

Rapid communications

MEASLES OUTBREAK IN AN ANTHROPOSOPHIC COMMUNITY IN THE HAGUE, THE NETHERLANDS, JUNE-JULY 2008

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An ongoing outbreak of measles linked to anthroposophic communities in The Hague, The Netherlands has been identified since mid-June 2008. Thirty-four cases have been reported until 25 July. In addition, two cases have been reported in other cities (Leiderdorp and Utrecht). Both are epidemiologically linked to the cluster in The Hague.

Introduction

Measles is a statutorily notifiable disease in The Netherlands. The case definition for surveillance purposes includes patients with clinical symptoms in combination with an epidemiological link and/or laboratory confirmation.

The most recent large measles outbreak in The Netherlands took place in 1999-2000. Over 3,200 cases were reported, of whom three children died [1]. The outbreak was predominantly situated in the so called 'bible belt' where many people choose not to immunise their children based on religious conviction.

The Dutch national immunisation programme has included routine measles vaccination since 1976. A two-dose measles-mumps-rubella (MMR) vaccine schedule was introduced in 1987 for children aged 14 months and nine years. In 2007, the national vaccination coverage rates for the first and second dose of MMR were 96% and 93%, respectively (birth cohorts 2005 and 1997) [2]. Corresponding figures for The Hague were 98% and 84%, respectively.

Current outbreak description

On June 17, a general practitioner (GP) reported a suspected case of measles with strong clinical evidence in a previously unvaccinated eight-year-old boy. Urine, throat swab and blood specimens were subsequently submitted for PCR testing. All specimens were found positive for measles virus.

It is yet unknown where this case (the index case) acquired the infection from. There was no relevant travel history. The child attends a school of 210 pupils, of whom many come from the anthroposophic community in which parents opt not to vaccinate their children. From June 18 to July 3, nine further cases from the same school were reported. One was laboratory-confirmed and eight were epidemiologically linked.

On June 26, a seven-year-old child from another school (population: 450 pupils), also with many pupils from the

anthroposophic community, was diagnosed with measles and confirmed by PCR. The child is a cousin of one of the cases from the first school. From July 3 to July 22, 15 other cases from the second school were reported. All were epidemiologically linked. The vaccination coverage amongst children at the two schools is unknown. However, we estimated the second dose coverage at the second school to be 65% in 2007 [3].

Initially, the measles outbreak (Figure) seemed confined to the two school clusters. Eight incidental cases outside the two schools were reported, but all were family members of the affected school children. Recently, however, two cases outside the school clusters have been reported in other cities (Leiderdorp and Utrecht). Both are epidemiologically linked to the outbreak in The Hague.

Age and vaccination status

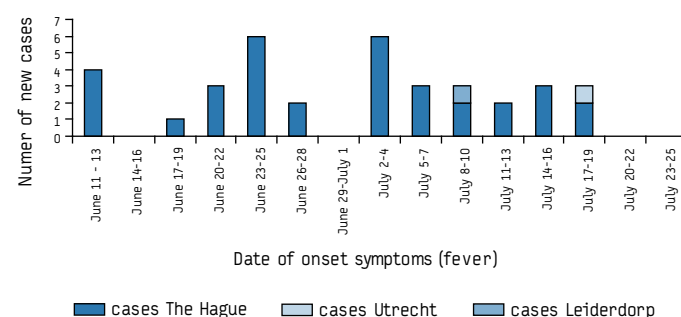
The median age of the affected children in The Hague (n=32) was eight years, (range 4-16 years). Two affected adults (a mother and a father of affected children from different families) were aged 35 and 48 years, respectively. Male to female ratio was 1:1.

Of the 34 cases, 31 were non-immunised children; one child received the vaccine (first dose) during the outbreak and developed measles three days later. This is therefore not considered a vaccination failure.

Regarding the adults, one was vaccinated with a single dose in 1978 and the other has never been vaccinated.

FIGURE

Number of cases of measles by day of onset of symptoms defined as first day of fever, The Netherlands, June 11 – July 25 (n=36, including n=34 in The Hague, n=2 in other towns)



Microbiological investigation

Clinical specimens (urine, throat swab, serum) were obtained from six cases. The presence of measles virus was detected in all cases by RT-PCR. The sequences of the N-terminal part of the nucleoprotein gene of the viruses were identical for five cases and belonged to genotype D8. In one case, genotyping is pending. In two cases, measles-specific antibodies (IgM) were detected in serum.

Control measures

The municipal health centre of The Hague (GGD) has implemented several outbreak control measures. Since the outbreak was initially limited to the specific anthroposophic population associated with the two schools, measures were aimed at this target group. All parents of children attending the two schools received an information letter. MMR vaccination was offered to all unvaccinated children and to the family members of cases.

However, the school authorities had rightfully predicted that very few would use this opportunity, as most parents in this community had deliberately chosen not to immunise their children. In total, only 10 vaccinations were administered (two to adults, eight to children).

For case-finding, the local GPs and microbiologists were asked to be alert and report possible cases of measles.

In the general population awareness of the importance of vaccination was raised with the help of media releases. An elaborate fact sheet with questions and answers for the public was published on the GGD website [4]. Until July 21 about 500 visits were registered.

Discussion

We report the largest cluster of measles that has occurred in The Netherlands since the large outbreak of measles in 1999/2000. It is yet unclear where the virus involved in the current outbreak originated from. Although genotype D8 has been detected in Europe before [5], recent outbreaks of measles in several European countries have, to our knowledge, not been associated with genotype D8 [6]. The present outbreak is linked to the anthroposophic community. The relatively low vaccination coverage in combination with social clustering, e.g. at schools, makes this community particularly prone to outbreaks of vaccine-preventable diseases. As the vaccination coverage of the general population in The Netherlands is relatively high, the risk of spread of measles outside these communities, whether anthroposophical or on religious, is limited when compared to the risk of spread within these communities in outbreak situations [7].

In the last few years the infectious potential of measles seems to be increasing, with outbreaks currently being reported in the United States [8] and several European countries including Italy [9], Spain [6], Switzerland [10] and the United Kingdom [11], some of which were also linked to anthroposophical communities [12]. Based on the high overall vaccination coverage and the low incidence of measles, The Netherlands appears to be near to the 2010 WHO Euro measles elimination goal [13,14]. However, there is strong social clustering of people who deliberately (on various principal grounds) choose not to vaccinate. As a result, a large measles outbreak associated with religious or anthroposophic communities can still occur.

Acknowledgements

The authors would like to thank Corien Swaan, RIVM, for helpful suggestions made to this report.

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This article was published on 31 July 2008.

Citation style for this article: van Velzen E, de Coster E, van Binnendijk R, Hahné S. Measles outbreak in an anthroposophic community in The Hague, The Netherlands, June-July 2008. *Euro Surveill.* 2008;13(31):pii=18945. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18945>