3.5 Rotavirus

Summary

Number of cases 2008: 2342
Number of cases 2007: 2326
Number of cases 2006: 2112
Crude incidence rate: 55.2/100,000

Rotavirus is the 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 often seen in elderly and immunocompromised adults – particularly in institutional settings. 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 newly notifiable *Clostridium difficile* associated disease. On the 4th May 2008 these amended definitions formally replaced the outdated AIG case classification.

In 2008 there were 4204 cases of AIG notified in Ireland. This represents a 67% increase on the number of AIG notifications made in 2007. This increase is solely attributable to the addition of *C. difficile* associated disease to the AIG category. Rotavirus notification numbers remained similar to the previous year with 2342 rotavirus cases notified in 2008 (representing a 0.7% increase on 2007).

Updated Rotavirus Definition:
A case of rotavirus infection is a patient with acute onset of vomiting followed by watery diarrhoea 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

The national crude incidence rate (CIR) reached 55.2 per 100,000 population (table 1). There was significant variation in CIR nationally with the Midland region incurring the highest rate of 125.2 cases per 100,000. The West region had the second highest rate of 85.2 per 100,000. This was similar to the previous year. The lowest rate of occurrence was observed in the East with a CIR of 34.9 per 100,000.

Rotaviral infection has a well documented seasonal pattern in Ireland with peaks in cases occurring each year in early spring. Analysis of the data by week of notification from 2004 to 2008 is shown in Figure 2. (There is a 'false' second peak seen in 2005 during week 33, 2005 which is attributable to bulk uploading of

Table 1. Number of cases, CIR of rotavirus infections in Ireland by HSE area, 2008 and total number with crude incidence rate for 2004-2008.

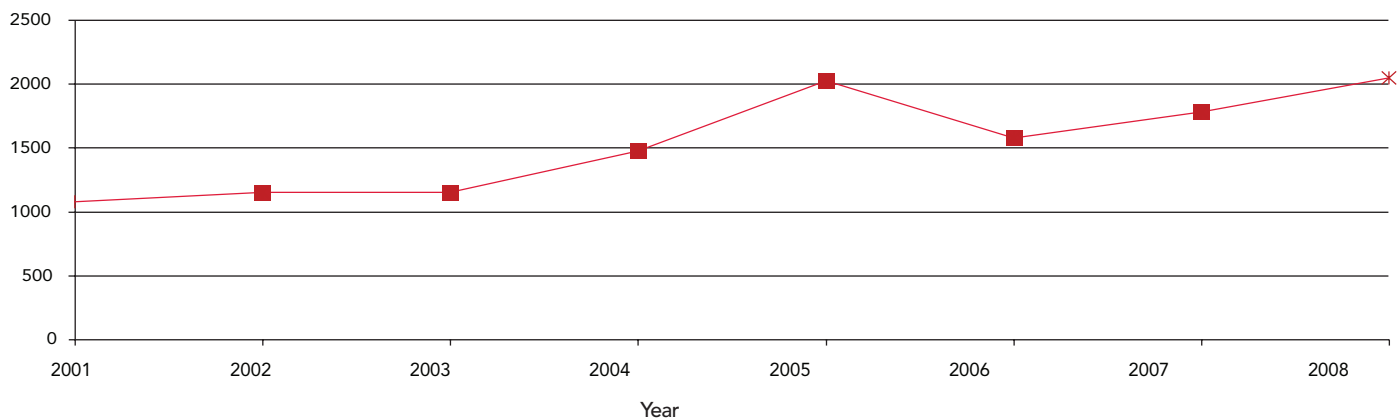| HSE Area	No. of cases	*CIR incl. 95% C.I.	*ASIR incl. 95% C.I.
E	524	34.9 [31.9 - 37.9]	35.7 [32.6 - 38.7]
M	315	125.2 [111.4 - 139.0]	113.0 [100.5 - 125.5]
MW	86	23.8 [18.8 - 28.9]	24.3 [19.1 - 29.4]
NE	165	41.9 [35.5 - 48.3]	36.7 [31.1 - 42.3]
NW	198	83.5 [71.9 - 95.1]	82.2 [70.8 - 93.6]
SE	327	71.0 [63.3 - 78.6]	69.0 [61.6 - 76.4]
S	374	60.2 [54.1 - 66.3]	62.6 [56.3 -68.9]
W	353	85.2 [76.3 - 94.1]	88.1 [79.0 - 97.3]
Total 2008	2342	55.2 [53.0 - 57.5]	54.9 [52.7 - 57.2]
Total 2007	2326	54.9 [52.6 - 57.1]	
Total 2006	2112	50.0 [48.0 - 52.0]	
Total 2005	2251	53.1 [50.9 – 55.3]	
Total 2004	1600	37.8 [35.9 – 39.6]	

Figure 1: Number of cases of rotavirus in children less than two years of age by year, 2001 to 2008
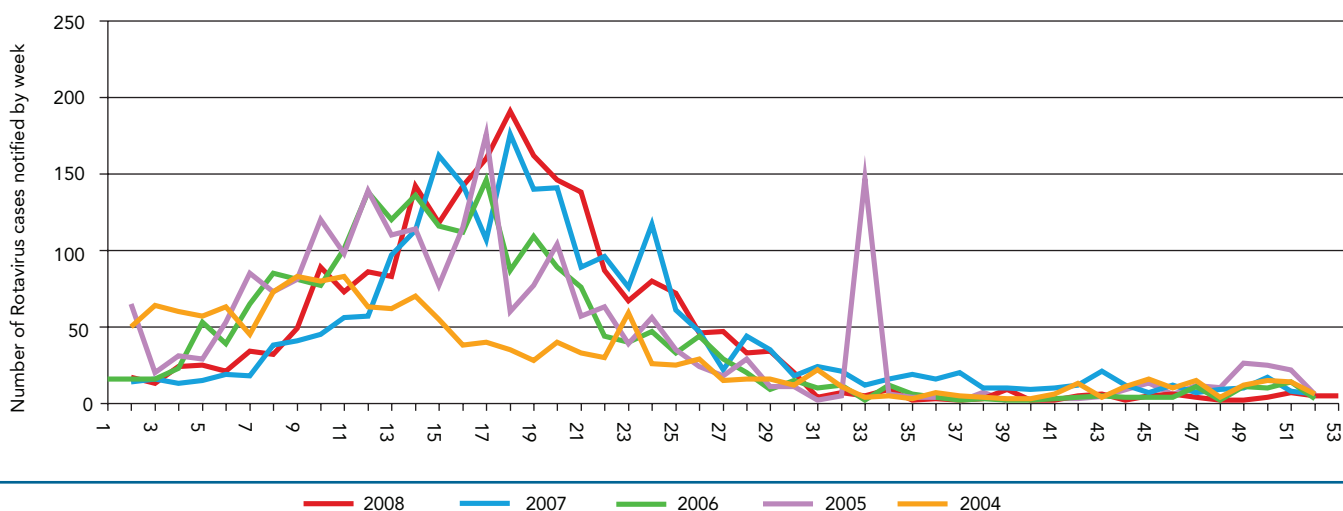

Figure 2: Seasonal distribution of rotavirus events by week, 2004-2008 (CIDR)

notifications for the HSE-W region). A change observed in this seasonal pattern in 2007 was not as apparent in 2008.

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 2008 87.4% (n=2047) of cases were aged two or under. Data from 2004 to 2008 show that the peak incidence of clinical disease occurred in the 6-24 month age group.

Table 2: Rotavirus Outbreaks Notified on CIDR, 2008.

Date	Location	Numbers ill	Mode of transmission
Feb	Crèche	4	Airborne
April	Crèche	28	Person-to-person
April	Crèche	8	Person-to-person
April	Crèche	6	Person-to-person
April	Comm. Hosp /Long-stay unit	45	Person-to-person
April	Private house	2	Person-to –person and airborne
May	Unknown	2	Person-to –person and airborne
October	Private house	2	Person-to –person and airborne

There has been a continuous increase in the number of cases affecting this age group over recent years. Figure 1 presents the number of cases of rotavirus in children less than two years of age by year, 2001 to 2008.

In 2008 males accounted for 1,213 cases (51.8%); females 1,114 (47.6%) and 15 (0.6%) cases where sex was not known. This represented a ratio of males: females of 1.1:1. This was similar to previous years.

There were eight outbreaks of rotavirus notified via CIDR during 2008 (table 2). These outbreaks accounted for 97 cases of illness. Four of the seven outbreaks occurred in crèches, two were private family outbreaks, the location of one was unknown and the final outbreak occurred in a long stay community hospital.

The largest outbreaks of rotavirus occurred in April in a community hospital/long stay unit. There were 45 persons ill with 40 cases aged 65+ (ages of the remaining cases were unknown). Person to person transmission was suspected. The second largest rotaviral occurred again in April in a crèche with 28 cases of illness. The majority of cases were under four years of age (75%).