



Health & Social Care
Information Centre



NHS Immunisation Statistics

England 2012-13

Published 26 September 2013

**We are the
trusted source of
authoritative data and
information relating to
health and care.**

**www.hscic.gov.uk
enquiries@hscic.gov.uk**

Author:	Screening and Immunisations team, Health and Social Care Information Centre
Responsible statistician:	Clare McConnell, Section Head
Version:	V1.0
Date of publication	26 September 2013

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

Contents

Executive Summary	5
Introduction	8
1.1 Background	8
1.2 Quality Statement	12
1.3 Experimental Statistics	22
1.4 Report Structure	23
1.5 Changes to the Report	24
1.6 User Feedback	25
Analysis and Commentary	26
2.1 Routine Childhood Immunisations	26
2.2 Adult Influenza Immunisations	51
Data Tables	53
Appendices	95
Appendix A – Glossary	95
Appendix B – Coverage Definitions	97
Appendix C – Data Validation and Data Quality	102
Appendix D – How are the Statistics used?	104
Appendix E – Feedback from Users	106
Appendix F – Related Publications and Useful Web Links	107
Appendix G – COVER Data Collection Form	109
References	111
Annex A – Hepatitis B – Experimental Statistics	112

Executive Summary

This publication reports immunisation statistics for England for 2012-13. Most of the immunisation statistics relate to routine childhood vaccinations which are offered to all children at specified ages. For most vaccinations, the number of persons vaccinated as a proportion of the eligible population (coverage) is reported.

The statistics are used to inform the development and evaluation of government policy on immunisation and to assess the delivery of different immunisations in the national programme. The statistics also help inform vaccine policy decisions, such as national and regional catch-up programmes for specific immunisations. At a local level the statistics are used to monitor performance.

Most of the vaccination data used in this report are collected annually from Primary Care Trusts (PCTs) or Child Health Record Departments and are extracted from Child Health Information Systems. Data on seasonal flu are collected from GP practices. The statistics are presented at national, regional (Strategic Health Authority) and local (Primary Care Trust) level. Statistics are also presented by Area Team in the Data Tables.

The Health and Social Care Information Centre has recently undertaken a review of the KC50 data collection. The review was undertaken to examine future information needs and following data supply and quality issues with the collection over a period of years. During the review period the collection was suspended and therefore data from the KC50 which is normally published in this report are not available for the 2012-13 reporting year. The KC50 collects information on persons receiving BCG vaccinations for tuberculosis and on reinforcing doses of diphtheria, tetanus and polio given to school leavers.

Main Findings

Although relatively few data quality issues were reported in the last two years (2011-12 and 2012-13), some caution should still be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. While this issue will be more apparent at a local level, it will also have an impact on the national figures.

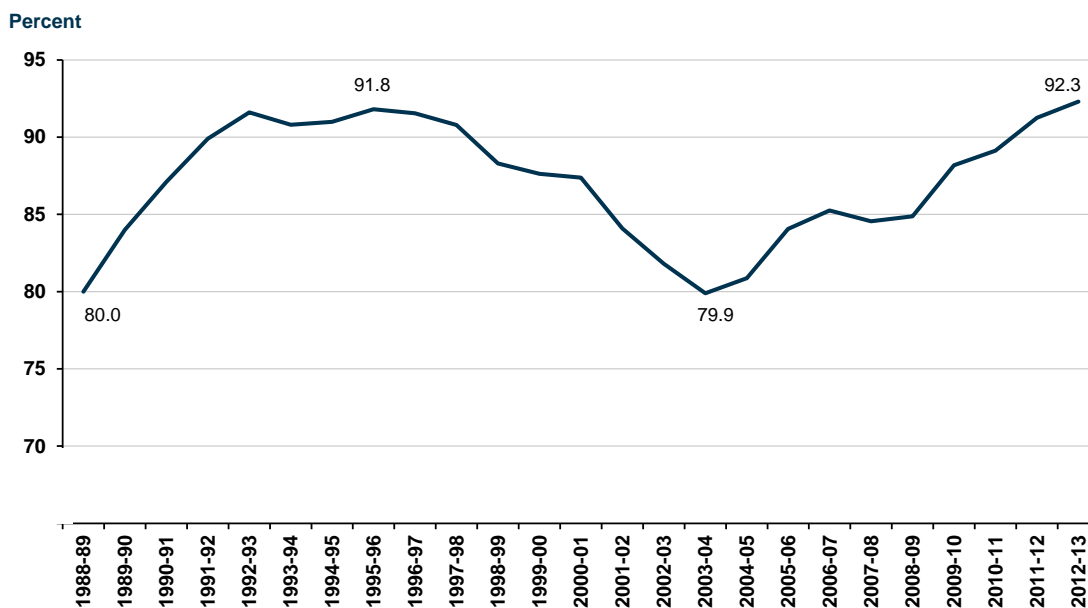
Reported coverage figures for most routine childhood vaccinations reported through the COVER programme in 2012-13 showed an increase at national level. Although there was some regional variation, reported figures show increases in coverage across all or most childhood vaccinations for most regions.

In 2012-13, it was reported that 94.7% of children reaching their first birthday had completed primary immunisation courses against **Diphtheria, Tetanus, Pertussis, Polio and *Haemophilus influenzae* type b (DTaP/IPV/Hib)**. This is unchanged from 2011-12. Although coverage for England was just below the World Health Organisation target of at least 95%, seven out of ten Strategic Health Authorities (SHAs) met the target.

Coverage of the **Measles, Mumps and Rubella (MMR)** vaccine in England for children reaching their second birthday was 92.3% in 2012-13 compared to 91.2% in 2011-12. This is the highest level of MMR coverage since the vaccine was first introduced in 1988.

MMR coverage at 24 months

England 1988-89 to 2012-13



2006 data as at 10th August 2006

NB: The MMR vaccine was introduced in 1988 when it replaced the single measles vaccine.
 Source: COVER, Health and Social Care Information Centre. See also Tables 2 and 9 in the Data Tables section.

Increases in MMR coverage at 2 years were recorded for all SHAs in 2012-13 and coverage in nine out of ten SHAs was over 90%. Coverage was highest in North-West SHA (94.9%) and lowest in London SHA (87.1%).

Despite increases in recent years, MMR coverage is still below the World Health Organization target of ‘at least 95% coverage’.

Coverage data for the combined ***Haemophilus influenzae* type b** and **Meningococcal group C (Hib/MenC)** booster vaccination at 5 years are available for the second year. In England, 91.5% of children were reported to have received the combined Hib/MenC booster as measured at five years in 2012-13. This compares with 88.9% in 2011-12 when coverage

of this vaccine was first reported. Increases in coverage were recorded for all SHAs in 2012-13, with coverage highest in Yorkshire & the Humber (94.8%) and lowest in London (86.9%).

In 2012-13, vaccination coverage in England was below that of other UK countries for all routine childhood vaccines measured at one, two and five years.

Introduction

This publication reports immunisation statistics for England for 2012-13. Most of the immunisation statistics relate to routine childhood vaccinations which are offered to all children at specified ages. For most vaccinations, the number of persons vaccinated as a proportion of the eligible population (coverage) is reported.

The statistics are used to inform the development and evaluation of government policy on immunisation and to assess the delivery of different immunisations in the national programme. The statistics also help inform vaccine policy decisions, such as national and regional catch-up programmes for specific immunisations. At a local level the statistics are used to monitor performance. A number of the statistics from this publication will also contribute to indicators for the government's Public Health Outcomes Framework¹.

1.1 Background

Immunity is the ability of the body to protect itself from infectious disease. Immunisation programmes provide protection to vaccinated individuals and can provide protection to the wider unvaccinated population. Where this occurs it is known as 'herd immunity'.

Herd immunity is a term used to describe:

“... a form of immunity that occurs when the vaccination of a significant portion of a population (or herd) provides a measure of protection for individuals who have not developed immunity”. (John and Samuel, 2000).

Herd immunity only applies to diseases that are contagious. It does not apply to diseases such as tetanus which is not passed from person-to-person and where the vaccine protects only the vaccinated person from disease.

¹ For more information on the Public Health Outcomes Framework see: <http://www.dh.gov.uk/health/2012/01/public-health-outcomes/>

Routine Childhood Immunisations

Currently the European Region of the World Health Organization (WHO) recommends that on a national basis at least 95% of children are immunised against diseases preventable by immunisation and targeted for elimination or control (specifically, diphtheria, tetanus, pertussis, polio, Hib, measles, mumps and rubella)². The routine childhood immunisation programme for the UK includes these immunisations recommended by WHO as well as a number of others as defined by the Department of Health in 'Immunisation against infectious diseases – the Green Book'.³ The schedule for the programme is shown in Table A below.

Table A: Routine immunisations

Disease (Vaccine)	Age	Notes
Diphtheria, tetanus, pertussis, polio and <i>Haemophilus influenzae</i> type b (DTaP/IPV/Hib)	1st dose: 2 months 2nd dose: 3 months 3rd dose: 4 months	Primary course
Pneumococcal disease (PCV)	1st dose: 2 months 2nd dose: 4 months	Primary course
Rotavirus (from July 2013)	1st dose: 2 months 2nd dose: 3 months	Primary course
Meningococcal group C (MenC) (from June 2013)	1st dose: 3 months	Primary course
<i>Haemophilus influenzae</i> type b and Meningococcal group C (Hib / MenC)	Between 12 and 13 months	Booster
Measles/mumps/rubella (MMR)	Between 12 and 13 months	First dose
Pneumococcal disease (PCV)	Between 12 and 13 months	Booster
Diphtheria, tetanus, pertussis, and polio (dTaP/IPV or DTaP/IPV)	3yrs/4 months to 5yrs	Booster: 3 years after completion of primary course
Measles/mumps/rubella (MMR)	3yrs/4 months to 5yrs	Second dose
Human papillomavirus (HPV)*	Girls aged 12-13yrs	Course of 3 doses
Diphtheria, tetanus and polio (Td/IPV) MenC	Around 14 yrs	Booster

*HPV vaccination information is not included in this report. This is published separately and the latest publications on HPV can be found by searching on HPV at: <https://www.gov.uk/government/publications>

A link to the formal immunisation schedule from June 2013 is available at:

<https://www.gov.uk/government/publications/routine-childhood-immunisations-from-june-2013>

² Source: http://www.euro.who.int/_data/assets/pdf_file/0010/98398/wa540ga199heeng.pdf

³ Source: <https://www.gov.uk/government/publications/green-book-the-complete-current-edition>

Non-Routine Immunisations

In addition to the routine vaccinations shown in Table A, there are a number of non-routine vaccines – see Table B below.

Table B: Non-routine immunisations

Vaccine	Age	Notes
Hepatitis B	Birth to 12 months	Given to 'At Risk' Groups/4 Doses
BCG	Birth onwards	Given to 'At Risk' Groups/1 Dose

The aim of the UK Bacillus Calmette-Guerin (BCG) immunisation programme is to immunise those at increased risk of developing severe disease and/or of exposure to tuberculosis (TB) infection. Information on those groups which should be offered the vaccine can be found in the 'Green Book':

<https://www.gov.uk/government/publications/green-book-the-complete-current-edition>

NICE also publish guidelines on BCG vaccination, which can be found on their website:

<http://guidance.nice.org.uk/CG117>

NB: Statistics on the number of persons receiving BCG vaccinations are not published in NHS Immunisation Statistics this year as the KC50 data collection was suspended for 2012-13, pending the findings from the KC50 review. For more information see section 1.5 on Changes to the Report.

The main body of this report does not cover statistics relating to the selective neonatal hepatitis B vaccination programme as there are some issues around the quality of data for this vaccination at present. However, neonatal hepatitis B vaccine coverage data are published as 'experimental statistics' at PCT level and are available in Annex A of this report. Information on neonatal hepatitis B vaccination can be found in the 'Green Book':

<https://www.gov.uk/government/publications/green-book-the-complete-current-edition>

Influenza Immunisations

In 2012-13, seasonal flu vaccine was offered to all those aged 65 years and over, people under 65 years of age with certain long-term medical conditions (for example, chronic respiratory and cardiac disease), front-line health and social care workers and all pregnant women. Each year the composition of the seasonal flu vaccine is designed to protect against

the influenza viruses that the World Health Organization (WHO) decides are most likely to be circulating in the coming winter⁴. The WHO recommended that 75% coverage for those aged 65 and over should be achieved by 2010. This publication includes information on those aged 65 and over receiving the seasonal flu vaccine. More information on the seasonal flu vaccination and the other groups vaccinated in 2012-13 is available from Public Health England:

<https://www.gov.uk/government/publications/influenza-vaccine-uptake-amongst-gp-patient-groups-in-england-for-winter-season-2012-to-2013>

<https://www.gov.uk/government/publications/seasonal-influenza-vaccine-uptake-in-healthcare-workers-winter-2012-to-2013>

Public Health England produces an annual summary of seasonal influenza activity in the UK which is available through the following link:

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/EpidemiologicalData/07influsInfluenzaannualreports/>

⁴ Source : https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147958/Green-Book-Chapter-19-v4_71.pdf

1.2 Quality Statement

1.2.1 Data Sources

Most of the vaccination data used in this report are collected annually from PCTs or Child Health Record Departments and are extracted from Child Health Information Systems. Data on seasonal flu are collected from GP practices. Two separate collections have been used to gather the data as follows:

1) Cover of Vaccination Evaluated Rapidly (COVER)

Information on childhood immunisation coverage at ages one, two and five is collected through the UK COVER collection by Public Health England (PHE, previously the Health Protection Agency (HPA)). These aggregated data are collected from Child Health Information Systems (CHISs) which are computerised systems storing clinical records supporting health promotion and prevention activities for children, including immunisation. In England, COVER data are collected for PCTs using the COVER data collection form, attached as Appendix G.

2) Seasonal Flu

Information on persons aged 65 and over (as well as in other groups not reported here) immunised against seasonal flu is collected by Public Health England (previously collected by the Department of Health (DH) in collaboration with the Health Protection Agency). This information is collected from GPs through PHE's ImmForm⁵ system.

The NHS Data Model and Dictionary Service contains more information on the COVER collection, including guidance on content, completion and definitions. A link to the return is given below:

COVER

http://www.datadictionary.nhs.uk/data_dictionary/messages/central_return_forms/community/cover/cover_1_fr.asp?shownav=1

⁵ Seasonal flu uptake data is submitted on-line via the ImmForm website either through an automated data extraction or by an on-line manual submission: <https://www.gov.uk/government/organisations/public-health-england/series/immform>

Further information on the COVER collection can be found in the HSCIC's List of Administrative Sources, available through the following link:

<http://www.hscic.gov.uk/pubs/listadminsources>

The data from this return are collected at the end of each financial year in aggregate form.

Data collections are quality assured at the time of collection by the collecting agency (PHE for COVER and Flu data). Further data validation and quality assurance is carried out by the HSCIC prior to publication. Appendix C contains more information on the data validation process.

PHE also undertake quarterly collections of COVER data, which provide early indications of vaccine coverage trends and are an important means of identifying any data quality issues prior to the annual collection.

1.2.2 Methods used to compile the statistics

The HSCIC validates and analyses the COVER data using databases and spreadsheets (Microsoft Access and Excel).

All figures in this report are presented as simple counts or percentages (rounded to one decimal place). Coverage (defined below) is reported for the seasonal flu vaccination offered to those aged 65 and over and for the following routine childhood vaccinations:

- Diphtheria, tetanus, pertussis, polio and *Haemophilus influenzae* type b (DTaP/IPV/Hib)
- Pneumococcal disease (PCV)
- Meningococcal group C (MenC)
- Hib/MenC booster (Hib/MenC)
- Measles/mumps/rubella (MMR)

Definitions

Immunised: Where a course consists of more than one dose of vaccine, administered at set intervals, immunised means having had all doses required for a full course. However, for some vaccines (i.e. Hib, MenC and PCV) the number of doses required to complete a course is age dependent. For example, a child who was not given the recommended two doses of PCV before 12 months but did receive a PCV booster dose at 12-13 months will still be considered appropriately vaccinated for their age.

Coverage⁶: Coverage is defined as the number of persons immunised as a proportion of the eligible population. The formula for the calculation of coverage is:

$$\frac{\text{Total number of eligible persons immunised}}{\text{Total number of eligible persons in the population}} \times 100$$

Specific and detailed formulae for all the coverage statistics presented in this report are provided in Appendix B. This includes definitions of the numbers of eligible persons immunised and specifies the number of doses of different vaccines that an individual is required to have by a particular age in order to be considered immunised.

Eligible population: Different eligible populations are used for estimating coverage for different vaccinations. For the routine childhood vaccinations listed above, the eligible population is defined as the total number of children for whom the PCT is responsible, reaching their nth birthday in the collection year. Coverage is calculated for three separate cohorts (children reaching their first, second and fifth birthdays in the collection year) and so the eligible population differs for each cohort.

The eligible population for the calculation of seasonal flu coverage amongst those aged 65 and over is defined by age at 31 March in any given year. For example, all those aged 65 years or older by 31 March 2013 were eligible to receive flu vaccine in the 2012-13 vaccination programme. The eligible population is derived from GP systems and therefore does not include those who are not registered with a GP.

The eligible population for hepatitis B (reported as experimental statistics in Annex A) is defined as the number of children for whom the PCT is responsible, with maternal hepatitis B positive status and reaching their nth birthday during the collection year. Hepatitis B

⁶ Prior to the 2009-10 publication, this report used the term 'uptake' to describe the percentage of the eligible population who are vaccinated. It was decided to replace the term 'uptake' with 'coverage' in 2009-10 as this is more widely used in reporting the proportion of a target population known to have received the appropriate vaccine(s).

coverage is calculated for two cohorts; children reaching their first birthday in the collection year and children reaching their second birthday), so the eligible population is different for each cohort.

PCT responsible population: This includes:

- All persons registered with a GP whose practice formed part of the PCT, regardless of where the person was resident, together with
- Any persons not registered with a GP, who were resident within the PCTs statutory geographical boundary.

Note that persons who were resident within the PCT geographical area but registered with a GP belonging to another PCT, were the responsibility of that other PCT.

The PCT responsible population is therefore different from the estimated resident population figures produced by the Office of National Statistics (ONS) for each PCT. It is also different from the registered population figures which are obtained from GP Systems (which by definition exclude unregistered persons) and are reflected in the HSCIC “Exeter” payment system (NHAIS).

For the COVER collection, the PCT responsible population is derived from the population registers held on Child Health Information Systems for the majority of PCTs.

1.2.3 Relevance

Appendix D gives details of who uses the statistics in this publication and what they use them for.

1.2.4 Accuracy and Reliability

These are established collections based on total populations i.e. not a sample.

COVER Data

For the COVER collection, submissions were made by all eligible Trusts.

Although relatively few data quality issues were reported in the last two years (2011-12 and 2012-13), some caution should still be exercised when comparing coverage figures over

time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. While this issue will be more apparent at a local level, it will also have an impact on the national figures.

Flu Data

For seasonal flu vaccination in those aged 65 years and over, coverage data is based on submissions made by GP practices and PCTs. The data represents 99.3% of GP practices in England⁷.

Data quality issues are discussed in more detail in Appendix C of the report on Data Validation and Quality.

Revisions

Where any data are re-submitted by Trusts post-publication, the HSCIC will assess whether the resubmitted data have a significant impact on England-level data. Where this is the case, the affected Excel tables will be re-issued. Where the impact on England level data is not significant, footnotes will be made to the affected Excel Tables but not to the PDF report.

1.2.5 Timeliness and Punctuality

Data on immunisations are made available as soon as possible after they have been compiled and validated (usually in the September following the end of the financial year to which the data relate).

A copy of last year's report can be found at:

<http://www.hscic.gov.uk/searchcatalogue?productid=9990&q=title%3a+NHS+Immunisation+statistics&sort=Relevance&size=10&page=1#top>

1.2.6 Accessibility and Clarity

Most data fields are published in the Data Tables as part of this main report, which is available on the HSCIC Immunisation web pages:

⁷ Data Source: DH ImmForm website - Registered Patient GP practice data Influenza Immunisation Vaccine Uptake Monitoring Programme Department of Health (DH) and Health Protection Agency (HPA)
<https://www.gov.uk/government/publications/seasonal-flu-vaccine-uptake-in-gp-patients-1-september-2012-to-31-january-2013>

<http://www.hscic.gov.uk/pubs/immstats1213>

The tables are also available as Excel files and CSV files, which again are accessible through the web pages. Further analysis may be available on request, subject to resource limits and compliance with disclosure control requirements. Note that the data held by the HSCIC cannot be disaggregated below Trust level.

This statistical publication has been in existence for a number of years and publications are available on the HSCIC and The National Archives website dating back to 1997-98⁸. The bulletin was originally published by the Department of Health. With the establishment of the HSCIC, responsibility for the publication transferred to the HSCIC in 2005.

1.2.7 Coherence and Comparability

Changes in the UK immunisation programme

A number of changes to the national immunisation programme are being made during 2013-14 to reflect the planned and phased implementation of a series of recommendations by the Joint Committee on Vaccination and Immunisation (JCVI) to improve the overall level of protection against preventable diseases. The changes to the childhood programme are as follows:

Meningitis C: The current schedule for administering the MenC conjugate vaccine changed from June 2013. The initial change was to cease giving the second priming dose at four months. This dose will be replaced by a booster dose given in adolescence.

Rotavirus: A vaccine to protect babies against rotavirus was introduced into the childhood immunisation schedule from July 2013. Rotavirus vaccine is offered routinely to all babies at the age of two months and again at three months when they attend for their first and second routine childhood immunisations.

Childhood Flu: The existing flu immunisation programme is being extended over a number of years to include all children aged two to 16 years inclusive. In autumn

⁸ Copies of previous editions published by the HSCIC can be accessed via the following link: <http://www.hscic.gov.uk/searchcatalogue?q=title%3A+nhs+immunisation+statistics&area=&size=10&sort=Relevance>
Prior to 2004/05 this bulletin was published by the Department of Health. These editions can be found at: http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Statistics/StatisticalWorkAreas/Statisticalhealthcare/DH_4086491

2013, immunisation will be offered to all healthy children aged two and three in addition to the existing offer of vaccination to children aged six months or over with clinical conditions which put them at greater risk from the effects of flu.

As the above changes to the routine immunisation schedule will be implemented from 2013-14 onwards, statistics in this publication are not affected.

Prior to the 2013-14 changes there were several fairly recent changes in the routine immunisation schedule as follows:

November 2010: Trusts were informed of a change to the routine childhood immunisation schedule requiring that vaccines that had previously been given separately at 12 months of age (Hib/MenC vaccine) and 13 months of age (MMR and PCV) to be given at the same visit, between 12 and 13 months of age (i.e. within a month after the first birthday)⁹.

September 2006: PCV vaccine was introduced. This is given at two and four months with a booster dose around 13 months of age. Data on the primary course (given at two and four months) evaluated at 12 months of age were first published in this bulletin in 2007-08 as experimental statistics. Coverage data for the PCV booster evaluated at 24 months were first published in 2008-09, again, as experimental statistics.

September 2006: A combined Hib/MenC booster vaccine was introduced for children at around 12 months of age. Vaccine coverage data for the Hib/MenC booster evaluated at 24 months was first published in this bulletin in 2008-09 as experimental statistics. Coverage statistics for the Hib/MenC booster vaccination at 5 years were first published as experimental statistics in 2011-12.

The above changes in the immunisation schedule need to be considered when interpreting trend data. Importantly, when a new vaccine is first introduced, coverage is usually below that of other vaccines given at a similar time in the first year of evaluation (and sometimes for some years after introduction). Recording/reporting issues may, in some instances, affect completeness and/or quality of data in the first year(s) following the introduction of a vaccine.

⁹ Trusts were advised of this change to the immunisation schedule on 17th November 2010 in a letter from the Chief Medical Officer. See: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_121840.pdf

Impact of NHS Re-organisation

Prior to 1st April 2013, all NHS planning and delivery was undertaken by the Department of Health, SHAs and PCTs. From April 2013, PCTs and SHAs ceased to exist and NHS England has taken on many of the functions of the former PCTs with regard to the commissioning of primary care health services. NHS England has 27 Area Teams (ATs) and 211 Clinical Commissioning Groups (CCGs), which share responsibility for commissioning services for their local communities. Immunisation services are commissioned by the Area Teams.

As the statistics presented in this report relate to 2012-13 and predate the NHS re-organisation, they are primarily presented by PCT and SHA. The Data Tables include coverage statistics by Area Team (see Tables 10c, 11c and 12c).

Time series

The report shows trends in vaccination coverage and where possible seeks to explain these. The main Data Tables in the publication contain time series, which enable examination of trends in vaccination coverage over an 11 year time period. Throughout the Analysis and Commentary section, coverage statistics for 2012-13 are compared with the previous year and 5 year time series are shown. The time series for MMR evaluated at two years and for Diphtheria at one year have been extended in this year's report back to 1988 (see Appendix E for more information). This is the year the MMR vaccine was first introduced and when current definitions for measuring coverage came into effect. Historical interpretation of time series data in the Analysis and Commentary section has been assisted by experts in PHE.

Local and regional comparisons

The statistics are presented at a national, regional (SHA) and local (PCT) level. Statistics are also presented by Area Team in the Data Tables (Tables 10c, 11c and 12c). Immunisation coverage statistics at Upper Tier Local Authorities level are available from the following link:

<http://www.phoutcomes.info/>

Comparisons with other countries

The NHS Immunisation Statistics, England publication has included additional annual coverage statistics for other countries in the UK since 1997-98. This report includes the following coverage statistics for all UK countries:

At 12 months	DTaP/IPV/Hib, MenC, PCV
At 24 months	DTaP/IPV/Hib, Hib/MenC, PCV, MMR
At 5 years	DTaP/IPV, MMR1, MMR2 ¹⁰ , Hib/MenC

Vaccination data for Northern Ireland, Scotland and Wales are also available through the following links:

Northern Ireland: <http://www.publichealth.hscni.net/directorate-public-health/health-protection/vaccination-coverage>

Scotland: <http://www.isdscotland.org/Health-Topics/Child-Health/Publications/index.asp>

Wales: <http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=54144>

Outside the UK, national vaccination policies differ and countries use different methods to calculate vaccination coverage, therefore direct comparison with countries outside the UK is not always appropriate. However, the WHO and UNICEF attempt to determine the most accurate and up-to-date estimates of immunisation coverage for different countries through their joint annual reporting form submission from national experts. These estimates of national immunisation coverage are reported on the WHO website and available through the following link:

http://www.who.int/immunization_monitoring/data/data_subject/en/index.html

Information on research undertaken to examine comparability of vaccination coverage amongst European countries can be found on the VENICE Project website:

<http://venice.cineca.org/reports.html> and <http://venice.cineca.org/publications.html>

1.2.8 Performance cost and respondent burden

The data used in the publication are aggregated PCT level data gathered by PHE (previously the HPA and DH) as part of their management of the immunisation programme. These are the only sources of the data required for the report.

¹⁰ MMR1 is used to indicate at least one dose of MMR has been received. MMR2 is used to indicate that two doses of MMR have been received (anytime from 12 months up to the child's 5th birthday).

All data collections used in this publication are subject to the Review of Central Returns (ROCR) procedure and licensed by ROCR. This is to ensure that data collections do not duplicate other collections, minimise the cost to all parties and have a specific use for the data collected.

1.2.9 Confidentiality, Transparency and Security

The standard NHS security and confidentiality policies have been applied in the production of these statistics. An annual risk assessment is undertaken prior to publication which addresses any potential issues around disclosure. Disclosure controls have been applied to Tables A1 and A2 of Annex A on neonatal hepatitis B.

1.3 Experimental Statistics

Neonatal Hepatitis B

Annual neonatal hepatitis B vaccine coverage data have previously been published by PHE (previously the HPA) for those PCTs that were able to provide data and are available for the years 2006-07 to 2009-10¹¹. This is the third year that neonatal hepatitis B coverage data reported through the COVER programme by PCTs are published in Annex A as 'experimental statistics'. They are published as experimental statistics as they are undergoing evaluation.

Over 20% of Trusts reported that they were unable to supply any of the required data on infants born to hepatitis B positive mothers. It would therefore be inadvisable to draw conclusions from these data and it should be noted that no national or regional data have been published.

It is hoped data suppliers that have been unable to submit data for 2012-13 are encouraged to review their systems for obtaining these data and take the necessary actions to ensure that they are able to submit data in future years.

A key part of the "Experimental statistics" label is user engagement in the evaluation of those statistics. The HSCIC invites readers to comment on this publication, which will help inform the next report. Comments may be sent to enquiries@hscic.gov.uk.

Hib/MenC booster at 5 years

There are now two complete years of Hib/MenC booster coverage statistics at 5 years. For most Trusts, coverage figures in the first year of reporting were below those for MMR (1st dose), which was given to this cohort at a similar age. The tendency for coverage to be relatively lower when a new vaccine is added to the routine schedule is one that has previously been observed. Improvements in Hib/MenC coverage for 2012-13 have been reported for most Trusts.

The HSCIC is not aware of any problems associated with this specific data collection and therefore these statistics have been included in the main body of this year's report as National Statistics.

¹¹ Available from <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/VaccineCoverageAndCOVER/>

1.4 Report Structure

Immunisation statistics are presented in the Analysis and Commentary section of this report in two sections as follows:

- Routine Childhood Immunisations
- Adult Influenza Immunisations

More detailed statistics are presented in the Data Tables section.

The Appendices include a Glossary (Appendix A), Coverage Definitions (Appendix B) information on Data Validation and Data Quality (Appendix C), How the Statistics are Used (Appendix D), Feedback from Users (Appendix E), Related Publications and Useful Web links (Appendix F) and the COVER data collection form (Appendix G).

Annex A includes experimental statistics on hepatitis B.

1.5 Changes to the Report

KC50

The Health and Social Care Information Centre has recently undertaken a review of the KC50 data collection. The review was undertaken to examine future information needs and following data supply and quality issues with the collection over a period of years. During the review period the collection was suspended and therefore data from the KC50 which is normally published in this report as Tables 6, 13 and 13a are not available for the 2012-13 reporting year. The KC50 collects information on persons receiving BCG vaccinations for tuberculosis and on reinforcing doses of diphtheria, tetanus and polio (Td/IPV) given to school leavers.

The findings of the review have been considered by PHE which is now proposing the evaluation of Td/IPV coverage as part of a new annual adolescent immunisation data collection. Under this proposal, data on BCG vaccinations would be incorporated into the current COVER collection.

The HSCIC will undertake a formal consultation with users once the potential impact of any changes to existing data collections on NHS Immunisation Statistics is clear.

Data Tables

Three additional tables have been added to the publication this year showing the percentage of children immunised by their first, second and fifth birthdays by Area Team (Tables 10c, 11c and 12c).

Statistics for Area Teams have been produced from PCT data. Although most PCTs fall within one Area Team, there are five cases where a small part of the PCT falls into one or more other Area Teams. Where a PCT falls into more than one Area Team, the PCT data has been apportioned on the basis of population.

1.6 User Feedback

The Health and Social Care Information Centre welcomes feedback on all publications. If you wish to comment on this report, a feedback form (Have Your Say) is available on the HSCIC website at:

<http://www.hscic.gov.uk/haveyoursay>

We would be particularly interested in how you use the statistics in this report.

Feedback received from users via the publication webpage is summarised in Appendix E along with any action that has been taken as a result of this feedback.

Analysis and Commentary

2.1 Routine Childhood Immunisations

Routine childhood vaccination coverage statistics for children up to the age of five are calculated from figures extracted from CHISs (or from GP systems for a small number of PCTs) and reported at PCT level through the COVER programme.

Although relatively few data quality issues were reported in the last two years (2011-12 and 2012-13), some caution should still be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. While this issue will be more apparent at a local level, it will also have an impact on the national figures. For more information, see Appendix C on Data Quality.

2.1.1 Overview

Reported coverage figures for most routine childhood vaccinations reported through the COVER programme in 2012-13 showed an increase at national level. Although there was some regional variation, reported figures show increases in coverage across all or most childhood vaccinations for most regions.

Where a substantial change in PCT coverage from 2011-12 for one or more vaccines was reported, data providers were asked to give a reason(s) for this. Most providers reported that increases were due to improved data collection/reporting and data quality or initiatives to improve vaccination coverage.

2.1.2 Immunisations by first and second birthday

Diphtheria, Tetanus, Pertussis, Polio and *Haemophilus influenzae* type b vaccine (DTaP/IPV/Hib, “5 in 1” Vaccine)

Children should receive a primary course of three doses of diphtheria, tetanus, pertussis, polio and *Haemophilus influenzae* type b vaccine (DTaP/IPV/Hib ‘5 in 1’) at two, three and four months and then a booster dose of DTaP/IPV vaccine three years after completion of the primary course (Hib is boosted as part of the Hib/MenC vaccine given at between 12 and 13 months).

Coverage at 12 months – In 2012-13, it was reported that 94.7% of children reaching their first birthday had completed primary immunisation courses against DTaP/IPV/Hib (three doses). This is unchanged from 2011-12.

Primary DTaP/IPV/Hib coverage figures are only published from 2006-07 onwards (see Table 1 in Data Tables) as this combined vaccine was first introduced in 2004. However, a longer time series is available for third dose diphtheria vaccine coverage and this is presented in Figure 1. The time series is shown from 1988-89 as this is when current definitions for measuring coverage came into effect.

Figure 1 demonstrates the large increase in diphtheria coverage (as measured at 12 months) from 1988-89 to 1991-92. A number of factors may have contributed to this increase. The primary vaccination schedule changed in 1990 from three doses of diphtheria-containing vaccine offered at three and a half months, five months and between nine and eleven months, to three doses offered at two, three and four months. Under the new schedule, the third dose of diphtheria is offered at an earlier age (4 months), allowing more time for children to be vaccinated late and still be included in the 12 month coverage figure.

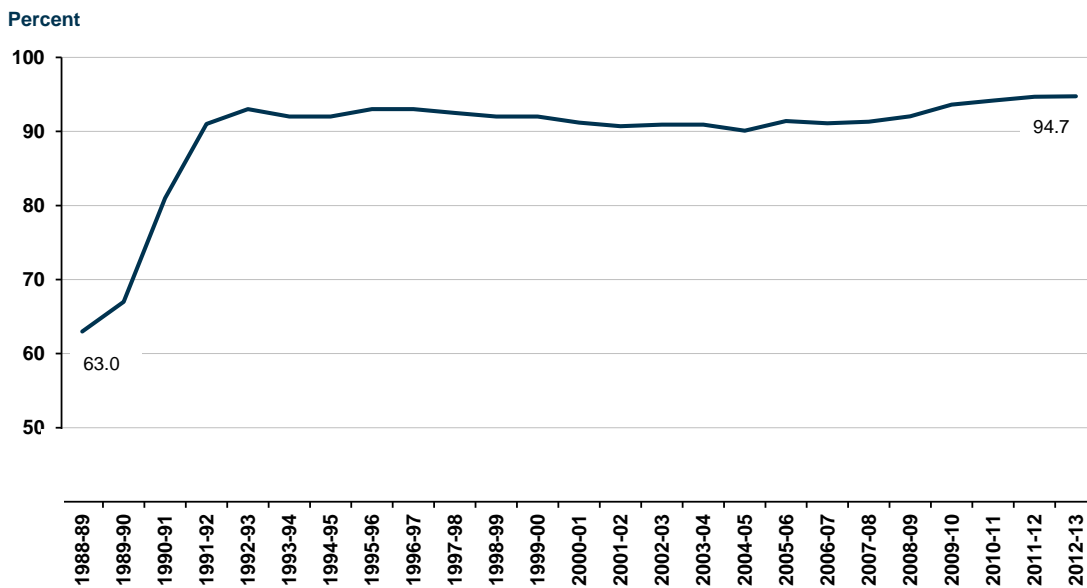
It has also been suggested that the publication of revised guidelines on immunisation by the Department of Health in 1990¹² and incentives for vaccination under a new GP contract are likely to have contributed to improvements in coverage between 1988 and 1991 (White et al, 1992).

Finally, the impact of definitional changes on the quality of immunisation data has been previously been observed by the Health Protection Agency (Granerod et al). The introduction of new data returns and definitional changes to the coverage measurement in 1988 may have impacted on recorded coverage figures between 1988-89 and 1991-92.

¹² Department of Health, Immunisation against Infectious disease. London: HMSO, 1990.

Figure 1: Primary diphtheria coverage¹³ at 12 months

England 1988-89 to 2012-13



Figures from 2006-7 to present are for DTaP/IPV/Hib '5-in 1' vaccine which includes Diphtheria, Tetanus, Polio, Pertussis and Hib.

Source: COVER, Health and Social Care Information Centre. See also Table 8 in the Data Tables section.

Table C shows national and regional coverage of the third dose of DTaP/IPV/Hib vaccine over the last two years. Coverage was highest in North East SHA (96.5%) and lowest in London SHA (91.1%).

Table C: DTaP/IPV/Hib coverage at 12 months

England by SHA, 2011-12 and 2012-13

Percentages

SHA	Coverage of DTaP/IPV/Hib at 12 months	
	2011-12	2012-13
England	94.7	94.7
North East	96.3	96.5
North West	95.8	95.9
Yorkshire & The Humber	95.8	96.3
East Midlands	96.2	96.4
West Midlands	94.9	94.5
East of England	95.5	96.1
London	91.3	91.1
South East Coast	93.7	93.7
South Central	95.6	95.1
South West	95.6	96.1

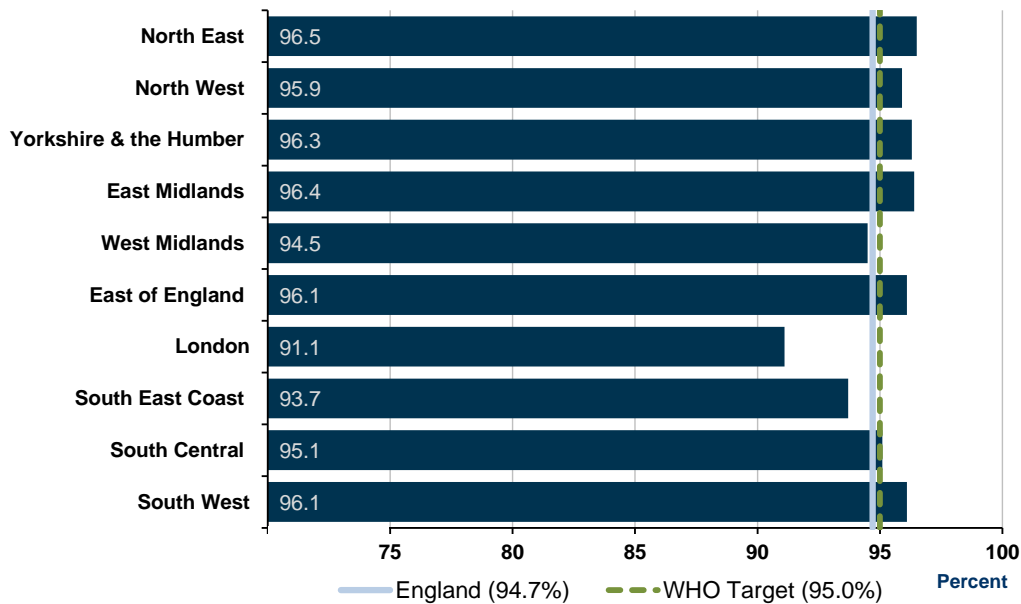
Source: COVER, Health and Social Care Information Centre. See also Table 10 in the Data Tables section.

¹³ The primary diphtheria immunisation course is made up of three doses. Primary diphtheria coverage measures coverage of the third dose.

Figure 2 shows SHA coverage for 2012-13 against the national average and the World Health Organisation (WHO) target of at least 95%. Although coverage for England was just below the WHO target, seven out of ten SHAs met the target.

Figure 2: DTaP/IPV/Hib coverage at 12 months

England by SHA, 2012-13

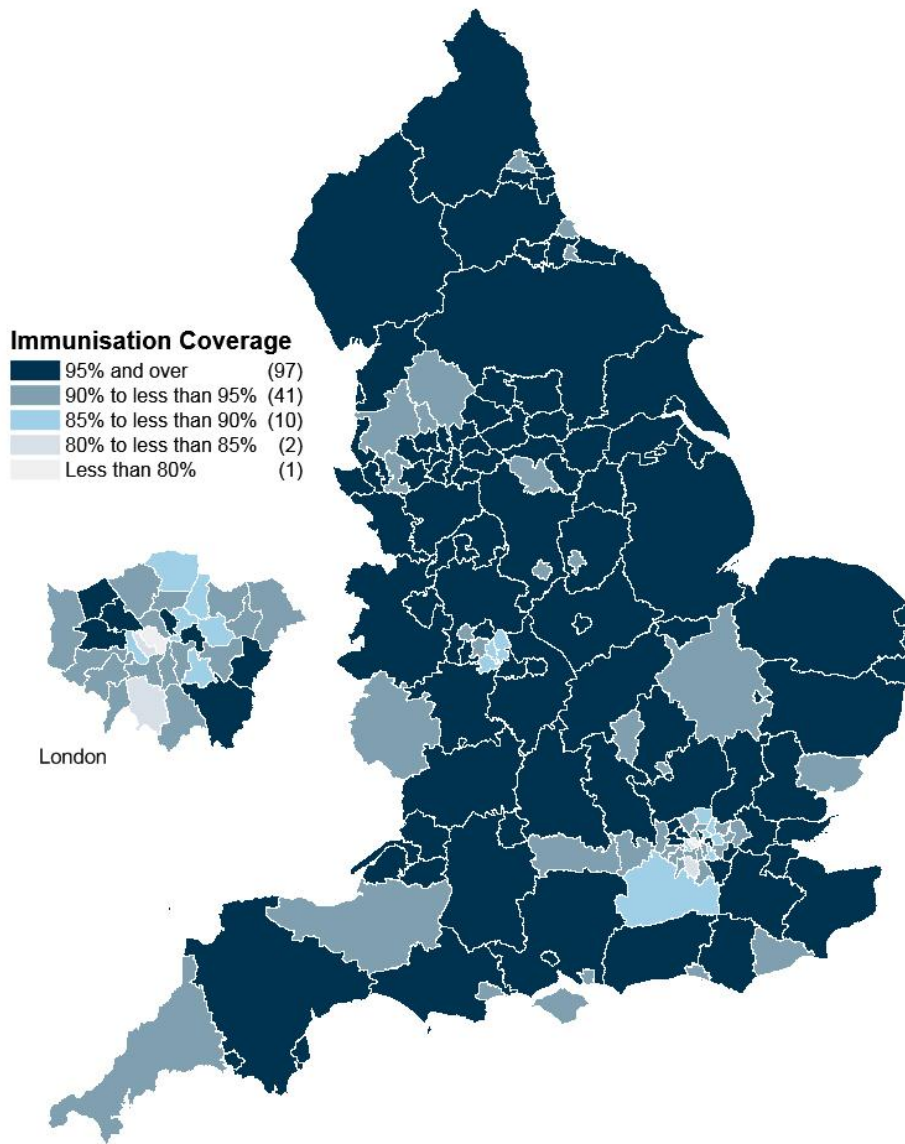


Source: COVER, Health and Social Care Information Centre. See also Table 10 in the Data Tables section.

At a local level, 138 PCTs out of 151, reported coverage at 12 months of 90% or over (see Figure 3). Of these, 97 had coverage levels of 95% and above (this compares with 95 PCTs in 2011-12). Only 13 PCTs reported coverage of less than 90%, 9 of which were in London SHA.

Figure 3: Coverage of DTaP/IPV/Hib at 12 months

England by Primary Care Organisation, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 10a in the Data Tables section.

For a more detailed breakdown of the statistics in this section by PCT, see Table 10a in Data Tables.

Coverage at 24 months – Coverage of three doses of the combined DTaP/IPV/Hib vaccine is reported again at 24 months to monitor any improvement in the proportion of children completing their primary course after their first birthday. Table D shows national and regional coverage of the vaccine over the last two years. For children reaching their second birthday, coverage for completed courses of DTaP/IPV/Hib vaccine in 2012-13 was 96.3%, exceeding the WHO target of 95% coverage. When coverage for this cohort was measured at 12 months of age in 2011-12, 94.7% had been immunised (see Table C).

In 2012-13, increases in DTaP/IPV/Hib coverage at 24 months were recorded for seven out of the ten SHAs. Coverage was highest in North East SHA (97.8%) and lowest in London (93.6%).

Table D: DTaP/IPV/Hib coverage at 24 months

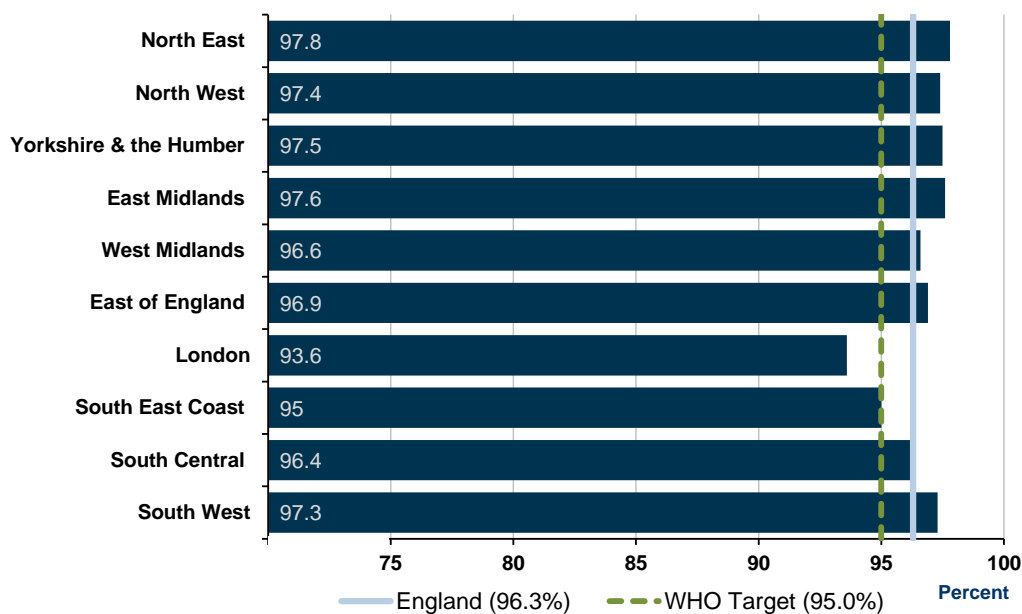
England by SHA, 2011-12 and 2012-13		Percentages
SHA	Coverage of DTaP/IPV/Hib at 24 months	
	2011-12	2012-13
England	96.1	96.3
North East	97.5	97.8
North West	97.1	97.4
Yorkshire & The Humber	97.1	97.5
East Midlands	97.4	97.6
West Midlands	96.8	96.6
East of England	96.5	96.9
London	93.3	93.6
South East Coast	95.3	95.0
South Central	96.8	96.4
South West	97.0	97.3

Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section.

Figure 4 shows SHA coverage for 2012-13 compared to the national average and the World Health Organisation target of at least 95%. Nine out of ten SHAs had coverage levels of 95% or more.

Figure 4: DTaP/IPV/Hib coverage at 24 months

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section

For a more detailed breakdown of the statistics in this section by PCT, see Table 11a in Data Tables.

Measles-Mumps-Rubella (MMR) vaccine

Children should receive their first dose of MMR vaccine (MMR1) between 12 and 13 months and then a second dose between three years four months and five years.

Coverage of MMR vaccine in England for children reaching their second birthday was 92.3% in 2012-13 compared to 91.2% in 2011-12. This is the highest level of MMR coverage since the vaccine was first introduced in 1988. (See Table 9 in Data Tables).

Figure 5 shows the trend in MMR coverage since it was first introduced in 1988. The controversy and associated publicity around a potential link between the MMR vaccination and autism and Crohn’s disease, which started in the late 1990s and continued through the early 2000s, may have impacted on MMR coverage during that period. The study that initiated the controversy has since been discredited¹⁴.

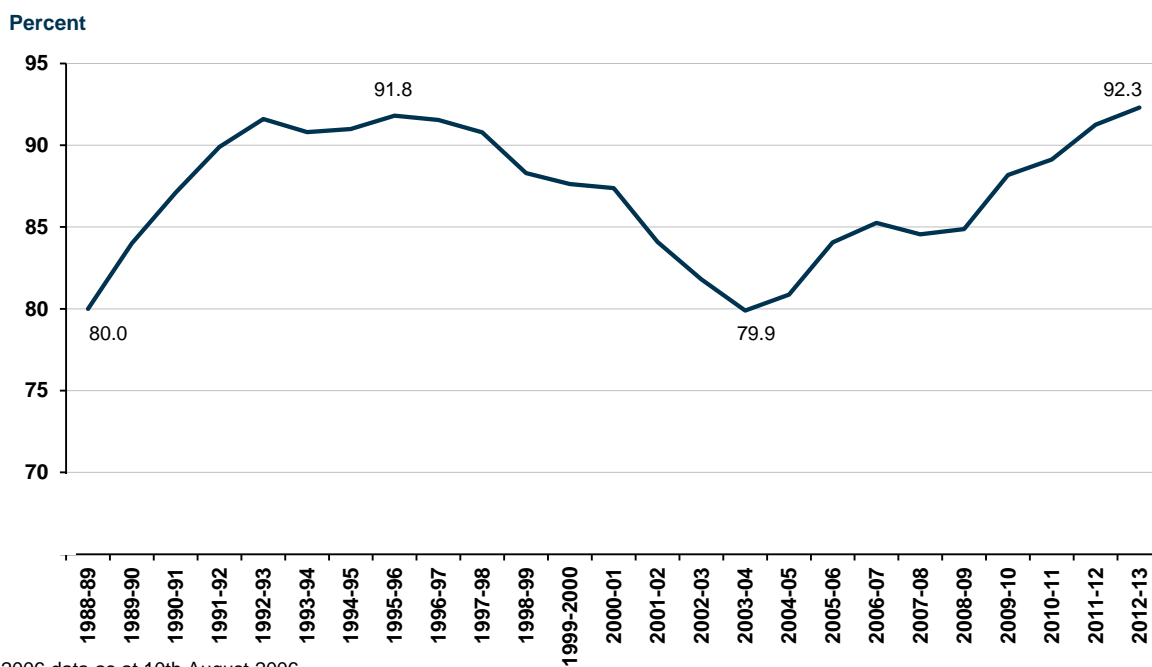
¹⁴ Further information is available on the PHE website:
<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/MMR/GeneralInformation/>
 The original study was published in the Lancet but later retracted:
[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(97\)11096-0/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(97)11096-0/fulltext)

A number of different factors may have contributed to increased coverage in recent years, including:

- A National Measles, Mumps and Rubella (MMR) catch-up campaign to increase vaccination coverage in 2008-09.
- The recommendation by the Joint Committee on Vaccination and Immunisation (JCVI) in October 2010 to offer the Hib/MenC and PCV booster vaccines and the first dose of MMR vaccine at the same visit¹⁵.
- Local initiatives to improve coverage.
- Improvements in data collection, reporting and quality.

Figure 5: MMR coverage at 24 months

England 1988-89 to 2012-13



NB: The MMR vaccine was introduced in 1988 when it replaced the single measles vaccine.
 Source: COVER, Health and Social Care Information Centre. See also Tables 2 and 9 in the Data Tables section.

Table E shows national and regional coverage of the vaccine over the last two years calculated from figures reported for PCTs. Increases in coverage were recorded for all SHAs in 2012-13 and coverage in nine SHAs was over 90%. Coverage was highest in North-West SHA (94.9%) and lowest in London SHA (87.1%).

¹⁵ Further information is available in the following quarterly Health Protection Report published by the Health Protection Agency: <http://www.hpa.org.uk/hpr/archives/2012/hpr1212.pdf>

Table E: MMR1 coverage at 24 months

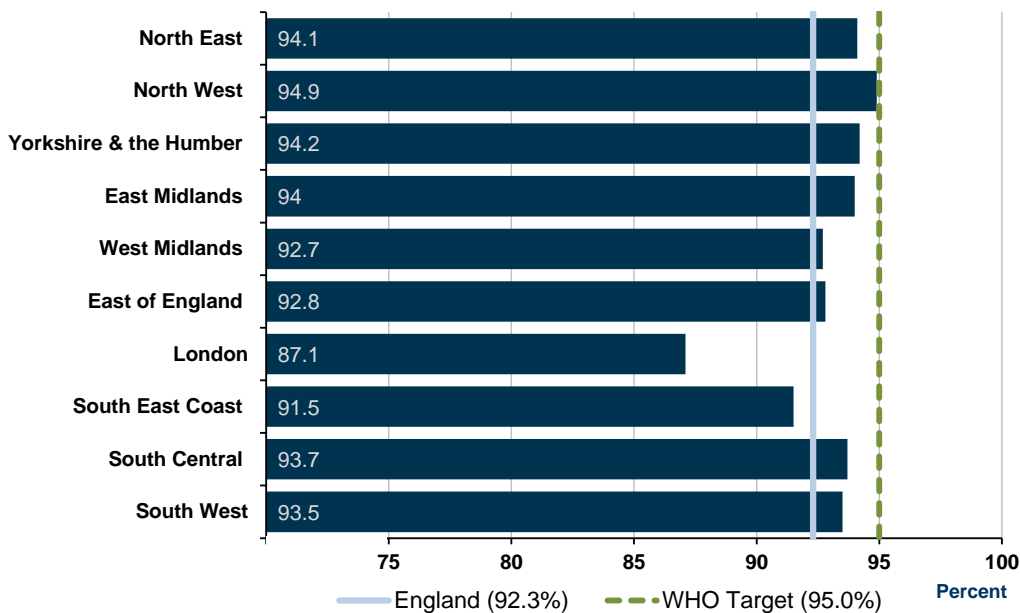
SHA	Percentages	
	Coverage of MMR1 at 24 months	
	2011-12	2012-13
England	91.2	92.3
North East	93.0	94.1
North West	93.4	94.9
Yorkshire & The Humber	93.1	94.2
East Midlands	92.9	94.0
West Midlands	92.0	92.7
East of England	91.8	92.8
London	86.1	87.1
South East Coast	90.6	91.5
South Central	93.5	93.7
South West	91.7	93.5

Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section.

Figure 6 shows SHA coverage for 2012-13 compared to the national average and the WHO target of at least 95%. Despite increases in recent years, MMR coverage for England and all SHAs in 2012-13 is still below the WHO target.

Figure 6: MMR1 coverage at 24 months

England by SHA, 2012-13

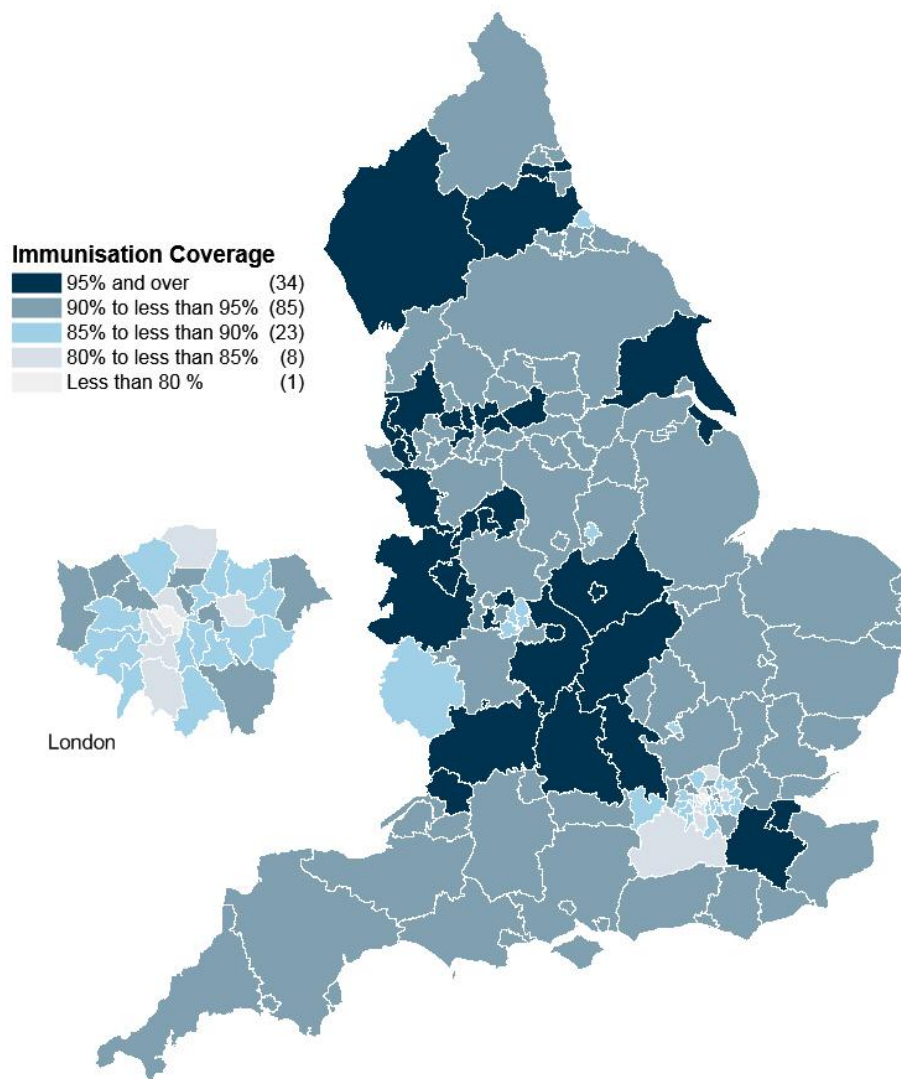


Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section

Coverage of MMR1 at 24 months at PCT level is shown in Figure 7 and highlights the lower levels of immunisation in many London PCTs. At a local level, 119 PCTs reported vaccination figures indicating coverage of 90% or above (this compares with 112 in 2011-12). 32 PCTs reported figures indicating coverage below 90% and of these one had a coverage level of less than 80%. Coverage of 95% or more (the WHO target) was reported by 34 PCTs.

Figure 7: MMR1 coverage at 24 months

England by PCT, 2012-13



© Crown copyright and database rights 2013 Ordnance Survey 0100044406

NB: Due to rounding, the figures presented in the above map may not exactly match those derived from aggregating the relevant columns from Table 11a in the Data Tables section.

Source: COVER, Health and Social Care Information Centre. See also Table 11a in the Data Tables section.

For a more detailed breakdown of the statistics in this section by PCT, see Table 11a in Data Tables.

Meningococcal group C (MenC) vaccine

In 2012-13, 93.9% of children in England were reported to have completed primary immunisation courses against MenC by their first birthday. This is unchanged from 2011-12 when coverage was also 93.9% (see Table F).

Table F: Coverage of MenC at 12 months¹⁶

England, 2008-09 to 2012-13 Percentages

Year	Coverage of MenC at 12 months
2008-09	91.2
2009-10	92.7
2010-11	93.4
2011-12	93.9
2012-13	93.9

Source: COVER, Health and Social Care Information Centre. See also Table 1 in the Data Tables section.

Table G shows coverage over the last two years for the MenC vaccine at 12 months by SHA. Coverage was highest in North East SHA (96.0%) and lowest in London SHA (89.9%). Figure 8 shows the coverage for 2012-13 across SHAs.

Table G: MenC coverage at 12 months

England by SHA, 2011-12 and 2012-13 Percentages

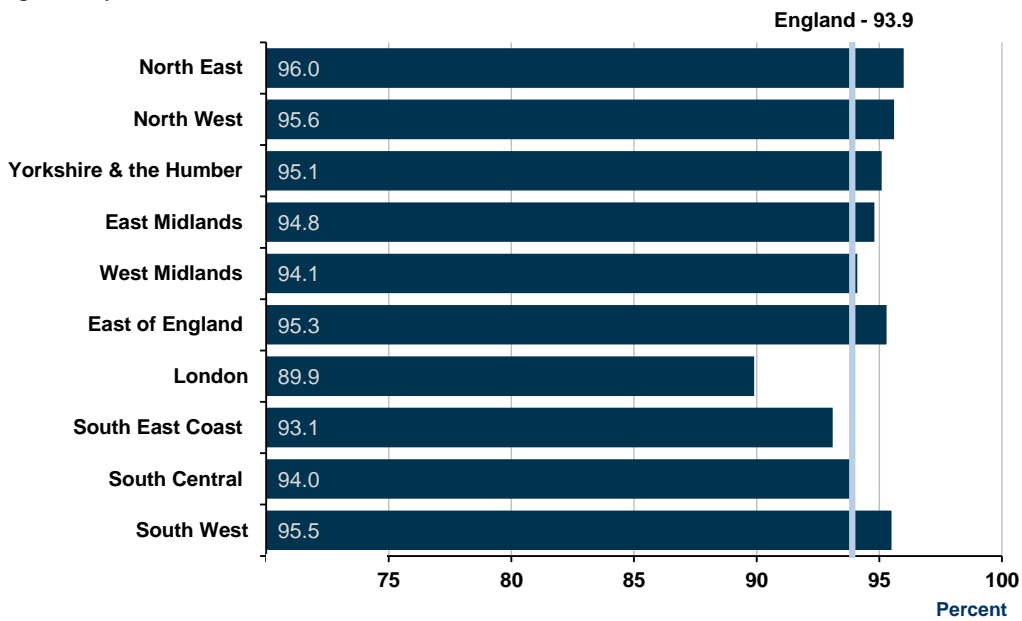
SHA	Coverage of Hib/MenC at 12 months	
	2011-12	2012-13
England	93.9	93.9
North East	95.8	96.0
North West	95.4	95.6
Yorkshire & The Humber	95.2	95.1
East Midlands	95.4	94.8
West Midlands	94.5	94.1
East of England	94.7	95.3
London	89.9	89.9
South East Coast	93.2	93.1
South Central	94.4	94.0
South West	95.1	95.5

Source: COVER, Health and Social Care Information Centre. See also Table 10 in the Data Tables section.

¹⁶ Due to variable data quality in recent years, some caution should be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. See Appendix C for more details.

Figure 8: MenC coverage at 12 months

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 10 in the Data Tables.

For a more detailed breakdown of the statistics in this section by PCT, see Table 10a in Data Tables.

***Haemophilus influenzae* type b and Meningococcal group C (Hib/MenC) vaccine**

In September 2006, a new immunisation programme for a combined Hib/MenC booster vaccine was introduced and children are currently offered this vaccine between 12 and 13 months of age. In 2012-13, 92.7% of children in England were reported to have received the combined Hib/MenC booster as measured at two years. This compares with 92.3% in 2011-12 (see Table H).

Table H: Coverage of Hib/MenC at 24 months¹⁷

England, 2008-09 to 2012-13 Percentages

Year	Coverage of Hib/MenC at 24 months
2008-09	85.4
2009-10	90.0
2010-11	91.6
2011-12	92.3
2012-13	92.7

Source: COVER, Health and Social Care Information Centre. See also Table 2 in the Data Tables section.

Regional and national coverage of the vaccine is shown in Table I and Figure 9. Increases in coverage were recorded for seven out of ten SHAs in 2012-13. Coverage was highest in the North East SHA (95.5%) and lowest in London SHA (87.3%).

Table I: Hib/MenC coverage at 24 months

England by SHA, 2011-12 and 2012-13 Percentages

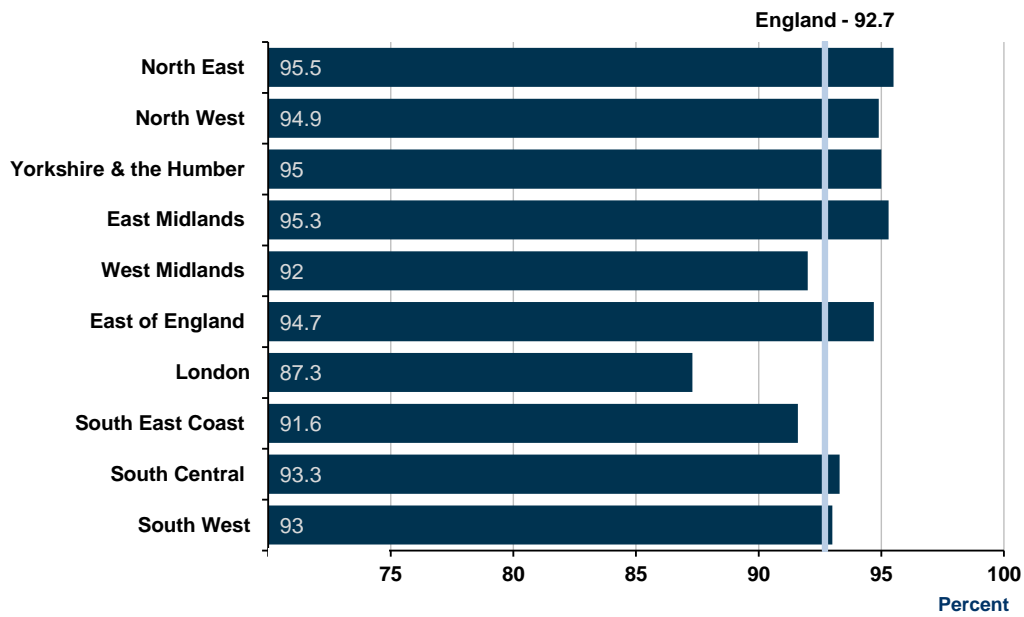
SHA	Coverage of Hib/MenC at 24 months	
	2011-12	2012-13
England	92.3	92.7
North East	95.3	95.5
North West	94.3	94.9
Yorkshire & The Humber	94.6	95.0
East Midlands	94.8	95.3
West Midlands	92.5	92.0
East of England	94.4	94.7
London	86.8	87.3
South East Coast	91.7	91.6
South Central	93.4	93.3
South West	92.2	93.0

Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section.

¹⁷ Due to variable data quality in recent years, some caution should be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. See Appendix C for more details.

Figure 9: Hib/MenC coverage at 24 months

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section.

For a more detailed breakdown of the statistics in this section by PCT, see Table 11a in the Data Tables.

Pneumococcal Conjugate Vaccine (PCV) vaccine

PCV vaccine was introduced into the routine immunisation programme in September 2006 and is offered at two and four months of age with a booster dose at 12 to 13 months. Table J shows coverage of two doses at 12 months over the last five years. Reported figures show that 94.4% of children in England had completed a primary immunisation course of PCV at 12 months in 2012-13. This compares with 94.2% in 2011-12

Table J: PCV coverage at 12 months¹⁸

England, 2008-09 to 2012-13 Percentages

Year	Coverage of PCV at 12 months
	Percentages
2008-09	91.3
2009-10	92.9
2010-11	93.6
2011-12	94.2
2012-13	94.4

Source: COVER, Health and Social Care Information Centre. See also Table 1 in the Data Tables section.

Regional and national coverage of the vaccine is shown in Table K and Figure 10. Increases were recorded for eight out of ten SHAs from 2011-12 to 2012-13. Coverage was highest in North East SHA (96.4%) and lowest in London (90.8%).

Table K: PCV coverage at 12 months

England by SHA, 2011-12 and 2012-13 Percentages

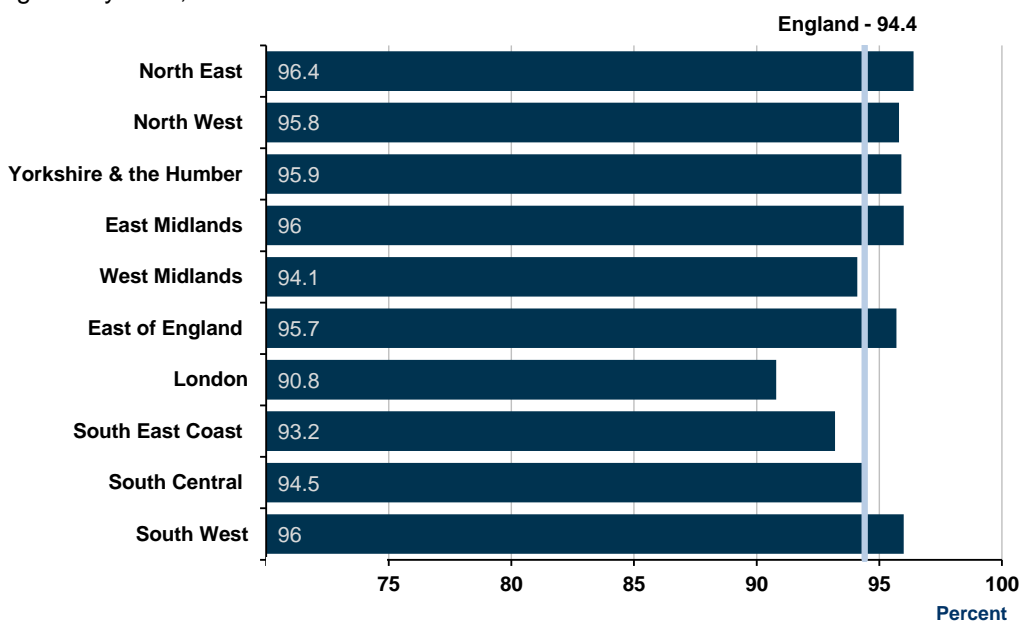
SHA	Coverage of PCV at 12 months	
	2011-12	2012-13
England	94.2	94.4
North East	96.1	96.4
North West	95.6	95.8
Yorkshire & The Humber	95.7	95.9
East Midlands	95.8	96.0
West Midlands	94.6	94.1
East of England	95.0	95.7
London	90.4	90.8
South East Coast	93.1	93.2
South Central	95.1	94.5
South West	95.4	96.0

Source: COVER, Health and Social Care Information Centre. See also Table 10 in the Data Tables section.

¹⁸ Due to variable data quality in recent years, some caution should be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. See Appendix C for more details.

Figure 10: PCV coverage at 12 months

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 10 in the Data Tables section.

For a more detailed breakdown of the statistics in this section by PCT, see Table 10a in Data Tables.

National coverage of the PCV booster vaccine at 24 months exceeded 90% for the second successive year in 2012-13, with 92.5% of children in England reported to have received the PCV booster as measured at 24 months. This is an increase from 91.5% in 2011-12 (see Table L).

Table L: PCV coverage at 24 months¹⁹

England, 2008-09 to 2012-13 Percentages

Year	Coverage of PCV at 24 months
2008-09	81.5
2009-10	87.6
2010-11	89.3
2011-12	91.5
2012-13	92.5

Source: COVER, Health and Social Care Information Centre. See also Table 2 in the Data Tables section.

¹⁹ Due to variable data quality in recent years, some caution should be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. See Appendix C for more details.

Regional and national coverage of the vaccine is shown in Table M and Figure 11. All SHAs recorded increases from 2011-12 to 2012-13. Coverage was highest in North East SHA (95.0%) and lowest in London (86.6%).

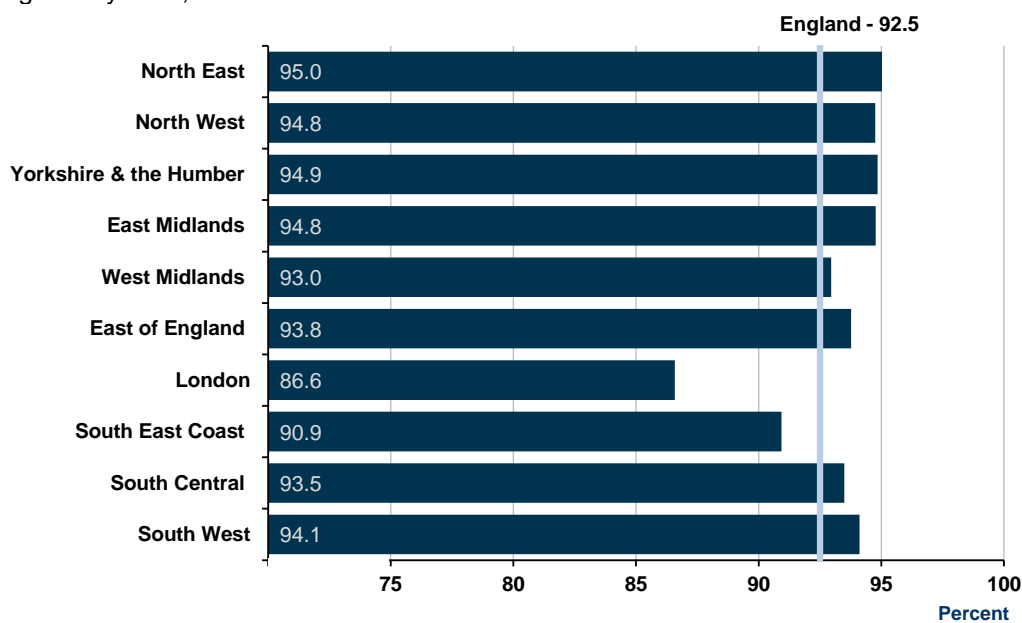
Table M: PCV coverage at 24 months

England by SHA, 2011-12 and 2012-13		Percentages
SHA	Coverage of PCV at 24 months	
	2011-12	2012-13
England	91.5	92.5
North East	94.2	95.0
North West	93.7	94.8
Yorkshire & The Humber	94.0	94.9
East Midlands	93.7	94.8
West Midlands	92.6	93.0
East of England	92.7	93.8
London	85.3	86.6
South East Coast	90.3	90.9
South Central	93.2	93.5
South West	92.3	94.1

Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section.

Figure 11: PCV coverage at 24 months

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 11 in the Data Tables section.

For a more detailed breakdown of the statistics in this section, see Table 11a in the Data Tables.

Coverage in UK countries at 12 and 24 months

The COVER programme also collects equivalent coverage data from Northern Ireland, Scotland and Wales. Quarterly UK and country level vaccine coverage statistics are published in the quarterly COVER report in the *Health Protection Report* on the PHE website.²⁰

Table N shows coverage in England to be below that in other UK countries. Links to data for Northern Ireland, Scotland and Wales can be found in section 1.2.7.

Table N: Completed immunisations (all antigens) by 12 months and 24 months

United Kingdom by country, 2012-13

Percentages

Country	Coverage at 12 months			Coverage at 24 months				
	DTaP/IPV/ Hib	MenC	PCV	DTaP/IPV/ Hib	Hib/MenC booster	PCV booster	MMR1	MenC primary
United Kingdom	95.1	94.3	94.8	96.6	93.1	92.9	92.7	95.3
England	94.7	93.9	94.4	96.3	92.7	92.5	92.3	95.1
Wales	96.5	96.1	95.9	97.7	94.4	95.2	94.6	96.6
Scotland	97.4	96.9	97.4	98.2	95.7	95.5	95.1	96.2
Northern Ireland	97.6	97.4	97.5	98.6	95.9	95.8	95.6	97.0

Source: COVER, Health and Social Care Information Centre. See also Tables 5a and 5b in the Data Tables section.

²⁰ http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733757253. This report also publishes coverage statistics for Strategic Health Authorities. Annual country level data are also published by the responsible organisation within Scotland (see <http://www.isdscotland.org/Health-Topics/Child-Health/Immunisation/>) and Wales (see <http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=27777>)

2.1.3 Immunisations by fifth birthday

Diphtheria, Tetanus, Pertussis and Polio (DTaP/IPV)

Reported vaccinations for DTaP/IPV indicate that 88.9% of children in England had received their booster at five years of age in 2012-13. This is an increase from 87.4% in 2011-12. Table O shows coverage of this vaccine over the last five years.

Table O: Coverage of DTaP/IPV booster at 5 years²¹

England, 2008-09 to 2012-13		Percentages
Year	Coverage of DTaP/IPV Booster at 5 years	
2008-09	80.1	
2009-10	84.8	
2010-11	85.9	
2011-12	87.4	
2012-13	88.9	

Source: COVER, Health and Social Care Information Centre. See also Table 3 in the Data Tables section.

Table P shows national and regional coverage of the vaccine over the last two years. Increases in coverage were recorded for nine out of ten SHAs in 2012-13 and coverage was over 90% in eight SHAs. Coverage was highest in North East SHA (93.0%) and lowest in London SHA (79.9%).

²¹ Due to variable data quality in recent years, some caution should be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. See Appendix C for more details.

Table P: Coverage of DTaP/IPV booster at 5 Years

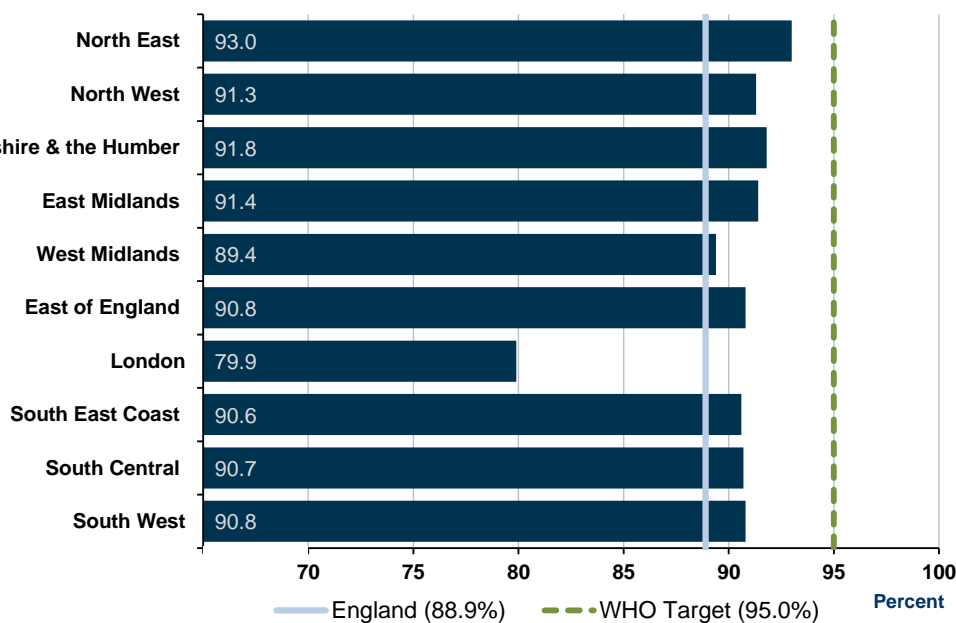
England by SHA, 2011-12 and 2012-13		Percentages	
	Coverage of DTaP/IPV booster at 5 years		
	2011-12	2012-13	
England	87.4	88.9	
North East	91.7	93.0	
North West	89.1	91.3	
Yorkshire & The Humber	90.2	91.8	
East Midlands	90.2	91.4	
West Midlands	89.9	89.4	
East of England	89.1	90.8	
London	78.8	79.9	
South East Coast	86.4	90.6	
South Central	89.8	90.7	
South West	87.8	90.8	

Source: COVER, Health and Social Care Information Centre. See also Table 12 in the Data Tables section.

Figure 12 shows SHA coverage for 2012-13, compared to the national average and the WHO target of at least 95%. Despite national increases for five consecutive years, England coverage is still below the WHO target, with no SHAs achieving this level of coverage in 2012-13.

Figure 12: Coverage of DTaP/IPV booster at 5 Years

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 12 in the Data Tables section.

For a more detailed breakdown of the statistics in this section, see Table 12a in Data Tables.

Measles-Mumps-Rubella (MMR) vaccine

Reported figures show that 87.7% of children in England had received their first and second dose of MMR vaccine (MMR2) by their fifth birthday in 2012-13, an increase from 86.0% in 2011-12. Table Q shows coverage of MMR2 at 5 years over the last five years.

Table Q: Coverage of MMR2 (both doses) at 5 years²²

England, 2008-09 to 2012-13		Percentages
Year	Coverage of MMR2 at 5 years	
2008-09	78.0	
2009-10	82.7	
2010-11	84.2	
2011-12	86.0	
2012-13	87.7	

Source: COVER, Health and Social Care Information Centre. See also Table 3 in the Data Tables section.

Table R shows national and regional coverage of the vaccine over the last two years. Increases in coverage were recorded for all SHAs in 2012-13. Coverage was highest in the North East (91.7%) and lowest in London (80.8%).

²² Due to variable data quality in recent years, some caution should be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. See Appendix C for more details.

Table R: MMR2 coverage at 5 years

England by SHA, 2011-12 and 2012-13 Percentages

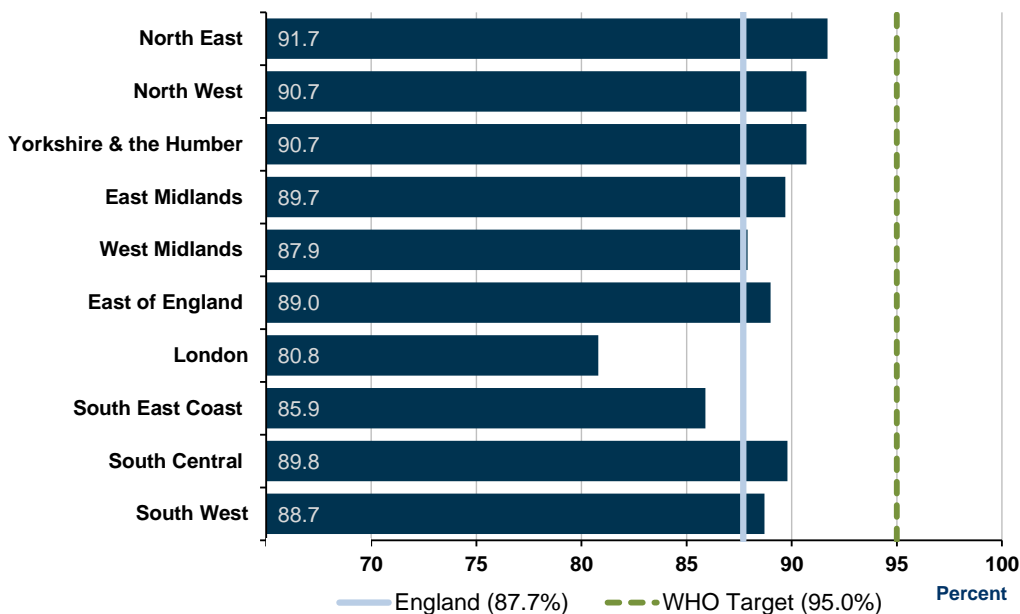
SHA	Coverage at 5 years	
	First and second dose (MMR2)	
	2011-12	2012-13
England	86.0	87.7
North East	89.9	91.7
North West	87.9	90.7
Yorkshire & The Humber	89.1	90.7
East Midlands	88.2	89.7
West Midlands	87.5	87.9
East of England	86.9	89.0
London	80.2	80.8
South East Coast	84.2	85.9
South Central	88.0	89.8
South West	84.8	88.7

Source: COVER, Health and Social Care Information Centre. See also Table 12 in the Data Tables section.

Figure 13 shows SHA coverage for 2012-13 compared to the national average and the WHO target of at least 95%. Despite national increases in recent years, England coverage remains below the WHO target, with no SHAs achieving this level of coverage in 2012/3.

Figure 13: MMR2 coverage at 5 years

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 12 in the Data Tables section.

Comparison of national coverage in 2012-13 at age five shows that whilst 93.9% of children had received their first dose of MMR, only 87.7% completed the recommended schedule of two doses by this age. This difference is evident across SHAs (see Table S).

Table S: MMR1 and MMR2 coverage at 5 years

England by SHA, 2012-13		Percentages	
SHA	Coverage at 5 years		
	First dose (MMR1)	First and second dose (MMR2)	
England	93.9	87.7	
North East	96.2	91.7	
North West	95.9	90.7	
Yorkshire & The Humber	95.6	90.7	
East Midlands	95.0	89.7	
West Midlands	94.7	87.9	
East of England	93.2	89.0	
London	90.6	80.8	
South East Coast	92.2	85.9	
South Central	94.4	89.8	
South West	94.6	88.7	

Source: COVER, Health and Social Care Information Centre. See also Table 12 in the Data Tables section.

For a more detailed breakdown of the statistics in this section, see Table 12a in Data Tables.

***Haemophilus influenzae* type b and meningococcal group C (Hib/MenC) vaccine**

Coverage of the Hib/MenC booster currently given to children between 12 and 13 months²³ is reported again at 5 years to monitor any improvement in coverage amongst children after their second birthday. Coverage data for the combined Hib/MenC booster vaccination at 5 years are available for the second year.

In England, 91.5% of children were reported to have received the Hib/MenC booster as measured at five years in 2012-13. This compares with 88.9% in 2011-12 when coverage of this vaccine was first reported.

²³ Prior to January 2011, Hib/MenC booster was given to children at around 12 months.

National and regional coverage is shown in Table T and Figure 14. Increases in coverage were recorded for all SHAs in 2012-13, with coverage highest in Yorkshire & the Humber (94.8%) and lowest in London (86.9%).

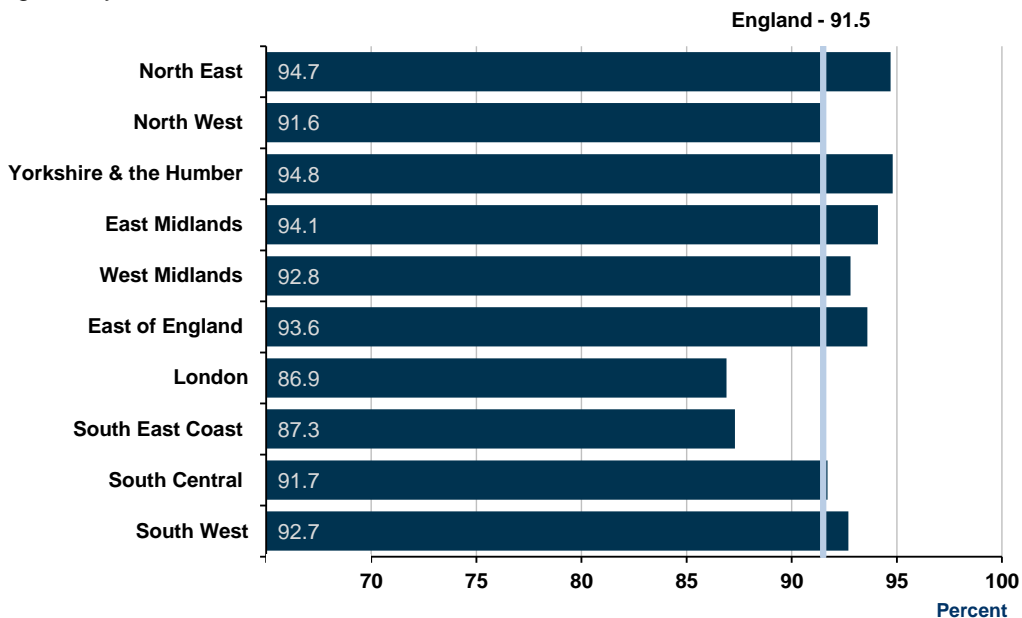
Table T: Hib/MenC coverage at 5 years

England by SHA, 2011-12 and 2012-13	Percentages	
	Coverage of Hib/MenC at 5 years	
	2011-12	2012-13
England	88.9	91.5
North East	89.8	94.7
North West	89.2	91.6
Yorkshire & The Humber	92.3	94.8
East Midlands	91.0	94.1
West Midlands	92.1	92.8
East of England	91.8	93.6
London	81.5	86.9
South East Coast	85.7	87.3
South Central	90.7	91.7
South West	91.3	92.7

Source: COVER, Health and Social Care Information Centre. See also Table 12 in the Data Tables section.

Figure 14: Hib/MenC coverage at 5 years

England by SHA, 2012-13



Source: COVER, Health and Social Care Information Centre. See also Table 12 in the Data Tables section.

For a more detailed breakdown of the statistics in this section, see Table 12a in Data Tables.

Coverage in UK countries at 5 years

Table U shows how England compares with other countries in the UK.

In 2012-13, vaccination coverage in England at 5 years was, for all reported vaccinations, below that of other UK countries. Links to data for Northern Ireland, Scotland and Wales can be found in section 1.2.7.

Table U: Completed immunisations (all antigens) by 5 years

United Kingdom by country, 2012-13

Percentages

Country	Coverage at 5 Years			
	DTaP/IPV Booster	MMR1 First dose	MMR2 First and second dose	Hib/MenC Booster
United Kingdom	89.5	94.3	88.2	92.0
England	88.9	93.9	87.7	91.5
Wales	91.3	95.8	89.6	93.8
Scotland	93.3	96.9	92.1	95.8
Northern Ireland	92.2	97.0	90.9	94.3

Source: COVER, Health and Social Care Information Centre. See also Table 5c in the Data Tables section.

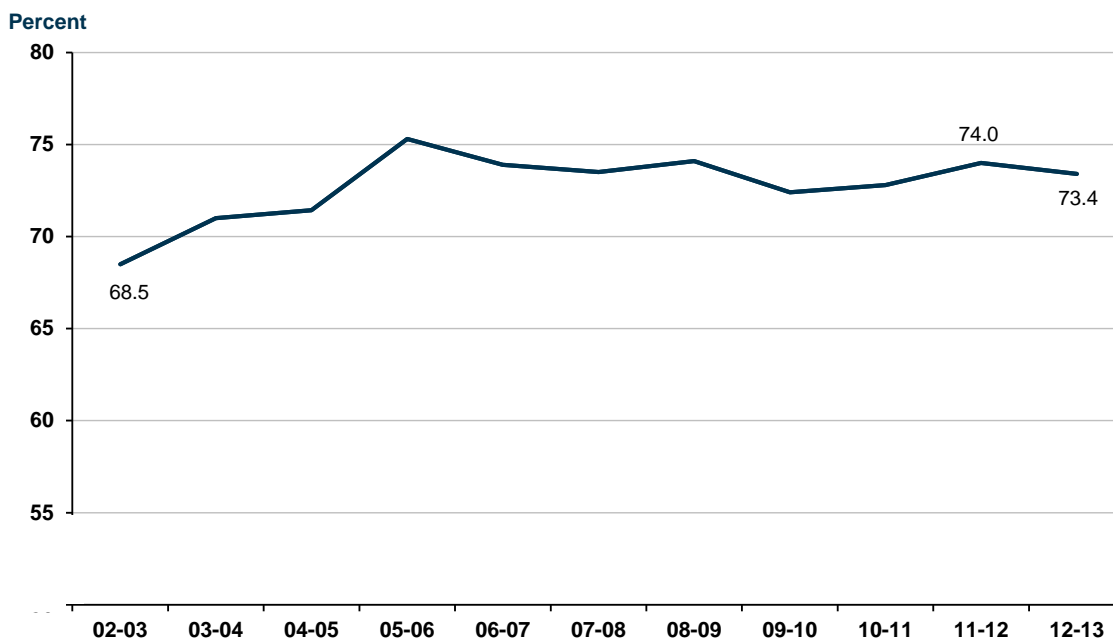
2.2 Adult Influenza Immunisations

Influenza (seasonal flu) Vaccination

A campaign to immunise all persons aged 65 and over against influenza (also known as seasonal flu) was introduced in the 2000-01 winter season. Coverage for this age group in England was 73.4% in 2012-13, below the World Health Organization target of 75% and a decrease from 74.0% recorded in 2011-12 (see Figure 15).

Figure 15: Influenza vaccine coverage in persons aged 65 and over

England, 2002-03 to 2012-13



NB: Coverage figures have been rounded to one decimal place.
Source: PHE

Table V shows the percentage of persons aged 65 and over immunised against influenza at national and regional level over the last two years. Coverage fell in all but one SHA in 2012-13 when compared with the previous year. Coverage was highest in North West SHA (75.8%) and lowest in South East Coast SHA (71.0%).

Table V: Percentage of persons aged 65 and over immunised against influenza

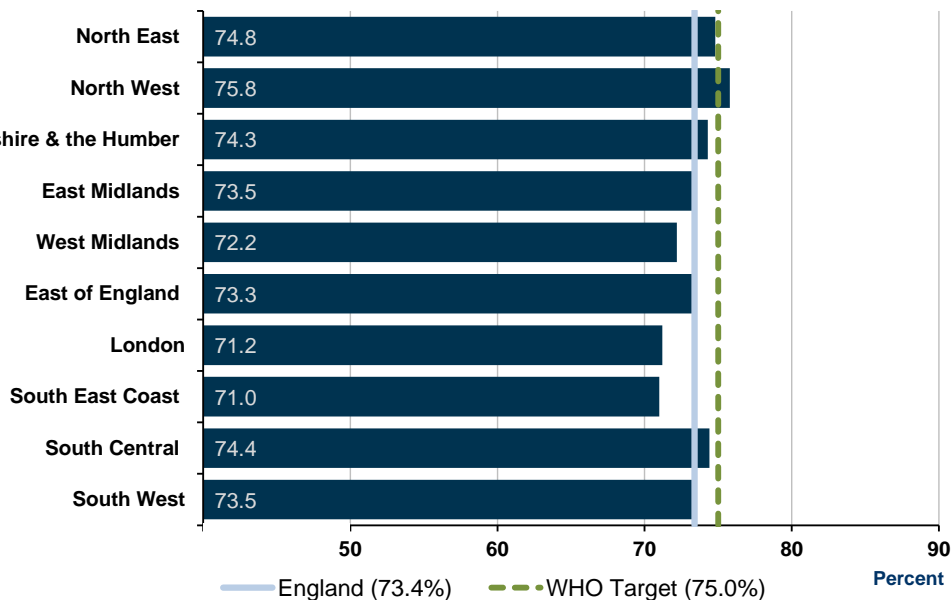
SHA	Percentages	
	Coverage	
	2011-12	2012-13
England	74.0	73.4
North East	75.8	74.8
North West	76.7	75.8
Yorkshire & The Humber	74.8	74.3
East Midlands	73.9	73.5
West Midlands	72.6	72.2
East of England	73.5	73.3
London	72.2	71.2
South East Coast	72.1	71.0
South Central	74.4	74.4
South West	74.2	73.5

Source: PHE. See Table 14 in the Data Tables section.

Figure 16 shows SHA coverage for 2012-13 compared to the national average and the WHO target of at least 75%. North West was the only SHA to have met the WHO target in 2012-13.

Figure 16: Percentage of persons aged 65 and over immunised against influenza

England by SHA, 2012-13



Source: PHE. See Table 14 in the Data Tables section.

For a more detailed breakdown of the statistics in this section, see Table 14a in Data Tables.

Appendices

Appendix A – Glossary

For further information on the diseases included in the glossary below see 'Immunisation against Infectious Diseases – the Green Book'.²⁴

Term	Definition
BCG	The Bacillus Calmette-Guerin (BCG) vaccine provides protection against tuberculosis (TB). TB is an infection caused by a bacterium called <i>Mycobacterium tuberculosis</i> ²⁵ .
Child Health Information System (CHIS)	Child Health Information Systems (CHIS) are computerised systems storing clinical records which support health promotion and prevention activities for children, including immunisation.
Diphtheria	Diphtheria is a potentially fatal, contagious disease that usually involves the nose, throat, and air passages, but may also infect the skin ²⁶ .
DTaP/IPV/Hib	Childhood vaccine providing protection against Diphtheria, Tetanus, Pertussis, Polio and <i>Haemophilus influenzae</i> b.
<i>Haemophilus influenzae</i> type b (Hib)	Hib (<i>Haemophilus influenzae</i> type b) is a bacterial infection that can cause a number of serious illnesses such as pneumonia, blood poisoning and meningitis, especially in young children ²⁷ .
HPV	Human papilloma virus (HPV) is the name of a family of viruses that affect the skin and the moist membranes that line the body, such as those in the cervix, anus, mouth and throat. Infection with some types of HPV can cause abnormal tissue growth and other changes to cells, which can lead to cervical cancer ²⁸ .
Influenza	Seasonal flu (also known as influenza) is a highly infectious illness caused by a flu virus. The virus infects the lungs and upper airways, causing a sudden high temperature and general aches and pains ²⁹ .
Measles	Measles (sometimes known as morbilli) is a highly infectious viral illness. It causes a range of symptoms including fever, coughing and distinctive red-brown spots on the skin ³⁰ .
MenC	Childhood vaccine providing protection against meningococcal group C disease.
Meningococcal	Meningococcal group C disease can cause meningitis, and septicaemia

²⁴ Source: <https://www.gov.uk/government/publications/green-book-the-complete-current-edition>

²⁵ Source: <http://www.nhs.uk/Conditions/vaccinations/Pages/bcg-tuberculosis-TB-vaccine.aspx>

²⁶ Source: <http://www.nhs.uk/Conditions/Diphtheria/Pages/Introduction.aspx>

²⁷ Source: <http://www.nhs.uk/conditions/hib/Pages/Introduction.aspx>

²⁸ Source: <http://www.nhs.uk/Conditions/vaccinations/Pages/hpv-human-papillomavirus-vaccine.aspx>

²⁹ Source: <http://www.nhs.uk/conditions/flu/Pages/Introduction.aspx>

³⁰ Source: <http://www.nhs.uk/conditions/Measles/Pages/Introduction.aspx?url=Pages/What-is-it.aspx>

group C disease	(bacterial infection of the blood). Meningitis is an infection of the meninges that are the protective membranes that surround the brain and spinal cord. Infection can cause the meninges to become inflamed and swell, which can damage the nerves and brain.
MMR	Childhood vaccine providing protection against Measles, Mumps and Rubella. MMR1 is used to indicate at least one dose of MMR has been received. MMR2 is used to indicate that two doses of MMR have been received (anytime from 12 months up to the child's 5 th birthday).
Mumps	Mumps is a highly contagious viral infection that usually affects children. The most common symptom of mumps is a swelling of the parotid glands. The parotid glands are located on one side, or both sides, of the face. The swelling gives a person a distinctive 'hamster face' appearance ³¹ .
PCV	Pneumococcal Conjugate Vaccine - Childhood vaccine providing protection against Pneumococcal Disease.
Pertussis	Pertussis, also sometimes referred to as whooping cough, is an infection of the lining of the airways ³² .
Pneumococcal disease	Pneumococcal infections are acute infections caused by the <i>Streptococcus pneumoniae</i> (<i>S. pneumoniae</i>) bacterium. There are more than 90 different strains of <i>S. pneumoniae</i> bacteria. <i>S. pneumoniae</i> enters the human body through the nose and mouth ³³ .
Polio	Polio, also known as poliomyelitis, is caused by a highly infectious virus. For most people, polio is a mild illness and causes flu-like symptoms. However, polio can be potentially fatal. A severe case of polio attacks the nerve cells that help muscles to function and can cause severe muscle paralysis (paralytic polio) ³⁴ .
Rubella	Rubella (German measles) is an infectious disease that is caused by a virus. It can cause a high temperature (fever) of 38C (100.4F) or over, and a distinctive red-pink rash. In most cases, rubella is a mild condition, but it can be serious in pregnant women because it can harm the unborn baby ³⁵ .
Tetanus	Tetanus is a serious, acute (severe but short-lived) condition that is caused by infection with a bacterium known as <i>Clostridium tetani</i> ³⁶ .
Td/IPV	Teenage booster that boosts protection against tetanus, diphtheria and polio ³⁷
Tuberculosis (TB)	Tuberculosis is a bacterial infection. It is spread by inhaling tiny droplets of saliva from the coughs or sneezes of an infected person ³⁸ .

³¹ Source: <http://www.nhs.uk/conditions/Mumps/Pages/Introduction.aspx?url=Pages/What-is-it.aspx>

³² Source: <http://www.nhs.uk/conditions/whooping-cough/pages/introduction.aspx>

³³ Source: <http://www.nhs.uk/conditions/pneumococcal-infections/pages/introduction.aspx>

³⁴ Source: <http://www.nhs.uk/conditions/polio-and-post-polio-syndrome-/pages/introduction.aspx>

³⁵ Source: <http://www.nhs.uk/conditions/Rubella/Pages/Introduction.aspx?url=Pages/What-is-it.aspx>

³⁶ Source: <http://www.nhs.uk/conditions/tetanus/pages/introduction.aspx>

³⁷ Source: <http://www.nhs.uk/Conditions/vaccinations/Pages/3-in-1-teenage-booster.aspx>

³⁸ Source: <http://www.nhs.uk/conditions/Tuberculosis/Pages/Introduction.aspx>

Appendix B – Coverage Definitions

All the coverage definitions below refer to the PCT responsible population which is defined as those for whom the PCT is responsible at a certain point in time (in this instance on 31st March 2013) and includes:

- All persons registered with a GP whose practice forms part of the PCT, regardless of where the person is resident, plus
- Any persons not registered with a GP, who are resident within the PCTs statutory geographical boundary

Note that persons resident within the PCT geographical area but registered with a GP belonging to another PCT, are the responsibility of that other PCT.

COVER: 12 Month Cohort

Coverage for the 12 month cohort is calculated as follows:

$$\frac{\text{Total number of children for whom the PCT is responsible, reaching their **first** birthday during the evaluation period (2012-13) and immunised before their first birthday}}{\text{Total number of children for whom the PCT is responsible reaching their **first** birthday during the evaluation period (2012-13)}} \times 100$$

DTaP/IPV/Hib: Immunised is defined as a completed course which is three doses before the child's first birthday. If the child received primary immunisations outside the UK, then a completed course would require three doses of each: DTP or DTaP, IPV or OPV, Hib before their first birthday.

MenC and PCV: Immunised is defined as a completed course which is two doses before the child's first birthday. (PCV can be either PCV7 or PCV13, given in any combination).

COVER: 24 Month Cohort

Coverage for the 24 month cohort is calculated as follows:

Total number of children for whom the PCT is responsible, reaching their **second** birthday during the evaluation period (2012-13) and immunised before their second birthday X 100

Total number of children for whom the PCT is responsible reaching their **second** birthday during the evaluation period (2012-13)

DTaP/IPV/Hib: Immunised is defined as a completed course which is three doses before the child's second birthday. If the child received primary immunisations outside the UK, then a completed course would require three doses of each: DTP or DTaP, IPV or OPV before their second birthday.

MMR: Immunised is defined as one dose given on or after the child's first birthday and before their second birthday (i.e. excludes MMR given before their first birthday).

MenC primary: Immunised is defined as a completed course which is two doses before the child's first birthday.

Hib/MenC booster: Immunised is defined as either: i) one dose of combined Hib/MenC vaccine on or after the child's first birthday and before their second birthday or: ii) one dose of DTaP/IPV/Hib and one dose of MenC, both given on or after the child's first birthday and before their second birthday (i.e. children completing primary course after their first birthday).

PCV booster: Immunised is defined as one dose given on or after the child's first birthday (irrespective of the number of doses before that age) and before their second birthday.

COVER: 5 Year Cohort

Coverage for the 5 year cohort is calculated as follows:

Total number of children for whom the PCT is responsible, reaching their fifth birthday during the evaluation period (2012-13) and immunised before their fifth birthday	X 100

Total number of children for whom the PCT is responsible reaching their **fifth** birthday during the evaluation period (2012-13)

Diphtheria, Tetanus and Polio (primary): Immunised is defined as a completed course which is three doses before the child's fifth birthday. Children reaching their 5th birthday from the 2010-11 collection year onwards would have been routinely offered the DTaP/IPV/Hib '5 in 1' vaccine which includes Tetanus, Diphtheria, Pertussis, Polio and Hib. If the child received primary immunisations outside the UK, then a completed course would require three doses of each: DTP or DTaP, IPV or OPV before their fifth birthday.

Diphtheria, Tetanus, Polio and Pertussis (DTaP/IPV) (booster): Immunised is defined as the fourth dose of diphtheria/tetanus/ pertussis/polio containing vaccine given from age three years four months, and before the child's fifth birthday.

Hib (primary)

Immunised is defined as a completed course which is three doses of a Hib-containing vaccine before the child's fifth birthday. Children reaching their 5th birthday from the 2010-11 collection year onwards would have been routinely offered the DTaP/IPV/Hib '5 in 1' vaccine.

MMR1 (1st dose): Immunised is defined as one dose given on or after the child's first birthday and before their fifth birthday (i.e. excludes MMR given before their first birthday).

MMR2 (2nd dose): Immunised is defined as two doses, the first given on or after the child's first birthday and the second at least three months after and before their fifth birthday (excludes MMR given before their first birthday).

Hib/MenC (booster): Immunised is defined as either: i) one dose of combined Hib/MenC vaccine on or after the child's first birthday and before their fifth birthday or: ii) one dose of DTaP/IPV/Hib and one dose of MenC, both given on or after the child's first birthday and before their fifth birthday (i.e. children completing primary course after their first birthday).

Hepatitis B: 12 Month Cohort

Coverage of hepatitis B (HB) for the 12 month cohort is calculated as follows:

Total number of children for whom the PCT is responsible, with maternal HB positive status, reaching their first birthday during the evaluation period (2012-13) and immunised before their first birthday	X 100
---	-------

Total number of children for whom the PCT is responsible with maternal HB status positive and reaching their first birthday during the evaluation period (2012-13)	
---	--

Immunised is defined as three doses of hepatitis B vaccine, given at any time up to a child's first birthday, in those infants born to HBsAg positive³⁹ mothers who reached the age of one year in the appropriate evaluation year.

Hepatitis B: 24 Month Cohort

Coverage of hepatitis B for the 24 month cohort is calculated as follows:

Total number of children for whom the PCT is responsible, with maternal HB positive status, reaching their second birthday during the evaluation period (2012-13) and immunised before their second birthday	X 100
---	-------

Total number of children for whom the PCT is responsible with maternal HB status positive and reaching their second birthday during the evaluation period (2012-13)	
--	--

Immunised is defined as four doses of hepatitis B vaccine, given at any time up to a child's second birthday, in those infants born to HBsAg positive⁴⁰ mothers who reached two years of age in the appropriate evaluation year.

Seasonal Flu

Seasonal flu coverage is calculated as follows:

Total number of persons aged 65 and over at the time of data extraction, registered with a GP during the evaluation period (2012-13), who have been immunised	X 100
---	-------

Total number of persons aged 65 and over at the time of data extraction, registered with a GP during the evaluation period (2012-13)	
--	--

³⁹ HBsAG stands for hepatitis B surface antigen and is the surface antigen of the hepatitis B virus (HBV). It indicates current hepatitis B infection.

⁴⁰ HBsAG stands for hepatitis B surface antigen and is the surface antigen of the hepatitis B virus (HBV). It indicates current hepatitis B infection.

Immunised is defined as one dose of trivalent influenza vaccine given to anyone aged 65 years and over on 31 March 2013 (i.e. born on or before 31 March 1948).

Appendix C – Data Validation and Data Quality

COVER Data

Information on childhood immunisation coverage at ages one, two and five was collected through the Cover of Vaccination Evaluated Rapidly (COVER) data collection from Child Health Information Systems (CHISs) for most PCTs, or from GP systems for a small number of PCTs.

Data collections were quality assured at the time of collection by PHE and further data validation and quality assurance is carried out by the HSCIC prior to publication.

PHE's quality assurance processes include the following:

- Checks on data completeness.
- Comparisons with previous years' data are made to identify any large changes and ensure they are explained. Comparisons are made on the numbers of individuals vaccinated, the numbers eligible for vaccination and coverage.
- Comparisons are made with coverage submitted for the same cohort of children in previous years to identify any unexpected changes in the numbers eligible, vaccinated or in coverage.
- Where there are unexpected changes, the data provider is asked to verify the data and where possible provide an explanation(s).

On receipt of the COVER data from PHE, the HSCIC second check the data for completeness and to ensure that wherever there are unexpected/large changes, as described above, that an adequate explanation(s) has been given. Data submitted are also compared at a regional and local level to identify any outliers which may require further investigation (e.g. where coverage in a PCT is substantially higher or lower than in others). Checks are also undertaken on the calculated coverage figures.

Issues with some CHISs over recent years (including issues associated with the implementation of new systems) have affected the quality of COVER data. Table C1 shows the data issues that were reported by PCTs from 2005-06 to 2011-12.

Table C1: Data Issues associated with Child Health Information Systems

Year	Data issues
2005-06	Nine London PCTs (out of 31) were unable to submit data due to problems relating to the implementation of a new child health system.
2006-07	Seven London PCTs were unable to provide reliable annual data due to on-going problems relating to the implementation of a new child health system.
2007-08	Six London PCTs did not provide any data and a further seven PCTs had some missing data for the five year cohort due to on-going problems relating to the implementation of a new child health system. One PCT in the South West was unable to provide data due to a major problem with the child health system.
2008-09	18 PCTs experienced data quality issues. In 13 of these PCTs the data quality issue was associated with a recent migration to a new child health system or problems with an existing child health system. Of these 13 PCTs, eleven were in London. One PCT submitted partial datasets due to the unavailability of data from certain parts of the PCT and a further three PCTs submitted data based upon quarterly data due to problems reporting an annual figure.
2009-10	4 PCTs identified CHIS implementation as having a negative impact on data quality and accuracy. Three out of these four PCTs were in London.
2010-11	10 PCTs (including 3 in London) reported data quality issues. Six of the 10 reported that the quality issues were associated with the implementation of CHISs. In addition, two PCTs reported only partial data for their areas and a further one London PCT supplied figures that were estimates based on available data.
2011-12	Data quality issues were reported for four PCTs. Two of these PCTs were in London.

In 2012-13, COVER data on childhood immunisations were supplied for all 151 Primary Care Trusts. Improvements in data quality were reported in relation to data from 27 PCTs following queries raised by PHE or the HSCIC following data validation.

Quality issues were reported in relation to the data for four PCTs (Barnet PCT, Wandsworth PCT, Hartlepool PCT and Stockton-on-Tees Teaching PCT) where missing data was thought to have impacted on reported coverage. Possible missing data was also reported for Sutton and Merton PCT, potentially resulting in lower reported coverage figures for all three cohorts (one, two and five years).

Although relatively few data quality issues were reported in 2012-13, some caution should still be exercised when comparing coverage figures over time, as apparent trends could reflect changes in the quality of data reported as well as real changes in vaccination coverage. While this issue will be more apparent at a local level, it will also have an impact on the national figures.

Appendix D – How are the Statistics used?

Users and Uses of the Report

Uses of Statistics by Known Users

This section details known users of the report and the purposes for which they use the statistics. All these users have found the information in the report useful for the purposes set out.

Public Health England (PHE)

Public Health England (PHE) uses the report as a validated authoritative source of figures for annual coverage data for use when referring to immunisation programmes at all levels within England. The statistics are used by PHE to report United Kingdom (UK) vaccine coverage data to the World Health Organisation (WHO) and UNICEF.

Department of Health (DH)

The Department of Health (DH) use the statistics from this publication, together with provisional quarterly COVER data published by PHE, to inform the development and evaluation of government policy on immunisation and to assess the delivery of different immunisations in the national programme. The statistics also help inform vaccine policy decisions, such as national and regional catch-up programmes for specific immunisations. DH uses the statistics to respond to public and parliamentary business. A number of the statistics from this publication will also contribute to indicators for the government's Public Health Outcomes Framework⁴¹.

NHS England and Area Teams (ATs)

The Area Teams use the report, in conjunction with the quarterly COVER statistics, as a validated authoritative source of figures for annual coverage data for use when referring to the immunisation programme at their area level. One Area Team reported that the statistics are used to highlight potential quality issues to the Clinical Commissioning Group and provide a basis for discussions between relevant stakeholders around local performance.

⁴¹ For more information on the Public Health Outcomes Framework see: <http://www.dh.gov.uk/health/2012/01/public-health-outcomes/>

OECD

The seasonal flu statistics are supplied to the OECD by the HSCIC and are used in OECD Health Database and also for the Health care Quality Indicator project.

Compendium of Population Health Indicators

Statistics on vaccinations for MMR and whooping cough (pertussis) from the publication are included in the Compendium of Population Health Indicators which is widely used within the NHS as well as outside it. See: <https://indicators.ic.nhs.uk/webview/>

Child and Maternal Health Observatory (ChiMat)

Statistics from the publication are used in the Child Health Profiles published by the ChiMat. See: <http://www.chimat.org.uk/default.aspx>

Unknown Users

The NHS Immunisation Statistics publication is free to access via the HSCIC website and therefore the majority of users will access the report without being known to the HSCIC. It is important to put mechanisms in place to try to understand how these additional users are using the statistics and also to gain feedback on how we can make the data more useful to them.

On the webpage where the report is published, there is a link to a feedback web form, which the HSCIC uses for all its reports.

The specific questions asked on the form are:

How useful did you find the content in this publication?

How did you find out about this publication?

What type of organisation do you work for?

What did you use the report for?

What information was the most useful?

Were you happy with the data quality?

To help us improve our publications, what changes would you like to see (for instance content or timing)?

Would you like to take part in future consultations on our publications?

Any responses via this web form are passed to the team responsible for the report to consider.

Appendix E – Feedback from Users

The publication webpage has a 'Have your say' link which invites users to comment on the publication. No comments were received from users through this link following the last publication of NHS Immunisation Statistics in 2011-12.

Key stakeholders were invited to provide feedback on the 2011-12 report published in November 2012 and in response to this the Health Protection Agency reported that they would like to see longer time series for coverage data, in particular for MMR. The time series for MMR evaluated a two years and for Diphtheria at one year have been extended in this year's report back to 1988. This is the year the MMR vaccine was first introduced and when current definitions for measuring coverage came into effect.

Appendix F – Related Publications and Useful Web Links

This bulletin can be found on the internet at:

<http://www.hscic.gov.uk/searchcatalogue?q=title%3A+nhs+immunisation+statistics&area=&size=10&sort=Relevance>

Copies of previous editions published by the HSCIC can also be accessed via this link.

Prior to 2004-05 this bulletin was published by the Department of Health. These editions can be found at:

http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Statistics/StatisticalWorkAreas/Statisticalhealthcare/DH_4086491

'Immunisation against Infectious Diseases – the Green Book', Department of Health

<https://www.gov.uk/government/publications/green-book-the-complete-current-edition>

Further immunisation information for health professionals and immunisation practitioners can be found at:

<https://www.gov.uk/government/organisations/public-health-england/series/immunisation#vaccine-uptake>

Annual HPV vaccine coverage in England: 2011-12, Department of Health

http://media.dh.gov.uk/network/211/files/2013/01/2900744_HPVAccAnnualVaccineUptake11-12_acc.pdf

Statistics relating to hepatitis B are available from the PHE website at:

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/VaccineCoverageAndCOVER>

More information on the seasonal flu vaccination is available from the PHE web page:

<https://www.gov.uk/government/organisations/public-health-england/series/immunisation#immform>

Information on the DH flu vaccination programme can be found on the following webpage:

<https://www.gov.uk/government/publications/the-flu-immunisation-programme-2012-13>

Data on seasonal flu vaccine coverage amongst people with long-term medical conditions can be found at:

<https://www.gov.uk/government/organisations/public-health-england/series/immunisation#publications>

and

<https://www.gov.uk/government/publications/influenza-vaccine-uptake-amongst-gp-patient-groups-in-england-for-winter-season-2012-to-2013>

Quarterly PHE *Health Protection Reports* and Communicable Disease Reports on the COVER programme for childhood immunisation are available at:

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/VaccineCoverageAndCOVER/Publications/coverQuarterlyHPR/>

Appendix G – COVER Data Collection Form

PCT Name/Code:

2011/2012 - 5 REQUEST PARAMETERS FOR COVER DATA: ANNUAL REQUEST 01/04/12 to 31/03/13

Please note that the collection of these data has been mandated by the Secretary of State, through the Review of Central Returns (ROCR), to the HPA. Reference: ROCR/OR/0105/004MAND (ROCR aims to minimise the burden of data collection on the NHS). More details can be found at: <http://www.ic.nhs.uk/rocr>.

The ROCR team are keen to receive feedback on central data collections from the colleagues who complete/submit returns. In particular, around the length of data collections take to complete and any issues, suggested improvements or duplication of data collections. Feedback can be submitted to ROCR using an [online form](#).

The following groups of children are to be **included** as PCT responsible population for COVER data. Children for whom the PCT is responsible are:

- all children registered with a GP whose practice forms part of the PCT, regardless of where the child is resident, plus
- any children not registered with a GP, who are resident within the PCT's statutory geographical boundary

Note that children resident within the PCT geographical area, but registered with a GP belonging to another PCT, are the responsibility of that other PCT.

Request 1: 12 MONTH COHORT

1. Total number of children for whom the PCT is responsible on 31/03/13 reaching their 1st birthday during the above evaluation quarter.

2. Total number and percentage vaccinated (to one decimal place) included in line 1 completing a course* at any time up to their 1st birthday for each of the following:

DTaP/IPV/Hib	MenC	PCV
%	%	%

Request 2: 24 MONTH COHORT

3. Total number of children for whom the PCT is responsible on 31/03/13 reaching their 2nd birthday during the above evaluation quarter.

4. Total number and percentage vaccinated (to one decimal place) included in line 3 completing a course** at any time up to their 2nd birthday and also total number and percentage included in line 3 receiving boosters for each of the following:

DTaP/IPV/Hib	MMR	MenC infant	Hib/MenC** Booster	PCV** Booster
%	%	%	%	%

Request 3: 5 YEAR COHORT

5. Total number of children for whom the PCT is responsible on 31/03/13 reaching their 5th birthday during the above evaluation quarter.

6. Total number and percentage vaccinated (to one decimal place) included in line 5 completing a course*** at any time up to their 5th birthday and also total number and percentage included in line 5 receiving boosters for each of the following:

DT/Pol Primary	Pertussis Primary	Hib Infant	MMR 1st dose	MenC Infant	PCV Infant
%	%	%	%	%	%

7. Total number included in line 5 and receiving boosters at any time before their fifth birthday against:

DTaP/IPV Booster	Hib/MenC Booster	MMR 2nd dose	PCV Booster
%	%	%	%

PCT Name/Code:

HEPATITIS B - 12 MONTH COHORT

8. Total **number** included in line 1 with maternal HB status positive**** and reaching their first birthday during the above evaluation period (i.e. born between 01/04/11 - 31/03/12)

9. Total **number** included in line 8 receiving 3 doses of Hep B before their 1st birthday

HEPATITIS B - 24 MONTH COHORT

10. Total **number** included in line 3 with maternal HB status positive**** and reaching their second birthday during the above evaluation period (i.e. born between 01/04/10 - 31/03/11)

11. Total **number** included in line 10 receiving 4 doses of Hep B before their 2nd birthday

Footnotes:

Notes on definitions of COVER parameters:

In response to requests from several PCTs additional information for clarification only has been provided to help PCTs ensure their data extracts are as accurate as possible. This is not a request for additional data, which would require a DSCN.

***at 12 months completed courses are defined as:**

DTaP/IPV/Hib is 3 doses before 1st birthday; if child received primary immunisations outside UK then 3 doses of each: DTP or DTaP, IPV or OPV, Hib before 1st birthday
MenC and PCV is 2 doses before 1st birthday (PCV can be either PCV7 or PCV13, given in any combination)

****at 24 months completed courses are defined as:**

DTaP/IPV/Hib is 3 doses before 2nd birthday; if child received primary immunisations outside UK then 3 doses of each: DTP or DTaP, IPV or OPV before 2nd birthday
MMR is 1 dose on or after 1st birthday and before 2nd birthday (i.e. excludes MMR given before 1st birthday)
MenC infant is 2 doses before 1st birthday
Hib/MenC booster is either (i) one dose of combined Hib/MenC vaccine on or after 12 months and before 2nd birthday or (ii) 1 dose of DTaP/IPV/Hib and 1 dose of MenC, both given on or after 1st birthday and before 2nd birthday (i.e. children completing primary course after 1st birthday)
PCV booster is one dose on or after 12 months (irrespective of the number of doses before that age) and before 2nd birthday

*****at 5 years completed courses are defined as:**

DTaP/IPV/Hib is 3 doses before 5th birthday; if child received primary immunisations outside UK then 3 doses of each: DTP or DTaP, IPV or OPV before 5th birthday
MMR1 (1st dose) is 1 dose on or after 1st birthday and before 5th birthday (i.e. excludes MMR given before 1st birthday)
MenC infant (i) if born before 4th July 2006, 3 doses before 1st birthday (ii) if born on or after 4th July 2006, at least 2 doses before 1st birthday
PCV is 2 doses before 1st birthday (PCV can be either PCV7 or PCV13, given in any combination)
DTaP/IPV booster is 4th dose of diphtheria/tetanus/pertussis/polio containing vaccine given from 3 years 4 months and before 5th birthday
Hib/MenC booster is either (i) one dose of combined Hib/MenC vaccine on or after 12 months and before 5th birthday or (ii) 1 dose of DTaP/IPV/Hib and 1 dose of MenC, both given on or after 1st birthday and before 5th birthday (i.e. children completing primary course after 1st birthday)
MMR2 (2nd dose) is 2 doses from 1st birthday and before 5th birthday (i.e. excludes MMR given before 1st birthday)
PCV booster is one dose on or after 12 months (irrespective of the number of doses before that age) and before 5th birthday

**** maternal HB status positive: HBsAg+ve

Notes:

1. Although many child health systems do not have the capacity to produce statistics or even hold information on hepatitis B vaccines, this information is requested in the same format as the current COVER outputs. This is designed to ensure that collection of hepatitis B data is integrated into the routine collection and coverage data can be compared. It is hoped that this data will be generated from manual systems or from standalone databases managed by or on behalf of the PCT.
2. The format is based on the 0,1,2,12 month schedules recommended in the HSC 1998. will be collected via Regions and can be used to validate the completeness of identification of children at risk in future cohorts.
3. The HSC recommended universal screening of pregnant women from April 2000. Data on antenatal prevalence will be collected via Regions and can be used to validate the completeness of identification of children at risk in future cohorts.
4. CfI have aimed only to collate information on completion of vaccination, although realises that first dose coverage and timeliness may be more important in the prevention of infection.

Return by 24th May 2013 to:

E-mail: COVER@phe.gov.uk / Fax: 020 8327 7404/or post

COVER
Immunisation Department

Public Health England
61 Colindale Avenue
LONDON NW9 5EQ

copies of this can also be f www.hpa.org.uk/infections/topics_az/cover/default.htm

On 1st April this organisation's functions transfer to Public Health England. This email address will change to cover@phe.gov.uk. All other contact details will remain the same.

References

John TJ, Samuel R. 2000. 'Herd immunity and herd effect: new insights and definitions', *Eur. J. Epidemiol.* **16** (7), pp601-6.

Granerod J, White J, Andrews N, Crowcroft N. 2006. 'Vaccine coverage in England: the impact of health service reorganisation', *Archives of Disease in Childhood*, 91 (10), pp805-807.

White J, Gillam S, Begg N, Farrington C. 1992, 'Vaccine coverage: recent trends and future prospects', *British Medical Journal* 304, pp.682-684.

Annex A – Hepatitis B – Experimental Statistics

These statistics, which are published for the third time in this year's in NHS Immunisation Statistics, England, are published as 'experimental statistics' as they are still undergoing evaluation.

Following the introduction of universal antenatal testing for hepatitis B (HepB) in April 2000, PHE (formerly the Health Protection Agency) has been collecting coverage data on infants born to hepatitis B positive mothers at their first and second birthdays. Since April 2005, this data collection has been integrated into the routine COVER programme and has been a statutory requirement since 2006.

The data presented in Tables A1 and A2 represents reported coverage for three doses of hepatitis B vaccine in those infants born to HBsAg positive⁴² mothers who reached the age of one year, and coverage of four doses of vaccine in infants who reached two years of age in the year (2012-13).

These data have been reported by the HPA (now part of PHE) in previous years and statistics for the last four years are available on the PHE website through the following link:

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1211441442288

Data validation

PHE's quality assurance process includes the following:

- Checks on data completeness.
- Comparisons with previous years' data are made to identify any large changes and ensure they are explained. Comparisons are made on the numbers of individuals vaccinated and the numbers eligible for vaccination.
- Where zeros or blanks are submitted for both the number eligible and number vaccinated, data providers are asked to verify whether this indicates that no children are eligible and none have been vaccinated or whether the data are not available.
- Where there are unexpected figures, the data provider is asked to verify the data and where possible provide an explanation(s).

⁴² HBsAG stands for hepatitis B surface antigen and is the surface antigen of the hepatitis B virus (HBV). It indicates current hepatitis B infection.

On receipt of the COVER data from PHE, the HSCIC second check the data for completeness and to ensure that wherever there are unexpected/large changes as described above, that an adequate reason(s) has been given. Data submitted are also compared at a local level to identify any outliers which may require further investigation (e.g. where the number vaccinated is substantially higher or lower than in other areas). Checks are also undertaken on the calculated coverage figures.

Important Note on Data Quality

A large number of Trusts reported that they were unable to supply some or all of the data required on infants born to hepatitis B positive mothers. It would therefore be inadvisable to draw conclusions from these data and it should be noted that no national or regional data have been published. Further details of the numbers of Trusts unable to supply data are given below:

The data quality issues identified in 2012-13 returns include:

- For the 12 month cohort, data were not available for 34 Trusts.
- For the 24 month cohort, data were not available for 33 Trusts.
- For the 12 month cohort, 2 Trusts reported the number of children immunised or the number eligible but did not report both.
- For the 24 month cohort, 3 Trusts reported the number of children immunised or the number eligible but did not report both.

It is hoped that Trusts that have been unable to submit data for 2012-13 are encouraged to review their systems for obtaining these data and take the necessary actions to ensure that they are able to submit data in future years.

In some cases where a full data set was submitted for a Trust (i.e. figures were submitted for the number eligible and number vaccinated), the data provider also reported that their submission was incomplete and that there was some missing data.

- For the 12 month cohort, of the 115 Trusts who submitted a full data set, six also reported some missing data.
- For the 24 month cohort, of the 115 Trusts who submitted a full data set, seven also reported some missing data.

A key part of the “Experimental statistics” label is user engagement in the evaluation of those statistics. The HSCIC invites readers to comment on the hepatitis B statistics, which will help inform the next report. Comments may be sent to enquiries@hscic.gov.uk.

**Published by the Health and Social Care Information Centre
Part of the Government Statistical Service**

Responsible Statistician

Clare McConnell, Section Head

ISBN 978-1-84-636956-8

This publication may be requested in large print or other formats.

For further information:

www.hscic.gov.uk

0845 300 6016

enquiries@hscic.gov.uk

Copyright © 2013 Health and Social Care Information Centre. All rights reserved.

This work remains the sole and exclusive property of the Health and Social Care Information Centre and may only be reproduced where there is explicit reference to the ownership of the Health and Social Care Information Centre.

This work may be re-used by NHS and government organisations without permission.