



Infection report

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Vaccine-preventable infections

National rotavirus immunisation programme: preliminary data for England, February 2014 to July 2015

This report provides an update on (i) monthly vaccine coverage data for children routinely offered rotavirus vaccine and (ii) recent numbers of laboratory reports of rotavirus infection in England. The high vaccine coverage levels rapidly achieved for the first cohorts of children routinely offered this vaccine in England continue to be maintained; on average, 93.0% of the children evaluated at 25 weeks of age between February 2014 and July 2015 had received the first dose and 88.1% had completed the two dose course.

For the second consecutive season since introduction of the vaccine there was a substantial reduction in laboratory reports of rotavirus, with a 63% reduction compared to the average in the preceding ten seasons. The continued high coverage and rapid reduction in reported rotavirus infections suggests that the continued reduction in the burden of rotavirus is achievable.

Background

The national rotavirus vaccination programme started in July 2013 following the advice and recommendation by the Joint Committee on Vaccination and Immunisation (JCVI) [1]. Rotavirus is a very common and potentially serious infection of the large bowel, mainly affecting young babies. Nearly every child will have at least one episode of rotavirus gastroenteritis by five years of age. People of any age can be affected but the illness is more severe in young infants. Symptoms of gastroenteritis include vomiting, diarrhoea, stomach cramps and mild fever, which usually last for three to eight days. Some children, however, may develop severe gastroenteritis and become dehydrated, and require hospitalisation for rehydration.

The rotavirus immunisation programme is expected to prevent a significant number of young infants from developing this infection. It may also provide some additional protection to the wider population through herd immunity. The aim of the rotavirus immunisation programme is to provide two doses of Rotarix® vaccine to infants from six weeks of age and before 24 weeks of age. The first dose of Rotarix® vaccine is offered at two months (approximately eight weeks) of age and the second dose at least four weeks after the first dose. The Rotavirus Green Book chapter summarises the history and epidemiology of the disease and provides detailed recommendations on supply, storage and use of the vaccine, as well as guidance on contraindications, precautions and adverse reactions [2].

An annual evaluation of rotavirus coverage for the period February 2014 to March 2015 was published in July 2015 [3] and indicated that high coverage was rapidly achieved and maintained in the first year and that a significant concurrent reduction in the burden of rotavirus infection occurred. This report provides an update on that evaluation with additional data included from April to July 2015.

Data collection methods

In order to rapidly assess rotavirus vaccine coverage a temporary sentinel surveillance programme was set up to extract monthly coverage data directly from GP systems for children who had just reached the upper age for receiving the vaccine (25 weeks). This early evaluation of vaccine coverage has provided assurance that the vaccine has been well accepted alongside the other childhood immunisations. This temporary surveillance programme for rotavirus coverage will eventually be replaced by data from the routine quarterly COVER (Cover of vaccination evaluated rapidly) reporting scheme which will assess vaccine coverage for all children in England aged 12 months using data extracted from Child Health Information Systems (CHIS).

Vaccine coverage data for the rotavirus immunisation programme are submitted through the ImmForm* website and are monitored, validated and analysed by PHE. Monthly automatic data uploads from sentinel GP practices with the appropriate extraction facilities allows collection with minimal or no burden to the NHS whilst providing quick and timely coverage figures.

Monthly data are collected on the following:

- ▶ *Denominator*: the number of infants in a GP practice who, in the survey month, reach 25 weeks of age;
- ▶ *Numerators*: number of infants in the denominator who received a) a first dose and b) a second dose of Rotarix® from six weeks of age up to 24 weeks of age, including vaccinations given by other healthcare providers.

Vaccine coverage data

Figure 1 shows coverage between February 2014 and July 2015. Although the vaccine programme was introduced in July 2013 the first cohort of children aged 25 weeks to be routinely scheduled rotavirus vaccine alongside other primary vaccines at two and three months of age were evaluated from January 2014. However, data are presented from the February evaluation due to data quality issues prior to this.

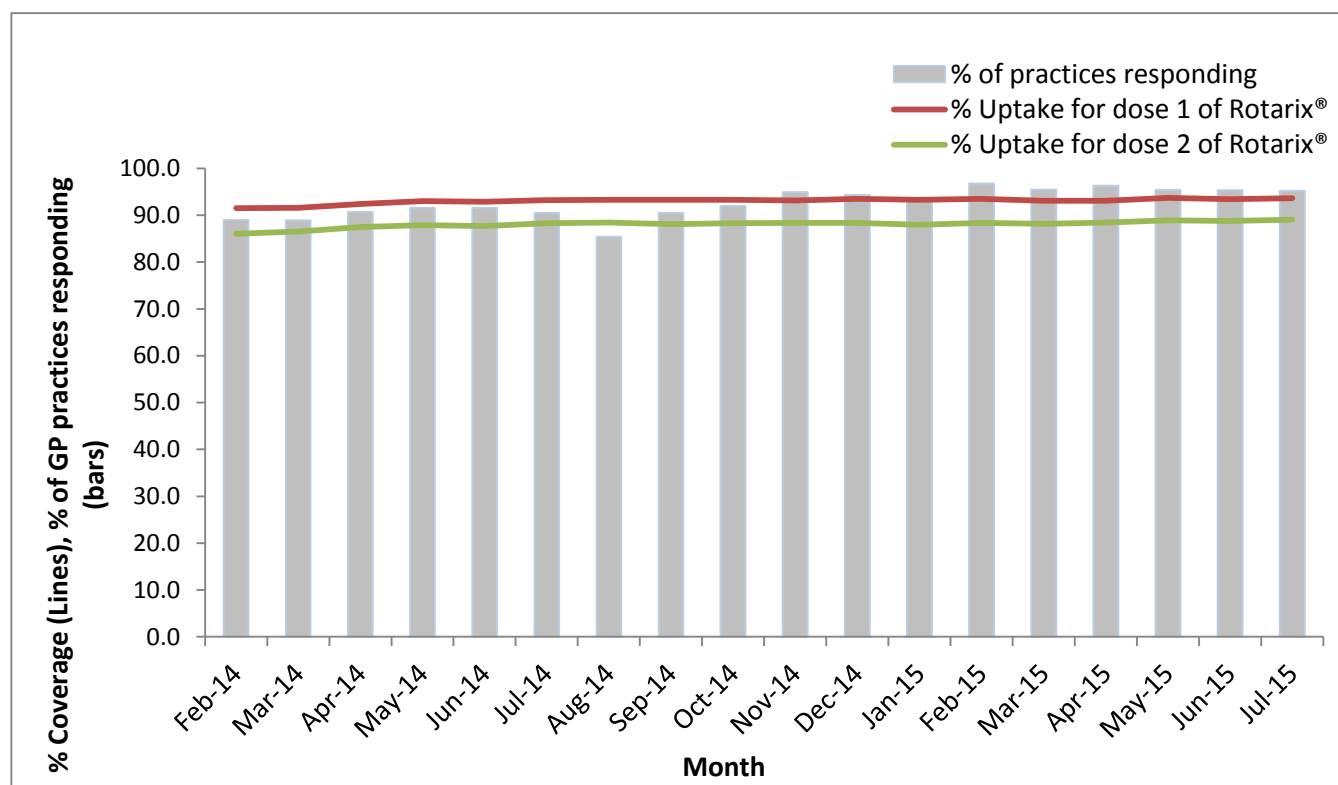
1. ImmForm is the system used by Public Health England to record vaccine coverage data for some immunisation programmes and to provide vaccine ordering facilities for the NHS. <https://www.immform.dh.gov.uk/SignIn.aspx?ReturnUrl=%2f>.

GP practice participation has been high and ranged from 85.4% (August 2014) to 96.8% (February 2015) of all GP practices in England and has been sustained above 95% since January 2015 (each monthly survey represents between 46,039 and 55,004 children).

Rotavirus vaccine coverage data for children in the routine vaccination cohort (i.e. evaluated between February 2014 and July 2015) averaged 93.0% for one dose, and has been maintained consistently at 93% since May 2014. All but one of 25 Area Teams (ATs) have consistently reported coverage of the first dose above 90% since February 2014. In the last 12 months of the survey, three ATs consistently achieved coverage >95% each month (Durham, Darlington and Tees; Cumbria, Northumberland, Tyne and Wear and South Yorkshire and Bassetlaw), and this increased to 11 ATs in the latest quarter (table 1).

Coverage for the two dose course averaged 88.1% between February 2014 and July 2015, and has been maintained consistently above 88% since July 2014, reaching its highest at 89.0% in July 2015 (table 2). For all but two ATs, coverage of the second dose has consistently been >85% since February 2014. Four ATs have consistently achieved coverage of >90.0% since February 2014, and more ATs have achieved higher coverage since then, with 11 AT's consistently achieving coverage >90.0% in the last 12 months and increased to 17 AT's in the last quarter.

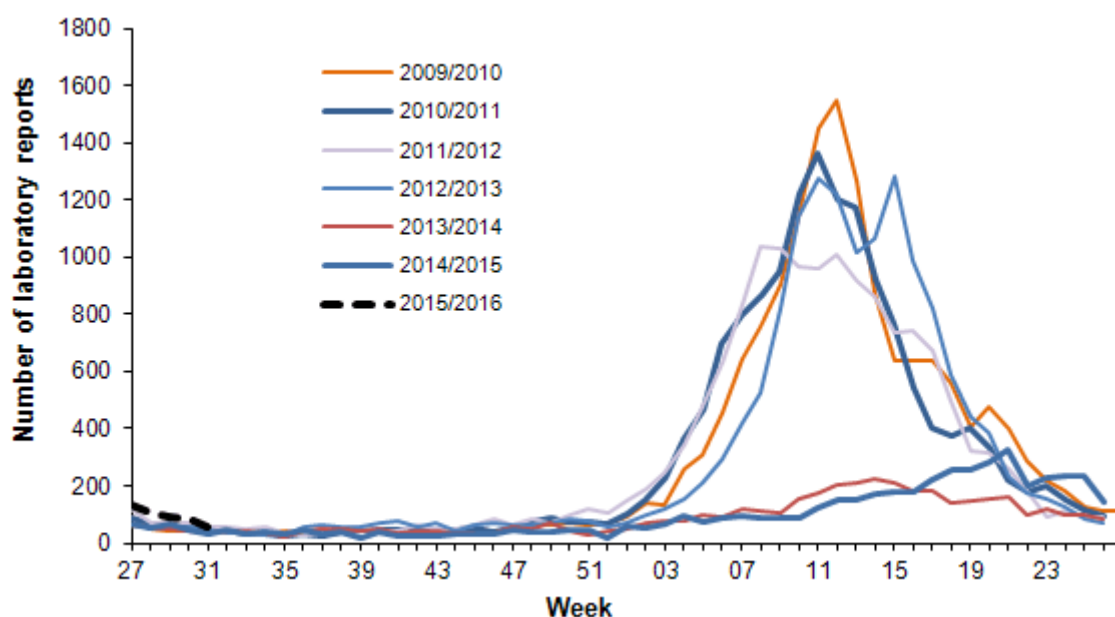
Figure 1. Monthly rotavirus vaccine coverage at 25 weeks of age for 1st and 2nd dose, and the percentage of GP practices reporting: England, February 2014 to July 2015



Laboratory reports of rotavirus infection

Rotavirus infection in the UK is seasonal occurring mostly in winter and early spring (January to March). Data on the number of laboratory reports of rotavirus in England have been collated for many years by PHE Gastrointestinal Infections Department. For the second consecutive year, the number of rotavirus laboratory reports in England were substantially lower (63%) in the 2014/15 season than the average for the same period in the preceding ten seasons (figure 2). The observed decrease in rotavirus activity 2013/2014 season is likely to be associated with the introduction of the oral vaccine in July 2013.

Figure 2. Seasonal comparison of laboratory reports of rotavirus 2009/2010 to 2014/15: England and Wales



Source: PHE Monthly National Norovirus and Rotavirus Report prepared by the Gastrointestinal Infection Department, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/453954/Norovirus_update_2015_week_31.pdf

Note: In order to capture the winter peak of norovirus activity in one season, for reporting purposes, the 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

Table 1. Monthly rotavirus vaccine coverage for one dose (%) at 25 weeks of age by Area Team: England for the 12 months, August 2014 to July 2015*

Area Team	Aug 2014	Sept 2014	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	June 2015	July 2015
Cheshire, Warrington & Wirral (Q44)	92.9	94.4	91.7	93.9	94.0	94.7	94.3	93.2	92.7	94.0	93.5	92.8
Durham, Darlington & Tees (Q45)	95.9	96.4	96.9	96.5	96.1	96.5	95.0	96.2	96.5	95.7	96.5	95.7
Greater Manchester (Q46)	92.1	92.5	91.9	92.3	92.2	91.8	92.3	91.3	90.1	92.1	91.0	91.8
Lancashire (Q47)	95.2	96.1	94.7	95.3	95.2	93.8	94.6	94.4	94.4	95.6	94.8	95.3
Merseyside (Q48)	90.2	90.5	92.5	92.5	91.0	92.0	91.1	90.6	90.6	90.6	93.7	91.4
Cumbria, Northumberland, Tyne & Wear (Q49)	96.2	96.5	96.2	95.8	96.4	95.6	95.2	96.6	95.9	95.4	95.5	95.1
North Yorkshire & Humber (Q50)	96.2	96.1	94.3	95.8	96.4	95.0	95.3	94.7	96.0	95.8	95.6	96.3
South Yorkshire & Bassetlaw (Q51)	95.0	96.6	95.1	95.6	95.3	95.6	96.1	95	94.7	95.7	96.2	95.8
West Yorkshire (Q52)	94.9	95.3	95.1	95.2	95.1	95.3	95.6	94.4	94.6	95.3	95.0	95.1
Arden, Herefordshire & Worcestershire (Q53)	94.5	94.6	93.9	95.3	96.6	95.6	93.3	94.5	94.8	95.4	95.1	95.7
Birmingham & the Black Country (Q54)	93.3	93.6	92.2	92.0	93.0	93.0	91.7	91.2	92.5	92.5	92.7	92.9
Derbyshire & Nottinghamshire (Q55)	95.1	94.7	94.8	94.5	95.6	95.1	95.4	95.4	94.8	96.1	95.9	95.7
East Anglia (Q56)	95.6	95.5	95.5	94.1	95.2	95.1	94.3	94.8	94.3	95.4	94.7	94.7
Essex (Q57)	95.7	95.3	95.3	96.1	94.5	93.8	95.1	94.4	95.0	95.5	94.6	96.4
Hertfordshire & the South Midlands (Q58)	94.4	94.6	95.2	94.5	95.8	94.5	95.2	94.4	95.1	95.1	94.8	94.9
Leicestershire & Lincolnshire (Q59)	94.6	94.6	94.7	93.9	93.8	94.0	94.8	92.8	93.0	94.1	93.1	94.7
Shropshire & Staffordshire (Q60)	93.8	94.3	94.5	93.4	94.9	94.5	94.7	95.7	95.6	94.8	95.1	95.4
Bath, Gloucestershire, Swindon & Wiltshire (Q64)	94.4	94.7	93.7	94.0	94.4	94.2	94.0	95.2	96.0	94.4	94.0	94.9
Bristol, North Somerset, Somerset & South Gloucestershire (Q65)	92.4	92.3	93.3	92.4	92.6	91.3	93.1	92.9	92.2	92.6	92.0	93.1
Devon, Cornwall & Isles of Scilly (Q66)	89.5	86.9	89.7	90.1	90.6	91.5	90.3	91.4	88.1	89.7	91.9	89.7
Kent & Medway (Q67)	94.2	92.5	93.9	93.8	94.0	94.6	94.6	92.7	93.9	94.3	93.3	94.7
Surrey & Sussex (Q68)	92.4	92.8	92.9	93.2	93.0	92.8	92.4	93	92.1	94.2	93.2	93.5
Thames Valley (Q69)	92.9	93.6	94.0	93.7	93.4	94.2	94.7	94.7	94.3	95.4	95.2	93.9
Wessex (Q70)	95.6	93.5	94.4	94.8	94.5	94.3	95.3	94.4	93.9	95.0	94.9	95.6
London (Q71)	89.9	90.4	90.4	89.7	90.3	89.9	91.1	90	90.5	91.1	90.6	90.7
England	93.3	93.3	93.3	93.2	93.5	93.3	93.5	93.1	93.1	93.7	93.4	93.6
Monthly reported denominator	46039	47134	49247	50748	51862	51527	50042	55004	52317	50586	48489	51202

* Coverage estimates for the entire period (February 2014 through to July 2014) can be found at: <https://www.gov.uk/government/publications/rotavirus-immunisation-programme-vaccine-coverage-estimates>.

Table 2. Monthly rotavirus vaccine coverage for two doses (%) at 25 weeks of age by Area Team: England for the 12 months, August 2014 to July 2015*

Area Team	Aug 2014	Sept 2014	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	June 2015	July 2015
Cheshire, Warrington & Wirral (Q44)	88.9	91.4	88	89.2	90.9	90.7	89.7	89.7	88.7	90.2	90.5	89.8
Durham, Darlington & Tees (Q45)	92.7	94.6	93.8	92.8	92.6	92.2	91.9	93.4	93.5	92.8	92.8	92.6
Greater Manchester (Q46)	86	86.8	86.5	86.4	86.6	85.1	85.3	84.7	84.6	86.3	85.4	86.1
Lancashire (Q47)	89.3	91.7	90.3	90.4	90.4	88.7	89.8	90.6	90.6	91.2	91.4	90.8
Merseyside (Q48)	83.1	82.8	82.8	84.3	83.6	85.6	82.6	85.5	83.6	83.9	88.0	87.2
Cumbria, Northumberland, Tyne & Wear (Q49)	92.6	92.1	92.2	92.4	93.5	91.3	91.2	93.2	92.1	91.5	91.2	90.7
North Yorkshire & Humber (Q50)	93	90.8	91	92.2	92.4	91.2	91.1	90.7	92.5	92.1	91.9	92.6
South Yorkshire & Bassetlaw (Q51)	90.6	91.4	91.1	90.8	90	89.1	91.4	89.7	90.6	91.9	92.6	92.2
West Yorkshire (Q52)	91.8	91.1	91.7	91.7	91.4	91.1	91.9	91.1	91.1	91.8	91.8	92.0
Arden, Herefordshire & Worcestershire (Q53)	88.7	89.8	89.9	89.9	91.6	90.4	88	91.0	89.7	91.0	90.3	91.5
Birmingham & the Black Country (Q54)	87	86.4	85.6	86.3	85.7	86.9	86	85.3	87.4	86.4	86.8	87.4
Derbyshire & Nottinghamshire (Q55)	91.3	89.5	89.9	90.4	91.1	89.7	90.9	90.4	91.0	91.1	91.6	92.2
East Anglia (Q56)	91.9	92.5	91.7	90.9	90.6	91	91.3	91.5	90.4	92.2	91.7	91.6
Essex (Q57)	92.8	91.5	91.8	93.7	91.3	89.8	91.2	90.8	91.6	91.8	91.7	93.3
Hertfordshire & the South Midlands (Q58)	91	91.9	92.7	91.3	92.2	90.6	92.1	91.0	92.1	92.3	92.2	91.8
Leicestershire & Lincolnshire (Q59)	90.8	91.7	92	90.6	90.3	90.6	89.8	89.4	89.6	90.7	90.7	92.3
Shropshire & Staffordshire (Q60)	90.9	89.9	90.4	89.6	91.8	90.5	90.8	91.1	93.0	91.6	91.0	90.8
Bath, Gloucestershire, Swindon & Wiltshire (Q64)	90.5	90.4	89.6	91	90.3	90.4	90.1	91.8	92.6	90.8	90.7	92.5
Bristol, North Somerset, Somerset & South Gloucestershire (Q65)	87.1	87.8	88.6	87.9	87.8	86.3	88	88.1	86.6	88.3	87.7	89.7
Devon, Cornwall & Isles of Scilly (Q66)	84.5	81.8	83.3	85.1	85	87.1	84.4	86.6	82.2	84.5	87.0	85.4
Kent & Medway (Q67)	88.9	87.1	88.8	89.5	88.9	88.2	88.5	86.9	89.9	89.7	88.9	89.8
Surrey & Sussex (Q68)	88.4	87.9	88.6	88.6	88.5	87.9	87.9	88.3	87.8	89.7	89.6	90.1
Thames Valley (Q69)	88.8	88.8	88.5	88.1	89.1	89.5	89.7	88.6	88.8	91.4	90.2	88.6
Wessex (Q70)	91.6	89.4	89.9	91.6	90.4	90.4	91.2	90.3	90.4	90.9	92.1	92.4
London (Q71)	82.6	82.8	83.1	83	82.8	82.4	84.2	83.2	83.9	84.1	83.2	83.2
England	88.4	88.2	88.3	88.4	88.4	87.9	88.4	88.2	88.4	88.9	88.8	89.0
Monthly reported denominator	46039	47134	49247	50748	51862	51527	50042	55004	52317	50586	48489	51202

* Coverage estimates for the entire period (February 2014 through to July 2014) can be found at:
<https://www.gov.uk/government/publications/rotavirus-immunisation-programme-vaccine-coverage-estimates>.

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[https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440456/Rotavirus GatewayFinalVersion.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440456/Rotavirus_GatewayFinalVersion.pdf)