



Public Health  
England

Protecting and improving the nation's health

# **Human Papillomavirus (HPV) vaccination coverage in adolescent females in England: 2014/15**

## About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

Public Health England  
Wellington House  
133-155 Waterloo Road  
London SE1 8UG  
Tel: 020 7654 8000  
[www.gov.uk/phe](http://www.gov.uk/phe)  
Twitter: @PHE\_uk  
Facebook: [www.facebook.com/PublicHealthEngland](https://www.facebook.com/PublicHealthEngland)

Prepared by: Bhavita Vishram, Lisa Byrne, Joanne White and Michael Edelstein

For queries relating to this document, please contact: [hpv@phe.gov.uk](mailto:hpv@phe.gov.uk)

© Crown copyright 2015

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v2.0. To view this licence, visit [OGL](https://www.ogil.io) or email [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned. Any enquiries regarding this publication should be sent to [insert email address].

Published December 2015

PHE publications gateway number: 2015547

Version	Date	Amendment History
1.0	17.12.2015	Final Version
1.1	18.12.2015	Revision following feedback



# Contents

About Public Health England	2
Executive summary	4
Key points:	4
Background	5
Introduction	5
HPV immunisation schedule	5
Annual Survey	6
Methods	7
Data sources	7
Data collection	7
Definitions	7
Data validation	9
Results and discussion	9
Programme delivery	9
Vaccine coverage in the routine cohort	9
'One year on' vaccine coverage for the 2013/14 routine cohort (mop-up data)	10
UK summary	11
Conclusion	11
References	12
Appendix I: HPV Vaccine coverage for one dose (%) by area team: England, September 2014 to August 2015	13

## Executive summary

This report provides the HPV vaccine coverage in the school year 2014/15. Of 152 local authorities in England, all offered the priming (first) dose to the eligible cohort in the school year, and 86 offered both doses in the school year. Other local authorities will offer the second dose in the 2015/16 school year. Therefore coverage of the completed course for the 2014/15 school year 8 cohort at national level will not be available until autumn 2016.

### Key points:

- In 2014/15, in England, HPV immunisation coverage in the routine cohort for the priming dose remains high at 89.4%
- Vaccine coverage data collected in 2014/15 are not directly comparable to previous years due to changes to the HPV schedule from three doses to two in September 2014
- Out of 25 NHS England Area Teams, 17 achieved over 90% coverage for the priming dose
- Out of 152 local authorities in England, 86 offered two doses of HPV vaccine in all schools within the 2014/15 school year while others deferred the second dose to the next school year. Among those offering two doses in 2014/15, coverage for completed courses ranged from 59.9% to 98%
- Coverage for completed courses of the three-dose schedule for last year's routine cohort (school year 9 in 2014/15) increased by 1.4% to 88.1%

# Background

## Introduction

The national human papillomavirus (HPV) immunisation programme was introduced in September 2008 as a school-delivered programme targeting secondary school year 8 females (12 to 13 years of age) using a three-dose schedule. Vaccine coverage for the completed three-dose course was high from the start, achieving 80% in the first year and consistently above 86% in the last three school years to 2013/14 [1].

Initially, the UK immunisation programme used Cervarix<sup>®</sup>, a bivalent vaccine protecting against two types of HPV (16 and 18), responsible for approximately 70% of cervical cancers as well as other rarer cancers. In September 2012, the immunisation programme switched to using Gardasil<sup>®</sup>, which also protects against two other types of HPV (6 and 11) which cause around 90% of genital warts. However, HPV vaccine does not protect against all cervical cancers, so regular cervical screening is still important.

A full report on the first six years of the HPV programme in England (to August 2014) was published in late 2014 [1]. This report provides an update of annual HPV vaccine coverage in the school year 2014/15. Data are presented by NHS England Area Teams (ATs) and local authorities (LAs).

## HPV immunisation schedule

In March 2014, the Joint Committee on Vaccination and Immunisation (JCVI) advised changing the routine programme from a three to two-dose schedule and this was implemented in September 2014 (Table 1). This change of advice was based on the latest evidence which showed that the antibody response to two doses of the vaccine in adolescent females is as good as a three-dose course. Further advice for health professionals is available from Public Health England (PHE) [2] and the Green Book [3].

In England, for operational purposes, the recommendation from September 2014 was to offer the first (priming) HPV vaccine dose to females in Year 8 (aged 12 to 13 years) and the second dose 12 months later in Year 9 (aged 13 to 14 years), as this would reduce the number of immunisation sessions required in schools. However, in some schools the second dose was scheduled within the same school year, from six months after the first dose. This means that during the first year of the two-dose programme (2014/15), national-level data are only available for the priming dose, although preliminary data on coverage of completed courses for those areas that delivered it are also provided. National coverage for the completed course of HPV vaccination for the

first cohort offered the two-dose schedule will be available for publication in autumn 2016.

**Table 1. Routine HPV immunisation schedule**

September 2008 to August 2014	Three doses of vaccine: second dose given at least one month after the first dose and third dose given at least three months after the second dose
From September 2014	Two doses of vaccine: second dose given no sooner than six months and no later than two years after the first dose

As of September 2014, there were some females who had previously started, but not completed, the three-dose schedule. Females who had received two doses of vaccine less than six months apart, continued on the three-dose schedule as originally planned to complete their full course. Females who had commenced the three-dose schedule before the age of 15 years, and had received two doses of vaccine at least six months apart did not require a third dose to complete the course.

## Annual Survey

Annual vaccine coverage data are fed back to local NHS ATs providing opportunities to identify areas with low vaccine coverage, to target public health action to improve coverage in those populations and to detect changes in vaccine coverage year on year.

Annual HPV coverage statistics enable monitoring of the contribution of the HPV immunisation programme towards protecting young women against cervical cancer and are published as a sub-indicator in the **Public Health Outcomes Framework (PHOF)**. PHE also reports vaccine coverage figures to the World Health Organization and the European Centre for Disease Prevention and Control.

The annual HPV vaccine coverage survey is a mandated collection, approved by the **Standardisation Committee for Care Information (SCCI)**.

# Methods

## Data sources

In 2014/15, NHS England local teams and/or screening and immunisation teams (SITs) reported aggregated LA level data manually via ImmForm, the web based system used by PHE to record vaccine coverage data for some immunisation programmes and to provide vaccine ordering facilities for the NHS [1]. PHE was responsible for the validation, reporting and analysis of these data.

## Data collection

There were a number of changes to the 2014/15 annual collection compared to previous years to reflect the changes in the delivery of the programme (Table 1):

- Only aggregated LA data were collected
- A single annual collection replaces the interim monthly and quarterly data collected in previous years as local variations in the implementation of the two-dose programme in England meant these no longer provided a useful early indication of coverage
- Change to only collecting coverage of HPV dose 1 and 2
- New request for information on whether LA operated a one-dose only or two-dose delivery model for the 2014/15 routine programme
- Request for only one school year cohort (Year 9) 'mop-up' data

The 2014/15 survey was the first to collect LA vaccine coverage data via a Microsoft Excel spreadsheet downloadable from the ImmForm website and completed by the NHS England local teams and/or SITs. As most areas delivered the vaccine through a schools-based programme the spreadsheet was pre-populated with estimated denominators for each LA. These figures were based on school roll numbers of females in Year 8, derived from the Department of Education schools census [5]. This format allowed NHS England local teams to update their provisional LA denominators and enter total vaccinations given directly onto the spreadsheet.

## Definitions

The age cohorts of females offered vaccine during each year of the programme are presented in Table 2.

Table 2. School year 2014/15 routine and mop-up cohort definitions.

Routine cohort	Mop-up cohort
COHORT 12: 12-13 years old females (School year 8)	COHORT 11: 13-14 years old females (School year 9)
Born: 1 Sept 2001 to 31 Aug 2002	Born: 1 Sept 2000 to 31 Aug 2001

## Denominators

For the **routine cohort**, the denominator is the total number of females aged 12 to 13 (Year 8) in each LA enrolled in any of the following:

- schools managed by the LA, including independent and faith schools
- schools managed by voluntary or private agents
- grant maintained schools
- pupil referral units
- secure units
- residential units
- 'at home' schooling

Three LAs delivered the HPV vaccination programme via GPs rather than schools. For those the LA denominator was defined as all females in the appropriate birth cohort (as of 31 August 2015) from the LA's responsible population\* only, excluding those on the school roll of neighbouring LA with a school-based programme.

\*responsible population are females registered with a GP in the LA plus any unregistered females living within the geographical boundary of the LA

For the **mop-up cohort** prefilled denominators were also provided on the survey form and were populated by denominators submitted in last year's annual survey (i.e. the number of school year 8 females in 2013/14). These denominators could be updated to the end of August 2015 where information was available.

## Numerators

For the **routine cohort**, the numerators for the coverage of priming and completed courses were the number of females aged 12 to 13 years (school year 8) who received respectively (i) at least one dose, and (ii) two doses of HPV vaccine by the end of August 2015.

The **mop-up cohort** numerators for one dose, two-dose and three-dose coverage were the total number of females aged 13 to 14 years (school year 9) who received respectively least one dose, at least two doses, or three doses of HPV vaccine by the end of August 2015 (i.e. one year on from when they were routinely offered vaccine).



## Data validation

All LAs in England submitted data. PHE validated the data using several criteria including comparison to the previous years' data based on the acceptability criteria outlined in Table 3. Data providers who submitted data that did not fit these criteria were requested to review and verify their data. Where necessary, caveats are provided alongside data tables outlining any data quality issues (<https://www.gov.uk/government/statistics/annual-hpv-vaccine-coverage-2014-to-2015-by-local-authority-and-area-team>)

**Table 3. Acceptability criteria for LA HPV vaccine coverage data**

Value type	Criteria	Comparison
Coverage value	+/- 5%	Previous year
Denominator value	+/- 10%	Previous year

## Results and discussion

### Programme delivery

Due to the change from a three to a two-dose schedule from September 2014 and to local variations in the implementation of this programme in England, this report only contains national-level coverage data for the priming dose of the HPV vaccine. Of 152 LAs, 86 offered two doses in the school year 2014/15, 15 LA's offered two doses to some schools within the LA and 48 LA's only offered dose one in the school year and will offer the second dose in 2015/16. Three LAs delivered the programme through GPs and not schools. National coverage for the completed course of HPV vaccination among the 2014/15 year 8 cohort will be available for publication in autumn 2016.

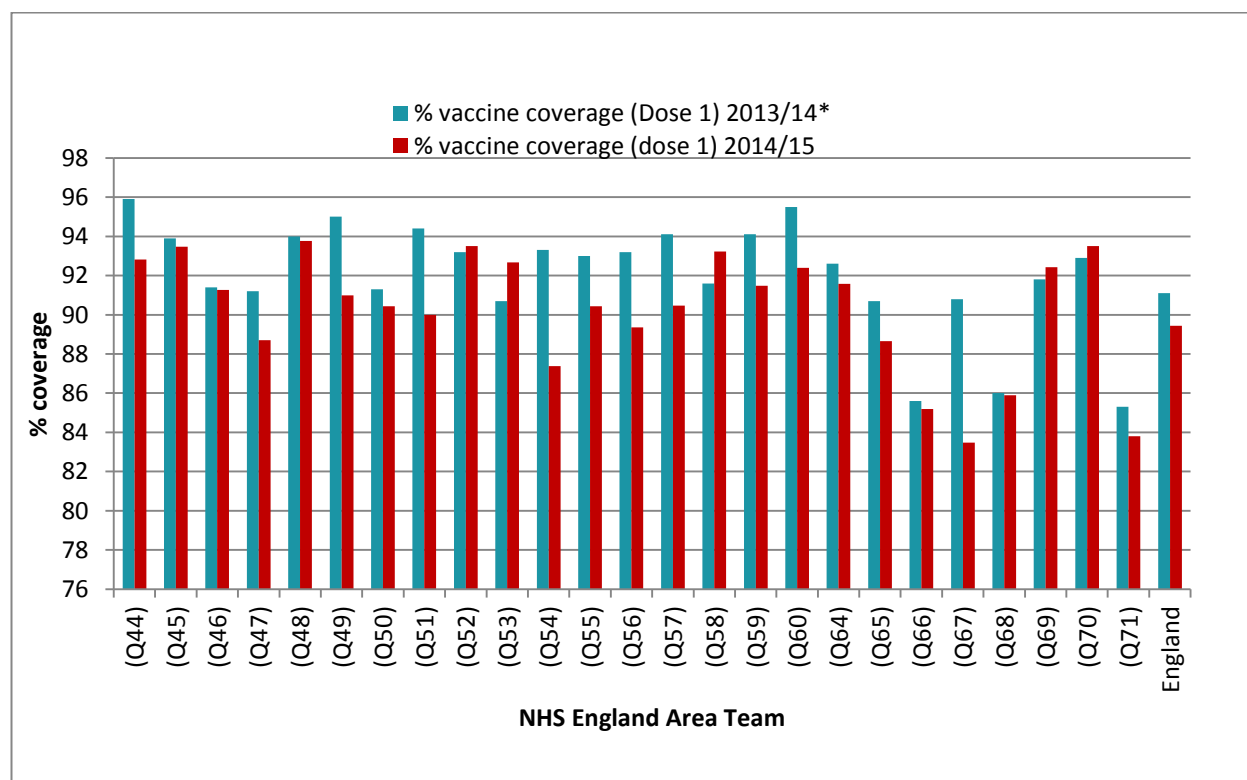
### Vaccine coverage in the routine cohort

#### Priming dose coverage (dose 1):

In 2014/15, the national coverage for the completed priming dose in England was 89.4%. This varied by NHS England AT from 83.8% in London to 94.3% in Merseyside (Figure 1, Appendix I). Of 25 ATs, 17 achieved at least 90% coverage. National coverage of the priming dose decreased by 1.7% in 2014/15 compared with the previous year (Figure 1). However, the differences between the two school years varied by AT, with 5/25 ATs achieving higher coverage in 2014/15 (the largest increase was 2.0% in Arden, Herefordshire and Worcestershire ATs). The largest decrease in coverage of the priming dose was in Kent and Medway AT with a drop of 7.3%. At LA level, coverage ranged from 67.6% in Kensington and Chelsea to 100.0% in the Isles of Scilly (these data can be viewed at

<https://www.gov.uk/government/statistics/annual-hpv-vaccine-coverage-2014-to-2015-by-local-authority-and-area-team>).

**Figure 1. Vaccine coverage of at least one dose by Area Team the routine cohort in the school years 2013/14 and 2014/15**



\*Dose 1 coverage data for 2013/14 are derived from figures submitted in the 2013/14 annual survey and are not adjusted for mop-up data submitted in the 2014/15 survey.

### Completed course coverage (dose 2):

Of 152 LAs in England, 86 (54%) offered the second dose in all schools in the 2014/15 school year. Provisional coverage estimates ranged from 59.9% to 98.0%. Five (of 25) ATs offered the two-dose schedule in all schools and coverage varied from 79.9% in London AT to 90% in Hertfordshire and South Midlands AT.

### 'One year on' vaccine coverage for the 2013/14 routine cohort (mop-up data)

'One year on' mop-up data to the end of August 2015 were provided by 109 (71.7%) LAs. Nationally, coverage in this cohort increased by 0.7% to 91.8% for at least one dose, 0.6% to 90.4% for doses one and two, and 1.4% to 88.1% for all three doses. The three-dose coverage may underestimate completed course coverage as some females who had commenced the three-dose schedule and had received two doses of vaccine at least six months apart did not require a third dose to complete the course.

## UK summary

Across the UK there was variation in the delivery of the two-dose schedule in 2014/15. In all areas of Wales, the first dose was offered to females in school year 8 in 2014/15 and dose two will be delivered in the 2015/16 school year. In Northern Ireland a two-dose programme was delivered to all five trusts in the 2014/15 school year. In Scotland, the programme was delivered through 14 NHS Boards and all offered dose one to year group S2 (equivalent to school year 8) and also for the first time offered dose one to females in S1 (school year 7) in 11 of the 14 boards [6]. Coverage data in S2 are included here for comparative purposes.

In the UK as a whole, coverage of one dose among 12-13 year old females was 89.5% in the first year of the two-dose schedule (Table 4).

**Table 4. Annual UK HPV vaccine coverage of the priming dose in 2014/15 by country**

Country	Denominator	Numerator	Coverage of one dose (%)
England	280663	251007	89.4
Scotland	25837	23610	91.4
Wales	14968	12986	86.8
Northern Ireland	10935	10048	91.9
United Kingdom	332403	297651	89.5

1. Coverage of the priming dose in females aged 12-13 years of age only: school year 8 in England, Wales and Northern Ireland and school group S2 in Scotland.

## Conclusion

In England, coverage of the priming dose 2014/15 was 89.4%, a 1.7% decrease compared with first dose coverage in the 2013/14. The change from three to one or two doses offered within the school year is likely to have contributed to this decrease by reducing the opportunities to vaccinate females who missed their initial appointment(s). Eligible females who were not vaccinated in the 2014/15 school year will have opportunities to catch-up in 2015/16 when the second dose of their course is offered.

## References

1. Public Health England. Human Papillomavirus (HPV) Vaccine Coverage in England, 2008/09 to 2013/14 - A review of the full six years of the three-dose schedule. <https://www.gov.uk/government/publications/human-papillomavirus-hpv-immunisation-programme-review-2008-to-2014>
2. Public Health England. Changes to the Human papillomavirus (HPV) vaccine schedule 2014/15: Advice for healthcare professionals. 2014. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/318686/PHE\\_HP\\_V\\_Q\\_A\\_health\\_professionals.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318686/PHE_HP_V_Q_A_health_professionals.pdf)
3. Public Health England. Human papillomavirus (HPV): the green book, chapter 18a. Last updated 5 June 2014. Available at: <https://www.gov.uk/government/publications/human-papillomavirus-hpv-the-green-book-chapter-18a>
4. Public Health England. Human papillomavirus (HPV) Vaccine Coverage Collection 2014/15 – Local Authority Annual Survey. Reference guide for NHS England local teams on submitting annual vaccine coverage data on ImmForm. Available at: <https://www.gov.uk/government/publications/human-papillomavirus-hpv-vaccine-uptake-data-collection-tool-guidance>
5. Department for Education. Schools, pupils and their characteristics. Accessed 7 December 2015. Available at: <https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2015>
6. Information Services Division Scotland. HPV Immunisation Statistics Scotland, School Year 2014/15. Published 17<sup>th</sup> November 2015. Accessed 10/12/2015. Available at <http://www.isdscotland.org/Health-Topics/Child-Health/Immunisation/>

## Appendix I: HPV Vaccine coverage for one dose (%) by area team: England, September 2014 to August 2015

<b>NHS England area team</b>	<b>Denominator</b>	<b>Numerator</b>	<b>Coverage of Dose 1 (%)</b>
(Q44) Cheshire, Warrington And Wirral	5784	5369	92.8
(Q45) Durham, Darlington And Tees	6346	5932	93.5
(Q46) Greater Manchester	18493	16878	91.3
(Q47) Lancashire	7625	6763	88.7
(Q48) Merseyside	5867	5501	93.8
(Q49) Cumbria, Northumberland, Tyne And Wear	9527	8668	91.0
(Q50) North Yorkshire And Humber	8915	8062	90.4
(Q51) South Yorkshire And Bassetlaw	10638	9573	90.0
(Q52) West Yorkshire	12552	11736	93.5
(Q53) Arden, Herefordshire And Worcestershire	8413	7797	92.7
(Q54) Birmingham And The Black Country	14308	12503	87.4
(Q55) Derbyshire And Nottinghamshire	2866	2592	90.4
(Q56) East Anglia	11410	10195	89.4
(Q57) Essex	9318	8429	90.5
(Q58) Hertfordshire And The South Midlands	15743	14676	93.2
(Q59) Leicestershire And Lincolnshire	9364	8566	91.5
(Q60) Shropshire And Staffordshire	8189	7566	92.4
(Q64) Bath, Gloucestershire, Swindon And Wiltshire	8054	7375	91.6
(Q65) Bristol, North Somerset, Somerset And South Gloucestershire	6788	6018	88.7

<b>NHS England area team</b>	<b>Denominator</b>	<b>Numerator</b>	<b>Coverage of Dose 1 (%)</b>
(Q66) Devon, Cornwall And Isles Of Scilly	8089	6891	85.2
(Q67) Kent And Medway	10435	8711	83.5
(Q68) Surrey And Sussex	14620	12557	85.9
(Q69) Thames Valley	11686	10800	92.4
(Q70) Wessex	12626	11806	93.5
(Q71) London	43007	36043	83.8
<b>ENGLAND</b>	<b>280663</b>	<b>251007</b>	<b>89.4</b>