

# 3.5 Rotavirus

## Summary

Number of cases: 2,501  
Crude incidence rate: 59.0/100,000

Rotavirus is the commonest cause of paediatric gastrointestinal infection and causes sporadic, seasonal and occasionally severe gastroenteritis of infants and young children, characterised by vomiting, fever and watery diarrhoea. Transmission is usually person-to-person, mainly via the faecal-oral route. Children less than two years of age are most susceptible to infection, although cases are often seen in elderly and immunocompromised adults, particularly in institutional settings. By the age of six years old, virtually all children will have had at least one episode of rotavirus infection. Symptoms usually last for only a few days but in severe cases hospitalisation may be required due to dehydration. In developed countries, mortality due to rotavirus is low; however, the morbidity and economic costs associated with infection are significant. Three primary serogroups of rotaviruses infect humans; A, B

and C; A being the commonest infecting serogroup. Given the universal distribution of rotavirus, the numbers of notifications will always represent an underestimate of the true incidence and are likely to be more reflective of habits of presentation to medical practitioners and of styles of investigation, notification and testing.

Since 2004, rotavirus, although not specifically listed, has been a notifiable disease in Ireland under the Acute Infectious Gastroenteritis (AIG) disease category. Prior to 2004, rotavirus caress were notified in the former notification category of "Gastroenteritis in children under two years". In April 2008 the case definition of AIG was amended specifying definitions for both rotavirus and the newly notifiable *Clostridium difficile* associated disease. On 4<sup>th</sup> May 2008 these amended definitions formally replaced the previous AIG case classification.

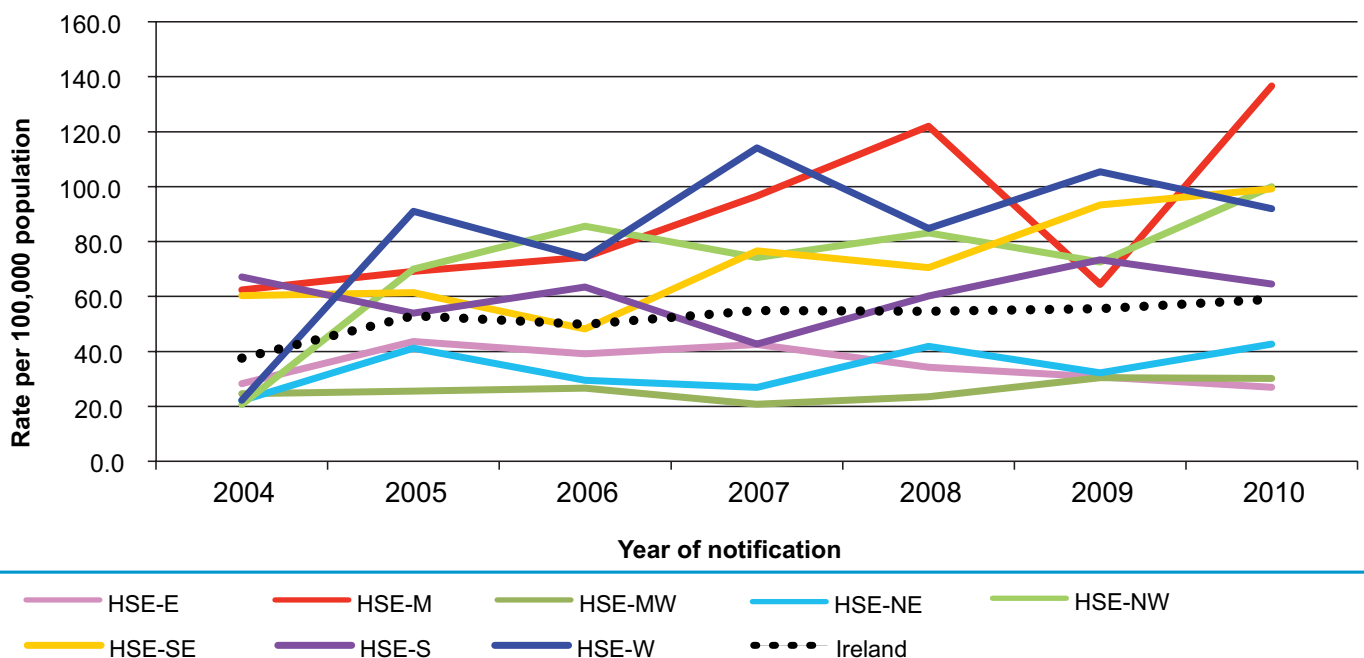


Figure 1. Rotavirus crude incidence rate by HSE area and year, 2004-2010 (CIDR).

**Rotavirus case definition:**

A case of rotavirus infection is a patient with acute onset of vomiting followed by watery diarrhea with fever, which typically lasts between three and eight days, AND one of the following laboratory criteria for diagnosis:

- Detection of rotavirus by antigen assay
- Detection of rotavirus-specific RNA
- Detection of rotavirus by electron microscopy
- Isolation of rotavirus

During 2010, there were 4,288 cases of AIG notified in Ireland, corresponding to a national crude incidence rate (CIR) of 101.2 per 100,000 population and representing a decrease of 1.5% compared to 2009. Of the 4,288 AIG notifications, 2,501 (58.3%) were rotavirus. This corresponds to a national CIR of 59.0 per 100,000 population and represents an increase of 5.9% compared to 2009.

Significant geographical variation was observed in regional rotavirus CIR. The highest regional CIR was observed in HSE-M at 136.7 per 100,000 population and in HSE-NW at 100.0 per 100,000 population. The lowest regional CIR was observed in HSE-E at 26.9 per 100,000 and HSE-MW at 30.2 per 100,000 population.

Rotavirus infection has a well documented seasonal pattern in Ireland with the number of cases peaking each year in early spring. During 2010, this pattern was evident with rotavirus notifications peaking during March (n=698) and April (n=643). Figure 2\* illustrates the seasonal variation in rotavirus cases by month of notification from 2004 to 2010.

Rotavirus is the most common cause of acute gastroenteritis in children worldwide with children generally affected in the first 2-3 years of life. In 2010,

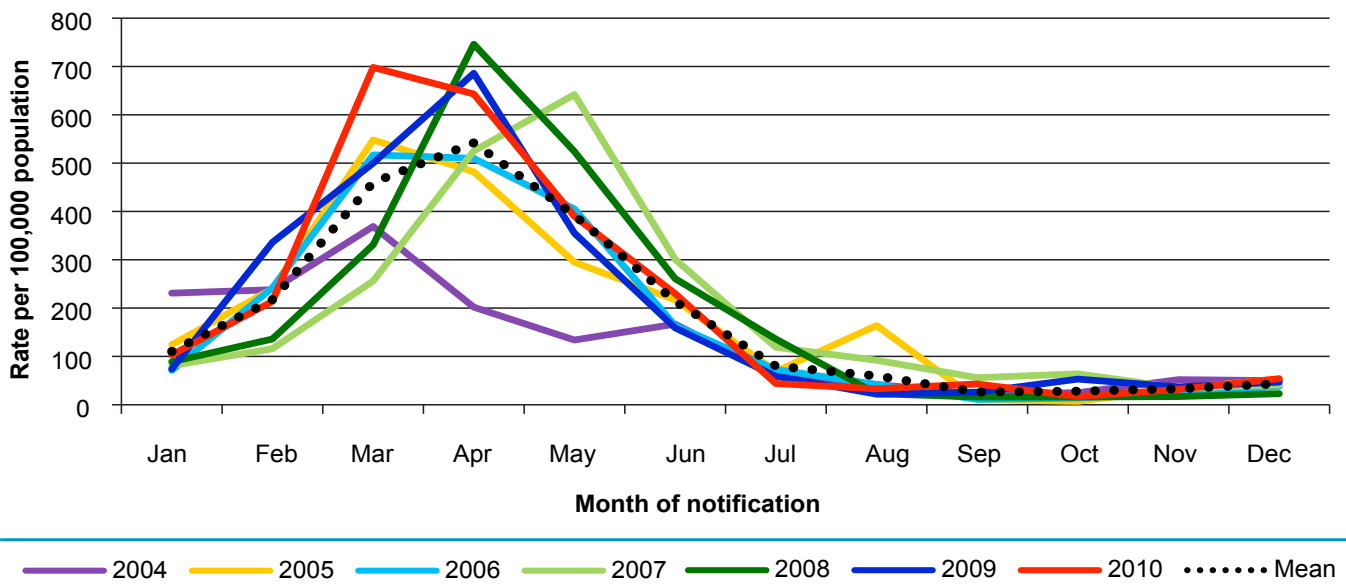


Figure 2. Number of rotavirus notifications by month, 2004-2010 (CIDR).

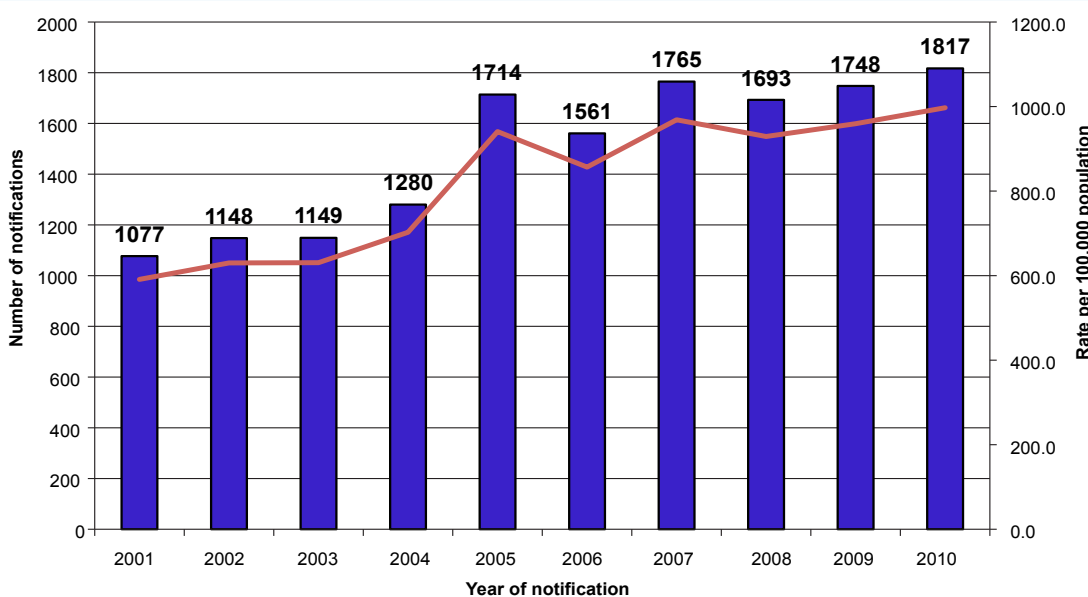


Figure 3. Number of cases of rotavirus in children less than two years of age by year, 2001 to 2010

\*There is a 'false' second peak seen in 2005 during week 33, 2005 caused by bulk uploading of notifications for the HSE-W

72.7% (n=1,817) of cases were aged two years or under. Data from 2004 to 2010 show that the peak incidence of clinical disease occurred in the 6-18 month age group, with 59.1% of notifications in this age group. Figure 3 presents the number of cases of rotavirus in children less than two years of age by year, 2001 to 2010.

During 2010, 1,191 cases (47.6%) were female and 1,306 (52.2%) were male. Sex was not reported for four (0.2%) cases. This represented a ratio of females: males of 0.9:1.1, which was similar to the ratio observed in previous years.

There were seven outbreaks of rotavirus notified during 2010 with 59 cases of associated illness and six cases were hospitalised. One outbreak was reported as a rotavirus and norovirus co-infection. Of the seven outbreaks, five were family outbreaks occurring in private homes or across extended families while two general outbreaks occurred in a crèche and in a restaurant/cafe. Mode of transmission was reported as person to person spread for all outbreaks. During 2010, 43% of all rotavirus outbreaks occurred during March, coinciding with the peak in rotavirus notifications. The largest outbreaks with the highest numbers ill occurred during April, also coinciding with high levels of rotavirus activity. Table 1 summarises the number of rotavirus outbreaks by location and month during 2010.

Table 1: Summary of rotavirus outbreaks by location and month, 2010

Month	Location	Number of outbreaks	Number ill	Number hospitalised	Number dead
February	Crèche	1	9	2	0
March	Private house	3	6	2	0
April	Restaurant / Cafe	1	35	2	0
May	Private house	1	2	0	0
June	Extended family	1	7	0	0
	<b>Total</b>	<b>7</b>	<b>59</b>	<b>6</b>	<b>0</b>