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Vaccine coverage estimates for the school based tetanus, diphtheria and polio (Td/IPV, 'school leaver booster') adolescent vaccination programme in England, to end of August 2019

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Key points

- 140/152 Local Authorities (LAs) returned complete vaccine coverage data for the Td/IPV vaccination programme for Year 9 students (born between 1 September 2004 to 31 August 2005). Of these, 135 LAs delivered the programme exclusively in schools and 5 LAs delivered the programme in schools and GP practices
- 12 LAs that did not submit data, or were unable to provide accurate estimates for vaccine coverage in Year 9 will provide Td/IPV vaccine coverage figures for this cohort when they are in Year 10 in 2019/20
- average vaccine coverage for the LAs that delivered the Td/IPV booster to Year 9 students in 2018/19 was 87.6% compared to 85.5% in 2017/18, 83.0% in 2016/17 and 83.5% in 2015/16
- all 152 LAs returned vaccine coverage data for Td/IPV vaccination for Year 10 students in 2018/19 (born between 1 September 2003 to 31 August 2004). Of these, 144 LAs delivered the programme exclusively in schools, 7 delivered the programme in schools and GP practices, and one exclusively through GP practices
- 15 LAs that did not provide Year 9 data in 2017/18 provided Year 10 data in 2018/19
- Year 10 data for 62 LAs was calculated using the 2017/18 Year 9 denominator and an updated numerator; for 42 LAs the 2017/18 Year 9 data was carried over to 2018/19 unchanged, all other LAs either updated both denominator and numerator or did not have any data for Year 9 in 2017/18 due to Year 10 delivery
- average Year 10 coverage for the Td/IPV booster vaccine to the end of August 2019 was 86.0% compared to 82.9% in 2017/18, 81.7% in 2016/17 and 74.9% in 2015/16
- providers are encouraged to continue to move towards standardising on the recommended Year 9 school delivery model in order to achieve high vaccine coverage

Introduction

Tetanus, diphtheria and polio vaccines are offered at eight weeks, 12 weeks, 16 weeks (primary course), a pre-school booster at three years and four months, and a school leaver booster at 14 years old [1]. The school leaver booster is the fifth dose of tetanus, diphtheria and polio (Td/IPV) vaccine in the routine immunisation schedule and completes the course, providing long-term protection against all three diseases [1-4]. 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](#).

Previously annual Health and Social Care Information Centre (HSCIC, now NHS Digital) KC50 collections from primary care trusts (PCTs) had included number of doses of Td/IPV administered but did not contain reliable denominator data for all PCTs and so were unable to produce coverage estimates. The KC50 returns were suspended in 2012/13 [5]. In 2015/16 and 2016/17 a pilot study collected national vaccine coverage data for the Td/IPV schools based immunisation programme [6] .

This report is the fourth vaccine coverage report for the Td/IPV schools based immunisation programme in England and presents updated data for school Year 10 and new data for school Year 9 in 2018/19.

Methods

Data for the school level collection were collected at school level by data providers, aggregated by LA and, where possible, updated with additional data for adolescents resident in the LA but not linked to any school. The aggregate LA data were manually entered on the ImmForm¹ website.

The target population for the programme is defined by school age cohorts born between 01 September 2003 and 31 August 2005. This also includes adolescents resident in the LA that are not linked to any school (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 2019.

Table 1. Td/IPV routine vaccine cohorts 2018/19

School year in 2018/19	Age in 2018/19	Dates of birth
10	14-15 years old	1 Sep 2003 – 21 Aug 2004
9	13-14 years old	1 Sept 2004 – 31 Aug 2005

Full details of the data collection process and definitions can be found at [Adolescent Vaccine Coverage: User Guidance](#).

Participation and data quality

Data for all 152 LAs were submitted on the adolescent ImmForm Survey. The completeness of data varied by LA. Caveats describing participation and data quality issues are included within the [data tables associated with this report](#).

LA level data for the school level collection were validated and analysed by PHE to check data completeness. PHE queried LAs that had a change in coverage of more than 5% compared to coverage achieved in 2017/18 and queried LAs with a change in denominator of more than 10% compared to the provisional denominator. Provisional denominators were the Year 9 denominator in 2017/18 for LAs with Year 9 delivery and the Year 10 denominator in 2017/18 for LAs with Year 10 delivery. Any denominator or coverage which was more than 15% higher or lower than last year's was caveated in the data tables. The data were aggregated by NHS Local Team (LT) and at the national level. National vaccine coverage only represents the percent vaccinated with Td/IPV in LAs that delivered the programme and denominators for areas that did not provide data are not included in the survey calculations.

¹ 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.

Results

Programme delivery

- 62 LAs carried over the 2017/18 Year 9 denominator and updated the numerator for Year 10 in 2018/19
- in 42 LAs the 2017/18 Year 9 data was carried over to Year 10 2018/19 unchanged
- in 33 LAs, both the numerator and denominator were updated from the Year 9 data in 2017/18
- 5 LAs continued offering Td/IPV in Year 10 only
- 3 LAs successfully transitioned to offer Td/IPV from Year 10 students in 2017/18 to Year 9 students in 2018/19 (delivering two school years)
- 7 LAs partially transitioned to a Year 9 programme in 2018/19 with both Year 9 and 10 students offered the vaccine, but were unable to provide accurate estimates for the Year 9 cohort. Both Year 9 and 10 students were offered Td/IPV vaccine during this transitioning year

Year 9 vaccine coverage

- 147/152 (96.1%) LAs offered the routine Td/IPV vaccination in Year 9 in 2018/19 (142 exclusively in schools, five in schools and GP practices)
- Td/IPV coverage in Year 9 students reported in 140 of these LAs in Year 9 was 87.6%, compared to 86.2% in 2017/18, 83.6% in 2016/17 and 84.1% in 2015/16.
- coverage ranged from 61.3% (Middlesbrough LA) to 97.3% (Northamptonshire LA)
- 6 LAs not offering Td/IPV vaccine to Year 9 in 2018/19 will offer it to the Year 10 students in 2019/20
- 38.6% (54/140) of LAs achieved coverage of 90% or above, 49.3% (69/140) of LAs achieved coverage between 80- 90% and 12.1% (17/140) of LAs achieved coverage of less than 80%
- compared with Year 9 in 2017/18, Year 9 denominator estimates in one LA increased by >20% in 2018/19

Year 10 vaccine coverage

- All 152 LAs reported coverage for the routine cumulative Td/IPV vaccination in Year 10 (combined Year 9 2017/18 and Year 10 2018/19) in 2018/19 (144 in schools, 1 in GP practices and 7 in schools and GP practices)
- National Td/IPV coverage in Year 10 students was 86.0% compared to 82.9% in 2017/18, 81.7% in 2016/17 and 74.9% in 2015/16
- coverage ranged from 63.0% (Isle of Wight LA) to 97.6% (Wokingham LA)

- 28.3% (43/152) of LAs achieved coverage of 90% or above, 51.3% (78/152) of LAs achieved between 80 – 90% and 20.4% (31/152) achieved coverage less than 80%
- for the Year 10 estimates, denominator size increased by >20% in one LA in 2018/19 compared with the denominator in 2017/18; this was due to the inclusion of private schools in the denominator that were previously omitted
- the denominator for England increased by 8.6% from the denominator from when the same cohort was in Year 9 in 2017/18 This is due to the inclusion of large LAs that delivered the programme in Year 10 in 2018/19 and due to large increases in denominator in individual LAs

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

Discussion

Average Td/IPV vaccine coverage for the 2018/19 Year 9 school delivered programme was 87.6% compared to 85.5% in 2017/18. This estimate should be regarded as provisional as the cohort will be evaluated again at the end of the academic year 2019/20 (Year 10) to provide more complete data. Coverage for the Year 10 cohort was 86.0% compared to 82.9% in 2017/18. All LAs provided data for the Year 10 cohort compared to 98.7% (150/152) in 2017/18.

For the majority of students 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](#).

Vaccine coverage of the Td/IPV booster in England is similar to coverage in Scotland, Wales and Northern Ireland ([see table of UK data associated with this report](#)). Please note that the denominator in Scotland, Wales and Northern Ireland represent the entire population for each age cohort, whereas the figures in England represent only the areas that successfully submitted reliable data on ImmForm. Therefore, coverage figures presented in this report exclude missed cohorts, which causes overestimation of coverage. Coverage figures may also exclude vaccines given in general practice causing underestimation of coverage. However, the number of areas unable to provide accurate estimates in the report is small and will have a small impact on national vaccine coverage estimates.

Adolescents that live in a LA that offers predominately school-delivered programme may receive their Td/IPV vaccine at their GP if for any reason they miss the school session. It is not possible for many LAs that offer a predominately school-delivered programme to include these data in their return. Consequently, whilst some areas presented data that includes vaccinations given in both schools and GP settings, other areas have only presented data that includes school-delivered vaccinations. This would result in an underestimation in vaccine coverage. However, the number of adolescents receiving the vaccine in primary care because they missed the opportunity at school is likely to be small and so should have a limited impact on national vaccine coverage estimates.

Achieving high coverage in older adolescents is a challenge. As with previous results from adolescent vaccination programmes delivered through schools in England, the highest coverage is achieved in the younger cohorts [7 accepted paper pending]. It is possible that more comprehensive and complete data collection will help increase coverage in both Year 9 and Year 10 students. Td/IPV vaccine coverage reported for Year 9 and 10 is similar to MenACWY vaccine coverage reported for the same schools years (Year 10 86.7%, Year 9 88.0%) [8].

It is encouraging that since 2017/18 9 LAs have moved to offering the routine school leaver booster in Year 9 in 2018/19 and further areas have indicated that they will do so in the next year, enabling the programme to gradually move to the **recommended Year 9 delivery** of Td/IPV nationally.

Collecting accurate data for this vaccine programme is challenging, particularly when attempting to provide follow-up estimates for cohorts over more than one academic year and when there are multiple delivery models. Many areas that commission the programme in Year 9 carried over the denominator for Year 10 in 2017/18 and added any additional vaccines administered to the numerator. This could potentially overestimate vaccine coverage. Additionally, 42 LAs were unable to update the data submitted last year and carried over the 2017/18 Year 9 denominator and numerator which could underestimate coverage if any additional students were vaccinated in 2018/19.

This survey will be repeated in September 2020 to collect coverage data for Td/IPV vaccine delivered to Year 9 and 10 students in 2019/20.

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