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Europe still at threat for vaccine-preventable diseases

The case of an outbreak of mumps (parotitis) in the former Yugoslav Republic of Macedonia

all municipalities of the former Yugoslav Republic of Macedonia were affected by a large outbreak of mumps that started in December 2007. While the majority of municipalities were affected by October 2009, the outbreak continues in Skopje and Tetovo municipalities. In response to the outbreak, the Ministry of Health conducted a supplementary immunisation activity with the MMR vaccine in affected areas for individuals vaccinated with only one dose in order to achieve coverage of at least 90% in the target populations. Between December 2007 and February 2009, 10 588 cases were reported, and by October 2009, an additional 345 cases were reported.

In February 2009, the Ministry of Health requested the technical support of ECDC and the World Health Organization (WHO) to investigate the outbreak. The objective of the joint

ECDC/WHO mission was to assess coverage with mumps-containing vaccine in children aged 15–19 years in order to estimate vaccine effectiveness. According to national administrative surveillance data, nearly 37% of mumps patients had received two doses of vaccine and most were 15–19 years of age. However, due to vaccine shortages from 1991 to 1994 and the possible misclassification of coverage data, the reliability of vaccination coverage of these cases was uncertain. The ECDC-led mission performed a retrospective cohort study in two high schools in the towns of Strumica and Kavadarci. Vaccine effectiveness was measured by comparing attack rates between vaccinated and non-vaccinated students.

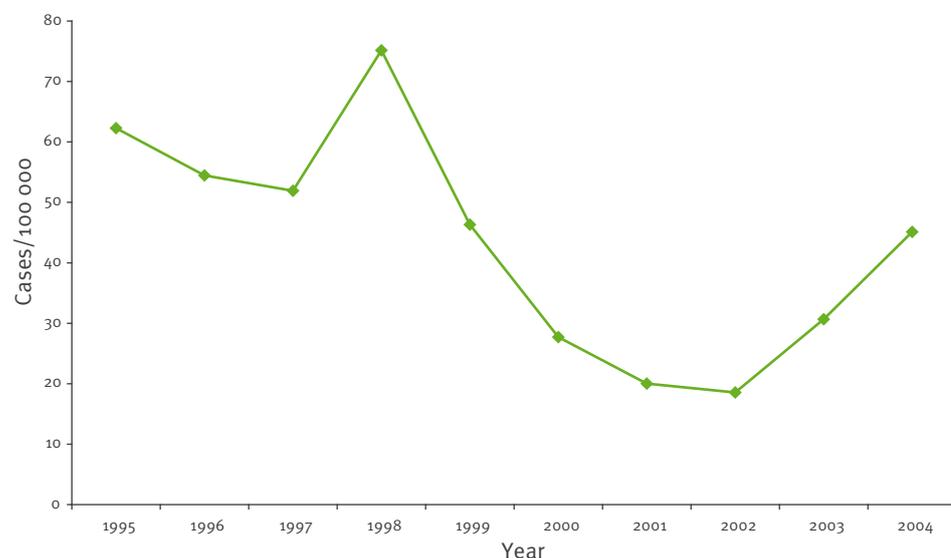
The findings revealed that low, two-dose vaccine coverage played a major role in the mumps outbreak. One of the outbreak

Key facts:

- 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 measles-mumps-rubella (MMR) vaccine in children.
- Mumps occurs in all age groups but is more common in children, teenagers and young adults.
- Breakthrough infections sometimes occur in individuals despite having received the recommended two doses of the MMR vaccine, and this needs to be further explored.

response measures, in addition to the immunisation of those susceptible, was a recommendation from the team that the Ministry of Health continue immunizing with two doses of MMR vaccine—as per the immunisation schedule—to ensure more than 95% coverage. The Ministry of Health was also encouraged to strengthen documentation of vaccination at vaccine delivery sites throughout the country. Finally, a recommendation was made to regularly monitor and analyse routine immunisation coverage by birth cohorts.

Figure: Incidence rate of mumps cases in EU and EEA/EFTA countries by year reported, 1995–2004



Source: Eurostat. No data available from Austria, Germany or Liechtenstein.

10-year trends: overall decrease in the EU but vigilance must remain

These recommendations are in line with the reduction of mumps across the EU due to a continuous increase in vaccine coverage (see graph). The WHO European Region launched a programme aimed at eliminating measles and rubella by extensive vaccination with two doses of MMR vaccine. The effects of the MMR vaccination programmes in Europe are also beneficial for mumps incidence that has significantly decreased over the last several years. On the other hand, continuing mumps outbreaks reflect that large pockets of the population are not protected in Europe and that additional efforts must be put in place to ensure protection.

Infectious diseases in Europe: progress but no room for complacency

By working together, Europe is making progress in the fight against infectious diseases but there is no room for complacency; some significant public health challenges remain and need to be addressed. While Europe faces the first pandemic of the 21st century, this is one of the main conclusions from the 3rd edition of the *Annual epidemiological report on communicable diseases* published by ECDC in October 2009.

Main public health challenges still ahead

Among the challenges public authorities need to address, the report points to—in addition to pandemic influenza—the continuous rise of bacterial resistance to many antibiotics; in particular those used to treat healthcare-associated infections (HCAI). Additionally, the fact that each year tens of thousands of Europeans continue to be diagnosed with serious infections, such as HIV and TB. Furthermore, vaccine-preventable diseases, in particular pneumococcal infections, remain a threat as evidenced in 2007 when Europe had to face some cross-border measles outbreaks in the EU.

By collating data from across Europe, the *Annual epidemiological report on communicable*

diseases provides an annual picture of the state of infectious diseases in Europe. This document supports public health policymakers in making informed decisions and prioritising action to improve the health of all Europeans. The report is the result of a collective effort between ECDC and all EU and EEA/EFTA countries.

Analysis of the health threats monitored by ECDC in 2008

Since the start of 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%) were recurrent threats. The recurrent threats were linked to the worldwide situation involving avian influenza, chikungunya fever, poliomyelitis, dengue fever, cholera and measles, as well as new variant Creutzfeldt-Jakob disease and extensively drug-resistant tuberculosis. The ubiquity of these diseases has serious ramifications for the European region.

In 2008, some of the monitored threats included the following events:

- 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) was confirmed in northern Greece in July 2008.
- eleven tuberculosis-related threats were evaluated, all linked to movement of people infected with tuberculosis (several via air and sea travel);
- oseltamivir-resistant seasonal influenza A(H1N1) viruses were reported in twenty-one Member States, with proportions ranging from less than 1% in Italy to 68% in Norway;
- five hepatitis A outbreaks of international concern were monitored which represented a significant increase from previous years and;
- an outbreak of *Shigella sonnei* affecting more than 140 employees exposed at their office cafeteria in Sweden;

Key facts:

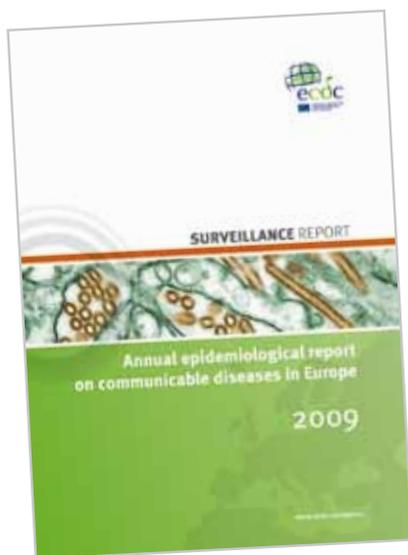
- Pandemic influenza, raising antibiotic resistance, persistence of serious infections such as HIV and TB, and several outbreaks of diseases that could be brought under control remain key public health challenges.
- A number of vaccine-preventable diseases remain a threat in EU and EEA/EFTA countries; this implies that maintaining and even expanding vaccine coverage to meet WHO's goal to eliminate measles and rubella in the EU is necessary.
- The report presents a comprehensive overview of the data from 2007 on 47 infectious diseases and two health issues across the EU and EEA.

Special focus on vaccine-preventable diseases

The special focus of this year's report is on vaccine-preventable diseases (VPDs). While acknowledging the positive impact that vaccination has had on European public health, the report highlights the importance of maintaining vaccination coverage. Vaccination is one of the most cost-effective measures for the prevention and control of infectious diseases. The global eradication of smallpox and the elimination of polio in most parts of the world (including Europe and its neighbouring countries) illustrate the benefits resulting from vaccination. After the introduction of vaccination in several countries, hepatitis B infections and disease incidence rates fell significantly. However, a number of vaccine-preventable diseases remain a concern at the EU level. WHO set the year 2010 as a goal for the elimination of rubella and measles in Europe. Ensuring high coverage for VPDs and maintaining immunity is also a key priority. This clearly illustrates that there is a need for Member States to carry on working together.

For more information:

- The ECDC's *Annual epidemiological report on communicable diseases* is available on ECDC website, in publications section: www.ecdc.europa.eu
- Hard copies can be ordered at publications@ecdc.europa.eu



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