



Public Health
England

Influenza Vaccine Uptake amongst GP Patient Groups in England

Winter Season 2012/13

**This collection received approval as a MANDATORY collection from the
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We were established on 1 April 2013 to bring together public health specialists from more than 70 organisations into a single public health service.

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Executive summary

The purpose of the influenza immunisation programme is to offer protection to those who are at most risk of serious illness or death should they develop flu.

The influenza vaccination programme for 2012/13 for England was set out in the Chief Medical Officer's (CMO) Letter published 3 May 2012.¹ It was recommended that trivalent influenza vaccine be offered to the following eligible groups of GP patients including:

- All those aged 65 years and over
- All those aged six months to under 65 years in a clinical at-risk group (defined in the CMO letter)
- Those who are in receipt of a carer's allowance, or those who are the main carer of an elderly or disabled person whose welfare may be at risk if the carer falls ill
- All pregnant women

Last year, the NHS was asked to put in place plans to achieve the following aspirational targets for vaccine coverage; to reach or exceed 75% uptake for people aged 65 years and over as recommended by the World Health Organisation (WHO), to reach or exceed 75% uptake for people under age 65 with clinical conditions which put them more at risk from the effects of flu. A reasonable trajectory was forecast for increases in uptake in clinical risk groups and pregnant women to be 60% in 2011/12, 70% in 2012/13 so that an uptake of 75% can be reached or exceeded in 2013/14.

In view of the need to protect vulnerable groups and increase uptake in individuals at-risk in order to reduce serious illness and death, vaccine uptake aspirations were maintained in 2012/13 and the NHS was asked to plan for the following; to reach or exceed 75% uptake for people aged 65 years and over and reach or exceed 70% uptake for people under 65 years in clinical risk groups, including pregnant women, as the second year of a three year trajectory to achieve uptake of 75% in these groups.

Public Health England coordinates the collection and reporting of national data on the uptake of influenza vaccine by these groups to:

¹ The CMO announced the influenza vaccination programme for 2012/13 in a letter published 3 May 2012 available to view from the GOV.UK website at the following link;
<https://www.gov.uk/government/publications/the-flu-immunisation-programme-2012-13>

- support assessment by the DH and NHS (previously SHAs and PCTs), of the management and delivery of the vaccination programme whilst the programme was running
- allow NHS (previously SHAs and PCTs) and the DH to assess local, regional and national delivery and compare with previous influenza vaccination programmes
- identify groups (by age and/or at-risk status) and geographical area where coverage is low (and high)
- provide epidemiological data to allow assessment of the impact and effectiveness of the influenza vaccination programme
- provide information to the public and ministers

Cumulative data on vaccine uptake were gathered from GP practices (for registered patients only) online via the ImmForm reporting website, entered either manually or through automated electronic uploads. The 2012/13 influenza survey comprised a weekly sentinel return and four monthly returns on cumulative vaccinations from 1 September 2012² up to end October 2012, end November 2012, end December 2012 and end 31 January 2013. Formal approval from the Review of Central Returns Steering Committee (ROCR) was received for the collection of this data from the NHS under the reference ROCR/OR/0113/FT6/005PMAND as a mandatory collection.

The influenza vaccine uptake survey is not designed to assess GP payments. The collection monitors and tracks vaccine uptake during the influenza season to provide a snapshot of 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 (if the electronic record is updated).

This report describes the uptake of trivalent influenza vaccine amongst eligible GP patient groups during the 2012/13 influenza vaccination programme in England. Data are shown by different eligible and clinical risk groups and by age bands, with comparisons made with vaccine uptake in previous season's collections.

² Although the vaccination programme does not start until 1 October, some practices receive vaccine supplies in September and may start their vaccinations before 1 October. Therefore for data collection purposes, data are sought for vaccinations from 1st September 2012 onwards.

Season 2012/13: Key results

Cumulative uptake on vaccinations administered from 1 September 2012 to end of 31 January 2013 from 99.3% (7,973/8,032) of GP practices in England, covering all 151 PCTs (including PCT-based Care Trusts), showed vaccine uptake of 73.4% for those aged 65 years and over and 51.3% for those aged six months to under 65 years in one or more clinical at-risk groups (excluding pregnant women without other risk factors and carers).

Uptake by pregnant women was 40.3%. Uptake by distinct clinical at-risk groups ranged from 42.9% in patients with chronic liver disease to 68.5% in those with diabetes. There was also considerable variation of uptake by age, for example, for those with chronic heart disease it ranged from 23.7% in the age group six months to under two years to 55.2% in the age group 16 to under 65 years.

Summary results by response rate and eligible group(s) are as follows:

Response rate (GP Practices)

Decreased slightly from 99.5% in 2011/12 to 99.3% in 2012/13

- All but four PCTs (147) achieved a response rate of 90% or more for their GP practices. The lowest uptake was 83.6% (down from 85.7% last season)
- 13 PCTs (9%) achieved a response rate between 90 and 99%
- All but six PCTs (145) achieved a response rate of 95% or more
- 134 PCTs (89%) achieved a 100% response rate

Data entry/extraction methods

- Automated upload: 83.7% of practices (6,676 out of 7,973 returning data) submitted data via an automated XML bulk upload or a web service upload; an increase on the number last year which was 79.8% (6,473 out of 8,116 practices returning data for 2011/12)
- Manual: 16.3% (1,297 out of 7,973 practices returning data) submitted manually i.e. directly typed data onto the website. This is a decrease on the number of manual practices last year, which was 20.2% (1,643 out of 8,116 practices returning data for 2011/12)

Vaccine percentage uptake (%)

Vaccine uptake [England] in patients aged 65 years and over was 73.4% a slight decrease on 2011/12 uptake of 74.0%

- Uptake by SHA ranged from 71.0% to 75.8% with seven out of ten SHAs achieving uptake rates equal or higher than the national average
- All but 16 PCTs (89%) achieved an uptake of 70% or more, with the highest uptake being 80.8%
- 42 PCTs (28%) achieved the World Health Organization (WHO) target uptake of 75% or more (compared with 53 PCTs in 2011/12)
- The lowest uptake in a PCT was 65.5% compared with 64.8% in 2011/12

Vaccine uptake [England] in those aged 6 months to under 65 years in one or more clinical risk group(s) decreased slightly from 51.6% in 2011/12 to 51.3% in 2012/13

- Uptake by SHA ranged from 48.3% to 55.2%, with five out of ten SHAs achieving uptake rates higher than the national average
- All but five PCTs (146) achieved equal to or more than 45% uptake, with the lowest uptake being 44.2% (compared with 43.4% in 2011/12)
- All but 57 PCTs (94) achieved equal to or more than 50% uptake (compared with 103 PCTs in 2011/12)
- 30 PCTs (compared with 26 in 2011/12) achieved equal to or more than 55% uptake. No PCTs reached the CMO aspiration of 70% however, 4 PCTs attained a rate of 60% or more, with the highest uptake achieved at 68.8% compared with 66.3% in 2011/12
- The lowest uptake by age band was 24.3% in those aged six months to under two years, a slight increase compared with 22.5% achieved in 2011/12. The highest uptake was 52.8% in those aged 16 to under 65 years in a clinical risk group. This was a decrease on the 2011/12 uptake recorded at 53.2%
- Uptake by individual risk group ranged from 42.9% among patients with chronic liver disease to 68.5% among those with diabetes
- Uptake by individual risk group and age was lowest in children aged six months to under two years with chronic degenerative neurological disease (including stroke/TIA, cerebral palsy or MS) at 18.6%, chronic heart disease at 23.7% and chronic respiratory disease at 28.5%.

Vaccine uptake [England] in pregnant women was 40.3%, a huge increase on the uptake achieved in 2011/12 which was 27.4%

- Uptake by SHA ranged from 35.1% (increase on 23.3% in 2011/12) to 44.1% (increase on 33.7% in 2011/12), with seven out of ten SHAs achieving rates higher than the national average
- All but 9 PCTs (142) achieved equal to or more than 30% uptake with 72 PCTs (48%) achieving an uptake rate of between 40% and 49%. The highest uptake for all pregnant women achieved at PCT level was 74.5%, a ten percent increase compared with 64.7% achieved last year

- Uptake in pregnant women falling IN a clinical risk group was 59.0%, again a marked increase compared with 50.8% achieved in 2011/12. The highest uptake by SHA was 62.1% (an increase on 56.3% in 2011/12). At PCT level, 77 PCTs (51%), achieved an uptake rate equal to or higher than the national average. The highest uptake achieved was 85.1%.
- Uptake in pregnant women NOT in a clinical risk group was 38.8% compared with 25.5% last year. The highest uptake by SHA was 42.6%. At PCT level, 84 PCTs (56%) achieved an uptake rate equal to or higher than the national average. The highest uptake achieved for 'healthy' pregnant women at PCT level was 73.4% (compared with 63.4% in 2011/12).

Data on uptake by pregnant women need to be viewed in the context of the way these data are collected which is explained later in the report.

Methods

Data on trivalent influenza vaccine uptake were submitted by GP practices (and/or PCT Flu coordinators on their behalf) in England. Data were submitted on the ImmForm reporting 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 computer systems)³ or by PRIMIS via their CHART tool (which also extracts data from GP computer systems) or manually. Approximately 84% of all GP practices responding to the 2012/13 survey (6676 out of 8032 practices returning data) submitted monthly data using automated methods with no burden to the NHS. Weekly collections were also undertaken from a sentinel group (automated only), which allowed for weekly reporting and assessment of the programme.

Dataset^{4 5}

Cumulative data on trivalent influenza vaccinations administered from 1 September 2012 to end of 31 January 2013 (inclusive) were collected in the following age and clinical at-risk groups;

- Aged 65 years and older: MANDATORY DATA FIELD
[All Patients]
- Aged 6 months to under 2 years: MANDATORY DATA FIELD
[All Patients and Summary of patients in one or more clinical risk group(s)]
- Aged 2 years to under 16 years: MANDATORY DATA FIELD
[All Patients and Summary of patients in one or more clinical risk group(s)]
- Aged 16 years to under 65 years: MANDATORY DATA FIELD

³ The source of data is from GP practice systems only. It is assumed that vaccinations given in other settings by other healthcare providers (e.g. pharmacies, 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 (e.g. vaccinations of travelling communities or homeless) or where patients are not registered.

⁴ The dataset collected reflects the eligible groups set out in the CMO letter as best as possible but may not necessarily match the criteria exactly. Therefore vaccine uptake data may not reflect inclusion of certain sets of patients with particular underlying clinical illnesses. See Appendix 1 'Eligible groups recommended flu vaccination for 2012/13 in the CMO letter published 3 May 2012'

⁵ The data on 'All Patients' and 'Summary of patients in one or more at-risk group(s)' are provided by all GP practices who responded to the survey. These are mandatory fields to be completed. However, the data broken down by individual at-risk group is not a mandatory requirement therefore data for these fields are optional and are not necessarily given by all who provided data for the 'All Patients' and 'Summary of patients in one or more at-risk group(s)' fields. Furthermore the 'Summary' of at-risk patients EXCLUDES otherwise healthy pregnant women and Carers; it should only contain patients in one or more at-risk group(s) and if a patient is in MORE THAN one at-risk group, they are only counted ONCE.

[All Patients and Summary of patients in one or more clinical risk group(s)]

- Pregnant women: MANDATORY DATA FIELD
[‘Healthy’ pregnant women i.e. not in a clinical at-risk group, and pregnant women falling in one or more clinical at-risk group(s) combined]
- Carers: OPTIONAL DATA FIELD
[Patients vaccinated solely by virtue of being a carer, so not in a clinical risk group, not aged 65 or over, and not pregnant]
- Clinical at-risk group: OPTIONAL DATA FIELDS
[By age band and disease]

Denominators

GP practices provided data on the number of patients registered on the date of data extraction that fell within each defined eligible group (the denominator) and the number of those vaccinated within each group (the numerator) up to end of 31 January 2013. This system means that denominator fluctuations will occur as patients joined, left, reached the age of six months, became pregnant, changed clinical status (i.e. ‘joined’ or ‘left’ a clinical risk group), changed carer status or died during the collection. The denominator (number of registered patients) includes within it, patients that have been offered the vaccine but refused it, as the uptake rate is measured against the overall eligible population. Data on the number of people that refused the vaccine are not collected in the vaccine uptake survey; therefore data providers should not adjust their figures if a patient refused the vaccine.⁶ The ‘All Patients’ category in the dataset denotes all patients registered at the practice on the date of extraction (denominator) and all those recorded as vaccinated with seasonal influenza vaccine (numerator).^{7 8}

Denominators for pregnant women could be regarded as over-inclusive as they may include women that become eligible and then ineligible for vaccination (i.e. individuals who were pregnant at some point on or after 1 September 2012, who were then no longer pregnant due to termination, miscarriage, or birth) before they could be vaccinated. Thus there is the likelihood that the denominator will increase as more women become pregnant over time, but those that are no longer pregnant, are not removed.

⁶ The survey is based on actual vaccines administered (the numerator) not vaccines offered with the denominator being all those eligible to receive vaccine, including those that are not vaccinated for whatever reason.

⁷ Although household contacts can be considered for vaccination, there is no clear, consistent way of classifying and identifying these individuals. Therefore they cannot be included as a distinct group in the survey, although any vaccinations given to this group will be included in the ‘All Patients’ count. Similarly, those vaccinated where a GP exercises clinical judgement that do not fall within a designated risk group will also be counted under ‘All Patients’ collection. The ‘All Patients’ collection may also include people vaccinated privately or as part of their employers occupation health programme when a record of these vaccinations has been entered onto a GP’s system.

⁸ Denominators may also include the small group of people with a contra-indication for the vaccine.

Further explanation on interpreting denominator and uptake rate for pregnant women is provided in the 'pregnant women' section of this report on page 13.

Birth Date Ranges

The 65 years and over population (denominator) during the monitoring period was defined in line with vaccination policy, as those whose 65th birthday occurred on or before 31 March 2013 (i.e. patients aged 65 years or older by 31 March 2013 eligible to receive influenza vaccine in the 2012/13 vaccination programme). Denominators for those aged under 65 years were defined by their age on date of data extraction.⁹

Clinical Risk Group(s)

Clinical risk groups (excluding healthy pregnant women or healthy carers from the summary count of those patients in one or more at-risk groups) were delineated by age bands as stated above and for each individual risk group, as follows;

- chronic heart disease
- chronic respiratory disease
- chronic kidney disease
- chronic liver disease
- chronic hereditary/degenerative disease of the central nervous system including stroke, transient ischaemic attack, cerebral palsy and multiple sclerosis
- diabetes
- immunosuppression

Read Codes

READ codes are primarily used for data collection purposes to extract vaccine uptake data for clinical at-risk groups as defined in the CMO letter and translated in the READ code specification. The codes also help to identify patients who should be offered influenza vaccination. However, some patients with conditions not specified in the listed READ codes may be offered influenza vaccine by their GP doctor based on clinical judgement.¹⁰

⁹ The dates for calculating the age ranges are relative to the date when the information is extracted from the practice computer system.

¹⁰ "Influenza vaccine should be offered to people in the clinical at-risk categories...clinicians should [also] use clinical judgement and take into account the risk of influenza exacerbating any underlying disease that any patient may have, as well as the risk of serious illness from influenza itself"; revised Green Book chapter 19 on 'Influenza' updated August 2012: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206232/Green-Book-updated-070513.pdf

PRIMIS was commissioned by DH to provide the clinical at-risk group READ codes specification for the 2012/13 influenza season. This included appropriate READ Codes for recording pregnancy in the collection of vaccine uptake data in pregnant women.¹¹

Pregnant Women

Pregnant women were defined as all pregnant women (in the first, second or third trimesters) as diagnosed by a medical professional (e.g. GP, midwife) that were pregnant before 1 September 2012 and still pregnant at any time during the period 1 September 2012 to 31 January 2013, and all women becoming pregnant during 1 September 2012 to 31 January 2013. Pregnant women in 2012/13 were further delineated either as healthy pregnant women (not in a clinical at-risk group) or with one or more of the clinical risk factors (listed above); they were not delineated by age. The numerator(s) were defined as patients in these groups (whether combined as all pregnant women or delineated separately as 'healthy' or at-risk) that received flu vaccine during the period 1 September 2012 to 31 January 2013. The denominator therefore includes women who ceased to be pregnant for whatever reason and those that give birth during 1 September 2012 to 31 January 2013 before they may have been offered vaccination.

Since the category of pregnant women was included in the routine influenza vaccination programme, there have been difficulties in obtaining an accurate denominator through electronic means for this group of patients because of the way pregnancy is recorded and coded on clinical systems in primary care. The inclusion of pregnant women as a separate risk group introduced a significant change, which required a coding system for pregnancy and eligibility (or non-eligibility) that could be used as the basis for data extraction and analysis of vaccine uptake data for this group. GP practices were able to code pregnant women and subsequently pregnancy outcome, by means of software searches using PRIMIS recommended READ codes to extract vaccine uptake data, as the main source for identifying the eligible group for influenza vaccination.¹² The numerators for pregnant women are only counted for those that fall within the respective denominator, as a proportion of the number vaccinated out of the number identified as 'very probably pregnant' (i.e. identified according to the READ code specification).

The data quality issues concerning the pregnant women denominator in the 2012/13 survey are discussed further in the 'Data Limitations' section of this report.

¹¹ READ codes need to be selected, that code for women confirmed by a medical professional as pregnant. However no READ codes would be required for loss/termination of pregnancy or birth for the data collection, although they are relevant to clinicians when scheduling and administering the vaccinations.

¹² For more information see pp33-35 'Advice on READ code recording around pregnancy for clinical users' produced by PRIMIS for in the 2011/12 READ code specification http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_130433.pdf

Collection Monitoring Period

The monitoring period for the 2012/13 influenza vaccine uptake collection ran from 1 September 2012 to 31 January 2013 inclusive. Cumulative data on vaccinations administered during this period were collected from all practices in four monthly surveys¹³ and from a sentinel sample (automated extractions only) in the weekly surveys of approximately 60+% of GP. The data gathered in February 2013 for the final cumulative [January] survey are presented in this report and are used to describe the national [England] influenza vaccine uptake for the winter of 2012/13.

The increased use of automated data extraction and upload mechanisms provided by GP IT software suppliers has to date accounted for approximately 84% of GPs choosing to submit data automatically in the 2012/13 campaign, an increase on the 80% first seen last season and further reducing the burden of data collection on GP practices and PCT flu coordinators. 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.¹⁴

IMMFORM

The ImmForm reporting website, hosted by Informax Ltd provides a secure platform for vaccine uptake data collection for several immunisation surveys, including the influenza vaccine uptake collection. On behalf of DH, the PHE influenza immunisation uptake monitoring team co-ordinates and facilitates the data collection process for GP practices and PCTs as well as collating and analysing end of campaign data, to produce the annual report.

Influenza vaccine uptake data are submitted on-line via the ImmForm website (accessed via www.immform.dh.gov.uk) either through an automated data extraction (normally performed by a GP IT software supplier extracting data direct from GP computer systems) or by an on-line manual submission. Data are submitted at GP practice level and can then be aggregated at PCT, SHA

¹³ The first collection was the 'October' survey which took place at the start of November 2012 for data on vaccinations administered from 01/09/2012 up to end 31/10/2012. The second was the 'November' survey which took place at the start of December 2012 for data on vaccinations administered from 01/09/2012 up to end 30/11/2012. The third was the 'December' survey which took place at the start of January 2013 for data on vaccinations administered from 01/09/2012 up to end 31/12/2012 and the final collection was the 'January' survey which took place in February 2013 for cumulative data on vaccinations administered from 01/09/2012 up to end 31/01/2013.

¹⁴ An online weekly update on influenza activity and vaccine uptake throughout the 2012/13 influenza season was provided in the weekly HPA (now PHE) Influenza Bulletin available at the following link;
<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/EpidemiologicalData/05influsWeeklyinfluzareportsarchive/>

and national [England] level as required.¹⁵ During the data collection period, GP practices, PCTs and SHAs are able to use specific tools and functions available on the ImmForm website to facilitate 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 (PCTs can view data for all practices in their area)
- Compare influenza vaccine uptake and performance anonymously with other GP practices/PCTs/SHAs at local, regional and national levels
- Validate the data at point of entry and correct any errors before data submission
- View uptake data in various formats (e.g. as bar charts) including downloading data to EXCEL (in portrait or landscape mode) as well as having access to data from previous influenza seasons to compare with the current programme
- Allow PCTs to view a 'non-responder' report which highlights those GP practices within the PCT who have failed to submit data thus allowing the PCT to follow-up with these practices to obtain and submit outstanding data

This functionality will be updated to take into account the new health service geographies for the 2013/14 winter season

¹⁵ These geographies have changed and PCTs and SHAs no longer exist. However at the time of the 2012/13 vaccine uptake campaign, they were the NHS organisations responsible for collating vaccine uptake data from GP practices and submitting to ImmForm as required.

Results

(Charts and tables referenced are provided at the end of the report)

GP response and overall [extrapolate] vaccine uptake

99.3% (7,973/8,032) of GP practices in England provided data on cumulative influenza vaccine uptake for the period 1 September 2012 up to end 31 January 2013 (inclusive). All 151 PCTs were represented, including PCT-based Care Trusts. CHART 1

The total population (extrapolated estimate) of registered patients eligible to receive vaccine (those aged 65 years and over and those aged six months to under 65 years of age in a clinical risk group excluding pregnant women without other risk factors and excluding carers) in the final January survey was close to 15 million (n=14,907,853). The total population (extrapolated estimate) of registered patients (in the same cohorts and excluding pregnant women without other risk factors and excluding carers) who would have been vaccinated assuming 100% of GP practices returned data, is just over 9.7 million (n=9,732,509). This does not include frontline health and social care workers who were also eligible to receive influenza vaccine; unless their vaccination details were entered on their GP practice's electronic record (uptake data for frontline healthcare workers are collated in a separate survey). FIGURE 1 (below) & CHART 2

Figure 1: Actual and extrapolated estimate of number of patients eligible for and who received influenza vaccine during the 2012/13 vaccine uptake campaign

Target groups for vaccination	Number of patients Registered	Number of patients Vaccinated
Aged 65 years and over	9,377,661	6,881,636
Aged 65 years and over (extrapolated estimate)	9,443,767	6,930,147
Aged under 65 years in a clinical risk group (excluding pregnant women without other risk factors and Carers)	5,425,837	2,782,745
Aged under 65 years in a clinical risk group (excluding pregnant women without other risk factors and Carers) (extrapolated estimate)	5,464,086	2,802,362
Total Actual (65+ and under 65 at risk)	14,803,498	9,664,381
Total Extrapolated (estimate)	14,907,853	9,732,509
All Pregnant women*	713,740	287,561
All Pregnant women (extrapolated estimate)	718,771	289,588

*Data on the uptake of influenza vaccine by pregnant women need to be interpreted with caution. It is likely that influenza vaccine uptake by pregnant women is underestimated due to denominator inflation but it is not possible to determine the scale of the underestimation and it could vary considerably between data providers. Comparisons with estimated uptakes in other eligible groups are likely to be unreliable (for more information See 'Data Limitations' section of this report).

Weekly versus monthly vaccine uptake comparison (provisional data)

The weekly survey using timely data automatically extracted from a sentinel group of around 60+% of GP practices was compared with both automated and manual submissions from the all-practices monthly surveys. Weekly and monthly data were overall in good agreement, with provisional national results from the four monthly returns matching their weekly equivalent confirming that the weekly sentinel collection provides an excellent indicator of uptake at national level. Please note no data was submitted in week 52 (Christmas week). CHART 3

Patients aged 65 years and over

The national mean uptake at the end of the 2012/13 campaign for the 65 years and over age cohort was 73.4%, a slight decrease compared with 74.0% achieved in 2011/12. CHART 4

The *extrapolated* estimate of the total number of patients aged 65 years and over registered at a GP practice who would have received influenza vaccine assuming 100% of GPs returned data by end of January 2013 was approximately 6.9 million (n=6,930,147).¹⁶
FIGURE 1 and CHART 2

The highest percentage uptake in this cohort achieved at SHA level was 75.8%, the lowest at 71.0%. The highest percentage uptake in this cohort achieved at PCT level was 80.8%, with the lowest at 65.5%.

Patients aged 6 months to under 65 years in a clinical at-risk group (excluding pregnant women without other risk factors and Carers)

The national mean uptake at the end of the 2012/13 campaign for those aged six months to under 65 years in a clinical at-risk group (excluding pregnant women without other risk factors and excluding carers) was 51.3%, compared with 51.6% reached last season. CHART 4

The *extrapolated* estimate of the total number of patients aged six months to under 65 years in a clinical at-risk group registered at a GP practice who would have received influenza vaccine assuming 100% of GPs returned data by end of January 2013, was just over 2.8 million (n=2,802,362).¹⁷
FIGURE 1 & CHART 2

The highest percentage uptake in this cohort achieved at SHA level was 55.2% and the lowest was 48.3%. The highest percentage uptake in this cohort achieved at PCT level was 68.8% and the lowest was 44.2%.

Patients aged 6 months to under 65 years at-risk: individual age groups

By age group, the highest uptake in patients was in those aged 16 years to under 65 years at-risk at 52.8%; a slight decrease compared with the uptake

¹⁶ 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 GPs 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.

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 GPs 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.

recorded in 2011/12 at 53.2%. The lowest uptake by age group was in those aged six months to under two years at-risk at 24.3%; an increase from 22.5% achieved in the same age group in 2011/12. There was also a slight increase in vaccine uptake in those aged two years to under 16 years at 38.7% from 38.3% achieved in 2011/12. CHART 5 and TABLE 1

Vaccine uptake by SHA ranged from 20.2% to 30.3% (compared with 18.2% to 26.8% last season) in those aged six months to under two years at-risk; from 35.8% to 43.4% (compared with 35.2% to 42.9% last season) in those aged two years to under 16 years at-risk and from 49.7% to 56.7% (compared with 49.8% to 56.8% last season) in those aged 16 years to under 65 years at-risk.

Vaccine uptake by PCT ranged from 3.8% to 55.0% in those aged six months to under two years at-risk; from 23.0% to 62.2% in those aged two years to under 16 years at-risk and from 45.7% to 69.6% in those aged 16 years to under 65 years at-risk.

Patients aged 6 months to under 65 years at-risk: overall uptake in clinical risk groups¹⁸

In 2012/13 vaccine uptake was highest for those patients with diabetes at 68.5% matching exactly that achieved in 2011/12. The lowest uptake was once again in patients with chronic liver disease at 42.9%, a decrease on last season's uptake of 43.3%. Uptake in patients with chronic degenerative neurological disease (CDN), (including stroke/TIA, cerebral palsy or MS) was 49.2% compared with 48.2% last season. Uptake in the immunosuppression group did not improve from 54.7%, the same as that achieved in 2011/12. In all other disease groups such as chronic heart, chronic respiratory and chronic kidney disease(s), uptake rates were similar to rates observed in 2011/12. CHART 6

Patients aged 6 months to under 65 years at-risk: uptake by age and clinical risk

Uptake by age in individual clinical risk groups in children aged six months to under two years was lowest in those with chronic degenerative neurological disease including stroke/TIA, cerebral palsy or MS at 18.6% (a slight improvement on 17.9% achieved in 2011/12). The highest uptake in the six months to under two years age group was in those with diabetes at 44.3%, more than double on the uptake achieved in the same risk group in 2011/12 at 18.5%. CHART 6

¹⁸ Data represents on average 95.9% of all GP practices in England responding (7647/7973), who provided data across all optional at-risk group categories for the 2011/12 vaccine uptake survey

Vaccine uptake in the two years to under 16 years age group was highest in patients with diabetes at 61.6%, a slight increase from 60.5% recorded in 2011/12. The lowest uptake was once again in patients with chronic heart disease at 27.2%, though a slight increase on 26.1% achieved in 2011/12. CHART 6

Vaccine uptake in the 16 years to under 65 years age group was highest in patients with diabetes at 68.6%, matching the uptake achieved in 2011/12. Lowest uptake was in patients with chronic liver disease at 43.0% slightly down on 43.4% achieved in the same disease group last season. CHART 6

Pregnant women

In the third successive year in which data were collected on vaccine uptake by pregnant women (those without other risk factors and those falling in a clinical risk group combined), national uptake was a record high of 40.3% compared with 27.4% achieved in 2011/12 and 38.0% recorded in 2010/11. TABLE 2

In [all] pregnant women, uptake by SHA ranged from 35.1% (up from 23.3%) to 44.1% (up from 33.7%) compared with 2011/12. By PCT, it ranged from 24.9% (up from 14.0%) to 74.5% (up from 64.7%) compared with 2011/12. Eighty-seven PCTs (57.6%) achieved a vaccine uptake rate of 40.3% or more, matching or exceeding the national average.

Vaccine uptake in pregnant women NOT in a clinical risk group was 38.8%, a marked increase compared with 25.5% achieved in 2011/12, and 36.6% uptake recorded in 2010/11. The *extrapolated* estimate number of patients in this cohort immunised against influenza was approximately 258,000 out of approximately 666,000 *extrapolated* estimate number of patients registered eligible.

By SHA, uptake in pregnant women NOT in a risk group, ranged from 33.8% (up from 21.5%) to 42.6% (up from 31.8%) compared with 2011/12. By PCT, uptake ranged from 23.3% (up from 12.5%) to 73.4% (up from 63.4%) compared with 2011/12.

Vaccine uptake in pregnant women falling IN a clinical risk group was 59.0% compared with 50.8% achieved in 2011/12 and 56.6% recorded in 2010/11. The *extrapolated* estimate number of patients in this cohort immunised against influenza was approximately 32,000 out of approximately 54,000 *extrapolated* estimate number of patients eligible. TABLE 2

By SHA, uptake in pregnant women at risk, ranged from 56.6% (up from 45.4%) to 62.1% (up from 56.3%) compared with 2011/12. By PCT, uptake ranged from 42.4% (up from 29.7%) to 85.1% (up from 79.7%) compared with 2011/12.

Carers aged under 65 years, not at-risk and not pregnant

The national mean uptake in Carers aged under 65 years, not in a clinical at-risk group and not pregnant was 46.3%, an increase on 45.2% achieved in 2011/12.¹⁹

All Patients

Influenza vaccine may also be given to patients who for instance were vaccinated on the basis of clinical judgement, who may not necessarily have been captured by the READ codes for the 'clinical at-risk' groups specified by the survey. These vaccinations are included within the 'All Patients' data items on the ImmForm surveys which represents all registered patients (delineated by age bands) that received vaccine and therefore will also include patients in clinical risk groups, carers, pregnant women and any other patients vaccinated based on clinical need.

The actual total number of **all** patients aged six months to under 65 years (including those in a clinical at-risk group) who received vaccine by the end of January 2013 was just over 4 million (n=4,042,807); an 8.8% uptake rate based on 99.3% of GP practices (7,973/8,032) in England responding. The *extrapolated* estimate number of patients aged six months to under 65 years (including those at-risk) who would have received vaccine assuming 100% of GPs returned data, was 4,071,306. This represents an increase of approximately 2.4% in the absolute number of people immunised in 2012/13 (95,769), compared with 2011/12 when just under 4 million people (3,947,038) received the influenza vaccine at the end of January 2012 (an 8.6% uptake rate based on 99.5% of GP practices responding (8,116/8,155).

The sub-set 'at-risk' population is separately collected in the 'Summary of patients in one or more at-risk group(s)' data fields and thus is distinguishable for separate analysis (as shown above).²⁰ The actual total number of patients aged six months to under 65 years who received vaccine, *excluded* from the identifiable clinical risk group population, by the end of January 2013 was 3.1% at approximately 1.3 million (n=1,260,062) based on 99.3% of GP practices (7,973/8,032) in England responding. The extrapolated estimate number of patients aged six months to under 65 years who received vaccine and were not identified at risk, was also approximately 1.3 million (n=1,268,945).²¹

¹⁹ Data represents 95.4% of GP practices in England responding, who provided data for this optional category in the 2012/13 vaccine uptake survey (7608/7973), compared with 93.8% of GPs providing data in 2011/12 (7614/8116).

²⁰ It is also possible that these data may include a proportion of healthcare workers who were administered influenza vaccine and had their vaccinations recorded on to their GP records. It is hoped that any frontline healthcare workers administered vaccine based on the criterion of direct patient care will have been captured in the separate HCWs influenza vaccine uptake survey for 2012/13.

²¹ Calculated by assuming a 100% response rate from GPs and assuming that there are no differences in the size of GP practices returning data compared to those that are not. Also

Data Limitations

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

Pregnant women data: denominator variance

Quality assurance on the uptake in pregnant women using comparative data from bulk upload data providers indicated discrepancies in estimated denominators (the number of registered pregnant women in England). A high volume of queries were also received from individual data providers questioning the data collated as figures did not accurately reflect the number of women pregnant in the practice over the period of the vaccination programme. As previously seen in the collection of vaccine uptake data on pregnant women, determining an accurate denominator is difficult 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, and
- 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 outcomes following birth or loss of pregnancy. Therefore, women who were no longer pregnant by 1 September 2012 may have been included in the denominator in error, due to the inaccuracy of the electronic record. It is likely therefore, that flu vaccine uptake by pregnant women is underestimated due to denominator inflation. However, it is not possible to determine the scale of the underestimation and it could vary considerably between GP practices.

Given the challenges of collecting data on the uptake of flu vaccine by pregnant women, uptake is likely to be underestimated and comparisons with estimated uptakes in other eligible groups are likely to be unreliable. Further consideration will need to be given as to how it may be improved ahead of

assuming no differences between GPs in administering vaccine to individuals outside the listed at-risk groups based on judgment of clinical need. Therefore this figure should be regarded as an estimate.

future surveys. For instance, GP practices could be asked to proactively check their patient database before September for women who were pregnant but subsequently are no longer pregnant at the start of the programme and therefore would need to be excluded from the denominator and throughout September to January in order to identify women who are not pregnant at the start of the immunisation programme but become pregnant during the winter. Taking into account the relatively small number of pregnant women in each practice at any one time, the task of identifying them could be dealt by manual search and scrutiny in order to ensure GP systems are updated.

This process will also need to include liaising with midwifery services as they may take much of the maternity care previously based in general practice. Thus, should a pregnant woman receive advice regarding seasonal influenza immunisation at their ante-natal class and/or receive the flu vaccine, it is important that the patient's GP practice is informed in a timely manner so that their electronic records can be updated accordingly, and included in vaccine uptake data collections. A delay will inevitably mean an increased probability for pregnant women that the GP's electronic record for this cohort is not always up to date resulting in the numerator (number of patients vaccinated) being discrepant.

Snapshot of influenza vaccine uptake data

It is important to note that influenza vaccine uptake data is only a snapshot of registered GP patients vaccinated at the time of data extraction/end of the data collection. The data will therefore not include patients who have received the vaccine but have subsequently died, who have since moved, those reaching the age of 6 months, women becoming pregnant, patients changing clinical status (i.e. 'joining' or 'leaving' a clinical risk group), patients changing carer status and 'temporary'²² patients who may have received the vaccine but were not registered on the date of data extraction. Consequently patients that 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 electronic record.

²² 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.

Conclusions

The response rate for GP practices and PCTs returning data to the 2012/13 survey was again exceptionally high at 99.3% (7973/8032). This came close to matching last season's response rate of 99.5% (8116/8155) of practices returning data in 2011/12. In addition, there continued the increasing decline in the manual burden on practices providing data online, with the number of practices taking advantage of automated extraction processes increasing to over 80% of all returns. This reflects the continuing growth in the proportion of data being extracted and uploaded automatically. Automated data extraction results in an almost zero burden on GPs in providing the data. The automated upload of data is an efficient method for capturing vaccine uptake data reducing the burden on GP practices and PCT influenza coordinators, and eliminates the typographical and transcription errors that may occur with manual data entry. Practices currently not engaged in this process should consider the benefits to them and encourage their suppliers to provide them with the capability to provide data automatically or consider using the CHART tool provided free of charge by PRIMIS+ to GP practices in England, which works on a number of different IT systems.

By the end of the 2012/13 winter season just over 50% of people aged six months to under 65 years in a clinical risk group, had been vaccinated against flu. Despite continued efforts to improve uptake and a sustained drive over the past couple of years to encourage uptake of 70% or more, the remaining half of the clinical risk group population eligible to receive the vaccine, are still not getting immunised. The performance of some GP practices and PCTs has demonstrated that it is possible to achieve uptake significantly higher than the national average, with about 60 PCTs achieving overall uptake rates ranging between 52% and 68% in 2012/13. Individually, over 100 GP practices managed to obtain coverage levels of 75% or more with some getting as high as 100% uptake, based on last year's performance. For the 2013/14 season the planning assumption for vaccine uptake for this group is 75%, in accordance with European Union recommendations.

Vaccine uptake is particularly low in those aged under 16 years with clinical conditions that put them at most risk of complications or hospitalisation from flu. Uptake rates in the youngest of age groups, 6 months to under 2 years for example, has not improved much beyond rates of around 25%. The risk of serious illness from influenza is higher amongst children under six months of age therefore it is important that children and parents of children in clinical risk groups, understand the importance of having flu vaccine. GPs and practice staff managing the flu programme should make sure that all at risk children have the opportunity to receive flu vaccine and order adequate supplies of appropriate vaccine.

In contrast, the uptake rate in those aged 65 years and over has remained relatively constant in the past few years, fluctuating between 72-75%. The CMO recommended target for vaccination for those aged 65 years and over, continues to be aligned with the WHO recommended target of 75%.

Vaccine uptake varies widely between disease groups and by age category. The diabetes disease group continues to have the highest uptake rate at just under 70%, a rate which has been fairly constant over the last three seasons (2010/11, 2011/12 and 2012/13). Disease groups such as chronic heart and respiratory disease, the uptake has remained around the 50-52% mark for the last three seasons. The only group to show a marked improvement is in patients with chronic degenerative neurological disease (including stroke/TIA, cerebral palsy or MS); here uptake has increased from 40.4% in 2010/11 to 49.2% in 2012/13.

By age, vaccine uptake in children aged six months to under two years continues to record the lowest level at 24.3% (though a slight improvement on last year's uptake of 22.5%). Those aged 16 years to under 65 years continues to achieve the highest uptake at 52.8%, however this is a slight fall in uptake compared with last year's rate of 53.2%. Overall, vaccine uptake continues to be lowest in the younger age groups with clinical risk factors.

Vaccine uptake in [all] pregnant women has significantly increased this year reaching 40.3% compared with 27.4% attained in 2011/12. One of the reasons for this improvement is likely to be because flu vaccination was offered to women at the same time as the pertussis vaccination which was introduced in October 2012. The best route for maximising uptake amongst pregnant women is through midwifery services. Health professionals working in maternity services are encouraged to provide flu vaccine as part of routine care for all pregnant women. It is important that these immunisations are recorded in the individual's electronic GP record. The CMO in the annual letter for season 2013/14 has restated the importance of vaccinating pregnant women, and the higher levels achieved in 2012/13 clearly demonstrates that uptake can be improved.

In absolute terms, the number of people eligible to receive influenza vaccine has markedly increased from approximately 12.4 million (n=12,439,026) in 2007/08 (those aged 65 years and over and those aged under 65 in at-risk group) to just over 14.8 million (n=14,803,498) in the same cohorts (excluding 'healthy' pregnant women and carers) in 2012/13 (none extrapolated figures). In parallel, the number of people vaccinated has increased from just over 7.9 million (n=7,911,879) to approximately 9.6 million (n=9,664,381) over the same period.

For pregnant women (those NOT in an at-risk group and those IN a clinical risk group combined), the number of people eligible for vaccine in the first year this cohort was included in the routine dataset, was 318,562. This has increased to 713,740 in 2012/13 (none extrapolated figures). Accordingly the absolute number of pregnant women who were vaccinated increased from

121,164 in 2010/11 to 287,561 in 2012/13, a 58% increase in three seasons (n=166,397).

These increases in vaccine uptake and the lessons learnt in achieving them need to continue into the 2013/14 season.

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- The participation of the PRIMIS team based in Nottingham, who were commissioned to provide the READ Codes specification for this collection, a 2012/13 Flu library for their CHART tool and a bulk data extraction process for their CHART tool.
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APPENDIX 1

The list of eligible patients who should be offered the seasonal Influenza vaccine did not change from the 2011/12 season.

**Groups recommended influenza vaccine in season 2012/13
(ANNEX A in the CMO letter published 3rd May 2012)**

<u>Eligible groups</u>	<u>Further detail</u>
All patients aged 65 years and over	“Sixty-five and over” is defined as those 65 and over on 31 March 2013 (i.e. born on or before 31 March 1948)
Chronic respiratory disease aged six months or older	Asthma that requires continuous or repeated use of inhaled or systemic steroids or with previous exacerbations requiring hospital admission. Chronic obstructive pulmonary disease (COPD) including chronic bronchitis and emphysema; bronchiectasis, cystic fibrosis, interstitial lung fibrosis, pneumoconiosis and bronchopulmonary dysplasia (BPD). Children who have previously been admitted to hospital for lower respiratory tract disease.
Chronic heart disease aged six months or older	Congenital heart disease, hypertension with cardiac complications, chronic heart failure, individuals requiring regular medication and/or follow-up for ischaemic heart disease.
Chronic kidney disease aged six months or older	Chronic kidney disease at stage 3, 4 or 5, chronic kidney failure, nephrotic syndrome, kidney transplantation.
Chronic liver disease aged six months or older	Cirrhosis, biliary artesia, chronic hepatitis

<p>Chronic neurological disease aged six months or older</p>	<p>Stroke, transient ischaemic attack (TIA). Conditions in which respiratory function may be compromised, due to neurological disease (e.g. polio syndrome sufferers). Clinicians should consider on an individual basis the clinical needs of patients including individuals with cerebral palsy, multiple sclerosis and related or similar conditions; or hereditary and degenerative disease of the nervous system or muscles; or severe neurological disability.</p>
<p>Diabetes aged six months or older</p>	<p>Type 1 diabetes, type 2 diabetes requiring insulin or oral hypoglycaemic drugs, diet controlled diabetes.</p>
<p>Immunosuppression aged six months or older</p>	<p>Immunosuppression due to disease or treatment. Patients undergoing chemotherapy leading to immunosuppression. Asplenia or splenic dysfunction, HIV infection at all stages. Individuals treated with or likely to be treated with systemic steroids for more than a month at a dose equivalent to prednisolone at 20mg or more per day (any age) or for children under 20kg a dose of 1mg or more per kg per day. It is difficult to define at what level of immunosuppression a patient could be considered to be at a greater risk of the serious consequences of influenza and should be offered flu vaccination. This decision is best made on an individual basis and left to the patient's clinician. Some immunocompromised patients may have a suboptimal immunological response to the vaccine. Consideration should also be given to the vaccination of household contacts of immunocompromised individuals, i.e. individuals who expect to share living accommodation on most days over the winter and therefore for whom continuing close contact is unavoidable. This may include carers (see below).</p>
<p>Pregnant women</p>	<p>Pregnant women at any stage of pregnancy (first, second or third trimesters).</p>

<p>People living in long-stay residential care homes or other long-stay care facilities where rapid spread is likely to follow introduction of infection and cause high morbidity and mortality. This does not include, for instance, prisons, young offender institutions, or university halls of residence.</p>	<p>Vaccination is recommended.</p>
<p>Carers</p>	<p>Those who are in receipt of a carer's allowance, or those who are the main carer, or the carer of an elderly or disabled person whose welfare may be at risk if the carer falls ill.</p> <p>(Please note – this category refers to individual carers entitled to a free flu vaccine on the NHS, not professional health and social care workers who should be vaccinated by their employer as part of an occupational health programme.)</p>

The list above is not exhaustive, and the medical practitioner should apply clinical judgement to take into account the risk of flu exacerbating any underlying disease that a patient may have, as well as the risk of serious illness from flu itself. Flu vaccine should be offered in such cases even if the individual is not in the clinical risk groups specified above.



Graphs and Tables (Data referenced in this report)

CHART 1

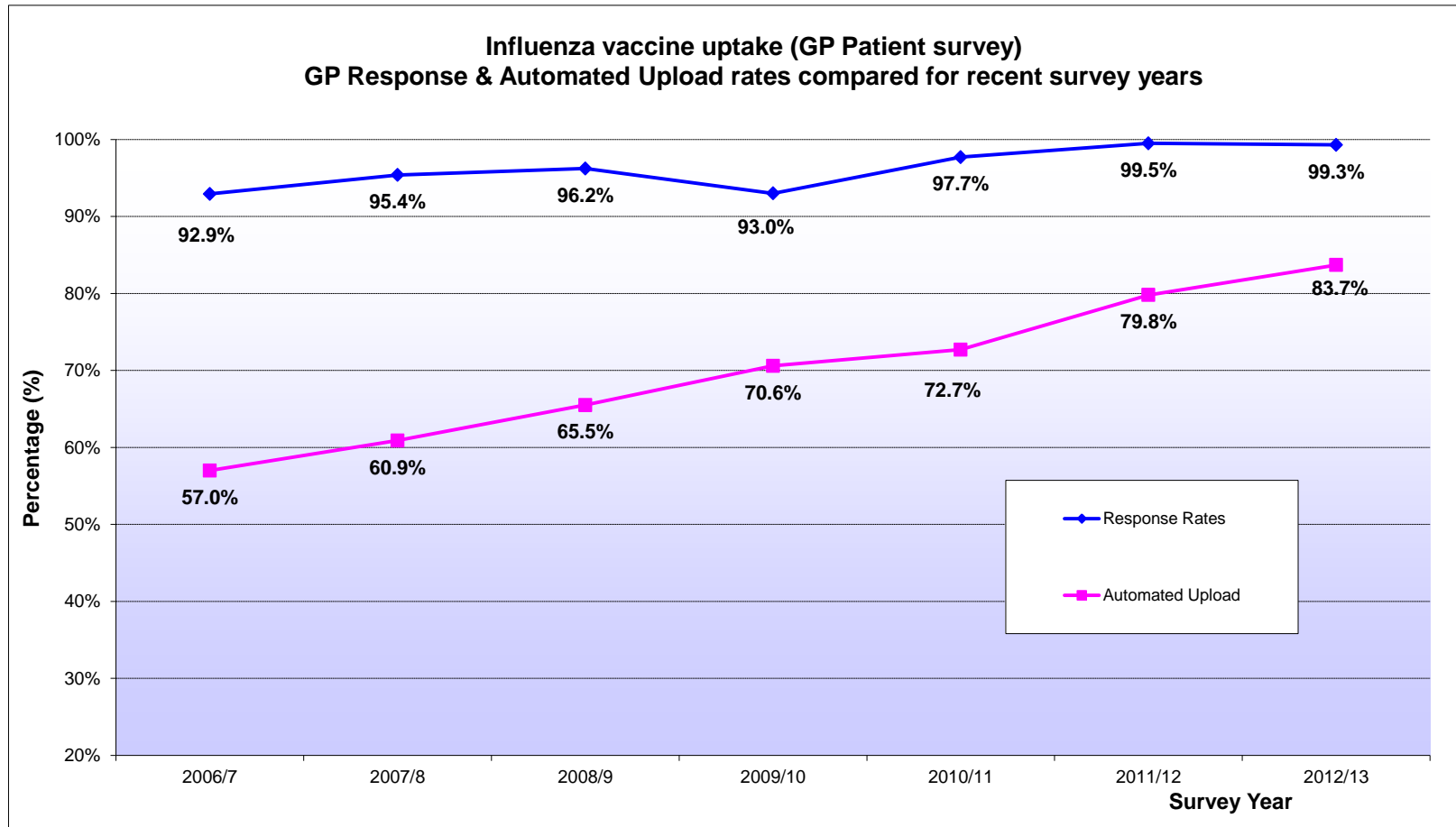


CHART 2

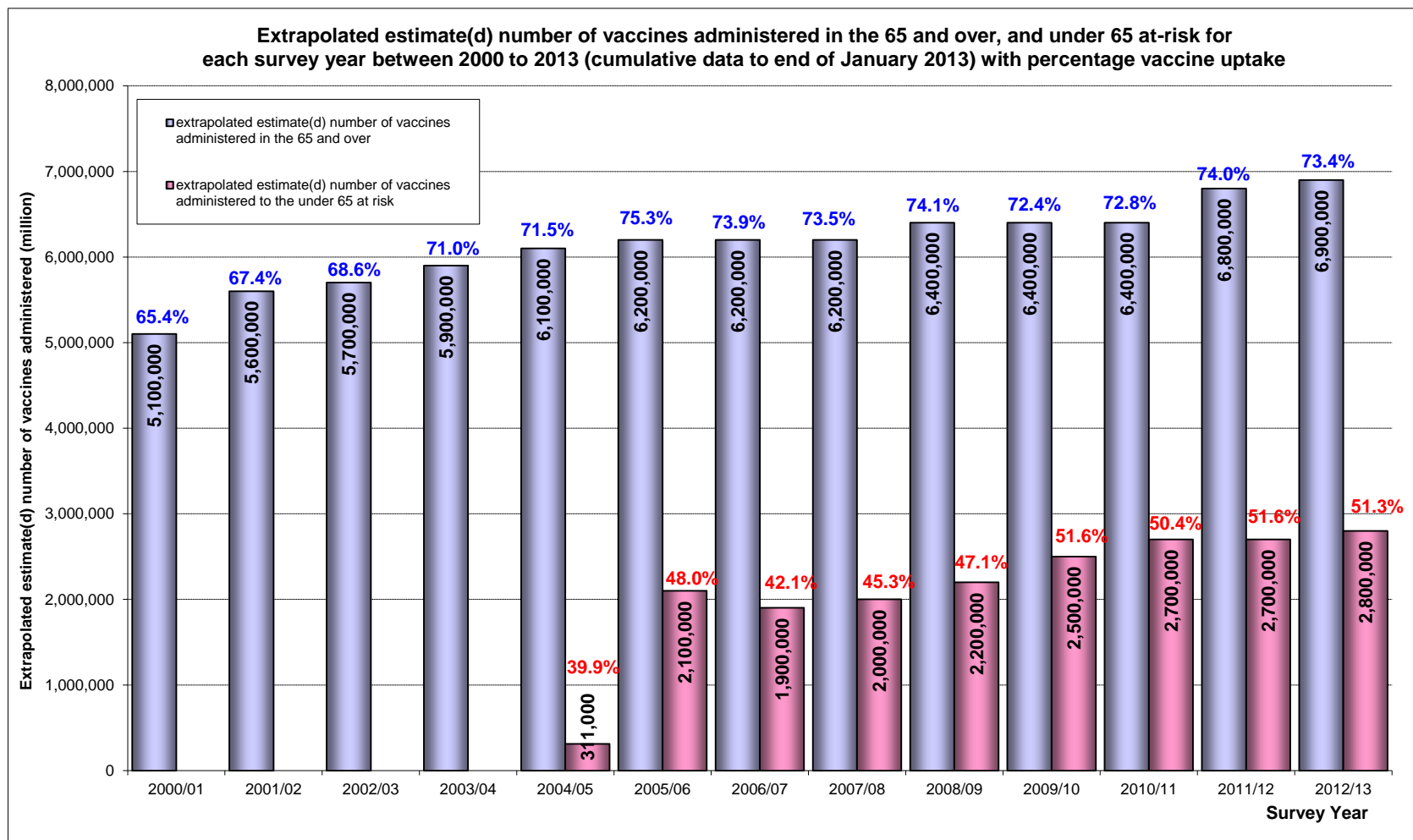


CHART 3

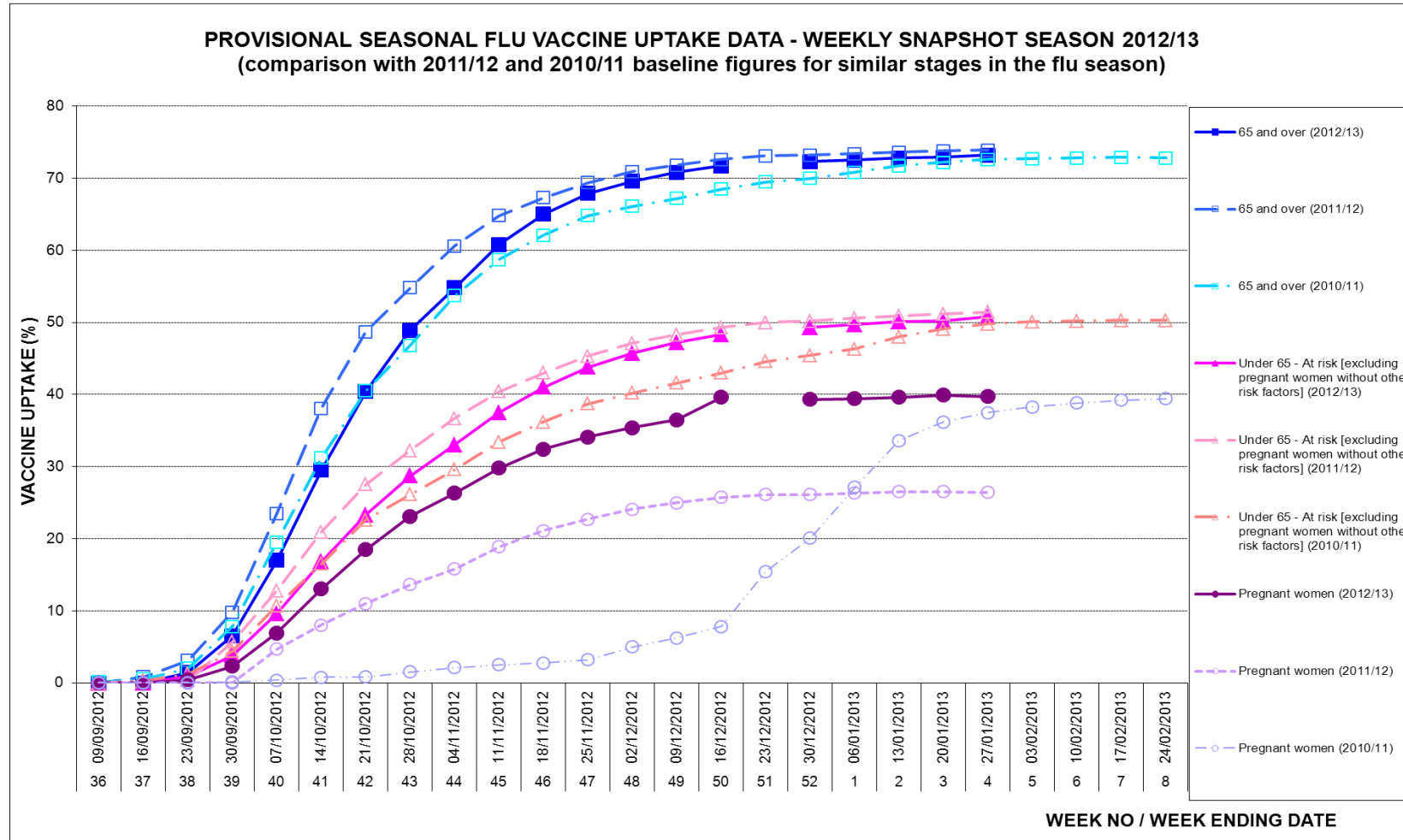


CHART 4

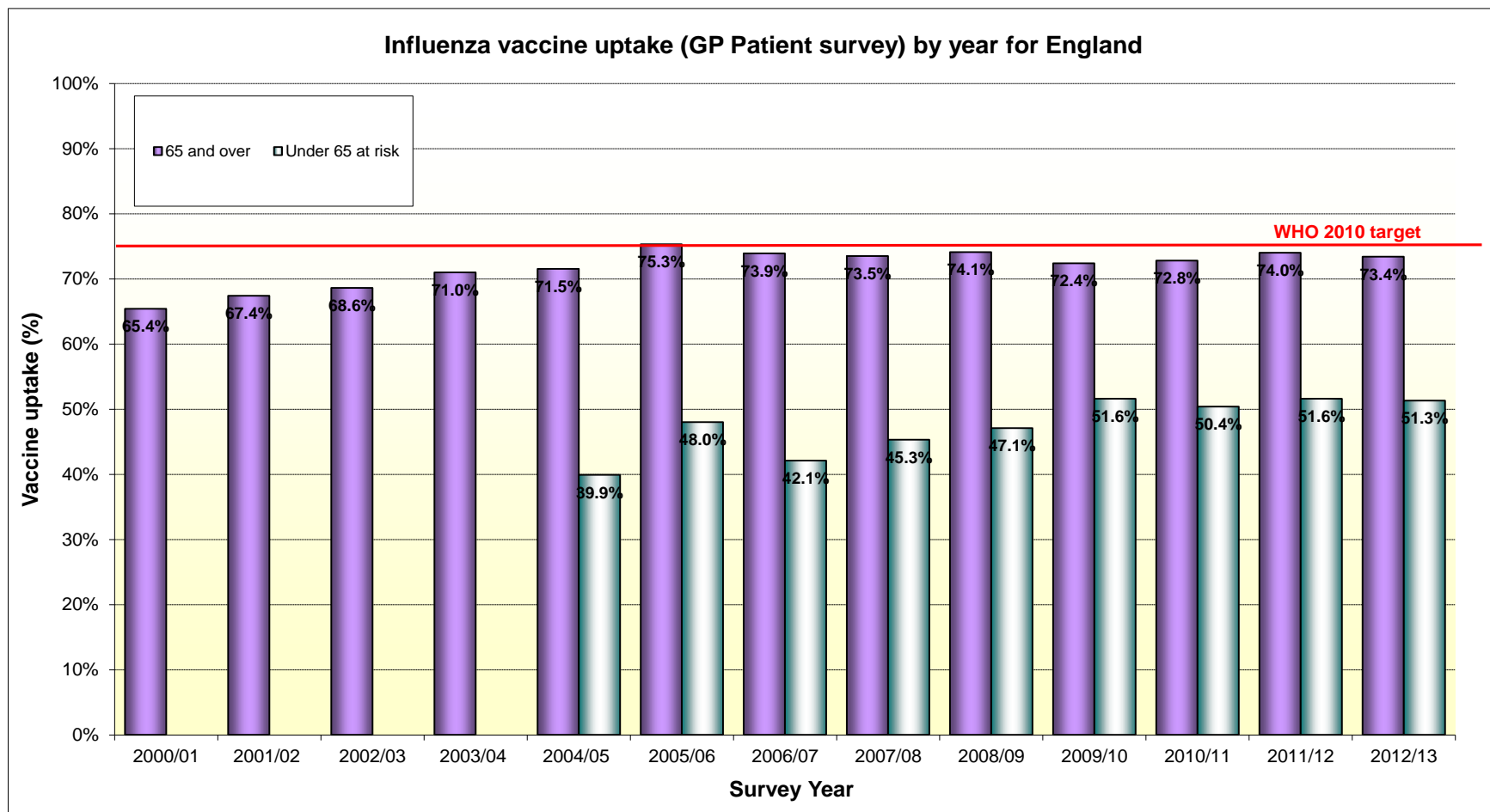


CHART 5

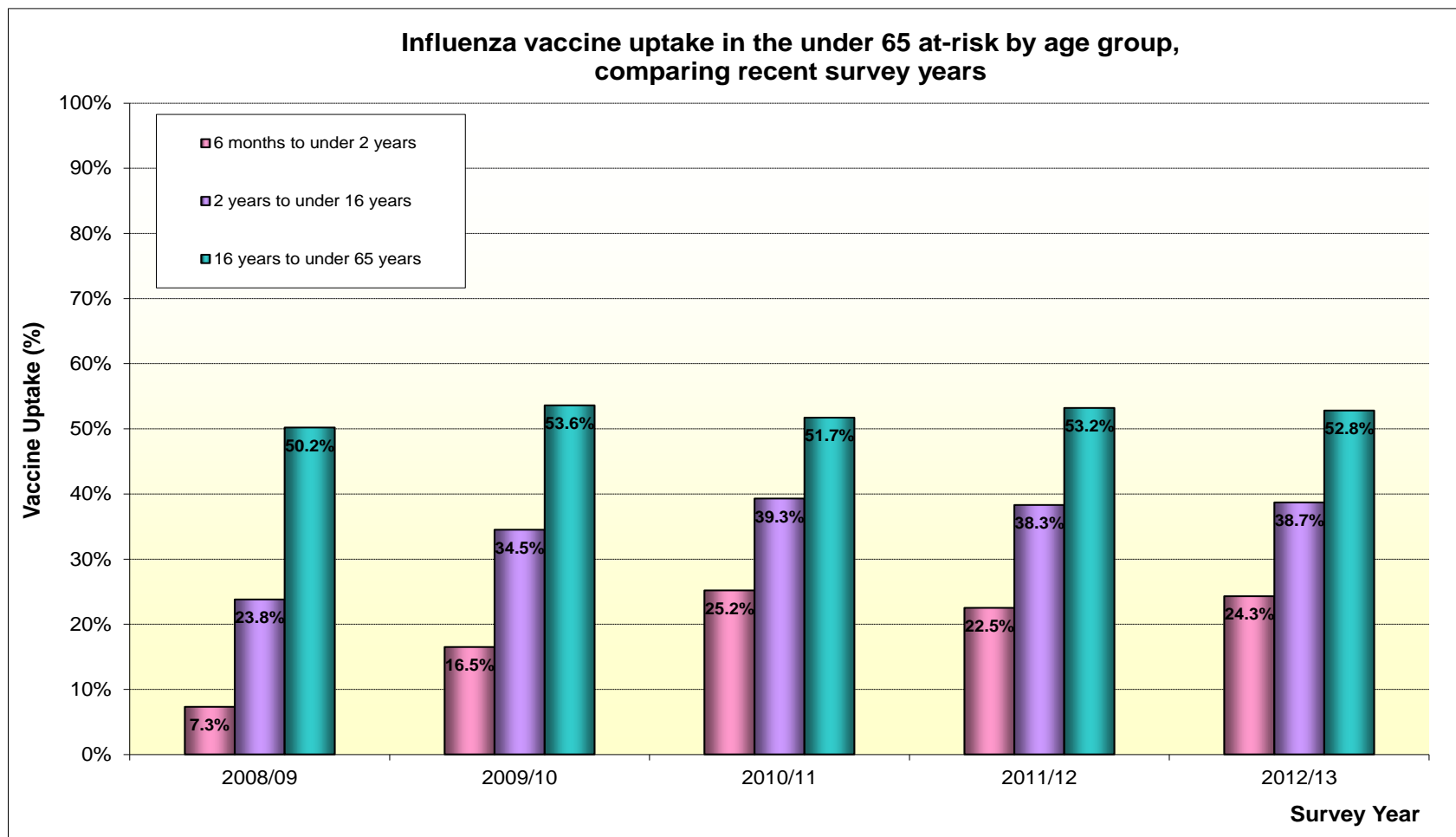


CHART 6

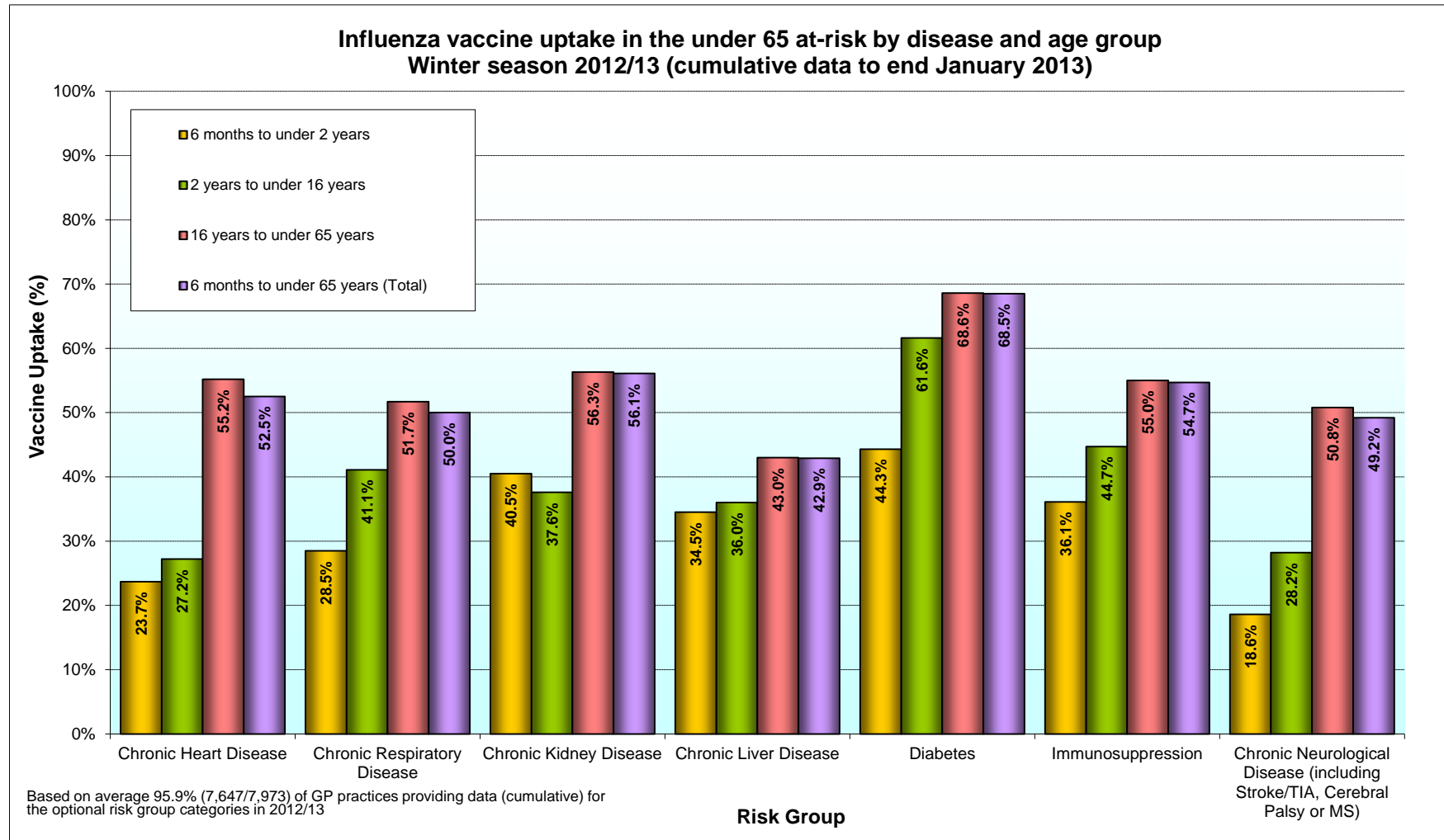


CHART 7

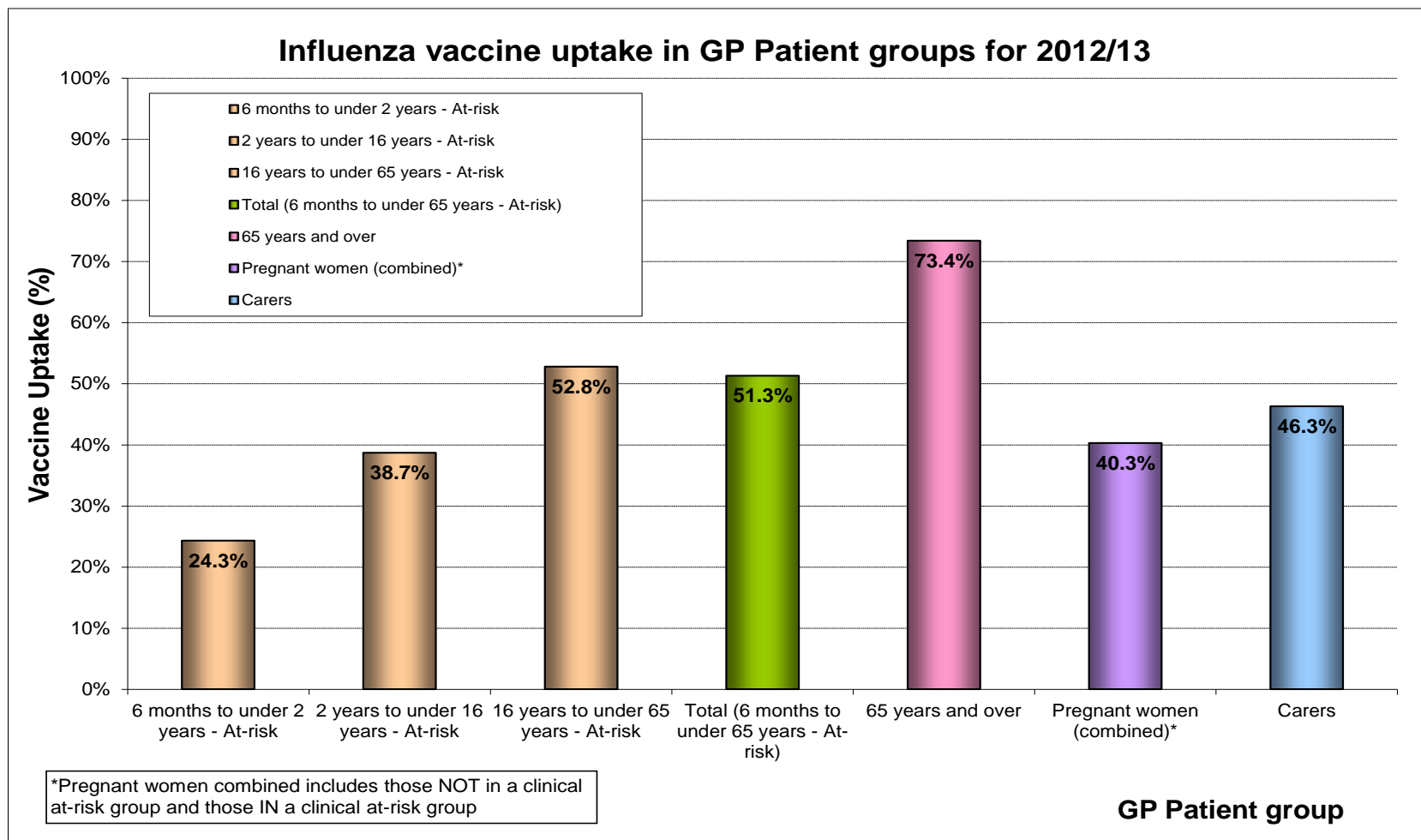


TABLE 1

Influenza vaccine uptake in patients aged six months to under 65 years falling in a clinical risk group (excluding pregnant women without other risk factors and excluding carers) by age band for 2012/13

Influenza vaccine uptake in patients aged 6 months to under 65 years falling in a clinical at-risk group, by age band for 2012/13					
Age Group	Number of patients registered on day of data extraction	Number of patients vaccinated up until 31.01.13	Vaccine Uptake (%)	Extrapolated (estimate) number of patients registered eligible*	Extrapolated (estimate) number of patients vaccinated
6 months to under 2 years	13,780	3,354	24.3	13,877	3,378
2 years to under 16 years	549,662	212,813	38.7	553,537	214,313
16 years to under 65 years	4,862,395	2,566,578	52.8	4,896,672	2,584,671
Total by Risk Group	5,425,837	2,782,745	51.3%	5,464,086	2,802,362

**Assuming a 100% GP practice response*

TABLE 2

Influenza vaccine uptake in pregnant women (those not at-risk and those falling in a clinical risk group combined) for 2012/13

Influenza vaccine uptake in Pregnant Women for 2012/13					
Pregnant Women	Number of patients registered on day of data extraction	Number of patients vaccinated up until 31.01.13	Vaccine Uptake (%)	Extrapolated (estimate) number of patients registered eligible*	Extrapolated (estimate) number of patients vaccinated
Pregnant and NOT IN a clinical risk group	660,385	256,076	38.8	665,040	257,881
Pregnant and IN a clinical risk group	53,355	31,485	59.0	53,731	31,707
Pregnant combined	713,740	287,561	40.3%	718,771	289,588

**Assuming a 100% GP practice response*

TABLE 3

Influenza vaccine uptake in GP patient groups for 2012/13 (actual registered and vaccinated)

Patient Eligible Group	Patients registered	Number vaccinated	Vaccine Uptake (%)
6 months to under 2 years - At-risk	13,780	3,354	24.3%
2 years to under 16 years - At-risk	549,662	212,813	38.7%
16 years to under 65 years - At-risk	4,862,395	2,566,578	52.8%
Total (6 months to under 65 years - At-risk)	5,425,837	2,782,745	51.3%
65 years and over	9,377,661	6,881,636	73.4%
Pregnant women (combined)*	713,740	287,561	40.3%
Carers	337,130	156,056	46.3%

**Pregnant women combined (i.e. all pregnant women including those NOT in a clinical at-risk group and those IN a clinical at-risk group)*