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National measles outbreak continues to escalate

Despite a marked improvement in MMR uptake in recent years the current measles outbreak highlights weaknesses in the Irish immunisation programme and health services and the challenges facing progress in elimination of this disease in the near future.

Measles is an acute viral infectious disease. Before a vaccine was developed infection with measles virus was nearly universal in childhood and more than 90% of persons were immune by age 15 years. Measles is still a common and often fatal disease in developing countries. The World Health Organisation (WHO) estimated that there were more than 20 million cases in and 242, 000 deaths from measles in 2006. Ireland experienced its last major measles outbreak in 2000, when more than 1600 cases and three deaths were associated with the outbreak.

Clinical course

The first symptoms of measles occur after a 10-12 day incubation period that follows airborne or droplet exposure. Immunosuppressed person may have a prolonged incubation period. The prodrome is heralded by the onset of fever, malaise, conjunctivitis, coryza, and tracheobronchitis and lasts 2-4 days. This clinical picture is characterized by fever, which increases in a stepwise fashion, often reaching 40.6°C. Koplik's spots, found on the buccal mucosa are believed to be pathognomonic for measles. These salt-grain-like spots appears on the buccal mucosa 1-2 days before onset of rash and may be noted for an additional 1-2 days after rash onset. The rash is an erythematous maculopapular eruptions that usually appears 14 days after exposure and spreads from the head (face, forehead, hairline, ears and upper neck) over the trunk to the extremities during a 3- 4 day period. The rash is usually most confluent on the face and upper body and initially blanches on pressure. During the next 3-4 days it fades in the order of its appearance, and assumes a non-blanching brownish appearance.

Virus can be isolated from the nasopharynx and blood during the latter part of the incubation period and during the early stages of rash development. Viraemia generally clears 2-3 days after rash onset in parallel with the appearance of the antibody. Individuals with measles are considered infectious 2 to 4 days before until 4 days after rash onset.

Complications of measles infection are common. In industrialized countries the most commonly reported complication is otitis media (7%-9%), pneumonia (1%-6%), diarrhea (85), post infectious encephalitis (1 per 1000 to 2,000 cases), subacute sclerosing panencephalitis (SSPE) (1 per 100,000 cases) and deaths (1-3 per 1000 cases). Complications are likely to be present if the fever has not decreased within 1-2 days of rash onset. The risk of serious complications and death is increased in children less than 5 years of age and adults greater than 20 years of age. Pneumonia which is responsible for approximately 60% of deaths, is more common in young patients, whereas acute encephalitis occurs more frequently in adults. Pneumonia may occur as primary viral pneumonia or as a bacterial super-infection. Other complications include thrombocytopenia, laryngotracheobronchitis, stomatitis, hepatitis, appendicitis, ileocolitis, pericarditis and myocarditis, glomerulonephritis, hypocalcaemia, and Stevens- Johnson syndrome.

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Measles epidemiological situation in 2009

Since the beginning of the year 144 measles cases were reported. This compares to 51 for the same time period in 2008. An increase in measles incidence and an outbreak among traveler children and young adults is causing particular concern.

Of the 144 cases reported since the beginning of the year, a consistent increase has been noted since September; 96 cases have been reported since September, compared to 17 for the same time period. (Figure 1).

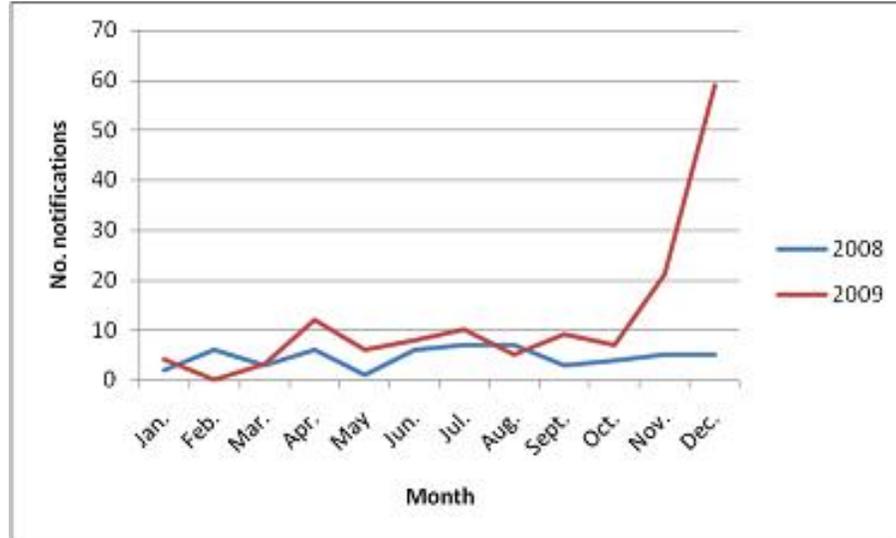


Figure 1. Measles notifications, by month. 2008-2009

The majority of cases have been reported from HSE south (n=45), HSE West (n=26) and HSE southeast (n=35), HSE east (n=31); 56% cases are classified as confirmed (Figure 2).

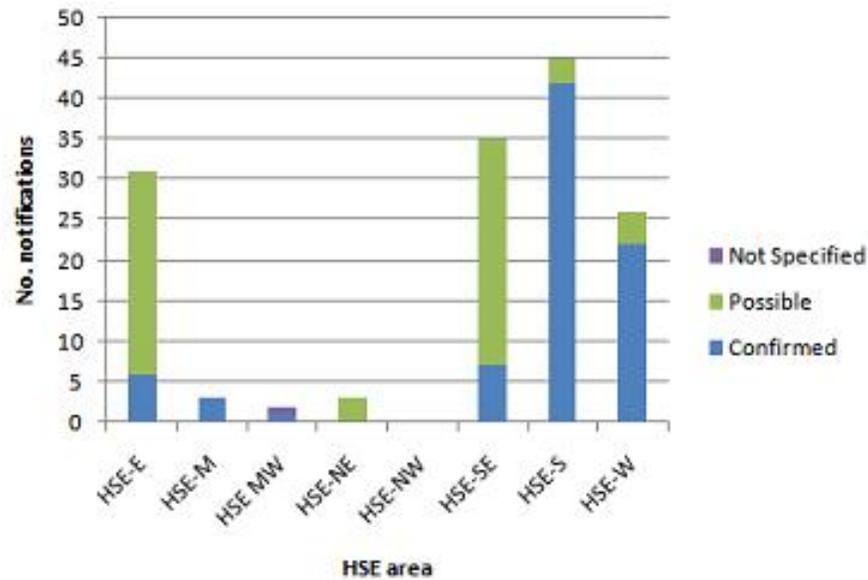


Figure 2. Measles notifications in 2009, by HSE area and case classification.

More than half of cases are in the < 1 or 0-4 year age group. The majority of cases have never had a MMR vaccine. MMR vaccination status by age group is seen in Figure 3.

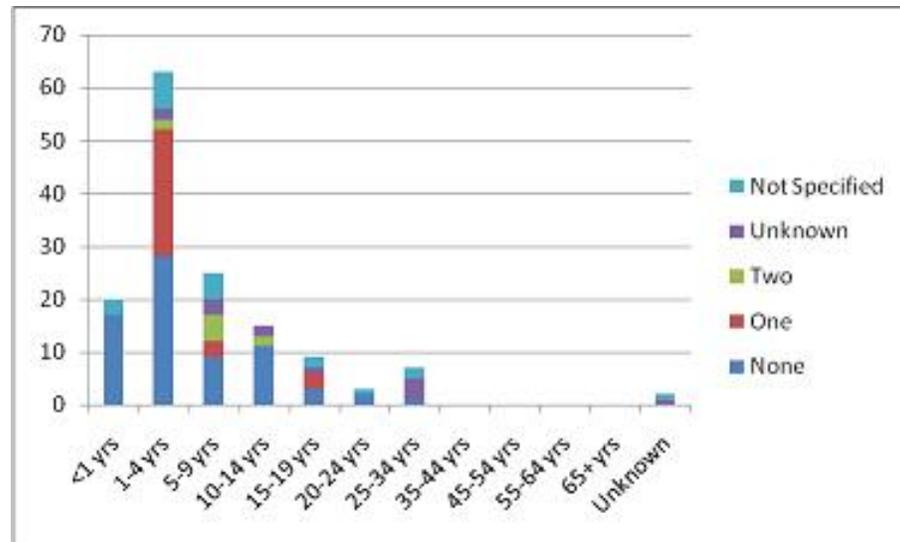


Figure 3. Measles notifications by age group and vaccination status, 2009 (n=145)

The outbreak is disproportionately affecting the Traveller community. With the majority of cases reported since September originating from this community. Cases that have occurred among non-Travellers are either linked to the area where the outbreak is occurring (school, health care setting or community). At least four cases appear to have been acquired in the health care setting. Two health care workers and two child patients.

Control measures

Control measures have are focussed on rapid identification of cases and administration of MMR vaccine (ideally within 72 hours of exposure) or immunoglobulin (up to 6 days after exposure). GPs and hospital services throughout the country have been alerted to the outbreak and asked to ensure that all patients in their care. Immunisation clinics have been held in those communities most affected with high uptake reported in many areas.

National MMR vaccination rates at 24 months are currently 89%. Although this is a higher uptake than previously reported it is clear from this outbreak that pockets of population with high levels of immunosusceptibility exist around the country. Urgent efforts are needed to identify these children and young adults in particular who may have missed both routine and catch-up MMR vaccination in previous years. Opportunistic vaccination at GP surgery's of such children, particularly Traveller children is urged to prevent further spread of this disease.

MMR vaccination is recommended for all children at 12 months and 4-5 years of age. Any child that has not received age appropriate vaccination should seek vaccination from their GP.

Preventing health care transmission

In order to prevent transmission of measles in the health care setting, all health care workers (both clinical and non clinical) are recommended to have either serological proof of immunity or evidence of having received 2 doses of MMR. Those who are on immune should receive 2 doses of MMR. Post vaccination testing is not required.

Due to its high infectivity, suspect measles cases should be quarantined. Clinical assessment should ideally be done in the home, or if not possible the patient should be seen at the end of the clinic to avoid exposing other patients to the case. In the Hospital setting, all suspect cases should be isolated upon entry to the hospital and appropriate infection control measures followed. Only those staff with documented measles immunity should provide care to a suspect measles case.

Non-vaccinated children, scheduled for elective hospital admission in the areas where the outbreak is occurring should be vaccinated prior to admission where possible.

Suzanne Cotter and Sarah Gee, HPSC

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