

## Rapid communications

# MEASLES RESURGENCE IN FRANCE IN 2008, A PRELIMINARY REPORT

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Since the beginning of 2008, France has been experiencing a resurgence of measles. It started in a religious traditionalist group with low coverage and secondarily spread to the general population. This situation is the consequence of the insufficient vaccine coverage (less than 90 % at 24 months of age) which had led to the accumulation of susceptibles over the last years. More than 550 cases have been notified in 2008, the vast majority being unvaccinated. One measles-related death has occurred early 2009. Efforts to enhance communication to the general public and the health professionals on measles vaccination and control measures around cases are ongoing.

### Introduction

Since the beginning of 2008, France has been facing an increase of measles incidence. To date, 579 cases were reported in 2008 through mandatory notification, whereas in 2006 and 2007 the numbers of reported cases were 40 and 44 respectively.

Mandatory notification of measles was reintroduced in July 2005, as part of the National Plan for Elimination of Measles and Congenital Rubella. Physicians and microbiologists have to report suspected measles cases without delay to the local Public Health Officer [1]. Laboratory confirmation is strongly recommended for sporadic cases, either through serum or salivary testing. Oral fluid samples (for IgM detection and PCR) are sent to the National Reference Laboratory which also performs genotyping of the circulating viruses (5-10 cases should be sampled when a localised outbreak is investigated). Notification forms are collected and analysed centrally at the InVS.

The current measles vaccination strategy consists of two doses of measles-mumps-rubella vaccine (MMR) to be administered before the age of two years, the first one at 12 months of age and the second one between 13 and 24 months of age. A catch-up with two doses is recommended for children born after 1991 and with one dose for subjects born between 1980 and 1991.

### Outbreak description

The ongoing outbreak began in spring 2008 with several clusters. The more important were reported in Burgundy and northern regions of France. A total of 110 cases were identified among elementary and secondary students of two private religious schools and their siblings. The index case was a 10 year-old Swiss girl who had been in contact with a measles case in Austria in mid-April [2,3,4]. Since summer 2008, other clusters and outbreaks have been reported with an upsurge of measles cases in October and a peak

in November (131 cases). The virus transmission is still ongoing with 80 cases reported in January 2009 (Figure 1).

Despite the fact that most of the outbreaks were initially linked to schools affiliated with the same religious group as in Burgundy, in several regions the virus is currently circulating in the community and outbreaks in both private and public schools have been reported (Figure 2). The most affected regions are in north-west and south-east.

More than half (55%) of the cases reported in 2008 have been confirmed, either by detecting measles IgM antibodies or viral RNA by RT-PCR (265 cases) or by an epidemiological link with a laboratory-confirmed cases (54 cases). However, the proportion of laboratory-confirmed cases decreased from an average of 71% between January and July to an average of 38% between August and December 2008. Preliminary results from the National Reference Laboratory showed that three main genotypes were co-circulating: D5, D8 and D4, the predominant one being D5.

The median age of the 579 cases reported in 2008 was 12 years (range: 0-56 years). One third of the cases were aged 15 years or above (Table). Amongst the 26 cases less than one year old, 13 were aged between three and nine months (eight were laboratory-confirmed).

Vaccination status was known for 548 cases (95%). Among these, the proportion of unvaccinated cases was 88.5%

FIGURE 1

Number of reported measles cases, by month, France, January 2008 - January 2009, preliminary data (n=659)

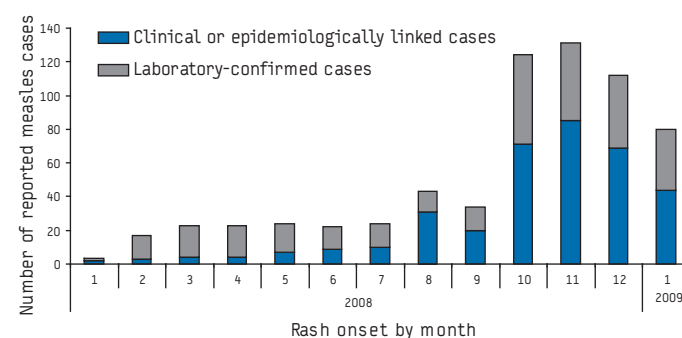
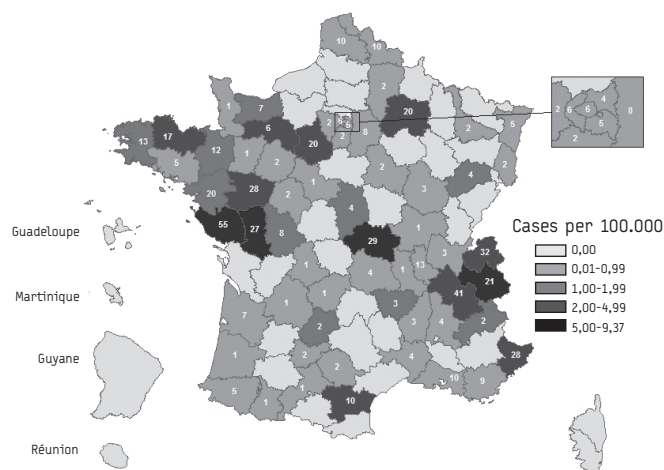


FIGURE 2

Number of reported measles cases and incidence per 100,000 inhabitants, by districts, France, 2008



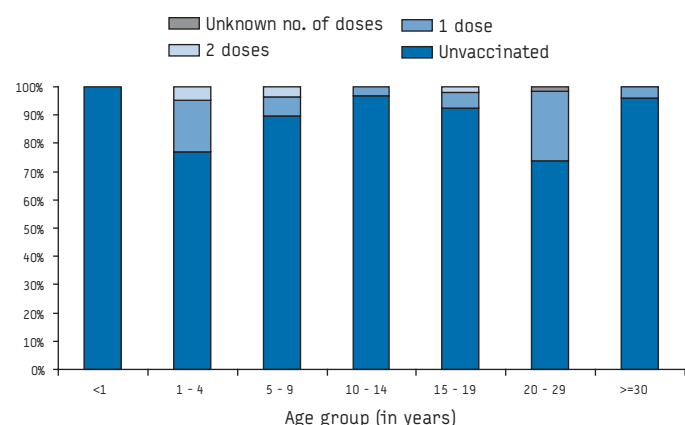
TABLE

Reported cases of measles and incidence rates per 100,000 population, by age group, France, 2008

Age groups (years)	Number of cases	Proportion of total number of cases (%)	Incidence rates (per 100,000)
<1	26	4	3,2
1 - 4	108	19	3,4
5 - 9	116	20	2,9
10 - 14	130	22	3,4
15 - 19	99	17	2,4
20 - 29	67	12	0,8
>=30	33	6	0,1
Total	579	100	0,9

FIGURE 3

Vaccination status of measles cases by age group, France, 2008 (n=548)



(Figure 3). Of the 63 vaccinated cases, 51 were vaccinated with one dose (9%), 11 with two doses (2%) and for one case the number of doses was unknown.

### Complications

Hospitalisation was required for 110 patients (19%) according to the notification forms received in 2008. Among these cases, 18 were diagnosed with pneumonia but no encephalitis was reported. Unfortunately, one unvaccinated French 12-year-old girl died in January 2009 in Geneva University Hospital from acute measles encephalitis.

### Control measures

Several control measures were implemented by local health authorities, according to national guidelines. They include general information to the public, targeted information to the health professionals covering the affected area, and specific recommendations to pupils' parents, the schools and the involved religious community administration where clusters are identified. The main recommendations are to undergo vaccination according to the national immunisation schedule and to propose post-exposure vaccination or immunoglobulin, depending on age, time since exposure and existence of risk factors of severe measles [1].

### Discussion

Although measles incidence rates in 2006 and 2007 were below 0.1 per 100,000 inhabitants, suggesting near elimination, the current measles resurgence is not unexpected in the context of the still insufficient measles vaccination coverage allowing for silent accumulation of susceptibles. Current coverage at 24 months of age with at least one dose is estimated between 87 % and 90 % [InVS, unpublished data]. A survey carried out in 2005 has shown a coverage at 11 years of age of 96% for at least one dose of MMR, through catch-up vaccination beyond two years and a coverage for the second dose of 74% [5].

The data available through the routine notification system underestimate the actual measles incidence. During outbreak investigations, up to 10 times more cases have been identified than those notified to the local health authorities. This is the consequence of both the absence of medical consultation for a large proportion of the cases (especially when several cases occur within the same family) and the insufficient knowledge or motivation of some doctors regarding the notification procedure.

The current measles virus circulation in the community has been triggered by the clustered measles susceptibility in children belonging to traditionalist religious groups where measles vaccination coverage is low. The fact that these children often share the same schools and leisure activities such as summer camps have lead to several outbreaks in this group and to the secondary spread of the virus outside of this community. Efforts have been undertaken by the Ministry of Health to dialogue with representatives of the religious community regarding this specific measles vaccination issue.

The contribution of groups with low vaccination coverage due either to geographical or financial difficulties in accessing vaccination services or reluctance to measles vaccination for religious or philosophical reasons has been identified as one of the major impediments to achieve measles elimination in Europe [6,7,8].

In France, there are virtually no geographical or financial impediments in receiving the vaccine. The network of both private practitioners and public health clinics ensures optimal geographical access to measles vaccination. Furthermore, measles-containing vaccines are the only vaccines offered totally free of charge for children up to 13 years of age. If elimination in France is to be reached, the priority therefore lies in maintaining the efforts to persuade as many parents and health professionals reluctant to measles vaccination as possible. In the context of the current measles situation, communication to the general public and the health professionals has therefore been strengthened, amplified by the media attention drawn by the recent measles-related death case.

### Aknowledgements

Vivamus tempor mi quis quam. Fusce tempus, ante sed tincidunt ornare, nisi urna viverra enim, eget venenatis dui ante ut eros.

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