



PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

22 December 2016 – Week 51 report (up to week 50 data)

This report is published weekly on the [PHE website](#). For further information on the surveillance schemes mentioned in this report, please see the [PHE website](#) and the [related links](#) at the end of this document.

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Summary

During week 50 (ending 18 December 2016), the influenza season has now started with increases seen in several indicators in particular influenza-related outbreaks in the community, the proportion of laboratory samples positive for influenza in primary and secondary care and influenza-related admissions to hospital and intensive care. The Department of Health has issued an [alert](#) on the prescription of antiviral medicines by GPs.

- [Community influenza surveillance](#)
 - Through the GP In Hours Syndromic Surveillance system, small increases in GP consultations for influenza-like illness were noted, however activity remained within seasonally expected levels in week 50.
 - 42 new acute respiratory outbreaks have been reported in the past 7 days. 35 outbreaks were from care homes, where six tested positive for influenza (5 A(not subtyped) and 1 A(H3)) Three outbreaks were from schools where one tested positive for influenza A(not subtyped). Three outbreaks were from hospitals where one tested positive for influenza A(H3). The remaining outbreak was from the other settings category with no test results available.
- [Overall weekly influenza GP consultation rates across the UK](#)
 - In week 50, the overall weekly influenza-like illness (ILI) GP consultation rate was 12.1 per 100,000 in England compared to 9.0 per 100,000 in the previous week and is below the pre-epidemic threshold of 14.3 per 100,000 for this season. In the devolved administrations, ILI rates have remained within their respective pre-epidemic thresholds in Scotland and Northern Ireland, however ILI rates for Wales continue to increase.
- [Influenza-confirmed hospitalisations](#)
 - In week 50, there were 41 admissions to ICU/HDU with confirmed influenza (14 influenza A(H3N2), 21 influenza A(unknown subtype), 4 influenza A(H1N1)pdm09 and 2 influenza B) were reported across the UK (141/156 Trusts in England) through the USSS mandatory ICU scheme.
 - In week 50, there were 45 hospitalised confirmed influenza cases (20 influenza A(H3N2), 19 influenza A(not subtyped) and 6 influenza B) reported through the USSS sentinel hospital network (18 NHS Trusts across England).
 - No confirmed influenza admissions have been reported from the six Severe Respiratory Failure centres in the UK in week 50.
- [All-cause mortality data](#)
 - In week 50 2016, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England overall and by age group. In the devolved administrations, significant excess all-cause mortality was seen in Scotland (for all ages and in 65+ year olds) in week 50.
- [Microbiological surveillance](#)
 - 49 samples tested positive for influenza (39 influenza A(H3N2), 9 influenza A(unknown subtype) and 1 influenza B) through GP sentinel schemes across the UK, with an overall positivity of 26.6% in week 50.
 - 165 influenza positive detections were recorded through the DataMart scheme (122 influenza A(H3N2), 39 influenza A(unknown subtype) and 4 influenza B). The overall positivity was at 10.7% in week 50, which is above the threshold for 2016/17 season of 8.6%. The highest positivities were seen in the 5-14 year olds (19.4%) and 65+ year olds (14.3%).
- [Vaccination](#)
 - Up to week 50 2016, in 88.8% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2016/17 influenza vaccine in targeted groups was as follows: 46.0% in under 65 years in a clinical risk group, 43.5% in pregnant women, 69.0% in 65+ year olds. In 91.8% of GP practices reporting to Immform, the provisional proportion of children in England who had received the 2016/17 influenza vaccine was as follows: 37.0% in all 2 year olds, 39.1% in all 3 year olds and 31.7% in all 4 year olds.
 - Provisional data from the second monthly collection of influenza vaccine uptake in GP patients up to 30 November 2016 has been published. The [report](#) provides uptake at national, Area Team (AT), Clinical Commissioning Group (CCG) and by Local Authority (LA) levels.
 - Provisional data from the second monthly collection of influenza vaccine uptake by frontline healthcare workers show 55.6% were vaccinated by 30 November 2016, compared to 44.1% vaccinated in the previous season by 30 November 2015. The [report](#) provides uptake at Trust level.
 - Provisional data from the second monthly collection of influenza vaccine uptake for children of school years 1, 2 and 3 age show the provisional proportion of children in England who received the 2016/17 influenza vaccine via school, pharmacy or GP practice by 30 November 2016 in targeted groups was as follows: 44.4% in children of school Year 1 age (5-6 years); 42.4% in children of school Year 2 age (6-7 years); 40.5% in children of school Year 3 age (7-8 years).
- [International situation](#)
 - Globally, Influenza activity in the temperate zone of the northern hemisphere has started to increase, with influenza A(H3N2) being the dominant subtype.

During week 50, further small increases in GP consultations for influenza-like illness were noted. 42 new acute respiratory outbreaks were reported in the past 7 days.

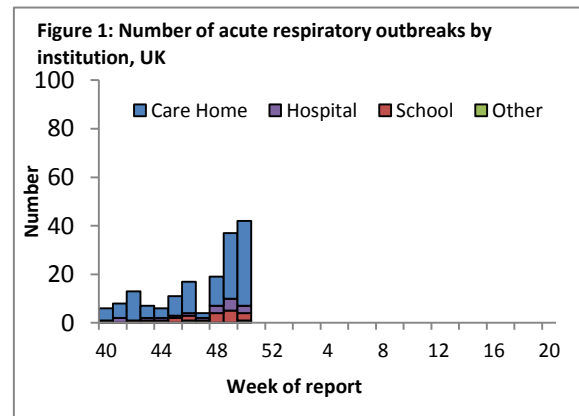
- PHE Real-time Syndromic Surveillance

- During week 50, there was a further small increase in GP consultations for influenza-like illness; however levels remain within seasonally expected limits.
- For further information, please see the syndromic surveillance [webpage](#).

- Acute respiratory disease outbreaks

- 42 new acute respiratory outbreaks have been reported in the past 7 days. 35 outbreaks were from care homes, where six tested positive for influenza (5 A(not subtyped) and 1 A(H3)) and one tested positive for RSV. Three outbreaks were from schools where one tested positive for influenza A(not subtyped). Three outbreaks were from hospitals where one tested positive for influenza A(H3). The remaining outbreak was from the other settings category (a day centre for dementia) with no test results available.

-Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and Respscidsc@phe.gov.uk.

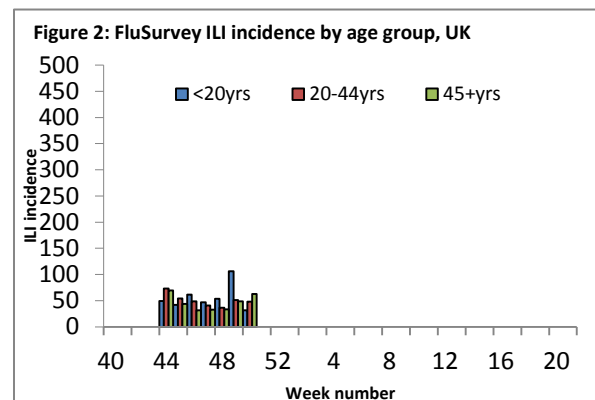


- FluSurvey

- Internet-based surveillance of influenza-like illness in the general population is undertaken through the FluSurvey. A project run jointly by PHE and the London School of Hygiene and Tropical Medicine.

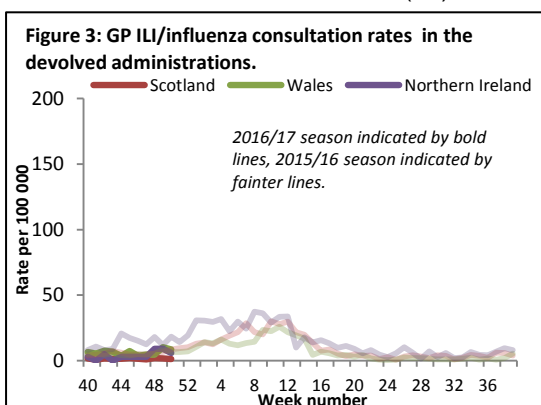
- The overall ILI rate (all age groups) for week 49 was 57.3 per 1,000 (107/1,761 people reported at least 1 ILI), with the 45+ years age group reporting a higher rate of 62.6 per 1,000.

- If you would like to become a participant of the FluSurvey project please do so by visiting the <https://flusurvey.org.uk/en/accounts/register/> website for more information.



In week 50, overall weekly influenza-like illness GP consultations have increased slightly in England. In the devolved administrations, ILI rates have remained within their respective pre-epidemic thresholds in Scotland and Northern Ireland; however ILI rates in Wales continue to increase.

- Influenza/Influenza-Like-Illness (ILI)



Northern Ireland

-The Northern Ireland ILI rate has decreased at 21.5 per 100,000 in week 50 compared to 23.2 per 100,000 in week 49 (Figure 3). This remains below the baseline threshold (47.9 per 100,000).

-The highest rates were seen in the 75+ year olds (36.5 per 100,000) and 1-4 year olds (31.7 per 100,000).

Wales

-The Welsh ILI rate has increased at 13.4 per 100,000 in week 50 compared to 12.9 per 100,000 in week 49 (Figure 3). This is above the baseline threshold (10.3 per 100,000).

- The highest rates were seen in the 45-64 year olds (21.1 per 100,000) and 65-74 year olds (17.2 per 100,000).

Scotland

-The Scottish ILI rate has remained similar to the previous week at 11.1 per 100,000 in week 50 compared to 11.3 per 100,000 in week 49 (Figure 3). This remains below the baseline threshold (36.1 per 100,000).

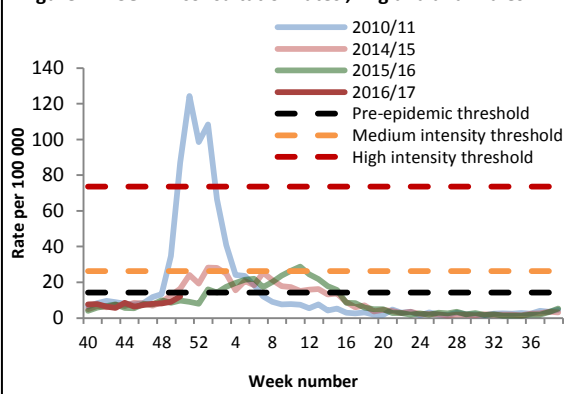
-The highest rates were seen in 45-64 year olds (15.1 per 100,000) and 15-44 year olds (11.9 per 100,000).

RCGP (England and Wales)

- The weekly ILI consultation rate through the RCGP surveillance is at 12.1 per 100,000 in week 50 compared to 9.0 per 100,000 in week 49. This is below the baseline threshold (14.3 per 100,000) (Figure 4*). By age group, the highest rates were seen in 1-4 year olds (18.5 per 100,000) and 45-64 year olds (15.4 per 100,000).

**The Moving Epidemic Method has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity in a standardised approach across Europe.*

Figure 4: RCGP ILI consultation rates, England and Wales



GP In Hours Syndromic Surveillance System (England)

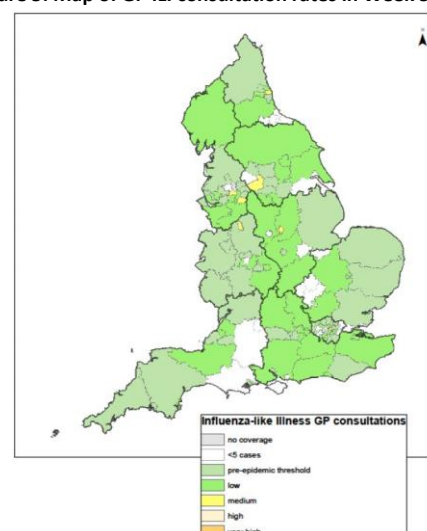
-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system is at 9.7 per 100,000 in week 50 (Figure 5).

Figure 5 represents a map of GP ILI consultation rates in Week 50 across England by Local Authorities, using influenza-like illness surveillance thresholds.

Thresholds are calculated using a standard methodology for setting ILI thresholds across Europe (the "Moving Epidemic Method" (MEM)) and are based on six previous influenza seasons (excluding the 2009/10 H1N1 pandemic)

-For further information, please see the syndromic surveillance [webpage](#).

Figure 5: Map of GP ILI consultation rates in Week 50



Influenza confirmed hospitalisations

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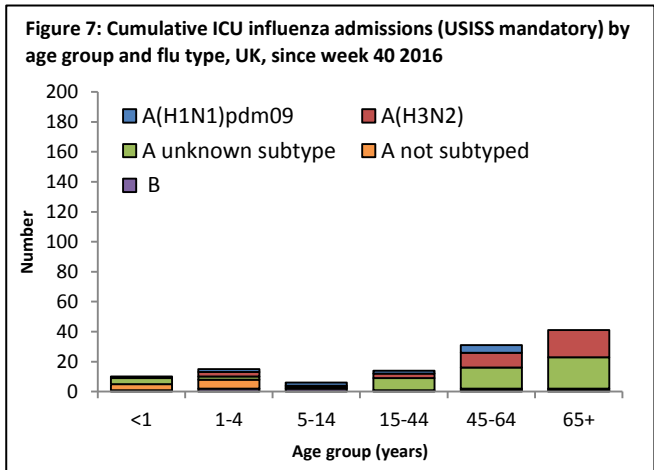
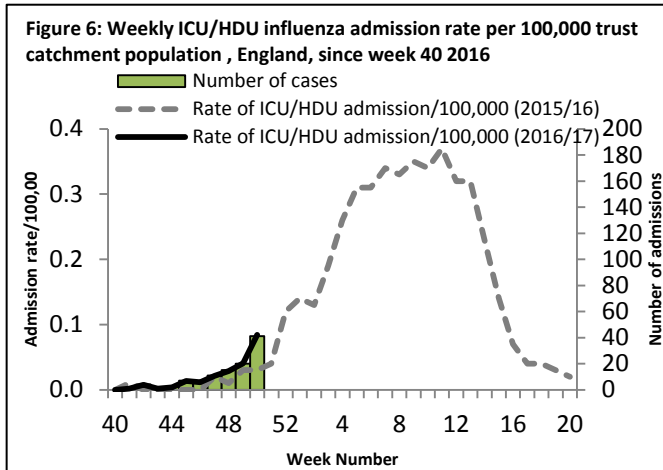
In week 50, there were 41 admissions to ICU/HDU with confirmed influenza (14 influenza A(H3N2), 21 influenza A(unknown subtype), 4 influenza A(H1N1)pdm09 and 2 influenza B) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (141 Trusts). 45 hospitalised confirmed influenza cases (20 influenza A(H3N2), 19 influenza A(not subtyped) and 6 influenza B) were reported through the USISS sentinel hospital network across England (18 Trusts).

A national mandatory collection (USISS mandatory ICU scheme) is operating in cooperation with the Department of Health to report the number of confirmed influenza cases admitted to Intensive Care Units (ICU) and High Dependency Units (HDU) and number of confirmed influenza deaths in ICU/HDU across the UK. A confirmed case is defined as an individual with a laboratory confirmed influenza infection admitted to ICU/HDU. In addition a sentinel network (USISS sentinel hospital network) of acute NHS trusts is established in England to report weekly laboratory confirmed hospital admissions. Further information on these systems is available through the [website](#). Please note data in previously reported weeks are updated and so may vary by week of reporting

- Number of new admissions and fatal confirmed influenza cases in ICU/HDU (USISS mandatory ICU scheme), UK (week 50)

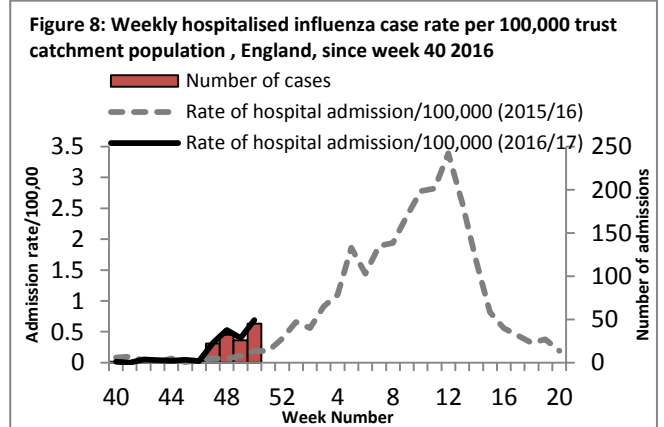
- In week 50, there were 41 admissions to ICU/HDU with confirmed influenza (14 influenza A(H3N2), 21 influenza A(unknown subtype), 4 influenza A(H1N1)pdm09 and 2 influenza B) were reported across the UK (141/156 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.08 per 100,000 compared to a rate of 0.04 per 100,000 in week 49 (Figures 6 and 7). One death was reported in week 50.

A total of 117 admissions (35 influenza A(H3N2), 11 influenza A(H1N1)pdm09, 63 influenza A(unknown subtype), and 8 influenza B) and seven confirmed deaths have been reported since week 40 2016.



- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 50)

- In week 50, there were 45 hospitalised confirmed influenza cases (20 influenza A(H3N2), 19 influenza A(not subtyped) and 6 influenza B) reported through the USISS sentinel hospital network from 18 NHS Trusts across England (Figure 8), a rate of 0.69 per 100,000 compared to 0.40 per 100,000 in the previous week. A total of 141 hospitalised confirmed influenza admissions (92 influenza A(H3N2), 41 influenza A(not subtyped) and 8 influenza B) have been reported since week 40 2016.



- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 50)

- In week 50, there were no confirmed influenza admissions reported from the six Severe Respiratory Failure (SRF) centres in the UK. There have been no admissions reported since week 40 2016.

All-cause mortality data

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In week 50, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England. In the devolved administrations, significant excess all-cause mortality was noted in Scotland in week 50 2016.

Seasonal mortality is seen each year in the UK, with a higher number of deaths in winter months compared to the summer. Additionally, peaks of mortality above this expected higher level typically occur in winter, most commonly the result of factors such as cold snaps and increased circulation of respiratory viruses, in particular influenza. Weekly mortality surveillance presented here aims to detect and report acute significant weekly excess mortality above normal seasonal levels in a timely fashion. Excess mortality is defined as a significant number of deaths reported over that expected for a given point in the year, allowing for weekly variation in the number of deaths. The aim is not to assess general mortality trends or precisely estimate the

excess attributable to different factors, although some end-of-winter estimates and more in-depth analyses (by age, geography etc.) are undertaken.

- Excess overall all-cause mortality, England and Wales

-- In week 49 2016, an estimated 11,223 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is a decrease compared to the 10,439 estimated death registrations in week 48 2016.

- Excess all-cause mortality by age group, England, Wales, Scotland and Northern Ireland

-In week 50 2016 in England, no excess mortality by date of death above the upper 2 z-score threshold was seen in England after correcting ONS disaggregate data for reporting delay with the standardised [EuroMoMo](#) algorithm (Table 1). No significant excess was seen in any age groups or subnationally. This data is provisional due to the time delay in registration; numbers may vary from week to week.

- In the devolved administrations, significant excess mortality above the threshold was seen in Scotland (for all ages and in 65+ year olds) in week 50 2016 (Table 2). No excess was seen in Wales. Data was not available for Northern Ireland.

Table 2: Excess mortality by UK country, for all ages*

Country	Excess detected in week 50 2016?	Weeks with excess in 2016/17
England	×	NA
Wales	×	NA
Scotland	✓	46,49
Northern Ireland	-	-

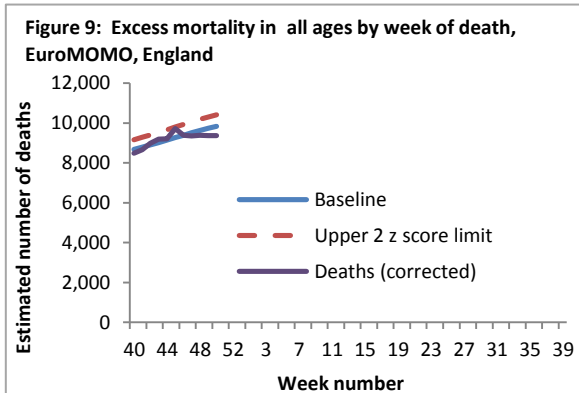
* Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold

NB. Separate total and age-specific models are run for England which may lead to discrepancies between Tables 1 + 2

Table 1: Excess mortality by age group, England*

Age group (years)	Excess detected in week 50 2016?	Weeks with excess in 2016/17
<5	×	NA
5-14	×	NA
15-64	×	45
65+	×	NA

* Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold



Microbiological surveillance

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In week 50 2016, 49 samples tested positive for influenza (39 influenza A(H3N2), 9 influenza A(unknown subtype) and 1 influenza B) through the UK GP sentinel schemes with an overall positivity of 26.6%. 165 positive detections were recorded through the DataMart scheme (122 influenza A(H3N2), 39 influenza A(not subtyped) and 4 influenza B) with a positivity of 10.7%.

- Sentinel swabbing schemes in England (RCGP) and the Devolved Administrations

-In week 50, 49 samples tested positive for influenza (39 influenza A(H3N2), 9 influenza A(unknown subtype) and 1 influenza B) through the UK GP sentinel swabbing schemes, with an overall positivity of 26.6% compared to 15.4% in week 50 (Table 3).

Since week 40 2016, 125 samples (99 influenza A(H3N2), 15 influenza A(unknown subtype), 2 influenza A(H1N1)pdm09 and 9 influenza B) have tested positive for influenza through this scheme.

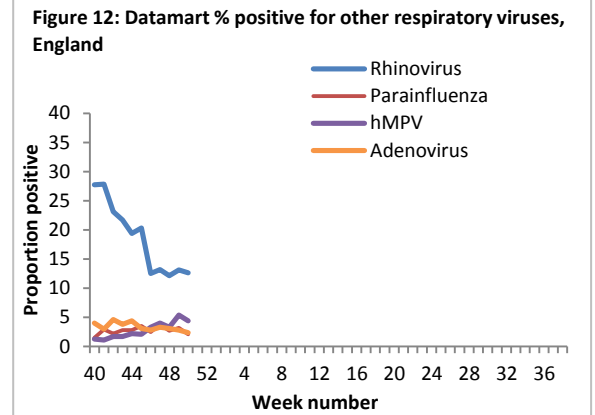
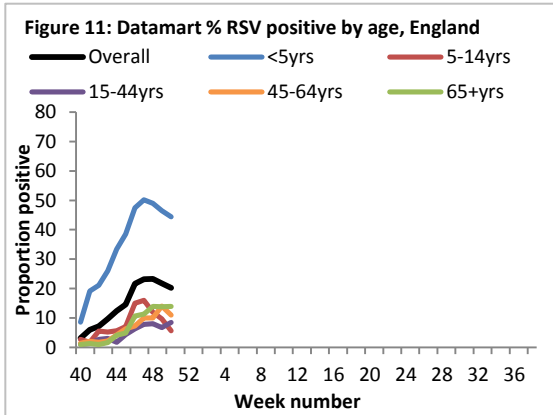
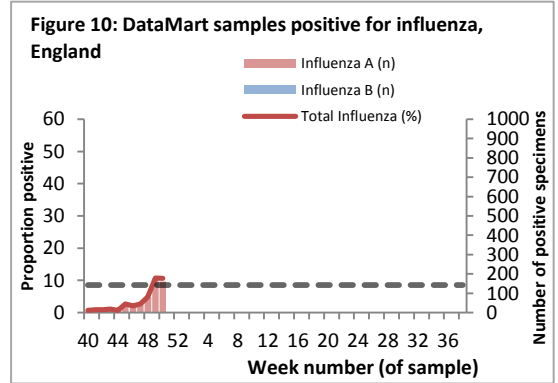
Table 3: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
46	4/89 (4.5%)	5/74 (6.8%)	0/4 (-)	0/3 (-)
47	5/91 (5.5%)	2/67 (3%)	0/0 (-)	0/3 (-)
48	5/95 (5.3%)	6/92 (6.5%)	1/5 (-)	0/7 (-)
49	19/107 (17.8%)	9/92 (9.8%)	3/6 (-)	3/16 (18.8%)
50	35/110 (31.8%)	10/65 (15.4%)	3/8 (-)	1/1 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Respiratory DataMart System (England)

In week 50 2016, out of the 1,548 respiratory specimens reported through the Respiratory DataMart System, 165 samples (10.7%) were positive for influenza (122 influenza A(H3N2), 39 influenza A(not subtyped) and 4 influenza B) (Figure 10), which is above the MEM threshold for this season of 8.6%. The highest positivities by age group were seen in the 5-14 year olds (19.4%) and 15-44 year olds (14.3%). The overall positivity for RSV continued to decrease at 20.2% in week 50 compared to 21.8% in week 49. The highest positivity was noted in the <5 year olds at 44.4% in week 50 compared to 46.5% in week 49 (Figure 11). Positivities for rhinovirus and adenovirus were low remained similar to the previous week in week 50 at 12.7% and 2.4% respectively. Positivities for parainfluenza and human metapneumovirus (hMPV) decreased slightly; from 3.2% in week 49 to 2.1% in week 50 and from 5.4% in week 49 to 4.4% in week 50, respectively.



*The Moving Epidemic Method has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity in a standardised approach across Europe. The threshold to indicate a likelihood of influenza community circulation for Datamart % positive as calculated through the Moving Epidemic Method is 8.6% in 2016/17.

- Virus characterisation

PHE characterises the properties of influenza viruses through one or more tests, including genome sequencing (genetic analysis) and haemagglutination inhibition (HI) assays (antigenic analysis). These data are used to compare how similar the currently circulating influenza viruses are to the strains included in seasonal influenza vaccines, and to monitor for changes in circulating influenza viruses. The interpretation of genetic and antigenic data sources is complex due to a number of factors, for example, not all viruses can be cultivated in sufficient quantity for antigenic characterisation, so that viruses with sequence information may not be able to be antigenically characterised as well.

Since the start of the 2016/17 winter influenza season in week 40 2016, the PHE Respiratory Virus Unit has characterised two A(H1N1)pdm09 influenza viruses: one genetically and one antigenically. The A(H1N1)pdm09 virus genetically characterised belongs in the genetic subgroup 6B.1, which was the predominant genetic subgroup in the 2015/16 season. The virus antigenically analysed is similar to the A/California/7/2009 Northern Hemisphere 2016/17 (H1N1)pdm09 vaccine strain.

Genetic characterisation of 24 A(H3N2) influenza viruses since week 40 showed that they all belong to genetic subclade 3C.2a, with 16 belonging to a cluster within this genetic subclade designated as 3C.2a1. Viruses within this cluster are antigenically similar to other 3C.2a subclade viruses, which was the majority group circulating during the 2015/16 season. The Northern Hemisphere 2016/17 influenza A(H3N2) vaccine strain A/HongKong/4801/2014 belongs in genetic subclade 3C.2a. One influenza A(H3N2) virus has been isolated and antigenically characterised since week 40 2016. The virus antigenically analysed is similar to the A/HongKong/4801/2014 Northern Hemisphere 2016/17 A(H3N2) vaccine strain.

One influenza B virus has been analysed genetically since week 40/2015 and has been characterised as belonging to the B/Yamagata/16/88-lineage. One influenza B virus has been isolated and antigenically characterised since week 40 2016. This virus was characterised as belonging to the B/Yamagata/16/88-lineage and was antigenically similar to B/Phuket/3073/2013, the influenza B/Yamagata-lineage component of 2016/17 Northern Hemisphere quadrivalent vaccine.

- Antiviral susceptibility

Since week 40 2016, one influenza A(H1N1)pdm09 virus, three influenza A(H3N2) virus and one influenza B (Yamagata) virus have been tested for oseltamivir susceptibility and all but one influenza A(H3N2) virus are sensitive to oseltamivir. One influenza A(H1N1)pdm09 virus, two influenza A(H3N2) and one influenza B (Yamagata) virus have also been tested for zanamivir susceptibility and all but one influenza A(H3N2) virus are sensitive to zanamivir.

The resistant influenza A(H3N2) virus to both oseltamivir and zanamivir has an R292K mutation and was isolated from a treated patient with underlying conditions. The R292K mutation causes resistance to oseltamivir and reduced susceptibility to zanamivir.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 18 December 2016, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community acquired pneumonia (CAP) and the choice of antibiotics reflects the British Thoracic Society empirical guidelines for management of CAP in adults.

Table 4: Antimicrobial susceptibility surveillance in lower respiratory tract isolates, 12 weeks up to 18 December 2016, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	3,637	90
	Macrolides	4,071	82
	Tetracycline	3,932	84
<i>H. influenzae</i>	Amoxicillin/ampicillin	14,106	70
	Co-amoxiclav	14,427	87
	Macrolides	5,354	13
	Tetracycline	14,137	98
<i>S. aureus</i>	Methicillin	6,257	91
	Macrolides	6,764	67
MRSA	Clindamycin	359	44
	Tetracycline	546	84
MSSA	Clindamycin	3,190	77
	Tetracycline	5,304	93

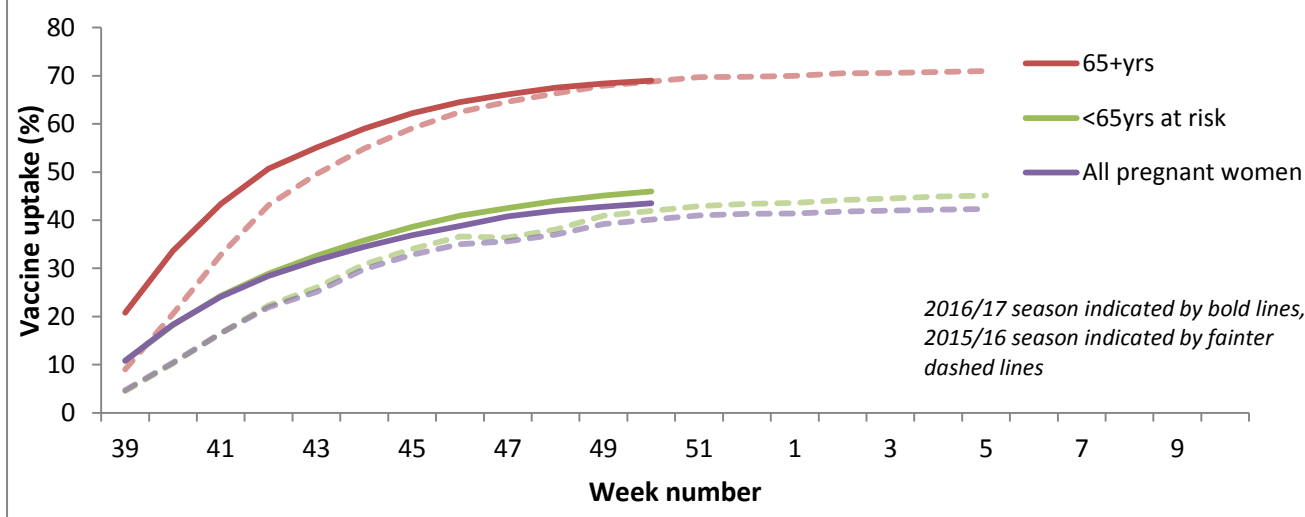
*Macrolides = erythromycin, azithromycin and clarithromycin

Vaccination

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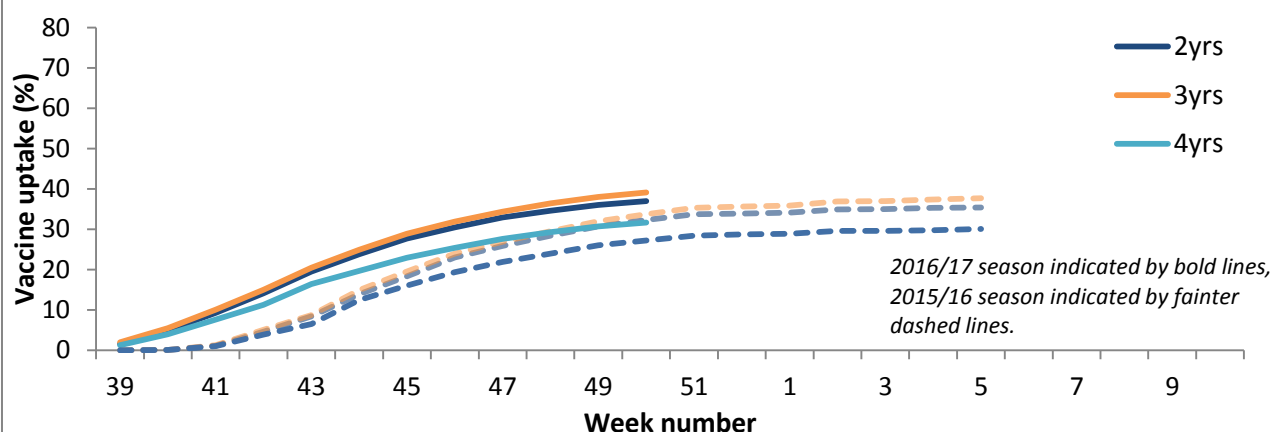
- Up to week 50 2016 in 88.8% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2016/17 influenza vaccine in targeted groups was as follows, with vaccination activity starting earlier than last season (Figure 13):
 - 46.0% in under 65 years in a clinical risk group
 - 43.5% in pregnant women
 - 69.0% in 65+ year olds

Figure 13: Cumulative weekly influenza vaccine uptake by target group in England



- In 2016/17, all two-, three- and four-year-olds continue to be eligible for flu vaccination. In addition, the programme has been extended to children of school years 1, 2 and 3 age. Up to week 50 2016 in 91.8% of GP practices reporting weekly to Immform, the provisional proportion of children in England who had received the 2016/17 influenza vaccine in targeted groups was as follows (Figure 14):
 - 37.0% in all 2 year olds
 - 39.1% in all 3 year olds
 - 31.7% in all 4 year olds

Figure 14: Cumulative weekly influenza vaccine uptake by target group in England



- Provisional data from the second monthly collection of influenza vaccine uptake in GP patients up to 30 November 2016 show that in 95.1% of all GP practices in England responding to the main GP survey, the proportion of people in England who received the 2016/17 influenza vaccine was as follows:
 - 43.5% in under 65 years in a clinical risk group
 - 41.5% in pregnant women
 - 66.7% in 65+ year olds
- Provisional data from the second monthly collection of influenza vaccine uptake in GP patients up to 30 November 2016 show that in 95.1% of all GP practices in England responding to the child GP survey, the proportion of people in England who received the 2016/17 influenza vaccine was as follows:
 - 33.8% in all 2 year olds
 - 35.5% in all 3 year olds
 - 29.0% in all 4 year olds
- Provisional data from the second monthly collection of influenza vaccine uptake by frontline healthcare workers show 55.6% were vaccinated by 30 November 2016 from 98.5% of Trusts, compared to 44.1% vaccinated in the previous season by 30 November 2015. The report provides uptake at Trust level.
- Provisional data from the second monthly collection of influenza vaccine uptake for children of school years 1, 2 and 3 age (from a sample of 100% of all Local Authorities in England) show the provisional proportion of children in England who received the 2016/17 influenza vaccine via school, pharmacy or GP practice by 30 November 2016 in targeted groups was as follows:
 - 44.4% in children of school Year 1 age (5-6 years)
 - 42.4% in children of school Year 2 age (6-7 years)
 - 40.5% in children of school Year 3 age (7-8 years)

International Situation

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Influenza activity in the temperate zone of the northern hemisphere has started to increase, with influenza A(H3N2) being the dominant subtype.

- [Europe](#) updated on 16 December 2016 (Joint ECDC-WHO Influenza weekly update)

In week 49/2016, influenza activity remained low but is increasing across Europe. The proportion of virus detections among sentinel surveillance specimens increased to 28%. The majority of viruses detected this week were influenza A(H3N2).

In week 49/2016, influenza activity increased further in some countries in week 49/2016. Of 31 countries across the region that tested at least 10 sentinel specimens, 27 reported influenza virus positivity rates above 10%.

For week 49/2016, 438 of 1 544 (28%) sentinel specimens tested positive for influenza virus. Of these, 94% were type A and 6% were type B. The great majority (99%) of subtyped influenza A viruses were A(H3N2). The lineage of 22 influenza B viruses was determined, of which 55% were B/Victoria lineage and 45% were B/Yamagata lineage.

For week 49/2016, of those countries, territories and regions that conduct surveillance based on sentinel severe acute respiratory infection (SARI), 123 influenza virus-positive cases were reported.

For week 49/2016, of those countries, territories and regions that conduct surveillance based on hospitalized laboratory-confirmed influenza cases in intensive care units (ICU) or other wards, four cases in total, 3 with influenza A and 1 with A(H3N2) infection were reported in ICU by Ireland, Spain and Sweden, and 38 cases in total, 25 with influenza A and 13 with A(H3N2) infection were reported in other wards by Ireland, Romania and Spain.

For week 49/2016, 2 795 specimens from non-sentinel sources (such as hospitals, schools, non-sentinel primary care units, nursing homes and other care institutions) tested positive for influenza viruses. Similar to the previous week, 97% were type A and 3% type B, with 98% of the subtyped influenza A viruses being A(H3N2).

- [United States of America](#) updated on 16 December 2016 (Centre for Disease Control report)

During week 49, influenza activity increased slightly but remained low in the United States.

The most frequently identified influenza virus subtype reported by public health laboratories during week 49 was influenza A (H3). The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased slightly.

A cumulative rate for the season of 1.7 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.

Nationwide during week 49, the proportion of outpatient visits for influenza-like illness (ILI) was 1.9%, which is below the national baseline of 2.2%.

- [Canada](#) updated on 16 December 2016 (Public Health Agency report)

Seasonal influenza activity is increasing in Canada, with greater numbers of influenza detections, hospitalizations and outbreaks being reported in week 49.

A total of 554 positive influenza detections were reported in week 49. Influenza A(H3N2) continues to be the most common subtype detected.

In week 49, 1.1% of visits to sentinel healthcare professionals were due to influenza-like symptoms.

Sixteen laboratory-confirmed influenza outbreaks were reported in week 49, with the majority occurring in long-term care facilities.

104 hospitalizations were reported from participating provinces and territories in week 49; the majority due to influenza A(H3N2).

To date this season, 327 hospitalizations have been reported, of which 98% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (238/239) were influenza A(H3N2). Adults 65+ accounted for approximately 62% of the hospitalizations. Ten ICU admissions and less than five deaths have been reported.

- [Global influenza update](#) updated on 12 December 2016 (WHO website)

Influenza activity in the temperate zone of the northern hemisphere has slightly increased.

In North America, influenza activity slightly increased with influenza A(H3N2) virus predominating. Influenza-like illness (ILI) levels remained below seasonal thresholds. In the United States, respiratory syncytial virus (RSV) activity continued to be reported.

In Europe, influenza activity was low but has started to rise, particularly in Northern European countries. Influenza A viruses were predominating with the most frequent subtype being A(H3N2). The season has started earlier than usual with a positivity rate $\geq 10\%$ for influenza among sentinel surveillance samples.

In East Asia, influenza activity increased slightly with influenza A(H3N2) remaining the dominant virus circulating. In Western Asia influenza detections remained low.

In Northern Africa, influenza detections increased in Morocco with influenza A(H3N2) viruses dominating.

In the Caribbean countries, influenza and other respiratory virus activity remained low. In Central America, there was a slight decrease in influenza and other respiratory viruses activity. RSV continued to circulate in Costa Rica.

In tropical South America, influenza and other respiratory viruses activity remained low with exception of Colombia where RSV activity continued to be reported.

In Southern Asia, there was a slight increase in influenza detections in both Iran and Sri Lanka with influenza A(H3N2) as the most frequently detected virus in this region.

In South East Asia, influenza activity continued to be reported at low levels, with influenza A(H3N2) virus predominant in the region. A slight increase in influenza A(H1N1)pdm09 detections was reported in Vietnam.

In West Africa, influenza detections increased in Ghana with B viruses dominating. In Southern Africa, influenza activity continued at inter-seasonal levels.

In temperate South America, influenza and RSV activity continued to decrease throughout the sub-region.

In Oceania, influenza virus activity was reported at inter-seasonal levels.

Based on FluNet reporting, the WHO GISRS laboratories tested more than 93,152 specimens between 14 November 2016 and 27 November 2016. 6,209 were positive for influenza viruses, of which 5,630 (90.7%) were typed as influenza A and 579 (9.3%) as influenza B. Of the sub-typed influenza A viruses, 112 (2.9%) were influenza A(H1N1)pdm09 and 3,787 (97.1%) were influenza A(H3N2). Of the characterized B viruses, 46 (36.2%) belonged to the B-Yamagata lineage and 81 (63.8%) to the B-Victoria lineage.

- [Avian Influenza](#) latest update on 19 December 2016 (WHO website)

Influenza A(H5) viruses

On [07 December 2016](#), two new laboratory-confirmed human case of influenza A(H5N6) virus infection was reported to WHO from the National Health and Family Planning Commission (NHFP) of China.

Since 2003, a total of 856 laboratory-confirmed cases of human infection with avian influenza A(H5N1) virus, including 452 deaths, have been reported to WHO from 16 countries.

Although other influenza A(H5) subtype viruses have the potential to cause disease in humans, no human cases, other than those with influenza A(H5N1) and A(H5N6), have been reported so far. According to reports received by the World Organisation for Animal Health (OIE), various influenza A(H5) subtypes continue to be detected in birds in West Africa, Europe and Asia. There have also been numerous detections of influenza A(H5N8) viruses in wild birds and domestic poultry in several countries in Asia and Europe since June 2016.

Influenza A(H7N9)

On [12 December 2016](#), the National Health and Family Planning Commission (NHFP) of China notified WHO of six (6) additional cases of laboratory-confirmed human infection with avian influenza A(H7N9) virus.

On [14 December 2016](#), the Health Bureau, Macao Special Administrative Region (SAR) (China) confirmed a case of human infection with avian influenza A(H7N9) virus affecting a 58-year old male.

A total of 807 laboratory-confirmed human infections with avian influenza A (H7N9) virus have been reported through IHR notification since early 2013.

- [Middle East respiratory syndrome coronavirus \(MERS-CoV\)](#) latest update on 19 December 2016

Between [27 November](#) and [13 December 2016](#), the National IHR Focal Point of Saudi Arabia reported 22 additional cases of Middle East Respiratory Syndrome (MERS) including two fatal cases. Five deaths among previously reported MERS cases were also reported.

Up to 21 December 2016, a total of four cases of Middle East respiratory syndrome coronavirus, MERS-CoV, (two imported and two linked cases) have been confirmed in the UK. On-going surveillance has identified 898 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

Globally, since September 2012, WHO has been notified of 1,864 laboratory-confirmed cases of infection with MERS-CoV, including at least 659 related deaths. Further information on management and guidance of possible cases is available [online](#). The latest ECDC MERS-CoV risk assessment can be found [here](#), where it is highlighted that risk of widespread transmission of MERS-CoV remains low.

Acknowledgements

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This report was prepared by the Influenza section, Respiratory Diseases Department, Centre for Infectious Disease Surveillance and Control, Public Health England. We are grateful to all who provided data for this report including the RCGP Research and Surveillance Centre, the PHE Real-time Syndromic Surveillance team, the PHE Respiratory Virus Unit, the PHE Modelling and Statistics unit, the PHE Dept. of Healthcare Associated Infection & Antimicrobial Resistance, PHE regional microbiology laboratories, Office for National Statistics, the Department of Health, Health Protection Scotland, National Public Health Service (Wales), the Public Health Agency Northern Ireland, the Northern Ireland Statistics and Research Agency, QSurveillance[®] and EMIS and EMIS practices contributing to the QSurveillance[®] database.

Weekly consultation rates in national sentinel schemes

- [Sentinel schemes operating across the UK](#)
- [RCGP scheme](#)
- Northern Ireland surveillance ([Public Health Agency](#))
- Scotland surveillance ([Health Protection Scotland](#))
- Wales surveillance ([Public Health Wales](#))
- [Real time syndromic surveillance](#)
- MEM threshold [methodology paper](#) and [UK pilot paper](#)

Community surveillance

- [Outbreak reporting](#)
- [FluSurvey](#)
- [MOSA](#)

Disease severity and mortality data

- [USISS](#) system
- [EuroMOMO](#) mortality project

Vaccination

- Seasonal influenza vaccine programme ([Department of Health Book](#))
- Childhood flu programme information for healthcare practitioners ([Public Health England](#))
- 2016/17 Northern Hemisphere seasonal influenza vaccine recommendations ([WHO](#))