

Section 3: Children and young people

Childhood immunisations



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Infectious disease	Burden of ill-health: general health
Maternity	Health promotion and preventative services
Sexual health	Health promotion and preventative services
Vaccination	Health promotion and preventative services

Outcome Frameworks summary

The Public Health Outcomes Framework for England, 2013-2016¹ outlines the overarching vision for public health as “to improve and protect the nation’s health and wellbeing, and improve the health of the poorest fastest”. The following indicators from this framework are relevant to this section.

Framework	Reference	Indicator
Public Health	3.3 (i)	% eligible 1 & 2 yr olds vaccinated against Hepatitis B
Public Health	3.3 (ii)	% eligible 1-16 yr olds receiving BCG vaccine
Public Health	3.3 (iii)	% 1,2 & 5 yr olds receiving DtaP/IPV/Hib vaccine
Public Health	3.3 (iv)	% 1,2 & 5 yr olds receiving MenC vaccine
Public Health	3.3 (v)	% 1,2 & 5 yr olds receiving PCV vaccine
Public Health	3.3 (vi)	% 2 & 5 yr olds receiving Hib/MenC booster vaccine
Public Health	3.3 (vii)	% 2 & 5 yr olds receiving PCV booster vaccine
Public Health	3.3 (viii)	% 2 yr olds receiving one dose of MMR vaccine
Public Health	3.3 (ix)	% 5 yr olds receiving one dose MMR vaccine
Public Health	3.3 (x)	% 5 yr olds receiving two doses of MMR vaccine
Public Health	3.3 (xi)	% 13-18 yr olds receiving Td/IPV booster vaccine
Public Health	3.3 (xii)	% 12-17 yr old females receiving HPV vaccine
Public Health	4.1	Infant mortality
Public Health	4.8	Mortality from communicable diseases

Edition

Edition	Version no.	Changes/Comments

Executive summary

This section reports on the child immunisations that make up the primary immunisation schedule, the targeted vaccination programmes for Tuberculosis and Hepatitis B, vaccination against Human Papilloma Virus (HPV) for 12-13yr old girls, attending all schools in Wiltshire and the adolescent booster.

Wiltshire vaccination coverage is high compared to the South West and England. However, the key challenge is to achieve 95% coverage, as suggested by the World Health Organisation² to protect the most vulnerable in society, and to increase uptake in groups and localities where coverage is currently low.

Why this area is important

Immunisation is a highly cost-effective intervention that is estimated to save up to 3 million lives per year worldwide.

In the first year of life children are vaccinated against: Diphtheria, Whooping cough, Polio, Tetanus, *Haemophilus influenzae* type b and Pneumococcal infection. In the 2nd year of life children begin their course of vaccination against measles, mumps and rubella. Uptake of these immunisation programmes are monitored by the Public Health teams. Public Health England published a [Routine Childhood immunisation table](#) to be used from June 2013.

The target for immunisation programmes is 95% coverage, which in most instances will provide herd immunity to a population. This means that coverage is high enough to reduce disease circulation to such an extent that even those who are unvaccinated are protected from the disease. If people choose not to be immunised then the number of at-risk people in the population will increase, and as a consequence, so will the risk of disease outbreaks.

What are the needs of the population?

Immunisation coverage in Wiltshire, as the following figures show, is high compared to both the South West and England as a whole. However, Wiltshire still has to improve to reach World Health Organisation targets (WHO) of 95% across some of the immunisation indicators, particularly at age 5.

Wiltshire's performance has also been consistently higher than that of England and the South West over time, as shown by the graphs in Figures 1 to 3. These show performance across the key immunisation indicators in Wiltshire at 1 year, 2 years and 5 years.

The key immunisations reported here are taken from indicators in the new Public Health Outcomes Framework.

The Health Protection Agency's Cover of Vaccination Evaluated Rapidly (COVER) data monitors immunisation coverage data for children in the United Kingdom who reach their first, second or fifth birthday. The information is published in "NHS Immunisation Statistics" annual reports³.

Immunisations due by age 1

Wiltshire's primary (by 1 year) immunisation coverage is very high, and consistently above the levels required for herd immunity, as shown in Table 1.

Table 1: Primary immunisation coverage, by 1 year of age, 2012/13

Immunisation	Wiltshire	South West	England	WHO Target (by age 2)
D/T/aP/IPV/Hib*	96.6%	96.1%	94.7%	95%
Meningitis C	96.4%	95.5%	93.9%	95%
Pneumococcal Disease (PCV)**	96.6%	96.0%	94.4%	95%

Source: NHS Immunisation Statistics, England, 2012-13

*Diphtheria, tetanus, polio, pertussis & Hib

** PCV provides protection against the 7 most common types of pneumococcal bacteria.

From July 2013 a new vaccination programme against rotavirus was introduced. The rotavirus vaccination programme sees children under 4 months routinely vaccinated against this highly infectious illness, which is the most common cause of vomiting and diarrhoea (gastroenteritis) in infants and young children. The vaccine is offered alongside the primary immunisation schedule; however data on uptake is not available yet at a local level.

Figure 1: D/T/aP/IPV/Hib, coverage by 1 year, 2007/08 to 2012/13

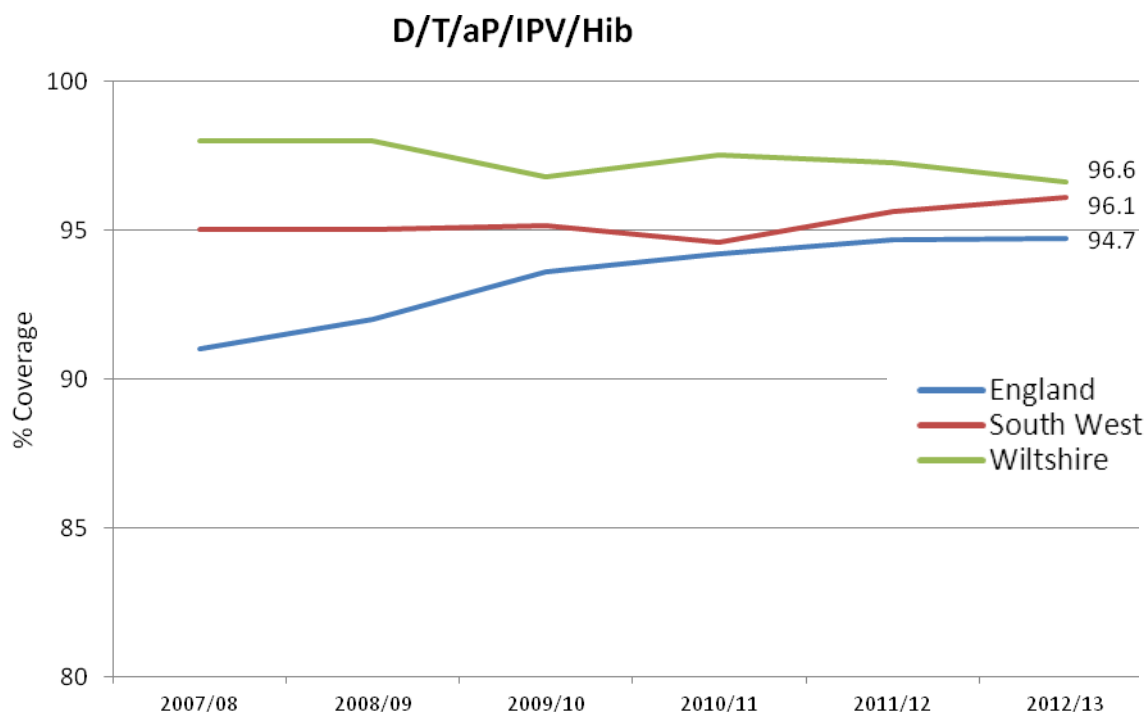


Figure 2: Meningitis C, coverage by 1 year, 2007/08 to 2012/13

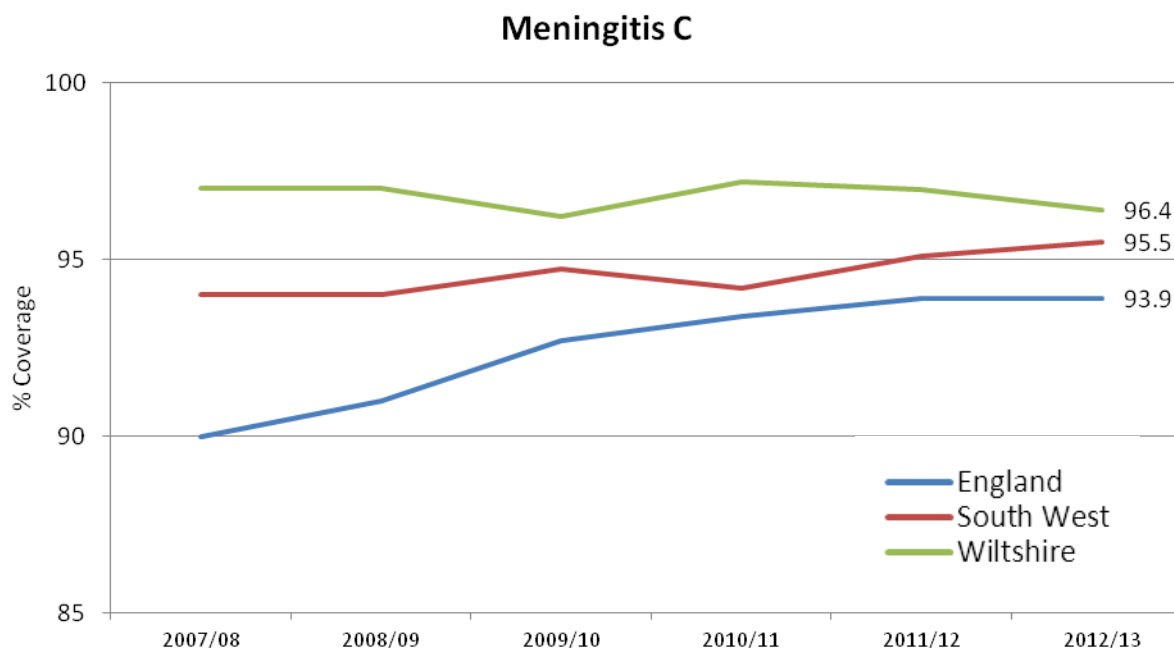
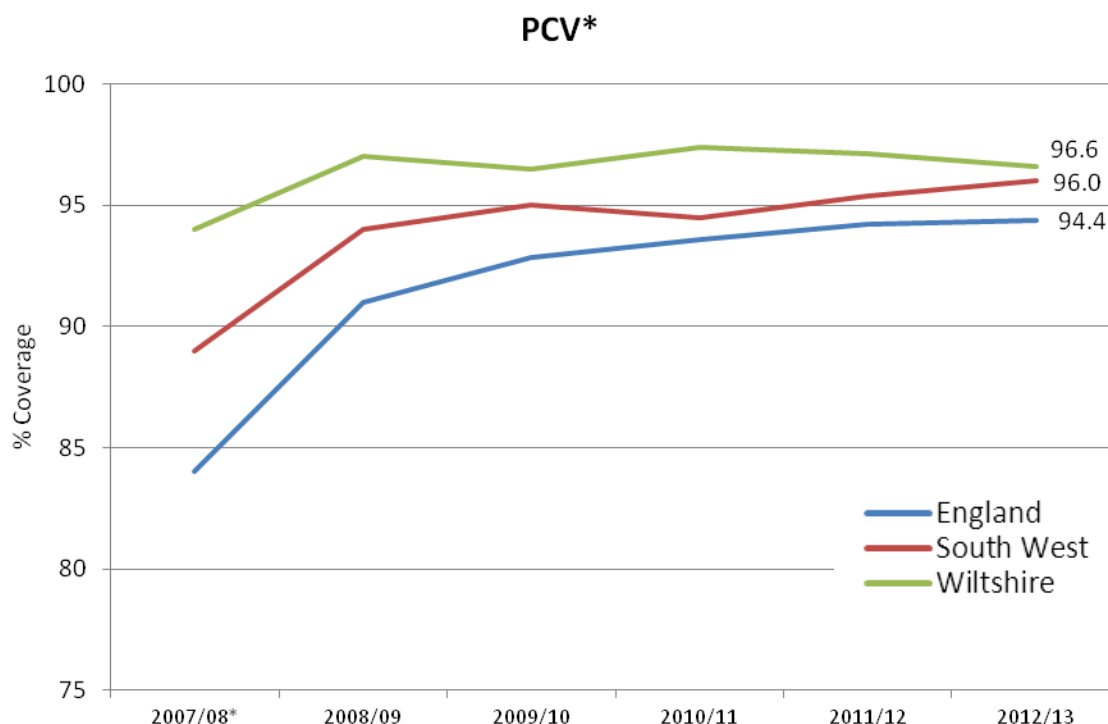


Figure 3: PCV, modeled coverage by 1 year, 2007/08 to 2012/13

*Modelled coverage

Immunisations due by age 2

Wiltshire's immunisation coverage at 2 years is higher than the South West and England rates as shown in Table 2, however coverage does not always quite reach the 95% target required for her immunity.

Table 2: Immunisation coverage, by 2 years of age, 2012/13

Immunisation	Wiltshire	South West	England	WHO Target (by age 2)
MMR (Primary)	94.2%	93.5%	92.3%	95%
Meningitis C/Hib Booster	94.2%	93.0%	92.7%	95%
PCV Booster	95.2%	94.1%	92.5%	95%

Source: NHS Immunisation Statistics, England, 2012-13

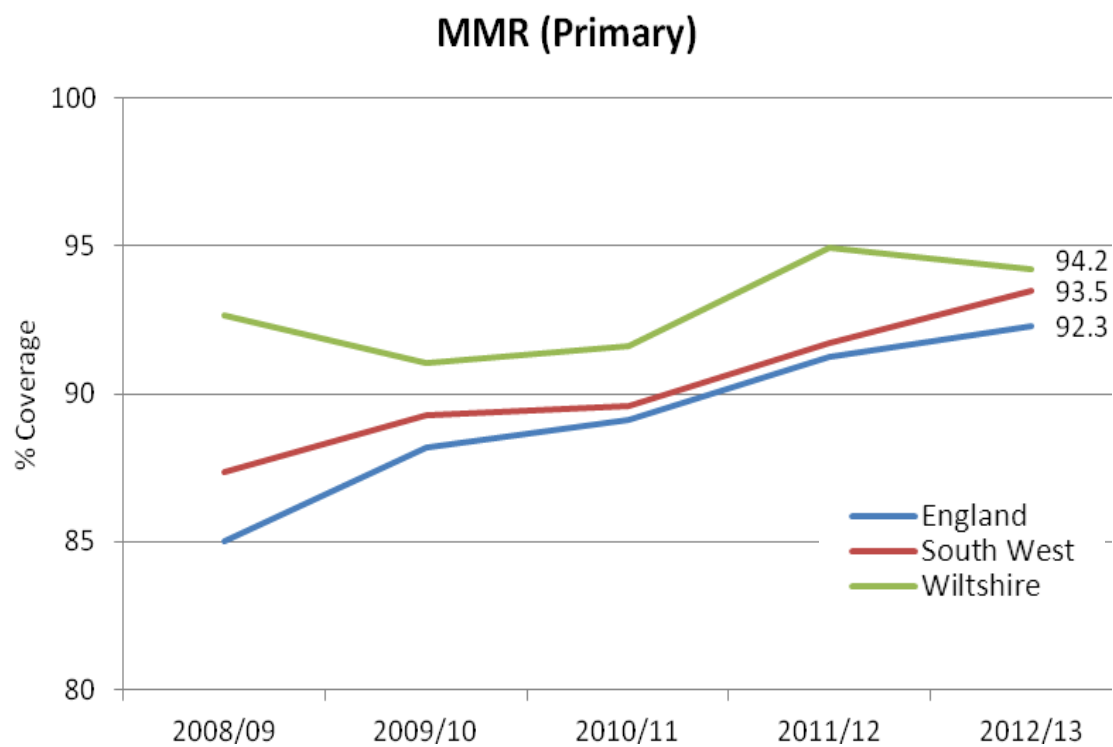
Figure 4: MMR, primary coverage by 2 years, trends, 2009/10 to 2012/13

Figure 5: Hib/MenC booster, coverage by 2 years, trends, 2009/10 to 2012/13

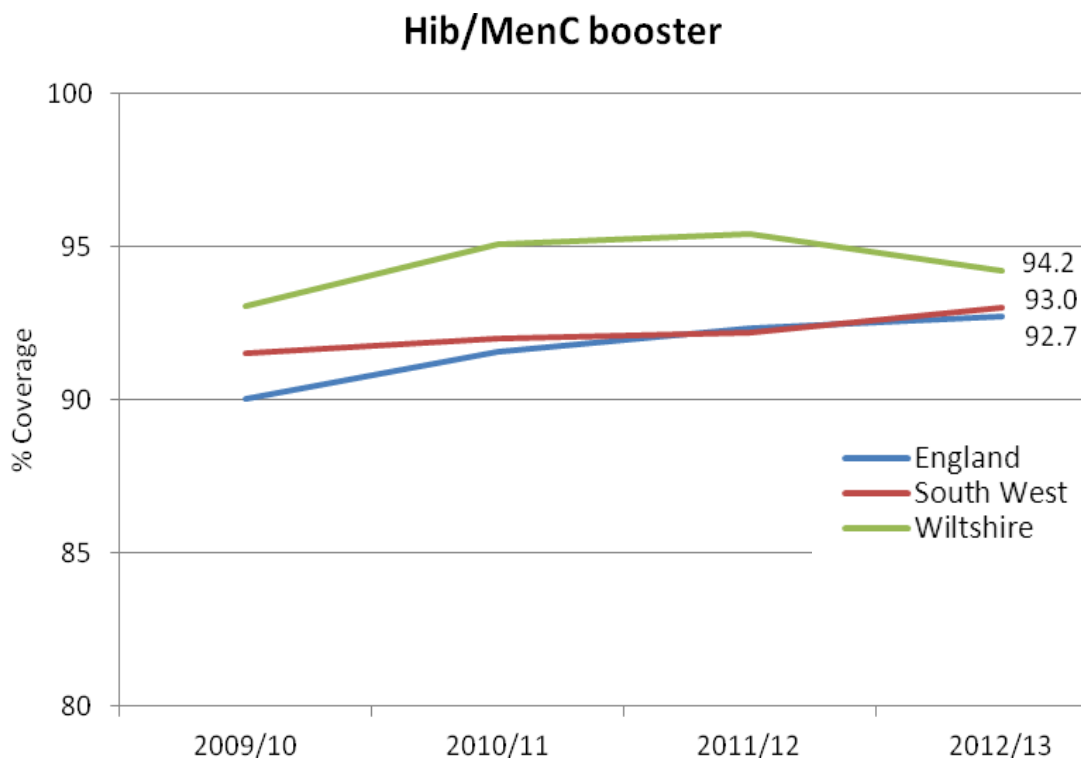
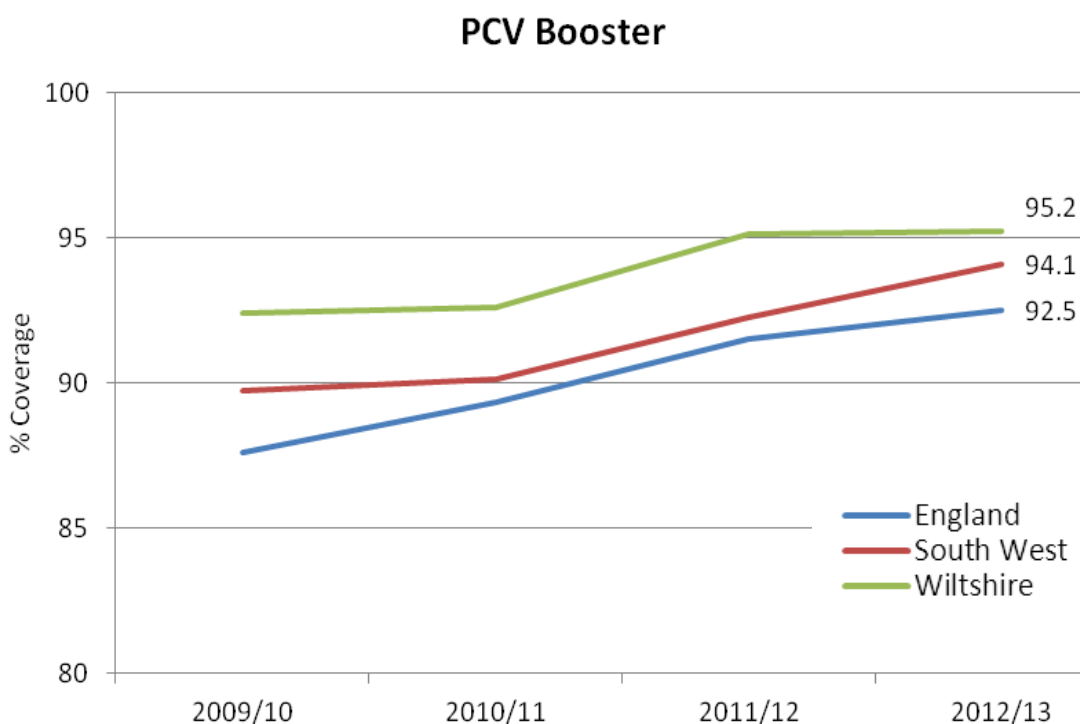


Figure 6: PCV booster, coverage by 2 years, trends, 2009/10 to 2012/13



Immunisations due by age 5

At 5 years booster MMR coverage in Wiltshire is 89.5%, 1% higher than 2011/12 and higher than South West and England averages but lower than the WHO target of 95%. This low coverage is of concern as Europe including parts of the UK is currently seeing an increase in the number of cases of measles, a highly infectious disease with potentially serious consequences. Many school age Wiltshire children visit Europe as part of school exchanges and go on holiday there with parents and so if not fully immunised they are at risk of catching the disease and potentially spreading the infection when back in the country. In 2012 there were fewer than 5 measles cases in Wiltshire, however during 2013 the number of cases of measles in Wiltshire rose associated with a national outbreak of the disease. Between January and October 2013 a total of 16 measles cases have been seen in Wiltshire.

There were 8 cases of mumps in Wiltshire in 2012, a rate of 1.7 per 100,000 population. There were no cases of rubella in Wiltshire.

Table 3: Completed primary immunisations and boosters by 5 years, 2012/13

Immunisation	Wiltshire	South West	England	WHO Target (by age 2)
MMR (Booster)*	89.5%	88.7%	87.7%	95%
D/Ta/IPV**	91.5%	90.8%	88.9%	95%

Source: NHS Immunisation Statistics, England, 2011-12

* 1st and 2nd doses

** Diphtheria, tetanus, polio and pertussis

Figure 7: MMR booster coverage by 5 years, trend, 2007/08 to 2012/13

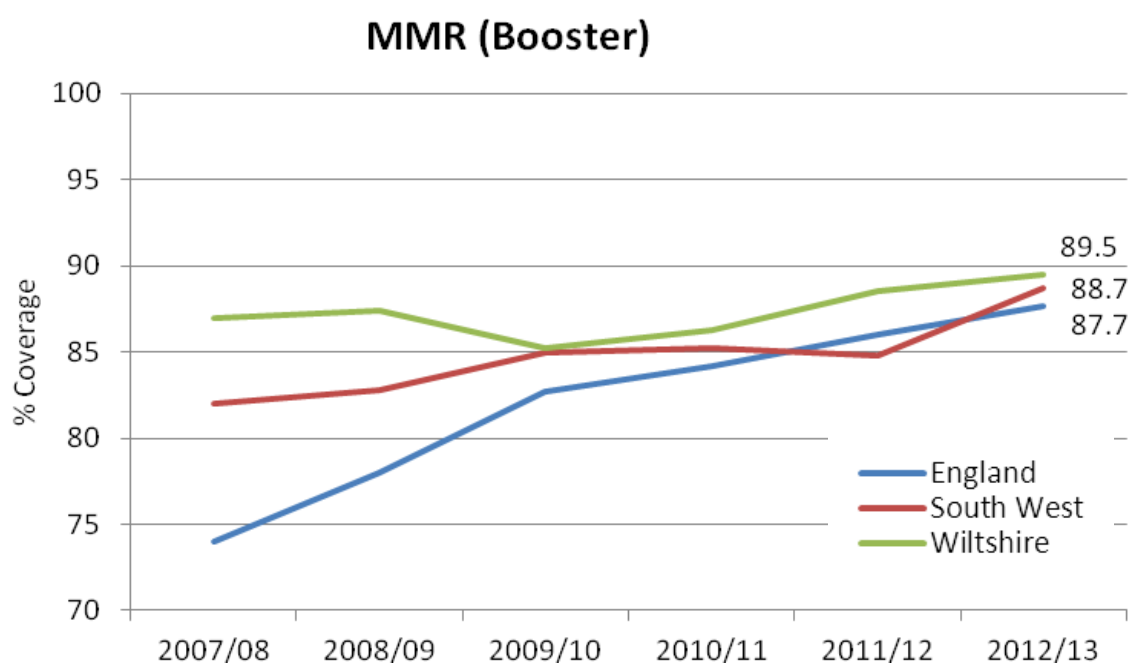
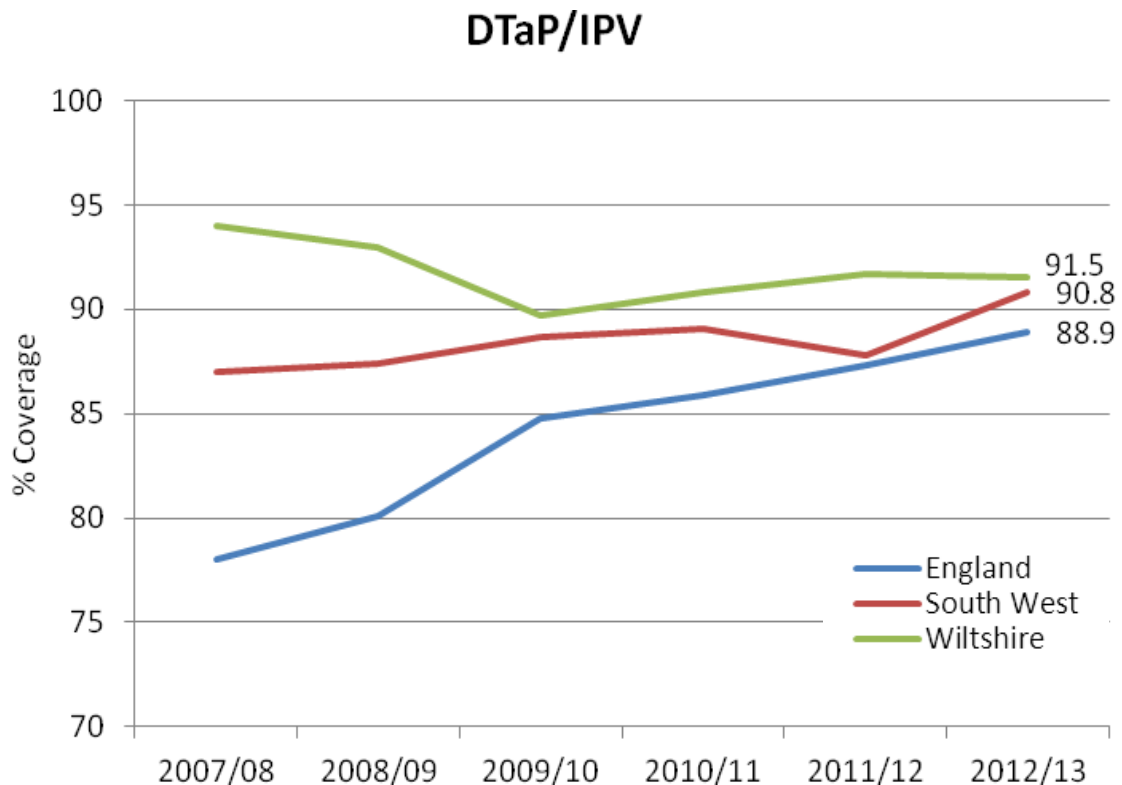


Figure 8: DTaP/IPV primary coverage by 5 years, trend, 2007/08 to 2012/13



Seasonal influenza

For the first time the seasonal influenza vaccination programme which runs from October and throughout the winter months each year is also targeting parents of 2-3 year olds encouraging them to get their child vaccinated with the nasal spray vaccine. This marks the first step in an extension to the national flu vaccination programme, which will eventually include yearly vaccination of all 2-16 year olds. Data on uptake is not yet available at a local level. For more information see the [vaccination section](#).

Tuberculosis

Tuberculosis (TB) is an infectious disease caused by bacteria belonging to the *Mycobacterium tuberculosis* complex. Only the pulmonary form of TB disease is infectious, following prolonged close contact with an infectious case. TB is curable with a combination of specific antibiotics, treated for at least six months.

BCG vaccination for Tuberculosis is offered to babies born in an area with notification rate greater than 40 per 100,000 or babies with one or more parent or grandparent born in a high-incidence country (>40/100,000). Vaccination is also recommended for children less than 16 years who have recently arrived from a high incidence country who are Mantoux negative and have no evidence of vaccination from documentation or scar. This has been national policy since 2005; previously all

teenagers were offered the vaccination. In Wiltshire during 2011/12 283 people were given a BCG vaccination, and 220 of these were children under 1 year of age. The national release of data for BCG vaccination has been suspended in 2012/13 pending a review.

Hepatitis B

Hepatitis B is a type of virus that can infect the liver, usually transmitted through exposure to blood or body fluids, or transmitted from mother to child. Babies born to mothers who are Hepatitis B positive are at high risk of contracting the virus and subsequent chronic infection. Pregnant women are screened during pregnancy and if identified as Hepatitis B positive they are managed by a team of specialist doctors and their babies are offered a course of vaccination from birth. In Wiltshire during 2012/13, 8 children were immunised for Hepatitis B before their first birthday (all of those eligible).

Human Papilloma Virus

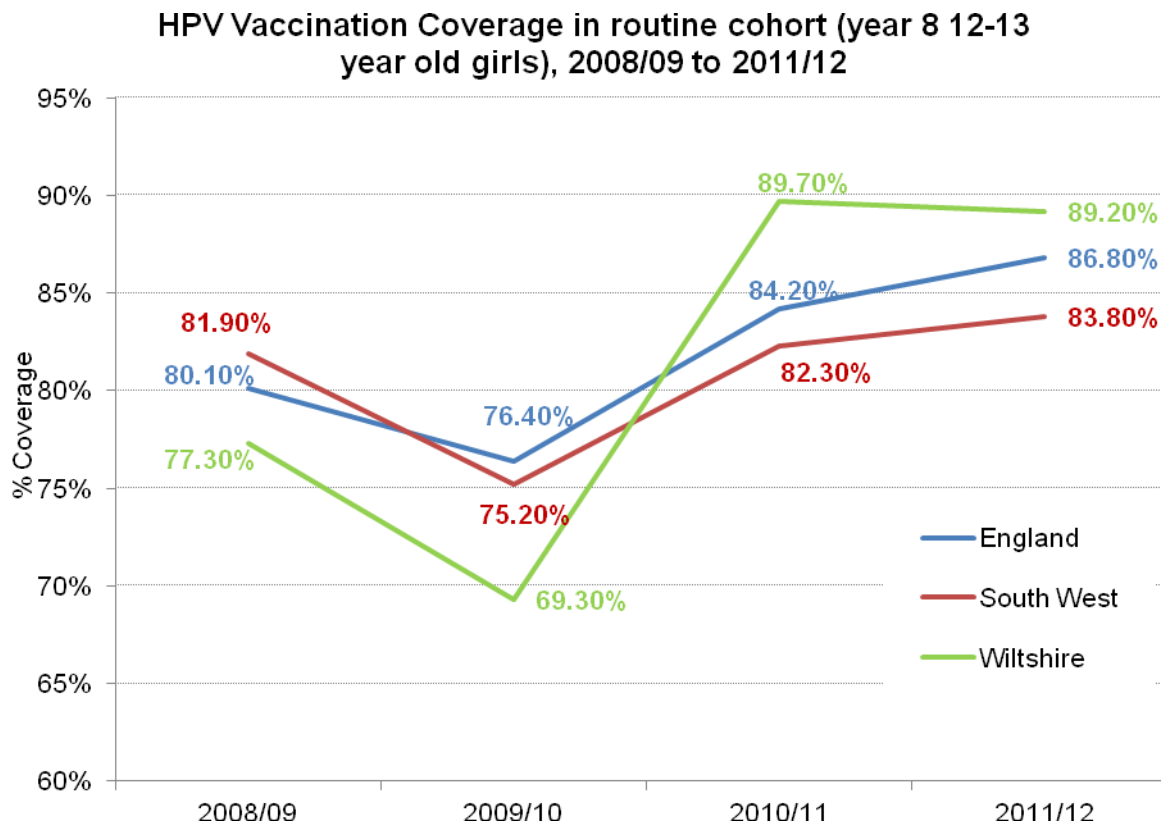
HPV is one of the most common sexually transmitted infections. Persistent infection by a high-risk HPV type is the most important causal factor for the development of cervical pre-cancerous and cancerous lesions, with infection being detectable in more than 99% of cervical cancers⁴. The HPV vaccination campaign was launched in 2008 with the long-term aim of reducing the incidence of cervical cancer in women.

The objective of the HPV vaccination programme is to provide three doses of HPV vaccine, currently Gardasil, to females before they reach an age when the risk of HPV infection increases and they are put at risk of cervical cancer.

The first year of reporting was 2008/09 and a coverage rate of 80% of eligible females has been specified by the Department of Health to achieve herd immunity. All girls in Year 8 (12-13 year old) at schools within Wiltshire are offered the vaccination, with catch-up immunisation clinics offered if girls don't receive the full 3 dose course.

In 2011/12 coverage exceeded the 80% threshold, and 89.2% of eligible girls received all 3 doses in Wiltshire (Figure 9).

Recent data collected nationally⁵ has shown that the high coverage of HPV vaccine among young women is already having a positive effect on their health with a marked reduction in infections caused by high-risk HPV types as compared to the levels before the vaccination programme started. Samples from over 4,000 women aged 16 to 24 from 2010 to 2012 were compared with similar samples taken in 2008, just before the programme began. The findings show a low prevalence of HPV infections after the programme's introduction, compared to the prevalence observed prior to it. In the post-immunisation study, high-risk HPV type prevalence was lowest among 16 to 18 year-olds, the age group with the highest vaccination coverage and increased with age. This is a reversal of the age trend seen in the 2008 sample, where the youngest girls had the highest prevalence of high – risk HPV types.

Figure 9: HPV vaccination coverage in 12-13 year old girls

Current service provision

A school based delivery system for HPV vaccine has been adopted in Wiltshire, with GPS able to give vaccinations to girls who missed out on the vaccine in school. In 2011/12 89% of vaccinations were carried out in schools.

The Td/IPV vaccine, also known as the teenage / adolescent booster, boosts protection against three diseases: tetanus, diphtheria, and polio and is provided to children aged 14-15 years attending state maintained Wiltshire schools. . The teenage booster is crucial in maintaining herd immunity.

In order to understand why some teenagers do not receive the teenage booster, a number of questions were included in the Tomorrows Voice⁶ survey carried out in 2012. This coincided with the development of a local campaign to raise awareness and uptake of this vaccination.

The Tomorrow's Voice survey found that 77% of respondents were likely or very likely to have an immunisation against a serious infectious disease if they were offered it. 8% said they would be unlikely or very unlikely to have the immunisation.

The main reason the respondents who were unlikely or very unlikely to have the immunisation gave was they were scared of needles (57%).

30% of respondents said knowing about herd immunity and that getting the injection themselves helps to protect other people would make it more likely that they would get immunised.

What works and what resources are there?

[The Green Book](#) provides national policy and guidance on vaccines and vaccination procedures for all the vaccine preventable infectious diseases. It contains resources on all routine immunisation programmes.

The vaccination schedule for children starting the immunisation programme is [here](#).

NICE (2009) published Public Health guidance on '[Reducing difference in the number of immunisations](#).' The document focuses on increasing immunisation in groups and settings where immunisation coverage is low. Recommendations identified the following as key service areas surrounding programme delivery:

1. Immunisation programmes
2. Information systems
3. Training
4. Contribution of nurseries, schools, colleges of further education
5. Targeting groups at risk of not being fully immunised
6. Hepatitis B immunisation for infants

NICE Guidance identifies the following groups as at most risk of not being immunised:

- Children and young people who have missed previous vaccines
- Looked after children
- Children with physical or learning disabilities
- Children not registered with a GP
- Younger children from larger families
- Children with English not as their first language
- New migrant children including unaccompanied asylum seekers and the homeless
- Pupils excluded from schools
- Some faith group e.g. Jewish communities
- People who abuse drugs/alcohol

The link to the report is available here: <http://publications.nice.org.uk/reducing-differences-in-the-uptake-of-immunisations-ph21/introduction>

NICE has also produced a clinical pathway on how to reduce differences in [immunisation uptake for children and young people](#).

[Immunisation coverage and COVER](#) (Cover of Vaccination Evaluated Rapidly) data are available on a quarterly basis

Challenges for consideration

- In Wiltshire a key challenge is to maintain current levels of vaccination uptake, as well as identifying groups or settings where coverage is low at a local level, and designing appropriate interventions to improve equity in service delivery.
- In the coming year the Men C vaccine will also be routinely available as a teenage booster to children aged 13-15 years. This Men C teenage booster can be given at the same time as the 3-in-1 teenage booster and will extend childrens protection against meningitis C into early adulthood.
- Targeted work to improve MMR uptake, particularly focussed on ensuring more children receive their 2nd dose of MMR.

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¹ Department of Health

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132358]

² Immunisation in childhood can prevent illnesses that have serious long-term consequences. It is not necessary for every person to be immune. Herd immunity is the degree to which a population is resistant to an infection as high general levels of immunity protect the non-immune. To achieve herd immunity a high percentage of children need to be immunised. Low uptake of the national childhood immunisation schedule puts the individual child at risk, particularly where there is herd immunity of less than the recommended 95% for public protection. This is the WHO % cover target for all childhood immunisations by 24 months of age.

³ NHS Immunisation Statistics, England, 2012-13, Copyright © 2012, The Health and Social Care Information Centre, Screening and Immunisations team. All Rights Reserved. 27 November 2012. url: <http://www.hscic.gov.uk/catalogue/PUB11665>

⁴ Walboomers JMM et al. (1999) Human papillomavirus is a necessary cause of invasive cancer worldwide. *Journal of Pathology*, 189 (1), 12–19.

⁵ <https://www.gov.uk/government/news/national-hpv-vaccination-coverage-remains-high-and-evidence-shows-programme-effective-in-protecting-womens-health>

⁶ Tomorrow's Voice summer 2012, Knowledge Management Team, Wiltshire Council, 2012. url: <http://www.intelligencenetwork.org.uk/EasysiteWeb/getresource.axd?AssetID=54277&type=full&servicetype=Attachment>