenzae* disease infections occurred during the winter months. This was followed by a steady decrease until September, then the numbers increased again to a peak in December (Figure 3.5.2).

Enhanced surveillance in 2007

The European Union Invasive Bacterial Infections Surveillance (EU-IBIS) dedicated surveillance network was initiated in 1999. In October 2007, the coordination of this network was transferred to ECDC, which is now responsible for the European enhanced surveillance of invasive *Haemophilus influenzae* disease.

The data on serotype and vaccination status were collected using an adaptation of this former network's dataset. However, a large percentage of the countries' reported serotype 'unknown'. Moreover, almost half of the notifications of serotype b were reported with vaccination status 'unknown'. The 2007 enhanced surveillance report (EU Invasive Bacterial Infections Surveillance Report 2007 (under preparation by ECDC)) concluded that in general the invasive *Haemophilus influenzae* disease notification rate continued to remain relatively stable in Europe for the whole population. A slight increase in notification rate has been seen in some countries compared with previous years, while there has been a slight decrease in others.

A noteworthy change was reported in Estonia. In 2005 their notification rate peaked at 9.6 per 100 000, and then decreased to 0.22 per 100 000 in 2007. Estonia introduced the Hib vaccine to their immunisation schedule in September 2005 and this was the most likely cause for this large reduction in their notification rate as all of their reported cases during these years were typed as serotype b.

Serotype distribution

'Non-capsulated' was the most frequently reported serotype, accounting for 57 % of all serotypes. Sixteen countries reported serotype b cases, with an overall notification rate of 0.10 per 100 000 for these 16 countries (Figure 3.5.3).

Discussion

These figures may reflect real differences in incidence, but could also be a result of the differences between surveillance systems. They are certainly partly due to the variation in the methods used for confirming suspected cases.

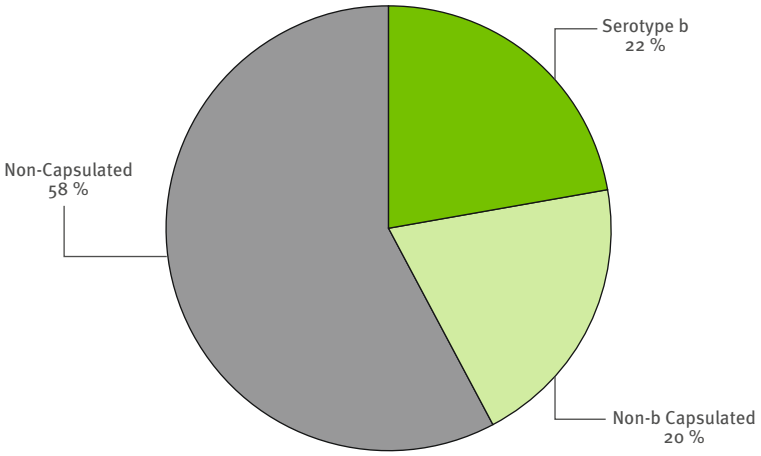
The youngest and the oldest age groups are the most affected. Some count h number of cases or could equally be the result of more efficient enhanced surveillance measures.

The comparability of these data is low as different case definitions have been applied by the countries. This has mainly affected the division of 'confirmed' and 'probable' cases as a number of countries have applied the EU case definition for 'confirmed' as published in 2008, while others used the former definition.

References

1. EU-IBIS Network. Invasive *Haemophilus influenzae* disease in Europe 2006. Health Protection Agency, London 2006. Available from www.euibis.org.

Figure 3.5.3. Distribution of *Haemophilus influenzae* serotypes in EU and EEA/EFTA countries, 2007 (n = 804*)



*Note: Serotype 'unknown' (42 % of all notifications) was excluded in the figure above.
Source: Country Reports: Austria, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Italy, Norway, Poland, Portugal, Spain, Sweden, Slovenia, Slovakia, UK.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Hib	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	EPIBAC, Community invasive infections hospitalized	V	Se	A	C	Y	N	Y	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National surveillance system of bacterial meningitis	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	*Haemophilus Influenzae* Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	HI Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Invasive meningococcal disease

- Most invasive diseases are caused by the serogroups B and C. The vaccine commonly in use covers only the serogroup C (Men C).
- The overall notification rate in 2007 was 1 per 100 000, similar to that for 2006.
- The notification rate of both serogroup B and C disease decreases with age, and adults older than 25 years rarely experience the disease.

Epidemiological situation in 2007

In 2007, 5 586 cases, of which 5 180 cases were confirmed, were reported by all countries, except Liechtenstein (Table 3.5.3). Ireland and the United Kingdom reported the highest notification rates with 3.8 per 100 000 and 2.5 per 100 000, respectively. The lowest notification rate was reported by Italy (0.3 per 100 000), but the country rates were very similar at just under 1 per 100 000. The overall notification rate was one per 100 000, similar to that for 2006 (0.98 per 100 000).

Table 3.5.3. Number and notification rate of reported cases of invasive meningococcal disease in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	69	61	0.74
Belgium	C	160	160	1.5
Bulgaria	A	38	24	0.31
Cyprus	C	4	4	0.51
Czech Republic	C	76	76	0.74
Denmark	C	78	78	1.4
Estonia	C	11	11	0.82
Finland	C	43	43	0.81
France	C	721	680	1.1
Germany	C	436	436	0.53
Greece	C	109	106	0.95
Hungary	C	49	43	0.43
Ireland	C	179	162	3.8
Italy	C	183	178	0.30
Latvia	C	21	15	0.66
Lithuania	C	66	50	1.5
Luxembourg	C	2	2	0.42
Malta	C	6	6	1.5
Netherlands	C	195	189	1.2
Poland	C	392	336	0.88
Portugal	C	117	98	0.92
Romania	C	155	145	0.67
Slovakia	C	37	35	0.65
Slovenia	C	18	18	0.90
Spain[a]	C	816	619	—
Sweden	C	49	49	0.54
United Kingdom	C	1522	1522	2.5
EU total		**5552**	**5146**	**1.00[b]**
Iceland	C	4	4	1.3
Liechtenstein	—	—	—	—
Norway	C	30	30	0.64
Total		**5586**	**5180**	**1.00[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from Spain.

Age and gender distribution

Of the 4 993 cases with known age, 44 % were reported in children under five years old. This age group also has the highest notification rate of 8.6 per 100 000, followed by the 15–24 year-olds (1.6 per 100 000). In the older age groups the disease was rarely reported. In the youngest age group (< 5 years) the notification rate was highest in Ireland with 31 per 100 000, followed by the United Kingdom with 21 and Lithuania with 16 per 100 000.

Information on gender was available for 5 128 cases (Figure 3.5.4). There was a slightly higher overall rate among males (1.1 per 100 000) than females (0.98 per 100 000).

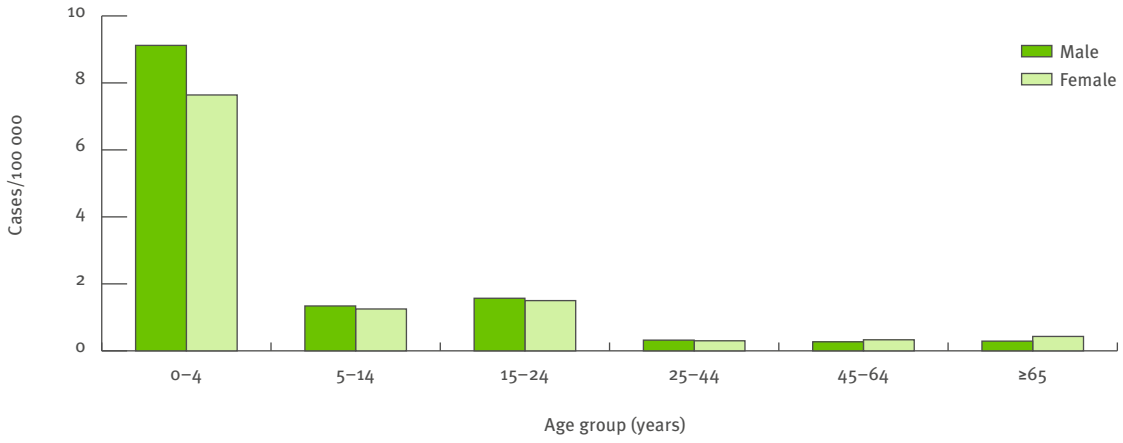
Seasonality

The notification rate peaked in winter and then fell during spring to a low during the summer period (June to September) (Figure 3.5.5). The highest number of cases was reported in January (n = 649) and the lowest in September (n = 234).

Enhanced surveillance in 2007

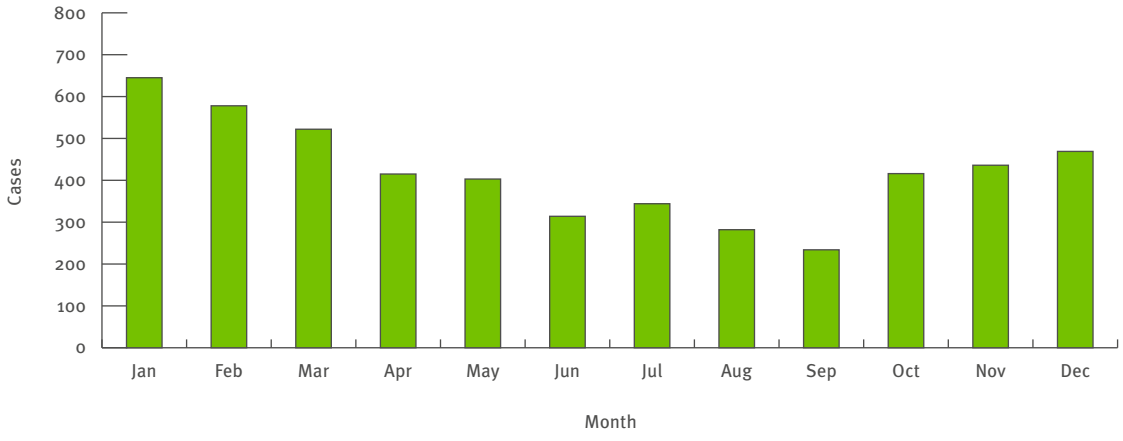
The European Union Invasive Bacterial Infections Surveillance (EU–IBIS) network started in 1999. Since October 2007, the coordination of this network's activities has been transferred to ECDC. The detailed enhanced surveillance report currently under preparation will show that serogroups B (77 %) and C (16 %)

Figure 3.5.4. Notification rates of invasive meningococcal disease cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 4 967)



Source: Country reports: Austria, Belgium, 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 3.5.5. Seasonal distribution of meningococcal disease cases in EU and EEA/EFTA countries, 2007 (n = 5 058)



Source: Country reports: Austria, Belgium, 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.

remained the major cause of invasive meningococcal disease in Europe. Serogroup B disease predominates in all the age groups, but is especially dominant in the under 10 year-olds, while serogroup C was more evident in the age groups over 10 years old, especially the groups 10–14 and 25–44 years. The case fatality ratio was highest in serogroups C (13%) and Y (13%), the latter is most likely because it mainly affects the older age group 45–64 years.

Discussion

The notification rate varies slightly between countries, ranging from 0.30 to 3.8 per 100000. These numbers probably reflect some difference in incidence, but also differences between surveillance systems and are certainly influenced by the variation in the methods used for confirming suspected cases. Considering the numbers of reported cases over recent years, there appears to have been an overall decline in incidence since 2000, though this does not seem to have continued in 2007.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Meningococc	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	EPIBAC, Community invasive infections hospitalized	V	Se	A	C	Y	N	Y	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National surveillance system of bacterial meningitis	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Meningococal Disease surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Spanish National Reference Laboratory	V	Se	P	C	Y	N	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Meningococal Disease Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Invasive pneumococcal disease (IPD)

- There is a wide heterogeneity in the IPD surveillance systems in the EU, particularly in terms of the type of surveillance systems in place and their coverage (age groups, variables collected, and ease of access to the central reference laboratory for serotyping, etc.) and the case definition used; while in some countries there are no surveillance systems in place. For this reason, these rates are difficult to compare across Member States[1].
- Ninety-one *S. pneumoniae* serotypes have been identified and their distribution varies by area and time. The heptavalent pneumococcal conjugate vaccine (PCV7) targets seven of them. PCV7 was licensed in the EU in 2001. Though PCV7 is now available in many countries, vaccination policies differ across countries, or even within areas in a single country[2].
- There are concerns regarding the possibility that, after introduction of the vaccine, serotypes covered by vaccine may be replaced by serotypes not covered by PVC7, as has already been observed in the United States[3].

Epidemiological situation in 2007

Due to the lack of surveillance systems for invasive pneumococcal disease in several countries and the heterogeneity of the systems that exist across the Member States, the data should be compared with caution (Table 3.5.4). In addition, some countries refer only to pneumococcal meningitis.

In 2007, 13 573 cases were reported, of which 13 484 were confirmed. Nine countries did not provide any data. The overall notification rate for these reporting countries was 6.32 per 100 000 population with the highest rates being reported by Norway (21 per 100 000), Belgium (16 per 100 000), Sweden (16 per 100 000) and Finland (15 per 100 000).

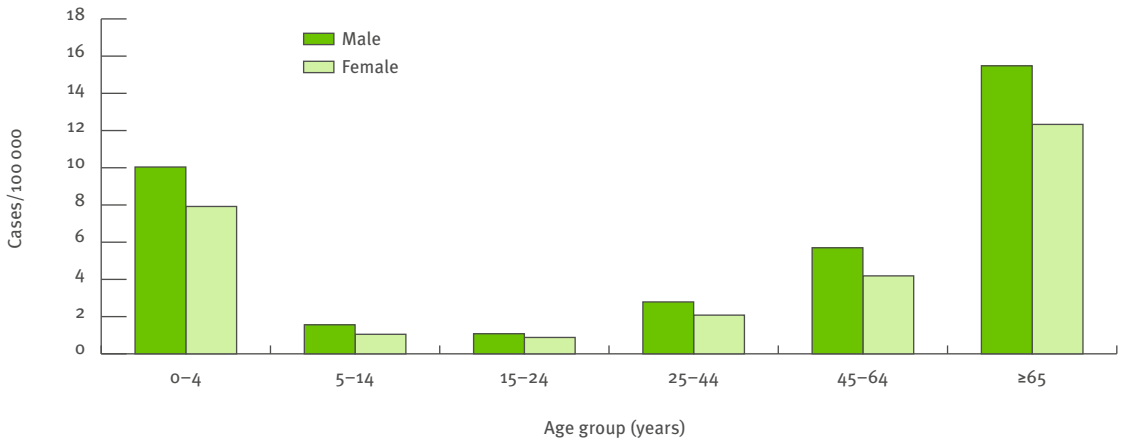
Compared with the previous year, there were significant increases in the number of confirmed cases reported by Austria and Slovenia, although this was most likely due to recent improvements in the effectiveness of their surveillance systems.

Age and gender distribution

The most affected groups were the oldest age group (over 64 years), with an overall notification rate of 17 per 100 000 (15 for males and 12 per 100 000 for females) (Figure 3.5.6). The next highest rate was reported in the youngest (under five years) with an overall notification rate of 11.19 per 100 000 (10 per 100 000 for males and 7.9 per 100 000 for females).

The notification rate was slightly higher for males (6.9 per 100 000) than females (5.9 per 100 000).

Figure 3.5.6. Notification rates of invasive pneumococcal disease cases by age and gender in EU and EEA/EFTA countries, 2007 (n = 11 335)



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

Table 3.5.4. Number and notification rate of reported cases of invasive pneumococcal disease in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	379	361	4.4
Belgium	A	1728	1728	16
Bulgaria	A	39	39	0.51
Cyprus	C	6	6	0.77
Czech Republic	C	89	89	0.87
Denmark	C	101	101	1.9
Estonia	C	36	36	2.7
Finland	C	791	791	15
France	—	—	—	—
Germany	—	—	—	—
Greece	—	—	—	—
Hungary	C	57	57	0.57
Ireland	C	361	311	7.2
Italy	—	—	—	—
Latvia	A	4	4	0.18
Lithuania	A	32	32	0.95
Luxembourg	C	2	2	0.42
Malta	C	0	0	0.0
Netherlands	—	—	—	—
Poland	A	271	250	0.66
Portugal	—	—	—	—
Romania	—	—	—	—
Slovakia	C	37	37	0.69
Slovenia	C	189	189	9.4
Spain[a]	C	1428	1428	—
Sweden	C	1441	1441	16
United Kingdom	C	5624	5624	9.3
EU total		**12 615**	**12 526**	**5.96[b]**
Iceland	—	—	—	—
Liechtenstein	—	—	—	—
Norway	C	958	958	20
Total		**13 573**	**13 484**	**6.32[b]**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Sentinel surveillance system based on a limited number of select laboratories.
[b] Overall rate excludes data from Spain.

Seasonality

The seasonal distribution of pneumococcal disease follows a pattern similar to that for other respiratory diseases. In 2007, the lowest rates were observed during summer, they then increased rapidly in autumn and winter (Figure 3.5.7). The highest peaks were in February and December.

Discussion

The notification rate varied widely between countries, ranging from 0.0 to 20.4 per 100 000, probably reflecting not just a true inter-country variation but also major differences in the application of case definitions and operation of different surveillance systems in place.

There is a possibility that, after introduction of the vaccine, serotypes covered by vaccine may be replaced by serotypes not covered by PCV7, and this has already been observed in the United States. For this purpose, more enhanced surveillance, also involving laboratory surveillance, may be necessary in the EU.

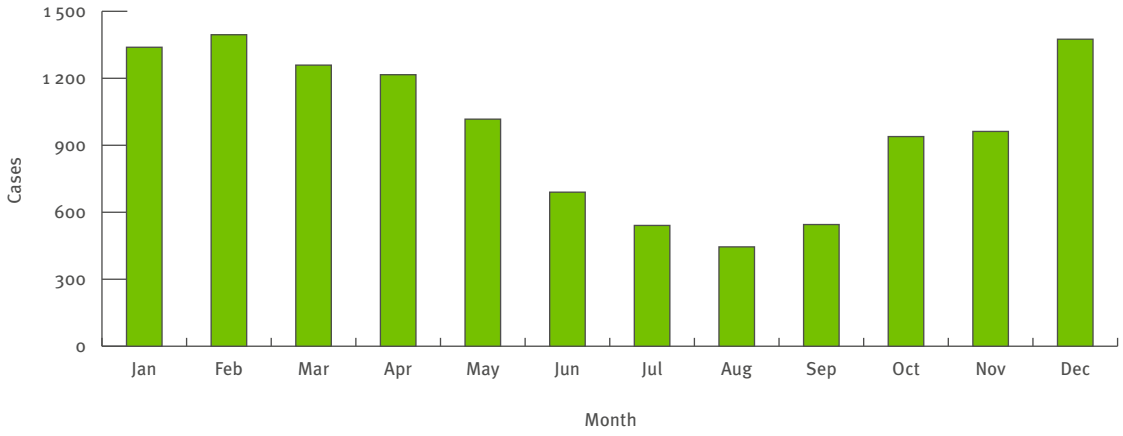
References

1 Pebody RG, on behalf of the European Union funded Pnc-EURO contributing group. Pneumococcal disease surveillance in Europe. Eurosurveillance 2006; 11(9). Available at http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=646

2 Childhood Vaccination Schedules. EUVAC.net website, available at http://www.euvac.net/graphics/euvac/vaccination/pcv7.html

3 Obaro AK, Madhi SA. Bacterial pneumonia vaccines and childhood pneumonia: are we winning, refining, or redefining? Lancet Infect Dis 2006; 6: 150-161.

Figure 3.5.7. Seasonal distribution of invasive pneumococcal disease cases in EU and EEA/EFTA countries, 2007 (n = 11 723)



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

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Belgium	Pedisurv	V	Se	A	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Pneumococc	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	EPIBAC, Community invasive infections hospitalized	V	Se	A	C	Y	N	Y	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National surveillance system of bacterial meningitis	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	Visums	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Microbiological Information System	V	Se	P	C	Y	N	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Pneumococcal Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Measles

- Although a lower number of cases than the previous year were reported in the EU and EEA/EFTA in 2007, measles is still a public health priority.
- 2817 confirmed cases, including one fatal case, were reported in 2007.
- Two measles cases were complicated with encephalitis.
- Only four countries (representing less than 3% of the EU population) have been measles-free during the last three years.

Epidemiological situation in 2007

A total of 3023 measles cases were reported in 2007 (2817 confirmed), with an overall notification rate of 0.56 per 100000 population (Table 3.5.5). Ten countries (Cyprus, Finland, Hungary, Latvia, Lithuania, Luxembourg, Portugal, Slovakia, Slovenia and Iceland) reported zero cases. Seven other countries reported rates below one per million population. The highest notification rates were reported by the United Kingdom (1.7 per 100000), Romania (1.6 per 100000) and Italy (1.0 per 100000).

The overall figures show some improvement compared with the 2006 figures when the overall measles notification rate was almost three times higher (1.45 per 100000) than in 2007. Finland, Slovenia and Iceland have maintained their uninterrupted zero reported case status (since 2004). Slovakia has also achieved uninterrupted 'zero-reporting' for at least three years (2005–07).

Age and gender distribution

The most affected age group overall was the 0–4 year-olds (3.9 cases per 100000) followed by the 5–14 year-olds with 1.7 cases per 100000. Notification rates were also high in the age group 15–24 years (0.8 per 100000).

As expected for such a highly transmissible disease, there was no significant difference between the overall rates among males (0.58 per 100000) and females (0.52 per 100000) (Figure 3.5.8).

Seasonality

The typical seasonal pattern of measles (with a peak during the spring) can not be observed in 2007 due to the different seasonal distribution of cases in different countries (Figure 3.5.9). The seasonal pattern differed across Europe with the peaks of cases reported in Spain in January–February, in Germany in April–May, in the UK in July–August, and in Italy in November–December.

Enhanced surveillance in 2007

A total of 2866 cases of measles were reported by the surveillance community network for vaccine preventable infectious diseases (EUVAC.NET) in 2007 in EU and EEA/EFTA countries. Of these cases 74% were laboratory-confirmed and 11% only epidemiologically linked.

Importation status was known for just over half of case-based reports and 70 cases (9.7%) were imported. The majority of these cases (53 cases; 63%) were imported from another European country.

Vaccination status was known for 92% of all reported cases. Overall, 77% of the reported cases with known vaccination status were unvaccinated.

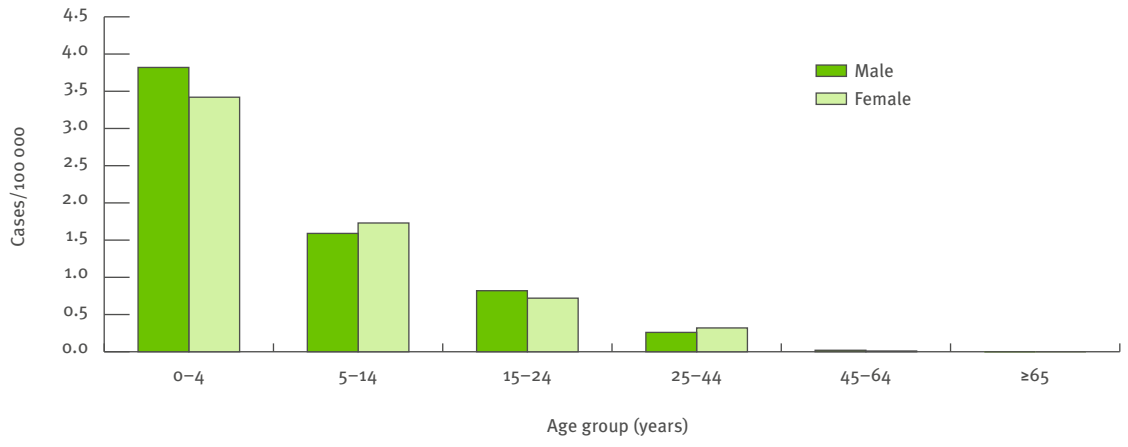
According to the EUVAC.NET report[1], one Italian girl died of measles in 2007 due to pneumonia. Two cases (one each from the United Kingdom and Germany) were complicated with encephalitis. None of the complicated cases had been vaccinated against measles.

Table 3.5.5. Number and notification rate of reported cases of measles in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	20	20	0.24
Belgium	A	64	16	0.15
Bulgaria	C	1	1	< 0.1
Cyprus	U	0	0	0.0
Czech Republic	C	2	0	0.0
Denmark	C	2	2	< 0.1
Estonia	C	1	1	< 0.1
Finland	U	0	0	0.0
France	C	40	24	< 0.1
Germany	C	567	485	0.59
Greece	C	2	0	0.0
Hungary	U	0	0	0.0
Ireland	C	53	20	0.46
Italy	C	595	595	1.0
Latvia	U	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	U	0	0	0.0
Malta	C	2	0	0.0
Netherlands	C	10	10	< 0.1
Poland	C	40	30	< 0.1
Portugal	U	0	0	0. 0
Romania	C	353	345	1.6
Slovakia	U	0	0	0.0
Slovenia	U	0	0	0.0
Spain	C	224	224	0.50
Sweden	C	1	1	< 0.1
United Kingdom	C	1026	1026	1.7
EU total		**3003**	**2800**	**0.57**
Iceland	U	0	0	0.0
Liechtenstein	—	—	—	—
Norway	C	20	17	0.36
Total		**3023**	**2817**	**0.56**

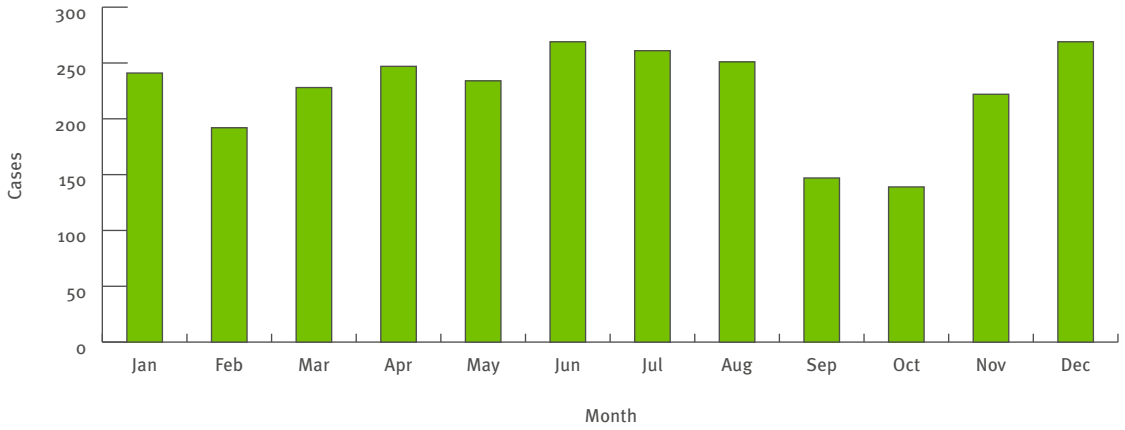
Source: Country reports: *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.5.8. Notification rates of measles cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 2 684)



Source: Country Reports: Austria, Denmark, Estonia, France, Germany, Ireland, Italy, Netherlands, Poland, Romania, Spain, Sweden, UK and Norway. Cyprus, Finland, Hungary, Latvia, Lithuania, Luxembourg, Portugal, Slovakia, Slovenia and Iceland all reported zero cases.

Figure 3.5.9. Seasonal distribution of measles cases in EU and EEA/EFTA countries, 2007 (n = 2 700)



Source: Country Reports: Austria, Bulgaria, Denmark, Estonia, France, Germany, Ireland, Italy, Netherlands, Poland, Romania, Spain, Sweden, UK and Norway. Cyprus, Finland, Hungary, Latvia, Lithuania, Luxembourg, Portugal, Slovakia, Slovenia and Iceland all reported zero cases.

Discussion

Although the total number of cases was lower than in 2006, measles control is still an issue in the EU.

In 2007, Germany, Italy, Romania, Spain, and the UK reported the highest numbers of cases, but nearly all EU countries have been affected by measles over the last few years.

Only four countries (accounting for less than 3% of the EU and EEA/EFTA population) have achieved 'zero-reporting' status for a longer period (three consecutive years or more).

The vast majority of measles cases are indigenous. More than 60% of cases that were imported were from another EU country.

As expected, almost 90% of reported cases were unvaccinated; a sign that measles is still a problem for population groups with low vaccine coverage. Moreover, all fatal or complicated cases occurred in unvaccinated subjects.

References

1. EUVAC.NET. Measles surveillance annual report 2007. Available from http://www.euvac.net/graphics/euvac/pdf/annual_2007.pdf

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	N	N	Y
Belgium	Pedisurv	V	Se	A	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	C	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Measles, Polio	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Co	P	–	N	Y	Y	Y	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Measles surveillance system	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Measles Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Mumps

- Mumps is a vaccine-preventable disease with one of the highest notification rates in Europe.
- The overall trend is decreasing significantly, with more countries introducing or increasing the uptake of the MMR vaccine among children.
- Mumps occurs in all age groups, but is more common in children, teenagers and young adults.
- Breakthrough infections sometimes occur in individuals that have received two doses of MMR, and this needs to be further explored.

Epidemiological situation in 2007

A total of 23 795 cases of mumps were reported by 26 countries (France, Germany, Netherlands and Liechtenstein did not report), of which 14 429 were confirmed (Table 3.5.6). Only Luxemburg reported zero cases. The highest notification rates were observed in Romania (25 per 100 000), Bulgaria (11 per 100 000), Czech Republic (7.1 per 100 000) and Spain (7.1 per 100 000). The overall notification rate of reported mumps cases (4.27 per 100 000) was half that for 2006 (8.99 per 100 000) which, in turn, was half the rate for 2005 (17.6 per 100 000).

Table 3.5.6. Number and notification rate of reported cases of mumps in the EU and EEA/EFTA, 2007

Country	Report type*	Total Cases	Confirmed Cases	Notification rate per 100 000 population
Austria	C	7	7	< 0.1
Belgium	A	71	16	0.15
Bulgaria	A	5299	875	11
Cyprus	C	5	5	0.64
Czech Republic	C	1297	735	7.1
Denmark	C	12	12	0.22
Estonia	C	18	18	1.3
Finland	C	6	6	0.11
France	—	—	—	—
Germany	—	—	—	—
Greece	C	23	3	< 0.1
Hungary	C	16	16	0.16
Ireland	C	69	68	1.6
Italy	C	1312	1312	2.2
Latvia	A	4	2	< 0.1
Lithuania	A	81	81	2.4
Luxembourg	U	0	0	0.0
Malta	C	2	2	0.49
Netherlands	—	—	—	—
Poland	A	4147	0	0.0
Portugal	C	191	48	0.45
Romania	A	5291	5291	25
Slovakia	C	5	3	< 0.1
Slovenia	C	19	9	0.45
Spain	C	3147	3147	7.1
Sweden	C	47	47	0.52
United Kingdom	C	2702	2702	4.4
EU total		**23771**	**14405**	**4.33**
Iceland	C	1	1	0.33
Liechtenstein	—	—	—	—
Norway	C	23	23	0.49
Total		**23795**	**14429**	**4.27**

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

Age and gender distribution

Mumps occurs in all age groups, but the most affected age group was the 5–14 year-olds (16 per 100 000), followed by the 15–24 year-olds (11 per 100 000) and 0–4 year-olds (8.9 per 100 000) (Figure 3.5.10).

Of the 8 172 cases with information on gender, the notification rates were seen to be higher among males (3.3 per 100 000) than females (2.2 per 100 000), with a male-to-female ratio of 1:1.4.

Seasonality

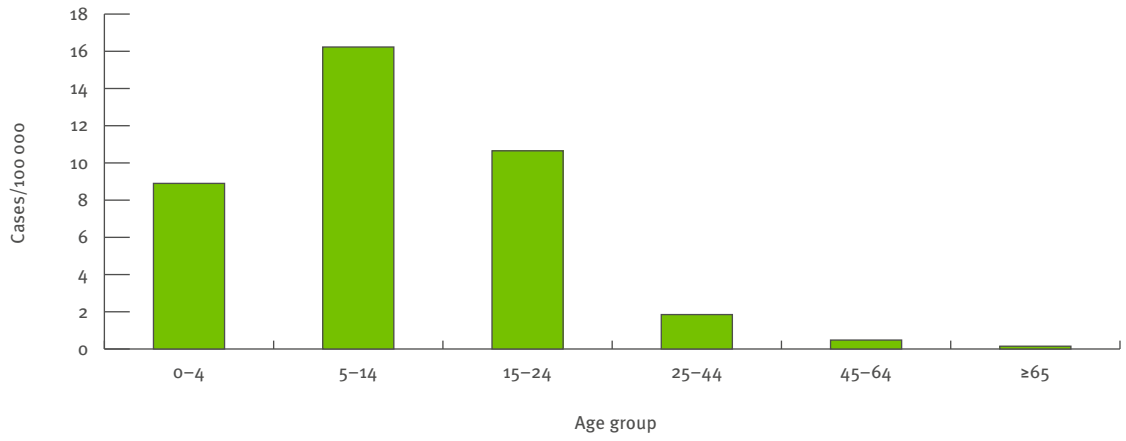
Mumps cases occurred throughout the year, but there was a clear tendency of an increase during winter, continuing through spring as seen in previous years (Figure 3.5.11). The month of reporting was unknown for 8 % of cases.

Discussion

Mumps is one of the vaccine-preventable diseases that still maintain a high notification rate across Europe. Nevertheless, the mumps incidence in 2007 was the lowest reported since 1995. The decreasing trend observed in 2006 continued in 2007. This may at least in part be due to the greater acceptance of the MMR vaccine two-dose schedule or an increasing uptake of MMR vaccination in several former 'high incidence' countries in recent years.

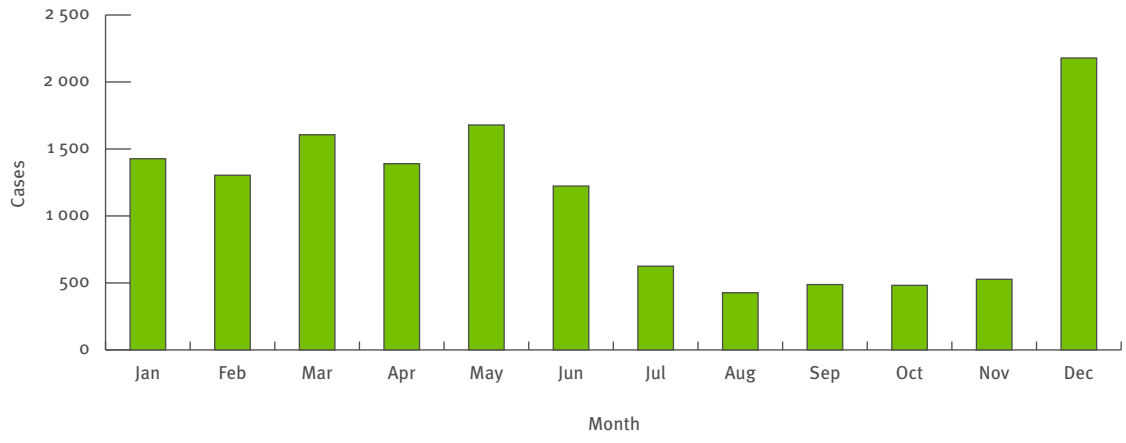
However, in spite of the general decreasing trend, breakthrough infections after mumps vaccination were reported in an outbreak starting in August 2007 in the Netherlands[1]. The vaccination status was known in 87 of the cases; 12 cases (14 %) had received one dose of MMR and 17 cases (20 %) had received two doses. From these

Figure 3.5.10. Notification rates of mumps cases by age group, in EU and EEA/EFTA countries, 2007 (n = 13 432)



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

Figure 3.5.11. Seasonal distribution of mumps cases in EU and EEA/EFTA countries, 2007 (n = 13 357)



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

data it is not possible to assess the relative frequency of mumps in vaccinated individuals, as the data is derived from laboratory-based surveillance. This is biased data because it was recommended to particularly test vaccinated individuals with mumps.

References

1. Karagiannis I, van Lier A, van Binendijk R, Ruijs H, Fanoy E, Conyn-van Spaendonck MAE, et al. Mumps in a community with low vaccination coverage in the Netherlands. Euro Surveill. 2008;13(24):pii=18901. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18901

Surveillance systems overview

Country	Data Source Description	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	Data from Reference labs	O	Se	A	C	Y	N	N	N	–
Belgium	Pedisurv	V	Se	A	C	Y	Y	Y	Y	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide Mumps	Cp	Co	P	C	N	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Co	P	–	N	Y	Y	Y	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Mumps Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Mumps Surveillance System	O	Se	A	C	Y	N	Y	Y	Y

Pertussis

- The overall notification rates have decreased significantly since the mid-1990s and the trend has remained relatively stable since then (just over 4 per 100 000 population in 2007).
- A slight increase of cases has been observed among children and adolescents.
- All European countries have integrated the pertussis vaccine into their routine vaccination schedules—in combination with diphtheria and tetanus toxoid—starting in the second or third month of life.

Epidemiological situation in 2007

In 2007, 18 328 cases were confirmed out of the 20 321 cases reported by 28 countries (Germany and Liechtenstein did not report) (Table 3.5.7). The overall notification rate for 2007 was 4.39 per 100 000 population, slightly lower than that for 2006 (4.54 per 100 000). Only Malta reported zero cases. Rates again showed a wide variation between the countries suggesting different effectiveness of their surveillance systems. Although their notification rate has decreased from 142 per 100 000 in 2006 to 115 per 100 000 in 2007, Norway still reports the highest rate, followed by the Netherlands with 44 per 100 000 and Estonia with 30 per 100 000.

Table 3.5.7. Number and notification rate of reported cases of pertussis in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	136	0	0.0
Belgium	A	214	214	2.0
Bulgaria	A	269	235	3.1
Cyprus	C	9	9	1.2
Czech Republic	C	185	184	1.8
Denmark	C	94	94	1.7
Estonia	C	409	409	30
Finland	C	480	480	9.1
France	U	61	61	0.10
Germany	—	—	—	—
Greece	C	29	6	‹0.1
Hungary	C	48	48	0.48
Ireland	C	78	47	1.1
Italy	C	795	795	1.3
Latvia	A	27	15	0.66
Lithuania	A	17	17	0.50
Luxembourg	C	4	4	0.84
Malta	C	0	0	0.0
Netherlands	C	7375	7186	44
Poland	A	1987	1667	4.4
Portugal	C	21	20	0.19
Romania	C	35	2	‹0.1
Slovakia	C	21	21	0.39
Slovenia	C	708	533	27
Spain	C	151	151	0.34
Sweden	C	690	690	7.6
United Kingdom[a]	C	1103	65	0.11
EU total		**14 946**	**12 953**	**3.14**
Iceland	C	2	2	0.65
Liechtenstein	—	—	—	—
Norway	C	5373	5373	115
Total		**20 321**	**18 328**	**4.39**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] The data for England and Wales were based on notifications (1038), whilst for Scotland and Northern Ireland the data on confirmed cases were provided (65) – this explains the small number in the confirmed cases column.

Age and gender distribution

The most affected group were the 5–14 year-olds (14 per 100 000) (Figure 3.5.12). The highest notification rates in this age group were reported by Norway (270 per 100 000) and Slovenia (203 per 100 000), followed by Estonia and the Netherlands. The second most affected age group were the children under five years of age with an overall rate of 9.9 per 100 000. Females (5.7 per 100 000) were slightly more often affected than males (4.9 per 100 000) with a male-to-female ratio of 0.9:1.

Seasonality

In 2007, there were fewer pertussis notifications during spring and early summer but no marked seasonal pattern (Figure 3.5.13).

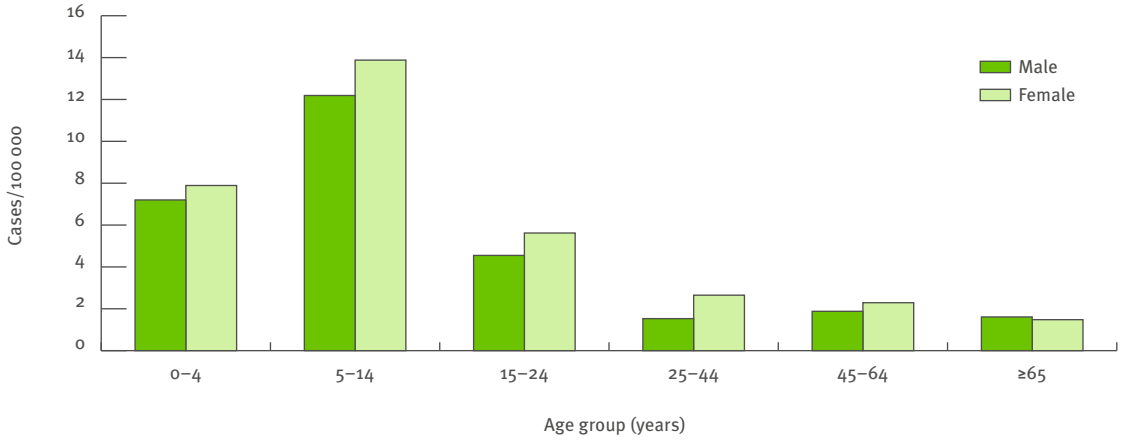
Enhanced surveillance in 2007

A total of 9 746 cases was reported by EUVAC.NET in 2007 by 20 EU countries. Of these 91 % were confirmed[1].

Over the period 2004–07 a total of 27 pertussis-related deaths have been reported. On average, the hospitalisation rate has been around 80 per 1 000 pertussis cases.

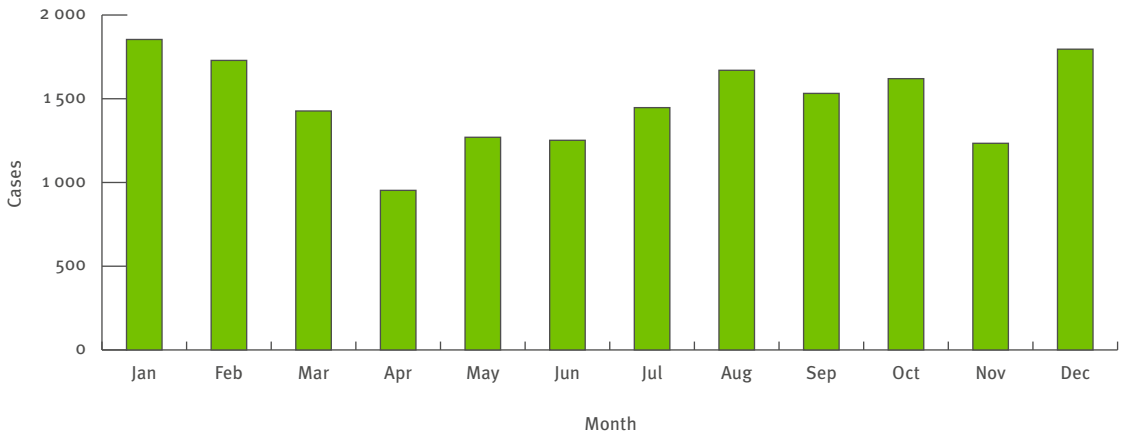
Vaccination status was known for 42 % of all reported cases. Overall, 21 % of those with known vaccination status were unvaccinated; 3 % received only one dose of vaccine; 56 % were vaccinated with at least two doses of vaccine; and 20 % were vaccinated with an unknown number of doses.

Figure 3.5.12. Notification rates of pertussis cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 16 109)



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

Figure 3.5.13. Seasonal distribution of pertussis cases in EU and EEA/EFTA countries, 2007 (n = 17 784)



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

Discussion

The inter-country variation was slightly narrower than 2006 but still very wide, ranging from less than 0.1 to 115 per 100 000. The overall epidemiological picture is very similar to that seen in 2006. The northern countries usually report higher notification rates, but it remains unclear whether this truly reflects a higher incidence in these countries or how much of the differences between countries can be explained by different diagnostic practices and methods.

1. EUVAC.NET. Pertussis surveillance report 2003-2007. Available at: http://www.euvac.net/graphics/euvac/pdf/pertussis2.pdf

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Pertussis, Shigellosis, Syphilis	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	Sentinel NETWORK	V	Se	P	C	Y	Y	Y	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Co	P	–	N	Y	Y	Y	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Pertussis Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Pertussis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Poliomyelitis

- The WHO European Region was declared polio-free in 2002.
- Neither wild polio cases nor vaccine-associated paralytic poliomyelitis (VAPP) were reported in the EU or the EEA/EFTA countries in 2007.
- Persistent pockets of wild-type and vaccine-derived polio virus transmission are still reported in Nigeria, India, Pakistan and Afghanistan.
- Wild-type and vaccine-derived polioviruses imported into Europe still remain a potential threat.

Epidemiological situation in 2007

No cases of polio disease were reported in any of the 29 reporting EU and EEA/EFTA countries in 2007 (no report obtained from Lichtenstein).

Discussion

Polio was widely endemic in all regions around the world twenty years ago. In 1988 the Global Eradication Initiative was launched by WHO. Today only a few non-European countries have continued polio transmission. The WHO Region of the Americas was declared polio-free in 1994, the WHO Western Pacific Region in 2000, and the WHO European Region in 2002.

Polio virus transmission still occurs in Nigeria, India, Pakistan and Afghanistan. Outbreaks caused by wild-type and vaccine-derived polio viruses are reported. The reasons for continued transmission in these countries are several: impaired immune status of vaccinated children, low vaccination coverage, and concurrent enteric infections are considered most significant.

Through laboratory surveillance performed by the Global Polio Laboratory Network from January 2007 to December 2007 poliovirus isolates were characterised. Samples were obtained from sewage water or patients with acute flaccid paralysis. In all three polio-free regions vaccine-derived polioviruses were identified in sewage water or immunocompromised children[1]. At present most EU countries use inactivated polio virus vaccine in their routine immunisation schedules. However, some countries have only recently moved from oral live attenuated virus vaccine to inactivated vaccine and there are still mixed schedules in a few countries in south-eastern Europe.

Seven laboratories in Europe conduct environmental surveillance including sewage water samples. Vaccine-derived polioviruses were identified in Slovakia (sewage) in 2003, Spain (immunocompromised child) in 2005, France (immunocompromised child) and Czech Republic (sewage) in 2006 and wild-type poliovirus was identified in Switzerland (sewage) in 2007. Through migration and tourism to the EU one can assume that vaccine-derived polioviruses may be found at least temporarily in sewage water in EU countries. Maintaining a high overall vaccination coverage and continued clinical and environmental surveillance remain essential.

References

1. WHO. Laboratory surveillance for wild and vaccine-derived polioviruses, January 2007 – June 2008. Wkly Epidemiol Rec. 2008 Sep 5;83(36):321-8.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Pedisurv	V	Se	A	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Measles, Polio	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Acute Polimyelitis Surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Poliomyelitis Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Rabies

- Three human cases were reported in 2007 in the EU and EEA/EFTA, all of which contracted the infection outside the EU.
- Rabies is still endemic in wild and domestic animals in different areas of the EU.

Epidemiological situation in 2007

In 2007, 29 EU and EEA/EFTA countries reported a total of three human cases of rabies, all of which were confirmed. One case each was reported from Finland, Germany and Lithuania. They were all males.

The German case was a 55-year old tourist returning from Morocco. He had been bitten by a stray dog in Morocco six weeks previously[1]. Finland reported a case in a Filipino citizen who was diagnosed and hospitalised in Helsinki. The man had been bitten by a dog about two months earlier in his home country. The Lithuanian case was also an imported case. This was a 43 year-old man returning from a pilgrimage in India, where he had been bitten by a stray dog.

Animal cases of rabies in the EU

In 2007 a total of 1157 cases of rabies were reported in animals in the EU: 318 in domestic animals and 814 in wild animals, mainly from Lithuania, Latvia and Romania[2].

Discussion

The risk of human rabies is still present in Europe. Notwithstanding the considerable resources put in place to control the disease among animals and to prevent cases among humans, a few sporadic human cases are still reported in the EU.

The main animal reservoirs are: dogs, cats and wild animals (foxes and racoon dogs) in central and eastern Europe while the insectivorous bat can play a significant role 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. Schmiedel S, Panning M, Lohse A, Kreymann KG, Gerloff C, Burchard G, et al. Case report on fatal human rabies infection in Hamburg, Germany, March 2007. Euro Surveill. 2007;12(22):pii=3210. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3210
2. Rabies Information System of the WHO Collaboration Centre for Rabies Surveillance and Research, available at: http://www.who-rabies-bulletin.org/

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Rabies	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@RKI IfSG 7.1 and 6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Zoonoses surveillance	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Liechtenstein	Swiss law of epidemiologie	Cp	Co	–	C	Y	Y	Y	–	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Rabies Surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Rabies Surveillance System	O	Co	A	C	Y	N	Y	Y	Y

Rubella

- Rubella incidence has decreased dramatically in the last few years, from 21 per 100 000 in 2005 to below 2 per 100 000 in both 2006 and 2007.
- 26 820 cases were reported in 2007 but only 3 965 were confirmed. However, 22 891 probable cases were notified by a single country.
- In 12 Member States the notification rate is below 1 per 100 000 and nine countries have zero reporting.
- Laboratory confirmation should always be carried out as Europe approaches the elimination goal.

Epidemiological situation in 2007

A total of 3 965 rubella cases were confirmed out of the 26 820 reported in 2007 by 26 countries (Belgium, France, Germany, and Liechtenstein did not report), giving an overall notification rate of 1.15 per 100 000 (Table 3.5.8). Poland reported 22 891 rubella cases, the majority of which were not confirmed. The highest notification rate by far was reported by Romania (14 per 100 000), followed by Italy (1.3 per 100 000). All the other countries reported rates below 1 per 100 000.The number of countries reporting zero cases increased from four in 2006 to nine in 2007. Only Denmark and Iceland have achieved uninterrupted 'zero reporting' for at least four years (2004–07).

Table 3.5.8. Number and notification rate of reported cases of rubella in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	14	14	0.17
Belgium[a]	—	—	—	—
Bulgaria	A	88	3	< 0.1
Cyprus	U	0	0	0.0
Czech Republic	C	2	0	0.0
Denmark	U	0	0	0.0
Estonia	C	10	10	0.75
Finland	U	0	0	0.0
France	—	—	—	—
Germany	—	—	—	—
Greece	U	0	0	0.0
Hungary	U	0	0	0.0
Ireland	C	19	3	< 0.1
Italy	C	758	758	1.3
Latvia	A	7	1	< 0.1
Lithuania	A	13	13	0.38
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	C	1	1	< 0.1
Poland	A	22 891	153	0.40
Portugal	C	6	1	< 0.1
Romania	A	2 958	2 958	14
Slovakia	C	2	0	0.0
Slovenia	C	1	0	0.0
Spain	C	14	14	< 0.1
Sweden	C	2	2	< 0.1
United Kingdom	C	34	34	< 0.1
EU total		**26 820**	**3 965**	**1.17**
Iceland	U	0	0	0.00
Liechtenstein	—	–	–	–
Norway	U	0	0	0.00
Total		**26 820**	**3 965**	**1.15**

Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.
[a] Belgium conducts surveillance only for congenital rubella, not for all cases of rubella.

Age and gender distribution

The most affected age group was children under five years old (14 per 100 000), followed by the 5–14 year-olds (3.1 per 100 000) (Figure 3.5.14). Data on both age and gender were limited (840 cases), but these showed no differences between the genders in any age group except the 15–24 year-olds, where females showed a lower rate (0.7 per 100 000) than the males (1.3 per 100 000).

Over all ages, males (1.5 per 100 000) were slightly more affected than females (1.2 per 100 000) giving a male-to-female ratio of 1.2:1. This difference might be due to the fact that women in reproductive ages are more likely to have been vaccinated than males of the same age.

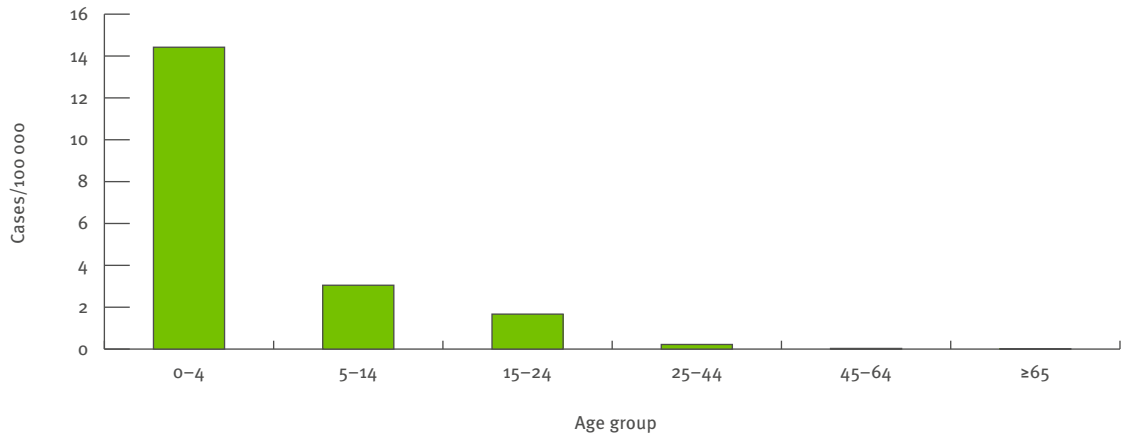
Seasonality

Information of the month of notification was available for less than 10 % of cases. The seasonal peak of rubella cases was again observed in late spring and early summer with a slight increase again in the autumn (Figure 3.5.15).

Enhanced surveillance in 2007

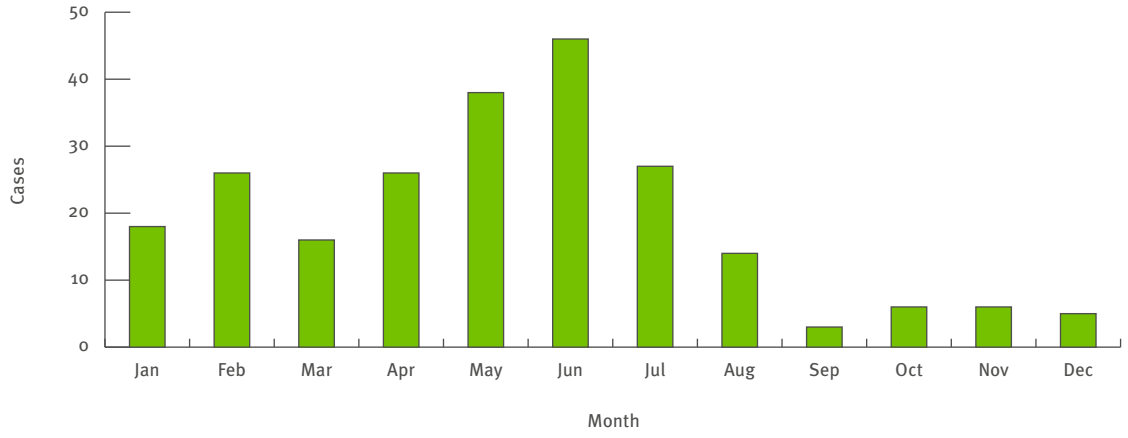
A total of 25 419 cases were reported by EUVAC.NET in 2007. The information on confirmation of the cases was not available.

Figure 3.5.14. Notification rates of rubella cases by age group, in EU and EEA/EFTA countries, 2007 (n = 3 802)



Source: Country reports: Austria, Estonia, Ireland, Italy, Latvia, Lithuania, Portugal, Romania, Spain, Sweden and UK. Cyprus, Denmark, Finland, Greece, Hungary, Luxembourg, Malta, Iceland, and Norway all reported zero cases.

Figure 3.5.15. Seasonal distribution of rubella cases in EU and EEA/EFTA countries, 2007 (n = 231)



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

Discussion

The reported rates of confirmed rubella cases in 2007 were low. Greater effort has been made by Member States to confirm all cases they notified, with few exceptions. Improving the sensitivity and specificity of rubella surveillance is paramount in view of the WHO 2010 elimination goal.

Surveillance systems overview

Country	Data Source Description	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	Epidemiegesetz 1950	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	Sentinel Laboratory Network	V	Se	A	C	Y	N	–	–	Y
Belgium	Reference Laboratories	V	Co	P	C	Y	N	N	N	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide, based on a double system of reporting Rubella	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	Y	N	N	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Co	P	–	N	Y	Y	Y	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	Osiris	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Rubella Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Rubella Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

Tetanus

- Vaccination against tetanus is still recommended for all EU countries.
- The overall notification rate remains very low (0.03 per 100 000).
- The most affected group was the elderly (65 years or older).
- In the EU and EEA/EFTA countries, no cases of neonatal tetanus were reported.

Epidemiological situation in 2007

In 2007, 144 cases were reported by 25 countries, of which 125 were confirmed cases (Table 3.5.9). Austria, Finland, Germany, the Netherlands, and Liechtenstein did not report. The overall notification rate remains very low at 0.03 per 100 000. The highest rates were reported by Italy (0.1 per 100 000) followed by Portugal (0.1 per 100 000) and Greece (0.1 per 100 000).

Table 3.5.9. Number and notification rate of reported cases of tetanus in the EU and EEA/EFTA, 2007

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	—	—	—	—
Belgium	A	1	0	0.0
Bulgaria	U	0	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	C	3	3	< 0.01
Estonia	U	0	0	0.0
Finland	—	—	—	—
France	C	7	7	< 0.01
Germany	—	—	—	—
Greece	C	10	8	< 0.01
Hungary	C	4	0	0.0
Ireland	C	1	1	< 0.01
Italy	C	59	59	0.10
Latvia	A	1	0	0.0
Lithuania	A	1	1	< 0.01
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	—	—	—	—
Poland	C	19	19	< 0.01
Portugal	C	9	9	< 0.01
Romania	C	12	9	< 0.01
Slovakia	C	1	0	0.0
Slovenia	C	1	1	< 0.01
Spain	C	8	8	< 0.01
Sweden	U	0	0	0.0
United Kingdom	C	5	0	0.0
EU Total		**142**	**125**	**0.03**
Iceland	U	0	0	0.0
Liechtenstein	—	—	—	—
Norway	C	2	0	0.0
Total		**144**	**125**	**0.03**

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

Age and gender distribution

The most affected group was the elderly (≥ 65 years) with 91 of the 124 reported cases (73 %) with this information (0.14 per 100 000), followed by the age group 45–64 years with 26 cases (Figure 3.5.16). One case from Italy was reported in a two year-old boy. The male-to-female ratio is 1:1.5. Among the ≥ 65 year-olds females are more often affected than males. This gender difference is most probably because females are overrepresented in this age group due to a higher life expectancy.

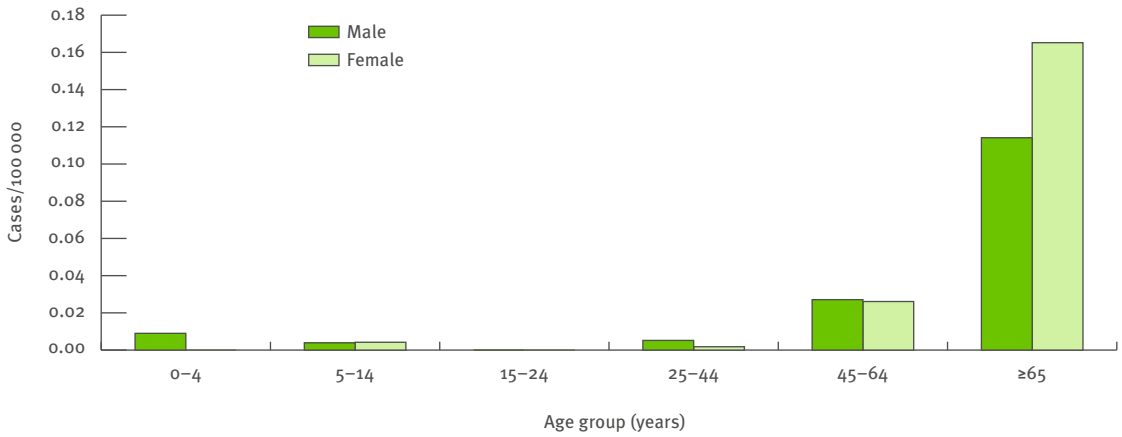
Seasonality

A peak of tetanus notifications is clearly evident during the summer months, probably related to more outdoor activities during this period (Figure 3.5.17).

Discussion

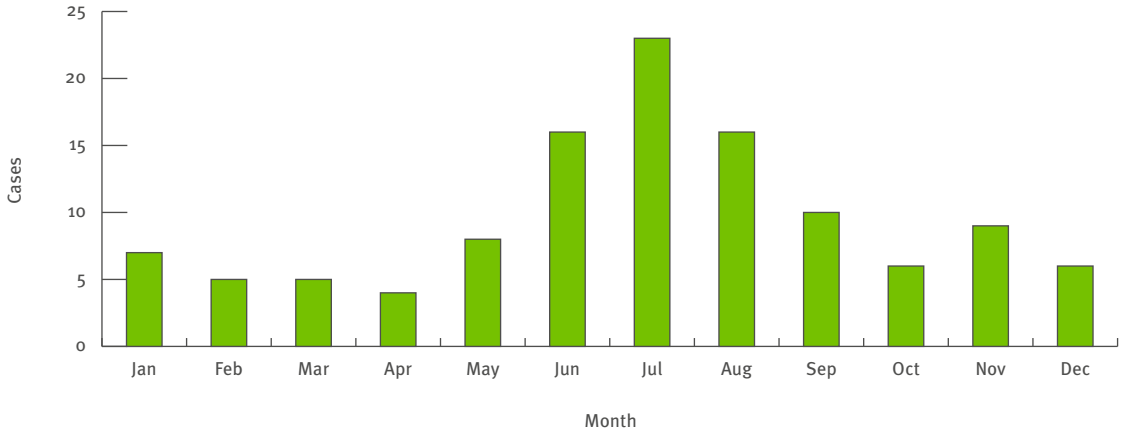
The overall notification rate for tetanus remains very low in the EU. The few cases reported were probably related to waning immunity in elderly people which clearly shows the need to maintain high vaccination rates in all age groups.

Figure 3.5.16. Notification rates of tetanus cases by age and gender, in EU and EEA/EFTA countries, 2007 (n = 124)



Source: Country reports: Denmark, France, Greece, Ireland, Italy, Poland, Portugal, Romania, Slovenia and Spain. Bulgaria, Cyprus, Czech Republic, Estonia, Luxembourg, Malta, Sweden and Iceland reported zero cases.

Figure 3.5.17. Seasonal distribution of tetanus cases in EU and EEA/EFTA countries, 2007 (n = 115)



Source: Country reports: Denmark, France, Greece, Ireland, Italy, Lithuania, Poland, Portugal, Romania, Slovenia and Spain. Bulgaria, Cyprus, Czech Republic, Estonia, Luxembourg, Malta, Sweden and Iceland reported zero cases.

Surveillance systems overview

Country	Data Source Description	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
Belgium	Mandatory Notification	Cp	Co	P	C	Y	Y	Y	Y	Y
Bulgaria	National Surveillance System	Cp	Co	P	A	Y	Y	Y	Y	Y
Cyprus	System for Mandatory Notified Diseases	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	EPIDAT	Cp	Co	A	C	–	Y	Y	N	Y
Denmark	MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	Obligatory, countrywide Tetanus	Cp	Co	P	C	N	Y	Y	Y	Y
France	Mandatory notification of infectious diseases	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	Notifiable Diseases System	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	Notification System for Infectious Diseases	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	CIDR	Cp	Co	P	C	Y	Y	Y	N	Y
Italy	National Reporting System	Cp	Se	P	–	N	Y	Y	–	Y
Latvia	Visums	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	National Communicable diseases surveillance System	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	System 1 mandatory notification system	Cp	Co	P	C	N	Y	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Norway	MSIS (group A diseases)	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	Tetanus Surveillance System	Cp	Co	P	C	N	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	C	N	N	Y	N	Y
Slovakia	EPIS – Epidemiological Information System	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	Statutory diseases	Cp	Co	P	C	–	Y	Y	N	Y
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	Tetanus Surveillance System	O	Co	P	C	Y	N	Y	Y	Y

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 900 laboratories serving more than 1400 hospitals in 31 European countries. For the Annual Epidemiological Report only data for 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.

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], 2007 median [Range]		No. countries[b]	No. Countries with:	
				Upward trend[c]	Downward trend[c]
Streptococcus pneumoniae, Penicillin-R or I[a] (PNSP)	7	[0–34]	27	1	3
S. pneumoniae, Erythromycin-R	15	[0–36]	26	4	2
Escherichia coli, Aminopenicillin-R	54	[33–77]	28	19	0
E. coli, Third-generation cephalosporin-R	6	[1–28]	28	19	1
E. coli, Aminoglycoside-R	7	[2–38]	28	16	0
E. coli, Fluoroquinolone-R	19	[7–40]	28	24	0
Staphylococcus aureus, Methicillin-R (MRSA)	16	[0–52]	28	7	4
S. aureus, Vancomycin-R	0	[0–0]	27	—[d]	—
Enterococcus faecium, Aminoglycoside-R (high level)	49	[14–90]	23	—	—
E. faecium, Vancomycin-R	<1	[0–37]	26	4	2
Enterococcus faecalis, Aminoglycoside-R (high level)	38	[13–67]	23	5	1
E. faecalis, Vancomycin-R	0	[0–7]	27	—	—
Klebsiella pneumoniae, Third-generation cephalosporin-R	10	[0–80]	27	—	—
K. pneumoniae, Carbapenem-R	0	[0–42]	27	—	—
K. pneumoniae, Aminoglycoside-R	10	[0–80]	27	—	—
K. pneumoniae, Fluoroquinolone-R	13	[0–55]	27	—	—
Pseudomonas aeruginosa, Piperacillin- or Pip.-Tazobactam-R	11	[0–38]	26	—	—
P. aeruginosa, Ceftazidime-R	7	[0–40]	26	—	—
P. aeruginosa, Carbapenem-R	14	[0–47]	25	—	—
P. aeruginosa, Aminoglycoside-R	13	[0–49]	26	—	—
P. aeruginosa, Fluoroquinolone-R	17	[0–50]	26	—	—

Source: EARSS Interactive Database and EARSS Annual Report 2007.
[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*, 1999–2007; *Escherichia coli* and enterococci, 2001–2007.
[d] Not available.

Streptococcus pneumoniae

The occurrence of penicillin non-susceptibility in *Streptococcus pneumoniae* (PNSP) reported to EARSS in 2007 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 9–17%. High levels of PNSP (› 25%) were reported by southern European and Mediterranean countries: Cyprus, France, Poland and Romania. Rising trends for full penicillin resistance were observed only for Slovenia and rising trends for PNSP were observed only for Finland. Decreasing trends for PNSP and full penicillin resistance were observed for Spain and the UK. A decreasing trend for PNSP was observed only for Belgium.

Whereas in 2006, five countries reported erythromycin non-susceptibility of 5% or less, in 2007 this was the case only for Estonia and Latvia. High levels of erythromycin non-susceptibility (› 25%) were reported by Cyprus, Finland, France, Hungary and Italy. A significantly increasing trend in erythromycin non-susceptibility was observed for Finland, the Netherlands, Norway and Portugal, whereas decreasing trends were observed for Belgium and Spain.

Dual non-susceptibility to penicillin and erythromycin remained below 5% for 12 of 26 countries. Seven countries reported 5–10%, six countries reported 10–25%, and one country reported 29%. Significantly increasing trends for dual non-susceptibility to penicillin and erythromycin were observed for Finland, the Netherlands and Norway, whereas decreasing trends were observed in Belgium and Spain.

Data from 12 countries reporting information on *S. pneumoniae* serogroups in 2007 indicated that resistance was confined to a few serogroups. For penicillin resistance these include serogroups 6, 9, 14, 19 and 23, and to a lesser extent serogroup 15. Resistance to erythromycin was prevalent in serogroups 1 and 33.

Staphylococcus aureus

Among *Staphylococcus aureus* isolates, methicillin-resistant *Staphylococcus aureus* (MRSA) are one of the most important causative agents in healthcare-associated infections all over Europe.

In 2007, 10 out of 28 countries, mainly southern European countries, the UK and Ireland (high endemic countries), reported MRSA proportions of 25% or higher. In the northern part of Europe, in particular the low endemic countries (Norway, Sweden, Finland, Denmark, Iceland, and the Netherlands) the proportion of isolates resistant to methicillin remained below 2%.

During the period 1999 to 2007, an increasing trend in MRSA proportions were observed for Czech Republic, Finland, Germany, Hungary, Malta, the Netherlands and Portugal. Decreasing MRSA proportions were observed for Bulgaria, France, Latvia and Slovenia. Maps displaying the situation in 2003 and 2007 are given in Figure 3.6.1.

In most countries the MRSA proportion of isolates from intensive care units (ICU) was higher than for isolates not derived from ICU patients, and for Greece, Portugal and Malta, this proportion was over 60%. However, the numbers of isolates from ICU patients tested for methicillin resistance and the ratios between ICU and non-ICU isolates vary between countries. Caution should therefore be exercised when interpreting differences in MRSA proportions between countries, or associating decreasing MRSA proportions with implemented and improved infection control efforts in various countries.

Enterococci

The vast majority (approximately 80%) of clinical enterococcal infections in humans are caused by *Enterococcus faecalis*, and for this species high-level aminoglycoside resistance is of particular concern. Among *E. faecalis* isolates reported to EARSS in 2007, the proportion of high level aminoglycoside-resistant isolates varied from 13% to 65%, with the majority of countries (15 of 25 countries) reporting proportions between 25% and 50%. Only Estonia, Finland, Iceland, France and Sweden reported proportions below 25%. The highest proportions were reported by Cyprus (61%) and Greece (65%).

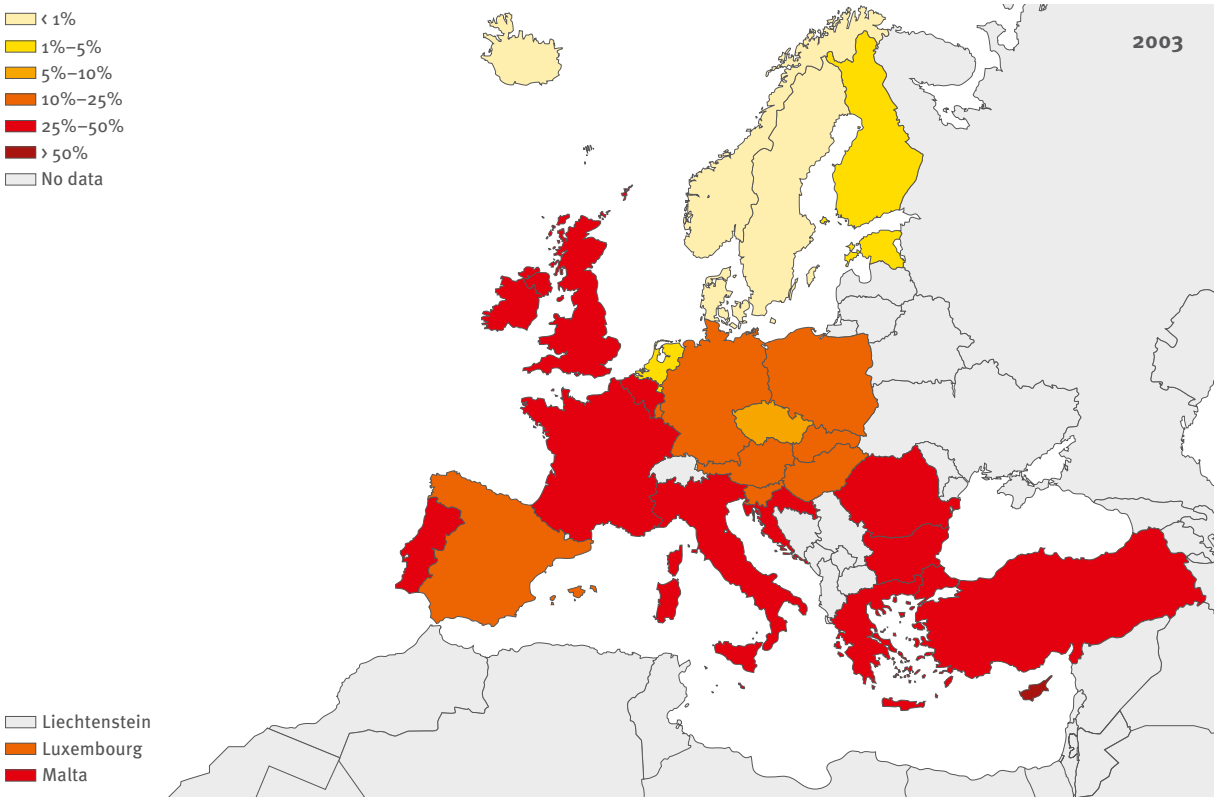
The remainder (approximately 20%) of clinical enterococcal infections in humans are caused mainly by *Enterococcus faecium* for which resistance to vancomycin is of particular concern. In general, the number of vancomycin-resistant *E. faecium* (VRE) isolates reported to EARSS in 2007 was low, and 23 of 28 countries reported fewer than 20 VRE isolates. The occurrence of VRE was less than or equal to 1%, or even absent, in 15 of the 26 countries that reported more than 10 *E. faecium* isolates. By contrast, three countries (Greece, Ireland, and Portugal) reported more than 25% VRE isolates. Increasing trends in the occurrence of VRE was observed in four countries (Germany, Greece, Ireland and Slovenia). Decreasing trends were observed for Portugal and the UK. In Portugal a continuous decrease has been observed, from 47% in 2003 to 29% in 2007 (Figure 3.6.2).

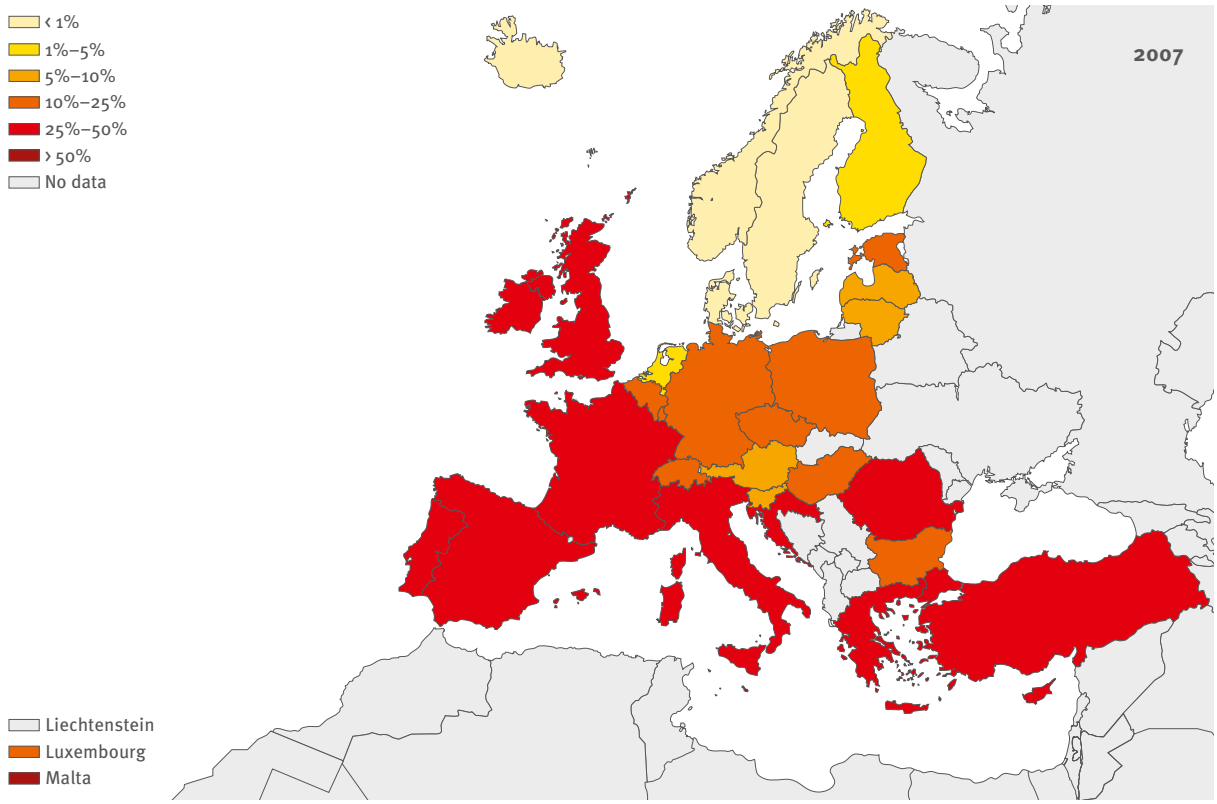
Escherichia coli

Escherichia coli is the most frequent cause of gram-negative bloodstream infections and is associated with a range of infections including wound infections, pneumonia and meningitis. It is one of the most important food-borne pathogens, and is the most frequent cause of urinary tract infections acquired in the community and in hospitals. For almost all countries reporting data to EARSS, the occurrence of resistance in *E. coli* from bloodstream infections to aminopenicillins, fluoroquinolones, third generation cephalosporins and aminoglycosides has shown an increasing trend over several years (Figure 3.6.3).

In 2007, resistance to aminopenicillins was highly prevalent; all countries reported resistant proportions above 30%. Only Finland, Norway and Sweden reported resistant proportions below 40%, and 23 of 28 countries reported 50% or higher. At this level of resistance, aminopenicillins can no longer be regarded as a useful option for empirical treatment.

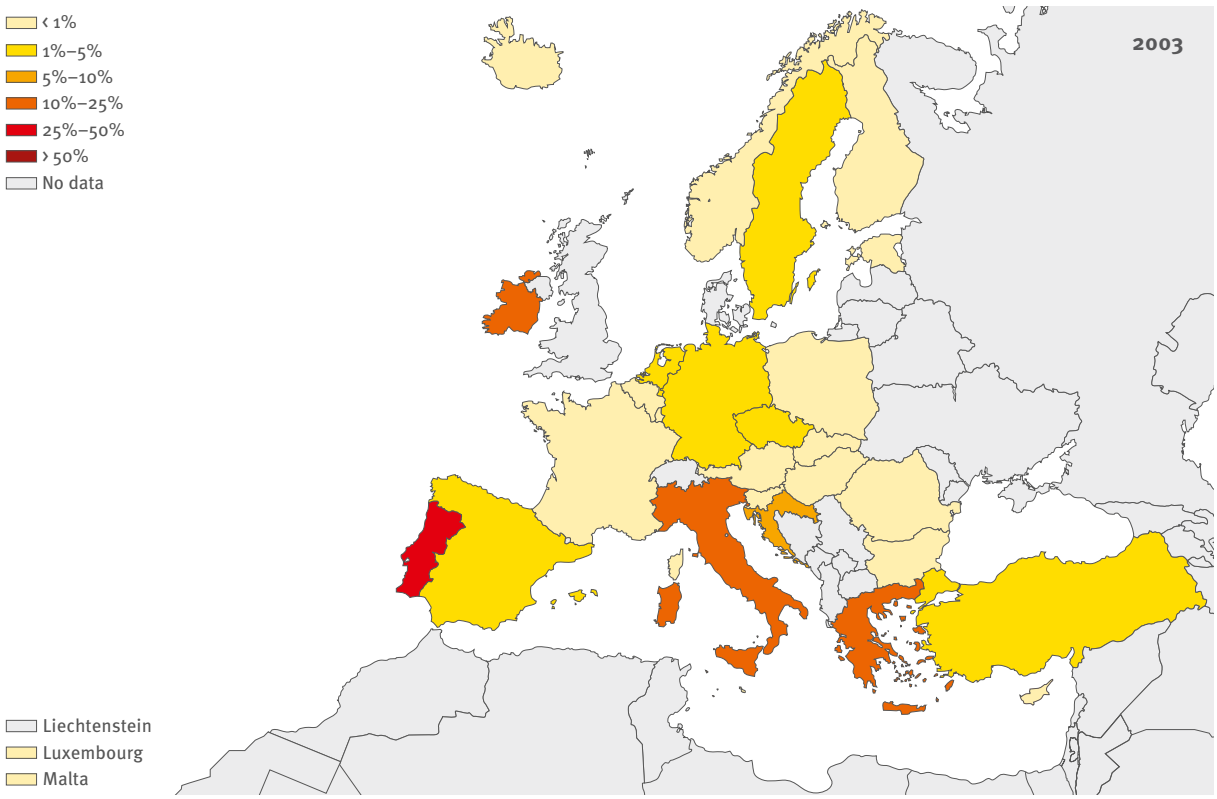
Figure 3.6.1. ***Staphylococcus aureus:*** **proportion of blood and cerebrospinal fluid isolates resistant to methicillin (MRSA) in EU and EEA/EFTA countries* in 2003 and 2007**

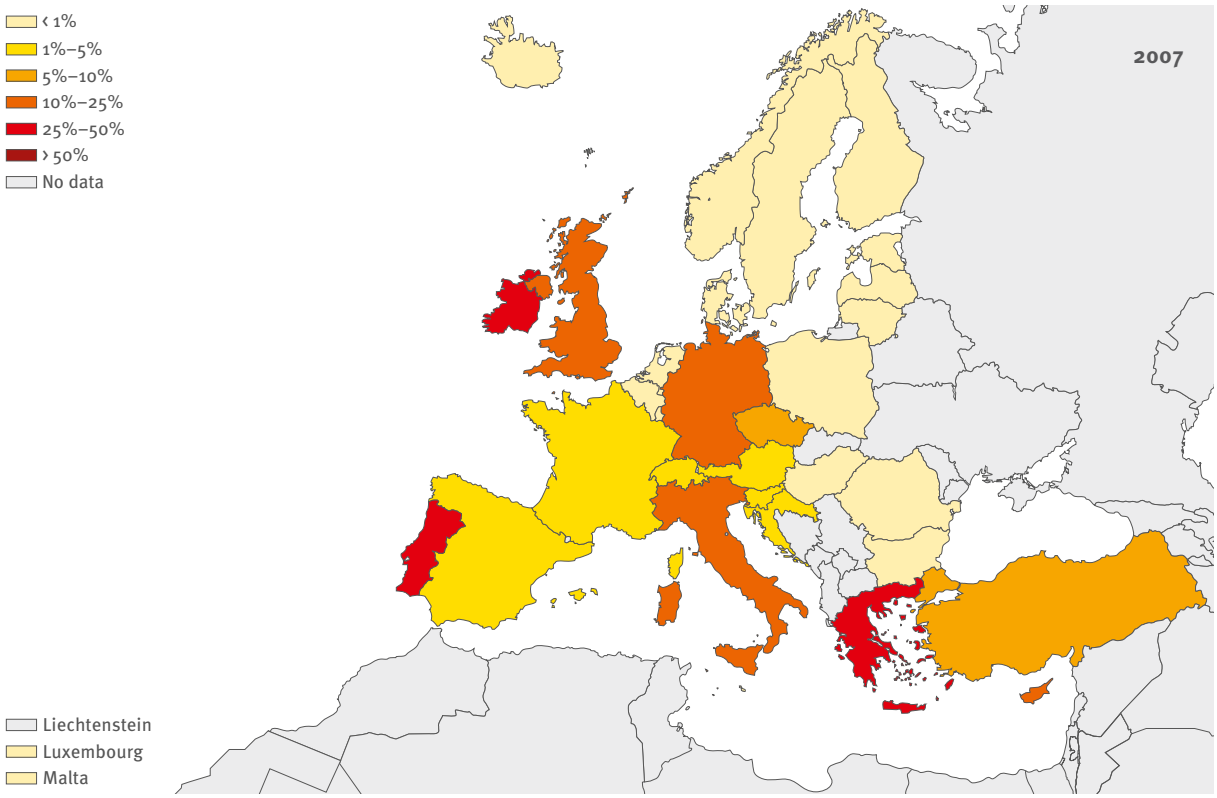




Source: EARSS.
* Only data from countries reporting more than 10 isolates are included.

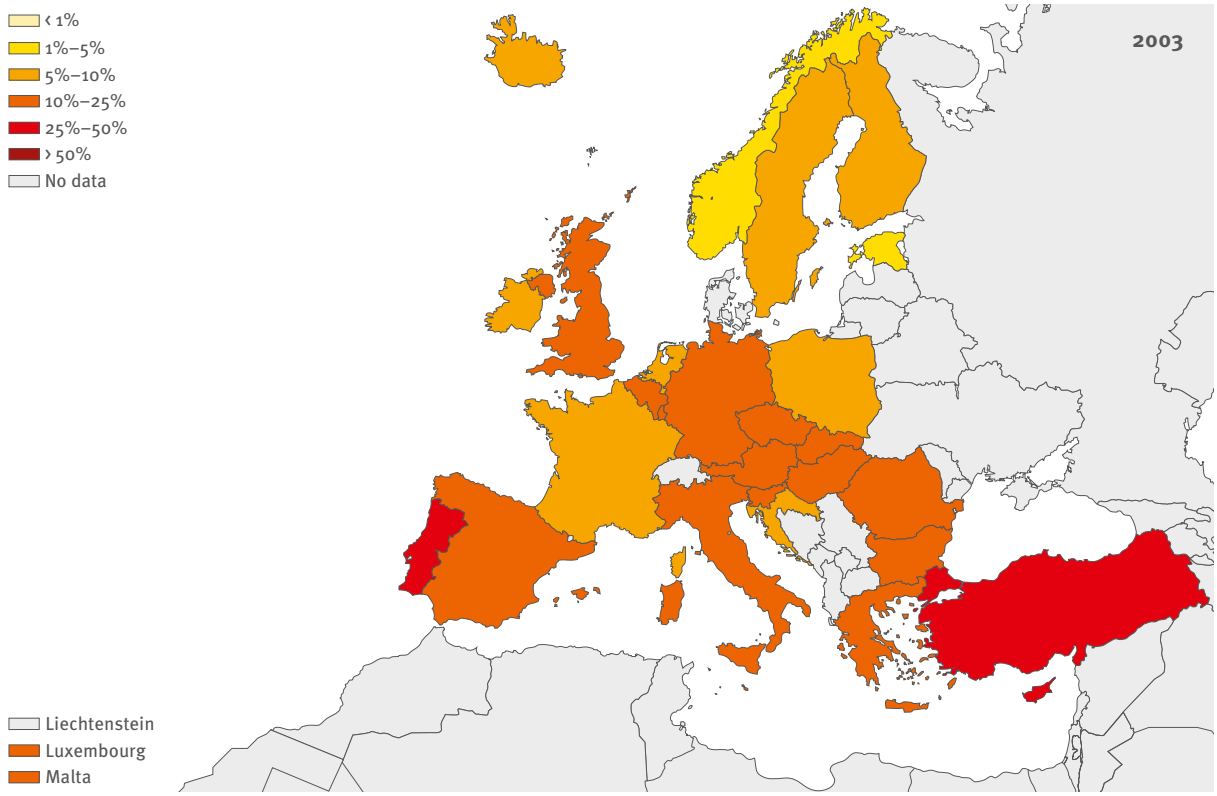
Figure 3.6.2. ***Enterococcus faecium:*** **proportion of blood and cerebrospinal fluid isolates resistant to vancomycin in EU and EEA/EFTA countries* in 2003 and 2007**

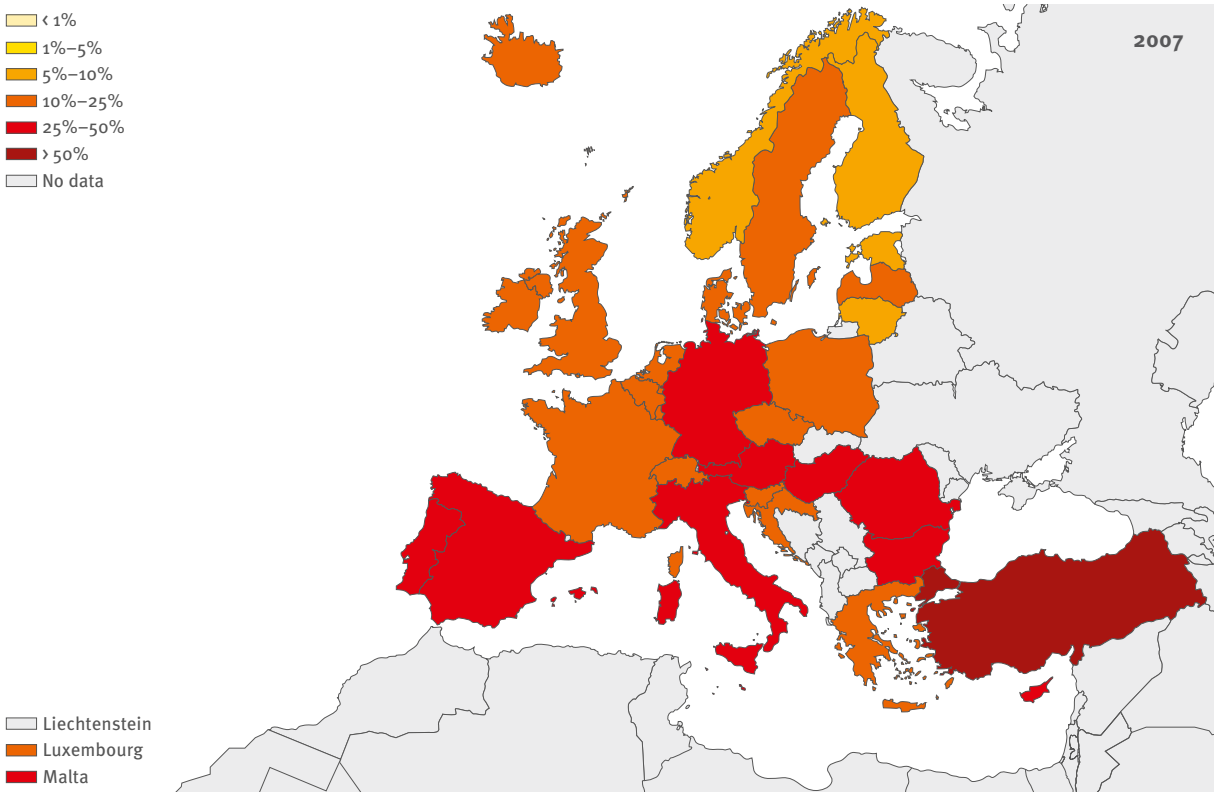




Source: EARSS.
* Only data from countries reporting more than 10 isolates are included.

Figure 3.6.3. ***Escherichia coli:*** **proportion of blood and cerebrospinal fluid isolates resistant to fluoroquinolones in EU and EEA/EFTA countries* in 2003 and 2007**





Source: EARSS.
* Only data from countries reporting more than 10 isolates are included.

aminopenicillins can no longer be regarded as a useful option for empirical treatment.

Resistance to third generation cephalosporins varied substantially from 1% reported by Estonia to 28% reported by Romania. However, most countries reported less than 10% resistant isolates. A significant increase was observed from 2001 to 2007 in 19 of 26 countries, and increasing resistance seems to be affecting a number of countries which formerly had very low levels of resistance (down to 1%). A decreasing trend was only observed in Poland.

All over Europe, resistance to fluoroquinolones in *E. coli* from bloodstream infections has increased consistently over the past seven years and this situation is especially alarming. Fluoroquinolone resistance has increased substantially in 24 of 26 countries since 2001, with Estonia and Poland as the only exceptions. In 2007 the proportions of fluoroquinolone-resistant isolates ranged from 7% reported by Estonia and Norway, to 40% reported by Cyprus. Ten countries reported more than 25% fluoroquinolone-resistant *E. coli* (Figure 3.6.3).

The occurrence of aminoglycoside resistance in *E. coli* ranged from 2% to 38%. Seventeen of 26 countries reported resistant proportions below 10%, and nine countries reported 10–25%. Only one country (Romania) reported more than 25%. Between 2001 and 2007, a significantly increasing trend for aminoglycoside resistance was observed in 16 of 26 countries.

Combined resistance (co-resistance to two or more antimicrobial agents) occurs with an increasing frequency in *E. coli*. In 2007, 2.5% of *E. coli* isolates were resistant to all four antimicrobial agents reported to EARSS.

Klebsiella pneumoniae

Klebsiella pneumoniae is mainly associated with opportunistic infections in individuals with impaired immune systems. Common sites of infection are the respiratory tract and the urinary tract. *K. pneumoniae* is the second most common cause of gram-negative bloodstream infections. The data for 2007 showed high levels of resistance to third-generation cephalosporins, fluoroquinolones and aminoglycosides, especially in central and south-eastern European countries. Combined resistance is common in *K. pneumoniae* and in 2007 the most frequently identified resistance phenotype (resistance to fluoroquinolones, third generation cephalosporins and aminoglycosides) was reported for 14% of the isolates.

Pseudomonas aeruginosa

Pseudomonas aeruginosa is an opportunistic pathogen with intrinsic resistance to several antimicrobial agents. It is difficult to control in hospital and institutional environments and is associated with infections in burns, ear infections and infections in patients with cystic fibrosis. Resistance in *P. aeruginosa* emerges readily during antibiotic treatment, and combined resistance is common. In 2007, 17% of the isolates were resistant to three or more antibiotics from the EARSS protocol, and even resistance to all five classes of antimicrobials recorded by EARSS is common. In general, the occurrence of resistance was lower among countries in the northern and western parts of Europe and higher among countries in the south-eastern part.

Discussion

The overall hospital catchment population of the EARSS network is estimated to include at least one quarter of the European Union population, with most countries covering between 20 and 100% of their national population. However, comparison between countries and interpretation of results based on the EARSS data must be made 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 remains a significant problem all over Europe. 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 non-susceptibility in *Streptococcus pneumoniae* (PNSP) showed a heterogeneous picture in Europe. Most northern European countries reported low levels of non-susceptibility, whereas relatively high levels were reported by southern European and Mediterranean countries. However, the levels for penicillin non-susceptibility and erythromycin resistance remained stable in most 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 glycopeptide resistance in Enterococci remains a challenge for infection control.

Resistance to fluoroquinolones, aminopenicillin, aminoglycoside and third generation cephalosporins in *E. coli* has increased significantly in nearly all reporting countries in recent years. Due to the very high levels of resistance to aminopenicillin, this antimicrobial can no longer be regarded as a useful option for empirical treatment.

The EARSS surveillance data from 2007 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.

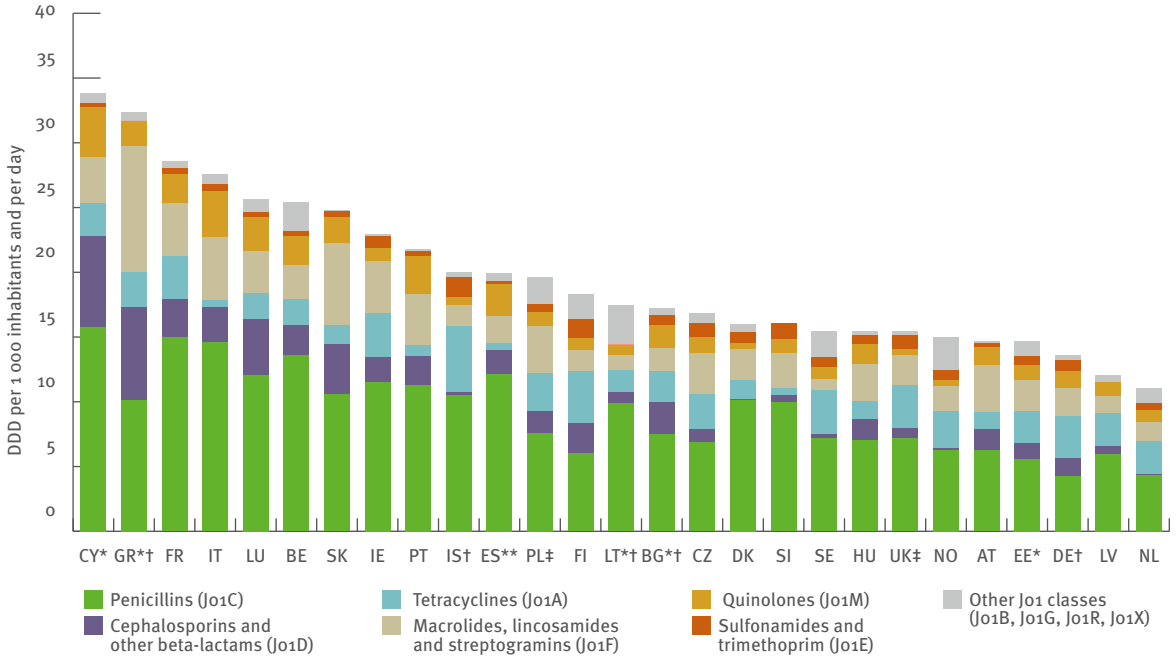
Trends in antimicrobial use in Europe

The European Surveillance of Antimicrobial Consumption (ESAC) project is the dedicated network for the surveillance of antimicrobial consumption in Europe 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, the three EU 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 unit1. The 2004 version of the ATC/DDD was used for the 1997–2003 data, version 2005 for the 2004 data, version 2006 for the 2005–06 data and version 2007 for 2007 data. For standardisation, consumption of antibiotics (ATC group J01, antibacterials for systemic use) was reported as DDD per 1000 inhabitants and per day.

Of the participating EU and EEA/EFTA countries, some countries delivered only outpatient data on antibiotic use, whereas others provided data on overall consumption, covering both ambulatory and hospital care. Total outpatient use varied from 11.1 (the Netherlands) to 33.9 DDD per 1000 inhabitants and per day (Cyprus), 2007 data (Figure 3.6.4). The median use [inter-quartile range] was 17.4 [15.3–22.7] DDD per 1000 inhabitants and per day. Figure 3.6.5 presents a map of total outpatient antibiotic use in Europe in 2007.

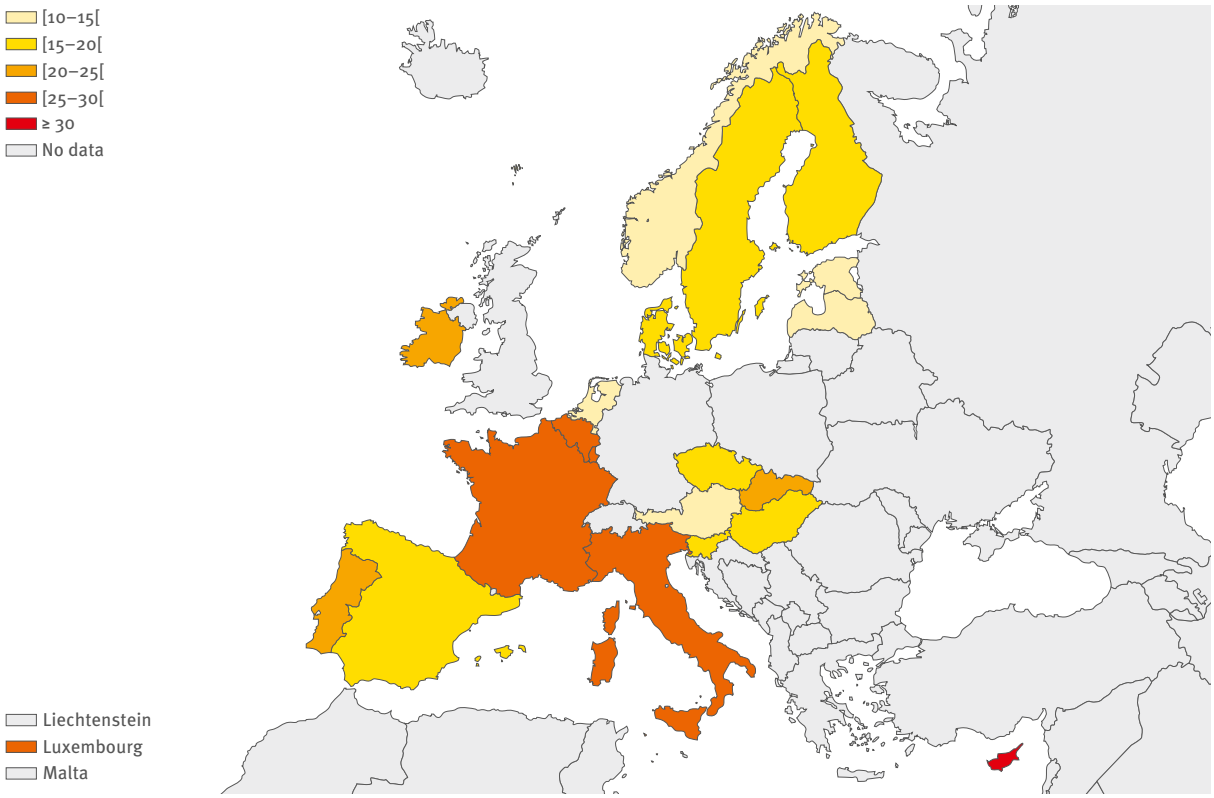
Penicillins were the most frequently prescribed antibiotic class in all countries, ranging from 32.7% (Finland) to 63.4% (Sweden) of the total outpatient antibiotic use. The proportion of use of other antibiotic classes varied greatly among countries, e.g. cephalosporins, from 0.18% (Denmark) to 20.7% (Cyprus); macrolides, 6% (Sweden) to 25.4% (Slovakia); and quinolones, 2.8% (Denmark) to 13.2% (Portugal) (Figure 3.6.4).

Figure 3.6.4. Outpatient antibiotic (ATC group J01) consumption subdivided into the major antibiotic classes according to ATC classification, 2007



Source: ESAC.
*Total use, i.e. including inpatients, for Bulgaria, Cyprus, Estonia, Greece and Lithuania.
** Reimbursement data, which do not include over-the-counter sales without a prescription for Spain.
† 2006 data for Bulgaria, Germany, Greece, Iceland and Lithuania
‡2005 data for Poland and UK.

Figure 3.6.5. Total outpatient antibiotic (ATC group J01) consumption in Europe, 2007



Source: ESAC.
Cyprus and Estonia: total use, i.e. including inpatient consumption. Spain: reimbursement data, which do not include over-the-counter sales without prescription.
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. Conversely, total outpatient antibiotic use decreased in some countries (Portugal, Hungary and Norway, and until 2004 in Belgium, France and Sweden). These decreases have been attributed to national public campaigns or repeated media coverage on the prudent use of antibiotics (Belgium, France and Sweden). Norway showed a decrease until 2007 and the Netherlands showed a stable total outpatient antibiotic consumption until 2005, followed by an increase in 2006 and 2007. Other countries showed more complex temporal 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/

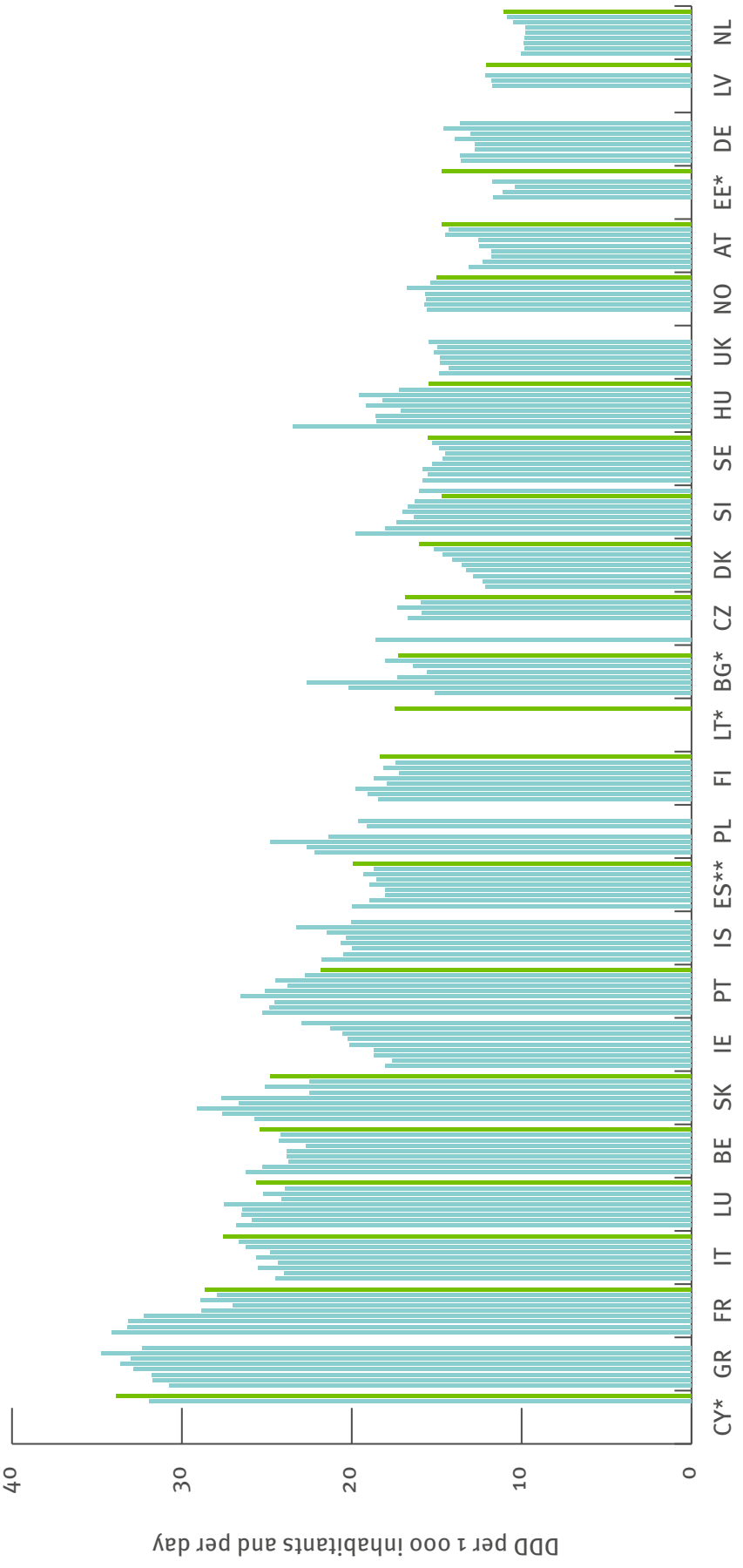


Figure 3.6.6. Trends of total outpatient antibiotic consumption (ATC group J01) in Europe, from 1999 (leftmost bar) to 2007 (rightmost bar, green)

Source: ESAC.
* Total use, i.e. including inpatients, for Bulgaria, Cyprus, Estonia, Greece and Lithuania.
**Reimbursement data, which do not include over-the-counter sales without a prescription for Spain.

Surveillance systems overview

Country	Data Source Description	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
Finland	National Infectious Disease Register (NIDR)	Cp	Co	P	C	Y	N	N	N	Y
France	National reference Centres	V	Co	P	C	Y	N	N	N	Y
Iceland	Mandatory surveillance of diseases subject to registration in Iceland	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	Visums	Cp	Co	P	C	Y	N	N	N	Y
Malta	Infectious DIsease Prevention and Control Unit	Cp	Co	P	C	Y	Y	Y	Y	Y
Poland	National Surveillance System of Infectious Diseases	Cp	Co	P	C	Y	Y	N	N	Y
Romania	Romanian National Surveillance System	Cp	Co	P	A	N	N	Y	N	Y
Slovenia	SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Sweden	SmiNet	Cp	Co	P	C	Y	Y	Y	N	Y

Healthcare-associated infections

In July 2008, the coordination of the network for the surveillance of healthcare-associated infections (HCAI) in Europe IPSE (Improving Patient Safety in Europe) network was transferred to ECDC. The surveillance of surgical site infection surveillance (HELICS-SSI) and the surveillance of nosocomial infections in intensive care units (HELICS-ICU) continued without changes to the surveillance protocols as in the HELICS network (Hospitals in Europe Link for Infection Control through Surveillance), collecting data from the national surveillance networks for HCAI based on common protocols agreed on in 2002–03. ECDC also continues providing support to Member States to set up such hospital surveillance networks in their countries by making available free software for hospitals and network coordination centres, training courses on HCAI surveillance and through country visits. The main objectives of the HCAI surveillance are to analyse inter-country differences, to work towards comparable surveillance methods, to support the use of 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 enables adjustment for variation in case-mix. Adjustment for case-mix is based on the NNIS (National Nosocomial Infections Surveillance System, CDC, USA) risk index1,2. This is comprises 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 or post-operative stay or intensity of case-finding post-discharge. However, the incidence density can only be calculated when the discharge date is known. Therefore, a third indicator was added in 2008: the cumulative incidence excluding post-discharge infections.

Results of HELICS SSI surveillance, 2007

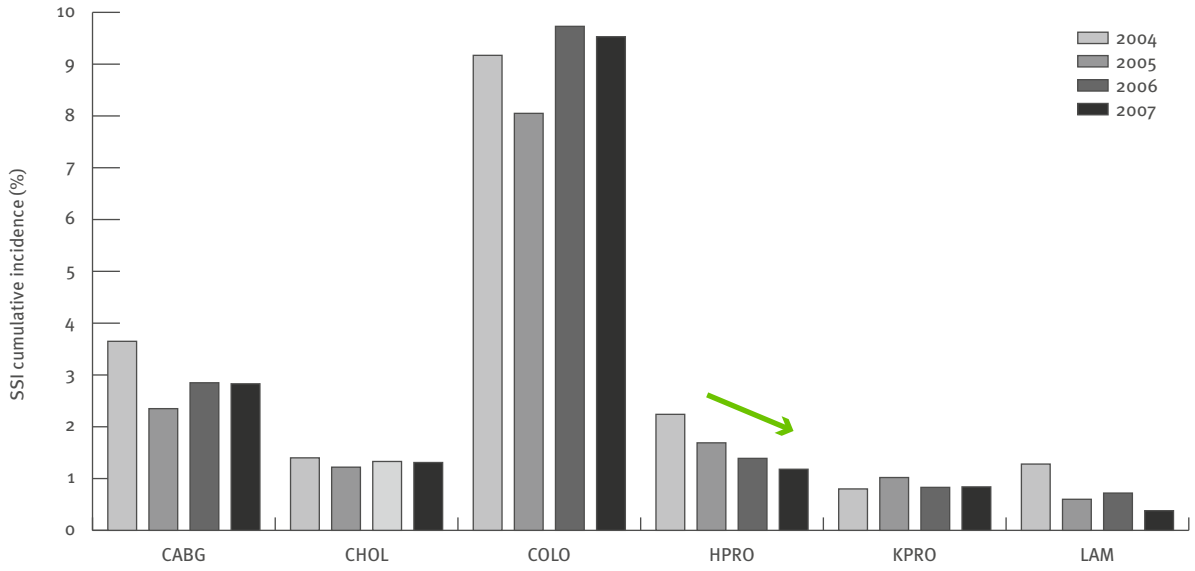
In 2007, data on surgical site infection (SSI) surveillance were received from 15 networks in 12 countries and included 260414 surgical interventions from 1175 hospitals (compared with 238550 from 1033 hospitals in 2006 and 138893 interventions from 765 hospitals in 2005). Italy submitted data for the first time with their 2007 data, while two countries who had previously submitted data, Belgium and Poland, did not submit data for 2007 before the data submission deadline. The types and numbers of operations reported by each country are given in Table 3.6.2.

Table 3.6.2. Number of interventions included in the ECDC surveillance of surgical site infections according to HELICS-SSI by category and country in 2007

	CABG	CHOL	COLO	CSEC	HPRO	KPRO	LAM	Total
Austria	296	152	171	2200	3946	318	133	7215
Finland	0	0	0	0	5441	4134	0	9575
France	744	10020	5832	17791	12545	8109	844	55885
Germany	7569	8961	5333	11997	20935	11927	2136	68858
Hungary	0	1509	185	1664	639	108	0	4105
Italy	381	955	654	1461	618	770	94	4933
Lithuania	517	816	194	0	230	157	0	1914
Netherlands	0	420	836	1282	3099	1816	0	7453
Portugal	0	1037	438	789	215	0	10	2489
Spain	571	963	851	719	982	444	242	4772
UK*	3810	0	2162	12241	34262	36670	0	89145
Norway	681	343	0	1672	1374	0	0	4070
Total	**14569**	**25176**	**16655**	**51816**	**84286**	**64453**	**3459**	**260414**

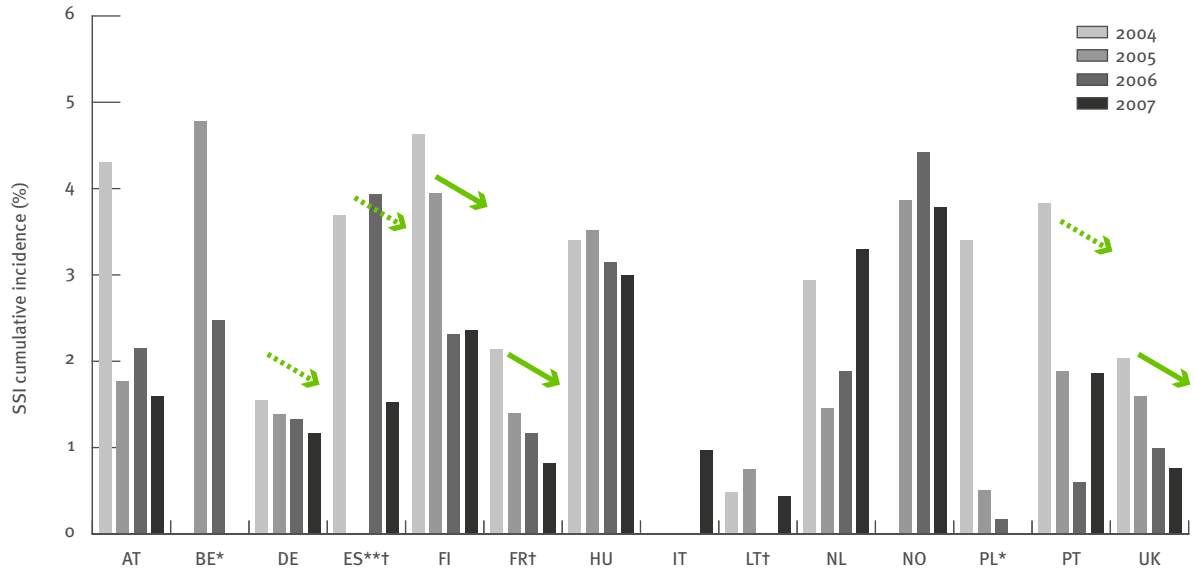
Source: Country reports.
* Includes data from England, Northern Ireland, Scotland and Wales
CABG: Coronary artery bypass graft: CHOL: Cholecystectomy; COLO: Colon surgery; CSEC: Caesarean section; HPRO: Hip prosthesis; KPRO: Knee prosthesis; LAM: Laminectomy.

Figure 3.6.7. Trends in cumulative incidence of surgical site infections in Europe by operation category, HELICS-SSI, 2004–07



Source: Country reports
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, HELICS-SSI, 2004–07



Source: Country reports.
* Belgium and Poland did not submit data for 2007, trends were not analysed.
** New surveillance network in Spain since 2006.
† Corrected data for Spain in 2006, France in 2004, Lithuania in 2005.
Arrows indicate significant trends (full line p<0.001; dotted line p<0.05).

The percentage of surgical site infections varied according to the type of surgical intervention and according to the NNIS risk index. The decreasing trend observed for hip prosthesis operations (HPRO) observed in 2006 was confirmed in 2007 with an overall decrease of the cumulative incidence from 2.2 % in 2004, 1.7 % in 2005, 1.4 % in 2006 and 1.2 % in 2007 ($p < 0.001$) (Figure 3.6.7).

Using poisson regression in the intervention-based database (n = 274 938 HPRO interventions), this decrease in HPRO infections was highly significant ($p < 0.001$) in Finland, France and the United Kingdom and moderately significant ($p < 0.05$) in Germany, Portugal and Spain (Figure 3.6.8). To eliminate the effect of post-discharge surveillance and variations in case-mix, trends were

also analysed for infections detected before patient discharge adjusting for the length of stay in the hospital and the NNIS risk index (trend analysis of incidence density). Post-discharge and risk-adjusted trends were significant in Spain ($p = 0.001$), Portugal ($p = 0.043$) and the United Kingdom ($p < 0.001$) but only at the limit of significance for France (0.080), Germany (0.078) and The Netherlands (0.065). The adjusted trend analysis for Finland was not significant but was compromised by the fact that the discharge date was often missing (63 % missing discharge date for hip prosthesis in 2007). Adjustment for the NNIS risk index only yielded a highly significant decreasing trend in Finland ($p < 0.001$). The intensity of post-discharge surveillance (percentage of infections detected post-discharge) in 2007 (missing discharge date excluded) was the highest in Finland (86 % of infections detected post-discharge), followed by Norway (77 %), the Netherlands (58 %), the United Kingdom (53 %) Austria (44 %), France (40 %) and lower than 30 % for other countries.

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 the following parameters:

- differences in post-discharge surveillance methods (e.g. more intensive in Finland and Norway, no post-discharge surveillance in England until 2005);
- differences in post-operative length of stay (infections are more likely to be detected in the hospital than in the community);
- selection of hospitals with specific problems in countries with low participation in the SSI surveillance module (e.g. Hungary);
- differences in hospital mix participating from one year to another;
- 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;
- different interpretations of the same case definitions, resulting in different percentages of superficial infections being reported;
- organisational aspects such as mandatory participation with or without public disclosure of SSI indicators (e.g. in the United Kingdom).

Surveillance of ICU-acquired infections

The HELICS-ICU protocol includes a unit-based (level 1, minimal data set) and a patient-based (level 2) module. In unit-based surveillance, denominator data (patient-days) are collected for the entire unit, whereas 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://www.ecdc.europa.eu/IPSE/protocols/icu_protocol.pdf[3].

Nine patient-based networks (Austria, Belgium, France, Italy, Lithuania, Luxembourg, Portugal, Slovakia and Spain), two piloting countries (England and Romania) and one unit-based (Germany) surveillance network contributed data on 8 272 episodes of ICU-acquired pneumonia (PN) and 4 718 episodes of ICU-acquired bloodstream infections (BSI) from 695 hospitals in 2007. Belgium also contributed level 1 data for ICU-acquired bloodstream infections only. Additionally one candidate country (Croatia) submitted level 1 data for six ICUs (data not included in this summary).

Of 54 574 patients staying more than two days in the ICU (level 2 data), 6.2 % acquired a pneumonia (intubator-associated 89.3 %). 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 pd in ICUs with 30–59 % patients intubated, and 9.4 per 1 000 pd in ICUs with ≥ 60 % of patients intubated.

The most frequent micro-organisms isolated in ICU-acquired pneumonia and ICU-acquired bloodstream infection are given in Tables 3.6.3 and 3.6.4.

Overall, the most frequently isolated pathogen in ICU-acquired pneumonia was *Pseudomonas aeruginosa*, followed by *S. aureus* with an average percentage methicillin resistance of 33.3 %. 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 (but also increasing in other countries) and enterococci are more frequently reported by Austrian and German ICUs. There was an increase in the relative frequencies of enterobacteriaceae in 2007 as compared with previous years.

ICU-acquired bloodstream infections (BSI) occurred on average in 3.0 % (mean of ICU cumulative incidences 3.2 %; median 2.4 %) of patients staying more than two days in the ICU.

Bloodstream infections were catheter-associated (defined as a primary bloodstream infection with central line use in the 48 hours preceding the infection) in 56 %. In 44 % of the bloodstream infections the origin was another infection site (pulmonary infection 40 %; gastro-intestinal tract infection 18 %; urinary tract infection 14 %; surgical site infection 5 %; skin and soft tissue 4 %; other/unknown 19 %). Fourteen percent of the BSI were primary BSI without reported association with central line use.

The most frequently isolated micro-organisms in BSI were coagulase-negative staphylococci, followed by enterococci, *S. aureus* (42 % MRSA), *P. aeruginosa* and *Candida spp.* Again, the percentage of *Acinetobacter spp.* was higher in Spain, Lithuania, Italy (and 1/5 isolates in the pilot data from Romania). Enterobacteriaceae increased proportionally in several countries. As in 2006, the higher proportion of coagulase-negative staphylococci in Italy and Austria may indicate more sensitive reporting of skin contaminants in the new Italian network.

Table 3.6.3. Fifteen most frequently isolated micro-organisms in ICU-acquired pneumonia by country, surveillance of ICU-acquired infections, 2007

	Austria	Belgium	France	Germany	Italy	Lithuania	Luxembourg	Portugal	Romania	Slovakia	Spain	Total
Number of isolates	550	144	2957	3761	239	89	87	73	26	46	1440	9412
P. aeruginosa	21%	21%	22%	17%	23%	14%	18%	33%	12%	24%	18%	19%
S. aureus	13%	9.0%	18%	18%	18%	9.0%	10%	18%	12%	6.5%	16%	17%
E. coli	8.5%	8.3%	9.3%	9.9%	4.6%	6.7%	9.2%	4.1%	12%	8.7%	6.9%	8.9%
Klebsiella spp.	9.5%	10%	5.7%	10%	7.1%	15%	6.9%	8.2%	46%	28%	7.2%	8.3%
Candida spp.	14%	4.2%	3.9%	11%	6.3%	4.5%	12%	0.0%	0.0%	4.3%	5.3%	7.7%
Enterobacter spp.	6.7%	11%	8.4%	7.6%	5.0%	3.4%	10%	5.5%	0.0%	8.7%	6.3%	7.5%
Acinetobacter spp.	1.1%	0.0%	2.6%	2.3%	12%	16%	1.1%	14%	3.8%	11%	12%	4.2%
Haemophilus spp.	2.0%	1.4%	5.0%	2.6%	2.1%	3.4%	4.6%	6.8%	0.0%	0.0%	4.4%	3.6%
Stenotrophomonas spp.	3.5%	1.4%	3.4%	3.4%	8.8%	1.1%	6.9%	1.4%	0.0%	0.0%	3.5%	3.5%
Serratia spp.	1.8%	2.8%	3.1%	3.9%	2.1%	1.1%	4.6%	2.7%	3.8%	0.0%	2.6%	3.2%
Proteus spp.	1.5%	1.4%	3.1%	2.9%	1.3%	3.4%	2.3%	2.7%	12%	4.3%	1.4%	2.6%
Enterococcus spp.	4.7%	2.8%	0.7%	4.3%	1.7%	2.2%	4.6%	1.4%	0.0%	0.0%	1.3%	2.6%
Coagulase Negative Staphylococci	4.9%	4.9%	3.5%	1.9%	1.7%	3.4%	2.3%	0.0%	0.0%	0.0%	1.1%	2.5%
Streptococcus spp.	3.5%	4.9%	4.2%	0.0%	1.7%	10.1%	3.4%	0.0%	0.0%	0.0%	3.1%	2.2%
Citrobacter spp.	0.7%	4.9%	1.9%	2.2%	1.7%	1.1%	1.1%	1.4%	0.0%	2.2%	1.1%	1.8%

Source: Country reports.

Table 3.6.4. Fifteen most frequently isolated micro-organisms in ICU-acquired bloodstream infections by country, surveillance of ICU-acquired infections, 2007

	Austria	Belgium	Germany	Spain	France	Italy	Lithuania	Luxembourg	Portugal	Romania	Slovakia	Total
Number of isolates	318	886	1289	1031	1059	90	39	48	36	5	11	4812
Coagulase-neg. Staphylococci	45%	19%	34%	34%	21%	34%	10%	17%	33%	0.0%	18%	29%
Enterococcus spp.	13%	12%	16%	9.7%	6.2%	5.6%	0.0%	17%	8.3%	20%	0.0%	11%
S. aureus	6.6%	8.7%	16%	6.0%	14%	5.6%	2.6%	10%	31%	20%	18%	11%
P. aeruginosa	6.6%	9.5%	6.6%	8.6%	12%	16%	7.7%	10%	14%	0.0%	9.1%	8.9%
Candida spp.	12 %	6.9 %	5.1 %	6.7 %	9.9 %	13 %	7.7 %	8.3 %	0.0 %	0.0 %	0.0 %	7.4 %
E. coli	3.8%	12%	5.1%	5.8%	9.3%	6.7%	7.7%	8.3%	2.8%	0.0%	9.1%	7.4%
Enterobacter spp.	2.2%	9.5%	4.7%	5.2%	5.0%	1.1%	13%	13%	2.8%	20%	9.1%	5.7%
Klebsiella spp.	0.0%	5.8%	3.4%	5.2%	8.1%	2.2%	13%	6.3%	0.0%	0.0%	9.1%	5.1%
Acinetobacter spp.	0.9%	1.9%	1.8%	6.8%	1.3%	3.3%	13%	0.0%	8.3%	20.0%	27%	3.0%
Serratia spp.	0.3%	1.7%	2.1%	1.7%	1.9%	1.1%	0.0%	4.2%	0.0%	0.0%	0.0%	1.7%
Streptococcus spp.	0.9%	3.0%	0.0%	1.6%	1.9%	0.0%	5.1%	2.1%	0.0%	0.0%	0.0%	1.4%
Proteus spp.	0.3%	1.5%	1.3%	1.3%	1.1%	2.2%	2.6%	2.1%	0.0%	20.0%	0.0%	1.3%
Stenotrophomonas spp.	0.0%	1.6%	0.9%	1.0%	1.1%	2.2%	5.1%	2.1%	0.0%	0.0%	0.0%	1.1%
Bacteroides spp.	0.0%	1.1%	0.3%	0.2%	2.4%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
Citrobacter spp.	0.3%	1.1%	0.7%	0.6%	0.8%	1.1%	5.1%	0.0%	0.0%	0.0%	0.0%	0.8%

Source: Country reports.

Other antimicrobial resistance markers showed overall resistance percentages of 25% ceftazidim resistance in *P. aeruginosa* and resistance to ceftriaxone/cefotaxime of 12% in E. coli, 23% in *Klebsiella spp.* and 44% in Enterobacter spp. In countries collecting detailed resistance data, several carbapenem-resistant and even colistin-resistant Gram-negative strains were reported.

Discussion

In 2008, the coordination of the surveillance of HCAI in Europe was transferred from the IPSE/HELICS network to ECDC. The 2007 data were collected and analysed by ECDC early in 2009 according to former HELICS data exchange, validation and analysis procedures.

The 2007 data showed that surveillance was further extended in 2007 (still during the IPSE project), with one additional network joining the surgical site infection surveillance (Italy) and two more countries piloting surveillance of ICU-acquired infections (Romania and England).

The decreasing trend of surgical site infections after hip prosthesis was confirmed in 2007, illustrating the important role of surveillance including inter-hospital risk-adjusted comparisons in HCAI prevention and control. 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 with the case definitions of standardised HELICS protocols.

Furthermore, an EU-wide point prevalence survey of healthcare-associated infections is needed to assess the burden of all types of infections in Europe. The elaboration of a European standardised protocol for this prevalence survey is now in the ECDC work programme and will offer an opportunity for the approximately 20 different national HCAI prevalence protocols to be adapted so as to allow international comparisons. It will also facilitate the collection of baseline data in all Member States for evaluating and planning interventions to combat healthcare-associated infections and antimicrobial resistance in healthcare institutions.

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4 Analysis of threats monitored 2005–08

This chapter describes the epidemic intelligence activities performed at ECDC. The entire observation period of the implementation of the TTT (since July 2005) is considered for the analysis of the threats, and the period from the beginning of 2005 for the analysis of the EWRS information.

4.1 Description of threats

Threats monitored by year

Since the start of the epidemic intelligence activities in July 2005, ECDC has monitored 696 threats up to the end of 2008. In 2008, ECDC monitored 250 threats, of which 227 (91%) were opened in 2008, 14 (6%) were carried over from 2007, and 9 (4%) represent recurrent threats. Recurrent threats are related to avian influenza worldwide and in the European region, the worldwide situation of chikungunya fever, poliomyelitis, dengue fever, cholera and measles, as well as new variant Creutzfeldt-Jakob disease and extensively drug-resistant tuberculosis.

Seasonality

A seasonal pattern can be observed in the monitored threats, with the highest number occurring in the summer months. The second half of the year accounted for 62% of all threats opened in the three-year period.

Threats by source of initial notification

In 2008, the European Working Group on *Legionella* infections (EWGLI) was the main source of new threat reporting, in relation to travel-associated clusters. Overall, the proportion of monitored threats originating from confidential sources increased from 53% in the second half of 2005 to 77% in 2008. The number of threats detected from public sources also increased 2008 as compared with previous years. Other important initial sources for monitored threats were ProMed, WHO and information from European disease-specific networks.

Figure 4.1.1. Number of threats monitored per year, June 2005–December 2008

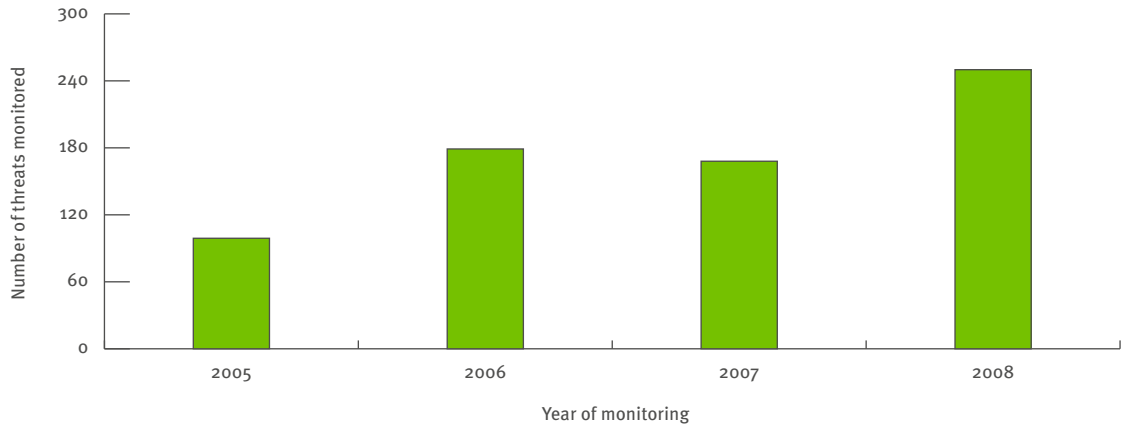
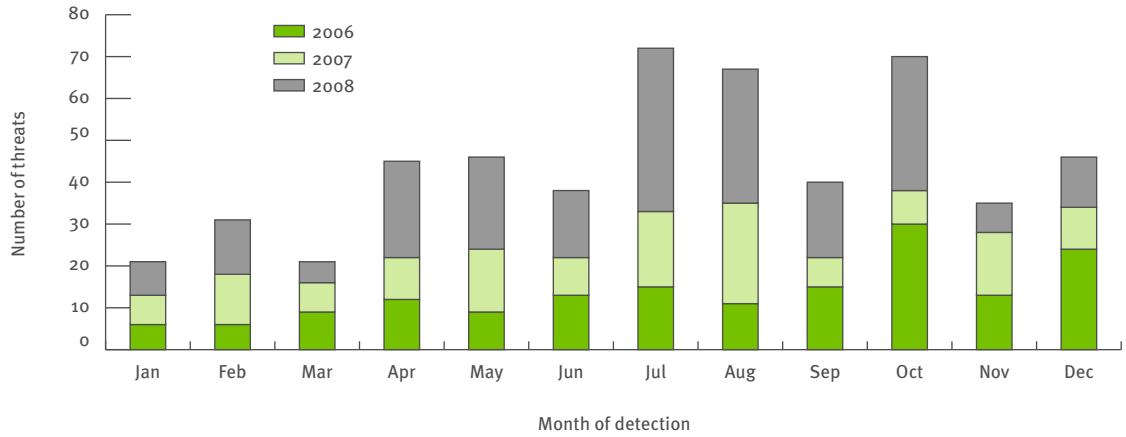


Figure 4.1.2. Distribution of threats by month of detection, 2006–08



Threats by disease group

Half of the threats monitored in 2008 related to diseases of environmental or zoonotic origin; followed by food- and waterborne diseases (22 %); vaccine-preventable diseases (12 %); tuberculosis (5 %); influenza (4 %); hepatitis, HIV, STI and blood-borne infections (1 %); and antimicrobial resistance and healthcare-associated infections (1 %). Five percent of the threats were not related to any specific programme. These were the threats related to the mass gathering events (Euro 2008 football cup and the Beijing Olympic Games), and threats related to disasters: the Cyclone 'Nargis' in Myanmar and the risk for radiological incidents following an earthquake in China, both in May 2008.

With the inclusion of travel-associated Legionnaires' disease clusters in 2008, diseases of environmental and zoonotic origin almost doubled. The most common pathogen monitored in 2008 was *Legionella pneumophila* (85 threats), which accounted for 34 % of all monitored threats.

Threats by region of origin

The majority of monitored threats affected the EU and EEA/EFTA countries, second most common were threats affecting Asia and other European countries (Figure 4.1.3). The proportion of threats affecting EU countries increased during the monitoring period.

Of the 180 threats affecting the EU, EEA/EFTA and candidate countries, six were not related to a country of origin but affected the EU as a whole, e.g. seasonal influenza and measles. Among the remaining 174 threats, Italy was the country at the origin of most threats (38), followed by France (25) and the UK (17) (Table 4.1.3). Legionellosis alone accounted for 34 % of the threats detected in the EU, EEA/EFTA and candidate countries in 2008. Italy, Turkey, France and Spain were the countries reporting most legionellosis threats, and the majority of these were related to travel and reported through the European Network for Travel-associated Legionellosis (EWGLI). These threats related to legionellosis are more

Table 4.1.1. Initial sources of information for newly opened threats, by year

Number of new threats monitored	2005*	2006	2007	2008	Total
Confidential sources					
EWGLI	2	30	40	78	150
EWRS	23	52	42	73	190
WHO	17	14	5	3	39
Information from Member States	1	5	2	6	14
European surveillance networks	9	11	8	4	32
Other confidential source	0	2	4	10	16
Total	**52**	**114**	**101**	**174**	**441**
Public sources					
ProMed	36	15	20	9	80
MedISys	2	5	0	1	8
GPHIN	4	19	4	1	28
Eurosurveillance	0	1	2	0	3
Public report published on the internet	5	9	12	17	43
Other public source	0	0	3	25	28
Total	**47**	**41**	**41**	**53**	**190**
Overall total	**99**	**163**	**142**	**227**	**631**

* includes only the second half of 2005.

Table 4.1.2. Distribution of threats by ECDC disease-specific programmes

ECDC disease-specific programmes	Total	%
Diseases of environmental and zoonotic origin	126	50 %
Food- and waterborne diseases	55	22 %
Vaccine-preventable diseases and invasive bacteria	29	12 %
Tuberculosis	13	5 %
Influenza	10	4 %
Hepatitis, HIV, STI, blood-borne infections	2	1 %
Antimicrobial resistance & healthcare-associated infections	2	1 %
Other	13	5 %
Total	**250**	**100 %**

Figure 4.1.3. Distribution of threats monitored in 2008 by region of origin

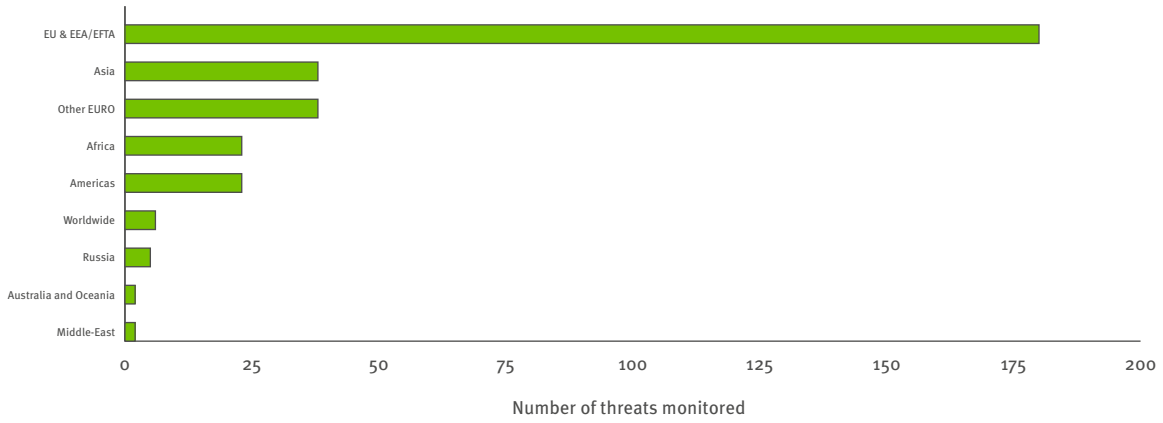


Table 4.1.3. Distribution of threats by EU, EEA/EFTA and candidate country involved, 2008

Country	Threats registered in TTT			EWRS message
	Country of origin	Country involved	Legionellosis	
Austria	5	8	1	3
Belgium	1	6	1	1
Bulgaria	3	4	1	1
Croatia	1	1	1	N/A
Czech Republic	1	1	0	1
Denmark	3	9	0	2
Estonia	4	5	0	2
Finland	3	7	0	1
Former Yugoslav Republic of Macedonia	0	0	0	N/A
France	25	36	7	10
Germany	5	12	0	1
Greece	6	9	0	5
Hungary	5	5	0	5
Iceland	0	2	0	2
Ireland	3	4	0	4
Italy	38	44	28	6
Latvia	4	6	0	5
Lithuania	1	2	0	0
Luxembourg	1	2	0	1
Malta	1	1	1	0
Netherlands	4	15	0	3
Norway	7	9	1	5
Poland	0	2	0	2
Portugal	4	5	1	1
Romania	2	3	0	3
Slovakia	0	1	0	0
Slovenia	1	1	0	2
Spain	10	18	7	3
Sweden	5	14	0	6
Turkey	14	16	12	N/A
United Kingdom	17	30	1	6
Total	**174**	**278**	**62**	**81**

Note. No threats in relation to Cyprus or Liechtenstein were monitored in 2008.

common in southern Europe and largely account for the higher numbers of threats associated with those countries. Only three of the threats related to legionellosis were reported through EWRS.

On average, in 2008, each threat detected in the EU, EEA/EFTA and candidate countries involved 1.6 countries.

4.2 Early Warning and Response System (EWRS)

Since 1 January 2005, 425 messages have been posted, excluding selective messages. In 2008, the number of messages has increased by 16 %, from 85 in 2007 to 99 in 2008.

In 2008, the majority of messages were alert level 'Early Warning –Level 1' (36) followed by 'other information' (31) and 'adopted measures' (15). Eight messages were reported as 'Early Warning –Level 2' and one message as 'Early Warning –Level 3'.

Among the messages with information on applicable reason for reporting, factors related to the agent, host or pathogen with a potential for international spread was the most common reason (35 %) during the four-year period, followed by attraction of media (19 %), cases in other countries which were epidemiologically linked (19 %) and potentially contaminated food items (11 %).

In 2008, messages related to potential international spread (39 % of messages posted in 2008) was the most common category, followed by messages related to epidemiologically linked cases in other countries (17 %). Messages related to media attraction (11 %) was the third most common category but less common than in the previous two years. Instead, more messages related to events that spread within the EU in the past, events related to risk groups, or important impact or size of events were reported more often in 2008 than in previous years.

Since 2005, all countries except Cyprus and Liechtenstein have posted at least one EWRS message. Most of the messages were posted by the European Commission (n = 85; 20 % of all posted messages during the four-year period). Among EU and EEA/EFTA Member States, France was the country with most messages posted

Figure 4.2.1. Distribution of EWRS messages by year of posting, 2005–08

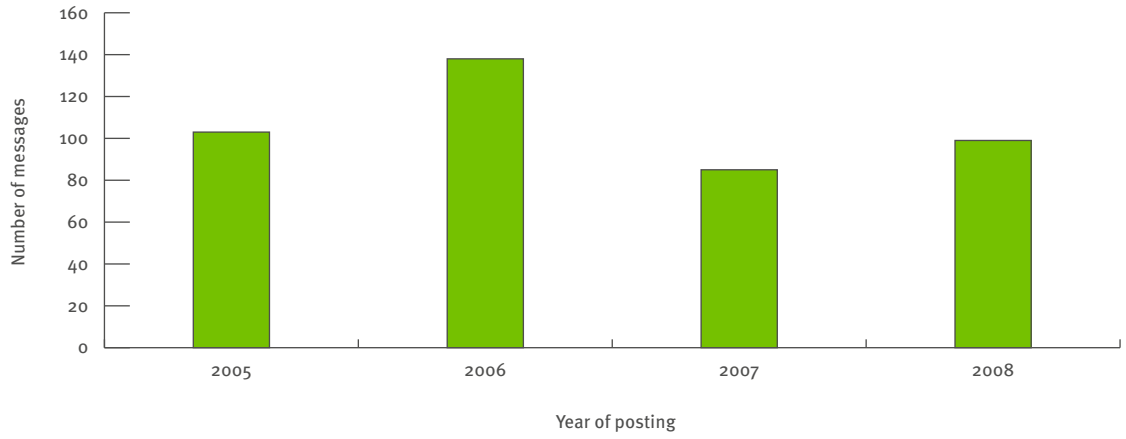


Figure 4.2.2. Distribution of alert level of messages in the year 2008 (n = 99)

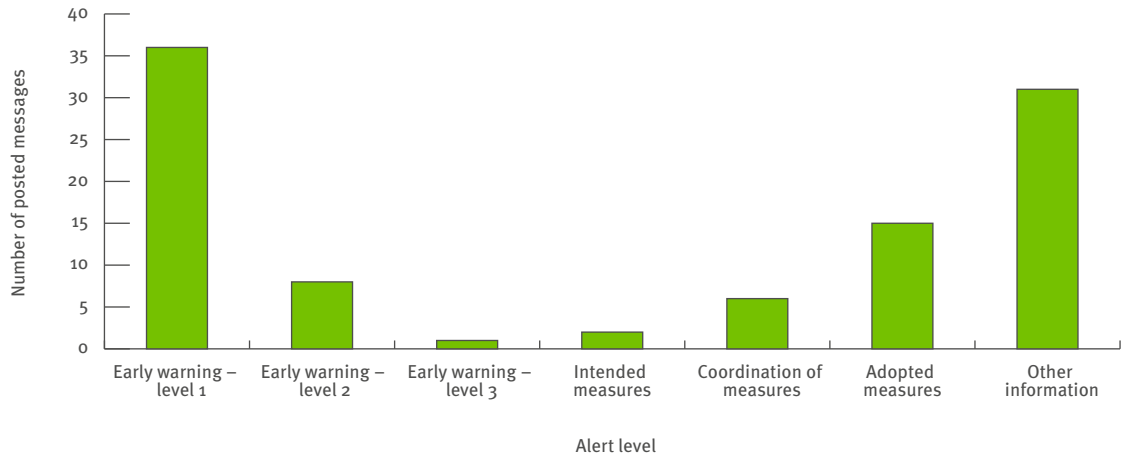
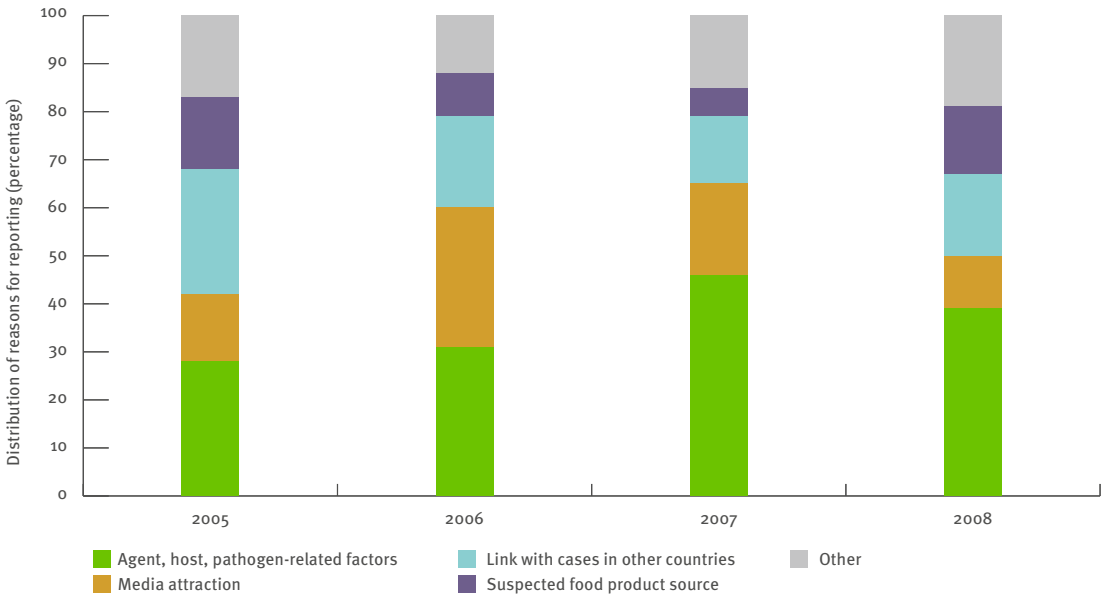


Figure 4.2.3. Distribution of reasons for reporting, by year



(n = 37; 9 %), followed by Germany (n = 30; 7 %), the UK (n = 25; 6 %), Sweden and Italy (n = 24 each; 6 %). All other countries posted fewer than 20 messages in the four-year period.

In 2008, 31 threat assessments were coordinated by ECDC and circulated to health authorities in the Member States through the EWRS. This represents a dramatic increase on the eight threat assessments produced in 2007.

4.3 Analysis of selected threats in 2008

The worldwide situation of human cases of influenza A(H5N1)

Between 2002 and the end of 2008, 395 human cases of influenza A(H5N1) were acknowledged by WHO, 44 of which occurred in 2008 (see Figure 4.5.1). The case-fatality ratio of confirmed cases remained high (75 %) in 2008. Confirmed cases with onset in 2008 originated in Indonesia (24 cases), Egypt (8), Vietnam (6), China (4), Cambodia (1) and Bangladesh (1). The decreasing trend observed in 2007 was confirmed in 2008 but human cases are expected to continue to occur in countries where A(H5N1) virus is entrenched in poultry.

Emergence of oseltamivir-resistant A(H1N1) influenza virus strain

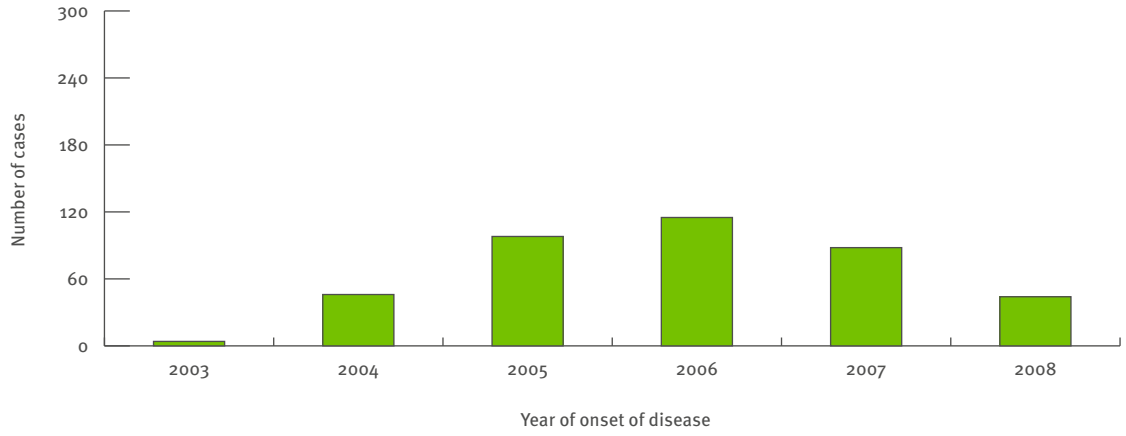
On 15 January 2008, Norwegian health authorities notified via EWRS and IHR an unusually high prevalence of oseltamivir-resistant influenza A(H1N1) viruses detected during routine surveillance. During the 2007–08 influenza season, 2639 samples were investigated from 28 countries participating in the EISS (European Influenza Surveillance Scheme) of which 646 (24 %) were found to be resistant. Twenty-one Member States reported resistant strains, ranging from less than 1 % in Italy up to 68 % in Norway[1,2]. There was no indication that oseltamivir-resistant viruses were more virulent or were causing more severe disease. A(H1N1) viruses were well matched with the seasonal influenza vaccine and the oseltamivir-resistant strains were sensitive to other antivirals. Oseltamivir resistance was reported from other continents with varying frequency. There was no evidence that the emergence of resistant strains was linked to extensive or improper use of antivirals. Influenza A(H1N1) was the predominant circulating strain during the 2007–08 influenza season in Europe. At the end of the season oseltamivir-sensitive influenza B viruses were more frequently isolated.

At the beginning of the influenza season in autumn 2008, 10 of 11 influenza A(H1N1) samples from the UK showed resistance to oseltamivir. However, the predominant strain circulating in Europe was A(H3N2) which was associated with more severe disease but not with oseltamivir resistance. The emergence of oseltamivir resistance in 2008 stresses the need to monitor antiviral susceptibility for influenza strains through continuous worldwide surveillance by the WHO Global Influenza Surveillance Network[3].

Hepatitis A in Europe

In 2008, five hepatitis A outbreaks of international concern were monitored, of which three were reported through EWRS. This represents a significant increase on previous years. These threats were all of a different nature, reflecting the current epidemiology of the transmission of hepatitis A in the EU.

Figure 4.3.1. Distribution of human cases of A(H5N1) influenza confirmed by WHO, by year of onset of disease



In October 2008, France detected clustered cases of hepatitis A among travellers to Egypt who attended cruises on the Nile. Subsequently, Belgium notified four cases, Austria three and Ireland and Slovenia confirmed one case each. All these cases had travelled to Egypt and taken cruises on the Nile. Such 'seeding events' result in the introduction of hepatitis A virus to the EU. Similar seeding events also occur in relation to the importation of contaminated food. Such an event was reported by Spain in 2008, in association with imported frozen food.

In April 2008, Latvia reported an outbreak of hepatitis A linked to a restaurant, and in July, an outbreak affecting injecting drug users in Riga. In August 2008, Slovakia reported an outbreak of hepatitis A having occurred in a Roma village involving 300 cases which was controlled through mass vaccination. Such threats represent 'amplifying events' which can contribute to widespread dissemination in the general population. In Latvia, 2 817 cases, including 17 deaths mainly among persons with underlying disease, were reported between November 2007 and the end of 2008[4]. In the Czech Republic, more than 1 600 cases were reported in 2008, initially affecting injecting drug users and later spreading to the general population[5].

Though the total number of cases may be decreasing yearly in the EU, these threats monitored in 2008 indicate that hepatitis A is still an important public health issue, and highlight the need for increased awareness of both the risk of infection to the individual and the possibility of community outbreaks. As hepatitis A virus vaccination is not included in universal immunisation schedules, and in the context of a decrease in the naturally acquired immunity, the EU is likely to experience similar outbreaks in the future. This stresses the need to promote immunisation of all travellers to endemic areas to prevent the introduction of the virus[6].

Shigella outbreaks

In August, Sweden reported an outbreak of *Shigella sonnei* affecting more than 140 employees exposed at their office cafeteria. Three days later Sweden posted an EWRS message reporting four cases of *Shigella sonnei* infection among Swedish citizens likely to have been exposed in Portugal during a cultural event attended by 25 000 people. Subsequently, the Netherlands reported two confirmed and six suspected cases, Sweden eight cases (including the initial four cases), and Germany two cases linked with the festival. Any relation of the Swedish domestic outbreak with the Portuguese outbreak was ruled out on laboratory grounds, as the two strains of *Shigella sonnei* differed on sorbitol fermenting activity.

Urgent inquiries concerning food- and waterborne diseases

The food- and waterborne urgent inquiries network (FWD UIN) consists of an informal network (formerly Enter-net) of epidemiologists and microbiologists in all EU and EEA/EFTA Member States, Australia, Canada, Japan, New Zealand, South Africa, Switzerland and the United States of America.

In 2008, a total of 34 urgent inquiries were issued through this network. Of these, 27 (79 %) were initiated by EU Member States, five by the USA (15 %), one by New Zealand and one by Switzerland. Of the 34 inquiries circulated in 2008, 21 (62 %) involved two or more Member States of the EU and EEA/EFTA countries (see Table 4.3.1).

Salmonella strains were associated with 32 (94 %) of the inquiries. Among the 32 *Salmonella*-related inquiries, nine (28 %) were Typhimurium and three (9 %) Enteritidis. The remaining two inquiries were related to *Shigella sonnei* and sorbitol-fermenting VTEC.

Of the 15 (44 %) inquiries with an identified source of exposure, 12 (80 %) identified additional cases in third countries, whereas of the 19 inquiries (56 %) for which the source of exposure was not known, only nine (47 %) resulted in the identification of related cases in third countries.

The *Salmonella* Agona inquiry from Ireland led to the detection of a large outbreak due to contaminated

cooked meat products, produced in Ireland and distributed to several European countries[7]. A total of 163 cases were detected by 19 September 2008[8]. The majority of the cases were identified in Ireland and the UK but six additional Member States were also able to identify outbreak-related cases in their countries as a result of the urgent inquiry.

Travel related outbreaks of *Salmonella* Enteritidis which involved six Member States were also identified through this network. The outbreak of *Salmonella* Typhimurium PTU292 in Denmark[9], and its subsequent sharing through the UIN led to the identification of cases in two more EU Member States.

Legionellosis clusters

In 2008, 85 clusters of legionellosis were recorded. Sources of information were the European Surveillance Scheme for Travel Associated Legionnaires' Disease (EWGLINET) (80 threats; 94 % of recorded clusters) and EWRS (five threats; 6 %). These figures are consistent with those reported from 2002 to 2007, ranging from 71 to 123 threats. The distribution by month is seasonal with 54 threats (64 %) occurring between April and August and a peak of 18 threats in July. The clusters originated in 24 countries in Europe, North and South America, Africa and Asia; most frequently in Italy (28 clusters; 33 %) and Turkey (12 clusters; 14 %).

Measles

Despite the decrease in incidence of measles in Europe since 2006, 11 outbreaks were reported in 2008 in the EU, resulting in secondary cases in other EU Member States. This represents an increase of reported outbreaks compared with 2007 (seven) and 2006 (two). Four of the outbreaks in 2008 were reported through EWRS.

One series of outbreaks is related to a large outbreak in Israel, ongoing since 2007, with more than 900 cases. It spread in religious communities in the UK with more than 500 cases reported in 2008. It spread further to the Netherlands with more than 140 cases and to Piemonte in Italy, with more than 1200 cases. Two cases with exposure in the UK were reported in Finland, which had been measles free since 1994. The implicated genotype was D4.

Another series of threats related to a large outbreak originating in Switzerland with more than 2000 cases reported since the beginning of 2008. This outbreak started in late 2006 and was the source of several European outbreaks in Austria (440 cases), Germany and France. Further spread from Austria resulted in three cases reported by Norway and more than 100 new cases in France. Both the Swiss and the Austrian outbreaks started in low vaccination coverage communities and spread to the general population. Most of the cases occurred in unvaccinated individuals. The reported genotype was D5.

In the context of the Euro 2008 football cup, a threat assessment was published on ECDC's website and Member States were encouraged to publish recommendations for measles vaccination for attendants of the Euro 2008 on their national websites[10].

Several additional outbreaks occurred involving genotypes D4 and D5:

- in Spain with more than 320 cases, spreading to Gibraltar (more than 100 cases) and to Ceuta on the African mainland;
- in France, with several clusters, some of them having had exposure in other European countries; and
- in Denmark and Ireland, related to importation from India.

Table 4.3.1. Distribution of rapid inquiries by number of countries involved

Number of EU and EEA/EFTA countries affected	Number of rapid inquiries circulated by			
	EU countries	Non-EU countries	Total	%
Single-country outbreak	8	5	13	38 %
2 countries	13	0	13	38 %
3 countries	4	2	6	18 %
7 countries	2	0	2	6 %
Total	**27**	**7**	**34**	**100 %**

Table 4.3.2. Distribution of rapid inquiries by origin of source of exposure

Origin of source of exposure	Number of inquiries circulated by			
	EU countries	EEA/EFTA countries	Total	%
No source identified	16	3	19	56 %
Domestic source	5	1	6	18 %
Non-domestic source from within EU	5	0	5	15 %
Non-domestic source from outside EU	1	3	4	12 %
Total	**27**	**7**	**34**	**100 %**

These outbreaks are highlighting the efforts needed to achieve the goal of measles elimination in the EU by 2010 as set by WHO.

Tuberculosis

In 2008, 11 tuberculosis-related threats were evaluated. The events were all linked to movement of patients suffering from tuberculosis: seven through air travel and three related to maritime travel. This denotes the increasing importance of travel-related tuberculosis exposure and the need to standardise international approaches for assessing these threats and managing related risks. No secondary cases were identified.

Rabies

Four threats related to rabies were monitored in 2008. Two were related to importation of rabid dogs: one from Morocco to France[11], which initiated an autochthonous chain of transmission of rabies in dogs; and the second one from Gambia to France. A case of imported human rabies was notified in December 2008 by the UK, following an exposure to animals in South Africa. Finally, a rabid fox was reported in October 2008 in northern Italy with additional infected animals identified.

These alerts stress the fact that even though western Europe was considered free of rabies, importation of rabid dogs from endemic areas as observed in France, or extension of wild rabies from endemic neighbouring countries as observed in Italy, still represent a threat and has important implications for the consumption of immunoglobulins and vaccines.

Haemorrhagic fevers

The outbreak of Ebola haemorrhagic fever in the Bundibugyo district in Uganda was declared controlled in February 2008. From September 2007, 75 patients were treated in isolation facilities and 804 contacts were followed up. This outbreak was caused by a previously unknown Ebola virus related, albeit distantly, to the Côte d'Ivoire Ebola virus and now proposed to be called Bundibugyo Ebola virus. The case-fatality ratio (25%) was estimated to be much lower than for other strains of Ebola virus and raised the concern of the possibility of increasing the sustainability of human-to-human transmission. Existing PCR tests were not able to detect this new variant of Ebola virus. A healthcare worker for a non-governmental organisation involved in the control of this outbreak was repatriated to the EU after a potential exposure to Ebola virus.

In October 2008, Ebola Reston virus infection was confirmed in pigs in the Philippines. This constituted the first detection of a filovirus in pigs. The virus isolated is genetically distinct from the Ebola Reston virus isolated in 1989 from monkeys. The affected pig farms in the provinces Pangasinan and Bulacan were quarantined and a voluntary ban on the export of pork was instituted. An international assessment in January 2009 was initiated. No conclusive evidence of pig-to-human transmission was provided.

In July 2008, a tourist returning from Uganda to the Netherlands died of Marburg virus infection. Contact tracing of more than 100 persons was initiated. No secondary infection was identified.

In July 2008, the first case of Crimean-Congo Haemorrhagic fever (CCHF) was confirmed in northern Greece. In response, ECDC organised an expert consultation. The number of CCHF cases reported from Turkey continues to increase with more than 1200 cases reported in 2008, compared with 717 cases in 2007.

In October 2008, a new Arenavirus was isolated from a resident of Zambia, who was transferred for treatment to the Republic of South Africa and caused secondary infections in four healthcare workers. ECDC published a threat assessment[12].

Chikungunya

Following the emergence of chikungunya transmission in Europe in 2007[13], active surveillance was implemented in the Emilia Romagna region. However, no cases of autochthonous chikungunya were detected in that region or elsewhere in Europe in 2008.

West Nile fever

Two neuroinvasive cases of West Nile virus infections were reported in Romania, three in Italy and 11 in Hungary, with dates of onset between August and September 2008. Active surveillance among humans was implemented. Concerns were raised regarding implications for blood donation deferrals in areas with ongoing transmission of West Nile virus to humans. ECDC will hold a technical meeting in 2009 to review surveillance and control of West Nile virus infections.

Burkholderia cepacia

Burkholderia cepacia is a Gram negative bacterium and a rare causative agent for pneumonia in immunocompromised patients or severely ill patients in intensive care units. It is also well known to affect persons with cystic fibrosis. The bacteria can be transmitted via the hands of healthcare workers from infected patients. It is intrinsically resistant to several groups of antibiotics like aminoglycosides and first- and second-generation cephalosporins. Outbreaks from liquid reservoirs and moist environments are described.

In October 2008, Germany reported on two nosocomial clusters in intensive care unit (ICU) patients. About 40 patients were colonised or infected by *B. cepacia* within two hospitals in Germany with several patients having developed pneumonia. The source of the cluster was identified as pre-moistured gloves used in the ICUs that were contaminated with *B. cepacia* in sealed, unopened batches.

An EWRS notice was released, because the same batches as the contaminated ones were exported to a distributor in one other country and the same product from unknown

batches to two other countries. A threat assessment was conducted jointly by Germany and ECDC.

The identification and withdrawal of contaminated batches with information provided concerning the appropriate use of the affected product, together with appropriate hygiene practices, limited the occurrence of further cases.

Pre-moistured gloves legally belong to cosmetics and are therefore not required to be sterile. Local infection control authorities should be aware that products containing liquids should be used with care in ICUs and in environments with patients highly susceptible for nosocomial infections.

There are two issues to highlight from this recent threat of *B. cepacia*. Firstly, the outbreak was only detected because of thorough analysis of routine hospital surveillance data and was subsequently reported to local authorities. Healthcare-associated infections are often underreported and therefore not recognised by local infection control authorities as issues for further risk assessment. Secondly, national authorities secured the risk assessment for other Member States through the EWRS, given that it could have an impact beyond the national level. Looking ahead, it could have benefited from earlier communication among Member States. Epidemic intelligence systems, such as the scheduled 'EPIS' communication platform that will be hosted at ECDC, may facilitate early risk assessment communication between Member States, at a level beneath EWRS.

Two non-infectious threats

Despite the fact that ECDC's mandate is confined to infectious diseases and diseases of unknown origin, two incidents occurred in 2008 which were detected and monitored by epidemic intelligence activities and, following the request of the European Commission, threat assessments were conducted.

Cobalt 60 contamination

In May 2007, Italy imported 30 tonnes of stainless steel coils from China which were found to be contaminated with cobalt 60. These steel coils were used to make chimney hoods, flues and tanks. Radiation levels were reported to be 20 microSieverts (μSV) per hour at contact and 4 μSV at 1 metre distance. It was concluded that the material did pose a risk to human health for someone who spends considerable time in close proximity to an object made of these contaminated coils, e.g. someone sleeping in a bed with a frame made from this steel would get an annual dose of 60–70 millisivert (mSV) which is much higher than the allowed dose for the general population which is below 1 mSV.

Melamine contamination of dairy products

On 10 September 2008, the media reported about 14 cases of kidney stones in infants, which is a rare event in healthy children. Less than two weeks later, the Chinese authorities reported nearly 40 000 cases of kidney stones mainly in children under two years of age (82 %) including three deaths. Apart from milk and milk products, including infant formula, many other food items were found to be contaminated in varying levels, some of them reaching high levels of contamination. Contaminated food items were identified in many countries including European Member States and tonnes of milk powder were recalled. Despite the fact that milk products originating from China have been prohibited by EU legislation since 2002, such products have been found in Spain and Portugal.

The ban on importation to the EU was extended to food items containing processed milk components in composite products such as candies, chocolates, biscuits, toffees and cakes. No cases of kidney stones in the EU were reported following this incident[14].

Mass gathering events

ECDC implemented additional epidemic intelligence activities during two main mass gathering events which took place in 2008: the Euro 2008 football cup and the Beijing Olympic Games.

Euro 2008 football championship

The epidemic intelligence activities during the Euro 2008 football championship comprised daily telephone conferences with the Austrian and Swiss national authorities and the production and distribution of daily communicable disease bulletins[15]. None of the 66 measles cases reported in Austria during the period of the championship and the following three weeks was related to Euro 2008. Among 23 diseases/conditions (e.g. food poisoning, *Legionella* infections, meningitis) which were under special surveillance, 488 individual cases were reported. A cluster of food poisoning affecting seven organising staff was the only event related to the championship.

Beijing Olympic Games

The Beijing Olympic Games took place between 8 and 24 August. ECDC was intensively monitoring threats during this period[16]. A threat assessment for travellers was conducted prior to the start of the games and monitoring of Chinese media was intensified. Daily, more than 50 news items were assessed, in collaboration with the German and French authorities.

Daily epidemic intelligence bulletins specific to the Olympics were prepared for more than 200 recipients. Twenty-four of 26 events detected were verified. Five of them were related to food poisoning, three to dengue fever and unknown diseases, two to hand foot and mouth disease, two to influenza, two to *Streptococcus suis* infection and nine to other events.

One European journalist developed severe pneumonia and was evacuated. SARS and influenza were ruled out.

4.4 Conclusions

In 2008, ECDC finalised the establishment of its epidemic intelligence activities, including the hosting and operations of the EWRS and development of the Threat Tracking Tool. This resulted in an increase of threats monitored and of threat assessments prepared and circulated to EU and EEA/EFTA Member States.

While most of the monitored threats were related to communicable disease events, the European Commission requested that ECDC prepare risk assessments for two threats not related to communicable diseases. One was in relation in the contamination of dairy products by melamine in China and resulted in a joint EFSA/ECDC threat assessment. This is consistent with the 2005 revised International Health Regulations which cover threats originating from communicable diseases as well as threats of chemical and radionuclear origin.

The importation of communicable diseases occurring outside of the EU may result in the establishment of local transmission such as the chikungunya outbreak observed in Italy in 2007. In 2008, local transmission of rabies among dogs in France was observed following the illegal importation of rabid dogs. A case of Marburg haemorrhagic fever in the Netherlands and a case of human rabies in the UK were also reported with no secondary transmission.

The spread of a virus among the general population may result from importation through 'seeding events' related to travel to endemic areas. This was the case with the measles outbreak originating from outbreaks in Israel or in Switzerland. Similarly, large outbreaks of hepatitis A in Latvia and the Czech Republic spread to the general population after an initial transmission among at-risk groups.

The emergence of an oseltamivir-resistant strain of A(H1N1) influenza virus first identified in the EU in 2008, and subsequently identified in the US at the start of the 2009 influenza season, stressed the need for a global monitoring of antiviral resistance, a review of guidance for healthcare providers and influenza pandemic preparedness strategies.

Large mass gathering events such as football championships or Olympic Games have not been associated with increased transmission of communicable diseases. However, outbreaks of shigellosis were observed during a cultural festival in Portugal in 2008. This highlights the need to consider the possibility of disease outbreaks whenever planning for such mass gathering events.

In 2008, several communicable diseases experienced a change in their epidemiological pattern which required a review of existing regulations and guidance. This was the case with an increase in hepatitis A infections in several EU Member States as well as in detection of West Nile infection in Hungary stressing the need to review the deferral procedures for blood donation. Similarly, the emergence of wild or autochthonous transmission of rabies in several EU and EEA/EFTA Member States resulted in an increased need for post-exposure prophylaxis, including immunoglobulins, which raised concerns about the availability of these products in a context of potential shortage.

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Annex

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, 2007/875/EC and 2009/312/EC.

1 Communicable diseases and special health issues to be progressively covered by the community network as referred to in Article 1 [of Decision 2000/96/EC]

1.1 For the communicable diseases and special health issues listed in this Annex, epidemiological surveillance within the Community network is to be performed by the standardised collection and analysis of data in a way that is to be determined for each communicable disease and special health issue when specific 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
Tetanus

2.2 Sexually transmitted diseases

Chlamydia infections
Gonococcal infections
HIV infection
Syphilis

2.3 Viral hepatitis

Hepatitis A
Hepatitis B
Hepatitis C

2.4 Food- and waterborne diseases and diseases of environmental origin

Anthrax
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 Creutzfeldt-Jakob's disease

2.5.2 Airborne diseases

Legionellosis
Meningococcal disease
Pneumococcal infections
Tuberculosis
Severe Acute Respiratory Syndrome (SARS)

2.5.3 Zoonoses (other than those listed in 2.4)

Brucellosis
Echinococcosis
Rabies
Q Fever
Tularaemia
Avian influenza in humans
West Nile virus infection

2.5.4 Serious imported diseases

Cholera
Malaria
Plague
Viral haemorrhagic fevers

3 Special health issues

3.1 Nosocomial infections

3.2 Antimicrobial resistance