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Tetanus, diphtheria and polio (Td/IPV, 'school leaver booster') vaccine coverage for the NHS adolescent vaccination programme in England, academic year 2020 to 2021

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Main points

In this report we present vaccine coverage data for the routine school-aged Td/IPV immunisation programme in England in the 2020 to 2021 academic year. We include Td/IPV vaccine coverage data for children in school year 9 and children in school year 10 and equivalent age. The vaccine coverage for the school year 10 cohort is intended to capture vaccines delivered routinely to this cohort in the 2019 to 2010 academic year when they were in year 9 and catch-up vaccinations offered in the 2020 to 2021 academic year.¹

In September 2020, schools across the UK reopened for general in-person attendance. During the 2020 to 2021 academic year, students were required to stay at home and learn remotely if they tested positive for coronavirus (COVID-19) or if they were a contact of a confirmed COVID-19 case. School attendance rates in England were lower than normal, especially when there were outbreaks linked to educational settings and in areas with very high COVID-19 incidence rates. In England, as part of a wider national lockdown in January 2021, schools were closed to all except children of keyworkers and vulnerable children. From early March 2021, primary schools reopened, with a phased reopening of secondary schools.

All of this led to some disruption of school-aged immunisation programme delivery and the impact varied by region and local authority. Td/IPV vaccine coverage in 2020 to 2021 has improved significantly from the low levels reported for the 2019 to 2020 academic year but is still not back up to pre-pandemic levels.

1. School year cohort includes all children of the eligible age regardless of educational attendance or status.

Main findings of this report are that:

1. Td/IPV vaccine coverage data for the NHS adolescent vaccination programme in England academic year 2020 to 2021 was submitted for all 150² local authorities.
2. Td/IPV vaccine coverage in the local authorities where NHSEI commissioned providers delivered the Td/IPV vaccine to year 9 cohorts (born between 1 September 2006 and 31 August 2007) in 2020 to 2021 was 76.4%, compared to 57.6% in 2019 to 2020, 87.6% in 2018 to 2019, 85.5% in 2017 to 2018, 83.0% in 2016 to 2017 and 83.5% in 2015 to 2016.
3. In the 146 local authorities where the Td/IPV vaccine was offered to year 9 cohorts, coverage ranged from 35.0% in Hillingdon to 98.0% in West Berkshire.
4. In only 4 local authorities in 2020 to 2021, NHSEI commissioned providers delivered the routine Td/IPV vaccine to year 10 cohorts (born between 1 September 2005 and 31 August 2006 regardless of school status). These were the same 4 local authorities who delivered the routine Td/IPV vaccine to year 10 cohorts (born 1 September 2004 to 31 August 2005 regardless of school status) in 2019 to 2020. In addition, providers were also asked to submit updated coverage figures for the year 10 cohort to reflect the catch-up that took place in the 2020 to 2021 academic year. Providers covering 148 local authorities submitted data in accordance with the UK Health Security Agency (UKHSA) guidance. Td/IPV coverage for the year 10 cohort is estimated at 80.3%, a 22.7 % increase from the 57.6% reported for the same cohort when they were in year 9 in 2019 to 2020.

2. For the purposes of this report, City of London and Hackney local authorities are counted as one local authority because their data are submitted together on ImmForm.

Background

Tetanus, diphtheria and polio vaccines are offered to all babies with the other primary immunisations at 8 weeks, 12 weeks and 16 weeks. A pre-school booster is then offered to children at 3 years and 4 months of age, and a school leaver booster (Td/IPV) is offered to 14 year old adolescents (1). The school leaver booster is therefore the fifth dose of a tetanus, diphtheria and polio containing vaccine in the routine immunisation schedule and completes the course, providing long-term protection against all 3 infections (1, 2, 3, 4). Any missed doses of diphtheria, tetanus and polio vaccines can be caught up at any age observing the appropriate intervals between doses as detailed in [The Green Book](#). NHS England and Improvement (NHSEI) commissions general practices and/or school aged immunisation providers to deliver the routine childhood immunisation programmes in England.

Historically, annual Health and Social Care Information Centre (HSCIC, now NHS Digital) KC50 collections from primary care trusts (PCTs) included number of doses of Td/IPV administered but did not capture reliable denominator data and so coverage estimates could not be generated. The KC50 returns were suspended in 2012 to 2013 (5). From 2015 to 2016 national vaccine coverage data has been collected for the Td/IPV adolescent immunisation programme in the same way as it is collected for the HPV and the MenACWY adolescent vaccination programmes (6).

The NHS adolescent immunisation programmes are delivered routinely NHSEI commissioned by school aged vaccination providers via mainly a school based model of delivery in England. Teenagers who are home schooled, those who attend a small minority of schools that do not offer the routine vaccination programmes, and those eligible but not in education should be offered their vaccinations in alternative settings, such as community clinics. Data on where children are vaccinated ie in school or alternative clinic settings outside of a school setting is not universally included in the school vaccination figures submitted by data providers.

In 2020 to 2021 the routine offer of Td/IPV vaccine to the year 9 cohort was implemented alongside catch-up for the year 10 cohort in the vast majority of local authorities. Only a small number of NHSE commissioned school-aged immunisation providers, covering 4 local authorities continue to offer the routine Td/IPV programme to year 10 students routinely.

Impact of COVID-19 pandemic on Td/IPV programme delivery since March 2020

On 23 March 2020, all educational settings in England were advised to close by the UK Government as part of COVID-19 pandemic measures. Although the importance of maintaining good vaccine uptake was impressed, operational delivery of all school-aged immunisation programmes was paused for a short period of time as a consequence of school closures limiting access to venues for providers and children who were eligible for vaccination and to ensure that lock-down regulations are not breached.

The NHSEI central public health commissioning and operations team rapidly established an Immunisation Task and Finish Group, with regional NHSEI and PHE representation. The group was established to:

- assess the impact of COVID-19 on all immunisation programmes, including school-aged programmes
- develop technical guidance and a plan for restoration and recovery of school-aged programmes, once education settings were re-opened

From 1 June 2020 some schools partially re-opened for some year groups for a mini summer term. NHSEI published clinical guidance for healthcare professionals on maintaining immunisation programmes during COVID-19 (3), and the Department of Education published further guidance (4) which led to schools allowing vaccination sessions to resume on site. NHSEI-commissioned, school-aged immunisation providers were able to implement their restoration and recovery plans to commence catch-up during the summer of 2020. This included delivery of programmes in school and community settings following a robust risk assessment and in line with UK Government Public Health COVID-19 guidance.

In September 2020, schools across the UK reopened for general in-person attendance. During the 2020 to 2021 academic year, students were required to stay at home and learn remotely if they tested positive for COVID-19 or if they were a contact of a confirmed COVID-19 case and so school attendance rates in England were lower than normal (1), especially in areas with very high COVID-19 incidence rates. In England, as part of a wider national lockdown in January 2021, schools were closed to all except children of keyworkers and vulnerable children. From early March 2021, primary schools reopened, with a phased reopening of secondary schools.

Although this led to some disruption of school-based elements of the immunisation programme delivery in the 2020 to 2021 academic year, NHSEI Regional Public Health Commissioning teams worked with NHSEI-commissioned school-aged immunisation providers to maintain the delivery of the routine programme and catch-up. As the routine programme is commissioned for

a school-aged cohort rather than a school-based cohort, providers were able to build on existing arrangements such as community-based clinics in place for children not in mainstream education. A wide variety of local arrangements were established to ensure programme delivery continued effectively and safely in the school and community premises, during the term time and school breaks.

Methods and previous data collections

Full details of the data collection process and definitions can be found in the [user guide](#). NHSEI-commissioned school aged immunisation providers collect school-level vaccine coverage data which is then aggregated up to local authority and submitted to UKHSA either directly by the providers or by NHSEI Regional Public Health Commissioning Teams via the [ImmForm](#)³ website. Where possible, regional teams also include additional data for adolescents resident in the local authorities but not linked to any school. Data providers may also submit data on vaccinations delivered through community clinics or GP practices – and this can then be added to the school vaccination figures.

The target population for the programme is defined by school age cohorts born between 1 September 2005 and 31 August 2007 (Table 1). The numerator is defined by the number of adolescents in each cohort who had received a dose of Td/IPV vaccine by 31 August 2021. Providers must use updated data sources (school rolls for all types of schools or units plus children schooled at home or Child Health Information Systems) to identify all eligible children in the locality for the academic year.

Please note: from 2019 to 2020, the denominator (national eligible population) is defined by the total number of eligible adolescents in each cohort regardless of programme delivery, that is, adolescents in local authorities where NHSEI commissioned school-aged providers did not run a Td/IPV programme in year 9 are included in the calculation of year 9 coverage estimates.

Table 1. Td/IPV vaccination cohorts 2020 to 2021

School year in 2020 to 2021	Age in 2020 to 2021	Dates of birth
9 (routine)	13 to 14 years old	1 September 2006 to 21 August 2007
10 (catch-up)	14 to 15 years old	1 September 2005 to 21 August 2006

Coverage for the year 10 cohort was intended to capture both vaccines delivered during the 2020 to 2019 academic year (when the students were in Year 9) and catch-up vaccines delivered in 2020 to 2021.

Local authority level Td/IPV vaccine coverage data up to 31 August 2021 was manually uploaded by data providers to the [ImmForm \(5\)](#) website retrospectively, from 1 September 2021 to 1 October 2021.

3. ImmForm is the system used by UKHSA to record vaccine coverage data for some immunisation programmes and to provide vaccine ordering facilities for NHS England.

Accurately recording cohort denominators and numerators across multiple school years is challenging and requires NHSEI commissioned school-aged providers and NHSEI Regional Public Health Commissioning Teams to combine multiple data sources. It is important to note that due to the COVID-19 pandemic and school closures, some areas were unable to provide complete estimates of the number of students eligible for and vaccinated with Td/IPV vaccine for the 2020 to 2021 academic year.

Historical annual Td/IPV vaccine coverage reports from 2008/2009 to 2019/2020 and associated data tables can be found on the [UKHSA website](#).

Results

Programme delivery by year group

Main findings were:

Almost all NHSEI commissioned school aged immunisation providers, covering 146 local authorities, offered the Td/IPV vaccine to the year 9 cohort. Four local authorities continued to offer Td/IPV routinely to the year 10 cohort.

NHSEI commissioned providers covering 134 local authorities ran some form of catch-up to children in year 10 who missed out their Td/IPV vaccine in 2019 to 2020.

Data providers covering 16 local authorities reported that they did not require any catch-ups for the Td/IPV vaccine in 2020 to 2021 as they had completed their programme delivery in the 2019 to 2020 academic year before schools closed.

Year 9 vaccine coverage

Main findings were:

- providers for 146 out of 150 (97.3%) local authorities offered the Td/IPV vaccination in year 9 – (data providers covering 61 local authorities were also able to provide data on vaccinations delivered outside of the school-setting)
- national Td/IPV coverage in the year 9 cohort was 76.4%, compared to 57.6% in 2019 to 2020, 87.6% in 2018 to 2019, 85.5% in 2017 to 2018, 83.0% in 2016 to 2017 and 83.5% in 2015 to 2016
- the local authority level vaccine ranged from 35.0% (Hillingdon) to 98.0% (West Berkshire)
- the 4 local authorities where NHS school-aged providers did not offer Td/IPV vaccine to year 9 in 2020 to 2021 (due to having a year 10 delivery model) will offer the Td/IPV vaccine to adolescents when they reach year 10 in 2021 to 2022
- coverage in 15 out of 146 local authorities (11.0%) was above 90%, coverage in 43 out of 146 local authorities (29.4%) was between 80 to 90%, and coverage in 88 out of 146 local authorities (60.3%) was less than 80%
- not all NHSE-commissioned providers are able to capture and report on vaccinations delivered outside of the school setting and so reported vaccine coverage may be an underestimate in some areas

Year 10 vaccine coverage

Main findings were:

- providers were also asked to submit updated coverage figures for the year 10 cohort to reflect the catch-up that took place in the 2020 to 2021 academic year: 148 local authorities submitted data in accordance with the UKHSA guidance; 2 local authorities were excluded as they only provided data on vaccines delivered to year 10 pupils in the 2020 to 2021 academic year and did not report updated coverage estimates for the entire cohort
- NHSEI commissioned providers covering 4 local authorities (Bolton, Bournemouth, Poole and Christchurch, Dorset, Wigan) delivered the routine Td/IPV vaccine to Year 10 students (born between 1 September 2005 and 31 August 2006) only in both the 2020 to 2021 and 2019 to 2020 academic years
- Td/IPV coverage for the year 10 cohort is estimated at 80.3%, a 22.7% increase from the 57.6% reported for the same cohort when they were in year 9 in the 2019 to 2020 academic year
- local authority level vaccine coverage ranged from 45% (Wigan) to 98.0% (Staffordshire)
- coverage in 20 out of 148 (13.5%) local authorities was above 90%, coverage in 55 out of 148 (37.2%) local authorities was between 80 to 90%, and coverage in 73 out of 148 (49.3%) local authorities was less than 80%

Coverage for the NHS Td/IPV vaccine programme for year 9 and year 10 cohort adolescents for each local authority in England and the devolved administrations this academic year are published in the [data tables](#) associated with this report. Any missing data will be published as it becomes available.

Discussion

Despite the challenges posed by the COVID-19 pandemic the routine school-aged Td/IPV immunisation programme was delivered throughout England in the 2020 to 2021 academic year. This was delivered alongside an ongoing offer of catch-up for the cohorts who missed out on their vaccines in the 2019 to 2020 academic year.

Td/IPV vaccine coverage in the year 9 cohort in 2020 to 2021 was 76.4%, recovering significantly from the 57.6% reported in 2019 to 2020, although it is not quite back up to pre-pandemic levels. Recovery varied by area and Region with 35.0% uptake in Hillingdon to 98.0% uptake in West Berkshire.

In 2020 to 2021 NHS commissioned providers in only 4 local authorities delivered the routine Td/IPV vaccine to the year 10 cohort. The remainder of the 146 local authorities offered a catch-up to the year 10 cohort, many of whom had missed out on their Td/IPV vaccine in the 2019 to 2020 academic year.

Data shows that coverage for the year 10 cohort was 80.3%, up by 22.7% from that reported for this cohort when they were in year 9 in 2019 to 2020.

Despite the impact of COVID-19, the vast majority of NHSEI-commissioned school-aged immunisation providers continued to offer the Td/IPV adolescent vaccine in year 9. It is expected that areas that were unable to deliver the MenACWY as intended in year 9 will offer this dose in the 2021 to 2022 academic year, when these students are in year 10.

As Td/IPV and MenACWY vaccines are usually offered together, MenACWY vaccine coverage is very similar at 76.5% for the Year 9 cohort and 80.9% for the year 10 cohort ([7](#)).

Factors affecting Td/IPV vaccine coverage estimates in academic year 2020 to 2021

The COVID-19 pandemic led to all educational settings closing in March 2020 and the delivery of all school-based elements of the immunisation programmes, including MenACWY, was interrupted. Schools fully reopened in September 2020 but attendance rates in England remained lower than normal during the 2020 to 2021 academic year (1), especially in areas with very high COVID-19 incidence rates. In England, schools were closed once again from January to March 2021. A wide variety of local arrangements were established to ensure programme delivery continued effectively and safely in the school and community premises, during the term time and school breaks. However, many providers are not able to provide data on vaccines delivered outside of the school setting, resulting in an underestimation of vaccine coverage.

Coverage may be over or under-estimated for some local authorities due to movement of students in and out of schools during the academic year not being accurately reflected in the denominators and/or numerators for some data providers.

Some local authority areas have had a change of NHSEI commissioned school-aged immunisation providers during the academic years covered by this survey. This may have temporarily impacted on the delivery of the MenACWY programme.

An increased denominator (greater than 10%) was observed in 20 local authorities for year 9 compared to the 2019 to 2020 year 9 cohort.

An increased denominator (greater than 10%) was observed in 8 local authorities for this year's year 10 compared to the equivalent 2019 to 2020 year 9 cohort.

Reasons for large increases in the denominator include:

- inclusion of private schools, independent schools and home educated that may not have been included last year
- change in local providers that may use different data collection methods
- addition of new schools

A decreased denominator (greater than 10%) was observed in 2 local authorities for this year's year 9 cohort compared to the 2019 to 2020 year 9 cohort.

A decreased denominator (greater than 10%) was observed in 1 local authority for this year's year 10 compared to the equivalent 2019 to 2020 year 9 cohort.

Reasons for large decreases in the denominator include:

- movement of children out of local authorities
- changes to boundaries of some local authorities

Although Td/IPV vaccine coverage in 2020 to 2021 has improved significantly from the low levels reported for the 2019 to 2020 academic year it is still not back up to pre-pandemic levels and there are significant regional and local variation. Some of the reported reasons for this are listed here:

- lower attendance rates in schools during high COVID-19 incidence periods
- inability to offer school-based vaccination clinics during the January to March 2021 lockdown in some areas with alternative provision being set up for example using drive-through vaccination and community clinics
- a decline in consent or take-up and non-responders due to the pandemic and vaccine hesitancy as the COVID vaccination programme was going on at the same time
- the move to an electronic-consent process

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Prepared by: Shreya Lakhani, Vanessa Saliba, Partho Roy

For queries relating to this document, please contact: adolescent@phe.gov.uk

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