

MEASLES RESURGES IN ITALY: PRELIMINARY DATA FROM SEPTEMBER 2007 TO MAY 2008

Antonietta Filia (antonietta.filia@iss.it)¹, M De Crescenzo^{1,2}, T Seyler^{1,3}, A Bella¹, M L Ciofi Degli Atti^{1,4}, L Nicoletti¹, F Magurano¹, S Salmaso¹

1. National Health Institute (Istituto Superiore di Sanità, ISS), Rome, Italy

2. Postgraduate training program in Hygiene and Preventive Medicine, Tor Vergata University, Rome, Italy

3. European Programme for Intervention Epidemiology Training (EPIET), European Centre for Disease Prevention and Control (ECDC), Stockholm, Sweden

4. Bambino Gesù Children's Hospital, Rome, Italy

Following an incidence rate of 1/100,000 inhabitants in 2006 [1], Italy has been facing an upsurge of measles cases since September 2007, with outbreaks being reported in various regions. In Italy, measles vaccination is currently offered free of charge as combined measles-mumps-rubella (MMR) vaccine. The current national vaccination schedule recommends two doses of MMR vaccine, given respectively at 11-12 months and 5-6 years of age. Although childhood vaccination coverage has increased in recent years, reaching the national average of 88% in 2006 (source: Ministry of Health), with some regional variability (Figure 1), it is still below the target of 95% set by the National Measles Elimination Plan (MEP) launched in 2003 [2], and outbreaks continue to occur.

Measles is a statutorily notifiable disease in Italy and in the last six-year period (2001-2006) an average of approximately 5,400 cases were reported annually, with a range from 215 cases (in 2005) to 18,020 cases (in 2002). According to the MEP, sensitivity, specificity, and timeliness of case reporting had to be improved and an enhanced surveillance system was therefore established in April 2007 [3]. According to the new system, physicians have to report suspected cases of measles within 12 hours and laboratory diagnostic testing (never requested previously) of blood, saliva and urine specimens is recommended for all sporadic cases. Outbreaks of suspected measles must be investigated with collection of specimens from at least 5-10 cases for confirmation and characterisation of the viral strain. Case report forms are collected centrally at the Ministry of Health and the National Health Institute (ISS). In order to support case ascertainment, a National Reference Laboratory was also established at the ISS.

This report is a preliminary description of the main epidemiological features of 2,079 cases reported to the enhanced measles surveillance system from September 2007 to May 2008. Cases with negative laboratory results have been excluded from the present analysis.

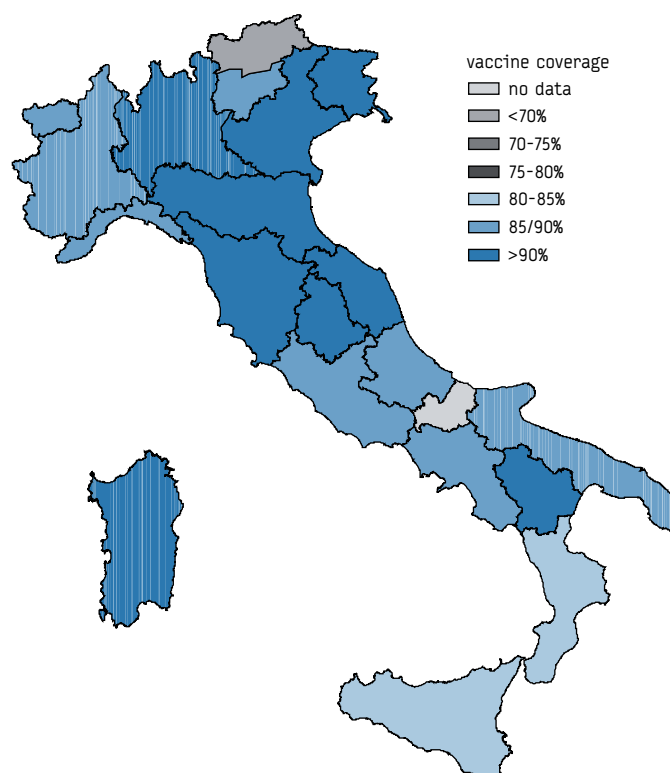
Place and time

Most reported cases occurred in the Piemonte region where a large outbreak began in September 2007, among a group of unvaccinated adolescents. [4].

The first case was a 17-year-old girl who developed symptoms two days after returning to Italy from the United Kingdom. In the following weeks and months the outbreak spread in Piemonte and increased measles activity was also reported in other regions. Since September, clusters of cases and larger outbreaks have been detected in 15 of the 21 Italian regions, with the monthly number of nationally reported cases reaching a peak of 434 cases in February 2008 (Figure 2).

FIGURE 1

Vaccine coverage for the first MMR dose in children at 24 months of age, by region, Italy, 2006 (source: Ministry of Health)



Over the nine-month period between 1 September 2007 and 30 May 2008, the estimated national cumulative incidence of measles was 3.4 cases per 100,000 inhabitants. Ninety-three percent of the cases were reported from six regions: Piemonte (966 cases – 47 % of the total), Lombardy (452 cases- 22%), Lazio (183 cases – 9% of total), Tuscany (128 cases – 6%), Emilia Romagna (113 cases – 5%) and Veneto (87 cases – 4%). The remaining cases were reported in Sardinia, P.A. Trento, Liguria, Valle D'Aosta, Marche, Abruzzo, Friuli-Venezia Giulia and Puglia [5].

Figure 3 shows the reported measles incidence per 100,000 inhabitants, by region, from September 2007 to May 2008. The highest incidence was reported from Piemonte followed by Lombardy, Tuscany and Lazio with 22.2, 4.7, 3.5 and 3.3 per 100,000 inhabitants respectively.

Transmission occurred in families, schools, hospitals, Roma/Sinti communities, and groups opposed to vaccination. In several regions cases also occurred among healthcare workers.

Age and vaccination status of cases

The age was reported for 2,008 cases (97%). The median age of cases was 17 years (range: 0-77 years). Almost 60% of cases (1,247) were aged 15-44 years (Figure 4). More specifically, 23% cases were aged 15-19 years, 15% were aged 20-24 years and 21% were aged 25-44 years.

Using national age-specific population figures as denominators, adolescents aged 15-19 years had the highest incidence rate, followed by infants (<1 year of age): 15.8/100,000 and 11.3/100,000 respectively.

Of the 1,932 cases for whom vaccination status was known, 1,772 (91.7%) were unvaccinated against measles at the time of infection, 130 (6.7%) had received only one dose of measles-containing vaccine (MCV), 12 (0.6%) had received two doses, while 18 (1%) were vaccinated but the number of doses was unknown (Figure 4).

Microbiological investigation

Overall, 631 cases (30%) have been laboratory-confirmed. Preliminary molecular sequence analyses have identified genotype D4 in all positive samples tested up to early May 2008, with the

exception of one sample from Emilia Romagna (genotype D8, 99% similar to viruses identified in 2007 in UK and in 2008 in Canada).

Hospitalisations and complications

Information on hospitalisations and complications was available for 1,227 cases. Of these, 371 (30%) were hospitalised. One case of encephalitis was reported as well as three cases of thrombocytopenia, 22 cases of pneumonia and 27 of otitis media.

FIGURE 3
Reported measles incidence per 100,000 inhabitants, by region, Italy, September 2007- May 2008 (n=2079)

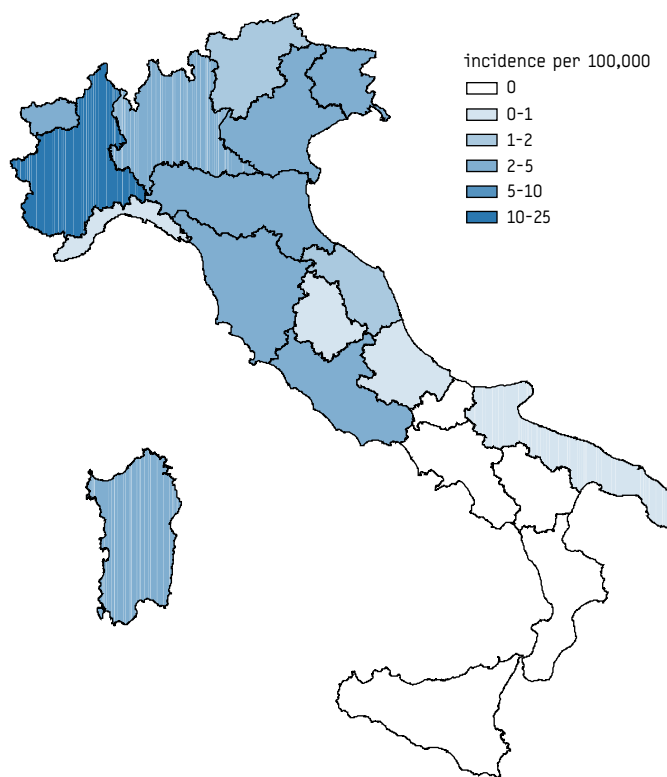


FIGURE 2
Number of reported measles cases*, by month, Italy, September 2007 - May 2008 (n=2079)

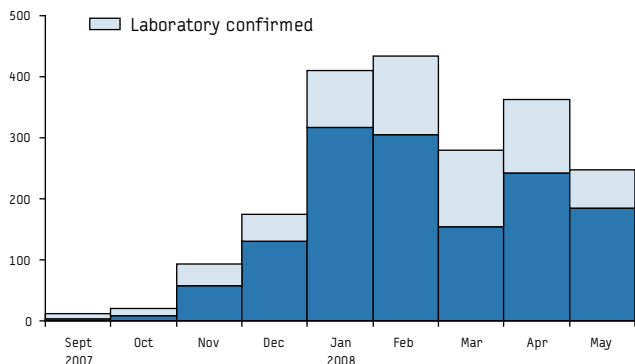
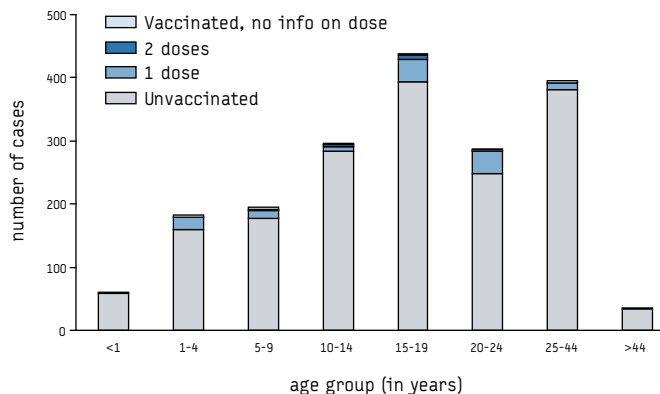


FIGURE 4
Vaccination status of measles cases, by age-group, Italy, September 2007 - May 2008 (n=2079)



One death due to measles pneumonia occurred in a laboratory-confirmed case in the Piemonte region, in an unvaccinated 10-year old child with a genetic immunodeficiency syndrome.

Public health measures

In each region, outbreak investigation and control measures were initiated by the local health authorities, according to the procedures indicated in the MEP and in the enhanced surveillance circular [2,3]. The type and extent of the public health response measures varied amongst local authorities but generally included basic epidemiologic investigation of suspected cases, identification and vaccination of susceptible contacts and laboratory confirmation of diagnosis. Primary care paediatricians and general practitioners were alerted for prompt reporting of measles cases and further investigation.

Discussion

Although some progress has been made in Italy since the implementation of the MEP, as shown by the increase in routine immunisation coverage (from 84% in 2003 to 88% in 2006 in two-year old children, source: Ministry of Health) and the introduction of a routine second dose, the ongoing outbreaks indicate that much still needs to be done.

Molecular characterisation studies indicate that the first case reported in the Piemonte region was imported from the United Kingdom (genotype D4) [6] showing the importance of international efforts in controlling the current upsurge of the disease in Europe [7-9].

In Italy, adolescents and young adults have been particularly affected and most reported cases were unvaccinated or incompletely vaccinated. Nosocomial transmission occurred in several regions and cases were also reported among healthcare workers. As in 2006, cases have once again been reported among the Roma/Sinti population [10].

In conclusion, there is an urgent need to improve vaccination coverage with two doses of MMR in Italy, not only among children, but also among adolescents and young adults. More efforts should also be made to prevent measles transmission in healthcare settings by implementing effective infection control practices and ensuring that all healthcare workers are immune to measles, and to raise immunisation coverage in hard-to-reach populations. Surveillance and laboratory confirmation have improved but outbreak control should be further strengthened as viral transmission was not effectively interrupted. Finally, vaccination coverage in adolescents and young adults and second dose coverage in children should also be closely monitored. A national vaccination coverage survey is currently being conducted and will provide updated information on coverage in children and adolescents as well as on reasons for non-vaccination.

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