

Rapid communications

AN OUTBREAK OF MEASLES INCLUDING NOSOCOMIAL TRANSMISSION IN APULIA, SOUTH-EAST ITALY, JANUARY-MARCH 2008 - A PRELIMINARY REPORT

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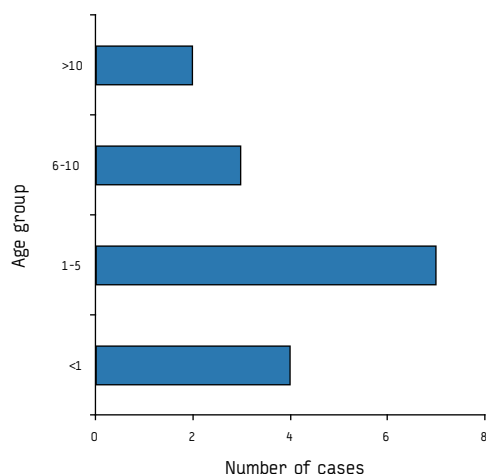
Between 7 January and 16 March 2008, 16 cases of measles were reported in the region of Apulia in south-eastern Italy (about four millions inhabitants). This outbreak is currently ongoing: we present here a preliminary report.

A case of measles was defined as one that met the clinical case definition (clinical picture compatible with measles, i.e. a generalised rash lasting more than three days and a temperature $>38.0^{\circ}\text{C}$, with one or more of the following symptoms: cough, coryza, Koplik's spots, conjunctivitis [1]).

A confirmed case of measles was defined either as a case that was laboratory-confirmed (by detection of IgM antibodies against measles virus or a positive PCR), or as a case that met the clinical case definition and was epidemiologically linked to a laboratory-confirmed case [2].

FIGURE 1

Distribution of measles cases by age group (N=16). Apulia, January-March 2008



Outbreak description

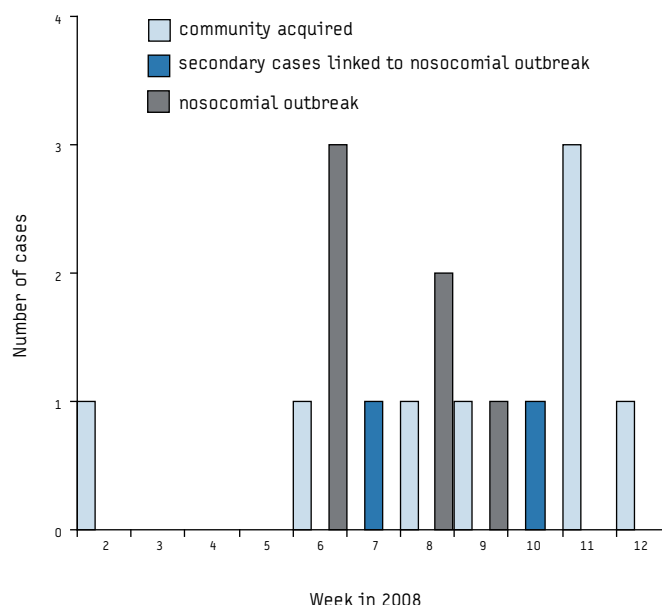
As of 13 April, 16 cases – two adults and 14 children – have been reported; all cases were laboratory confirmed (Figure 1).

Eight cases were not related to a defined cluster. The first reported case was a nine-year-old child who presented with fever ($>38.0^{\circ}\text{C}$), coryza and cough and was hospitalised on 7 January. On 10 January, the patient developed a rash. The source of infection remains unknown (the child had not travelled outside their hometown, had any contact with a measles case or any visitors from abroad in the 7 to 18 days before onset of the rash).

The following seven non-cluster cases were reported between 5 February and 19 March: two 11-month-old children, a 17-month-

FIGURE 2

Reported measles cases by week of rash onset and transmission setting (N=16). Apulia, January-March 2008



old child, three children aged between four and nine years and two adults aged 22 and 33 years. Six of them were hospitalised.

Other eight cases were related to a nosocomial outbreak. The first reported case was a five-year-old child who presented with fever (>38.0 °C) and conjunctivitis and was hospitalised on 30 January. On 4 February, the patient developed a rash. The source of infection remains unknown. Further five cases had been in-patients in the same hospital in the Infectious Disease Ward in the seven to 15 days before the onset of the rash, where they had had contact with a measles case. The mean age of nosocomial outbreak cases was four years. Two cases regarded two children younger than 13 months, which is the age established by the Regional Vaccination Schedule for the first dose of the measles, mumps, rubella vaccine MMR. All the cases were hospitalised for measles. Two more cases were relatives of children involved in the nosocomial outbreak:

- a seven-year-old child, a sibling of the nosocomial outbreak index case, who presented with fever (>38.0 °C) and conjunctivitis on 12 February and developed a rash on 15 February;
- a 12-year-old child, a cousin of a 15-month-old child infected with measles in the Infectious Disease Ward of Paediatric Hospital "Giovanni XXIII" in Bari. The case presented with fever (>38.0 °C) and conjunctivitis on 1 March and developed a rash on 5 March.

Neither of the two was hospitalised (Figure 2). The mean age of all the cases notified in Apulia Region during this period was eight years. Three cases regarded three children younger than 13 months. None of the 16 affected patients had ever been vaccinated against measles.

Laboratory results

Thirteen cases were laboratory-confirmed by the regional reference laboratory in Bari (Unità Operativa Igiene Policlinico Bari). Measles virus detection was performed by a nested RT-PCR. The 456-nt segment of the nucleoprotein (N) gene of these measles virus strains was used for genotyping according to the standardised recommendation of the World Health Organisation. The N gene sequences of the viruses from the outbreak were identical, and belonged to genotype D4.

The other three cases were confirmed by detection of IgM antibodies against measles virus.

Control measures

In response to the outbreak, active surveillance was set up. All susceptible contacts and all susceptible children between two and 10 years of age were vaccinated with a first dose of MMR if previously unvaccinated, or with a second dose if they had already received one dose.

An extensive catch-up vaccination campaign was conducted in order to immunise susceptible children with the combined measles-mumps-rubella (MMR) vaccine as soon as possible.

Discussion

This is the second important outbreak of measles in Apulia since the launch of the national plan for the elimination of measles and congenital rubella [3]. The previous cluster was reported in November 2006-January 2007 when 18 cases of measles belonging to genotype B3 were notified [4].

In the cluster described here, D4 genotype has been identified, which is implicated in several major outbreaks in Europe (Romania, United Kingdom, Spain and Germany) [5,6].

There was a nosocomial outbreak: epidemiological investigation showed that isolation guidelines for measles were not respected and that some children affected with measles and some susceptible children mixed in common areas.

Although nosocomial transmission of measles is well documented [7,8], higher awareness among health professionals of measles diagnosis, appropriate infection control practices to prevent transmission in hospital settings and specific vaccination recommendations for health professionals is needed.

This cluster underlines the need to achieve higher vaccine coverage among children, teenagers and young adults. In 2006, the coverage rate for the first dose of MMR in the 2004 birth cohort was only 88.3% in Apulia Region. Therefore, the target MMR coverage for the WHO European Region (> 95% for both doses) has not yet been reached.

References

1. Commission Decision of 19 March 2002 laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council. Official Journal of the European Communities 2002; L 86/44.
2. Tischer A, Santibanez S, Siedler A, Heider A, Hengel H. Laboratory investigations are indispensable to monitor the progress of measles elimination – results of the German Measles Sentinel 1999-2003. *J Clin Virol.* 2004;31(3):165-78.
3. WHO Europe. Eliminating measles and rubella and preventing congenital rubella infection. WHO European Region Strategic Plan 2005-2010. Available from: <http://www.euro.who.int/Document/E8772.pdf>
4. Prato R, Chironna M, Caputi G, Sallustio A, Martinelli D, Falco A, et al. An outbreak of measles in Apulia, Italy, November 2006 – January 2007. *Euro Surveill.* 2007;12(4):E070405.1. Available from: <http://www.eurosurveillance.org/ew/2007/070405.asp#1>
5. EUVAC.NET. Status of measles surveillance data, 2007. Available from: http://www.euvac.net/graphics/euvac/status_2007.html
6. Kremer JR, Brown KE, Jin L, Santibanez S, Shulga SV, Aboudy Y, et al. High genetic diversity of measles virus, World Health Organization European Region, 2005-2006. *Emerg Infect Dis.* 2008;14(1):107-14.
7. Weston KM, Dwyer DE, Ratnamohan M, McPhie K, Chan SW, Branley JM et al. Nosocomial and community transmission of measles virus genotype D8 imported by a returning traveller from Nepal. *Commun Dis Intell.* 2006;30(3):358-65.
8. Marshall TM, Hlatswayo D, Schoub B. Nosocomial outbreaks - a potential threat to the elimination of measles? *J Infect Dis.* 2003;187 Suppl:S97-101.

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