



Public Health
England

Protecting and improving the nation's health

Seasonal influenza vaccine uptake in children of primary school age

Winter season 2019 to 2020

Final data for 1 September 2019 to 31 January 2020

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Executive summary

This document describes the final influenza vaccine uptake for the school-age influenza vaccination programme targeted at all primary school children aged 4 to 11 (Reception to Year 6) in England from 2019 to 2020.

Providers returned data for a total of 152/152 local authorities (LA) in England within the 14 local NHS England teams on cumulative influenza vaccinations administered from 1 September 2019 to end of 31 January 2020.

Cumulative influenza vaccine uptake from 1 September 2019 to 31 January 2020 for the national programme in England was:

- 64.3% (421,864 / 656,467) of children in reception (aged 4 rising to 5 years) compared to 64.3% during the 2018 to 2019 season
- 63.6% (422,805 / 664,854) of children in school year 1 (aged 5 rising to 6 years) compared to 63.6% during the 2018 to 2019 season
- 62.6% (426,068 / 680,260) of children in school year 2 (aged 6 rising to 7 years) compared to 61.5% during the 2018 to 2019 season
- 60.6% (422,331 / 697,079) of children in school year 3 (aged 7 rising to 8 years) compared to 60.4% during the 2018 to 2019 season
- 59.6% (415,478 / 697,305) of children in school year 4 (aged 8 rising to 9 years) compared to 58.3% during the 2018 to 2019 season
- 57.2% (394,035 / 688,645) of children in school year 5 (aged 9 rising to 10 years) compared to 56.5% during the 2018 to 2019 season
- 55.0% (373,950 / 679,582) of children in school year 6 (aged 10 rising to 11 years)
- 61.3% (2,502,581 / 4,084,610) in children school years Reception, 1, 2, 3, 4 and 5 combined, compared to 60.8% during the 2018 to 2019 season
- 60.4% (2,876,531 / 4,764,192) in children school years Reception, 1, 2, 3, 4, 5 and 6 combined

Data was returned for a total of 152 / 152 LAs in England within the 14 NHS England local teams on cumulative influenza vaccinations administered from 1 September 2019 to 31 January 2020.

Notes on the report

Intended audience

This report is aimed at professionals directly involved in the delivery of the influenza vaccine to children such as GPs, pharmacy leads, screening and immunisation teams, local commissioners involved in the planning and financing of local health services, the wider public health community, governmental organisations and researchers with an interest in the influenza vaccination programme in England.

Aim of the report

This report provides an update on influenza vaccination uptake (%) in school children (from school academic years Reception, 1, 2, 3, 4, 5 and 6) at national and sub-national levels.

Background

Childhood Influenza Programme roll-out timeline

Following the recommendations of the Joint Committee on Vaccination and Immunisation (JCVI) in 2012, the Department of Health (DH)¹, in partnership with Public Health England (PHE) and NHS England, began the phased roll-out of the national influenza vaccination programme to ultimately cover all 2 to 16-year olds (inclusive) in the UK. This programme uses the licensed live attenuated influenza vaccine (LAIV) and the programme expands by year to ultimately target children ages 2 to 17 years of age, with the aim of providing direct protection for those immunised as well as indirectly protecting the remaining population by reducing transmission.

2013 to 2014

The children's programme began in the 2013/14 season with all 2 and 3-year olds being offered vaccination with LAIV through general practice and a school pilot programme was rolled out in geographically distinct areas in England, targeting all primary school-age children (aged 4 to 10, rising to 11 years).

2014 to 2015

In the 2014 to 2015 season, the national programme was extended to 4-year olds through general practice in England. In addition, the school pilot programme was extended to a total of 14 pilot areas (including 6 pilots that participated in 2013/14 season), targeting both primary school-age children (aged 4 to 10, rising to 11 years) and secondary school-age children (12 rising to 13 years).

2015 to 2016

In the 2015 to 2016 season, the national programme was extended to include children of appropriate age in school years 1 and 2. For most children, this was offered via a school-based programme, although in a few areas of England vaccinations were delivered through alternative schemes such as community pharmacies and general practices. The 2014 to 2015 pilot areas continued to offer vaccination to all primary school-age children (aged 5 to 10, rising to 11 years) in 2015 to 2016.

2016 to 2017

In the 2016 to 2017 season, the national programme was extended to include children in school year 3, offering LAIV vaccination to all children in school years 1, 2 and 3. Most children were offered the influenza vaccine via a school-based programme. However, in a few areas vaccinations were delivered through alternative schemes such as community pharmacies and general practice. Children aged 2, 3 and 4 years (but not 5 years or older) continued to be vaccinated by GPs. Vaccination continued to be offered to primary school-aged children (aged 5 to 10, rising to 11 years) in the areas that had participated previously as pilot areas in England.

2017 to 2018

In the 2017 to 2018 season, the national programme was extended to include children in Reception (4 rising to 5 years), children in Year 4 (aged 8 rising to 9 years) and all children of primary school age (aged 4 to 10 rising to 11) in areas that participated previously as pilot areas. The mode of vaccination remained primarily through school delivery models with children aged 2 and 3 years offered the vaccine in GP practices, the only exception being the Isles of Scilly who delivered the vaccines through GP practices.

2018 to 2019

In the 2018 to 2019 season, the national programme was extended to include children of Year 5 (aged 9 rising to 10 years). For most children, the LAIV vaccine was offered via school-based programmes (with additional mop-up clinics where required), with the Isles of Scilly operating via a GP model. Children aged 2 and 3 years (but not 4 years or older on 1 September 2018) were still offered the vaccine through general practices. Vaccination continued to be offered to primary school-aged children in reception to Year 6 (aged 4-10 rising to 11 years) in those areas that previously participated in primary school pilots in England.

2019 to 2020

During the 2019 to 2020 season, the national programme was extended to include children of Year 6 (aged 10 rising to 11 years) and thus included all children of primary school age for the first time and no additional age cohorts were added to the previous pilot areas. The mode of vaccination remained primarily through school delivery, with eligible children in the Isles of Scilly and all children aged 2 and 3 years offered the vaccine in GP practices.

This report describes influenza vaccine uptake for children of primary school age in England from 1 September 2019 to 31 January 2020. The eligible school cohorts under survey are children in school academic years Reception, 1, 2, 3, 4, 5 and 6 (based on age at 1 September 2019).

Methods

Screening and immunisation teams throughout England are given a standard protocol describing the inclusion criteria and method of collecting the data. Data providers must use a suitable data source to identify eligible school cohorts in the locality. Most children are offered a single dose of vaccine. Eligible children in clinical at-risk groups without prior vaccination history are recommended 2 doses of vaccine and are counted as one vaccination in the numerator.

Cumulative data on seasonal influenza vaccine uptake were collected for all 152 local authorities (LAs) between 1 September 2019 to 31 January 2020 using the ImmForm website managed by PHE. ImmForm provides a secure online platform for vaccine uptake data collection for several immunisation surveys, including the seasonal influenza vaccine uptake collections.

End-of-season programme uptake was calculated based on the number of children in the target population reported as having received the influenza vaccine (either LAIV or inactivated influenza vaccine (IIV)) during the campaign period. Therefore, vaccine coverage reflects all eligible children in years Reception, 1, 2, 3, 4, 5 and 6 that received an influenza vaccine between 1 September 2019 and 31 January 2020.

Eligible population

The target population for the national primary school age childhood influenza vaccination programme is defined by school age cohorts born between 1 September 2008 and 31 August 2015, as defined by the child's age on 1 September 2019 (Table 1). This season all children in Reception (aged 4 rising to 5 years), Year 1 (aged 5 rising to 6 years), Year 2 (aged 6 rising to 7 years), Year 3 (aged 7 rising to 8 years), Year 4 (aged 8 rising to 9 years), Year 5 (aged 9 rising to 10 years) and Year 6 (aged 10 rising to 11 years) were offered the vaccine.

Table 1. Year group cohort definitions

Academic group	Age range on 1 September 2019	Birth Date	
		Born from date	Born to date
Reception	Aged 4-5 years	01/09/2014	31/08/2015
1	Aged 5-6 years	01/09/2013	31/08/2014
2	Aged 6-7 years	01/09/2012	31/08/2013
3	Aged 7-8 years	01/09/2011	31/08/2012
4	Aged 8-9 years	01/09/2010	31/08/2011
5	Aged 9-10 years	01/09/2009	31/08/2010
6	Aged 10-11 years	01/09/2008	31/08/2009

For the 152 LAs where the programme was delivered through a school model, the denominator was based on both all the eligible children in schoolsⁱ in the LA geography and those children who were educated out of school in the LA geography. This was defined by child age on 1 September 2019 using routine data sources such as the local education authority (LEA) school registers. Data were submitted by data providers and/or screening and immunisation coordinators at the LA level. Data were submitted on the ImmForm reporting websiteⁱⁱ via manual upload.

For the Kernow LA (which comprises Cornwall and the Isles of Scilly), most children were offered the vaccine through school delivery programmes, except for the Isles of Scilly, where the programme was delivered through GPs. The denominators for the Isles of Scilly were derived from GP systems that are based on the number of patients registered with a GP practice located within the LAs geographical boundary, as defined by a child's age at 1 September 2019. Data were submitted on the ImmForm reporting website either via an automated extraction (XML bulk upload or a web service) or provided by GP IT software suppliers who extract data directly from GP computer systems as described in full in the GP flu vaccination annual report². Data were submitted at GP practice level and then aggregated at LA level by GP postcode for reporting purposes.

The school child flu vaccination surveillance is a school-based collection, apart from when a GP based delivery model is used. Children who reside in one locality attending schools in neighbouring localities would be captured by the schools in the neighbouring locality to avoid double counting. Data providers can use single or multiple sources as appropriate to identify their eligible population.

This report presents data aggregated at PHE Centre, NHS England local team, and LA levels for comparison with past and future reports.

ⁱAll state funded primary schools, special schools, academies, faith schools, free schools, pupil referral units, and independent schools.

ⁱⁱ ImmForm reporting website: <https://portal.immform.dh.gov.uk/>

Data limitations

It is important to note there may not be full data coverage in all LAs, as not all data providers were able to access information on additional children that had been vaccinated by their registered GP in addition to the local delivery model. Most of these children are at-risk children that have been called in by their GP to receive the vaccination. Healthy children in school years Reception, 1, 2, 3, 4, 5 and 6 who are not in a clinical risk group should not have been offered vaccination by their GP unless the local vaccination programme was a GP delivery model, or if designated GPs were commissioned to vaccinate these children in mop-up clinics, which are accounted for.

Where data providers have indicated that they have included additional children that were vaccinated by their GP, it should be noted that the completeness of these figures may vary between GP practices as the IT systems used to extract this information may vary between IT suppliers.

Some of the school data providers will only be indicating those children that have returned information on their vaccination status in consent forms (those who have already received the vaccine at the GP). Depending on the characteristics of the local school-age population, it may be necessary that other providers use multiple data sources to identify eligible school age cohorts, such as the school roll and the local Child Health Information Services (CHIS) system. This may be valid for one locality and not for others. The extent of enumerating the eligible population may differ between localities depending on the data sources consulted, however, each locality must be satisfied with the methods it chooses to use to identify its school-age population. For these reasons, some caution is advised when making direct comparisons of coverage between localities.

Moreover, when assessing local trends, changes 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, any impact on the national figures is likely to be minimal.

Finally, where the denominators (total number of children eligible for the influenza vaccine) were not amended, denominators from the school census survey from January 2019 were used³.

Throughout the 2019 to 2020 season, provisional uptake data by school year cohort were published on PHE's website⁴ on a cumulative monthly basis. Following the end of the vaccine data collection period (31 January 2020),

providers were contacted to confirm their final figures if they had not already done so when making their final submission.

Results

Full data tables showing final influenza vaccine uptake for children in school years Reception, 1, 2, 3, 4, 5 and 6 at LA, NHS England Local Team and PHE centre level are described throughout this section and can be found in Supplementary tables 1-3 of this report. Data for this season and prior seasons are also available using the following link:

www.gov.uk/government/collections/vaccine-uptake

All the 152 LAs confirmed that the data were final up until 31 January 2020.

National uptake

An estimated 2,876,531 children from school years Reception to Year 6 in England were vaccinated with either the LAIV or IIV between 1 September 2019 to 31 January 2020. Cumulative influenza vaccine uptake based on combined data for the target populations (Reception and Years 1 to 6) was 60.4% (2,876,531/4,764,192) (Table 2).

The cumulative uptake in children by the following school age cohorts' Reception, Year 1, 2, 3, 4, 5 and 6 was 64.3%, 63.6%, 62.6%, 60.6%, 59.6%, 57.2% and 55.0%, respectively (Table 2). The median uptake for children in school years reception, 1, 2, 3, 4, 5 and 6 was 66.8% (IQR 55.5% to 72.2%), 65.5% (IQR 56.4% to 71.9%), 63.6% (IQR 55.1% to 70.9%), 62.5% (IQR 52.4% to 68.8%), 60.8% (IQR 52.7% to 67.5%), 58.4% (IQR 50.1% to 65.6%) and 56.7% (IQR 47.2% to 63.4%), respectively.

The national ambition for every local authority for the 2019 to 2020 flu season is an average uptake of at least 65% across all primary school years (reception to year 6)⁵. The number of LAs that reached the national ambition increased in the 2019 to 2020 season. Of 152 LAs in England, 59 (38.8%) had an average uptake of 65% or more, compared to 33 (21.6%) in the 2018 to 2019 flu season. Beyond this, 63 (41.4%) had an uptake in the range 50% to 64% and 30 LAs (19.7%) had uptake <50%. However, this masks achievement of the 65% ambition in specific age cohorts for LAs. The number and proportion of LAs that achieved 65% or more uptake in the 2019 to 2020 season by each cohort are as follows: 83 (54.6%) for Reception; 76 (50.0%) for Year 1, 72 (47.4%) for Year 2, 59 (38.8%) for Year 3, 51 (33.6%) for Year 4, 44 (28.9%) for Year 5 and 28 (18.4%) for Year 6.

Influenza vaccine uptake increased by 0.5 percentage points to 61.3% (2,502,581/4,084,610) in the 2019 to 2020 season for children in school years Reception to Year 5 combined, compared to the corresponding group in the previous season.⁶

Year group

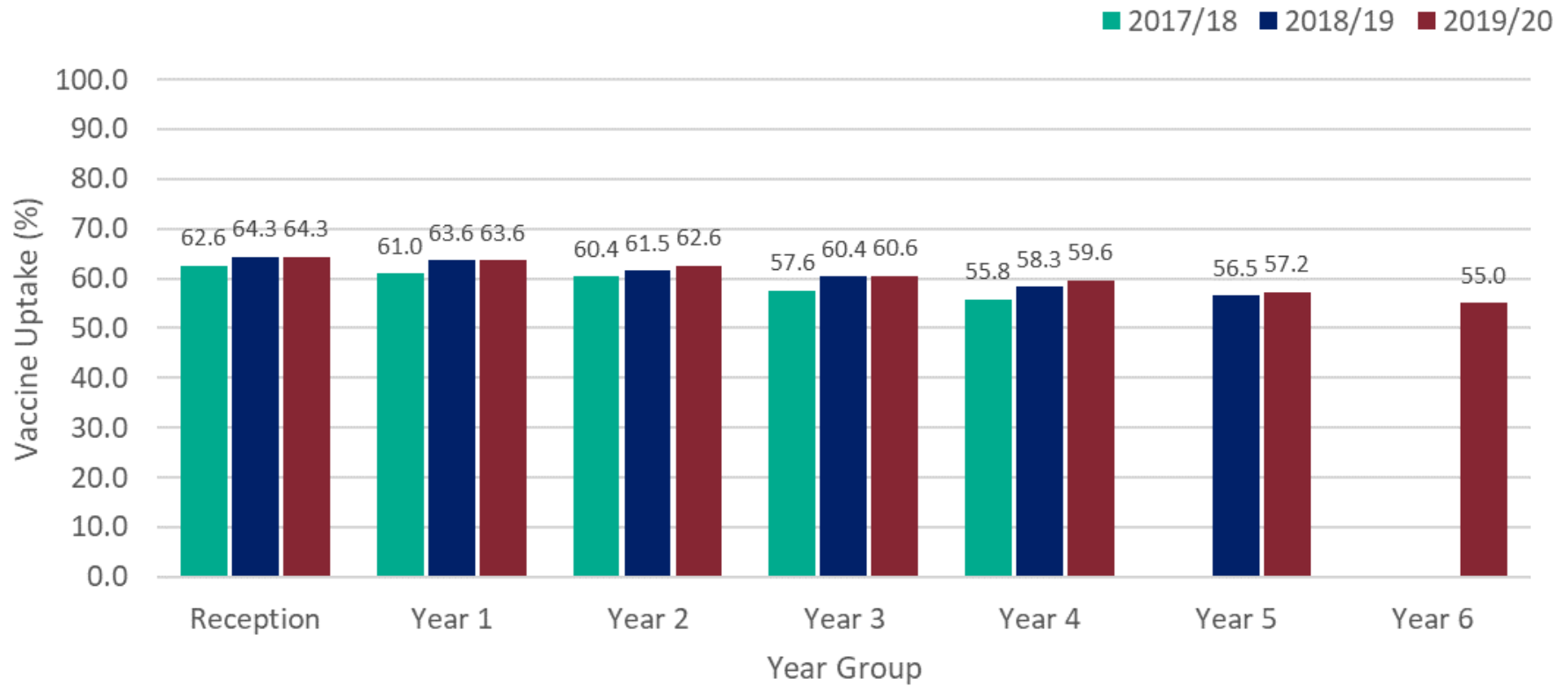
For the fifth consecutive season vaccine uptake decreased as age increased in Primary school children (Figure 1). The highest uptake was among children in Reception (64.3%) and the lowest in children in Year 6 (55.0%).

Table 2. Total number of children in school years Reception, 1, 2, 3, 4, 5 and 6 eligible for influenza vaccination, total number of children who received influenza vaccination, and vaccine uptake in England from 1 September 2019 to 31 January 2020 and in 2018 to 2019

School year	2019 to 2020			2018 to 2019		
	Total no. of eligible children in the LA geography	Total no. of children vaccinated with influenza vaccine	Influenza vaccine uptake (%)	Total no. of eligible children in the LA geography	Total no. of children vaccinated with influenza vaccine	Influenza vaccine uptake (%)
Reception	656,467	421,864	64.3	649,711	417,984	64.3
1	664,854	422,805	63.6	670,529	426,452	63.6
2	680,260	426,068	62.6	688,843	423,877	61.5
3	697,079	422,331	60.6	691,540	417,777	60.4
4	697,305	415,478	59.6	680,002	396,183	58.3
5	688,645	394,035	57.2	671,073	379,290	56.5
6	679,582	373,950	55.0	-	-	-
Total	4,764,192	2,876,531	60.4	4,051,698	2,461,563	60.8

Cumulative influenza vaccine uptake for the comparable years Reception to Year 5 was 61.3% (2,502,581 / 4,084,610) in the 2019 to 2020 season, an increase from 60.8% (2,461,563 / 4,051,698) in the 2018 to 2019 season.

Figure 1. Influenza vaccine uptake (%) for children in school years Reception, 1, 2, 3, 4, 5 and 6 by year group, collected between 1 September 2019 to 31 January 2020



Local NHS England team

Variation in vaccine uptake was observed between the 14 NHS England local teams, ranging from 50.3% (London) to 69.0% (Hampshire, Isle of Wight and Thames Valley) (Figure 1).

Table 3. Estimated number and proportion of children in school years Reception, 1, 2, 3, 4, 5 and 6 who were vaccinated with influenza vaccine by local NHS England team from 1 September 2019 to 31 January 2020ⁱⁱⁱ

Local NHS England team	No. of children eligible for vaccination	No. of children vaccinated with at least 1 dose of influenza vaccine	Vaccine uptake (%)
London	754,417	379,634	50.3
London	754,417	379,634	50.3
Midlands	1,110,618	679,064	61.1
Central Midlands	421,522	260,088	61.7
North Midlands	298,540	184,603	61.8
West Midlands	390,556	234,373	60.0
East of England	358,980	217,363	60.6
East of England	358,980	217,363	60.6
North West	598,228	372,550	62.3
Cheshire and Merseyside	204,711	135,335	66.1
Greater Manchester	264,319	158,742	60.1
Lancashire and South Cumbria	129,198	78,473	60.7
North East	735,191	455,957	62.0
Cumbria and North East	252,693	161,627	64.0
Yorkshire and Humber	482,498	294,330	61.0
South East	757,946	486,655	64.2
Hampshire, Isle of Wight and Thames Valley	352,552	243,361	69.0
Kent, Surrey and Sussex	405,394	243,294	60.0
South West	448,812	285,308	63.6
South West North	210,968	142,007	67.3
South West South	237,844	143,301	60.2
Total	4,764,192	2,876,531	60.4

ⁱⁱⁱ. Data for Bassetlaw, an LA district of Nottinghamshire UA, was collected independently. Bassetlaw uptake figures are reported under Yorkshire and Humber NHS England team.

Figure 2. Number and estimated proportion of children in school years Reception, 1, 2, 3, 4, 5 and 6 who were vaccinated with influenza vaccine by local NHS England teams between 1 September 2019 to 31 January 2020ⁱⁱ

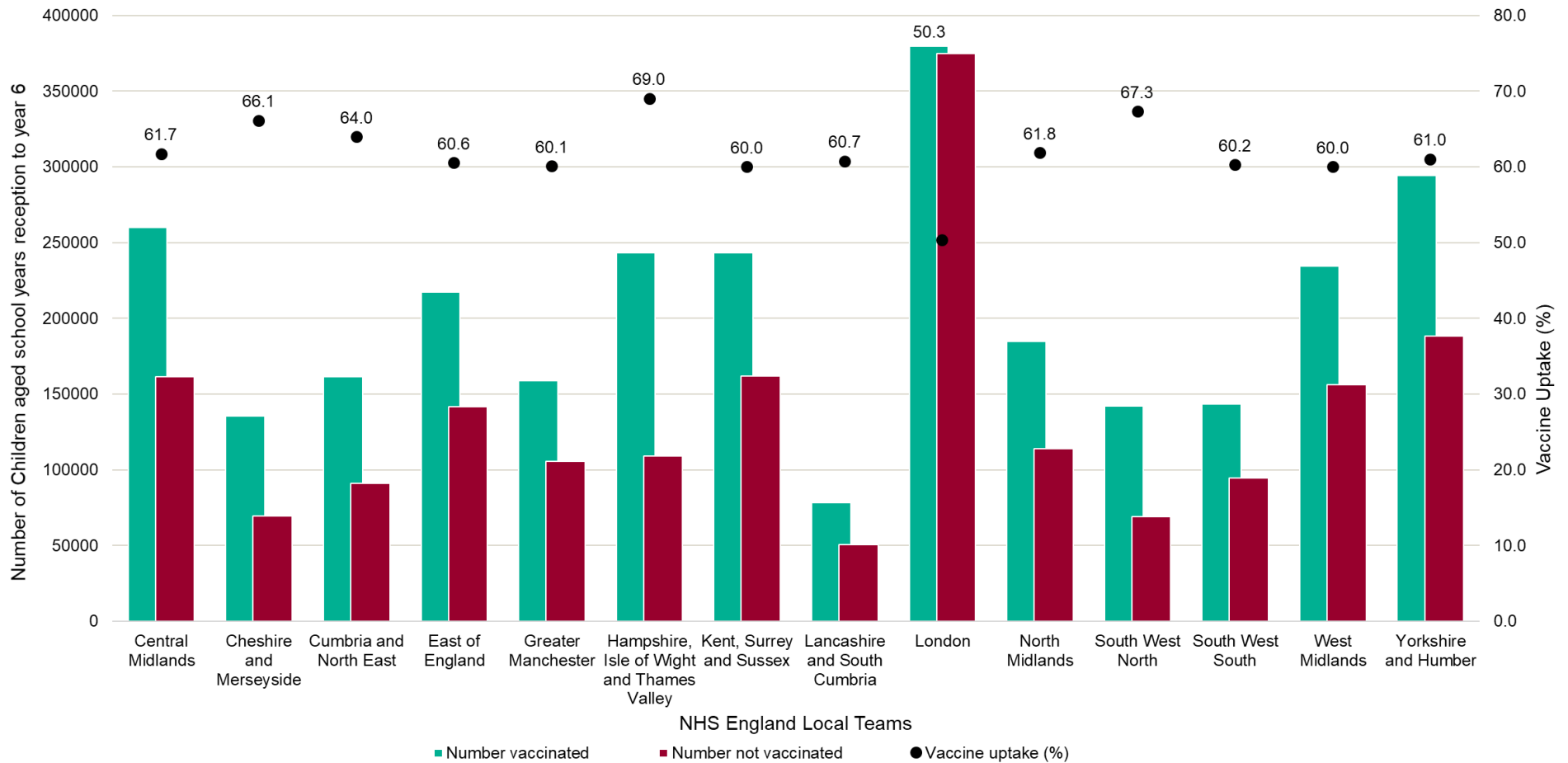
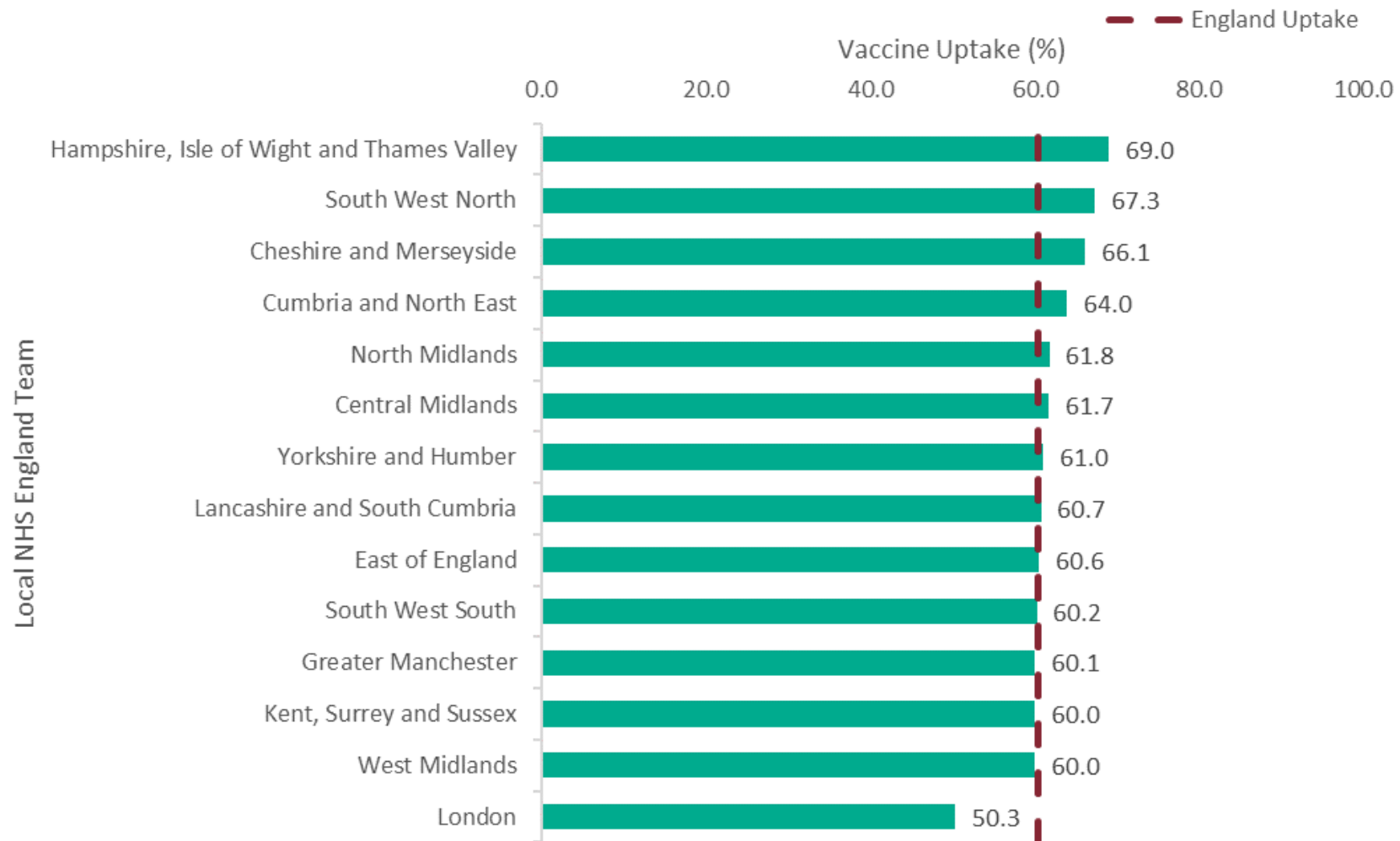


Figure 3. Estimated proportion of children in school years Reception, 1, 2, 3, 4, 5 and 6 who were vaccinated in England with influenza vaccine by Local NHS England Team between 1 September 2019 to 31 January 2020. This is shown alongside the overall uptake for England (60.4%)



PHE centres

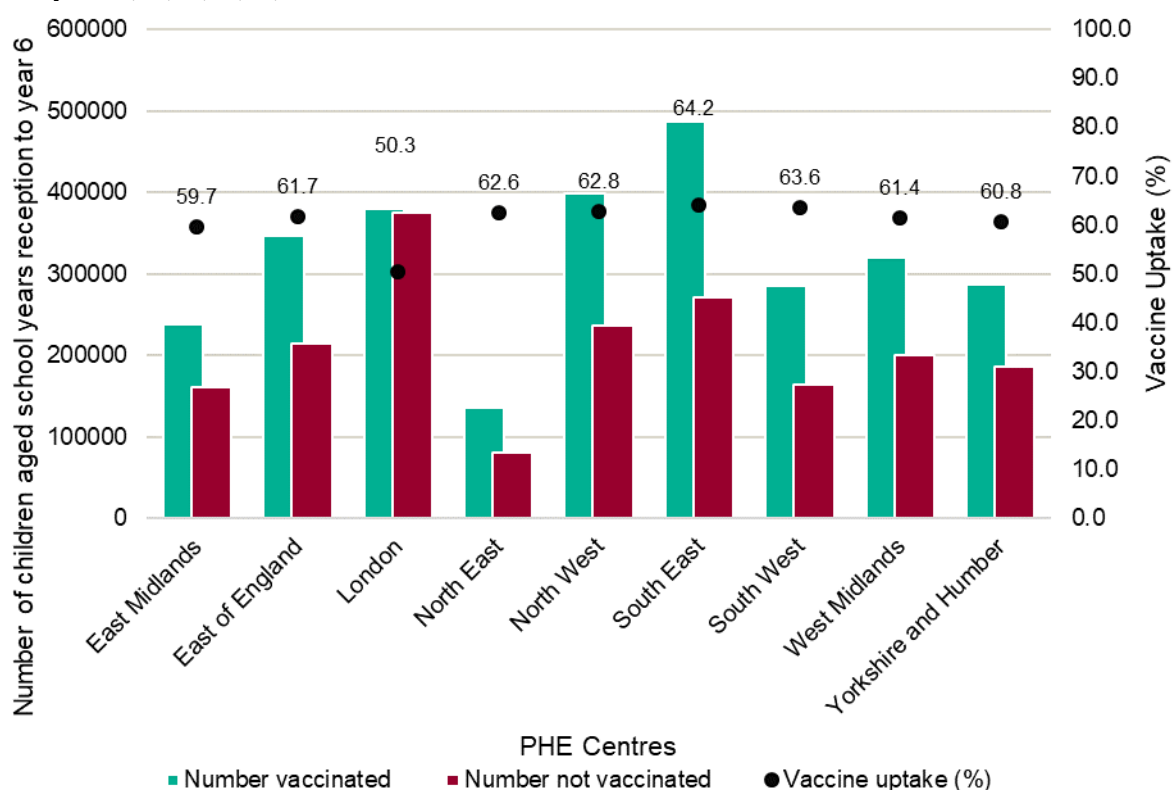
Results for the 9 PHE centres for children in school years Reception to Year 6 are broadly comparable to the results obtained for the 14 NHS England local teams. Variation in vaccine uptake was also observed for the combined years, ranging from 50.3% in London to 64.2% in the South East (Table 4 and Figure 4).

Table 4. Influenza vaccine uptake (%) for children in school years Reception, 1, 2, 3, 4, 5 and 6 in the 9 PHE centres, collected between 1 September 2019 to 31 January 2020^{iv}

PHE Centre	Vaccine uptake (%)							Total (Reception to Y6)
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
East Midlands	63.2	63.2	61.5	60.4	58.6	56.4	54.9	59.7
East of England	66.5	65.3	64.0	61.7	61.0	58.2	55.7	61.7
London	55.5	54.3	52.7	50.1	48.9	46.5	44.2	50.3
North East	66.3	65.8	64.0	62.9	62.7	59.9	56.6	62.6
North West	66.8	65.6	65.1	62.7	62.1	60.1	57.9	62.8
South East	67.8	67.7	67.1	64.6	63.5	60.8	58.2	64.2
South West	67.8	67.9	66.2	64.1	62.3	59.7	57.5	63.6
West Midlands	64.7	62.9	63.2	61.6	61.5	58.9	57.3	61.4
Yorkshire and Humber	63.2	63.4	62.7	61.2	59.7	58.7	56.7	60.8
Total	64.3	63.6	62.6	60.6	59.6	57.2	55.0	60.4

^{iv} Data for Bassetlaw, an LA district of Nottinghamshire UA, was collected independently. Bassetlaw uptake figures are included with Nottinghamshire LA under East Midlands PHE Centre.

Figure 4. Number of children vaccinated between 1 September 2019 to 31 January 2020 out of the total recorded population of children aged school years Reception, 1, 2, 3, 4, 5 and 6ⁱⁱⁱ

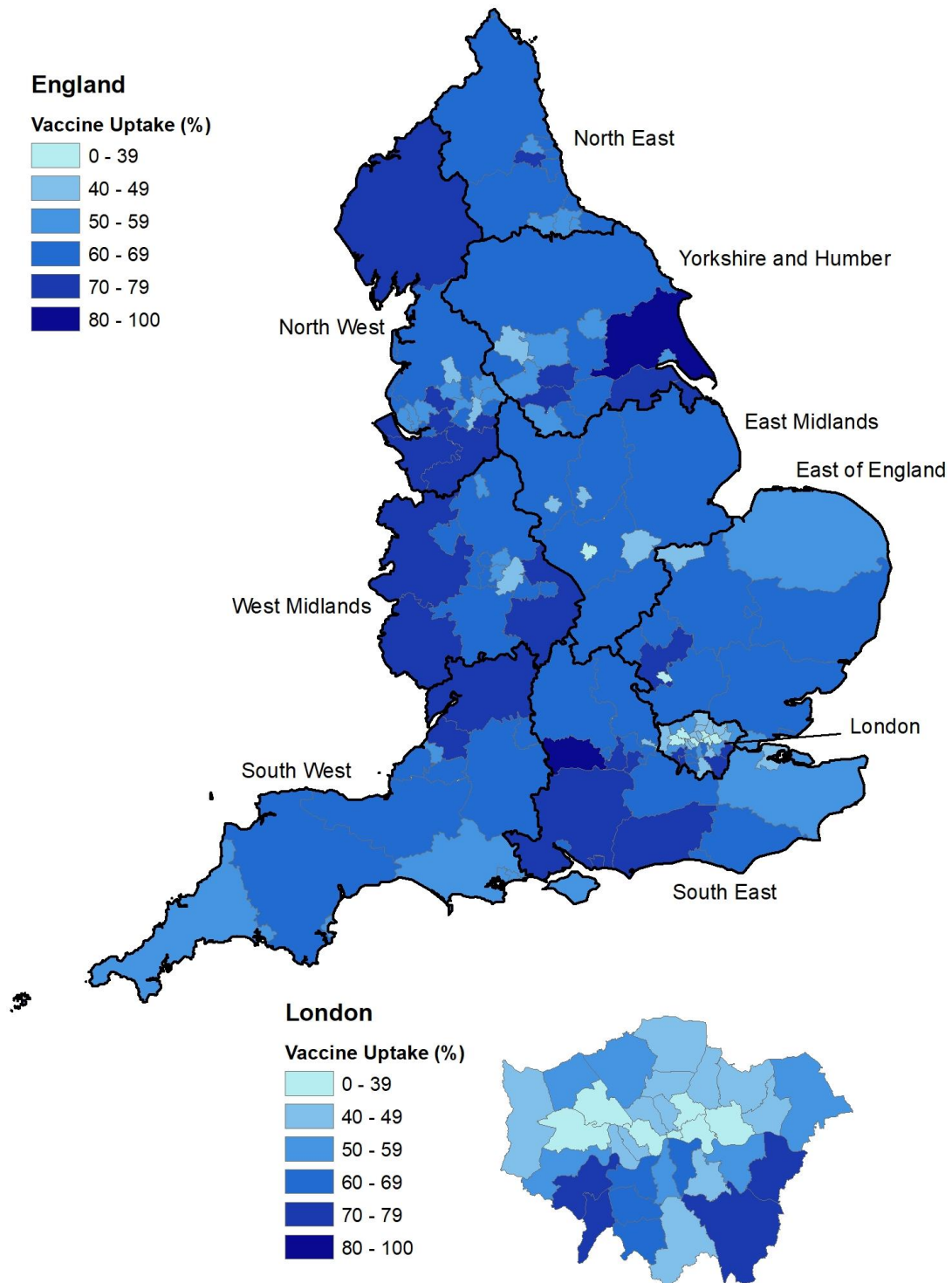


Local authority

Overall uptake for children in school years Reception, 1, 2, 3, 4, 5 and 6 combined by LA ranged from 29.5% in Tower Hamlets to 81.9% in East Riding of Yorkshire. Uptake by year group and LA ranged from 34.0% to 88.1% in Reception, 34.1% to 85.5% in Year 1, 33.6% to 83.2% in Year 2, 31.1% to 81.6% in Year 3, 29.0% to 80.4% in Year 4, 23.9% to 78.3% in Year 5 and 21.2% to 77.8% in Year 6 (Figure 5 & Supplementary Tables 1-2).

Overall vaccine uptake for children in reception to Year 6 combined was reported as lower than 40% in 9 LAs, 7 of which are in London and 2 of which are in the Central Midlands. This is a slight decrease from the 2018 to 2019 season where 11 LAs reported 40% vaccine uptake for children in Reception to Year 5 combined⁶.

Figure 5. Vaccine uptake (%) in school years reception to year 6 for the 152 local authorities and 9 PHE centres, collected between 1 September 2019 and 31 January 2020



Discussion

This is the sixth year for reporting on the uptake results for national childhood influenza primary school vaccination programme across England. This season saw the extension of the childhood vaccination programme to include children of school Year 6, aged 10 rising to 11 years, which meant all children of primary school age were included in the national programme for the first time. From September 2019, LAIV was offered to all healthy children in school years Reception to Year 6 across the country. For all but one LA, who used the GP delivery model, this vaccine was offered through the school-based programme. All pre-school children (aged 2 rising to 3 years) were offered the influenza vaccine through their GP clinics.

Across year groups Reception to Year 6, the uptake of influenza vaccine was equal to or higher than it was in the 2018 to 2019 season, with all year groups showing an overall vaccine uptake of 55% or above⁶. This demonstrates the continued success and improvement in the delivery of the programme. As was the case in the 2018 to 2019 season, London continued to show the lowest vaccination uptake of all local NHS England teams, although overall uptake in London reached 50% for the first time this season.

The national ambition for every LA for the 2019 to 2020 flu season was an average uptake of at least 65% across all years (reception to year 6)⁵. Of 152 LAs in England, 59 (38.8%) had an uptake of 65% or more, 63 (41.4%) had an uptake in the range 50% to 64% and 30 LAs (19.7%) had uptake <50%. However, the combined data masks variation by individual school years. Reception class had the highest proportion of LAs achieving 65% or more uptake (54.6%, 83/152).

Uptake based on PHE centres were broadly comparable to those obtained for the 14 NHS England Local Teams, with the lowest rate in London and highest in South East.

For the first time, children in Year 6 were offered the vaccine through the school delivery model. Uptake was the lowest among this age cohort compared to the other school groups. This lower uptake follows the trend shown in the last 5 seasons of vaccine uptake decreasing as age increases in school-aged children, with the highest vaccine uptake continuing to be shown by reception children. These trends could be due in part to the effect of children being exposed to the school-based delivery programme for the first time when they are in reception and therefore may be more inclined to receive a vaccination.

It is important that uptake ambitions in target groups of the national influenza vaccination programme are met to provide optimal direct and population indirect protection against influenza infection.

The results of the 2019 to 2020 childhood flu vaccination programme show encouraging levels of influenza vaccine uptake in children from reception to school Year 6 in England. It is important to build on this and continue to monitor uptake in all current groups under survey in the 2020 to 2021 season.

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- the ImmForm helpdesk and development team that provided and supported the online survey

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