PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

06 April 2017 – Week 14 report (up to week 13 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.

Summary

During week 13 (ending 02 April 2017), influenza activity continues to decrease across all indicators. 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, GP consultations for influenza-like illness (ILI) were stable in week 13.
  - 12 new acute respiratory outbreaks have been reported in the past 7 days. Eight outbreaks were from care homes, where two tested positive for influenza (two influenza B). Four outbreaks were from hospitals where all four tested positive for influenza (one influenza A(H3N2) and three influenza B).
- Overall weekly influenza GP consultation rates across the UK
  - In week 13, the overall weekly influenza-like illness (ILI) GP consultation rate was 3.8 per 100,000 in England compared to 5.0 per 100,000 in the previous week. This is below the baseline threshold of 14.3 per 100,000 for this season. In the devolved administrations, ILI rates have decreased in Wales and increased in Scotland compared to the previous week.
- Influenza-confirmed hospitalisations
  - In week 13, there were six admissions to ICU/HDU with confirmed influenza (two influenza A(unknown subtype), two influenza B, one influenza A(H1N1pdm09) and one influenza A(H3N2)) were reported across the UK (123/156 Trusts in England) through the USISS mandatory ICU scheme with a rate of 0.01 per 100,000 compared to 0.02 per 100,000 in the previous week.
  - In week 13, there were nine hospitalised confirmed influenza cases (four influenza A(H3N2), one influenza A(not subtyped) and four influenza B) reported through the USISS sentinel hospital network (15 NHS Trusts across England), with a rate of 0.20 per 100,000, compared to 0.11 per 100,000 in the previous week.
  - No confirmed influenza admissions have been reported from the six Severe Respiratory Failure centres in the UK in week 13.
- All-cause mortality data
  - In week 13 2017, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England and in the devolved administrations.
- Microbiological surveillance
  - Six samples tested positive for influenza (Two influenza A(unknown subtype) and four influenza B) through the UK GP sentinel swabbing schemes, with an overall positivity of 14.6% compared to 18.4% in week 12.
  - 20 influenza positive detections were recorded through the DataMart scheme (10 influenza A(H3N2), one influenza A(unknown subtype), one influenza A(H1N1)pdm09 and eight influenza B) in week 13. The overall positivity was at 3.1% in week 13 compared to 2.9% in week 12, which is below the threshold for 2016/17 season of 8.6%.The highest age-specific positivities were seen in the 65+ year olds (4.3%).
- Vaccination
  - Provisional data from the fifth monthly collection of influenza vaccine uptake by frontline healthcare workers show 63.4% were vaccinated by 28 February 2017, compared to 50.8% vaccinated in the previous season by 29 February 2016. The report provides uptake at Trust level.
  - Up to week 04 2017, in 85.0% 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: 48.5% in under 65 years in a clinical risk group, 44.9% in pregnant women and 70.5% in 65+ year olds. In 88.1% of GP practices reporting to Immform, the provisional proportion of children in England who had received the 2016/17 influenza vaccine was as follows: 39.0% in all 2 year olds, 41.6% in all 3 year olds and 33.8% in all 4 year olds.
  - Provisional data from the fourth monthly collection of influenza vaccine uptake in GP patients up to 31 January 2017 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 fourth 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 January 2017 in targeted groups was as follows: 57.6% in children of school Year 1 age (5-6 years); 55.3% in children of school Year 2 age (6-7 years); 53.3% in children of school Year 3 age (7-8 years).
- International situation
  - Globally, influenza activity in the temperate zone of the northern hemisphere continued to decrease. Worldwide, influenza A(H3N2) and influenza B viruses were predominant during this reporting period. In South Asia, influenza activity with mainly influenza A(H1N1) remained elevated. The vaccine recommendation for the 2017-2018 northern hemisphere influenza season has been made.

Community surveillance

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Through the GP In Hours Syndromic Surveillance system, GP consultations for influenza-like illness (ILI) were stable in week 13. 12 new acute respiratory outbreaks were reported in the past 7 days.

- PHE Real-time Syndromic Surveillance

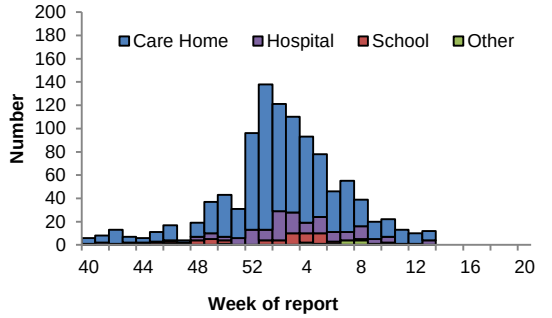
- During week 13, GP consultations for influenza-like illness were stable.
- For further information, please see the syndromic surveillance webpage.

- Acute respiratory disease outbreaks

- 12 new acute respiratory outbreaks have been reported in the past 7 days. Eight outbreaks were from care homes, where two tested positive for influenza (two influenza B). Four outbreaks were from hospitals where all four tested positive for influenza (one influenza A(H3N2) and three influenza B).

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

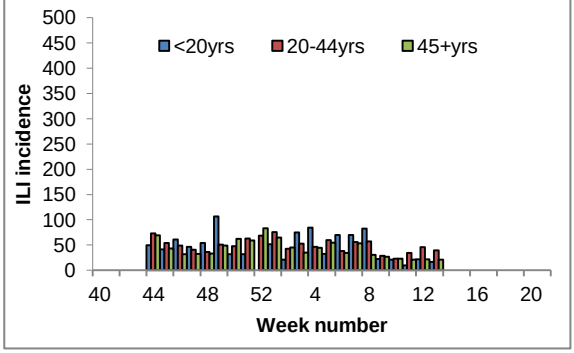
Figure 1: Number of acute respiratory outbreaks by institution, UK



- 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 13 was 24.8 per 1,000 (45/1,814 people reported at least 1 ILI), with the 20-44 years age group reporting a higher rate of 38.1 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.

Figure 2: FluSurvey ILI incidence by age group, UK



Weekly consultation rates in national sentinel schemes

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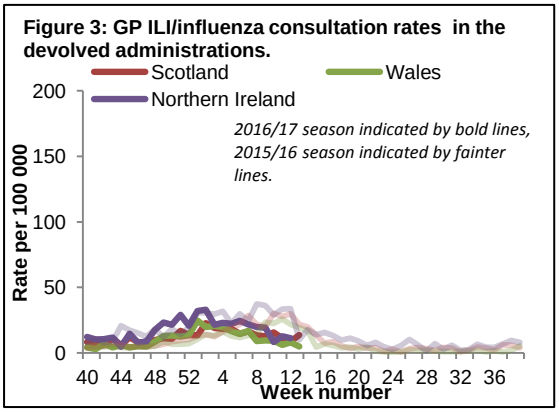
In week 13, the overall weekly influenza-like illness GP consultation rate has decreased further and is below the baseline threshold in England. In the devolved administrations, ILI rates have decreased in Wales and increased in Scotland compared to the previous week.

- Influenza/Influenza-Like-Illness (ILI)

Figure 3: GP ILI/influenza consultation rates in the devolved administrations.



Northern Ireland

- The Northern Ireland ILI rate for week 13 is not available.

Wales

-The Welsh ILI rate decreased at 4.9 per 100,000 in week 13 compared to 8.0 per 100,000 in week 12 (Figure 3). This is below the baseline threshold (10.3 per 100,000).

- The highest rates were seen in the 15-44 year olds (8.0 per 100,000) and 65-74 year olds (7.9 per 100,000).

Scotland

-The Scottish ILI rate increased at 13.6 per 100,000 in week 13 compared to 8.8 per 100,000 in week 12 (Figure 3). This remains below the baseline threshold (36.1 per 100,000).

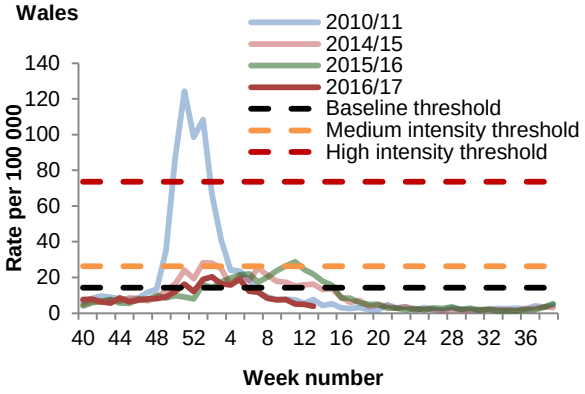
-The highest rates were seen in 45-64 year olds (18.6 per 100,000) and 75+ year olds (15.5 per 100,000).

RCGP (England and Wales)

- The weekly ILI consultation rate through the RCGP surveillance is at 3.8 per 100,000 in week 13 compared to 5.0 per 100,000 in week 12. 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 (5.7 per 100,000) and 45-64 year olds (5.0 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)

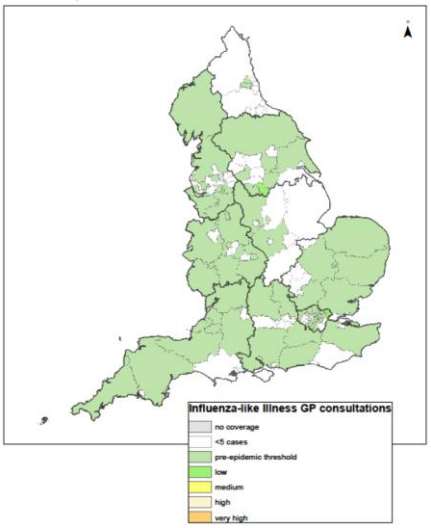
-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system is at 3.7 per 100,000 in week 13 (Figure 5).

Figure 5 represents a map of GP ILI consultation rates in Week 13 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 13



Influenza confirmed hospitalisations

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In week 13, there were six admissions to ICU/HDU with confirmed influenza (two influenza A(unknown subtype), two influenza B, one influenza A(H1N1pdm09) and one influenza A(H3N2)) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (123 Trusts). Nine hospitalised confirmed influenza cases (four influenza A(H3N2), one influenza A(not subtyped) and four influenza B) were reported through the USISS sentinel hospital network across England (15 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 13)

- In week 13, there were six admissions to ICU/HDU with confirmed influenza (two influenza A(unknown subtype), two influenza B, one influenza A(H1N1pdm09) and one influenza A(H3N2)) reported across the UK (123/156 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.01 per 100,000 compared to a rate of 0.02 per 100,000 in week 12 (Figures 6 and 7). Two deaths were reported to have occurred in week 13.

A total of 1,055 admissions (585 influenza A(unknown subtype), 328 influenza A(H3N2), 89 influenza A(H1N1)pdm09 and 53 influenza B) and 130 confirmed deaths have been reported since week 40 2016.

Figure 6: Weekly ICU/HDU influenza admission rate per 100,000 trust catchment population , England, since week 40 2016

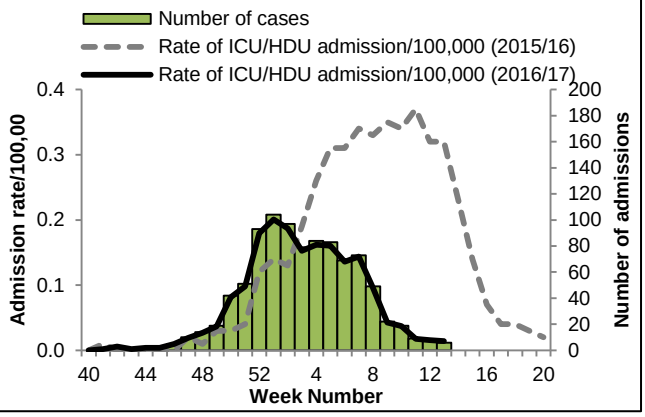
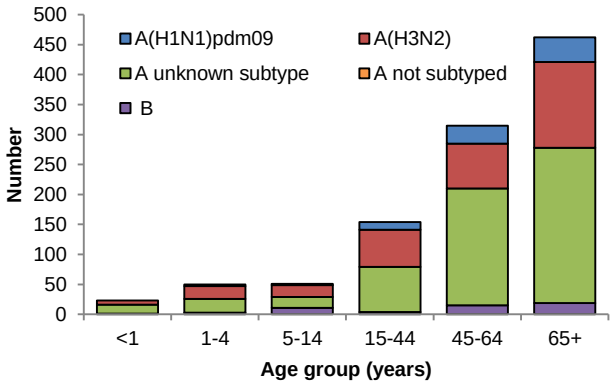


Figure 7: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2016

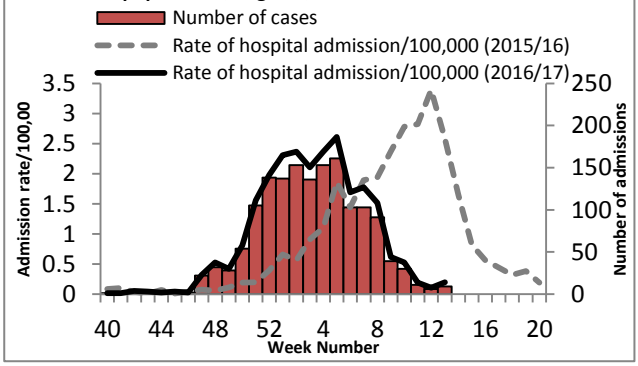


- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 13)

- In week 13, there were nine hospitalised confirmed influenza cases (four influenza A(H3N2), one influenza A(not subtyped) and four influenza B) reported through the USISS sentinel hospital network from 15 NHS Trusts across England (Figure 8), a rate of 0.20 per 100,000 compared to 0.11 per 100,000 in the previous week.

A total of 1,527 hospitalised confirmed influenza admissions (1,016 influenza A(H3N2), 417 influenza A(not subtyped), 68 influenza B and 26 influenza A(H1N1pdm09)) have been reported since week 40 2016.

Figure 8: Weekly hospitalised influenza case rate per 100,000 trust catchment population , England, since week 40 2016



- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 13)

- In week 13, there were no confirmed influenza admissions reported from the six Severe Respiratory Failure (SRF) centres in the UK. There have been four confirmed influenza admissions (one influenza A(H3N2) and three influenza A(unknown subtype)) reported since week 40 2016.

All-cause mortality data

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In week 13 2017 in England, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England. In the devolved administrations, no significant excess all-cause mortality was observed in week 13.

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.

- All-cause death registrations, England and Wales

- In 12 2017, an estimated 10,325 all-cause deaths were registered in England and Wales (source: Office for National Statistics). This is a decrease compared to the 10,697 estimated death registrations in week 11 2017.

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

- In week 13 2017 in England, no excess mortality by week of death above the upper 2 z-score threshold was seen overall, by age group or subnationally, after correcting ONS disaggregate data for reporting delay with the standardised EuroMOMO algorithm (Table 1). This data is provisional due to the time delay in registration; numbers may vary from week to week.
- In the devolved administrations, no significant excess mortality above the threshold was observed in week 13 (Table 2).

Table 1: Excess mortality by age group,England*

Age group (years)	Excess detected in week 13 2017?	Weeks with excess in 2016/17
<5	×	-
5-14	×	-
15-64	×	52-02
65+	×	51-05

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

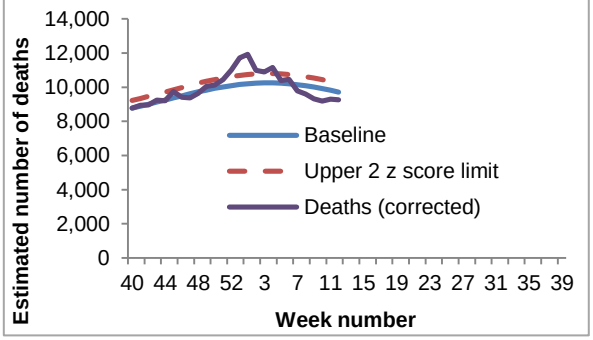
Table 2: Excess mortality by UK country, for all ages*

Country	Excess detected in week 13 2017?	Weeks with excess in 2016/17
England	×	52-05
Wales	×	03
Scotland	×	46,50,51,01,05
Northern Ireland	×	50-51,01-02,05,07-08

** 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 13 2017, six samples tested positive for influenza (two influenza A(unknown subtype) and four influenza B) through the UK GP sentinel schemes with an overall positivity of 14.6%. 20 positive detections were recorded through the DataMart scheme (10 influenza A(H3N2), one influenza A(not subtyped), one influenza A(H1N1)pdm09 and eight influenza B) with a positivity of 3.1% in week 13.

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

-In week 13, six samples tested positive for influenza (Two influenza A(unknown subtype) and four influenza B) through the UK GP sentinel swabbing schemes, with an overall positivity of 14.6% compared to 18.4% in week 12 (Table 3).
Since week 40 2016, 920 samples (757 influenza A(H3N2), 59 influenza A(unknown subtype), 3 influenza A(H1N1)pdm09 and 101 influenza B) have tested positive for influenza through this scheme.

Table 3: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
09	6/25 (24%)	12/47 (25.5%)	1/6 (-)	2/16 (12.5%)
10	6/58 (10.3%)	13/36 (36.1%)	3/7 (-)	1/3 (-)
11	2/45 (4.4%)	10/53 (18.9%)	2/7 (-)	0/9 (-)
12	2/28 (7.1%)	10/42 (23.8%)	2/4 (-)	0/2 (-)
13	0/5 (-)	6/35 (17.1%)	0/1 (-)	0/0 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Respiratory DataMart System (England)

In week 13 2017, out of the 641 respiratory specimens reported through the Respiratory DataMart System, 20 samples (3.1%) were positive for influenza (10 influenza A(H3N2), one influenza A(not subtyped), one influenza A(H1N1)pdm09 and eight influenza B) (Figure 10), which is below the MEM threshold for this season of 8.6%. The highest positivity by age group was seen in the 65+ year olds (4.3%)(Figure 11). The overall positivity for RSV remained low at 1.4% in week 13. Positivity for rhinovirus and human metapneumovirus (hMPV) increased slightly at 13.9% and 2.2% respectively in week 13. Positivity for parainfluenza and adenovirus decreased at 6.8% and 6.1% respectively in week 13.

Figure 10: DataMart samples positive for influenza, England

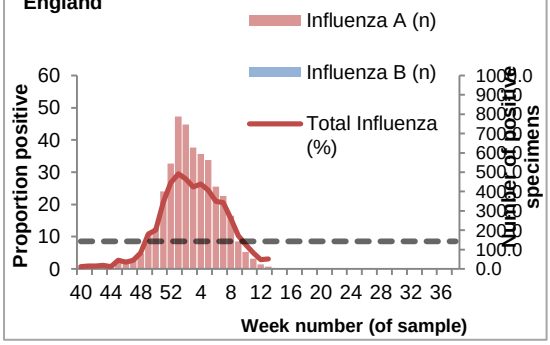


Figure 11: Datamart overall influenza % positive by age group, England

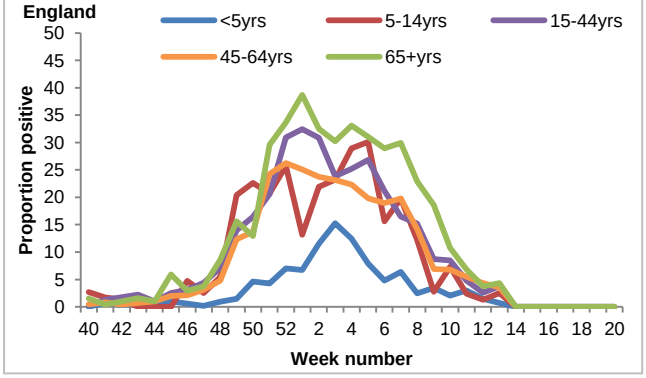
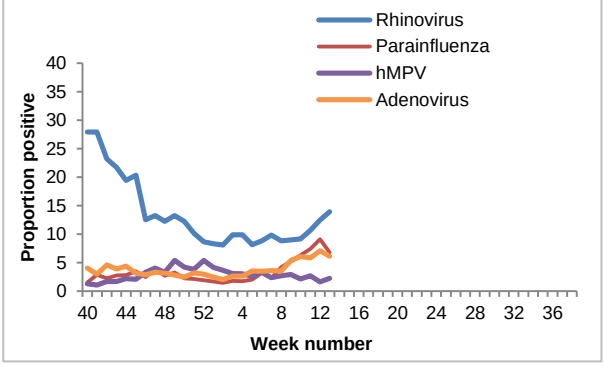


Figure 12: Datamart % positive for other respiratory viruses, England



**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. Occasionally, this can lead to a biased view of the properties of circulating viruses, as the viruses which can be recovered and analysed antigenically, may not be fully representative of majority variants, and genetic characterisation data does not always predict the antigenic characterisation. Since the start of the 2016/17 winter influenza season in week 40 2016, the PHE Respiratory Virus Unit has characterised four A(H1N1)pdm09 influenza viruses: one both genetically and antigenically and three 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 three viruses antigenically analysed are similar to the A/California/7/2009 Northern Hemisphere 2016/17 (H1N1)pdm09 vaccine strain. Genetic characterisation of 318 A(H3N2) influenza viruses since week 40 showed that they all belong to genetic subclade 3C.2a , with 158 belonging to a cluster within this genetic subclade designated as 3C.2a1. The Northern Hemisphere 2016/17 influenza A(H3N2) vaccine strain A/HongKong/4801/2014 belongs in genetic subclade 3C.2a. This seasons A(H3N2) viruses are difficult to cultivate, and only 24 influenza A(H3N2) viruses have been isolated and antigenically characterised since week 40 2016, representing a minority of the detections, indicating the bias in antigenic data. The viruses antigenically analysed are similar to the A/HongKong/4801/2014 Northern Hemisphere 2016/17 A(H3N2) vaccine strain. Of the 24 antigenically characterised viruses, eight isolates have also been genetically characterised, with all belonging in genetic group 3C.2a, and six also belonging in the recently emerged 3C.2a1 cluster. Sixteen influenza B viruses have been analysed genetically since week 40/2015; 13 have been characterised as belonging to the B/Yamagata/16/88-lineage and 3 belonging to the B/Victoria/2/1987-lineage. Seventeen influenza B viruses have been isolated and antigenically characterised since week 40 2016. Twelve viruses were characterised as belonging to the B/Yamagata/16/88-lineage and were antigenically similar to B/Phuket/3073/2013, the influenza B/Yamagata-lineage component of 2016/17 Northern Hemisphere quadrivalent vaccine. Five viruses were characterised as belonging to the B/Victoria/2/87-lineage and were antigenically similar to B/Brisbane/60/2008, the influenza B/Victoria-lineage component of 2016/17 Northern Hemisphere trivalent and quadrivalent vaccines.

- Antiviral susceptibility

Influenza positive samples are screened for mutations in the virus neuraminidase gene known to confer oseltamivir and/or zanamivir resistance. Additionally, testing of influenza A (H1N1)pdm09, A(H3N2), and influenza B virus isolates for neuraminidase inhibitor susceptibility (oseltamivir and zanamivir) is performed at PHE-RVU using a functional assay. The data summarized below combine the results of both testing methods. The samples tested are routinely obtained for surveillance purposes, but diagnostic testing of patients suspected to be infected with neuraminidase inhibitor-resistant virus is also performed.

Since week 40 2016, 305 influenza A(H3N2) have been tested for oseltamivir susceptibility; 300 are fully susceptible. 286 of the 305 were also tested for zanamivir susceptibility with 280 being fully susceptible. Four A(H3N2) viruses have been detected with an R292K amino acid substitution, which causes resistance to oseltamivir and a reduction in susceptibility to zanamivir, and one A(H3N2) virus with an E119V amino acid substitution was detected, causing resistance to oseltamivir but not tested for zanamivir susceptibility. All four R292K cases and the E119V case have been identified in patients with underlying medical conditions with some exposure to oseltamivir. Seven influenza A(H1N1)pdm09 and 17 influenza B (Yamagata) viruses have been tested for oseltamivir susceptibility and all were fully susceptible. One of the seven influenza A(H1N1)pdm09 virus and all 17 influenza B (Yamagata) virus have been tested for zanamivir susceptibility and all were fully susceptible.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 02 April 2017, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenza, 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 02 April 2017, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
S. pneumoniae	Penicillin	4,030	90
	Macrolides	4,567	83
	Tetracycline	4,316	85
H. influenzae	Amoxicillin/ampicillin	19,921	69
	Co-amoxiclav	21,055	88
	Macrolides	7,772	10
	Tetracycline	20,750	98
S. aureus	Methicillin	6,836	90
	Macrolides	7,566	67
MRSA	Clindamycin	410	35
	Tetracycline	604	80
MSSA	Clindamycin	3,674	77
	Tetracycline	5,702	93

**Macrolides = erythromycin, azithromycin and clarithromycin*

Vaccination

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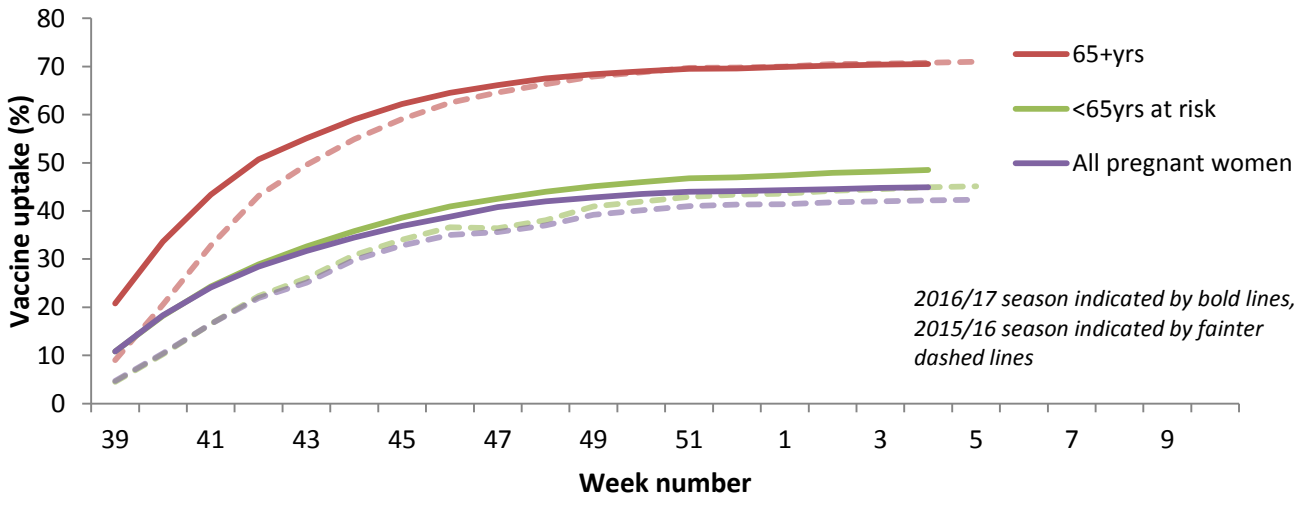
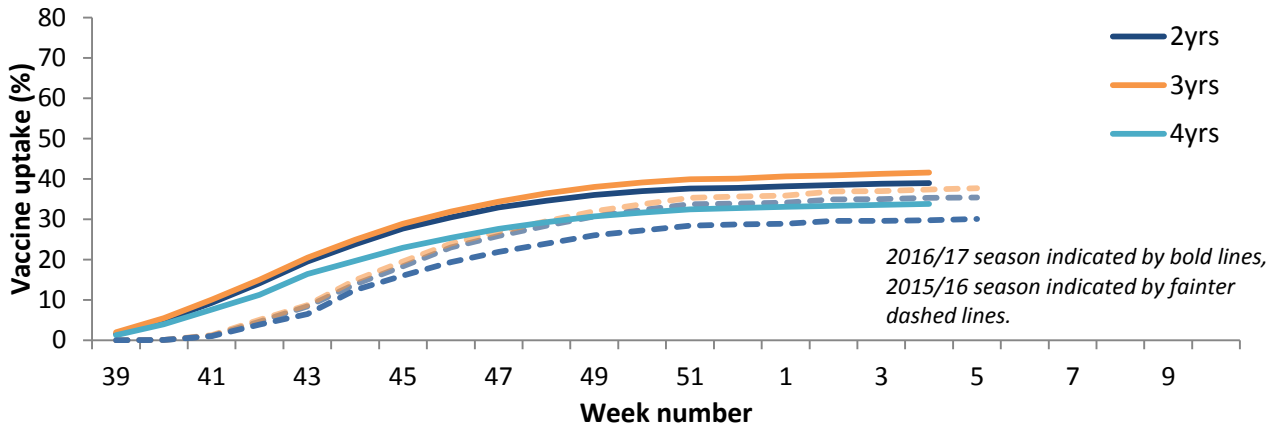
- Up to week 04 2017 in 85.0% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2016/17 influenza vaccine in targeted groups was as follows, with vaccination activity starting earlier than last season (Figure 13):
  - 48.5% in under 65 years in a clinical risk group
  - 44.9% in pregnant women
  - 70.5% 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 04 2017 in 88.1% 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):
  - 39.0% in all 2 year olds
  - 41.6% in all 3 year olds
  - 33.8% in all 4 year olds

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



- Provisional data from the fifth monthly collection of influenza vaccine uptake by frontline healthcare workers show 63.4% were vaccinated by 28 February 2017 from 98.9% of Trusts, compared to 50.8% vaccinated in the previous season by 29 February 2016. The report provides uptake at Trust level.
- Provisional data from the fourth monthly collection of influenza vaccine uptake in GP patients up to 31 January 2017 show that in 97.3% 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:
    - 48.7% in under 65 years in a clinical risk group
    - 44.8% in pregnant women
    - 70.4% in 65+ year olds
- Provisional data from the fourth monthly collection of influenza vaccine uptake in GP patients up to 31 January 2017 show that in 96.7% 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:
    - 38.9% in all 2 year olds
    - 41.5% in all 3 year olds
    - 33.9% in all 4 year olds
- Provisional data from the fourth 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 proportion of children in England who received the 2016/17 influenza vaccine via school, pharmacy or GP practice by 31 January 2017 in targeted groups was as follows:
    - 57.6% in children of school Year 1 age (5-6 years)
    - 55.3% in children of school Year 2 age (6-7 years)
    - 53.3% 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 continued to decrease. Worldwide, influenza A(H3N2) and influenza B viruses were predominant during this reporting period. In South Asia, influenza activity with mainly influenza A(H1N1) remained elevated.

- Europe updated on 31 March 2017 (Joint ECDC-WHO Influenza weekly update)

In week 12/2017, influenza activity across the region continued to decrease with the great majority of countries reporting low intensity. Among the 43 countries reporting on influenza activity for week 12/2017, 42 countries reported a return to baseline levels and 1 country reported medium intensity. Of the 44 countries reporting on geographic spread, 3 reported widespread influenza activity.

This was the second week during the season that the proportion of type B viruses exceeded the proportion of type A viruses in sentinel detections, as is commonly seen in the second half of an influenza season. However, the overall number of type B virus detections remained low.

For week 12/2017, 150 of 836 (18%) sentinel specimens tested positive for influenza viruses. Of these, 71% were type B and 29% type A viruses. The proportion of type B viruses commonly increases in the second half of an influenza season. The great majority (90%) of subtyped influenza A viruses were A(H3N2). The lineage of 43 influenza B viruses was determined, of which 30 (70%) fell in B/Yamagata and 13 (30%) in

B/Victoria lineages, similar to proportions in recent weeks. Of 19 countries across the region that each tested at least 10 sentinel specimens, 5 reported proportions of influenza virus detections of 30% or above.

For week 12/2017, of the 16 countries that conduct sentinel surveillance on severe acute respiratory infection (SARI), 12 countries reported a total of 1, 482 SARI cases. Among these cases, 344 respiratory specimens were collected, 37 (11%) of which tested positive for influenza.

For week 12/2017, 1 799 specimens from non-sentinel sources (such as hospitals, schools, non-sentinel primary care facilities, nursing homes and other institutions) were tested positive for influenza viruses. Of these, 45% were type A (with 96% of the subtyped viruses being A(H3N2)), and 55% type B. The increase in proportion of type B viruses corresponds to the data seen in sentinel detections, however the number of B viruses detected remained low and similar to that seen in the previous 5 weeks.

The majority of participating European countries have had a marked excess in all-cause mortality since the end of 2016; in particular among elderly aged 65 years and above. However, mortality seems to have normalized again. This season's excess mortality coincided with circulation of influenza A(H3N2), which usually leads to increased mortality among the elderly. Some countries also experienced extremely cold weather at the beginning of 2017, which also may have contributed to the excess mortality.

- United States of America updated on 31 March 2017 (Centre for Disease Control report)

During week 12, influenza activity decreased but remained elevated in the United States.

The most frequently identified influenza virus subtype reported by public health laboratories during week 11 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 54.1 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.

Nationwide during week 12, the proportion of outpatient visits for influenza-like illness (ILI) was 3.2%, which is above the national baseline of 2.2%.

- Canada updated on 31 March 2017 (Public Health Agency report)

Overall, the slow decline in influenza activity in Canada has continued in week 12. Many parts of Canada are still reporting localized influenza activity in week 12.

In week 12, all indicators (laboratory detections, influenza-like illness, outbreaks and hospitalizations) decreased from the previous week.

Influenza activity due to influenza B is slowly increasing but is low compared to the same time period in the previous two seasons.

Influenza A activity is decreasing; however, influenza A(H3N2) continues to be the most common subtype of influenza affecting Canadians.

The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.

- Global influenza update updated on 03 April 2017 (WHO website)

Influenza activity in the temperate zone of the northern hemisphere continued to decrease. Worldwide, influenza A(H3N2) and influenza B viruses were predominant during this reporting period. In South Asia, influenza activity with mainly influenza A(H1N1) remained elevated.

In North America, overall influenza activity continued to decrease in Canada and United States of America, with influenza A(H3N2) virus predominating. In Mexico, influenza activity decreased slightly, but remained high, with influenza A(H1N1)pdm09 virus predominating.

In Europe, influenza activity continued to decrease to low levels in general, but especially in South Western Europe. In Northern Europe, some countries reported continued influenza activity, with influenza A (H3N2) and influenza B viruses. In some countries in Eastern Europe, influenza activity decreased but the proportion of influenza B virus detections increased in recent weeks.

In East Asia, low influenza activity was reported with influenza A(H3N2) virus predominant in the region.

In Western Asia, influenza activity continued to decrease with influenza B virus predominant in the region. In Armenia and Georgia, high levels of severe acute respiratory infection were reported in the recent weeks.

In Southern Asia, influenza activity continued to be reported in India, Maldives and Sri Lanka, with mainly influenza A(H1N1)pdm09 virus reported followed by influenza B virus. In South East Asia, influenza activity remained low.

In Northern Africa, low influenza activity was reported in Morocco and Tunisia, with influenza A(H3N2) and influenza B viruses circulating in the region.

In East and West Africa, low influenza activity was reported in the recent weeks, with influenza A(H1N1)pdm09, influenza A(H3N2) and influenza B viruses co-circulating.

In the Caribbean and Central America countries, influenza and other respiratory virus activity remained low in general.

In tropical South America, influenza and other respiratory virus activity remained low, although RSV activity remained elevated in Colombia. In the temperate zone of the Southern Hemisphere, influenza activity was at inter-seasonal levels.

Based on FluNet reporting, the WHO GISRS laboratories tested more than 132,143 specimens between 06 March 2017 and 19 March 2017. 23,560 were positive for influenza viruses, of which 15,164 (64.4%) were typed as influenza A and 8,396 (35.6%) as influenza B. Of the sub-typed influenza A viruses, 755 (15.1%) were influenza A(H1N1)pdm09 and 4247 (84.9%) were influenza A(H3N2). Of the characterized B viruses, 588 (77%) belonged to the B-Yamagata lineage and 176 (23%) to the B-Victoria lineage

The vaccine recommendation for the 2017-2018 northern hemisphere influenza season has been made. It is recommended that trivalent vaccines for use in the 2017-2018 northern hemisphere influenza season contain the following:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;
- an A/Hong Kong/4801/2014 (H3N2)-like virus; and
- a B/Brisbane/60/2008-like virus.

It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013-like virus. The full report can be found here.

- Avian Influenza latest update on 05 April 2017 (WHO website)

Influenza A(H5) viruses

Between 14 February and 16 March 2017, two new laboratory-confirmed human case of influenza A(H5N1) virus infection was reported to WHO from Egypt. Avian influenza A(H5N1) viruses are enzootic in poultry in Egypt.

Since 2003, a total of 858 laboratory-confirmed cases of human infection with avian influenza A(H5N1) virus, including 453 deaths, have been reported to WHO from 16 countries.

Influenza A(H5) subtype viruses have the potential to cause disease in humans and thus far, no human cases, other than those with influenza A(H5N1) and A(H5N6) viruses, have been reported to WHO. 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 Africa, Asia and Europe since June 2016, and influenza A(H5N5) in wild birds in Europe. For more information on the background and public health risk of these viruses, please see the WHO assessment of risk associated with influenza A(H5N8) virus here.

Influenza A(H7N9)

On 31 March 2017, the National Health and Family Planning Commission of China (NHFPC) notified WHO of 17 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus in mainland China.

On 24 March 2017, the National Health and Family Planning Commission of China (NHFPC) notified WHO of 18 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus in mainland China.

A total of 1,364 laboratory-confirmed human infections with avian influenza A (H7N9) virus, including at least 489 deaths, have been reported through IHR notification since early 2013.

- Middle East respiratory syndrome coronavirus (MERS-CoV) latest update on 04 April 2017

On 21 March 2017 the national IHR focal point of Qatar reported one additional case of Middle East Respiratory Syndrome Coronavirus (MERS-CoV).

Between 23 February and 16 March 2017 the national IHR focal point of Saudi Arabia reported 18 additional cases of Middle East Respiratory Syndrome (MERS) including two fatal cases. Four deaths among

previously reported MERS cases were also reported (case numbers 1, 4, 5 and 7 in the Disease Outbreak News published on 10 March 2017).

Up to 05 April 2017, 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 945 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

Globally, since September 2012, WHO has been notified of 1,936 laboratory-confirmed cases of infection with MERS-CoV, including at least 690 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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Related links

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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)