

# 3.5 Rotavirus

## Summary

Number of cases: 2,354  
Crude incidence rate: 55.5/100,000 population

Rotavirus is the commonest cause of paediatric gastrointestinal infection and causes sporadic, seasonal, often 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 occasionally 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. 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, only gastroenteritis cases in children under two years of age were notifiable. 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.

### 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

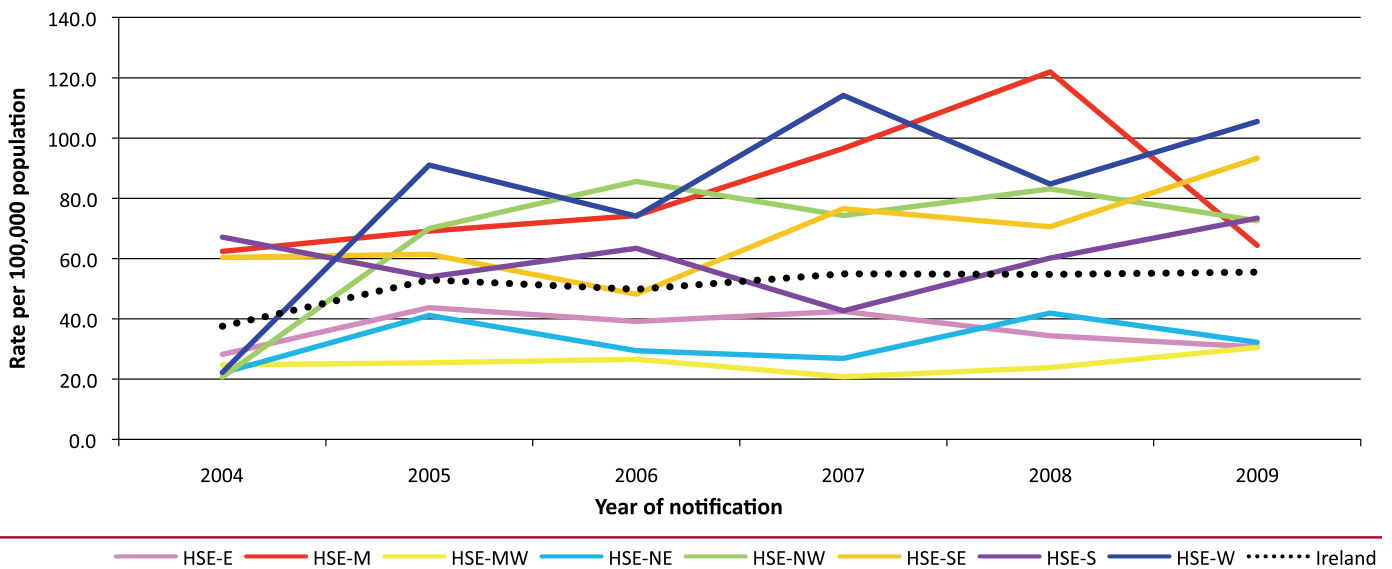


Figure 1: Rotavirus crude incidence rate by HSE area and year, 2004-2009 (CIDR).

During 2009, there were 4,359 cases of AIG notified in Ireland, corresponding to a national crude incidence rate (CIR) of 102.8 per 100,000 population and representing an increase of 4.3% compared to 2008. Rotavirus notification numbers remained similar to the previous year with 2,354 rotavirus cases notified in 2009 corresponding to a national CIR of 55.5 per 100,000 population and representing an increase of 1.5% compared to 2008.

Significant geographical variation was observed in regional rotavirus CIR. The highest regional CIR was observed in HSE-W at 105.5 per 100,000 population and in HSE-SE at 93.3 per 100,000 population. The lowest regional CIR was observed in HSE-MW at 30.5 per 100,000 population and HSE-E at 30.7 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 2009, this pattern was evident with rotavirus notifications peaking during April (n=686). Figure 2<sup>1</sup> illustrates the seasonal variation in rotavirus cases by month of notification from 2004 to 2009.

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 2009, 74.3% (n=1,748) of cases were aged two or under. Data from 2004 to 2009 show that the peak incidence of clinical disease occurred in the 6-18 month age group. Figure 3 presents the number of cases of rotavirus in children less than two years of age by year, 2001 to 2009.

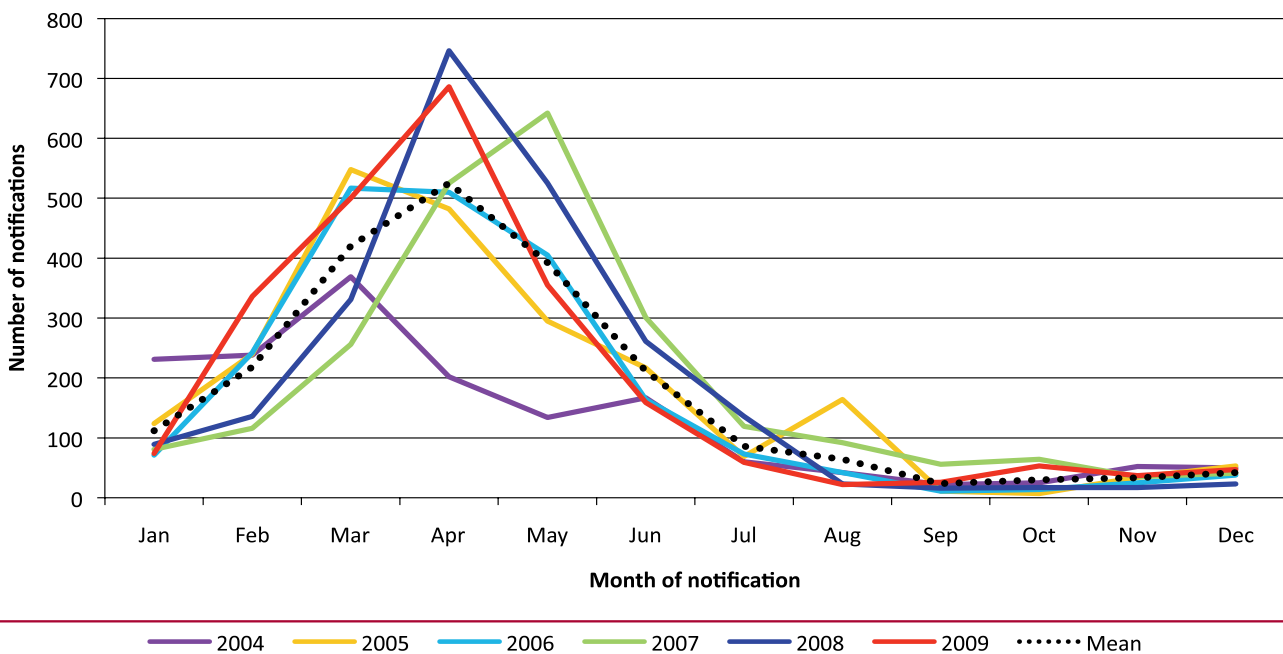


Figure 2: Number of rotavirus notifications by month, 2004-2009 (CIDR).

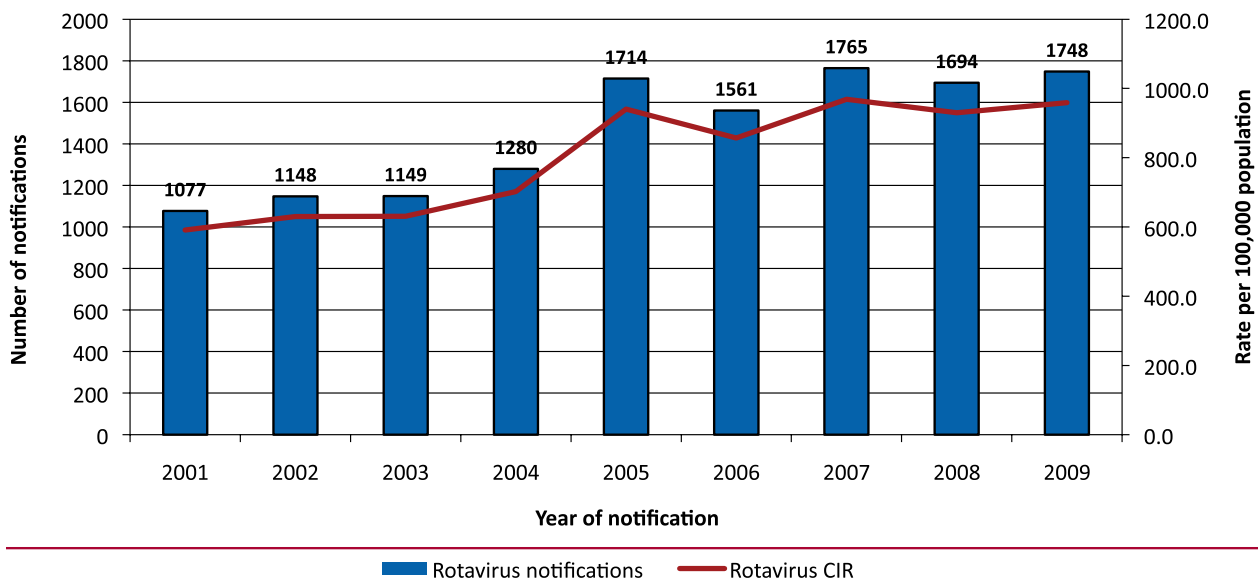


Figure 3: Number of cases of rotavirus in children less than two years of age by year, 2001 to 2009

During 2009, 1,103 cases (46.9%) were female, 1,239 (52.6%) were male and sex was not reported for 12 (0.5%) cases. This represented a ratio of females: males of 0.9:1.1, similar to the ratio observed in previous years.

There were 12 outbreaks of rotavirus notified during 2009 with 74 cases of associated illness. One outbreak was reported as a rotavirus and norovirus coinfection. Of the 12 outbreaks, four occurred in crèches, four were family outbreaks in private homes, three were in hospitals and one was in a community hospital/long-stay unit. Mode of transmission was reported as person to person spread in 10 outbreaks and no information on mode of transmission was reported for the remaining two. During 2009, 50% of all rotavirus outbreaks occurred during April, coinciding with the peak in rotavirus notifications. The largest outbreaks with the highest numbers ill also occurred during April. Table 1 details the number of rotavirus outbreaks by location, transmission mode and month during 2009

#### Reference

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

Table 1: Number of rotavirus outbreaks by location, transmission mode and month, 2009

Outbreak month	Outbreak location	Outbreak transmission mode		Total
		Person-to-person	Unknown	
January	Private house	1		1
February	Creche	1		1
	Private house	1		1
March	Creche	1		1
April	Comm. Hosp/Long-stay unit	1		1
	Creche	2		2
	Hospital		2	2
	Private house	1		1
October	Hospital	1		1
November	Private house	1		1
<b>Total</b>		<b>10</b>	<b>2</b>	<b>12</b>