



PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

15 December 2016 – Week 50 report (up to week 49 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 49 (ending 11 December 2016), influenza activity is starting to increase for several indicators in particular flu outbreaks in the community, the proportion of laboratory samples positive for influenza in primary and secondary care and influenza admissions to intensive care. Respiratory Syncytial Virus (RSV) is nearing its peak.

- [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 49.
 - 37 new acute respiratory outbreaks have been reported in the past 7 days. 27 outbreaks were from care homes, where four tested positive for influenza (3 A(not subtyped) and 1 A(H3)) Five outbreaks were from schools where one tested positive for influenza A(not subtyped). The remaining five outbreaks were from hospitals where three tested positive for influenza A(not subtyped) and one tested positive for influenza A(H3).
- [Overall weekly influenza GP consultation rates across the UK](#)
 - In week 49, the overall weekly influenza-like illness (ILI) GP consultation rate was 9.0 per 100,000 in England compared to 8.2 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 increased but remained within their respective pre-epidemic thresholds in Scotland and Northern Ireland, however the Welsh pre-epidemic threshold has been breached.
- [Influenza-confirmed hospitalisations](#)
 - In week 49, there were 20 admissions to ICU/HDU with confirmed influenza (6 influenza A(H3N2), 11 influenza A(unknown subtype), 1 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 49, there were 18 hospitalised confirmed influenza cases (8 influenza A(H3N2) and 10 influenza A(not subtyped)) 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 49.
- [All-cause mortality data](#)
 - In week 49 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 49.
- [Microbiological surveillance](#)
 - 21 samples tested positive for influenza (17 influenza A(H3N2) and 4 influenza A(unknown subtype)) through GP sentinel schemes across the UK, with an overall positivity of 14.4% in week 49.
 - 124 influenza positive detections were recorded through the DataMart scheme (88 influenza A(H3N2), 33 influenza A(unknown subtype) and 3 influenza B). The overall positivity was at 9.4% in week 49, which is above the threshold for 2016/17 season of 8.6%.The highest positivities were seen in the 5-14 year olds (17.6%) and 65+year olds (14.6%).
 - Through the DataMart scheme, RSV activity is decreasing with an overall positivity of 22.3% in week 49 compared to 23.2% in week 48. The highest positivity remains in the <5 year olds at 47.1% in week 49.
- [Vaccination](#)
 - Up to week 49 2016, in 89.0% 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: 45.1% in under 65 years in a clinical risk group, 42.8% in pregnant women, 68.4% in 65+ year olds. In 92.0% of GP practices reporting to Immform, the provisional proportion of children in England who had received the 2016/17 influenza vaccine was as follows: 36.0% in all 2 year olds, 38.0% in all 3 year olds and 30.7% in all 4 year olds.
 - Provisional data from the first monthly collection of influenza vaccine uptake in GP patients up to 31 October 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 first monthly collection of influenza vaccine uptake by frontline healthcare workers show 40.4% were vaccinated by 31 October 2016, compared to 32.4% vaccinated in the previous season by 31 October 2015. The [report](#) provides uptake at Trust level.
 - Provisional data from the first 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 31 October 2016 in targeted groups was as follows: 14.5% in children of school Year 1 age (5-6 years); 13.9% in children of school Year 2 age (6-7 years); 13.2% 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 49, small increases in GP consultations for influenza-like illness were noted. 37 new acute respiratory outbreaks were reported in the past 7 days.

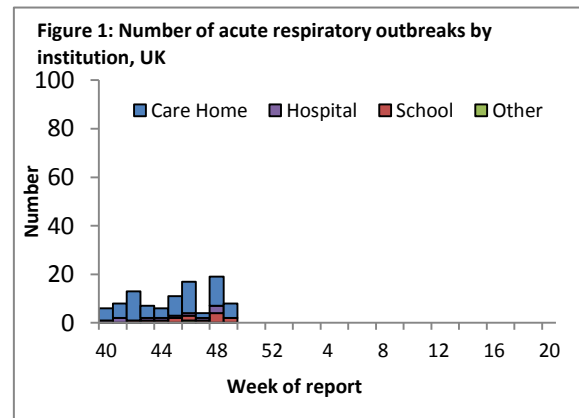
- PHE Real-time Syndromic Surveillance

- During week 49, there were small increases 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

- 37 new acute respiratory outbreaks have been reported in the past 7 days. 27 outbreaks were from care homes, where four tested positive for influenza (3 A(not subtyped) and 1 A(H3)) and five tested positive for other pathogens (2 RSV, 2 parainfluenza and 1 rhinovirus). Five outbreaks were from schools where one tested positive for influenza A(not subtyped). The remaining five outbreaks were from hospitals where three tested positive for influenza A(not subtyped) and one tested positive for influenza A(H3).

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

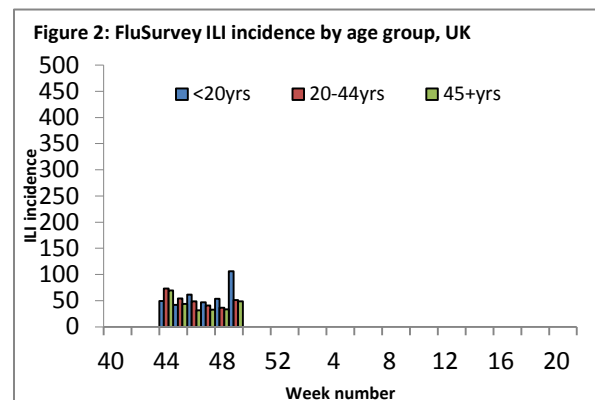


- FluSurvey

- 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.

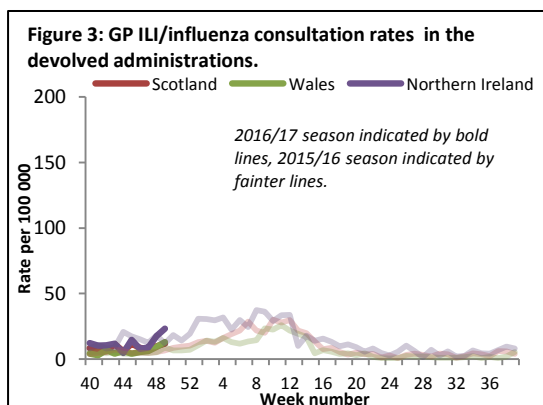
- The overall ILI rate (all age groups) for week 49 was 52.4 per 1,000 (97/1,852 people reported at least 1 ILI), with the 0-19 years age group reporting a higher rate of 106.4 per 1,000.

- 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 49, overall weekly influenza-like illness GP consultations has slightly increased in England. In the devolved administrations, ILI rates have increased but remained within their respective pre-epidemic thresholds in Scotland and Northern Ireland; however the Welsh pre-epidemic threshold has been breached.

- Influenza/Influenza-Like-Illness (ILI)



Northern Ireland

-The Northern Ireland ILI rate has increased at 23.2 per 100,000 in week 49 compared to 17.7 per 100,000 in week 48 (Figure 3). This remains below the baseline threshold (47.9 per 100,000).

-The highest rates were seen in the 45-64 year olds (39.0 per 100,000) and 75+ year olds (20.0 per 100,000).

Wales

-The Welsh ILI rate has increased at 12.9 per 100,000 in week 49 compared to 9.2 per 100,000 in week 48 (Figure 3). This is above the baseline threshold (10.3 per 100,000).

- The highest rates were seen in the <1 year olds (31.4 per 100,000) and 15-44 year olds (17.4 per 100,000).

Scotland

-The Scottish ILI rate has increased at 11.7 per 100,000 in week 49 compared to 9.8 per 100,000 in week 48 (Figure 3). This remains below the baseline threshold (36.1 per 100,000).

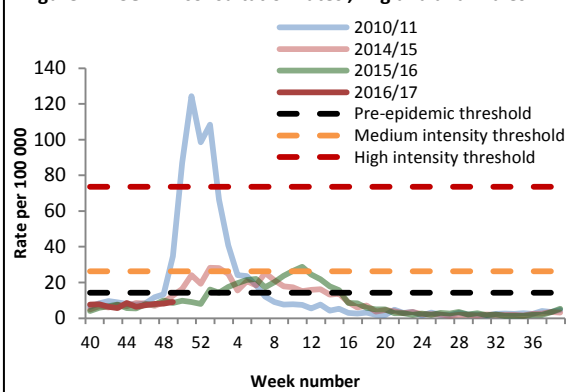
-The highest rates were seen in 45-64 year olds (16.2 per 100,000) and 15-44 year olds (12.4 per 100,000).

RCGP (England and Wales)

- The weekly ILI consultation rate through the RCGP surveillance is at 9.0 per 100,000 in week 49 compared to 8.2 per 100,000 in week 48. This is below the baseline threshold (14.3 per 100,000) (Figure 4*). By age group, the highest rates were seen in 45-64 year olds (10.8 per 100,000) and 15-44 year olds (10.3 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)

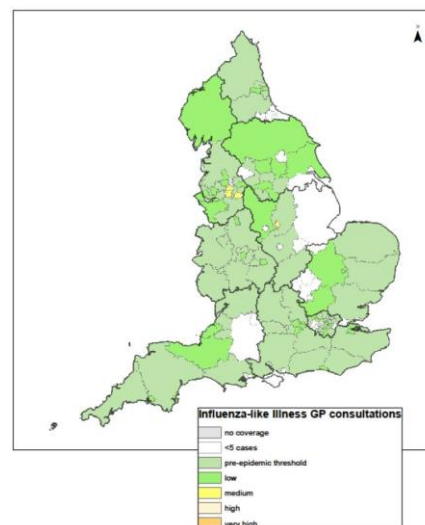
-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system is at 8.4 per 100,000 in week 49 (Figure 5).

Figure 5 represents a map of GP ILI consultation rates in Week 49 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 49



Influenza confirmed hospitalisations

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In week 49, there were 20 admissions to ICU/HDU with confirmed influenza (6 influenza A(H3N2), 11 influenza A(unknown subtype), 1 influenza A(H1N1)pdm09 and 2 influenza B) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (141 Trusts). 18 hospitalised confirmed influenza cases (8 influenza A(H3N2) and 10 influenza A(not subtyped)) were reported through the USISS sentinel hospital network across England (18 Trusts).

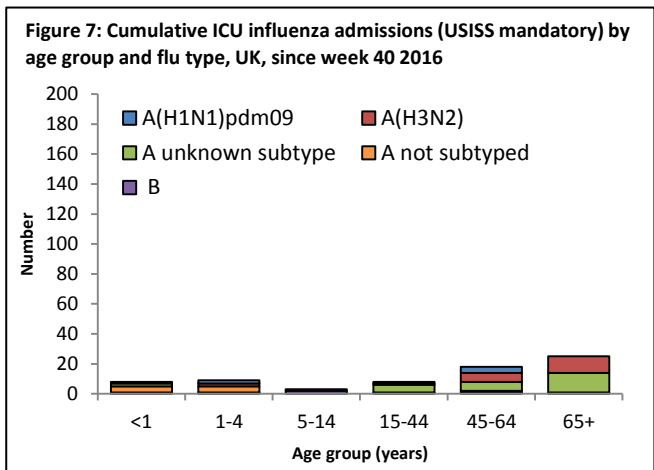
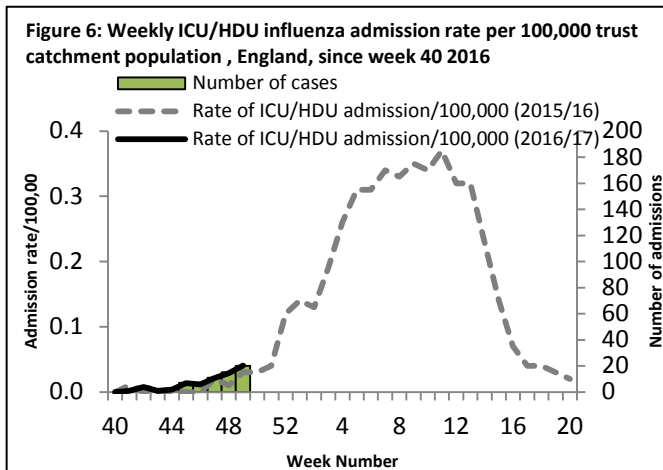
A national mandatory collection (USISS mandatory ICU scheme) is operating in cooperation with the Department of Health to report the number of confirmed influenza cases admitted to Intensive Care Units (ICU) and High Dependency Units (HDU) and number of confirmed influenza deaths in ICU/HDU across the 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 49)

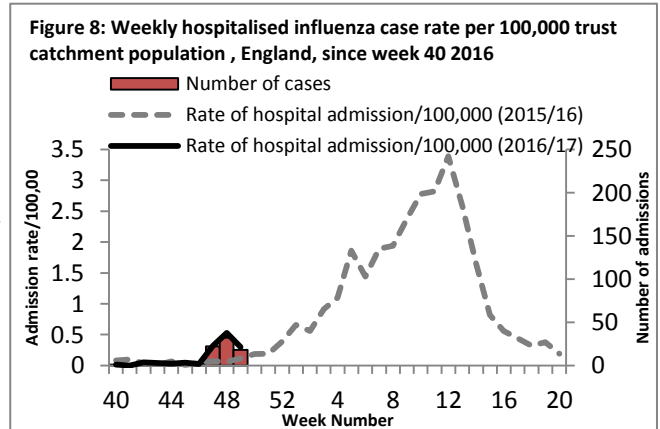
- In week 49, there were 20 admissions to ICU/HDU with confirmed influenza (6 influenza A(H3N2), 11 influenza A(unknown subtype), 1 influenza A(H1N1)pdm09 and 2 influenza B) were reported across the UK (141/156 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.04 per 100,000 compared to a rate of 0.03 per 100,000 in week 48 (Figures 6 and 7). No deaths were reported in week 49.

A total of 65 admissions (20 influenza A(H3N2), 7 influenza A(H1N1)pdm09, 34 influenza A(unknown subtype), and 4 influenza B) and five confirmed deaths have been reported since week 40 2016.



- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 49)

- In week 49, there were 18 hospitalised confirmed influenza cases (8 influenza A(H3N2) and 10 influenza A(not subtyped)) reported through the USISS sentinel hospital network from 18 NHS Trusts across England (Figure 8), a rate of 0.3 per 100,000 compared to 0.5 per 100,000 in the previous week. A total of 88 hospitalised confirmed influenza admissions (62 influenza A(H3N2), 24 influenza A(not subtyped) and 2 influenza B) have been reported since week 40 2016.



- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 49)

- In week 49, 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 49, 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 49 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 48 2016, an estimated 10,439 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is a decrease compared to the 10,603 estimated death registrations in week 47 2016.

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

-In week 49 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 49 2016 (Table 2). No excess was seen in Wales. Data was not available for Northern Ireland.

Table 1: Excess mortality by age group, England*

Age group (years)	Excess detected in week 49 2016?	Weeks with excess in 2016/17
<5	x	NA
5-14	x	NA
15-64	x	45
65+	x	NA

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

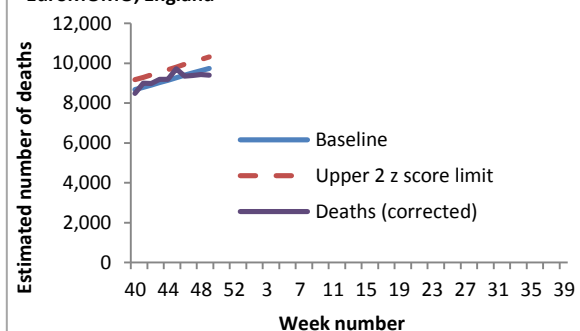
Table 2: Excess mortality by UK country, for all ages*

Country	Excess detected in week 49 2016?	Weeks with excess in 2016/17
England	x	NA
Wales	x	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

Figure 9: Excess mortality in all ages by week of death, EuroMoMo, England



Microbiological surveillance

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In week 49 2016, 21 samples tested positive for influenza (17 influenza A(H3N2) and 4 influenza A(unknown subtype)) through the UK GP sentinel schemes with an overall positivity of 14.4%. 124 positive detections were recorded through the DataMart scheme (88 influenza A(H3N2), 33 influenza A(not subtyped) and 3 influenza B) with a positivity of 9.4%.

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

-In week 49, 21 samples tested positive for influenza (17 influenza A(H3N2) and 4 influenza A(unknown subtype)) through the UK GP sentinel swabbing schemes, with an overall positivity of 14.4% compared to 6.1% in week 48 (Table 3).

Since week 40 2016, 60 samples (43 influenza A(H3N2), 9 influenza A(untyped), 1 influenza A(H1N1)pdm09 and 7 influenza B) have tested positive for influenza through this scheme.

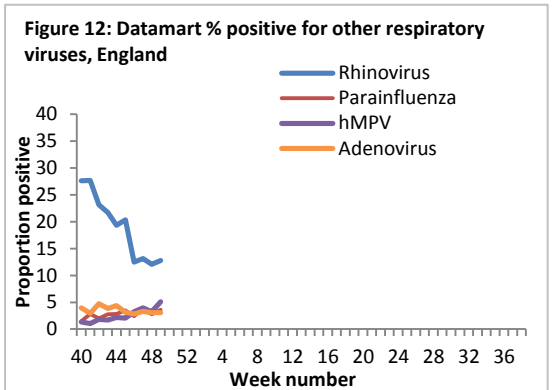
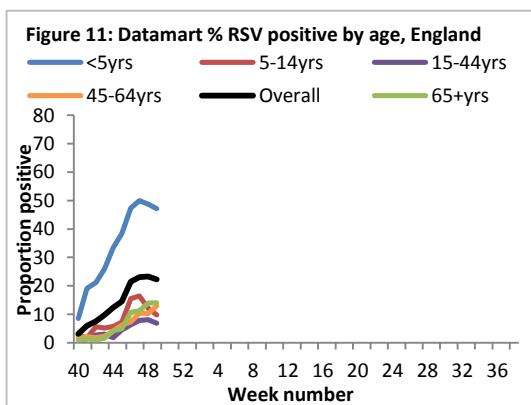
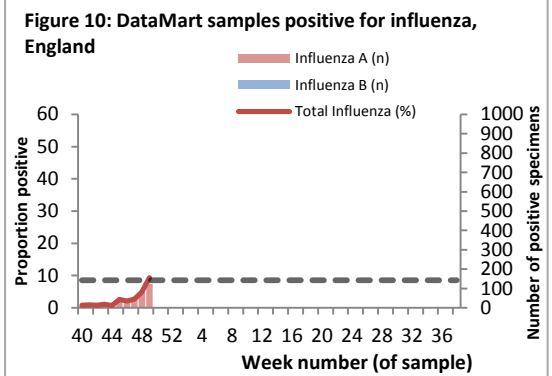
Table 3: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
45	3/70 (4.3%)	4/79 (5.1%)	0/7 (-)	0/0 (-)
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%)	6/91 (6.6%)	1/5 (-)	0/7 (-)
49	12/79 (15.2%)	5/56 (8.9%)	3/6 (-)	1/5 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Respiratory DataMart System (England)

In week 49 2016, out of the 1,326 respiratory specimens reported through the Respiratory DataMart System, 124 samples (9.4%) were positive for influenza (88 influenza A(H3N2), 33 influenza A(not subtyped) and 3 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 (17.6%) and 65+ year olds (14.6%). The overall positivity for RSV has started to decrease at 22.3% in week 49 compared to 23.2% in week 48. The highest positivity was noted in the <5 year olds at 47.1% in week 49 compared to 48.8% in week 48 (Figure 11). Positivities for rhinovirus and adenovirus remained similar to the previous week in week 49 at 12.8% and 3.0% respectively. On the other hand, positivities for parainfluenza and human metapneumovirus (hMPV) increased; from 2.8% in week 48 to 3.6% in week 49 and from 3.3% in week 48 to 5.1% in week 49, 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.

An amino acid substitution of R292K in the neuraminidase was detected in an A(H3N2) virus, in a sample taken 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 11 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 11 December 2016, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	3,321	90
	Macrolides	3,730	81
	Tetracycline	3,589	84
<i>H. influenzae</i>	Amoxicillin/ampicillin	13,136	69
	Co-amoxiclav	13,448	87
	Macrolides	5,128	13
	Tetracycline	13,149	98
<i>S. aureus</i>	Methicillin	6,021	91
	Macrolides	6,491	67
MRSA	Clindamycin	349	42
	Tetracycline	522	84
MSSA	Clindamycin	3,061	77
	Tetracycline	5,108	94

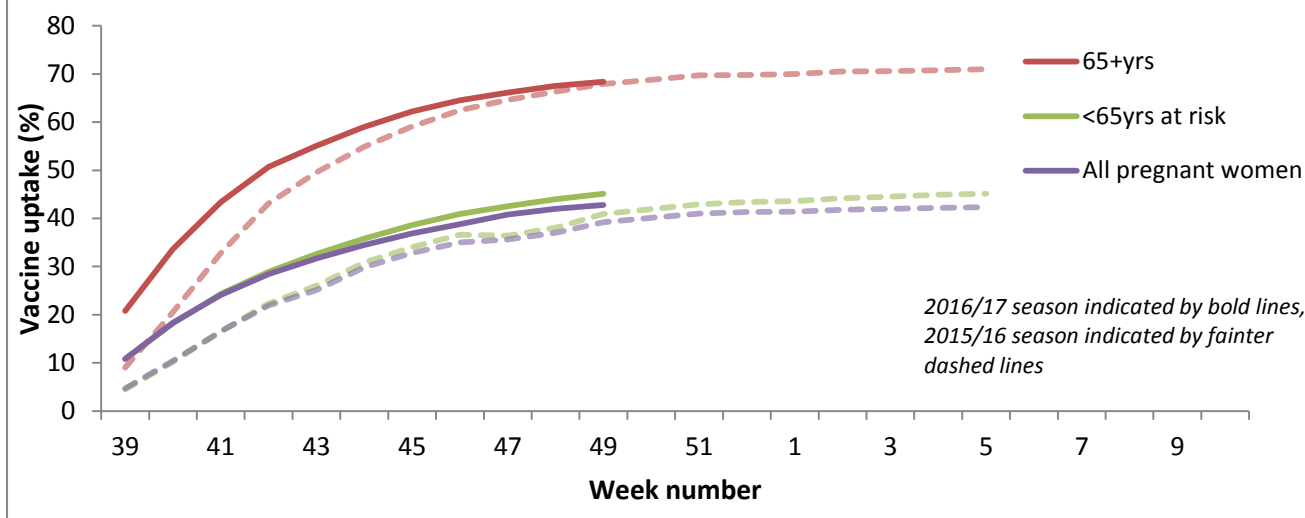
*Macrolides = erythromycin, azithromycin and clarithromycin

Vaccination

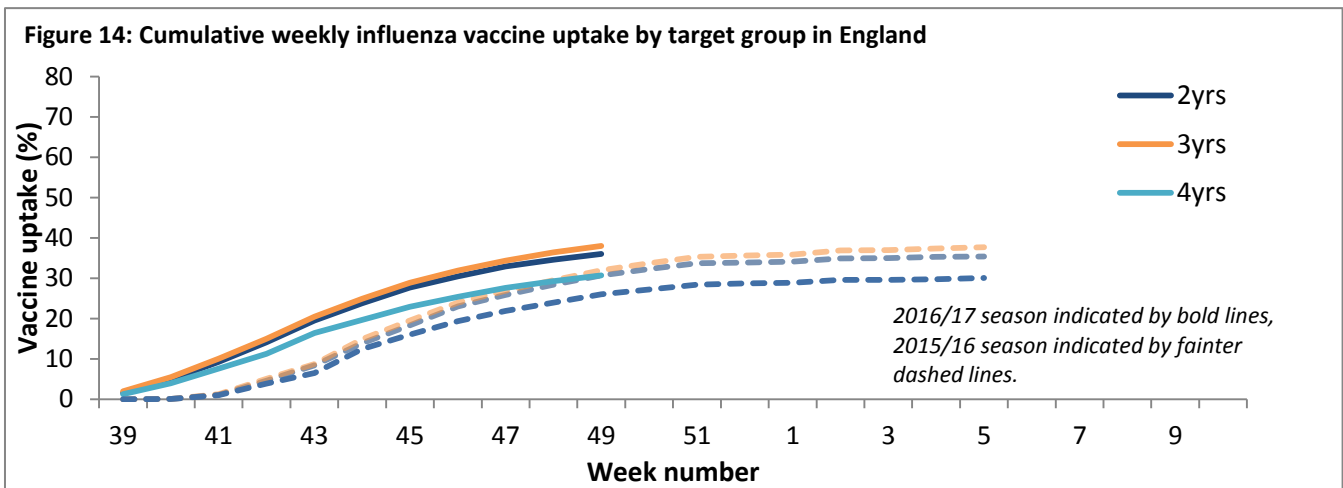
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- Up to week 49 2016 in 89.0% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2016/17 influenza vaccine in targeted groups was as follows, with vaccination activity starting earlier than last season (Figure 13):
 - 45.1% in under 65 years in a clinical risk group
 - 42.8% in pregnant women
 - 68.4% 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 49 2016 in 92.0% 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):
 - 36.0% in all 2 year olds
 - 38.0% in all 3 year olds
 - 30.7% in all 4 year olds



- Provisional data from the first monthly collection of influenza vaccine uptake in GP patients up to 31 October 2016 has been published.
- Provisional data from the first monthly collection of influenza vaccine uptake by frontline healthcare workers show 40.4% were vaccinated by 31 October 2016 from 95.8% of Trusts, compared to 32.4% vaccinated in the previous season by 31 October 2015. The report provides uptake at Trust level.
- Provisional data from the first monthly collection of influenza vaccine uptake for children of school years 1, 2 and 3 age (from a sample of 89.5% 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 31 October 2016 in targeted groups was as follows:
 - 14.5% in children of school Year 1 age (5-6 years)
 - 13.9% in children of school Year 2 age (6-7 years)
 - 13.2% 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 09 December 2016 (Joint ECDC-WHO Influenza weekly update)

In week 48/2016, influenza activity remained low but has started to increase in some countries. The proportion of virus detections among sentinel surveillance specimens increased to 19% and indicates increasing regional activity. The majority of viruses detected this week were influenza A(H3N2).

In week 46/2016, influenza virus detections increased to 10% among sentinel surveillance specimens. This is the earliest week in a season that the positivity rate has reached 10% since the emergence of A(H1N1)pdm09 viruses in the 2009-2010 influenza season; during the last six seasons this occurred between weeks 48 and 51.

For week 48/2016, 261 of 1378 (19%) sentinel specimens tested positive for influenza virus. Of these, 91% were type A and 9% were type B. The great majority (97%) of subtyped influenza A viruses were H3N2. The lineage of 21 of 23 influenza B viruses was determined, of which 48% were B/Victoria lineage and 52% were B/Yamagata lineage.

For week 48/2016, of those countries, territories and regions that conduct surveillance based on sentinel severe acute respiratory infections (SARI), 172 influenza virus-positive SARI cases were reported. Of these, 76% were reported from Kyrgyzstan (n=63), Armenia (n=46) and Ukraine (n=21). Of all influenza cases reported, 152 (88%) were infected by type A viruses with 136 being H3N2 and 16 not subtyped. The 20 influenza B viruses were not ascribed to a lineage. A(H3N2) viruses were detected in all Armenian SARI cases.

For week 48/2016, 1 227 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 09 December 2016 (Centre for Disease Control report)

During week 48, 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 48 was influenza A (H3). The percentage of respiratory specimens testing positive for influenza in clinical laboratories remained low.

Nationwide during week 48, the proportion of outpatient visits for influenza-like illness (ILI) was 1.8%, which is below the national baseline of 2.2%.

- [Canada](#) updated on 09 December 2016 (Public Health Agency report)

Influenza activity has reached seasonal levels with many regions in Canada reporting increasing influenza activity in week 48.

A total of 201 positive influenza detections were reported in week 48. Influenza A(H3N2) continues to be the most common subtype detected.

In week 48, 1.1% of visits to sentinel healthcare professionals were due to influenza-like symptoms.

Two laboratory-confirmed influenza outbreaks were reported in week 48 with all occurring in long-term care facilities.

28 hospitalizations were reported from participating provinces and territories in week 48; the majority due to influenza A(H3N2).

To date this season, 204 hospitalizations have been reported, of which 163 (80%) were due to influenza A(H3N2). Adults 65+ accounted for 62% of the hospitalizations. Eighteen ICU admissions (majority were associated influenza A[H3N2]) 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 07 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 [11 November 2016](#), the National Health and Family Planning Commission (NHFP) of China notified WHO of two additional cases of laboratory-confirmed human infection with avian influenza A(H7N9) virus. A total of 800 laboratory-confirmed cases of human infection with avian influenza A(H7N9) viruses, including at least 322 deaths, have been reported to WHO.

- [Middle East respiratory syndrome coronavirus \(MERS-CoV\)](#) latest update on 08 December 2016

On [29 November 2016](#), the National IHR Focal Point of Oman reported one additional case of Middle East Respiratory Syndrome Coronavirus (MERS-CoV).

Between [12 and 27 November 2016](#) the National IHR Focal Point of Saudi Arabia reported nine (9) additional cases of Middle East Respiratory Syndrome (MERS) including one fatal case.

Up to 14 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 894 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

Globally, since September 2012, WHO has been notified of 1,841 laboratory-confirmed cases of infection with MERS-CoV, including at least 652 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.

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- MEM threshold [methodology paper](#) and [UK pilot paper](#)

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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](#))