



[HOME](#)

[ARCHIVES](#)

[ABOUT US](#)

[Editorial policy](#)


[For Authors](#)

[Links](#)

[Advanced search](#)

 [RSS Feed](#)

 [Subscribe](#)

 [Contact](#)

 [Sitemap](#)

[Special issues on antimicrobial resistance](#)

The emergence and spread of antimicrobial resistance (AMR) is a growing problem in many European countries. To mark the very first European Antibiotic Awareness Day, on 18 November, the scientific journal Eurosurveillance runs a series of articles to highlight main aspects of the AMR problem in Europe. They will be published in two issues on 13 and 20 November 2008.

[Special issue on seasonal influenza vaccination](#)

In preparation for the coming influenza season 2008-9, Eurosurveillance publishes a special issue on prevention of influenza by vaccination. Seasonal influenza poses a serious public health threat because of associated serious morbidity and mortality. In

Europe, estimates suggest that influenza is responsible for around 40,000 to 220,000 excess deaths, depending on the severity of the epidemic.

[STARHS \(Serological Testing Algorithms for Recent HIV Seroconversion\) - progress towards estimating new HIV infections in Europe](#)

Today Eurosurveillance is publishing a special issue dedicated to the widespread advances made in Europe in estimating the real number of newly acquired HIV infections based on an innovative approach called STARHS

[Eurosurveillance publishes a special issue on hepatitis B and C](#)

To tie in with World Hepatitis Day on 19 May, the scientific journal Eurosurveillance is today publishing a special issue on viral hepatitis, highlighting issues and challenges related to hepatitis B and C.

[Immunisation Week](#)

On 17 April 2008, Eurosurveillance is publishing a special issue with articles on the measles situation in Europe. The publication is linked to European Immunisation Week which runs from 21-27 April.

[Eurosurveillance publishes special issue on tuberculosis](#)

World Tuberculosis Day on 24 March commemorates the date in 1882 when Robert Koch presented his findings of the causing agent of tuberculosis (TB) – *Mycobacterium tuberculosis*. In the run up of this day Eurosurveillance publishes a special issue on the situation of TB in Europe.

[Special issue on meningococcal disease](#)

Today (6 March, 2008), Eurosurveillance, the European peer-reviewed journal of infectious diseases, publishes a special issue on meningococcal disease. It includes two in-depth articles and an editorial by the European Centre for Disease Prevention and Control (ECDC).

[➔ All press releases](#)



In this issue

- ▶ [Prevention of congenital rubella infection: a challenge for every country in Europe](#)
- ▶ [Preventing congenital rubella infection in the European Region of WHO: 2010 target](#)
- ▶ [Serological surveillance of rubella in Europe: European Sero-Epidemiology Network \(ESEN2\)](#)
- ▶ [A large rubella outbreak, Romania - 2003](#)
- ▶ [Rubella in Denmark](#)
- ▶ [Epidemiology of rubella in Finland](#)
- ▶ [Rubella control in France](#)

- ▶ Epidemiology of rubella and congenital rubella syndrome in Greece, 1994-2003
- ▶ Rubella control in Italy
- ▶ New features of rubella in Spain: the evidence of an outbreak
- ▶ Rubella in England, Scotland and Wales

Related articles

- ▶ Preventing congenital rubella infection in the European Region of WHO: 2010 target
- ▶ First cases of rubella infection during pregnancy detected by new reporting system in Italy
- ▶ Rubella outbreak in an unvaccinated religious community in the Netherlands leads to cases of congenital rubella syndrome
- ▶ Danish Supreme Court rules that child with autism developed in temporal relation with MMR vaccination is not entitled to compensation
- ▶ Rubella in Denmark

[Home](#) ▶ [Eurosurveillance Monthly Release 2004: Volume 9/ Issue 4](#) ▶ [Article 4](#)

 [Printer friendly version](#)

◀ [Back to Table of Contents](#)

[en](#) [es](#) [fr](#) [it](#) [pt](#)

◀ [Previous](#)

[Next](#) ▶

Eurosurveillance, Volume 9, Issue 4, 01 April 2004

Outbreak report

A large rubella outbreak, Romania - 2003

Citation style for this article: Rafila A, Marin M, Pistol A, Nicolaiciuc D, Lupulescu E, Uzicanin A, Reef S. A large rubella outbreak, Romania - 2003. Euro Surveill. 2004;9(4):pii=457. Available online: [http://www.eurosurveillance.org/](http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=457)

[ViewArticle.aspx?ArticleId=457](http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=457)

A Rafila¹, M Marin², A Pistol¹, D Nicolaiciuc¹, E Lupulescu³, A Uzicanin², S Reef²

1 Ministry of Health, Bucharest, Romania

2 Centers for Disease Control and Prevention, Atlanta, Georgia, US

3 National Institute for Research and Development in Microbiology and Immunology "Cantacuzino" (NIRDM "Cantacuzino")

Romania experienced a large rubella outbreak in 2002-03, with more than 115 000 reported cases nationwide, and an incidence of 531 reported cases per 100 000 population. The incidence was highest in children of school age. The cohorts of adolescent girls vaccinated in 1998 and 2002 (when a rubella-containing vaccine was available) had significantly lower incidence rates ($p < 0.001$) compared with those in boys in the same age groups who were not vaccinated. In 2003, of the 150 suspected congenital rubella syndrome (CRS) cases reported, seven (4.6%) were confirmed by positive rubella IgM antibodies. In the absence of available rubella containing vaccine for outbreak control, an outbreak response plan to improve the detection of cases and to limit rubella virus transmission was developed. The following activities were conducted: surveillance of pregnant women with suspected rubella or history of exposure to rubella virus was implemented, with follow up of pregnancy outcomes; surveillance for CRS was strengthened; existing infection control guidelines to prevent disease transmission within healthcare facilities were reinforced; and a communication plan was developed. In May 2004, Romania is introducing measles, mumps and rubella (MMR) vaccine for routine vaccination of children aged 12 to 15 months, while continuing vaccination of girls in the 8th grade of school (13-14 years of age) with rubella-only vaccine.

Introduction

Rubella is usually a mild rash illness in children and adults. However, its seriousness and public health importance stem from the ability of rubella virus to cross the placental barrier and infect fetal tissue, which may result in congenital rubella syndrome (CRS). Recognising that measles and rubella remain important causes of vaccine preventable morbidity and mortality in Europe, the World Health Organization (WHO) Regional Office for Europe has developed a Strategic Plan for Measles and Congenital Rubella Infection. The overall objectives are to interrupt the indigenous transmission of measles and reduce to very low levels the risk of congenital rubella infection (< 1 case of CRS per 100 000 live births annually) by 2010. The strategy includes strengthening routine immunisation and surveillance programs throughout the Region [1].

The Romanian ministry of health (MoH) currently has no national childhood rubella vaccination program. However, rubella vaccine, in the form of measles-rubella vaccine, was first offered to girls aged 15-18 years (those born 1980-83) in 1998 as part of a measles vaccination campaign following a nationwide measles outbreak. In 2002, in Bucharest only, girls aged 14-18 years (born 1983-87) received rubella vaccine. In 2003, nationwide, all girls in the 8th grade (born 1987-1988) received rubella vaccine. In addition, in Bucharest only, 10% of girls in the 7th grade also received the vaccine in 2003.

Before the 2003 outbreak reported here, the last widespread rubella outbreak in Romania occurred in 1997, coincident with the measles outbreak, and had an incidence of 192 reported cases per 100 000 population. The average incidence in 1999-2001 was 26 reported cases per 100 000 population/year.

Methods

Case definitions

The following case definitions are used for surveillance:

- suspected rubella: any patient with fever and maculopapular rash and one of the following: cervical, suboccipital, or post-auricular adenopathy or arthralgia/arthritis.
- suspected CRS: any infant less than one year of age born to a mother with suspected or confirmed rubella during pregnancy or any infant less than one year of age with one or more of the following: heart disease (complex, patent ductus arteriosus, pulmonary artery stenosis, ventricular septum defects), suspicion of deafness, or one or more of the following eye signs: cataract, congenital glaucoma, microphthalmia, nystagmus, diminished vision.

Description of the surveillance systems

Rubella has been reported in Romania since 1949. Currently, rubella cases are reported to MoH by family physicians, centers for diagnosis and treatment, and hospitals, on a quarterly basis, aggregated by sex, residence and in the following age groups: individual years of age 0-4 years, then in 5 year age groups from 5 to 24 years, in 10 year age groups from 25 to 84 years, and =85 years.

As part of the measles surveillance system, since December 2002, clusters with three or more cases of febrile rash illnesses are investigated by district public health directorates (DPHD) and data are reported to the regional institutes of public health. To confirm the clinical diagnosis, it is recommended that a sample of 5 to 10 cases in each cluster be investigated with serological testing for measles and, if the results are negative, for rubella. If rubella transmission is confirmed, pregnant women with suspected rubella or

contacts of suspected rubella cases are given priority for testing.

National surveillance for CRS was initiated in 2000. Suspected cases are reported by the diagnosing physicians to DPHD, and from here, weekly, to MoH. Suspected CRS cases are investigated for rubella-specific IgM antibodies according to WHO methodology: a blood sample collected as soon after birth as possible; for infants with negative results and compelling clinical and/or epidemiological suspicion of CRS a second blood specimen is requested [2].

We analysed data reported by these surveillance systems during the 2003 rubella outbreak.

Results

The outbreak

During 2002-03, Romania experienced a large rubella outbreak with more than 115 000 reported cases nationwide, for an incidence of 531 reported cases per 100 000 population. More than 95% of the cases were reported in the first six months of 2003. The outbreak started in the second half of the last quarter of 2002, in the eastern part of the country, and spread towards south, then west, involving the entire country by June 2003. The incidence was highest among school-aged children (age-specific incidence 2564 per 100 000 population aged 5-9 years and 2446 per 100 000 population aged 10-14 years). Of the total number of cases, 27 614 (23.8%) occurred in persons aged \geq 15 years. At the national level there were no differences in incidences by sex; however, in Bucharest the cohorts of girls vaccinated in 1998 and 2002 (age groups 20-24 and 15-19 years, respectively) had a significantly lower incidence ($p < 0.001$) compared with boys in the same age groups (208 per 100 000 versus 383 per 100 000 for ages 20-24 years and 640 per 100 000 versus 1569 per 100 000 for ages 15-19 years).

During 2003, more than 724 clusters of rubella cases were reported. The number of cases per cluster ranged from 3 to 278. At the national laboratory testing for rubella IgM antibodies was performed for 1252 specimens using Dade Behring kits. Of these, 626 (50%) were IgM positive. One specimen tested positive for measles. A total of 272 pregnant women with suspected rubella or contacts of rubella cases were tested; of these 29 (10.7%) were rubella IgM positive and IgG negative, consistent with an acute rubella infection in previously susceptible women.

Since surveillance for CRS was initiated in 2000, there have been 127 (2000), 123 (2001), and 124 (2002) suspected CRS cases reported, of which 20 (15.4%), five (4.1%), and five (4.1%) respectively were laboratory confirmed. In 2003, of 150 suspected CRS cases, seven (4.6%), were confirmed by positive rubella IgM antibodies. These cases were diagnosed in June (1), in September (1), in October (1), and in November (4). Of these, five had ocular abnormalities (cataracts (4) and microphthalmia (1)) and six had cardiac abnormalities (ventricular septum defects (2), complex congenital heart disease (2), atrial septum defects (1), patent ductus arteriosus (1)). The age of the mothers ranged from 16 to 36 years; four of them reported having a febrile rash illness during pregnancy (three during the first trimester and one during the second trimester of pregnancy). However, full assessment of CRS cases resulting from this outbreak will be done at nine months following the end of the outbreak. In 2004, preliminary results indicate that eight CRS cases were confirmed by April 15.

The response

In the absence of supply of rubella-containing vaccine for outbreak control, MoH developed an outbreak response plan to improve the detection of cases and to limit rubella virus transmission as much as possible. The following activities were conducted:

1. Surveillance of pregnant women with suspected rubella or history of exposure to rubella virus was implemented. A detailed set of guidelines was prepared and distributed to DPHD to:
 - a. Detect, test and counsel pregnant women with suspected rubella or history of exposure to rubella virus
 - b. Classify cases using WHO case classification
 - c. Follow up these women for pregnancy outcomes. A pregnancy outcome registry was established at the district level
2. Surveillance for CRS was strengthened:
 - a. CRS case definitions and classification were harmonised with the WHO regional case definitions

b. In May 2003, active surveillance was introduced in maternity wards in the capital city, Bucharest. Public health directorate staff reviewed medical charts of newborns on a weekly basis to identify children with signs and symptoms consistent with CRS case definition

3. Existing general infection control guidelines to prevent disease transmission within healthcare facilities were reinforced.

4. A communication plan was developed to:

a. Increase awareness among healthcare providers of the possibility of rubella and CRS and of the appropriate follow-up for pregnant women exposed to rubella virus

b. Respond to inquiries from district epidemiologists, clinicians, and media regarding the rubella outbreak, detection, testing and counselling of pregnant women, and enhanced CRS surveillance

Discussion

Key elements to prevent rubella outbreaks and occurrence of congenital rubella syndrome include ensuring high levels of rubella immunity through an ongoing childhood immunisation program, vaccinating susceptible adolescents and adults if necessary, and conducting rubella and CRS surveillance. Without a rubella vaccination program, periodic rubella outbreaks and subsequent CRS cases are expected. Two rubella immunisation strategies are currently available: selective vaccination of adolescent girls and/or women of childbearing age to protect those who have escaped natural infection, and comprehensive vaccination of all young children, (e.g., routine childhood immunisation) combined with vaccination of susceptible women of childbearing age (1, 3-6). However, these two approaches are frequently combined. In Romania, the selective vaccination of only a few cohorts of adolescent girls implemented in 1998 and 2002 resulted in a significantly lower incidence among girls in the target age cohorts in Bucharest, compared to that among the boys of the same age group. In the light of the recent outbreak, the Romanian MoH is considering making a long term commitment to finance routine vaccination against rubella to prevent CRS. Beginning in May 2004, MoH will introduce combined measles-mumps-rubella (MMR) vaccine for routine vaccination of children aged 12 to 15 months and continue rubella vaccination of girls in the 8th grade (aged 13-14 years). Ongoing routine vaccination of all young children appears to be feasible in view of consistently high routine vaccination coverage with other antigens in Romania.

Acknowledgements

Our special thanks to health care providers, epidemiologists from DPHD and institutes of public health who investigated and reported CRS and rubella cases, Dr Nicoleta Teletin and other laboratory personnel from NIRDM "Cantacuzino" where testing was performed, WHO European Regional Office for providing technical and financial assistance to NIRDM "Cantacuzino", Peter Strebel, MBChB, MPH, who provided advice on methodological and scientific issues, and Mary McCauley, MS, for editorial assistance.

References

1. WHO Europe. Strategic plan for measles and congenital rubella infection in the European region of WHO. Available at <http://www.euro.who.int/document/e81567.pdf> .
2. WHO - recommended standards for surveillance of selected vaccine-preventable diseases. Department of vaccines and biologicals. World Health Organization, Geneva 1999, pg 24-28.
3. Knox, E.G. Theoretical aspects of rubella vaccination strategies. *Rev. Infect. Dis* Vol 7, Supplement 1, March-April 1985: S194-7.
4. De la Mata, I., De Wals, P. - Policies for immunization against rubella in European countries. *Eur J Epidemiol* 1988 Jun;4(2):175-80.
5. Robertson S.E., Cutts F.T., Samuel R., Diaz-Ortega J.-L. Control of rubella and congenital rubella syndrome (CRS) in developing countries, part 2: vaccination against rubella. *Bulletin of the World Health Organization* 1997;75 (1): 69-80.
6. Robertson SE, Featherstone DA, Gacic-Dobo M, Hersh BS. Rubella and congenital rubella syndrome: global update. *Pan Am J Public Health* 2003;14(5):306-15.

[◀ Back to Table of Contents](#)

[en](#) [es](#) [fr](#) [it](#) [pt](#)

[◀ Previous](#)

[Next ▶](#)

[↑ To top](#) | [▶ Recommend this page](#)

Disclaimer: The opinions expressed by authors contributing to Eurosurveillance do not necessarily reflect the opinions of the European Centre for Disease Prevention and Control (ECDC) or the Editorial team or the institutions with which the authors are affiliated. Neither the ECDC nor any person acting on behalf of the ECDC is responsible for the use which might be made of the information in this journal.

Eurosurveillance [ISSN] - ©2008 All rights reserved