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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 2019 to 2020

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Main points

- 146 out of 150¹ Local Authority (LA) level vaccine coverage data was returned for the Td/IPV vaccination programme offered to Year 9 students (born between 1 September 2005 to 31 August 2006). In 4/150 LAs, NHS England commissioned school aged providers did not deliver the Td/IPV vaccine to Year 9 students
- average vaccine coverage in the LAs where NHS providers delivered the Td/IPV vaccine to Year 9 students in 2019 to 2020 was 57.6% compared to 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
- in the 11 LAs that had fully completed programmes before 20 March 2020, coverage ranged from 79.0% in Southampton to 94.5% in Wokingham
- 150/150 LA level vaccine coverage data was returned for Td/IPV vaccination for Year 10 students in 2019 to 2020 (born between 1 September 2004 to 31 August 2005)
- average Year 10 coverage for the Td/IPV vaccine was 86.4%, compared to 86.0% in 2018 to 2019, 82.9% in 2017 to 2018, 81.7% in 2016 to 2017 and 74.9% in 2015 to 2016. Coverage ranged from 35.3% in Bolton to 98.4% in Northamptonshire
- due to the COVID-19 pandemic, all educational settings were closed from the 23 March 2020, in line with UK Government COVID-19 guidance, and the delivery of the 2019 to 2020 school immunisation programmes was interrupted from 20 March 2020. This had a significant impact on the uptake of the Td/IPV vaccination programme in the 2019 to 2020 academic year
- by 20 March 2020 Td/IPV programme delivery was:
 - fully complete in 11/150 LAs
 - partially complete in 123/150 LAs
 - not yet started in 16/150 LAs
- despite the impact of school closures, many NHS school aged providers continued their efforts to vaccinate. Figures presented in the report should be taken as an estimate of the minimum coverage achieved during the 2019 to 2020 academic year

1. 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 three years and four months of age, and a school leaver booster (Td/IPV) is offered to 14 years 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 three 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 commissions General Practices and school aged 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 through schools in England. Teenagers who are home schooled, and those who attend a small minority of schools that do not offer the routine vaccination programmes should be offered their vaccinations in alternative settings, such as community clinics and GP practices. Data on children offered vaccinations outside of the school setting are not universally included in the school vaccination figures submitted by data providers. NHS England commissioned school aged providers also offer catch up to those children who are not immunised and are still in the school system.

This is the fifth annual report of Td/IPV adolescent immunisation programme coverage in England and presents updated data for school Year 10 and new data for school Year 9 in 2019 to 2020.

Impact of the COVID-19 pandemic on school-based immunisation programme delivery during the 2019 to 2020 academic year

On the 23 March 2020, all educational settings in England were advised to close by the UK Government as part of COVID-19 pandemic measures (7). As a result, the operational delivery of all school aged immunisation programmes were paused with immediate effect.

NHS England and NHS Improvement (NHSEI) central public health commissioning and operations team rapidly established an Immunisation Task and Finish Group, with regional NHSE and Public Health England (PHE) representation. The group was established to assess the impact of COVID-19 on all immunisation programmes, including school aged programmes, and to develop technical guidance and a plan for restoration and recovery of school aged programmes once education settings were re-opened.

From the 1 June 2020 some schools partially re-opened for some year groups for a mini summer term, and all schools fully re-opened in September for the 2020 to 2021 academic year. In June 2020, NHSE-commissioned school aged immunisation providers were able to implement their restoration and recovery plans to commence catch up of incomplete programmes during the summer period. 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.

School-age vaccinations have been impacted by school closures during the COVID-19 pandemic, though providers have been able to offer immunisations through alternative school and community settings. NHSE-commissioned providers are now working with NHSE commissioners, with clinical advice from PHE, to deliver all missed vaccinations, including Td/IPV, as soon as possible, and no later than August 2021.

Methods

NHSE-commissioned school aged immunisation providers collect school-level vaccine coverage data which is then aggregated up to Local Authority (LA) and submitted to PHE either directly by the providers or by NHSE screening and immunisation teams (SITs) via the **ImmForm**² website. Where possible, SITs also include additional data for adolescents resident in the LA but not linked to any school. Vaccine coverage is calculated for Year 9 (routine) and Year 10 (routine or updated data for catch-up cohorts that are routinely vaccinated in Year 9).

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.

LA level Td/IPV vaccine coverage data for vaccinations given up to 20 March 2020 (before lockdown was implemented) were manually entered on the **ImmForm** website retrospectively, from 25 June 2020 to 31 July 2020. When possible, NHS school-aged providers that resumed vaccination delivery in the summer months provided additional LA level data on vaccinations that took place post 20 March 2020.

Accurately recording cohort denominators and numerators across multiple school years is challenging and requires NHS school-aged providers and SITs 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 2019 to 2020 academic year.

The target population for the programme is defined by school age cohorts born between 01 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 20 March 2020. 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 LAs where NHS school-aged providers did not run a Td/IPV programme in Year 9 are included in the calculation of Year 9 coverage estimates.

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

Table 1. Td/IPV routine vaccine cohorts 2019/20

School year in 2019/20	Age in 2019/20	Dates of birth
10	14-15 years old	1 Sep 2004 – 21 Aug 2005
9	13-14 years old	1 Sep 2005 – 21 Aug 2006

Full details of the data collection process and definitions can be found in the [user guide](#).

Participation and data quality

Data for all 150 LAs was submitted to PHE via the adolescent ImmForm survey. The data submitted were validated and analysed by PHE to check for completeness and quality. Caveats describing participation and data quality are included within the [data tables associated with this report](#).

Please note that Bournemouth, Christchurch and Poole LAs were merged into one LA in April 2019, therefore, the figures for these LAs cannot be compared to previous years.

Only a small number of NHSE school-based immunisation providers, covering 11 LAs, reported that the Td/IPV school vaccination programme had already been completed when schools closed in March. PHE queried data providers from this group that reported a greater than 5% variation in coverage achieved in 2018 to 2019.

For the remainder of the data providers that reported coverage in areas where the vaccination programme had not started or was not completed by March a considerable change in coverage from the previous year was expected. In this case PHE queried changes in LA denominators of more than 15% when compared to 2018 to 2019. Any denominator which was more than 20% higher or lower than last year is caveated in the data tables.

The LA level data are also aggregated to NHS Local Team (LT) and national level for this report.

Please note, from 2019 to 2020, national vaccine coverage represents all LAs regardless of the programme delivery, that is, adolescents in LAs where providers did not run a Td/IPV programme in Year 9 are included in the calculation of Year 9 coverage estimates. Furthermore, for one LA, where providers could not obtain the Year 9 denominator, the Year 10 denominator was used as a proxy.

Results

Programme delivery by Year group

- vast majority of NHSE commissioned school aged immunisation providers, covering 130 LAs, offered the Td/IPV vaccine to Year 9 adolescents only
- NHSE-commissioned providers covering 13 LAs offered the Td/IPV vaccine to both Year 9 and 10 adolescents
- NHSE-commissioned providers covering 4 LAs offered the Td/IPV vaccine to Year 10 adolescents only
- NHSE-commissioned providers covering three LAs, did not specify how the programme was delivered but provided updated figures for both Year 9 and 10 cohorts
- NHSE-commissioned providers covering 11 LAs, had fully completed their Td/IPV vaccination programme before 20 March 2020, when schools were closed due to the COVID-19 pandemic
- NHSE-commissioned providers covering 123 LAs reported that they had partially completed the Td/IPV programme by 20 March
- NHSE-commissioned providers covering 16 LAs reported that they had not started offering Td/IPV vaccine to either Year 9 or 10 adolescents by 20 March
- several NHSE-commissioned providers reported that they had started catching up students who missed out on their Td/IPV vaccine after the lockdown measures were relaxed and submitted the updated data after 20th March on ImmForm, however at the time of data collection, catch up was still underway/not complete

Numerator and denominator data for Year 9 and Year 10

- only about a third of data providers (covering 55 LAs) were able to provide updated numerator and denominator data for students in Year 10 in 2019 to 2020
- another third of data providers (covering 52 LAs) carried over Year 9 2018 to 2019 data to Year 10 2019 to 2020 unchanged
- data providers for 41 LAs carried over the 2018 to 2019 Year 9 denominator and updated the numerator for Year 10 in 2019 to 2020, which may lead to an overestimation of coverage
- data providers for two LAs carried over the 2018 to 2019 Year 9 numerator and updated the denominator for Year 10 in 2019 to 2020, which may lead to an underestimation of coverage

Year 9 vaccine coverage

- providers for 146/150 (97.3%) LAs offered the Td/IPV vaccination in Year 9 – this includes LAs where providers offered the vaccine to Year 9, both Years 9 and 10, or by other methods in 2019/20 (data providers covering 49 LAs were also able to provide data on vaccinations delivered outside of the school-setting)
- national Td/IPV coverage in Year 9 students was 57.6% compared to 87.6% in 2018 to 2019, 85.5% in 2017 to 2018, 83.0% in 2016 to 2017 and 83.5% in 2015 to 16
- the LA level vaccine coverage in those areas that completed the programme before schools closed in March ranged from 79.0% (Southampton) to 94.5% (Wokingham)
- the four LAs where NHS school-aged providers did not offer Td/IPV vaccine to Year 9 in 2019 to 2020 (due to having a Year 10 delivery model) will offer the Td/IPV vaccine to adolescents when they reach Year 10 in 2020 to 2021
- coverage in 15/146 LAs (11.0%) was above 90%, coverage in 26/146 LAs (17.8%) was between 80 to 90%, and coverage in 109/146 LAs (71.2%) was less than 80%

Year 10 vaccine coverage

- NHSE-commissioned providers covering all 150 LAs reported coverage for the routine cumulative Td/IPV vaccination in Year 10 (combined Year 9 2018 to 2019 and Year 10 2019 to 2020 vaccinations) in 2019 to 2020
- national Td/IPV coverage in Year 10 students was 86.4%, compared to 86.0% in 2018 to 2019, 82.9% in 2017 to 2018, 81.7% in 2016 to 2017 and 74.9% in 2015 to 16. Coverage ranged from 35.3% (Bolton) to 98.4% (Northamptonshire)
- coverage in 63/150 (42.0%) LAs was above 90%, coverage in 64/150 (42.0%) LAs was between 80 to 90%, and coverage in 26/150 (16.0%) LAs was less than 80%
- it is important to note that Year 10 coverage mainly reflect vaccines delivered in 2018 to 2019 rather than 2019 to 2020 and so figures appear relatively unaffected by the COVID-19 pandemic
- only about a third of NHSE-commissioned providers are able to report on catch-up vaccinations delivered outside of the school setting to children who missed out on routine Td/IPV vaccination in school in Year 9 and so the refreshed year 10 vaccine coverage is likely to be an underestimate
- Year 10 denominator increased by >20% in two LAs in 2019 to 2020 compared with 2018 to 2019; this was due to the inclusion of private schools in the denominator that were previously omitted
- one LA Year 10 denominator decreased by >20% compared with the Year 9 in 2018 to 2019, due to difficulty in acquiring accurate class lists as a result of COVID-19
- the Year 10 cohort denominator for England increased by 5.6% compared to 2018 to 2019 figures (when this cohort was in Year 9)

The [data tables](#) associated with this report provide vaccine coverage for Year 9 and Year 10 for each LA.

Discussion

The COVID-19 pandemic led to all educational settings closing from the 23 March 2020 (some schools remained partially open for children of key workers) and the delivery of all school-based immunisation programmes, including Td/IPV, was interrupted from Friday 20 March 2020. From 1 June 2020, some schools partially re-opened for some year groups for a mini summer term and all schools fully re-opened in September for the 2020 to 2021 academic year.

All areas were asked to establish vaccination programme recovery plans. Many NHSE-commissioned school aged providers were able to offer some immunisation programme catch-up ahead of the 2020 to 2021 academic year. Data from these catch-up clinics will only have been partially captured through this annual survey and figures presented in the report should be taken as an estimate of the minimum coverage achieved during the 2019 to 2020 academic year.

Vaccine coverage of Td/IPV has increased for the Year 10 cohorts compared to coverage from 2018 to 2019, whilst the provisional estimate for Year 9 coverage was significantly lower than estimates from 2018 to 2019. Average vaccine coverage for the 2019 to 2020 Year 10 cohort was 86.4% compared to 86.0% in Year 10 in 2018 to 2019 and mainly reflect vaccinations conducted during 2018 to 2019 when these students were in Year 9. The provisional estimate for 2019 to 2020 Year 9 coverage was 57.6% compared to 87.6% in Year 9 in 2018 to 2019. In addition to the disruption caused by closures of schools due to lockdown, the change in 2019 to 2020 to using total population denominators for calculating Year 9 coverage, that is, using total counts of eligible adolescents including those areas that did not run a Year 9 Td/IPV programme, will have contributed to the decline in 2019 to 2020 coverage estimates compared to previous years. The Year 9 cohort will be evaluated again at the end of the 2020 to 2021 academic year, when they are in Year 10 to provide more complete data.

For the majority of adolescents this will be the fifth and final dose of Td/IPV vaccine. However, it is possible that vaccine coverage figures provided in this report overestimate the proportion of individuals who have received a complete 5-dose course as some students might have missed one of the initial four doses and may only be receiving a fourth dose of these vaccine antigens. 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](#).

Coverage for the NHS Td/IPV vaccine programme in adolescents in England and the devolved administrations this academic year are published in the [data table](#). Any missing data will be published as it becomes available.

Adolescent vaccination programmes delivered through schools in England, typically achieve higher coverage in the younger cohorts (8). However, due to COVID-19, vaccine coverage in Year 9 was much lower (as most delivery models vaccinate Year 9 students and offer catch-ups in Year 10). Despite the impact of COVID-19, the vast majority of NHSE commissioned school aged immunisation providers are now offering the Td/IPV adolescent vaccine in Year 9. It is

expected that areas that were unable to deliver the Td/IPV as intended in Year 9 will offer this dose in the 2020 to 2021 academic year, when these students are in Year 10.

As Td/IPV and MenACWY vaccines are usually offered together, MenACWY vaccine coverage reported for Year 9 and 10 is similar to Td/IPV vaccine coverage reported for the same school years in 2019 to 2020 academic year (87.0% for Year 10, 58.3% for Year 9) (9).

Collecting accurate data for this vaccine programme is challenging, as it attempts to provide follow-up estimates for cohorts over more than one academic year and not all providers have fully moved to a Year 9 offer. Many areas that commission the programme in Year 9 carried over the denominator for Year 10 in 2019 to 2020 and added any additional vaccines administered to the numerator – potentially overestimating vaccine coverage; whereas providers for 52 LAs carried over the 2018 to 2019 Year 9 denominator and numerator – which could underestimate coverage if any additional students were vaccinated but unrecorded in 2018 to 2019. Furthermore, many providers are not able to provide data on vaccines delivered outside of the school setting, resulting in an underestimation of vaccine coverage.

Whilst this data largely reflects vaccines given before 20 March 2020, some LAs reported data including vaccinations given after March 2020 in catch-up programmes over the summer. This means coverage between LAs is not directly comparable as, for some LAs, the impact of catch-up programmes on coverage will not be seen until these students are in Year 10, and coverage for this cohort will next be evaluated in January 2022.

References

1. Public Health England (2020). Routine childhood immunisations from autumn 2019 (born up to and including 31 December 2019)
2. Public Health England (2013). Polio: the green book, chapter 26
3. Public Health England (2013). Tetanus: the green book chapter 30
4. Public Health England (2013). Diphtheria: the green book, chapter 15
5. NHS Digital (2013). NHS Immunisation Statistics, England, 2012-13
6. Public Health England (2017). Td/IPV school-leaver booster programme: preliminary vaccine coverage, England September 2015 to August 2016. *HPR* **11**(9)
7. Department for Education and The Rt Hon Gavin Williamson CBE MP (2020). [Press Release] Schools, colleges and early years settings to close
8. Tiley K, Tessier E, White J.M, Andrews N, Saliba V, Ramsay M, and Edelstein M (2020). School-based vaccination programmes: An evaluation of school immunisation delivery models in England in 2015/16. *Vaccine* **30**;38(15): 3149-3156
9. Public Health England (2021). Meningococcal ACWY (MenACWY) vaccine coverage for the school-based adolescent vaccination programme in England, academic year 2019/20. *HPR* **15**(5)

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Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000

Website: www.gov.uk/phe

Twitter: [@PHE_uk](https://twitter.com/PHE_uk)

Facebook: www.facebook.com/PublicHealthEngland

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Prepared by: Harriet Webster, Yuma Rai, Elise Tessier, Joanne White, Vanessa Saliba.

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



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