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Summary of key publications

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Introduction

In 2008 the European Centre for Disease Prevention and Control (ECDC) published a total of 21 scientific documents. Highlights comprise the *Framework action plan to fight tuberculosis in the European Union*, guidance on policy options for introducing vaccination against human papillomavirus (HPV) and the two surveillance reports: *Annual epidemiological report on communicable diseases in Europe 2008* and *HIV/AIDS surveillance in Europe – 2007*. The latter report was for the first time produced jointly with the World Health Organization Regional Office for Europe (WHO EURO) and covers the situation in the EU and EEA countries, as well as that in the additional 23 countries of the WHO EURO region.

Summaries of selected ECDC documents, like the ones above, have been compiled in order to make them available to policy-makers in all EU languages. They reflect the spirit of the original publications, but some important nuances may have been lost in the summarising process. Readers who wish to have a more detailed view should consult the full text of the documents, which are available online at: http://ecdc.europa.eu/en/Publications

A list of all ECDC publications in 2008 is in Annex. All of them are available electronically from the link above, with a short description of the respective content. Selected reports are also available in print. To receive any of them in hard copy, please email publications@ecdc.europa.eu

Technical report

1. Review of chlamydia control activities in EU countries

(Published in May 2008)

This report illustrates the scope and the findings of the project called Screening for Chlamydia Review in Europe (SCREen), arguably the biggest study to date on chlamydia control activities in the EU. The project was conducted between November 2006 and August 2007, and collected data from EU Member States, EU candidate countries, EFTA member states, and the USA.

Through a postal questionnaire survey of all EU Member States and candidate countries and in depth country visits to public heath officials and healthcare providers in selected Member States, SCREen collected detailed information about chlamydia diagnosis, chlamydia screening, case management, chlamydia prevalence studies, and a host of related public health topics. The project provides deep insights into the strategies that national public health systems employ to stem the tide of chlamydia infections.

The overall aim of this project was to conduct a review of chlamydia control programmes and activities in the Member States and make recommendations for enhancing chlamydia prevention and control in the region. Specific objectives were:

- to collect systematic information about public health activities related to the control of *C. trachomatis* in EU Member and candidate States, neighbouring European countries, and the USA;
- to collate information from the same countries about demographic and economic indicators, health systems, chlamydia prevalence and sexual behaviour surveys;
- to create an electronic database as a repository for the data;
- to collect in-depth information about chlamydia control activities from selected European Member States; and
- to make recommendations to ECDC for public health action and for further research.

Of 34 selected countries, there were responses from 29 European countries and the USA (overall response rate 88%). No data were received from Cyprus, Slovakia, Poland and Croatia. Among the most important findings of the survey were:

- 17 of 29 participating European countries had at least one published clinical practice guideline recommended by a national body that dealt with some aspects concerning the case management of people infected with chlamydia. Three EU Member States (Bulgaria, Greece and Finland) were in the process of publishing or developing guidelines.
- Chlamydia testing was available at gynaecology practices or clinics in all participating countries; in 23 countries it was part of primary care. In five countries, chlamydia testing was available from pharmacies or other over-the-counter outlets.
- Where partner notification was provided, it was reported most frequently to be initiated by the practitioners themselves or by referral to a specialist clinic.
- Nucleic acid amplification tests were available to some extent in all but one country. In nine countries, fewer than 50% of samples were tested using nucleic acid amplification tests.
- Most countries had a system for reporting diagnosed chlamydia infections to public health authorities, but about a third did not publish these data routinely.
- In 13 countries, routine data about clinical complications that can be caused by chlamydia are available.
- Sexual behaviour and chlamydia prevalence surveys have been conducted in eight countries and population chlamydia prevalence surveys have been conducted in seven countries.

In order to categorise countries, the SCREen project also developed a typology of chlamydia control activities, based on the principles of sexually transmitted infection control. The categories of chlamydia control activity were: no organised activity (13 countries: Bulgaria, Finland, Greece, Ireland, Liechtenstein, Luxembourg, Malta, Portugal, Romania, Slovenia, Spain, Switzerland and Turkey); case management (five countries: Austria, Czech Republic, Germany, Italy and Lithuania); case finding (three countries: Belgium, France and Hungary); opportunistic testing (six countries: Denmark, Estonia, Iceland, Latvia, Norway and Sweden); organised screening (two countries: the Netherlands and the UK (England only)).

The results showed that there were two European countries with an ongoing (England, UK, opportunistic) or pilot (the Netherlands, proactive) screening programme for chlamydia. Another nine countries stated plans to introduce a screening programme with opportunistic, proactive, or undecided organisation. Five of these countries are

among those with no current case management guideline for chlamydia. In addition, chlamydia screening restricted to pregnant women is practised in Estonia and Latvia, and postal invitations for chlamydia screening are sent annually to 18–19 or 21–22-year-olds in two regions in Denmark.

This typology developed by the SCREen project could be used in the future to monitor the intensity of chlamydia control activities at the country level and to assist decision-making on which activities should be strengthened or introduced.

ECDC Guidance

2. Guidance for the introduction of HPV vaccines in EU countries

(Published in January 2008)

This document lays down the scientific basis for the introduction of human papillomavirus (HPV) vaccines in order to help European Union (EU) Member States to make policy choices. It highlights the issues to be considered and provides a list of policy options for each of these issues.

This guidance has been developed by a Scientific Panel of experts, set up and coordinated by ECDC, and reviewed by the Advisory Forum of ECDC.

Cervical cancer is the second most common cancer after breast cancer affecting women aged 15–44 in the European Union (EU). Each year, there are around 33 000 cases of cervical cancer in the EU, and 15 000 deaths. The primary cause of cervical cancer is a persistent infection of the genital tract by a high-risk human papillomavirus (HPV) type.

Genital HPV infections are very common and acquired soon after onset of sexual activity. Most of these infections are spontaneously cleared. However, persistent HPV infections with a high-risk HPV type can cause cellular changes in the cervix that can result in cervical cancer. High-risk HPV types are also associated with other anogenital cancers, and head and neck cancers in both men and women. Some low-risk HPV types cause genital warts in both men and women.

The human papillomavirus vaccine

Two prophylactic HPV vaccines have been licensed in Europe: the quadrivalent vaccine, Gardasil® (Sanofi Pasteur MSD) and the bivalent vaccine, Cervarix® (GlaxoSmithKline Biologicals). Both vaccines are made from virus-like particles and are non-infectious. Both vaccines have a good safety profile. Both vaccines protect against the high-risk HPV types 16 and 18, responsible for an estimated 73% of cervical cancer cases in Europe. Gardasil also protects against HPV 6 and 11, which cause most cases of genital warts. In large phase III trials both vaccines have been shown to prevent more than 90% of precancerous lesions associated with types 16 or 18 among HPV-naive women. The vaccines are given in three doses over a six-month period.

HPV vaccines and cervical cancer screening

Well-organised cervical cancer screening programmes that achieve high coverage and include effective follow-up and treatment of women with abnormal cytology have been proven to reduce cervical cancer incidence by over 80%. Organised screening programmes are more successful than opportunistic screening in reaching the women most at risk, in establishing mechanisms for quality control, and in monitoring standardised measures of activity and impact.

The HPV vaccine offers a new, complementary tool to improve the control of cervical cancer. However, it does not eliminate the need for cervical cancer screening even for women vaccinated against HPV types 16 and 18 who will still be at risk from other high-risk types. National authorities should continue their efforts to organise and improve the coverage and quality of screening programmes, independent of vaccine introduction. Organising screening programmes where they do not exist appears to be a priority.

HPV vaccines will have an impact on the effectiveness of existing screening programmes, which will need to be monitored closely. Widespread vaccination will result in some decrease of HPV-related cytological abnormalities. Also, vaccinated women might have a false sense of security, resulting in lowered attendance at screenings. Women need to be informed and motivated to attend screening programmes, even if they are vaccinated. One of the most important challenges will be to achieve synergy between vaccination and screening in a cost-effective way and with the maximum benefit for women.

Who should be vaccinated? Determining target populations for HPV vaccination

To optimise the impact of the new vaccines on HPV-associated disease, the primary target group to consider for routine vaccination is girls at the age just before sexual activity (and therefore HPV infections) begins to become common in that group. Setting the age of vaccination below this age would not prevent many infections and should be avoided until there is evidence that the vaccine has a long duration of protection (more than 15–20 years). Targeting slightly older girls and young women with catch-up vaccination at the start of a routine

vaccination programme is likely to accelerate the impact of the vaccination programme and increase vaccination benefits in the short term.

Country-specific factors will be important in determining the exact age for routine vaccination, and the ages for any catch-up vaccination. These factors include: average age of sexual debut, age-specific prevalence of HPV infections (when available), vaccine delivery strategies, and acceptance of vaccination by the target group (and their guardians).

Selective vaccination of 'high-risk' groups alone seems unlikely to be either practical or more effective than vaccinating all girls. However, the potential role of selective/opportunistic vaccination of some high-risk individuals in addition to routine vaccination may need further consideration.

Strategy options for HPV vaccine delivery in EU countries

School-based immunisation is likely to be the lowest-cost option for delivery of HPV vaccines to pre-adolescent girls. However, local issues, such as whether there are school-based health services, funding arrangements for vaccine purchase and administration and obtaining parental consent may affect the feasibility of this approach.

Clinic or practice-based immunisation is a universally available additional or alternative option for HPV vaccine delivery. This may be more expensive than school-based immunisation and monitoring of vaccine uptake may be more difficult here.

Sexual and reproductive health and other medical clinics provided specifically for women may be important sites for immunisation. However, girls may not visit these before the onset of sexual activity and so these are likely to be useful mainly for catch-up programmes for older adolescents and women. Other settings may exist for provision of HPV vaccine to girls in 'hard to reach' communities and for opportunistic immunisation when girls visit medical services for other reasons. Using these might help improve overall uptake.

Existing immunisation programmes for adolescents and other ongoing health promotion activities should be taken into account when planning delivery strategies for HPV vaccine. Wherever vaccination is provided, it is vital that the message that immunisation is an adjunct, not a replacement for cervical screening, is communicated.

Modelling costs and outcomes of HPV vaccination

HPV vaccination should be evaluated not only for its efficacy, but also from an economic point of view. Economic evaluation aims to determine whether the cost incurred by society to save a year of life adjusted by its quality (quality-adjusted life year or QALY) due to HPV vaccination is similar to that of other commonly accepted interventions in the medical care sector.

Economic evaluations are not entirely exportable, due to the variability of costs and healthcare systems in different countries. Therefore, an effort should be made by each country to perform such an evaluation (also taking into account the kind of cervical screening in place) before making a decision on the best strategy to prevent cervical cancer.

Economic evaluations made to date seem to indicate that HPV vaccination of pre-adolescent girls (with or without catch-up of older age groups) has an acceptable cost-effectiveness profile. The results are more favourable when dynamic simulation models are used, where the effect of vaccination on transmission rates is also taken into account.

Monitoring and evaluating the impact of HPV vaccination

Post-licensure evaluation of the HPV vaccines will need to determine the vaccine uptake and compliance, long-term efficacy and effectiveness of the vaccines, integration of vaccination with other strategies such as organised cervical cancer screening, and vaccine safety. Coordination between vaccine monitoring and cancer control programmes will be critical to assess the impact of the vaccine and its benefits compared with other existing prevention interventions such as screening.

Methods to assess the impact of vaccines on clinically relevant disease endpoints might include surveillance for vaccine-related HPV infection, precancerous lesions, or cancers through established or newly developed laboratories or cytology or cancer registries.

Phase IV trials have also been proposed for evaluating the HPV vaccine impact on public health. These can provide further information about incidence of abnormal and precancerous cells as well as cancer incidence and mortality. They could also be useful for assessing potential integration of cervical screening and vaccination programmes. Monitoring based on systematic registration of HPV vaccination and linkage studies using relevant healthcare registries can be used to assess vaccine effectiveness under field conditions.

The minimum set of information to monitor HPV vaccination should include data on vaccine coverage, monitoring of adverse events following immunisation and at least a sentinel surveillance of impact on precancer lesions.

3. Priority risk groups for influenza vaccination

(Published in August 2008)

At the request of the European Commission, ECDC has conducted a scientific public health review concerning influenza risk groups[1] and other groups that are offered immunisation against seasonal influenza in Europe. The specific objectives of this study were:

- to describe the risk groups recommended for immunisation in the EU/EEA countries, along with details of other groups for which immunisation is offered;
- to summarise the supporting evidence for the risk groups that are recommended for vaccination;
- to suggest a prioritisation of risk groups in the EU, based on transparent criteria;
- to broadly estimate the number of people in EU countries in priority risk groups; and
- to identify areas for further work, including research and development.

The descriptions of the influenza risk groups and the other groups to whom immunisation is currently offered came from a survey conducted in 2008 by the VENICE project working in conjunction with ECDC. According to the criteria developed by ECDC/VENICE, risk groups should be well-defined groups shown to be more likely to develop severe disease than others. In addition, there should be published evidence that their risk of becoming infected was reduced by immunisation. On the first criterion, the work was hampered by the fact that currently no routine surveillance is conducted in Europe for severe influenza-associated morbidity and mortality. Occupational health criteria (primarily immunising health workers) without demonstrated benefit to patients were noted but given a lower weight — with the exception of one group of workers, those caring for elderly people in residential settings where there is good evidence of this protecting patients. Finally, the degree of consensus among EU countries was noted.

The analysis of literature indicates that there are two risk groups where routine annual immunisation with seasonal influenza vaccine is justifiable on scientific and public health grounds in Europe. These are:

- older age groups, usually 65 years and older; and
- people with chronic medical conditions, particularly diseases in the following categories:
  - chronic respiratory diseases;
  - chronic cardiovascular diseases;
  - chronic metabolic disorders;
  - chronic renal and hepatic diseases;
  - persons with deficient immunity (congenital or acquired);
  - young people taking long-term salicylate therapy; and
  - persons with conditions which compromise respiratory function.

These are also the only risk groups for which there is consensus across European Union countries. The exact age definition of the elderly age group is somewhat arbitrary (above 64 years, above 59 years, etc.) and a few countries already depart from the over-64-years criterion, depending on national circumstances and analyses.

Some good arguments exist for offering immunisation to two other risk groups: pregnant women and children (variously defined as 'below age two' or 'below age five'). However, for both groups there is only limited information available in Europe, both on risk and on effectiveness, and there is as of yet no European consensus. Data are insufficient for these two groups to be identified as risk groups at the EU level. As more information and data become available, these groups will have to be re-evaluated. It is especially important that data on the impact of immunisation in these groups are collected so that a consensus can be reached after further evaluations.

There are also groups for which immunisation is often offered but that are not in risk groups and for which there is no strong public health case. For example, there is considerable EU consensus that all healthcare workers with patient contact should be immunised for occupational health reasons (protecting the workers). There is strong trial-based evidence that immunising those caring for elderly people in residential homes indirectly benefits the patients, protecting them against severe outcomes of influenza infection. However, it is notable that most health workers in Europe decline such offers of immunisation. There is no good evidence of benefits from offering immunisation to people sharing households with people in the two main risks groups.

[1] Influenza risk groups are here defined as groups of people who are more likely to experience severe disease if infected and who are also known to benefit from vaccination by reducing the risk of infection.

Broad estimates are made as to the numbers and percentages of people who belong to the two main risk groups in EU countries. This study applied one method that suggested that EU countries currently need to immunise about 25% of their populations every year as they belong to at least one of the two major risk groups. Other national estimates have come up with similar percentages. The national range is from 19% to 28%, depending on the percentage of elderly people in the population in each country. The EU total is estimated to be around 125 million people, split two-thirds (around 84 million people who are 65 years or over) to one-third (around 41 million younger persons with chronic illness). These figures will rise inexorably over time because of aging populations and the success of modern medicine in permitting people with chronic illness to live longer productive lives.

This study recommends a number of priorities for European development and research:

- surveillance development: routine surveillance for severe manifestations of influenza in Europe (hospitalisations and death);
- routine monitoring of the effectiveness of influenza vaccination, especially in reducing the risk of severe disease and death from influenza;
- estimation of the burden of disease from influenza in pregnant women and children, and evaluation of the impact of immunising pregnant women and children of all ages in Europe;
- further investigations to demonstrate whether or not immunisation of healthcare staff and household members reduces risk in vulnerable people in the two main risk groups;
- development of projects for stronger promotion of influenza immunisation among healthcare workers, both for their own benefit and for that of their patients;
- specific investigations as to whether or not there are higher levels of risk of severe disease from influenza infection in HIV-infected persons in Europe and similar studies for other more common conditions such as mild asthma;
- health impact and health economic studies concerning influenza immunisation, e.g. on persons above the threshold age for immunisation, acknowledging that different countries need to set their own age thresholds;
- investigation of the impact of across-the-board immunisations to determine any indirect benefit from reducing overall levels of transmission.

Surveillance reports

4. Annual epidemiological report on communicable diseases in Europe 2008 – Report on the state of communicable diseases in the EU and EEA/EFTA countries

(Published in December 2008)

ECDC publishes every year its European Annual Epidemiological Report (AER). The second edition, published in 2008, contains an overview of communicable disease surveillance from 2006 in a tabular form with limited comments, and provides a description of acute threats to human health from communicable diseases in 2007. In addition, the report also focuses on a comprehensive description of healthcare-associated infections (HCAI), including antimicrobial resistance (AMR).

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

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

MAIN TOPIC OF THIS EDITION

Healthcare-associated infections (HCAI)

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

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

Out of 51 621 patients staying more than two days in the intensive care unit, 6.8 % acquired a pneumonia. The incidence varied from 1.5 % in unventilated patients to 22.2 % in patients ventilated for one week or more. The most frequent microorganism isolated in ICU-acquired pneumonia was *Pseudomonas aeruginosa* and in ICU-acquired bloodstream infections coagulase-negative staphylococci.

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

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

Antimicrobial resistance (AMR)

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

Streptococcus pneumoniae

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

Staphylococcus aureus

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

proportions stabilising in some of the high-endemic countries. In northern Europe the proportion of MRSA remained < 4 %.

Escherichia coli

Increasing level of fluoroquinolone resistance in Europe was particularly alarming.

Pseudomonas aeruginosa

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

SUMMARY OF COMMUNICABLE DISEASE SURVEILLANCE 2006

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

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

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

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

Sexually transmitted infections

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

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

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

Influenza

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

Tuberculosis

Tuberculosis (TB) incidence continued to decline in the indigenous populations of almost all Member States, where it is mostly a disease of old people, now being re-activated after a primary infection many decades ago. However, recent demographic, political and socioeconomic changes in Europe, such as increasing migration, are affecting the situation. As a result, TB is becoming more common in migrants, the homeless, poor people in inner cities, prisoners, people living with HIV, and drug users in the EU.

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

Vaccine-preventable diseases (VPD)

Since the introduction of the universal childhood vaccination with *Haemophilus influenzae* type B (Hib) vaccine in most EU countries, the incidence of invasive Hib disease has fallen and continues to be low for the whole population in the EU countries (in 2006 below 1 per 100 000).

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

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

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

Food- and waterborne diseases

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

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

SUMMARY OF THREATS 2007

In 2007, ECDC monitored 168 threats of which:

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

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

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

CONCLUSIONS

The priorities for communicable disease prevention and control in the EU have not changed substantially since the previous edition of the AER.

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

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

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

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

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

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

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

5. HIV/AIDS surveillance in Europe

(Published in December 2008)

Key points

HIV infection remains of major public health importance in Europe, with evidence of increasing transmission of HIV in several European countries.

- In 2007, 48 892 newly diagnosed cases of HIV infection were reported by 49 of the 53 countries in the WHO European Region (data not available from Austria, Italy, Monaco or the Russian Federation). The highest rates were reported from Estonia, Ukraine, Portugal and the Republic of Moldova. 5 244 cases of AIDS were reported by 48 countries (data not available from Italy, Kazakhstan, Monaco, the Russian Federation or Ukraine).
- In 2007, 26 279 newly diagnosed cases of HIV infection were reported in the countries of the European Union and the European Free Trade Association (in this report referred to as EU/EFTA) (data not available from Austria or Italy). In the EU/EFTA, the highest rates were reported from Estonia, Portugal and Latvia; the lowest rates were reported by Slovakia, the Czech Republic and Romania.
- In the EU/EFTA, the predominant modes of transmission for HIV infection appear to be sex between men followed by heterosexual contact. Around 40 % of the cases reported to be heterosexually acquired were diagnosed in individuals originating from countries with generalised HIV/AIDS epidemics.
- In the three geographical areas of the WHO European Region, injecting drug use is still the main mode of transmission in the East, while in the Centre, the predominant mode of HIV transmission is heterosexual contact, although the number of HIV cases reported among men who have sex with men has also increased. In the West, the predominant mode is sex between men, followed by heterosexual contact, when cases in persons originating from countries with generalised epidemics are excluded.
- Overall, despite incomplete reporting, the number of reported newly diagnosed cases of HIV infection in 2007 has increased while the number of diagnosed AIDS cases continued to decline in the WHO European Region overall, although in the East the number of AIDS cases has continued to increase. Since 2000, the rate of reported newly diagnosed cases of HIV per million population has almost doubled from 39 per million in 2000 to 75 per million in 2007, based on the 44 countries that have consistently reported HIV surveillance data.
- The total number of HIV tests performed annually for diagnostic purposes, unlinked anonymous tests and blood donations excluded, has increased between 2003 and 2007 in most countries.
- The data here presented have some limitations, due in particular to missing data from a number of countries. This limits the conclusions that can be drawn with respect to the size of the HIV and AIDS epidemics in Europe. If these data would have been taken into account, the overall numbers of cases could roughly be doubled for 2007.

Recommendations for HIV/AIDS surveillance

HIV/AIDS surveillance data are vital to monitor the trends of the HIV epidemic and evaluate the public health response. Therefore all countries in Europe should:

- implement case-based national reporting systems for HIV and AIDS cases and ensure its completeness and timeliness;
- improve the quality of data reported, especially regarding probable routes of transmission; and
- promote comprehensive HIV surveillance including routine behavioural surveillance and HIV prevalence studies.

Recommendations for public health

Interventions to control the epidemic should be evidence-based and adapted to the country and geographical area. From the surveillance data available it is reasonable to recommend the following:

- East: interventions to control HIV among injecting drug users should be the cornerstone of HIV prevention strategies; measures should also be strengthened to prevent heterosexual transmission, targeted especially at those with high-risk partners.
- Centre: prevention should be adapted to each country's circumstances in order to maintain their epidemiological advantages.
- West: interventions to control HIV among men who have sex with men should be the cornerstone of HIV prevention strategies, e.g. renewed safer sex campaigns targeted at men who have sex with men; interventions for prevention, treatment and care must be adapted to reach migrant populations.
- In all sub-regions, HIV testing should be promoted to ensure early access to treatment and the counselling to help prevent or reduce further transmission and improve the longer term treatment outcomes for the individuals concerned.

Special reports

6. Framework Action Plan to fight tuberculosis in the European Union

(Published in March 2008)

TB is a serious infectious disease in humans, most commonly acquired following inhalation of bacteria in droplets produced by a person with pulmonary disease. Although effective treatment exists, inadequate treatment or insufficient compliance may result in failure of cure, early relapse or the development of drug-resistant TB.

In the EU the incidence of TB has declined steadily over the past decades. Figures from the EU 27 are among the lowest in the world although higher than in other industrialised countries like the USA and Australia. There is no room for complacency, however, as a similarly favourable epidemiological situation was described in several countries decades ago, resulting in a decrease in awareness and the reduction of resources and services for TB prevention and control. Consequently there was a re-emergence of the disease fuelled by the HIV epidemic and the development of multidrug-resistant TB (MDR TB). This required renewed efforts in both control programmes and activities to ensure early diagnoses, availability of appropriate therapy, and completion of treatments.

Given this situation, the European Union's (EU) Health Commissioner, Markos Kyprianou, called on the European Centre for Disease Prevention and Control (ECDC) in March 2007 to develop a proposal for an action plan to fight tuberculosis (TB) in the EU.

The long-term goal of the TB Framework Action Plan is to control and ultimately eliminate TB in the EU. Most of the activities aimed at the reduction of the burden of tuberculosis rely on national efforts, with the EU institutions supporting the Member States in their work. The aims of the plan are to:

- increase political and public awareness of TB as a public health issue in the EU;
- support and strengthen EU Member States' efforts against TB in line with the national epidemiological situation and challenges;
- contribute to the control of TB in the EU, by supporting those countries from which imported cases originate.

This proposal is based on four principles: ensure prompt and quality care for all; strengthen capacity of health systems; develop new tools; and build partnerships and collaboration with countries and stakeholders. Eight areas for strategic development were organised around these principles. In summary, these are the recommended objectives/actions for each of the eight areas:

Area 1. TB control commitment, TB awareness and capacity of health systems

1. To increase Member States' political and resource commitment to plans for TB control as part of the overall public health strategies.
2. To strengthen the capacity of Member States' health systems to carry out activities for TB control and elimination.

Area 2. Surveillance

1. Evaluate the epidemiological characteristics and the spread of TB in the population over time and geography, both within the Member States and across Europe as a whole.
2. Monitor the performance of TB control activities and feed this information into the decision-making cycle to allow for appropriate interventions to upgrade the national and European TB plans.
3. Identify and describe vulnerable populations at increased risk of TB and unfavourable prognosis to which targeted public health activities should be addressed.

Area 3. Laboratory services

1. Develop and implement high quality modern laboratory services which support clinical, public health, and research needs in TB.
2. Ensure safe, accurate, quality laboratory services and appropriately trained staff to perform the work.
3. Ensure investment in sustaining laboratory services long term.

Area 4. Prompt and quality TB care for all

1. Promptly diagnose all cases and ensure proper TB treatment and care.
2. Tailor interventions to specific epidemiological situations and vulnerable populations to ensure maximum effectiveness in TB control at all levels.
3. Achieve consistent application of outbreak management measures.
4. Ensure that individual health needs of all TB patients are met.

Area 5. MDR- and XDR TB

The following objectives are addressed to all Member States but special attention should be paid by those countries where the problem of MDR- and XDR TB is greatest.

1. Optimise and strengthen surveillance and monitoring of MDR- and XDR TB.
2. Specifically improve TB drug-sensitivity testing services within the EU in the context of strengthened TB laboratory services.
3. Improve care and management of patients with MDR- or XDR TB including infection control and contact tracing/prophylaxis practices.
4. Improve access to, and availability of, first and second-line drugs, ensuring a rational use of TB drugs.

Area 6. TB/HIV co-infection

1. Decrease the burden of TB/HIV co-infection in the EU by strengthening the collaboration between TB and HIV/AIDS plans or the appropriate services within the health system.
2. Promote research activities and clinical studies at the EU level related to TB/HIV co-morbidity.

Area 7. New tools for TB control

1. Set priorities for basic, applied and operational research in the EU.
2. Provide funding and coordination.

Area 8. Build partnership and collaboration with countries

1. Ensure that TB remains high on the political, technical and research agenda of EU and national public institutions, bearing in mind competing priorities for limited resources.
2. Help remove stigmatisation, ensure early and rapid detection of TB, MDR TB and XDR TB and encourage people to come forward to be treated in line with the TB Patients' Charter for Tuberculosis Care.
3. Ensure that the subsequent treatment is available, accessible, affordable, appropriate and — most importantly — successful.
4. Further develop collaboration and coordination jointly between ECDC, EC, individual countries, WHO and other stakeholders.

7. Surveillance of communicable diseases in the European Union, a long-term strategy: 2008–2013

(Published in May 2008)

This long-term vision and strategy on the future surveillance of communicable diseases in the EU has been developed to help direct the decisions for the long-term development of the European surveillance system. This strategy covers the years until 2013, which aligns it with ECDC's multi-annual strategic plan (approved by the ECDC Management Board in June 2007). Moreover, synergetic effects with ECDC's laboratory strategy are foreseen.

The strategy attempts to define the terms and scope of surveillance, its aims and objectives, and its organisational requirements. It also outlines ways to support the Member States and presents an implementation roadmap.

The overall goal is to contribute to reducing the incidence and prevalence of communicable diseases in Europe by providing relevant public health data, information and reports to decision makers, professionals and health care workers in an effort to promote actions that will result in the timely prevention and control of communicable diseases in Europe. High validity and good comparability of communicable disease data from the Member States are imperative to reach this goal.

A more coordinated approach to surveillance will:

- improve the regional comparability of data;
- reduce the complexity in surveillance across Europe;

- allow to tackle surveillance in a synergistic way;
- avoid duplication of work;
- provide better quality public health evidence in the long term, thanks to more relevant and reliable data;
- make it easier to strengthen the national surveillance systems;
- most likely be economically more efficient and sustainable;
- allow easier access to, and use of, the data;
- enhance the detection and monitoring of international outbreaks;
- contribute to capacity building; and
- ensure the inclusion of diseases into surveillance and research agendas according to European priorities.

ECDC is developing a system for infectious disease indicator-based surveillance at the European level, dubbed 'The European Surveillance System (TESSy)'. TESSy will be a valuable tool to improve the collection, validation, storage and dissemination of surveillance data from the EU Member States and EEA countries. Initially, TESSy will collect a reduced set of core variables important for the routine surveillance of infectious disease cases. Once TESSy is generally accepted and used as the regional standard database, ECDC's long-term goals of further reducing the complexity and workload for all participants will be supported by:

- standardising data collection on infectious disease surveillance;
- providing a 'one-stop shop' for reporting and retrieving data for the Member States;
- standardising the reports based on surveillance data; and by
- providing a consistent and easily available overview of the current situation in the EU.

The current problem of double reporting of some diseases, with various regional organisations involved in the surveillance of diseases — like WHO/Europe or EMCDDA — will also be addressed, with the aim to reduce and possibly eliminate the duplication of efforts.

An interim procedure on the principles of collaboration on data exchange between ECDC and Member States as well as ECDC and the Dedicated Surveillance Networks (DSNs) will have to be established to clearly define the role of data providers and data users, both in Member States and ECDC (and other parties, e.g. WHO). This interim procedure should also include the procedures for publishing the results of data analysis, among other details. Based on the experience with this interim procedure, a more detailed, final, longer-term procedure will be established with the involved stakeholders.

The future collaboration with the disease-specific experts (nominated by the Competent Bodies) will be structured in the following way: the diseases/pathogens will be divided into six main groups. Where necessary, more focussed (disease-specific) subgroups will be established within any of these six groups or task forces. There will be annual meetings for each of these six main groups where issues pertinent to the surveillance of the whole disease group will be discussed. If necessary, more disease-specific 'parallel session' symposia can be held at the same time. For each of the six main disease groups/task forces, a coordinating group will be established, and these groups will take over many of the functions carried out by the former DSN steering groups.

Good laboratory services in the countries are essential for strengthening EU-level surveillance. ECDC will build on the work already done and support the strengthening of laboratory capacity in the Member States, EEA/EFTA countries and the candidate countries in collaboration with the Commission, the ECDC Competent Bodies, and the Member States' National Microbiology Focal Points.

ECDC will work hard to ensure that every country has national reference level laboratory (NRL) services available, either directly or indirectly, enabling all countries to confirm the diagnosis, isolation and further characterisation of pathogens — as a basis for reporting confirmed and probable cases during normal times and emergencies. ECDC will link with these NRLs and help them to integrate their data with the epidemiological (and clinical) data at the national level. Quality assurance of laboratory methods is essential to ensure valid and accurate data, and European standards will also be promoted over this period.

ECDC will implement its surveillance strategy in two phases: phase one is a transition period that will last until 2010, with its main focus on the gradual integration of the current DSNs Surveillance of communicable diseases in the European Union with ECDC; during phase two (2010–2013), ECDC will have taken over full responsibility of surveillance and can subsequently focus on developing and consolidating the highest quality systems possible for Europe.

In order to keep this strategy and its objectives relevant and up-to-date, it will be re-visited by Member States and key stakeholders, so that emerging strategies and new evidence can be incorporated as required.

Meeting reports

8. Infectious diseases and social determinants

(Meeting held in April 2007, report published in February 2008)

This report refers to a workshop on the social determinants of infectious disease convened by ECDC and attended by researchers from the infectious disease and social determinant fields. The main objectives of the workshop were to:

- assess the importance of social inequality in the burden of communicable disease;
- identify best practices with respect to addressing health inequalities, used in the field of infectious disease prevention or management;
- develop strategies and measures to address health inequalities arising from social determinants.

The report focuses on key themes and discussion areas of the workshop and is organised into five main sections:

- social determinants of communicable disease;
- disease-specific issues;
- targeted interventions aimed at overcoming social inequality;
- policies to overcome social inequality; and
- identifying priority actions.

During the course of the workshop, it was observed that there is a social gap in the burden of communicable disease that is at least as big as that in non-communicable disease. The gap may be even larger for specific groups and specific infections. Though in general marginalised groups are most affected, the social gradient does not affect all infections in the same way: the highest socio-economic groups may be more at risk of certain infections because of certain high-risk behaviour.

There is a clear need to know more about the burden of communicable disease in Europe so as to determine what should be the priorities in assessment, research, interventions and policy change. This mapping exercise has been set in motion, for example with regard to TB.

A recommendation that came out of the workshop was to complement infectious disease surveillance with one or two social determinants. This can provide basic knowledge and more detailed knowledge can then be obtained from surveys. Infectious disease biological markers can be included within standard health surveys, possibly within European surveys.

Another conclusion of the workshop was that social determinants are no longer on the research agenda. They need to be put back on there because there is a knowledge gap on the determinants that drive infections in different regions and populations. An important, but often overlooked, parameter is the context in which people live and work. Infectious disease risk factors are not individual risk factors, and pathogens can be different across socio-economic groups. Maximum use should be made of existing data to explore the social determinants of infectious disease. Specific areas in which more research is needed are migrants, the mitigation of stigma and the social and political processes that influence health inequality.

One specific request from the meeting was a database of good interventions. The purpose of such a database would be to ensure a good flow of information, especially from regions that do not publish much of it but have a wealth of experience.

Health education was considered a priority for policy action in two ways. Health education should be high on an education policymaker's agenda from an early age and onwards. This health education should include a social determinant perspective of health issues so that coming generations can influence the political process. The teaching should include the health effects of social segregation, teach specific skills to protect against health risks and allow people to think for themselves and influence their exposure to risk factors. Second, the training on social determinants in medical schools, nursing, sociology, etc. needs to be strengthened. Future health workers need to be engaged in the debate and advocate for change in the upstream determinants. The field of public health should contribute to the debate on social inequalities and their influence on health.

There is a clear priority to highlight macrosocial determinants and to work with sectors outside of the field of public health (political, societal, engineering, etc). To help with this advocacy effort, targets have to be thought through and debated. Good examples from the history of all European countries can be used. ECDC can play an important role as an advocacy agent of the importance of inequality in communicable disease control.

9. Environmental change and infectious disease workshop

(Meeting held in March 2007, report published in May 2008)

Aims of the meeting

- To review evidence related to the implications of global climate and ecological change on the communicable disease burden of Europe;
- to discuss public health competences needed in order to deal with climate change and infectious disease threats; and
- to identify research needs.

Climate change

The Intergovernmental Panel on Climate Change (IPCC) states that the climate is changing; higher temperatures, sea-level rise and more extreme weather events are expected. These changes affect ecosystem, water, agriculture, socio-economic development and thus — directly or indirectly — the health of the population. Climate change and other ecological changes can affect infectious disease distribution in various ways. All participants agreed that the 'constant composition commitment' — the kind of climate change to which we have already committed — calls for immediate action.

Disease threats

The meeting participants discussed the implications of climate change and other related environmental changes for vector-, rodent-, water-, food- and air borne diseases. Although evidence is scarce, the following conclusions were reached:

- Several vector- and rodent-borne diseases have been identified as being potentially able to change their range of distribution based on climate change (temperature, extreme weather events, seasonality) and environmental factors (land-use, ecosystems, deforestation, hydrology, biodiversity). This includes arboviral diseases such as dengue, chikungunya, West Nile, and, potentially, malaria. Rodent population density and distribution is also affected by weather conditions.
- Europe should be prepared for imported water-related diseases, such as cholera, localised outbreaks from extreme precipitation events, and health problems associated with the overflow of waste and waste-waters. Potential changes in diarrhoeal disease frequency were also identified as important. The groups most at risk included the poor, the elderly, the very young, marginalised groups, travellers exposed abroad, and those who are immunocompromised or suffer from a pre-existing medical condition.
- Food-borne diseases were reviewed in relation to changing human behaviours and changing contact patterns between wild and domestic animals, especially during drought conditions.
- The exacerbation of asthma and chronic obstructive pulmonary diseases was identified as the most significant climate-change influence on respiratory health. The high prevalence of these conditions was thought to make them good sentinel markers for tracking the impact of climate change.

Public health competencies

There was a consensus amongst participants that the required skills are core public health competencies and represent values that exist — or should exist — in all countries. Other points agreed on:

- Strengthening capacities to deal with new climate change-related infectious disease threats can be seen as a way of strengthening public health more broadly. Of particular importance was the need for the coordination of intersectoral and interagency work.
- The four areas of public health competencies addressed were surveillance, research, assurance and policy. Surveillance strategies for some climate change problems already exist, but gaps remain in the area of infectious diseases.
- A necessary first step would be to perform a risk assessment that would identify risk factors and vulnerable groups. This would lay out the evidential platform for public health/clinical guidelines and policy recommendations.
- Gaps in entomological knowledge are a major obstacle. Making entomological training more extensive could rectify this problem.
- There is a lack of a comprehensive monitoring system, but the group agreed that there was no need to set up a system that covered all of Europe because many of the potentially threatening diseases are rare in most areas.
- The consensus was for a 'respond when needed' approach. This approach focuses on being flexible and makes it possible to respond quickly to problems as they emerge. It is based on the assumption that so far only very few of these infectious diseases — when viewed in connection with climate change or other

environmental issues — have posed major problems.
- There is a need to raise public (and perhaps even professional) awareness about some of the general issues in order to improve understanding of some of the impending changes.
- The new Green Paper on climate change offers a unique opportunity to strengthen the EU Commission's capacity in health policies.

Research needs, challenges and obstacles

The meeting identified a variety of research issues, including the need for indicators and the identification of vulnerable groups. Participants noted that there are clearly different capacities in different Member States in respect to carrying out climate change-related monitoring and research. They suggested that the use of sentinel sites in all countries might be a quick solution for gathering Europe-wide data until all public health and monitoring systems are fully functional.

Access to long-term data is another need. It is a challenge to link these data to those gathered from satellites and arrive at useful conclusions related to human health. Attributing long-term processes to climate change is another research challenge.

Recommendations for action

In developing work programmes and subsequent public health policies focussing on climate change and infectious disease, there is a need to:

- build on existing initiatives and capacities;
- develop a 'win-win' culture related to intersectoral and interagency work;
- acknowledge that different parts of the region will experience the impacts of climate change in different ways;
- acknowledge the different capacities for response in different Member States;
- explore a variety of possible surveillance approaches;
- address surveillance obstacles;
- collaborate and develop a comprehensive horizon-scanning risk strategy;
- facilitate the development and implementation of professional educational programmes; and
- strengthen communication capacities.

Annex: ECDC publications in 2008

This list only includes ECDC official publications in 2008. However, ECDC staffs published or collaborated to a lot of scientific articles and publications, including in *Eurosurveillance*, which are not listed here. All documents below are available from ECDC's website (http://ecdc.europa.eu).

Technical Report

May

Review of Chlamydia control activities in EU countries

ECDC Guidance

January

Guidance for the introduction of HPV vaccines in EU countries

August

Priority risk groups for influenza vaccination

Surveillance Reports

December

Annual epidemiological report on communicable diseases in Europe 2008

HIV/AIDS surveillance in Europe 2007

Mission Report

August

Measles outbreak in Austria: risk assessment in advance of the EURO 2008 football championship

Special Reports

March

Framework action plan to fight tuberculosis in the European Union

May

Surveillance of communicable diseases in the European Union. A long-term strategy: 2008–2013

July

ECDC strategic multi-annual programme 2007–2013

Meeting Reports

January

Networking for public health (27–28 February 2007)

February

Consultation on vector-related risk for chikungunya virus transmission in Europe (22 October 2007)

Infectious diseases and social determinants (26–27 April 2007)

March

Now-casting and short-term forecasting during influenza pandemics (29–30 November 2007)

Second consultation on outbreak investigation and response in the EU (15 November 2007)

Third meeting of the Chairs of Commission and Agency scientific committees/panels involved in risk assessment (6–7 November 2007)

May

Environmental change and infectious disease (29–30 March 2007)

June

Training strategy for intervention epidemiology in Europe (11–12 September 2007)

October

Annual meeting on TB surveillance in Europe (3–4 June 2008)

HIV testing in Europe: from policies to effectiveness (21–22 January 2008)

December

Workshop on linking environmental and infectious diseases data (28–29 May 2008)

Technical Documents

January

Core competencies for public health epidemiologists working in the area of communicable disease surveillance and response, in the European Union

Corporate Publications

Quarterly (March, June, September, December)

ECDC Insight

Executive science update

June

Annual report of the Director 2007

December

Keeping Europe healthy: ECDC in action

Protecting health in Europe: our vision for the future