Public Health England

Protecting and improving the nation's health

Seasonal influenza vaccine uptake in GP patients: winter season 2016 to 2017

Final data for 1 September 2016 to 31 January 2017

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Published: May 2017
PHE publications
gateway number: 2017044

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Executive summary

The PHE Influenza Surveillance Team has responsibility to co-ordinate and facilitate the national collection and reporting of data on the uptake of the influenza vaccine. This document describes the final influenza vaccine uptake for the seasonal influenza vaccination programme in GP registered patient population for vaccine eligible groups in England between 1 September 2016 to 31 January 2017 using the ImmForm website.

Survey response

The Seasonal Influenza Vaccine Uptake GP practice survey was split into a Main GP Survey and Child GP survey in the 2016 to 2017 season. A total of 7,296 out of 7,436 of all GP practices in England responded to the Main GP survey (98.1%). A total of 7,240 out of 7,436 of all GP practices in England responded to the Child GP survey (97.4%).

GP practices in England cover all 13 Local NHS teams returning data for the final January 2017 survey on cumulative influenza vaccinations administered from 1 September 2016 to the end of 31 January 2017.

National vaccine uptake

The percentages for national vaccine uptake:

- those aged 65 years and over was 70.5%, this was a slight decrease from 71.0% in 2015/16, however the number of vaccinations has increased overall
    - those aged six months to under 65 years in one or more clinical at-risk groups uptake was 48.6%, this increased from 45.1% in 2015/16, with the total number of vaccinations similar
    - clinical at-risk uptake by age ranged from 19.5% in the six months to under two years age category to 50.0% in the two to under five years age category
    - clinical at-risk group(s) uptake ranged from 38.2% in patients with asplenia to 64.7% in patients with diabetes
- all pregnant women was 44.9%, this increased from 42.3% in 2015/16
- all the children cohorts, those aged two, three and four years have seen an increase in uptake as well as an increase in the actual number of vaccinations given compared to last year.
    - all two-year-olds was 38.9%
    - all three-year-olds was 41.5%
    - all four-year olds was 33.9%
- uptake for carers was 41.9%

Background

The purpose of the traditional seasonal influenza immunisation programme for England is to offer protection to those who are most at risk of serious illness or death should they develop influenza. In 2014, the Joint Committee on Vaccination and Immunisation (JCVI) recommended the roll-out of a universal childhood influenza vaccine programme with a newly licensed live attenuated influenza vaccine (LAIV). The childhood LAIV programme, which was first implemented in 2013 to 2014, continued its roll-out in 2016 to 2017, targeting two to four year olds in primary care and all children of school year 1, 2 and 3 age for the first time across the England. Ultimately this programme will target all children two to 17 years of age[1] with the aim to both directly protect the vaccinated children themselves and by reducing influenza transmission, indirectly to protect the rest of the population including those at elevated risk of the severe consequences of influenza infection.

NHS England has responsibility for commissioning the influenza programme with GPs, midwives, and other healthcare professionals. Immunisation managers and co-ordinators also play a key role in delivery[2]. NHS England Area Teams (ATs) or clinical commissioning groups (CCGs) act on behalf of ATs to ensure that plans are in place.

The PHE Influenza Surveillance Team has responsibility to co-ordinate and facilitate the national collection and reporting of data on the uptake of influenza vaccine.

The ImmForm collection monitors, tracks and reports provisional vaccine uptake weekly and monthly during the influenza season to provide a snapshot of the vaccination status in eligible groups who are registered at the GP practice on the day of data extraction. This end-of-season campaign report provides the final uptake figures. The data collection survey for influenza immunisation in England is not designed to assist GP practice payments.

The programme for 2016 to 2017 was announced in the annual flu letter jointly issued to the NHS by Public Health England (PHE), the Department of Health (DH) and NHS

[1] Joint Committee on Vaccination and Immunisation. Meeting minutes, 5 Oct 2011. London. Available from: http://webarchive.nationalarchives.gov.uk/20120907090205/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@ab/documents/digitalasset/dh_133598.pdf

[2] NHS England has agreed responsibilities for commissioning the influenza programme under Section 7A agreement with the Secretary of State for Health. This describes in one place NHS England's public health responsibilities under that agreement as well as responsibilities arising from NHS England's duties to secure primary medical services for the population which includes securing influenza services under the Primary Medical Services (Directed Enhanced Service) Directions (the 'DES'). www.gov.uk/government/uploads/system/uploads/attachment_data/file/127322/Primary-Medical-Services-Directed-Enhanced-Services-Directions-20163.pdf.pdf

England on 26 May 2016[3]. It was recommended that influenza vaccine be offered to the following eligible GP patient groups[4]:

- all patients aged 65 years and over
- all patients aged six months to under 65 years, in a clinical at-risk group
- all patients aged two, three and four years
- all pregnant women
- carers (aged under 65 years, not at-risk, not pregnant and fulfils the 'carer' definition[5])
- all patients in school years 1, 2 and 3 (aged 5 rising to 8 year olds) commissioned primarily via a school-based programme, although in a few areas vaccinations were delivered through alternative schemes such as community pharmacies and GP practices[6]

The ambition for vaccine coverage in 2016 to 2017 is to reach or exceed 75% uptake for people aged 65 years and over as recommended by the World Health Organization (WHO).

This report describes the cumulative data on vaccine uptake eligible GP patient groups in the GP-registered population in England[7]. The data gathered in February 2017 for the final cumulative January survey are presented in this report was gathered from GP practices online via the web-based reporting system, ImmForm. Uptake is shown by different eligible and clinical at-risk groups and by age, with comparisons to uptake achieved in previous season's collections.

[3] The annual flu letter is accessible from the following link on the GOV.UK website (gateway reference 2016027);https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/529954/Annual_flu_letter_2016_2017.pdf

[4] For further description and detail regarding patient groups eligible for influenza vaccine see Appendix A of the annual flu letter, link above.

[5] The definition of a carer can be found in the annual flu letter, link in footnote 5.

[6] There is a specific report dedicated to the National Childhood Influenza Vaccination Programme can be accessed via https://www.gov.uk/government/collections/vaccine-uptake#seasonal-flu-vaccine-uptake-figures

[7] People who are currently registered at the GP practice on the day of data extraction. Therefore, the survey will not include vaccinations given to patients who have since moved practice or who have died, but will include those vaccinated by another healthcare provider (provided the GP patient electronic record is updated).

Methods

Cumulative data on seasonal influenza vaccine uptake were collected for all GP practices in England between 1 September 2016 to 31 January 2017 using the ImmForm website hosted by Infomax Ltd. ImmForm provides a secure online platform for vaccine uptake data collection for several immunisation surveys, including the seasonal influenza vaccine uptake collection.

The data collections comprise of:

- a weekly sentinel survey from GP practices, using an automated XML bulk upload or web service only. This allows almost 'real time' monitoring of the programme at a national level from week ending 6 September 2016 to week ending 31 January 2017
- four monthly surveys from all practices (ie automatic and manual submissions) on vaccinations up to end October, end November, end December and end January (with collection starting from November 2016 through to February 2017), to provide more complete data[8]

Data on influenza vaccine uptake were submitted by GP practices and/or AT immunisation influenza coordinators in England. Data was submitted on the ImmForm website either via an automated extraction (XML bulk upload or a web service) provided by GP IT software suppliers who extract data directly from GP practice computer systems[9] or a manual upload. Automated data extraction results in an almost zero burden on GP practices in providing the data, reducing the burden on GP practices and ATs and eliminating the typographical and transcription errors that may occur with manual data entry.

The dataset and details of the survey can be found on the GOV.UK website via https://www.gov.uk/government/publications/seasonal-influenza-vaccine-uptake-gp-patient-survey-data-collection

The 2016 to 2017 influenza vaccine uptake (GP patient survey) data collection received approval from the Standardisation Committee for Care Information (SCCI)[10], the national gateway body for care information collection requests.

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[8] The first collection was the 'October' survey which took place at the start of November 2016 for data on vaccinations administered from 01/09/2016 up to end 31/10/2016. The second was the 'November' survey which took place at the start of December 2016 for data on vaccinations administered from 01/09/2016 up to end 30/11/2016. The third was the 'December' survey which took place at the start of January 2017 for data on vaccinations administered from 01/09/2016 up to end 31/12/2016 and the final collection was the 'January' survey which took place in February 2017 for cumulative data on vaccinations administered from 01/09/2016 up to end 31/01/2017.

[9] The source of data is from GP practice systems only. It is assumed that vaccinations given in other settings by other healthcare providers (eg pharmacies, schools, special clinics) will be recorded onto GP systems in a timely manner. However, some vaccinations may be missed by the survey when recording onto a GP system, which may be more challenging or slow (eg vaccinations of travelling communities or homeless) or where patients are not registered.

[10] SCCI for this survey can be found here: https://groups.ic.nhs.uk/SCCIDsupport/dashboard/SAC/SCCI2211/2211562016sac.pdf

ImmForm

Influenza vaccine uptake data are submitted via the ImmForm website (www.immform.dh.gov.uk). Data is submitted at GP practice level and can then be aggregated at CCG, AT or national [England] level as required.

During the data collection period the NHS was able to use specific tools and functions available on the ImmForm website to enable local and regional management of the influenza programme. These functions include the ability to:

- view and evaluate influenza vaccine uptake rates by cohort broken down by age band and risk category allowing data providers to review and assess progress for their own area (ATs and CCGs can view data for all practices within their area)
- validate the data at point of entry and correct any errors before the end of the data submission period
- view uptake data at GP practice level compared to the CCG average and data from previous influenza seasons to compare with the current programme
- allow ATs to view a ‘non-responder’ report which highlights those GP practices within the AT who have failed to submit data thus allowing the AT to follow-up with these practices to obtain and submit outstanding data

Data limitations

Denominator data for some dataset categories should be interpreted with caution due to data validation and data quality issues. A summary of these limitations is discussed below.

Snapshot of influenza vaccine uptake data

It is important to note that influenza vaccine uptake data presented in this report is only a snapshot of the registered GP patients vaccinated at the time of data extraction/end of the data collection on 31 January 2017. This data will, therefore, not include patients who have received the vaccine but have subsequently died, who have since moved, those reaching the age of six months, women becoming pregnant, patients changing clinical status (ie 'joining' or 'leaving' a clinical risk group), patients changing carer status and 'temporary'[11] patients who may have received the vaccine but were not registered on the date of data extraction.

Consequently, patients who are vaccinated, but have not had their electronic patient record updated by the time of data extraction, will be included within the denominator, but will not be included in the count of 'number vaccinated'. This will also exclude the prison population, unless they were registered with a GP practice at the time of data extraction and their vaccination details were recorded on their primary care electronic record.

Pregnant women data: denominator variance

Since the introduction of the pregnant women category to the routine influenza vaccination programme, there have been difficulties in determining an accurate denominator through electronic means for this group of patients because of the complexities in the way pregnancy is recorded and coded on local clinical systems in primary care. Consequently, monitoring vaccine uptake by pregnant women is particularly challenging and the context in which this data should be interpreted needs to consider the following conditions:

- the dynamic nature of the group with women continually entering and leaving the risk group
- the number and variable use of Read codes that can be used to identify pregnant women
- the delay in updating the individual's electronic GP clinical record following birth or loss of pregnancy

In relation to the last point, it is noted that there may be appreciable delays in GP practices updating records to reflect coding of pregnant women and/or changes in pregnancy

[11] If there is an increase in temporary patients that falls by the time of the final data collection then this will not be recorded. This would only affect the total number of patients vaccinated but would not affect overall vaccine uptake rates unless proportionally more temporary residents were vaccinated than permanent residents.

outcomes following birth or loss of pregnancy. Therefore, women who were no longer pregnant by 1 September 2016 may have been included in the denominator in error, due to the inaccuracy of the electronic record. It is likely therefore, that influenza vaccine uptake by pregnant women is underestimated due to denominator inflation, although the scale of the underestimation is not clear and could vary considerably between GP practices[12].

Vaccination in other healthcare settings

This season the number of patients vaccinated in a school, pharmacy and other healthcare setting was also recorded. However it is important to note that recording of vaccinations given in another healthcare setting outside of the GP practice does not come under an existing information standard, therefore location recording can vary among GP practices and GP IT suppliers. In 2016 to 2017 community pharmacies were commissioned to administer influenza vaccinations to those aged 65 and over and any patient aged 18 to under 65 in a clinical risk group.

While the number of vaccinations reported as given in pharmacies can be taken as correct because there is a specific Read code associated with this, there is likely to be a lag in data being fed back into the GP record. Other healthcare settings for the pregnant women cohort seem to be relatively high and likely to be attributed to vaccinations administered by midwifery services.

The development of improved data transfer will be important to ensure accurate and timely data is fed back into the GP record and to reduce the administrative burden on GP practices.

As there is no Read code for ‘vaccinated in school,’ this was based upon an assumption that all five and six years olds vaccinated outside of the GP practices will have been vaccinated in a school if not otherwise coded as ‘vaccinated in a pharmacy’. Due to clear problems with data reaching the GP record, the cohort for this survey remains experimental until data flows between the Child Health Information Systems and GP records[13] have been improved.

[12] For further details of pregnancy data limitations, please see the GP survey user guide which can be found here: https://www.gov.uk/government/publications/seasonal-influenza-vaccine-uptake-gp-patient-survey-data-collection

[13] Results for the LAIV programme in primary school aged children will be available in a separate report based on manual returns from Local NHS Teams. The National Childhood Influenza Vaccination Programme report can be accessed via https://www.gov.uk/government/collections/vaccine-uptake#seasonal-flu-vaccine-uptake-figures

Results

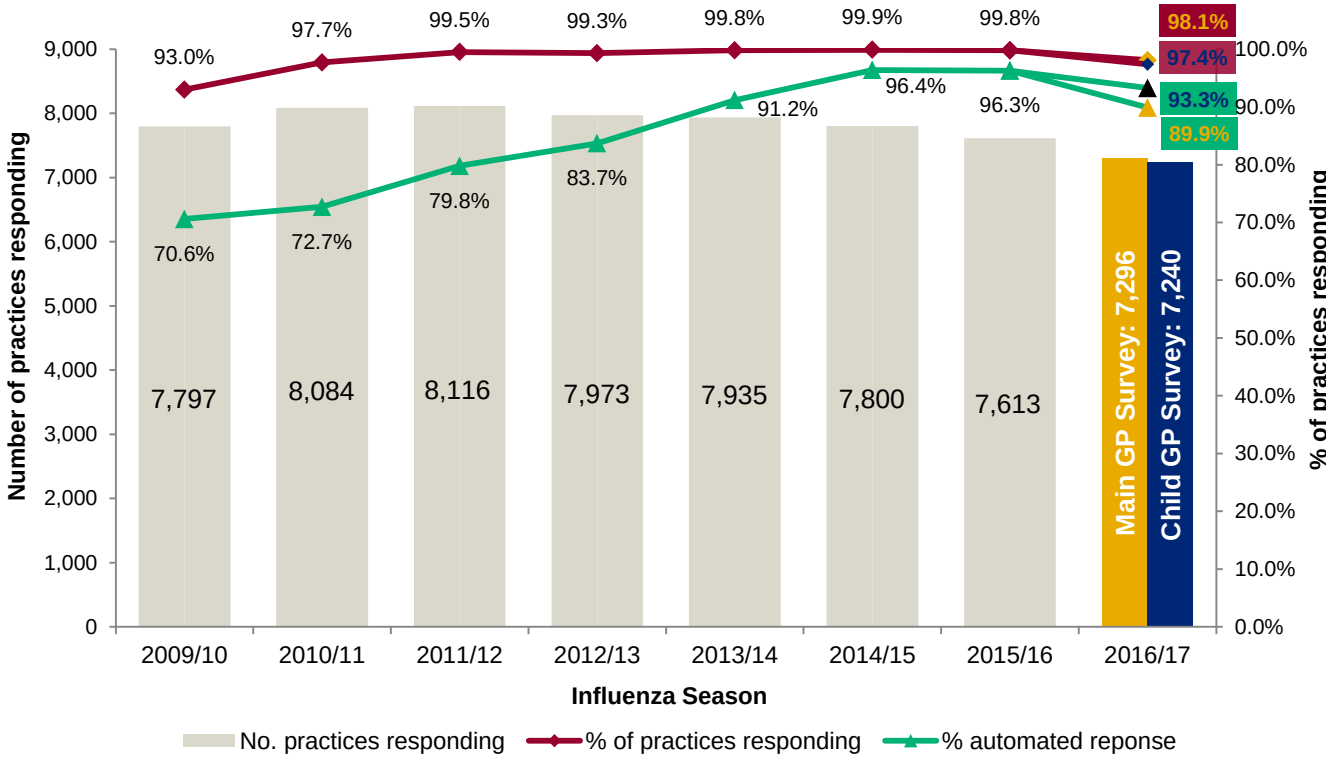
Full data tables showing final influenza vaccine uptake for each of the recommended target groups at AT and CCG level described in the results section of this report are available to access at the following link:
www.gov.uk/government/collections/vaccine-uptake

GP practice response

The Seasonal Influenza Vaccine Uptake GP practice survey was split into a Main GP Survey and Child GP survey[14] in 2016 to 2017. 7,296 out of 7,436 of all GP practices in England responded to the Main GP survey (98.1%). 7,240 out of 7,436 of all GP practices in England responded to the Child GP survey (97.4%) (Figure 1):

- 28% of ATs (7/25) achieved a response rate of 100% for their GP practices in the Main GP Survey and 20% of ATs (5/25) for the Child GP Survey
- 69.7% of CCGs (147/211) achieved a response rate of 100% in the Main GP Survey and 67.3% of CCGs (142/211) for the Child GP Survey

Figure 1 Number and percentage of GP practices responding in 2016 to 2017 compared with recent survey years.



[14] The dataset and details of the survey can be found on the GOV.UK website via https://www.gov.uk/government/publications/seasonal-influenza-vaccine-uptake-gp-patient-survey-data-collection

Data entry/extraction methods:

- there was a decrease in the number of successful automated data extractions provided by GP IT software suppliers due to an increased number of data validation errors on behalf of the GP IT software suppliers. This resulted in an increased demand for manual uploads resulting in the lower response rates compared with recent years (Figure 1)
- manual submissions amounted to 9.1% (677/7,436) of GP practices which is more than double the number of manual uploads compared to last season when manual uploads made up 3.5% of the submissions (263/7,630)

Weekly versus monthly vaccine uptake comparison (provisional data)

The following points were noted:

- weekly and monthly data were overall in good agreement, with the provisional national results from the four monthly returns closely matching their weekly equivalent, confirming that the weekly sentinel collection is an excellent indicator of uptake at a national level
- the weekly sentinel survey only used automated extracts, on average over 75% of GP practices submitted data . The response rate ranged from 81.3% in week 41 for the main GP survey to 94.2% in week 2 for the child GP survey. The low response in week 41 was down to technical issues from two suppliers at the start of the season who resubmitted their data due to validation errors

GP registered population

Overall extrapolated numbers of registered GP patients in England have increased by 1.3% for 2016 to 2017. This is slightly higher than the Office for National Statistics (ONS) mid-year estimates of 0.9% (for 2015).

GP registered population for those aged 65 and over has increased by 1.5% which is in line with the ONS Mid-Year estimates for the same age group of 1.8% increase. GP registered population for those aged six months to under 65 years has increase by 1.3%, this is higher than the ONS Mid-Year estimates for those aged zero to 64 years of 0.7% increase.[15]

[15] For more information on denominator definitions see the GP user guide for the survey and the following link for the ONS estimates: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/methodologyguideformid2015ukpopulationestimatesenglandandwalesjune2016

Patients aged 65 years and over

Vaccine uptake in patients over 65 years was 70.5% in 2016 to 2017, a slight decrease from 71.0% in 2015 to 2016[16].

The extrapolated estimate of the number of patients aged 65 years and over registered at a GP practice who would have been vaccinated by end of January 2017, was over 7.1 million (n=7,149,036) [17].This is an increase of over 60,071 patients vaccinated aged 65 and over compared to 2015 to 2016 (n=7,088,965) (Table 1, Figure 2 and Figure 3).

The following results were achieved for patients aged 65 years and over[18]:

- uptake by AT ranged from the lowest at 65.1% (London[19]) to the highest at 74.0% (Cheshire, Warrington and Wirral)
- uptake by CCG ranged from the lowest at 48.6% (Waltham Forest) to the highest at 78.7% (Rushcliffe)
- no ATs achieved the WHO target uptake rate of 75% or more
- 15 CCGs achieved the WHO target uptake rate of 75% or more which is slightly less than last season (17 CCGs).

Patients aged six months to under 65 years in a clinical at-risk group

Vaccine uptake in patients six months to under 65 years in a clinical at-risk group increased from 45.1% in 2015 to 2016 to 48.1% in 2016 to 2017 (Table 1)[18, 19, 20].

The extrapolated estimate of the total number of patients aged six months to under 65 years in a clinical at-risk group who would have been vaccinated (assuming 100% of GP practices had returned data) by end of January 2017, was just under 3.1 million (n= 3,061,507), a similar number compared to 2015 to 2016[20]. (See Table 1, Figure 2 and Figure 3)**.**

The following results were achieved for patients aged six months to 65 years:

- uptake by AT ranged from the lowest of 43.4% (Essex) to the highest at 53.3% (Greater Manchester)

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[16] National figures compared to last year can be found in the accompanying data tables.

[17] This figure is extrapolated based on the actual number of patients registered in this cohort. It is calculated by assuming a 100% response rate from GP practices and assuming that there are no differences in the size of GP practices returning data compared to those that are not, so this figure should be regarded as an estimate.

[18] See the Appendix for data by PHE Centre.

[19] The second lowest uptake in patient aged 65 years and over was in Essex with 67.2%.

[20] This figure is extrapolated based on the actual number of patients registered in this cohort. It is calculated by assuming a 100% response rate from GP practices and assuming that there are no differences in the size of GP practices returning data compared to those that are not so this figure should be regarded as an estimate.

- uptake by CCG ranged from the lowest at 34.3% (Leeds West) to the highest at 61.2% (Stockport).

Table 1 Actual and extrapolated estimate of number of patients registered and who received influenza vaccine during the 2016 to 2017 vaccine uptake campaign

Target groups for vaccination*	Number of patients registered	Number of patients vaccinated	% vaccine uptake
Aged 65 and over	**9,946,930**	**7,014,439**	**70.5**
Aged 65 and over extrapolated	10,137,798	7,149,036	70.5
Aged 6 months to under 65 years in a clinical risk group (excluding pregnant women without other risk factors and carers)	**6,175,910**	**3,003,867**	**48.6**
Aged 6 months to under 65 years in a clinical risk group (excluding pregnant women without other risk factors and carers) extrapolated	6,294,417	3,061,507	48.6
Total actual (65+ and under 65 at risk)	**16,122,840**	**10,018,306**	**62.1**
Total extrapolated (65+ and under 65 at risk)	16,432,215	10,210,543	62.1

*This does not include frontline health and social care workers who were also eligible to receive influenza vaccine in the 2016 to 2017 vaccination campaign (unless they were vaccinated at the GP practice and their vaccination details were entered on their GP practice's electronic record). Vaccine uptake data for frontline healthcare workers are collated in a separate survey and reported separately[21]

[21] Available at the following link; www.gov.uk/government/collections/vaccine-uptake

Figure 2 Influenza vaccine uptake for those aged 65 and over and 65 at risk from 2000 to 2001 through to 2016 to 2017 for England.

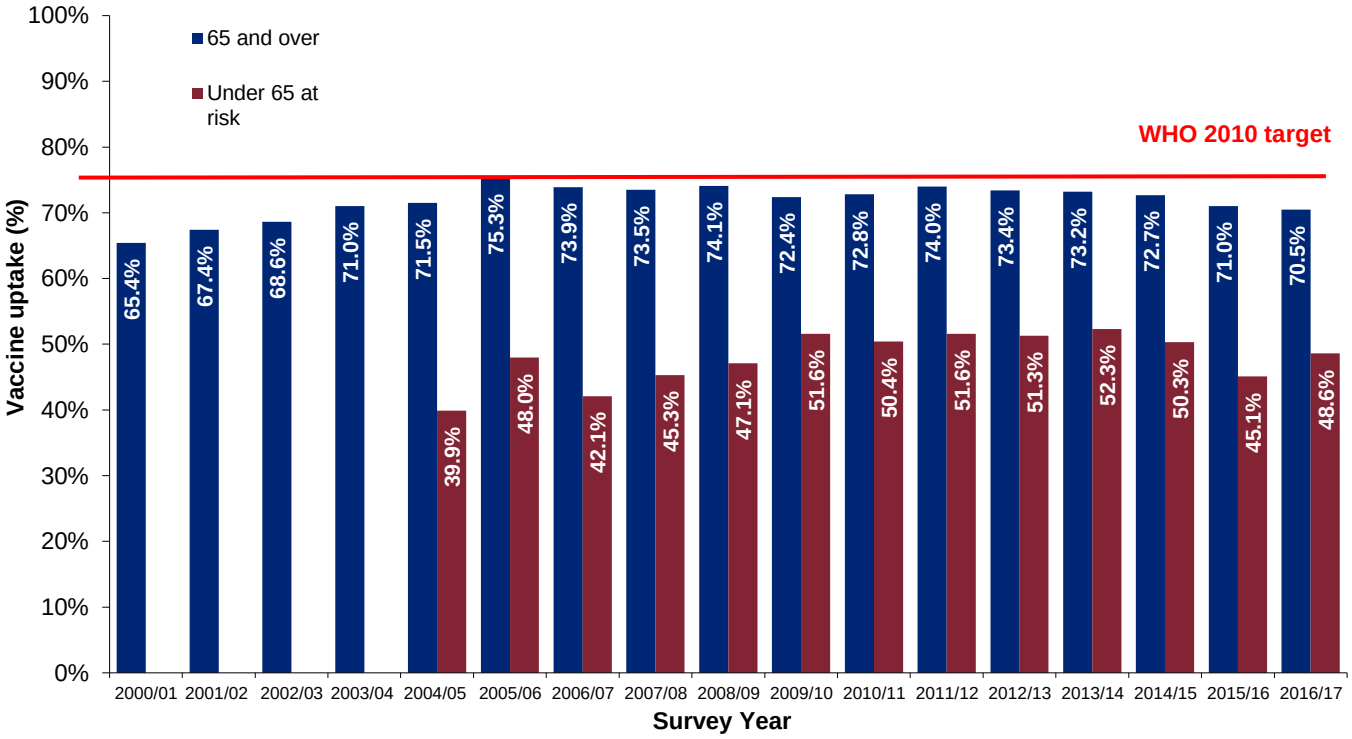
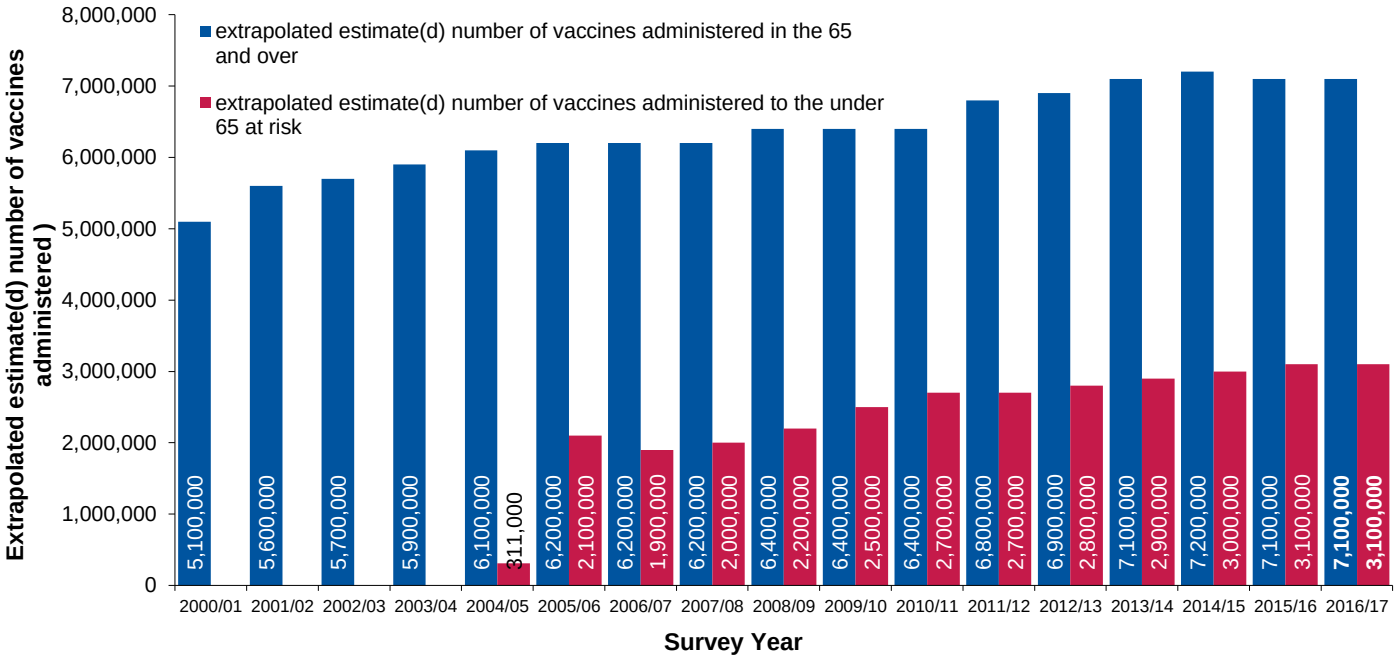


Figure 3 Extrapolated estimate(d) number of vaccines administered in the 65 and over, and under 65 at-risk for each survey year between 2000 to 2017 (cumulative data to end of January 2017) based on 100% GP response.



Pregnant women[22]

Vaccine uptake in pregnant women increased from 42.3% in 2015 to 2016 to 44.9% in 2016 to 2017[23]. There were less pregnant women this year than last year, so although the uptake has increased, the extrapolated number of vaccinations administered is similar compared to 2015 to 2016.

Table 2 Actual and extrapolated estimate number of pregnant women registered and who received an influenza vaccine during the 2016 to 2017 vaccine uptake campaign

Target groups for vaccination	Number of patients registered	Number of patients vaccinated	% vaccine uptake
All pregnant women (includes both healthy and at-risk women)	**654,336**	**293,745**	**44.9**
All pregnant women extrapolated	666,892	299,382	44.9
Pregnant women and in a clinical risk group	**67,058**	**39,367**	**58.7**
Pregnant women and **in** a clinical risk group extrapolated	68,345	40,122	58.7
Pregnant women not in a clinical risk group (otherwise 'healthy women')	**587,278**	**254,378**	**43.3**
Pregnant women **not in** a clinical risk group (otherwise 'healthy women') extrapolated	598,547	259,259	43.3

Regional and local vaccine uptake:

- uptake for all pregnant women by AT ranged from the lowest at 39.6% (London) to the highest at 50.5% (Durham, Darlington and Tees)
- uptake by CCG for all pregnant women ranged from the lowest at 28.7% (Hounslow) to the highest at 65.2% (Stockport)
- uptake in pregnant women in a clinical risk group was 58.7% - the lowest uptake by AT was 53.3% (Essex; and Kent and Medway) and the highest was 63.9% (South Yorkshire and Bassetlaw)
- uptake in pregnant women in a clinical risk group by CCG ranged from starting with the lowest at 40.7% (Central Manchester) to the highest at 78.1% (Stockport)
- uptake in pregnant women not in a clinical risk group was 43.3%, - the lowest uptake by AT was 38.3% (London) and the highest was 49.3% (Durham, Darlington and Tees)

[22] Data on the uptake of influenza vaccine by pregnant women need to be interpreted with caution as uptake can be underestimated due to denominator inflation See 'Data Limitations' section of this report for further details).

[23] National figures compared to last year can be found in the accompanying data tables.

All two year olds

Uptake in all two-year-olds was 38.9% in 2016 to 2017 which has increased from 35.4% in 2015 to 2016[24]. This increase was seen in both the at-risk and not at-risk cohorts. There was a slight decrease in the two year old population compared to last year but a genuine increase in the number of vaccinations.

For those aged two and not in a clinical risk group, uptake was 38.6% compared to 35.0% in 2015 to 2016. Vaccine uptake for those aged two and in a clinical risk group was 51.9% uptake compared to 48.3% in 2015 to 2016.

Table 3 Actual and extrapolated estimate number of two-year-olds registered and who received influenza vaccine during the 2016 to 2017 vaccine uptake campaign

Target groups for vaccination	Number of patients registered	Number of patients vaccinated	% vaccine uptake
All 2 year olds (includes both 'healthy and at risk)	**664,978**	**258,914**	**38.9**
All 2 year olds (includes both 'healthy and at risk) extrapolated	682,980	265,923	38.9
Aged 2 and in a clinical risk group	**17,029**	**8,836**	**51.9**
Aged 2 and **in** a clinical risk group extrapolated	17,490	9,075	51.9
Aged 2 and not in a clinical risk group	**647,949**	**250,078**	**38.6**
Aged 2 and **not in** a clinical risk group extrapolated	665,490	256,848	38.6

Regional and local vaccine uptake[25]:

- uptake for all two-year-olds by AT ranged from the lowest at 30.3% (London) to the highest at 48.2% (Bath, Gloucestershire, Swindon and Wiltshire)
- uptake by CCG ranged from the lowest at 21.6% (West London (K&C & QPP[26])) to the highest at 76.7% (Corby)
- uptake in two-year-olds in a clinical risk group by AT ranged from the lowest at 44.3% (London) and the highest was 58.9% (Bristol, North Somerset, Somerset and South Gloucestershire)
- uptake by CCG in two-year-olds in a clinical risk group ranged from the lowest at 21.9% (West London (K&C &QPP)) to the highest at 74.1% (Nottingham West)
- uptake in two-year-olds not in a clinical risk group by AT ranged from the lowest at 30.0% (London) and the highest was 48.0% (Bath, Gloucestershire, Swindon and Wiltshire)
- uptake by CCG for two-year-olds not in a clinical risk group ranged from the lowest at 21.8% (West London (K&C &QPP)) to the highest at 76.9% (Corby)

[24] National figures compared to last year can be found in the accompanying data tables.

[25] For combined 2, 3 and 4 year data by PHE Centre, see the Appendix section of this report.

[26] West London (Kensington and Chelsea and Queen's Park and Paddington) (K&C & QPP)

All three year olds

Uptake in all three-year-olds was 41.5% in 2016 to 2017 (Table 4) compared to 37.7% in 2015 to 2016[27]. Those aged three and not in a clinical risk group, uptake was 41.0% compared to 37.0% in 2015 to 2016. Vaccine uptake for those aged three and in a clinical risk group was 55.8% uptake compared to 52.3% in 2015 to 2016.

The extrapolated GP registered population for all three year olds is less than last year but we have seen an increase in the number of vaccinations compared to last year. When compared to the two year olds' uptake last year who would have been three year olds this year, the number of vaccinations increased.

Table 4 Actual and extrapolated estimate number of three-year-olds registered and who received influenza vaccine during the 2016 to 2017 vaccine uptake campaign

Target groups for vaccination	Number of patients registered	Number of patients vaccinated	% vaccine uptake
All 3 year olds (includes both 'healthy' and at risk)	**681,273**	**282,938**	**41.5**
All 3 year olds (includes both 'healthy' and at risk) extrapolated	699,716	290,598	41.5
Aged 3 and in a clinical risk group	**25,424**	**14,187**	**55.8**
Aged 3 and **in** a clinical risk group extrapolated	26,112	14,571	55.8
Aged 3 and not in a clinical risk group	**655,849**	**268,751**	**41.0**
Aged 3 and **not in** a clinical risk group extrapolated	673,604	276,027	41.0

Regional and local vaccine uptake[28]:

- uptake for all three-year-olds by AT ranged from the lowest at 32.6% (London) to the highest at 50.5% (Bath, Gloucestershire, Swindon and Wiltshire)
- uptake by CCG for all three-year-olds ranged from the lowest at 21.0% (West London (K&C &QPP)) to the highest at 62.8% (Rushcliffe)
- the lowest uptake in three-year-olds in a clinical risk group by AT was 48.5% (London) and the highest was 65.5% (Bath, Gloucestershire, Swindon and Wiltshire)
- uptake by CCG for three-year-olds in a clinical risk group ranged from the lowest at 23.8% (West London (K&C &QPP)) to the highest at 79.4% (Eastern Cheshire)
- the lowest uptake for three-year-olds not in a clinical risk group by AT was 32.1% (London) and the highest was 65.5% (Bath, Gloucestershire, Swindon and Wiltshire)
- uptake by CCG for three-year-olds not in a clinical risk group ranged from the lowest at 20.8% (West London (K&C &QPP)) to the highest at 62.5% (Rushcliffe)

[27] National figures compared to last year can be found in the accompanying data tables.

[28] For combined 2, 3 and 4 year data by PHE Centre, see the Appendix section of this report.

All four year olds

Uptake in all four-year-olds was 33.9% in 2016 to 2017 (Table 5) compared to 30.0% in 2015 to 2016[29]. Those aged four and not in a clinical risk group, uptake was 31.9% compared to 29.1% in 2015 to 2016. Vaccine uptake for those aged four and in a clinical risk group was 50.5% uptake compared to 47.3% in 2015 to 2016.

The extrapolated GP registered population for all four year olds increased since last year but we have also seen an increase in the number of vaccinations. When compared to the three year olds' uptake last year who would have been four year olds this year, the number of vaccinations increased for those in a clinical risk group but decreased slightly for those not in a clinical risk group.

Table 5 Actual and extrapolated estimate number of four-year-olds registered and who received influenza vaccine during the2016 to 2017 vaccine uptake campaign

Target groups for vaccination[30]	Number of patients registered	Number of patients vaccinated	% vaccine uptake
All 4 year olds (includes both 'healthy' and at risk)*	**701,401**	**237,645**	**33.9**
All 4 year olds (includes both 'healthy' and at risk) extrapolated	720,389	244,078	33.9
Aged 4 and in a clinical risk group	**32,837**	**16,578**	**50.5**
Aged 4 and **in** a clinical risk group extrapolated	33,726	17,027	50.5
Aged 4 and not in a clinical risk group	**646,162**	**206,223**	**31.9**
Aged 4 and **not in** a clinical risk group extrapolated	663,655	211,806	31.9

Regional and local vaccine uptake[31]:

- uptake for all four-year-olds by AT ranged from the lowest at 24.9% (London[32]) to the highest at 66.3% (Essex[33])
- uptake for all four-year-olds by CCG ranged from the lowest at 17.2% (West London (K&C &QPP)) to the highest at 76.3% (Corby)
- uptake for all four-year-olds in a clinical risk group by AT ranged from the lowest at 43.6% (London) to the highest at 57.9% (Bristol, North Somerset, Somerset and South Gloucestershire)

[29] National figures compared to last year can be found in the accompanying data tables

[30] 4 year olds in Essex AT were vaccinated via a school delivery programme for 2016/17 and therefore the breakdown for at-risk; and not at-risk figures were not available but Essex figures are included in the all 4 year old data

[31] For combined 2, 3 and 4 year data by PHE Centre, see the Appendix section of this report.

[32] The second lowest uptake in all four-year-olds by AT was in Lancashire with 28.1%.

[33] Essex used a school delivery model for the 4 year olds. The second highest via a GP delivery model was Bath, Gloucestershire, Swindon and Wiltshire with 42.2%.

- the lowest uptake in four-year-olds in a clinical risk group by CCG was 25.7% (Wyre Forest) and the highest was 87.3% (Corby)
- the lowest uptake in four-year-olds not in a clinical risk group by AT was 24.1% (London) and the highest was 41.5% (Bath, Gloucestershire, Swindon and Wiltshire)
- uptake by CCG for four-year-olds not in a clinical risk group ranged from the lowest at 16.7% (West London (K&C &QPP)) to the highest at 75.5% (Corby[34])

[34] The second highest uptake in four-year-olds not in a clinical risk group was 52.0% in Rushcliffe, 23.5% less than Corby CCG.

Patients aged six months to under 65 years at-risk: overall uptake in clinical risk groups

Uptake was 48.6% for all aged six months to under 65 years at-risk compared to 45.1% in 2015 to 2016 and 50.3% in 2014 to 2015.

Morbid obesity was added to the survey in 2016 to 2017. Although it is recommended as a risk group, it does not currently attract payment under the directed enhanced services (DES) for GP practices. Caution must therefore be taken when comparing the results to last year's data as the denominator was amended this year to only include patients with morbid obesity and an additional risk group to adjust for the denominator inflations seen in last year's data. Therefore patients who are vaccinated for other risk factors and have morbid obesity would attract payment under DES. The uptake has increased however the numbers of vaccinations are less than last year but when you take into account the number of vaccinations given to patients with morbid obesity and NO other clinical risk group(s) (which was collected separately this year), the number of vaccinations have increased overall.

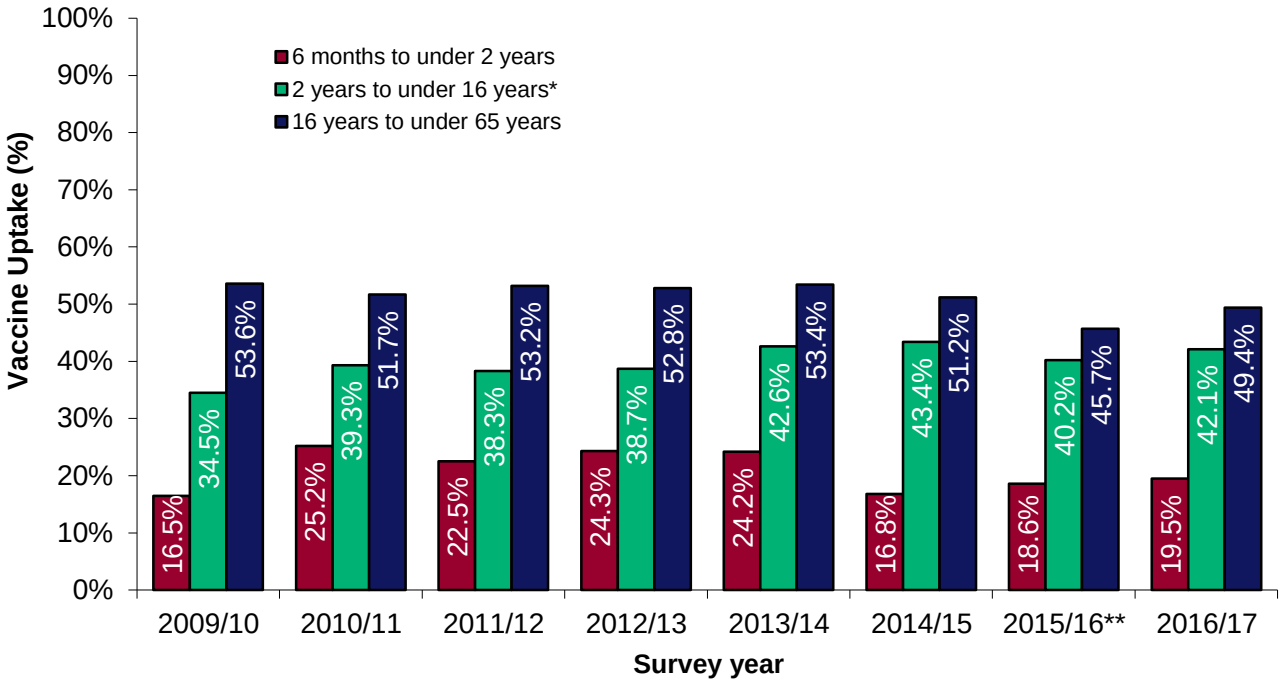
Table 6 Actual and extrapolated estimate number of patients all aged six months to under 65 years at-risk registered by age group and who received influenza vaccine during the 2016 to 2017 vaccine uptake campaign

Clinical at risk target groups for vaccination	Number of patients registered	Number of patients vaccinated	% vaccine uptake
Total Actual 6 months under 65 years	**6,175,910**	**3,003,867**	**48.6**
Total 6 months under 65 years extrapolated	6,294,417	3,061,507	48.6
6 months to under 2 years	**14,359**	**2,797**	**19.5**
6 months to under 2 years extrapolated	14,635	2,851	19.5
2 years to under 5 years	**71,858**	**35,910**	**50.0**
2 years to under 5 years extrapolated	73,237	36,599	50.0
5 years to under 16 years	**546,169**	**224,534**	**41.1**
5 years to under 16 years extrapolated	556,649	228,842	41.1
16 to under 65 years	**5,543,524**	**2,740,626**	**49.4**
16 to under 65 years extrapolated	5,649,896	2,793,215	49.4

Uptake by age for those aged under 65 years in a clinical risk group remained lowest in children aged six months to under two years at 19.5% however, this has increased slightly compared to last season (18.6% and 16.8% in 2014 to 2015) (Figure 3).

Uptake remained the highest in two years to under five years (50.0%) followed by the five years to under 16 year old group (41.1). In those aged 16 to under 65 years, uptake increased from 45.7% in 2015 to 2016 to 49.4% in 2016 to 2017.

Figure 4 Vaccine uptake in the under 65 at-risk by age group comparing recent survey years



*In 2014 to 2015 season, this was broken down into those aged 2 years to under 5 years old and 5 years to under 16 years old, see table 6 for break down

** In 2015 to 2016 only, patients with morbid obesity with no other clinical risk groups was included in the denominator but not for 2016 to 2017

Patients aged six months to under 65 years at-risk: uptake in individual clinical group(s) and age

Data represents on average 91.2% of all GP practices in England responding (6,783 / 7,436), who provided data across all optional at-risk group categories for the 2016 to 2017 vaccine uptake survey (Table 7, Figure 5). The lowest uptake by age band for the different risk groups are those aged six months to under two years for all groups. Last year, the only exception to this were those with chronic kidney disease where uptake was lowest for those aged five to under 16 years old.

The highest uptake overall was in patients with diabetes at 64.7%, although this is lower than the last two years (65.5% in 2015 to 2016 and 68.1% in 2016 to 2017). Across the age groups, patients with diabetes have the highest uptake except for the youngest age group, aged six months to under two years (where uptake was 23.4%). Patients with asplenia or dysfunction of the spleen had the highest uptake of 31.0% followed by patients with chronic kidney disease (24.6%) for those aged six months to under two years. The highest uptake by age for patients with diabetes was in those aged 16 to under 65 at 64.9% uptake which is a slight decrease from last year when uptake was 65.7%.

Table 7 Actual and extrapolated estimate number of all aged six months to under 65 years at-risk registered by risk group and who received influenza vaccine during the 2016 to 2017 vaccine uptake campaign*.

Age:	6months to under 2 years	2years to under 5 years	5 years to under 16 years	16 years to under 65		Total under 65 years
Risk group:	% Vaccine uptake					
Patients with Chronic Heart Disease	19.8	46.1	34.1	49.8		48.5
Patients with Chronic Respiratory Disease	24.4	56.0	44.3	49.1		48.5
Patients with Chronic Kidney Disease	24.6	44.3	35.5	53.5		53.2
Patients with Chronic Liver Disease	22.3	48.3	39.7	42.7		42.6
Patients with Diabetes	23.4	59.0	55.1	64.9		64.7
Patients with Immunosuppression	19.5	58.1	44.6	53.3		53.1
Patients with Chronic Neurological Disease (including Stroke/TIA, Cerebral Palsy or MS)	20.0	45.8	35.2	50.1		49.2
Patients with Asplenia or dysfunction of the spleen	31.0	50.6	34.1	38.5		38.2
Patients with morbid obesity (BMI>=40)[35]	-	-	-	29.6		30.4
Patients with morbid obesity (BMI>=40) AND in one or more clinical risk group	-	-	-	58.1		58.0
Patients with morbid obesity (BMI>=40) with NO other clinical risk group(s)[35]	-	-	-	15.1		15.2

* The highlighted figures show the highest (green) and lowest (red) uptake by age band for that clinical risk group.

Uptake in patients with chronic heart disease was 48.5%, similar to last year when uptake was 48.6%. There was an increase of 1.7% (~18,000 more patients) in the denominator

[35] These patients are not covered under Section 7a DES and therefore will not receive payment unless the patient has one or more other clinical risk factors.

for chronic heart disease than last year (this compares to an increase of 2.2% in the denominator last year). The extrapolated number of vaccinations has also increased by 7,576 compared to last year (an increase of 1.5% in the number of vaccinations compared to last year).

Uptake in patients with chronic respiratory disease was 48.5% compared to 47.4% last year. The population for this cohort decreased by -2.4% (~71,000 less patients) compared to previous increases of around 1% in 2015 to 2016. When comparing the extrapolated number of vaccinations for this cohort to last year, they are almost the same (difference of only 257 vaccinations).

Uptake for patients with chronic kidney disease was very similar to last year at 53.2% uptake compared to 53.3% last year. There was also a slight increase in the number of patients with chronic kidney disease (1.6% ~4,700 more patients) since last year.

Uptake for patients with chronic liver disease has remained at a similar uptake at 42.6% compared to 42.5% last year however the denominator has increased by 5.3% (~9,000 more patients) than last year but the number of vaccinations has also increased by 5.3% (4,218 more patients vaccinated) compared to last year.

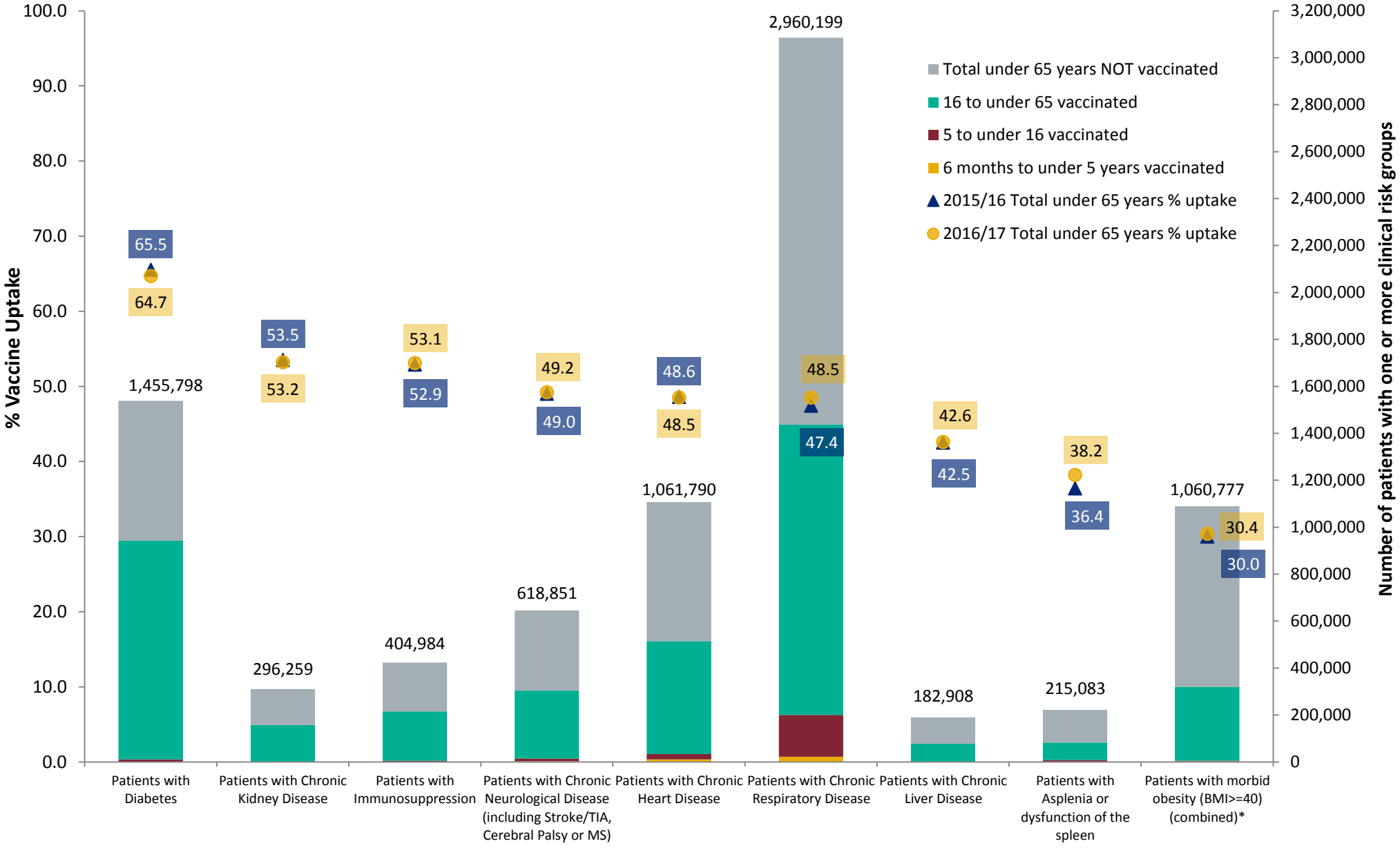
Uptake for patients with immunosuppression is very similar to last year, 53.1% uptake compared to 52.9% last year. The number of patients recorded in this population has increased by 4.5% (~17,500 more patients) as has, the number of vaccinations by 4.9% (9,981 more vaccinations).

Uptake for patients with degenerative neurological disease (including stroke/TIA and cerebral palsy or MS) was 49.2%; this was very similar to the uptake seen last year of 49.0%. The population has increased by 2.3% (~13,800 more patients) and the number of vaccinations has increased by 2.6% (7,706 more vaccinations).

Uptake for patients with asplenia or dysfunction of the spleen was 38.2%, an increase from last year's uptake of 36.4%. This population has increased by 6.5% (~13,000 more patients) and the number of patients vaccinated has also increased by 11.7% (8,612 more vaccinations) than last year. This group has had the largest percentage increase in the number of vaccinations and the largest increase in the denominator (excluding morbid obesity).

Morbid obesity was newly introduced as a recommendation in the Green book in 2015 to 2016, although it does not attract a GP payment. Morbid obesity with one or more clinical risk group(s) had a high uptake of 58.0%, the second highest uptake after those with diabetes due to the fact these patients have at least two conditions (i.e. morbid obesity and another clinical risk factor). Morbid obesity with NO other clinical risk group(s) currently has a low uptake of 15.2%. If we add the two morbid obesity groups together the uptake is very similar at 30.0% to the previous season. There was an increase of 8.1% to the denominator (~79,000 more patients) than last year but the number of vaccinations has also increased by 8.8% (25,837 more vaccinations) compared to last year.

Figure 5 Extrapolated estimate(d) population and number of vaccines administered in individual risk groups aged six months to under 65 for 2016 to 2017 (cumulative data to end of January 2017) with percentage vaccine uptake (based on 100% GP response).



*These patients are not covered under Section 7a DES and therefore will not receive payment unless the patient has one or more other clinical risk factors.

Carers

Vaccine uptake was higher this year at 41.9% compared to an uptake of 37.4% last year. 91.4% of GP practices returned data for this cohort (6,796/7,630).

'All patients'

The total number of all patients aged six months to under 65 years (including those in a clinical at-risk group) who received a vaccine by the end of January 2017, was over 5.7 million (n= 5,777,705), representing a 12.0% vaccine uptake. This is an increase compared with last season where just over 5.3 million (n= 5,310,649) were vaccinated, representing an 11.2% vaccine uptake rate. The majority of this increase in the number of vaccinations is in the five to under 16 year group which relates to the extension of the universal vaccination to all children of school years 1, 2 and 3 (5 rising to 8 year olds)[36].

The actual total number of patients aged six months to under 65 years who received a vaccine who were not in a clinical risk group by the end of January 2017, was 5.8% at approximately 2.7 million (n= 2,773,838). This is higher than the last two years where uptake was 5.5% (n=2,224,640) in 2015 to 2016; and 5.2% (n=2,131,420).in 2014 to 2015.

Table 9 Actual and extrapolated figures for 'All patients' who received influenza vaccine by age band during the 2016 to 2017 campaign.

Target groups for vaccination (includes those in a risk group and those not in a clinical risk group)	Number of patients registered	Number of patients vaccinated	% vaccine uptake
Total actual 6 months under 65 years	**47,049,260**	**5,668,926**	**12.0**
Total extrapolated 6 months under 65 years	47,952,069	5,777,705	12.0
6 months to under 2 years	**986,446**	**6,895**	**0.7**
6 months to under 2 years extrapolated	1,005,375	7,027	0.7
2 years to under 5 years	**2,041,367**	**703,964**	**34.5**
2 years to under 5 years extrapolated	2,080,538	717,472	34.5
5 years to under 16 years	**7,235,469**	**1,111,928**	**15.4**
5 years to under 16 years extrapolated	7,374,307	1,133,264	15.4
16 to under 65 years	**36,785,978**	**3,846,139**	**10.5**
16 to under 65 years extrapolated	37,491,849	3,919,941	10.5

[36] This is likely to be an underestimation as we know that not all vaccinations administered to children of school years 1, 2 and 3 (5 rising to 8 year olds) were returned to the GP record. There is a specific report dedicated to the National Childhood Influenza Vaccination Programme can be accessed via https://www.gov.uk/government/collections/vaccine-uptake#seasonal-flu-vaccine-uptake-figures

Refused/declined[37]

The rate of refusals has gone down for those aged 65 and over. The extrapolated numbers of refusals/ declines have decreased for all target groups compared to last year with the exception of those aged six months to under two years at risk and those aged two years to under five years where there was a very small increase in the number of refused/declined.

Table 10 Extrapolated number of registered patients who refused or declined the influenza vaccine during the 2016 to 2017 vaccine uptake campaign

Target groups for vaccination (extrapolated)	Number of vaccinations refused/declined	% of vaccinations refused/declined
Aged 65 and over	939,623	9.4
Total aged 6 months under 65 years at risk	597,389	9.7
6 months to under 2 years at risk	375	2.6
2 years to under 5 years at risk	2,560	3.6
5 years to under 16 years at risk	21,516	3.9
16 to under 65 years at risk	572,938	10.3
All pregnant women (includes both healthy and at-risk women)	28,986	4.4
Pregnant women and **in** a clinical risk group	4,646	6.9
Pregnant women **not in** a clinical risk group (otherwise 'healthy women')	24,340	4.1

[37] Caution should be exercised when looking at these figures as different GP IT suppliers use different ways of recording this and some may be collected via non-coded mechanisms.

Other healthcare settings

The majority of vaccinations are still delivered within the GP practices though there is a gradual increase in vaccinations outside of practice. The highest percentage of vaccinations outside of GP practices were given to patients aged 65 and over in pharmacies (5.6% of all 65 and over vaccinations). Vaccinations in pharmacy have increased for the adult and at risk groups but not for the children cohorts this year compared to last year.

The second highest percentage of vaccinations outside of GP practices were patients aged 4 years old vaccinated in schools.

Table 11 Extrapolated numbers of vaccinations and vaccine uptake by GP practices, pharmacies and other healthcare settings (OHS) in 2016 to 2017 vaccine uptake campaign.

Patient Group	Vaccine Uptake (%)	Delivered in GP practices (% of vaccine)	Delivered in pharmacies (% of vaccine)	Delivered in OHS (% of vaccine)	Delivered in schools (% of vaccine)
Patients aged 65 years or older	70.5	91.1	6.5	2.4	n/a
Patients aged 6 months to under 65 years in risk groups (excluding pregnant women without other risk factors)*	48.6	90.3	5.6	3.4	0.8
Pregnant women (including those in risk groups)	44.9	91.2	3.5	5.3	n/a
Patients aged 2 years old (including those in risk groups)	38.9	98.9	0.0	1.1	n/a
Patients aged 3 years old (including those in risk groups)	41.5	98.8	0.0	1.1	n/a
Patients aged 4 years old (including those in risk groups)**	33.9	92.6	0.0	1.0	6.4

*This may include some vaccinations given in school. **School delivery programme in Essex AT

This season the number of patients vaccinated in pharmacy and other healthcare settings was recorded. However, it is important to note that recording of vaccinations given in another healthcare setting outside of the GP practice does not come under an existing information standard, therefore location recording can be varied amongst GP practices and GP IT suppliers (see data limitations section of this report).

Discussion

The response rate for GP practices for the 2016 to 2017 survey[38] remains high despite the technical difficulties this year that resulted in a lower automated response at 98.1% for the main GP survey (7,296/ 7,436) and 97.4% for the child GP survey (7,240/ 7,436). Increasing the automated extraction process has been a key aspect of maintaining accurate surveillance as we have seen a decrease of 944 GP practices in England since 2009 to 2017 and as a result an increase in population per GP practice. The weekly sentinel surveillance has also once again proved to be beneficial in providing rapid data at national level to monitor the progress of the programme by giving a good indication of vaccine uptake rates with no additional burden to the NHS. Practices not using the system should encourage their suppliers to provide them with the capability to provide data automatically. In addition, ImmForm developments are underway to enhance the data visualisation capabilities and feedback of the system. This has been particularly helpful for areas viewing the weekly data online this season.

Although the uptake rate in those aged 65 years and over has remained relatively constant in the past few years, fluctuating between 70 and 75%, there was a slight decrease to 70.5% uptake this year. The decrease in uptake in this cohort was in part due to an increase in the denominator, with the number of vaccinations having increased overall. The recommended ambition for vaccination for those aged 65 years and over continues to be aligned with the WHO recommended target of 75%.

By the end of the 2016 to 2017 winter season, over 48.6% of people aged six months to under 65 years in a clinical risk group had been vaccinated against influenza. Although there was an increase in uptake on last year, the total numbers of vaccinations delivered to this group have remained very similar to last year.

Vaccine uptake in pregnant women was 44.9%. Although the uptake rate had increased, there were less pregnant women than last year and fewer vaccinations given overall. Midwifery services have a key role in maximising uptake amongst pregnant women. If influenza vaccine is offered through maternity services as part of routine care it is important that these immunisations are recorded in the individual's electronic GP record in a timely manner and that GP practices update patient records with their patient's pregnancy status to optimise data quality.

Vaccine uptake varies widely between disease groups and by age category for those with an underlying clinical risk factor six months to 65 years of age. The diabetes disease group continues to have the highest uptake rate at 64.7%. Following the recommendation from the JCVI and its inclusion in the Green Book, this season, we began recording patients with morbid obesity (BMI≥40). Vaccine uptake in patients with morbid obesity with one or

[38] The Seasonal Influenza Vaccine Uptake GP survey was split into a Main GP Survey and Child GP survey in 2016 to 2017 season.

more clinical risk group(s) was 58.0% which is encouraging as these patients are known for their increased risk of severe outcomes.

The childhood LAIV programme, which was first implemented in 2013 to 2014, continued its roll-out in 2016 to 2017, targeting two to four year olds in primary care and all children of school year 1, 2 and 3 age for the first time across the UK. Vaccinations for school years 1, 2 and 3 were delivered through schools and uptake in these cohorts have all increased on last year's figures; a separate report has been published on the GOV.UK website.

Acknowledgements

The authors would like to thank everyone that contributed to the data collection, specifically:

- all those who participated in and supported the influenza vaccine uptake collection (GP patient survey) for 2016 to 2017, principally GP practice data providers and area team/CCG screening and immunisation influenza coordinators in England
- the participation of GP IT software suppliers and third party suppliers in providing the reporting tools and services for their customers in particular; EMIS, InPS VISION, Microtest and The Phoenix Partnership (TPP), who enabled XML automated extracts of data
- the participation of the PRIMIS team based in Nottingham, who was commissioned to provide the Read Codes specification for this collection, a 2016 to 2017 influenza library.
- the ImmForm helpdesk and development team that provided and supported the online survey

Appendix

PHE Centres

The uptake for those aged 65 and over by PHE centre ranged from 72.9% (North West) to 65.1 (London). The uptake for those aged six months to under 65 and in a clinical risk group by PHE centre ranged from 46.5% (East of England) to 52.4% (North West). The uptake for those aged two, three and four years (combined) ranged from 33.3% (London) to 42.0% (East Midlands).

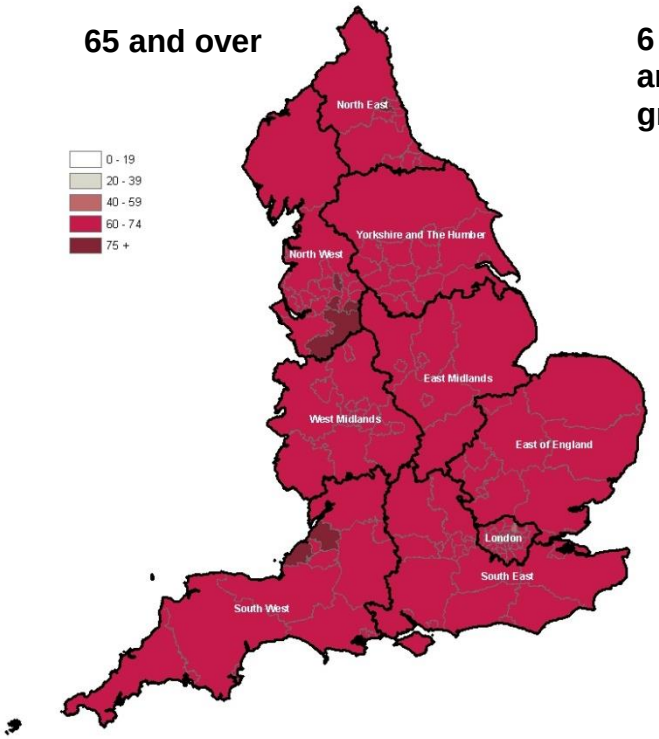
Final end of January 2017 cumulative uptake data for England on influenza vaccinations given from 1 September 2016 to 31 January 2017 by PHE Centre[39].

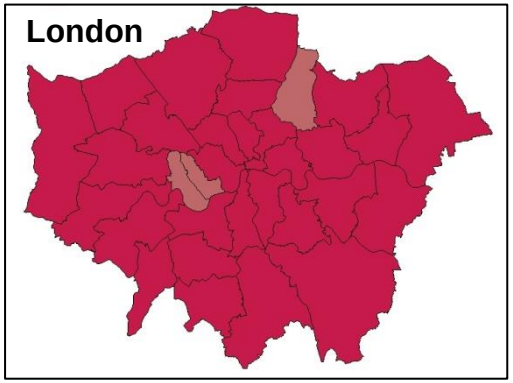
PHE Centre	Response Summary			65 years and over			6 months to under 65 years at-risk			All Aged 2, 3 and 4s		
	Number of practices	Number of practices responding	% of practices responding	Patients registered	Number vaccinated	% Vaccine Uptake	Patients registered	Number vaccinated	% Vaccine Uptake	Patients registered	Number vaccinated	% Vaccine Uptake
East Midlands	591	587	99.3	913,459	656,462	71.9	552,609	264,454	47.9	151,212	63,445	42.0
East of England	764	742	97.1	1,207,952	846,912	70.1	679,422	315,908	46.5	205,214	81,008	39.5
London	1,340	1,318	98.4	1,048,865	682,305	65.1	912,942	429,885	47.1	1,011,466	336,404	33.3
North East	376	354	94.1	486,749	352,440	72.4	310,490	153,581	49.5	101,430	35,252	34.8
North West	1,128	1,120	99.3	1,340,749	977,868	72.9	879,332	461,129	52.4	239,518	91,379	38.2
South East	969	962	99.3	1,693,202	1,188,839	70.2	905,856	438,221	48.4	216,187	89,770	41.5
South West	663	637	96.1	1,189,902	843,169	70.9	604,214	290,302	48.0	190,674	76,327	40.0
West Midlands	880	872	99.1	1,082,840	759,472	70.1	685,892	339,833	49.5	202,457	76,810	37.9
Yorkshire and The Humber	725	704	97.1	983,212	706,972	71.9	645,153	310,554	48.1	131,201	53,327	40.6
England	7,436	7,296	98.1	9,946,930	7,014,439	70.5	6,175,910	3,003,867	48.6	2,449,359	903,722	36.9

[39] These cohorts form part of the PHE Public Health Outcome Framework (PHOF) presented on the Fingertips' tool that is open to the public. Please note that 2016/17 data will only be available on the PHOF Fingertips tool in the August update: http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000043/pat/6/par/E12000004/ati/102/are/E06000015

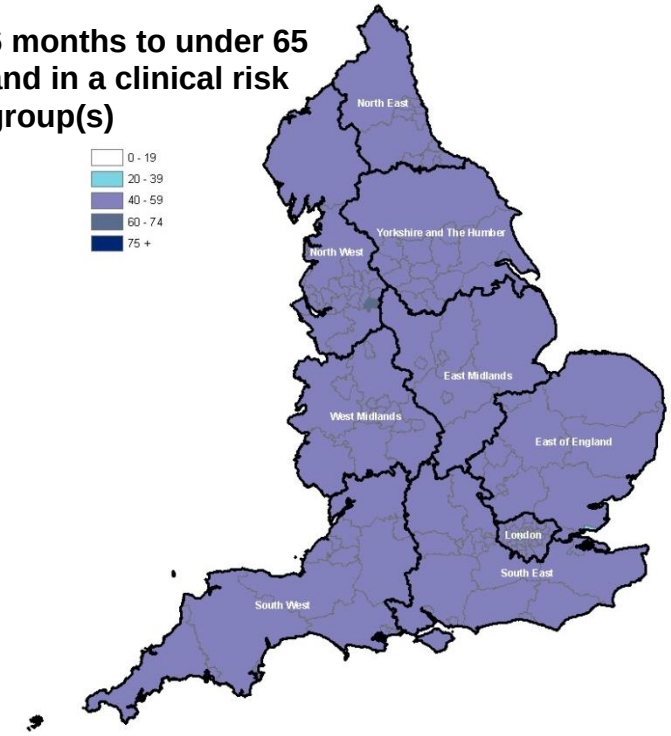
Final end of January 2017 cumulative uptake data for England on influenza vaccinations given from 1 September 2016 to 31 January 2017 by Local Authority and PHE Centre.

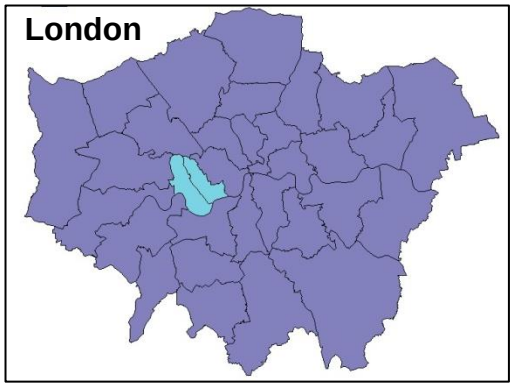
65 and over





6 months to under 65 and in a clinical risk group(s)





All 2, 3 and 4 year olds