



Public Health  
England

Protecting and improving the nation's health

# **Seasonal influenza vaccine uptake in children of school age**

## **Winter season 2020 to 2021**

Final data for 1 September 2020 to 31 January 2021

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## Executive summary

This document describes the final influenza vaccine uptake for the school-age influenza vaccination programme targeted at all school children aged 4 to 12 years old (Reception to Year 7) in England from 2020 to 2021.

Providers returned data for a total of 100% (152 out of 152) local authorities (LA) in England within the 14 local NHS England teams on cumulative influenza vaccinations administered from 1 September 2020 to end of 31 January 2021.

Cumulative influenza vaccine uptake from 1 September 2020 to 31 January 2021 for the national programme in England was:

- 64.2% (418,386 out of 651,250) of children in Reception (aged 4 rising to 5 years) compared to 64.3% during the 2019 to 2020 season
- 64.5% (425,000 out of 658,806) of children in school Year 1 (aged 5 rising to 6 years) compared to 63.6% during the 2019 to 2020 season
- 63.7% (423,391 out of 664,462) of children in school Year 2 (aged 6 rising to 7 years) compared to 62.6% during the 2019 to 2020 season
- 63.2% (429,239 out of 679,318) of children in school Year 3 (aged 7 rising to 8 years) compared to 60.6% during the 2019 to 2020 season
- 61.8% (430,890 out of 697,077) of children in school Year 4 (aged 8 rising to 9 years) compared to 59.6% during the 2019 to 2020 season
- 61.1% (427,342 out of 699,153) of children in school Year 5 (aged 9 rising to 10 years) compared to 57.2% during the 2019 to 2020 season
- 59.2% (408,246 out of 689,978) of children in school Year 6 (aged 10 rising to 11 years) compared to 55.0% during the 2019 to 2020 season
- 56.2% (380,084 out of 676,626) of children in school Year 7 (aged 11 rising to 12 years)
- 62.5% (2,962,494 out of 4,740,044) in children school years Reception, 1, 2, 3, 4, 5 and 6 combined, compared to 60.4% during the 2019 to 2020 season
- 61.7% (3,342,578 out of 5,416,670) in children school years Reception, 1, 2, 3, 4, 5, 6 and 7 combined

## 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, 6 and 7) 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 aged 2 rising to 17 years of age<sup>i</sup>, with the aim of providing direct protection for those immunised as well as indirectly protecting the remaining population by reducing transmission. Children in clinical risk groups who are contraindicated for LAIV would most likely be offered the injectable vaccine through their GP.

#### 2013 to 2014

The children's programme began in the 2013 to 2014 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 old).

#### 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 to 2014 season), targeting both primary school-age children (aged 4 to 10, rising to 11 years old) and secondary school-age children (12 rising to 13 years old).

#### 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 old) 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

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<sup>i</sup> This therefore includes 16 year olds, but not 17 year olds.

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 old) 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 old), children in Year 4 (aged 8 rising to 9 years old) and all children of primary school age (aged 4 to 10 rising to 11 years old) 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 old). 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 31 August 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 to 10 rising to 11 years old) 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 old) 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.

## 2020 to 2021

During the 2020 to 2021 season, the national programme was extended to include children of Year 7 (aged 11 rising to 12 years old), with no 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. Please note that the programme will have been impacted by the second and third national COVID-19 restrictions ('lockdowns') in England that began on the 31 October 2020, and 6 January 2021. The third lockdown included school closures except for vulnerable children and children of key workers.

This report describes influenza vaccine uptake for children of school age in England from 1 September 2020 to 31 January 2021. The eligible school cohorts under survey are children in school academic years Reception, 1, 2, 3, 4, 5, 6 and 7 (based on age at 1 September 2020).

## 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 2020 to 31 January 2021 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, 6 and 7 that received an influenza vaccine between 1 September 2020 and 31 January 2021.

## Eligible population

The target population for the national 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 31 August 2020 (Table 1). This season all children in Reception (aged 4 rising to 5 years old), Year 1 (aged 5 rising to 6 years old), Year 2 (aged 6 rising to 7 years old), Year 3 (aged 7 rising to 8 years old), Year 4 (aged 8 rising to 9 years old), Year 5 (aged 9 rising to 10 years old), Year 6 (aged 10 rising to 11 years old) and Year 7 (aged 11 rising to 12 years old) were offered the vaccine.

**Table 1. Year group cohort definitions**

Academic year group	Age range on 31 August 2020	Birth date range	
		Born from date	Born to date
Reception	Aged 4 to 5 years	1 September 2015	31 August 2016
1	Aged 5 to 6 years	1 September 2014	31 August 2015
2	Aged 6 to 7 years	1 September 2013	31 August 2014
3	Aged 7 to 8 years	1 September 2012	31 August 2013
4	Aged 8 to 9 years	1 September 2011	31 August 2012
5	Aged 9 to 10 years	1 September 2010	31 August 2011
6	Aged 10 to 11 years	1 September 2009	31 August 2010
7	Aged 11 to 12 years	1 September 2008	31 August 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 schools<sup>ii</sup> in the LA geography and those children who were educated out of school in the LA geography. This was defined by child age on 31 August 2020 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 website<sup>iii</sup> 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 on 31 August 2020. 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 report (2). 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 NHS region and LA levels for comparison with past and future reports.

<sup>ii</sup> All state funded primary schools, special schools, academies, faith schools, free schools, pupil referral units, and independent schools.

<sup>iii</sup> [ImmForm reporting website](#).



## 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, 6 and 7 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 2020 were used (3).

Throughout the 2020 to 2021 season, provisional uptake data by school year cohort were published on PHE's website (4) on a cumulative monthly basis.

## Results

Full data tables showing final influenza vaccine uptake for children in school years Reception, 1, 2, 3, 4, 5, 6 and 7 at NHS region and LA level are described throughout this section and can be found in Supplementary tables 1 to 3 of this report. Data for this season and prior seasons are also available at [Vaccine uptake guidance and the latest coverage data](#).

### National uptake

An estimated 3,342,578 children from school years Reception to Year 7 in England were vaccinated with either the LAIV or IIV between 1 September 2020 to 31 January 2021. Cumulative influenza vaccine uptake based on combined data for the target populations (Reception and Years 1 to 7) was 61.7% (3,342,578 out of 5,416,670) (Table 2).

The cumulative uptake in children by the following school age cohorts' Reception, Year 1, 2, 3, 4, 5, 6 and 7 was 64.2%, 64.5%, 63.7%, 63.2%, 61.8%, 61.1%, 59.2% and 56.2%, respectively (Table 2). The median uptake across LAs for children in school years reception, 1, 2, 3, 4, 5, 6 and 7 was 66% (IQR 55.5% to 71.5%), 66.1% (IQR 55.2% to 72.3%), 65.1% (IQR 55.1% to 71.2%), 64.5% (IQR 54.2% to 71.6%), 63.5% (IQR 53% to 68.9%), 63% (IQR 51.8% to 68.6%), 60.7% (IQR 50.3% to 66.8%) and 55.9% (IQR 47.8% to 64.6%), respectively.

The national ambition for every local authority for the 2020 to 2021 flu season is an average uptake of at least 75% across all school years (Reception to Year 7) (5). The number and proportion of LAs that achieved 75% or more uptake in the 2020 to 2021 season by each cohort are as follows: 22 (14.5%) for Reception; 24 (15.8%) for Year 1, 21 (13.8%) for Year 2, 18 (11.8%) for Year 3, 17 (11.2%) for Year 4, 14 (9.2%) for Year 5, 8 (5.3%) for Year 6 and 5 (3.3%) for Year 7. For all school years, 106 LAs reached an uptake of 55% or above, 68 reached an uptake of 65% or above and 15 reached an uptake of 75% or above.

Influenza vaccine uptake increased by 2.1 percentage points to 62.5% (2,962,494 out of 4,740,044) in the 2020 to 2021 season for children in school years Reception to Year 6 combined, compared to the corresponding group in the previous season (6).

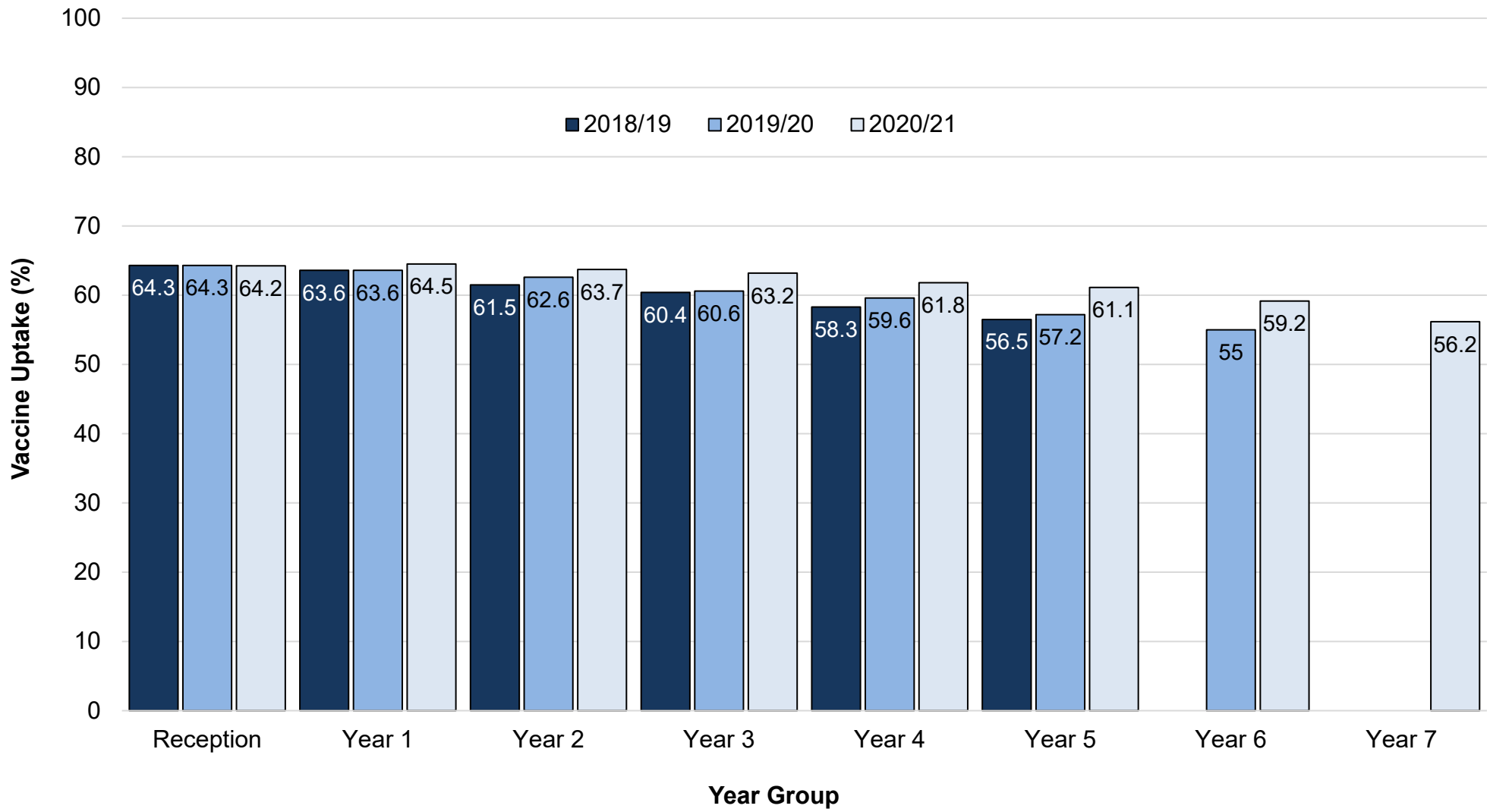
### Year group

For the sixth consecutive season vaccine uptake decreased as age increased in school aged children, however uptake was higher this year than in the previous 2 seasons for all year groups besides reception (Figure 1). Each cohort has a higher uptake than they had in the previous season (for example current year 6 group have a higher uptake than the 2019-20 year 5 group). The highest uptake was among children in Year 1 (64.5%) and the lowest in children in Year 7 (56.2%).

**Table 2. Total number of children in school years Reception, 1, 2, 3, 4, 5, 6 and 7 eligible for influenza vaccination, total number of children who received influenza vaccination, and vaccine uptake in England for the 2020 to 2021 and 2019 to 2020 season**

School year	2020 to 2021			2019 to 2020		
	Total number of eligible children in the LA geography	Total number of children vaccinated with influenza vaccine	Influenza vaccine uptake (%)	Total number of eligible children in the LA geography	Total number of children vaccinated with influenza vaccine	Influenza vaccine uptake (%)
Reception	651,250	418,386	64.2	656,467	421,864	64.3
1	658,806	425,000	64.5	664,854	422,805	63.6
2	664,462	423,391	63.7	680,260	426,068	62.6
3	679,318	429,239	63.2	697,079	422,331	60.6
4	697,077	430,890	61.8	697,305	415,478	59.6
5	699,153	427,342	61.1	688,645	394,035	57.2
6	689,978	408,246	59.2	679,582	373,950	55
7	676,626	380,084	56.2	-	-	-
<b>Total</b>	<b>5,416,670</b>	<b>3,342,578</b>	<b>61.7</b>	<b>4,764,192</b>	<b>2,876,531</b>	<b>60.4</b>

**Figure 1. Influenza vaccine uptake (%) for children in school years Reception, 1, 2, 3, 4, 5, 6 and 7 by year group and season**



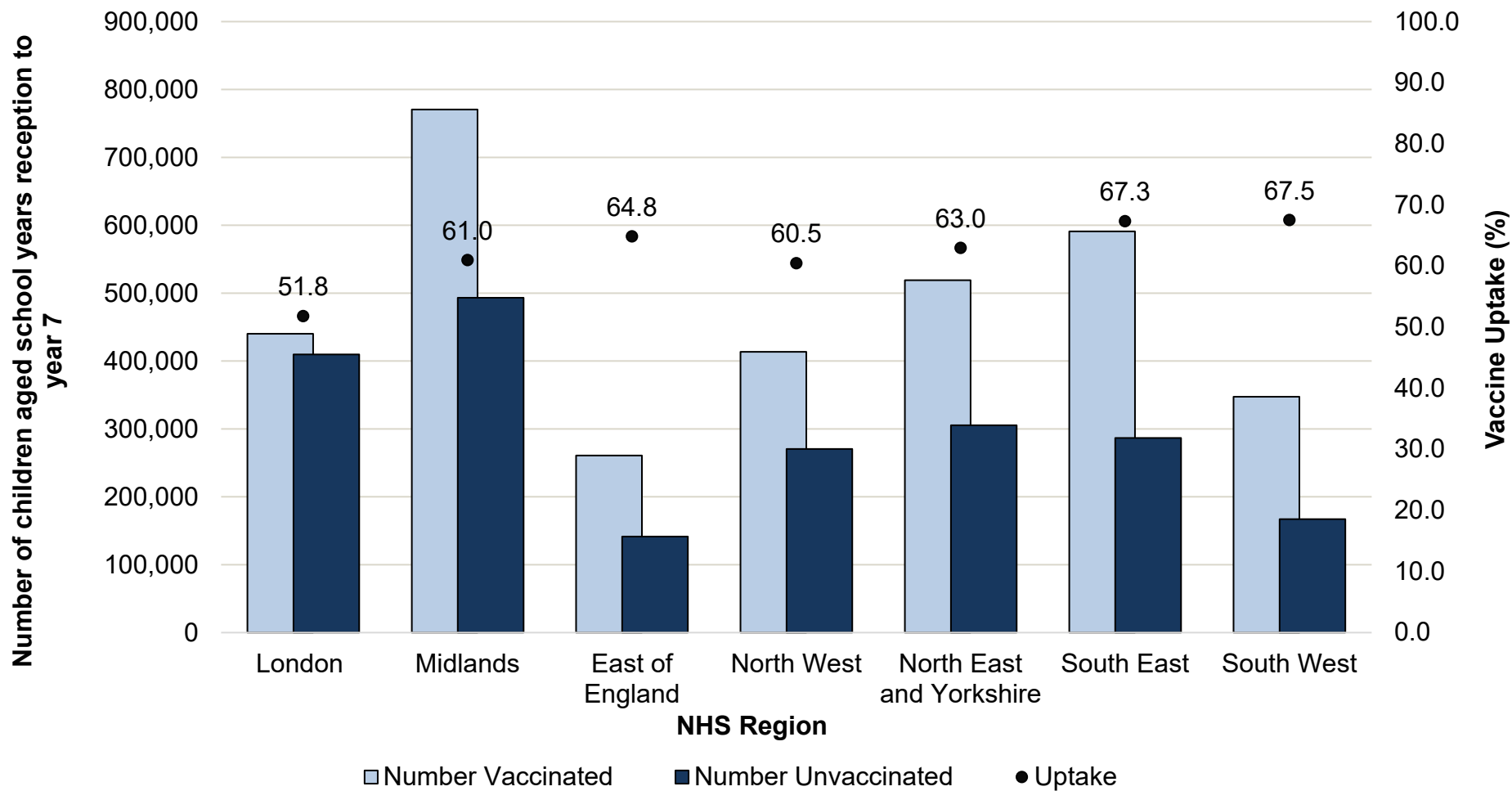
## NHS region

Variation in vaccine uptake was observed between the 7 NHS England Regions, ranging from 51.8% (London) to 67.5% (South East). The North East, East of England, South West and South East were all above the national average uptake of 61.7% (Table 3, Figure 2 and Figure 3).

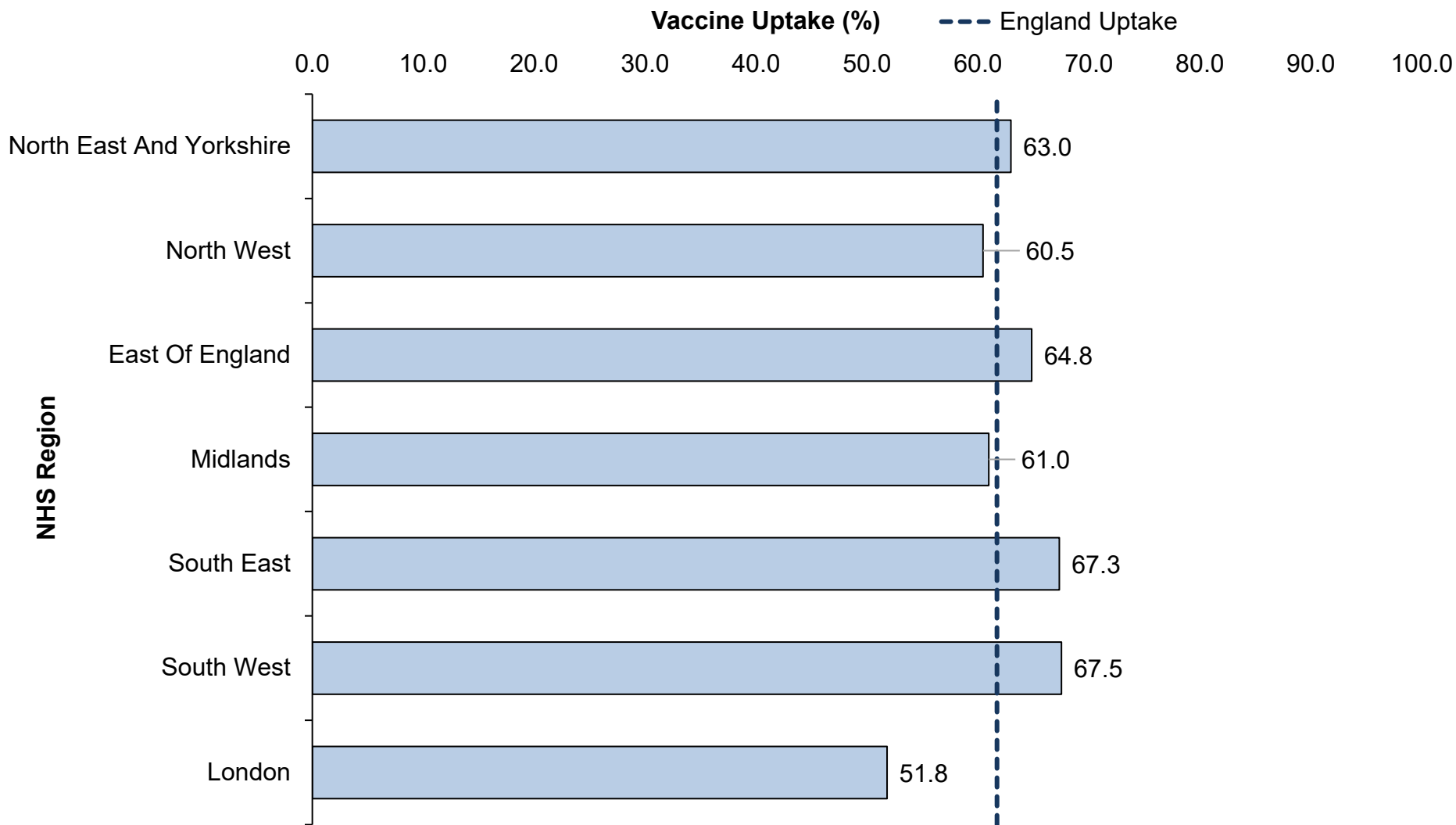
**Table 3. Estimated number and proportion of children in school years Reception, 1, 2, 3, 4, 5, 6 and 7 who were vaccinated with influenza vaccine by NHS Region from 1 September 2020 to 31 January 2021**

NHS Commissioning Region	Number of children eligible for vaccination	Number of children vaccinated with at least 1 dose of influenza vaccine	Vaccine uptake (%)
London	849,839	440,209	51.8
Midlands	1,263,826	770,562	61.0
East of England	402,401	260,902	64.8
North West	684,184	413,621	60.5
North East and Yorkshire	824,326	518,979	63.0
South East	877,576	590,891	67.3
South West	514,518	347,414	67.5
<b>Total</b>	<b>5,416,670</b>	<b>3,342,578</b>	<b>61.7</b>

**Figure 2. Number and estimated proportion of children in school years Reception, 1, 2, 3, 4, 5, 6 and 7 who were vaccinated with influenza vaccine by NHS Region between 1 September 2020 to 31 January 2021**



**Figure 3. Estimated proportion of children in school years Reception, 1, 2, 3, 4, 5, 6 and 7 who were vaccinated in England with influenza vaccine by NHS Region between 1 September 2020 to 31 January 2021. This is shown alongside the overall uptake for England (61.7%)**



## Local authority

Overall uptake for children in school years Reception, 1, 2, 3, 4, 5, 6 and 7 combined by LA varied across England, ranging from 34.4% in Tower Hamlets to 80.5% West Berkshire. 8 LAs had uptake in the range of 0 to 39%, 26 were in the range of 40 to 49%, 35 were in the range of 50 to 59%, 50 were in the range of 60 to 69%, 31 were in the range of 70 to 79% and 2 were over 80%. (Figure 5). Uptake by year group and LA ranged from:

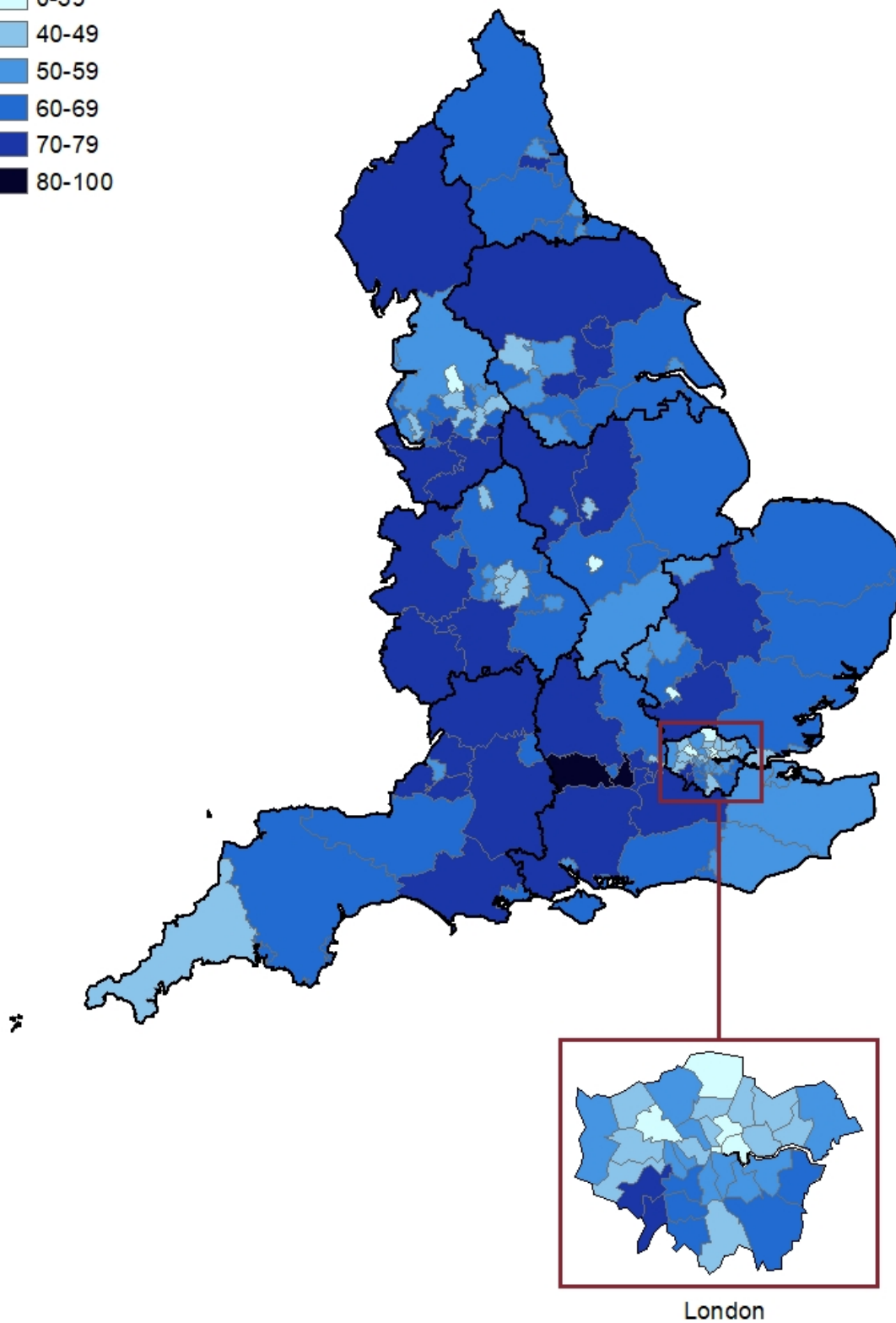
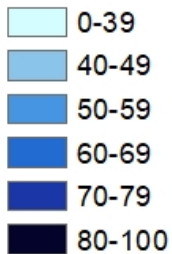
- 37.1% to 83% in Reception
- 37.2% to 83.6% in Year 1
- 37% to 83.7% in Year 2
- 35.9% to 83.1% in Year 3
- 35.2% to 80.3% in Year 4
- 32.3% to 81.4% in Year 5
- 30.5% to 78.7% in Year 6
- 21.3% to 87.6% in Year 7

Overall vaccine uptake for children in Reception to Year 7 combined was reported as lower than 40% in 8 LAs. This is a slight decrease from the 2019 to 2020 season where 9 LAs reported less than 40% vaccine uptake for children in Reception to Year 6 combined (6).



**Figure 5. Vaccine uptake (%) in school years Reception to Year 7 for the 152 local authorities and 9 PHE centres, collected between 1 September 2020 and 31 January 2021**

**Vaccine Uptake %**



## Discussion

This is the seventh report evaluating uptake in the national childhood influenza school vaccination programme across England. This season saw the extension of the childhood vaccination programme to include children of school Year 7, aged 11 rising to 12 years old. From September 2020, LAIV was offered to all healthy children in school years Reception to Year 7 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 GP practices<sup>iv</sup>.

Across year groups 1 to 6, the uptake of influenza vaccine was equal to or higher than it was in the 2019 to 2020 season despite the implementation challenges due to the COVID-19 pandemic and national lockdowns. At the national level, vaccine uptake in all year groups was above 55% which is a testament to the hard work of commissioners and providers who work in partnership with local stakeholders to deliver a successful programme.

The national ambition for every LA for the 2020 to 2021 flu season was an average uptake of at least 75% across all years (Reception to Year 7) (5). Of 152 LAs in England, 15 (9.9%) had an uptake of 75% or more, 103 (67.8%) had an uptake in the range 50% to 74% and 34 LAs (22.4%) had uptake lower than 50%.

For the first time, all children in Year 7 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 6 seasons of vaccine uptake decreasing as age increases in school-aged children.

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 2020 to 2021 childhood flu vaccination programme show encouraging levels of influenza vaccine uptake in children from reception to school Year 7 in England. It is important to build on this and continue to monitor uptake in all current groups going forward.

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<sup>iv</sup> Seasonal flu vaccine uptake in GP patients: monthly data, 2020 to 2021

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- all NHS school age vaccination providers who participated in, delivered and supported the childhood influenza vaccination programme uptake collection for 2020 to 2021
- all data providers, the child influenza taskforce and NHS England public health commissioning team colleagues (including screening and immunisation influenza coordinators and others)
- the ImmForm helpdesk and development team that provided and supported the online survey

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