



PHE National norovirus and rotavirus Report

Summary of surveillance of norovirus and rotavirus

14 December 2016 – data to week 48

This report is published weekly on the PHE [website](#). For further information on the surveillance system mentioned in this report, please visit the [Hospital Norovirus Reporting System website](#).

Contents: | [Summary](#) | [Hospital norovirus outbreak reporting system](#) | [Laboratory reporting](#) | [Laboratory surveillance update](#) | [Activity in prisons](#) | [Rotavirus](#) | [Acknowledgements](#) |

Summary

The next report will be published on 22 December 2016.

Norovirus

- Reports of suspected and confirmed outbreaks of norovirus in hospitals continue to be reported at similar levels to previous years.
- The number of laboratory reports of norovirus in this season* (since week 27 2016) is 1954. This is 14% higher than the average number for the same period in the five seasons from season 2011/12 to season 2015/16 (1719), and 64% higher than the same weeks last season. Norovirus activity varies from season-to-season, and the level of norovirus activity was lower than average during the 2015/16. Therefore it is more appropriate to use the five season average for comparison. Due to this variability between norovirus seasons, it is not possible to predict how the current season will progress.
- The most commonly detected norovirus strains in circulation this season belong to the Sydney2012 cluster of GII.4 noroviruses. This group of GII.4 norovirus strains have been circulating worldwide since 2012.

Rotavirus

- The number of laboratory reports of rotavirus in this season* (since week 27 2016) is 998. This is 3% higher than the ten season average for the same period in the seasons 2003/04 to 2012/13 (967)**. Rotavirus laboratory reports are currently at similar levels to previous years.
- In the first season following the introduction of the rotavirus vaccine in July 2013, a 77% decline in laboratory-confirmed rotavirus infections in infants was observed (Atchison et al, 2016). The total number of laboratory-confirmed rotavirus infections each season has since remained low compared to the pre-vaccine period.
- There may be some fluctuation in activity due to low numbers of infections in the early part of the season when compared to the same period prior to use of the vaccine. Furthermore, most laboratory tests in use do not distinguish vaccine from wild-type rotavirus. In the post-vaccine period, further characterisation of laboratory-confirmed rotavirus infections and considering broader testing of cases among eligible infants for other enteric pathogens are increasingly important to avoid over-attributing rotavirus as a cause of infectious intestinal disease in young children.

*In order to capture the winter peak of activity in one season, for reporting purposes, the norovirus and rotavirus season runs from week 27 in year 1 to week 26 in year 2, i.e. week 27 2009 to week 26 2010, July to June.

**Comparison is made with this ten season period as it is prior to the vaccine introduction.

Hospital Norovirus Outbreak Reporting System (HNORS)

In the two weeks between 21/11/2016 and 04/12/2016 (weeks 47 and 48 2016) the hospital norovirus outbreak reporting scheme (HNORS) recorded 13 outbreaks of norovirus, all of which led to ward/bay closures or restrictions to admissions and 10 of which (77 per cent) were laboratory confirmed as a norovirus outbreak.

This season (since week 27 2016) there have been 130 outbreaks reported, 124 of which (95 per cent) resulted in ward/bay closures and 82 (63 per cent) were laboratory confirmed as norovirus.

Last season (week 27 2015 to week 26 2016) 490 outbreaks were reported, 465 (95 per cent) of which reported ward/bay closures or restrictions to admissions and 359 (73 per cent) were reported as laboratory confirmed norovirus outbreaks.

Table 1: The number of suspected and confirmed norovirus outbreaks in hospitals

Public Health England Centre	Outbreaks 21/11/2016 to 04/12/2016			Outbreaks reported in the last season 2015/2016 (week 27 2015 - week 26 2016)		
	Outbreaks	Ward/bay closure [‡]	Lab confirmed	Outbreaks	Ward/bay closure [‡]	Lab confirmed
East of England				25	24	21
East Midlands	1	1	1	2	2	1
London				2	1	1
North East	2	2	1	88	81	64
North West	2	2	2	45	45	29
South East	1	1		51	49	36
South West	1	1	1	126	125	91
West Midlands	1	1		44	43	27
Yorkshire and the Humber	5	5	5	107	95	89
Total	13	13	10	490	465	359

[‡] Note: not all outbreaks result in whole ward closure, some closures are restricted to bays only

Norovirus Laboratory Reporting

The number of laboratory reports of norovirus in this season* (week 27 2016 to week 48 2016) is 1954. This is 14% higher than the average number for the same period in the five seasons from season 2011/12 to season 2015/16 (1719), and 64% higher than the same weeks last season. Norovirus activity was low during the 2015/16 season and no two seasons are the same therefore it is more appropriate to use the five season average for comparison. Due to the variability of the norovirus season, it is not possible to predict how the season will progress. Data from laboratory reporting are subject to a reporting delay and the number reported in recent weeks is likely to increase as further laboratory reports are received. Norovirus is predominantly a winter pathogen; however, norovirus infections do occur in the summer months.

Figure 1: Seasonal comparison of laboratory reports of norovirus (England and Wales)

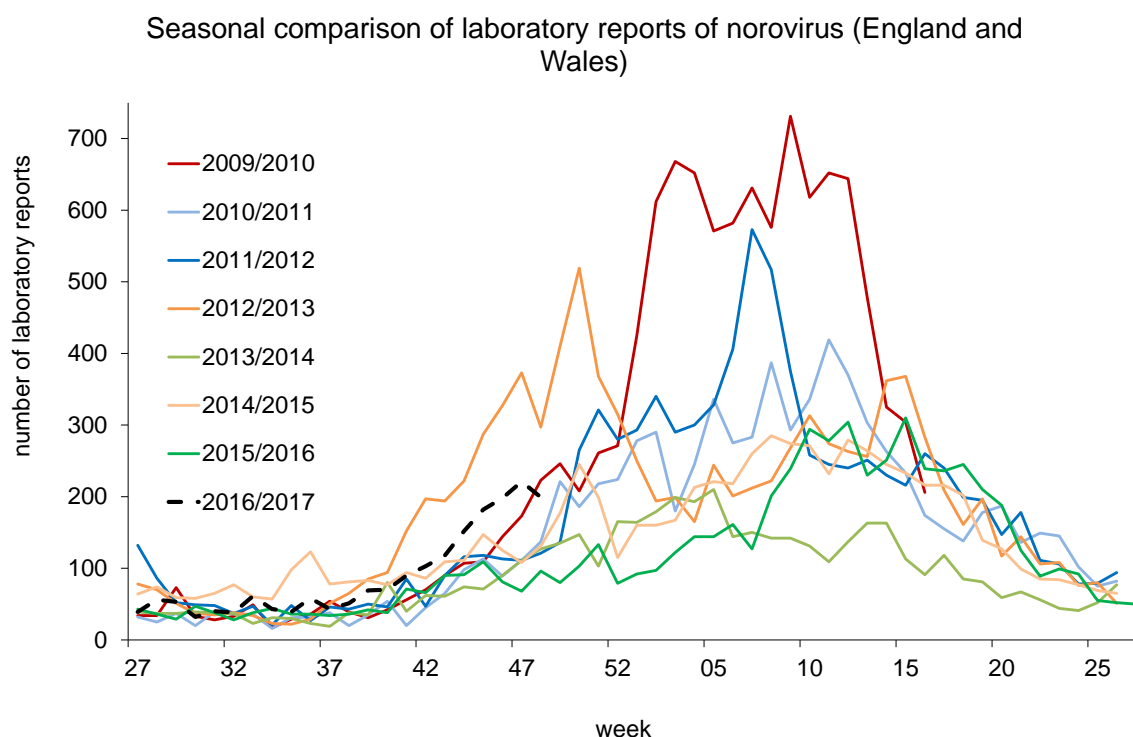


Figure 2: Laboratory and hospital outbreak reports by month of occurrence

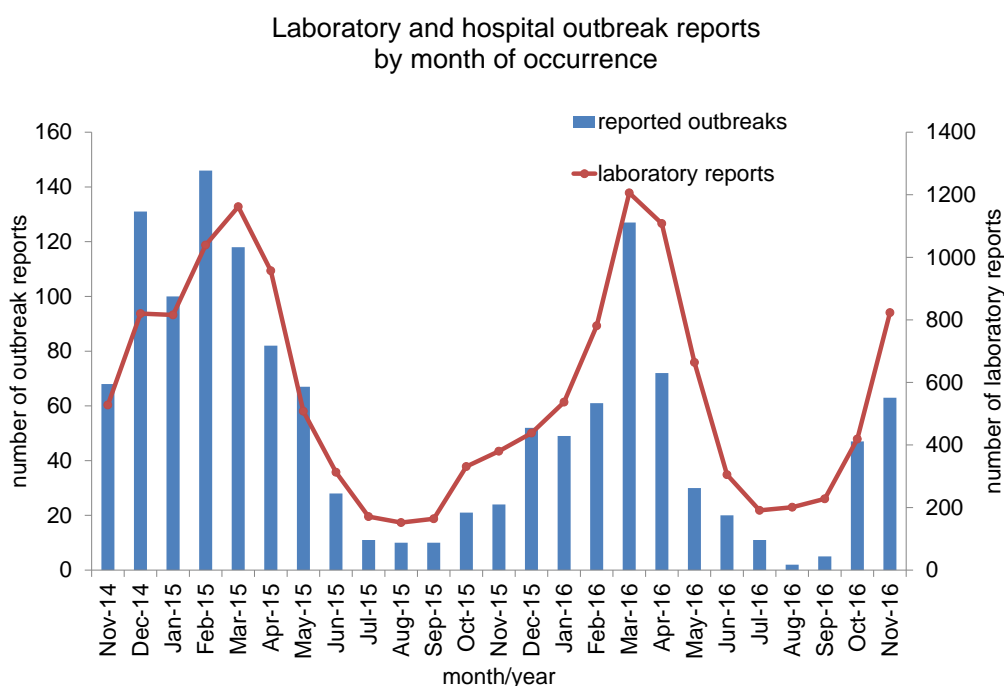


Figure 3: Cumulative number of laboratory reports of norovirus by season 2007/8-2016/17

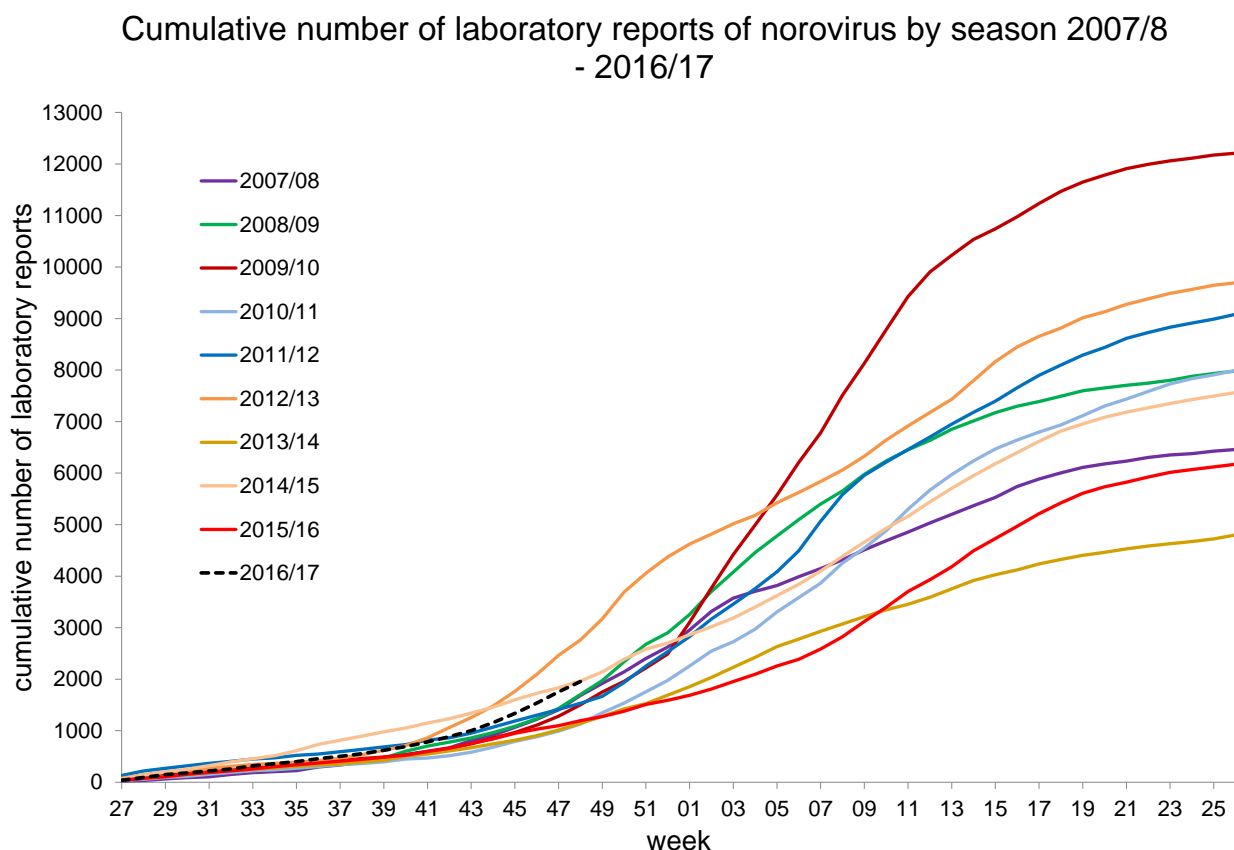
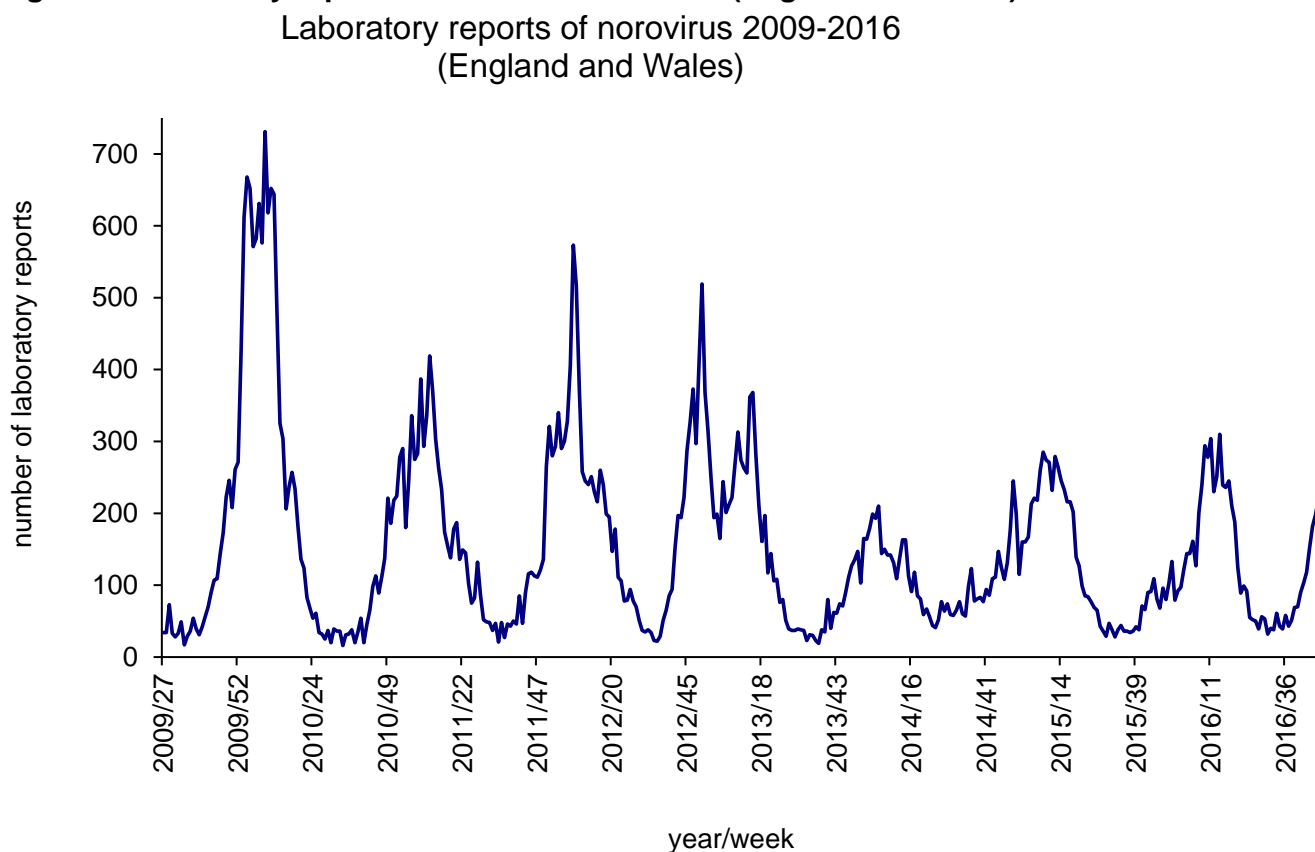


Figure 4: Laboratory reports of norovirus 2009-2016 (England and Wales)



*In order to capture the winter peak of norovirus activity in one season, for reporting purposes, the norovirus season runs from week 27 in year 1 to week 26 in year 2, i.e. week 27 2009 to week 26 2010, July to June.

Laboratory Surveillance Update – Virus Reference Department (VRD)

Date of update: **06/12/2016**

Week of update: **49-2016**

Total number of outbreaks referred to VRD (27-2016 to date): **178**

Total number of outbreaks confirmed as norovirus positive: **94**

Total number of outbreaks from healthcare settings, referred to VRD (27-2016 to date): **112**

Total number of outbreaks from healthcare settings, confirmed as norovirus positive: **38**

Please note that the number of confirmed norovirus positive outbreaks is likely to be higher than indicated as there is a number of samples still awaiting confirmation by sequence analysis.

Figure 5: Season-to-season comparison of norovirus-confirmed outbreaks (all settings) referred to VRD

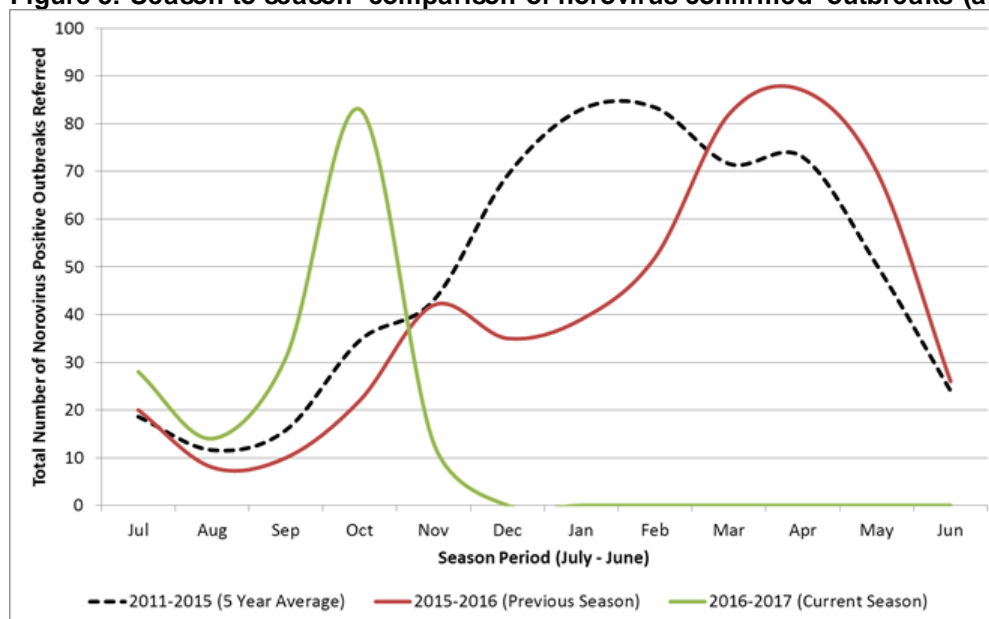
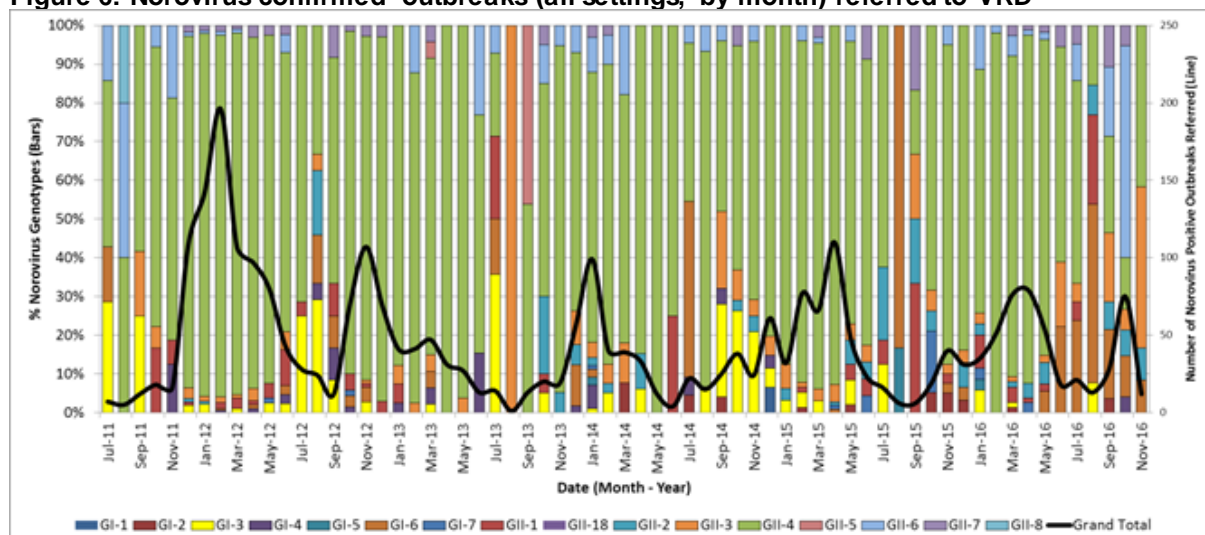
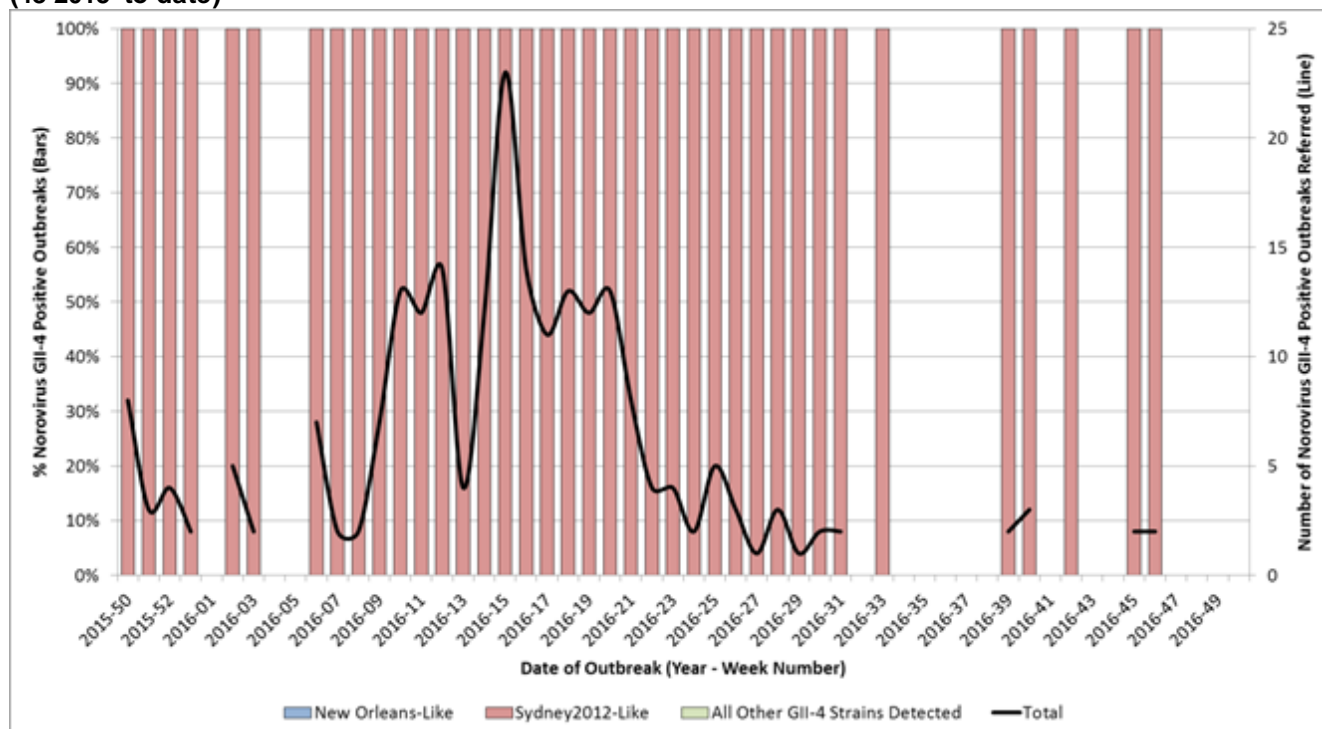


Figure 6: Norovirus-confirmed outbreaks (all settings, by month) referred to VRD



- 78.8 % of norovirus-confirmed outbreaks were associated with GII-4 strains since July 2011.
- 11 different norovirus genotypes have been detected in the current season (27-2016 to date).
- The majority of norovirus-confirmed outbreaks in the current season (27-2016 to date) were associated with GII-4 (35/149, 23.5 %).

Figure 7: GII-4 norovirus strains detected (by week) among norovirus confirmed outbreaks (all settings) (48-2015 to date)



- The most commonly detected GII-4 strain between periods 50-2015 to date is Sydney2012 and is associated with 99.6% of GII-4 norovirus-confirmed outbreaks.
- The most commonly detected GII-4 strain in the previous season (2015-2016) was Sydney2012.

Norovirus Activity in Prisons

No outbreaks of diarrhoea and vomiting have been reported in prisons in week 48 2016.

NB. Not all suspected cases are tested for norovirus. Where there is an outbreak, a sample of individuals will be tested.

For guidance on the management of outbreaks in prisons see:

<https://www.gov.uk/government/publications/multi-agency-contingency-plan-for-disease-outbreaks-in-prisons>

Rotavirus Laboratory Reporting

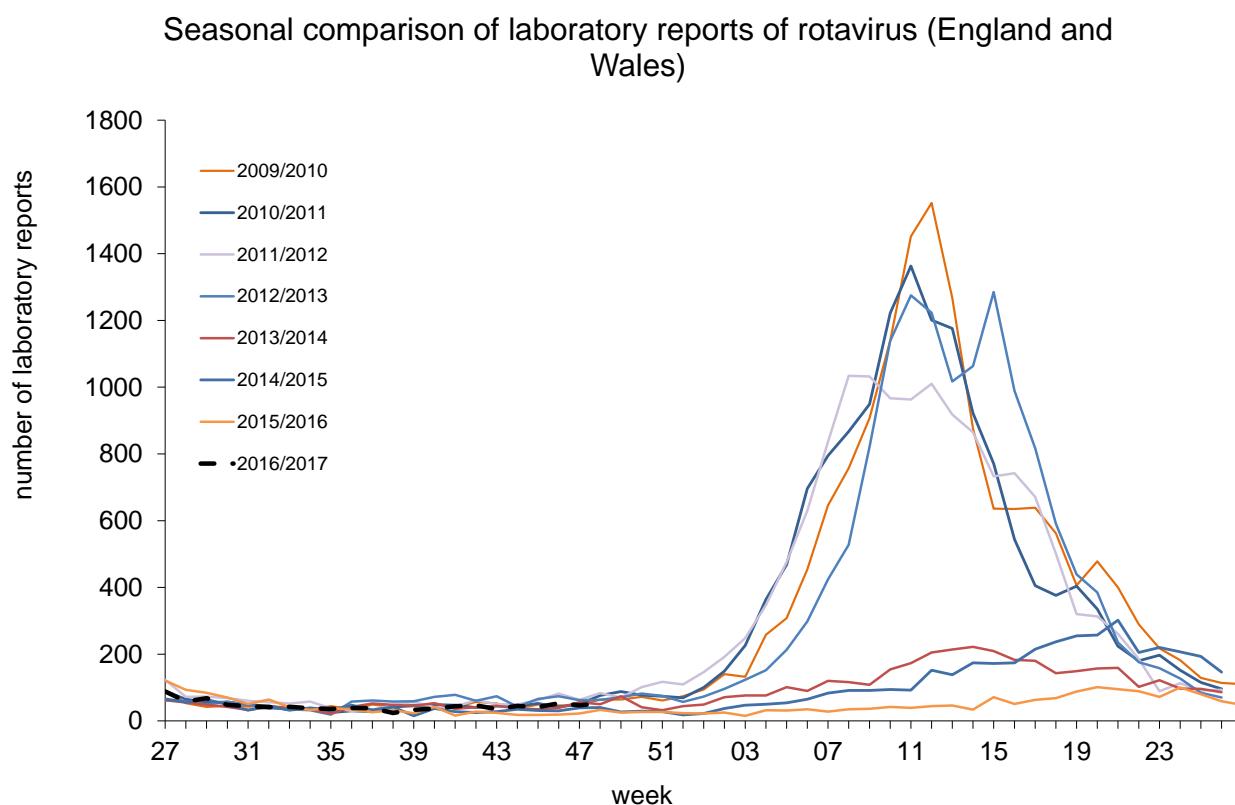
The number of laboratory reports of rotavirus in this season* (week 27 2016 to week 48 2016) is 998. This is 3% higher than the ten season average for the same period in the seasons 2003/04 to 2012/13 (967)**. Rotavirus laboratory reports are currently at similar levels to previous years. In the first season following the introduction of the rotavirus vaccine in July 2013, a 77% decline in laboratory-confirmed rotavirus infections in infants was observed (Atchison et al, 2016). The total number of laboratory-confirmed rotavirus infections each season has since remained low compared to the pre-vaccine period.

There may be some fluctuation in activity due to low numbers of infections in the early part of the season when compared to the same period prior to use of the vaccine. Furthermore, most laboratory tests in use do not distinguish vaccine from wild-type rotavirus. In the post-vaccine period, further characterisation of laboratory-confirmed rotavirus infections and considering broader testing of cases among eligible infants for other enteric pathogens are increasingly important to avoid over-attributing rotavirus as a cause of infectious intestinal disease in young children.

Rotavirus particularly contributes to reported diarrhoea and vomiting illness in children aged under five and is often associated with outbreaks of diarrhoea and vomiting in nurseries and schools.

Data from laboratory reporting are subject to a reporting delay and the number reported in recent weeks is likely to increase as further laboratory reports are received.

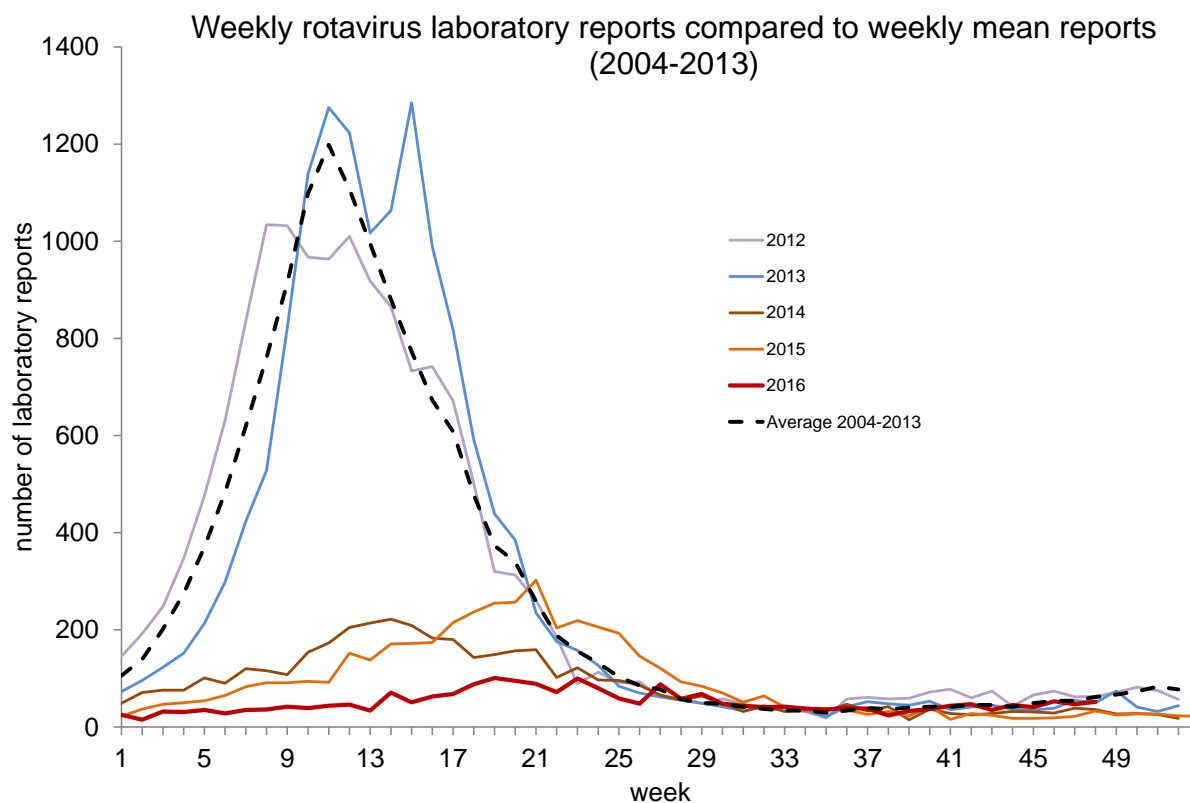
Figure 8: Seasonal comparison of laboratory reports of rotavirus (England and Wales)



*In order to capture the winter peak of norovirus activity in one season, for reporting purposes, the norovirus season runs from week 27 in year 1 to week 26 in year 2, i.e. week 27 2009 to week 26 2010, July to June.

**Comparison is made with this ten season period as it is prior to the vaccine introduction.

Figure 9: Weekly rotavirus laboratory reports compared to weekly mean reports(2004-2013)



Acknowledgements

We thank all of the infection control staff in hospitals who take the time to contribute data to HNORS.

Any queries can be directed to noroOBK@phe.gov.uk