



PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

12 January 2017 – Week 02 report (up to week 01 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 01 (ending 08 January 2017), allowing for Christmas reporting breaks, influenza circulation continues with some indicators increasing, such as influenza-associated outbreaks in the community and the proportion of laboratory samples positive for influenza, but other indicators, such as influenza-related admissions to hospital and intensive care, remain similar to the previous week. 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 'in hours' consultations for influenza-like illness and NHS 111 cold/flu calls continued to increase across all adult age groups in week 01.
 - 135 new acute respiratory outbreaks have been reported in the past 7 days. 121 outbreaks were from care homes, where 27 tested positive for influenza (3 influenza A(H3N2) and 24 influenza A(not subtyped)). Nine outbreaks were hospitals where four tested positive for influenza (4 influenza A(not subtyped)). Four outbreaks were from schools with no test results available. The remaining outbreak was from the "Other settings" category (a care home congregation) with no test results available.
- [Overall weekly influenza GP consultation rates across the UK](#)
 - Due to bank holidays in week 01 (ending 08 January 2017), GP surgeries were only open for four days – data should therefore be interpreted with caution.
 - In week 01, the overall weekly influenza-like illness (ILI) GP consultation rate was 18.8 per 100,000 in England compared to 12.0 per 100,000 in the previous week. This is above the baseline threshold of 14.3 per 100,000 for this season, consistent with influenza circulating in the community. In the devolved administrations, ILI rates have increased or remained similar and are within their respective baseline thresholds in Scotland and Northern Ireland; however ILI rates in Wales remain above the baseline threshold.
- [Influenza-confirmed hospitalisations](#)
 - In week 01, there were 84 admissions to ICU/HDU with confirmed influenza (22 influenza A(H3N2), 47 influenza A(unknown subtype) and 15 influenza A(H1N1)pdm09) were reported across the UK (126/156 Trusts in England) through the USSS mandatory ICU scheme with a rate of 0.18 per 100,000 compared to the same (0.18 per 100,000) in the previous week.
 - In week 01, there were 110 hospitalised confirmed influenza cases (82 influenza A(H3N2), 26 influenza A(not subtyped) and 2 influenza B) reported through the USSS sentinel hospital network (17 NHS Trusts across England), with a rate of 1.72 per 100,000, compared to 1.75 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 01.
- [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. Due to the Christmas period, data for week 01 for England and the devolved administrations is not available.
- [Microbiological surveillance](#)
 - 44 samples tested positive for influenza (34 influenza A(H3N2), 7 influenza A(unknown subtype), 1 influenza A(H1N1)pdm09 and 2 influenza B) through GP sentinel schemes across the UK, with an overall positivity of 37.6% in week 01 compared to the same (37.6%) in week 52.
 - 591 influenza positive detections were recorded through the DataMart scheme (482 influenza A(H3N2), 104 influenza A(unknown subtype) and 5 influenza B) in week 01. The overall positivity was at 27.4% in week 01, which is above the threshold for 2016/17 season of 8.6%. The highest age-specific positivities were seen in the 65+ year olds (36.4%).
- [Vaccination](#)
 - Up to week 01 2017, in 88.6% 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: 47.4% in under 65 years in a clinical risk group, 44.3% in pregnant women, 69.9% in 65+ year olds. In 94.2% of GP practices reporting to Immform, the provisional proportion of children in England who had received the 2016/17 influenza vaccine was as follows: 38.2% in all 2 year olds, 40.6% in all 3 year olds and 33.1% 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, 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 continued to increase, with many countries especially in Europe and East Asia passing their seasonal threshold early in comparison with previous years. Worldwide, influenza A(H3N2) virus was predominant.

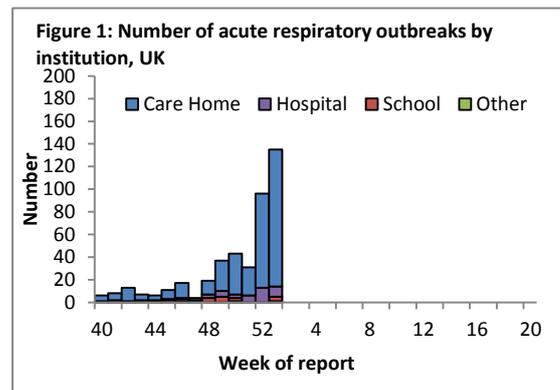
During week 01, GP ‘in hours’ consultations for influenza-like illness and NHS 111 cold/flu calls continued to increase across all adult age groups. 135 new acute respiratory outbreaks were reported in the past 7 days.

- PHE Real-time Syndromic Surveillance

- During week 01, GP ‘in hours’ consultations for influenza-like illness and NHS 111 cold/flu calls continued to increase across all adult age groups but highest in the 45-64 years group. There have been decreases in other respiratory conditions, including emergency department attendances and GP out of hours consultations for acute respiratory infection. For further information, please see the syndromic surveillance [webpage](#).

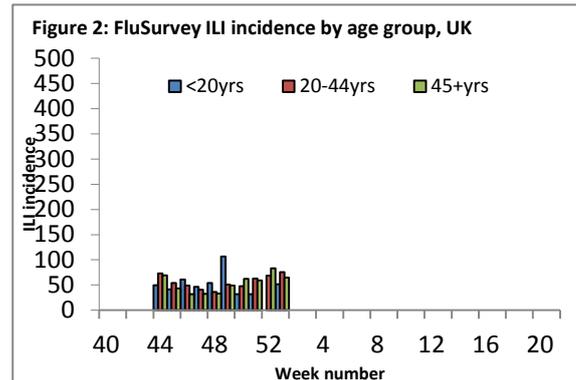
- Acute respiratory disease outbreaks

- 135 new acute respiratory outbreaks have been reported in the past 7 days. 121 outbreaks were from care homes, where 27 tested positive for influenza (3 influenza A(H3N2) and 24 influenza A(not subtyped)) and two tested positive for other respiratory diseases (2 human metapneumovirus (hMPV)). 9 outbreaks were in hospitals where four tested positive for influenza (4 influenza A(not subtyped)). Four outbreaks were from schools with no test results available. The remaining outbreak was from the “Other settings” category (a care centre congregation) with no test results available.
 -Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and Respscidsc@phe.gov.uk.



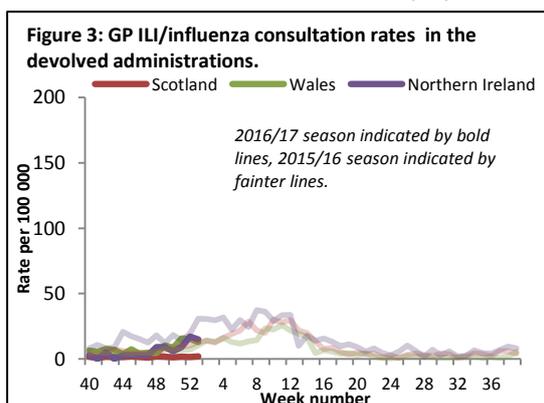
- FluSurvey

- 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 01 was 67.2 per 1,000 (135/2,010 people reported at least 1 ILI), with the 20-44 years age group reporting a higher rate of 75.8 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 01, allowing for Christmas reporting breaks, the overall weekly influenza-like illness GP consultation rate has increased and is above the baseline threshold in England. In the devolved administrations, ILI rates have increased or remained similar and are within their respective baseline thresholds in Scotland and Northern Ireland; however ILI rates in Wales remain above the baseline threshold.

- Influenza/Influenza-Like-Illness (ILI)



Northern Ireland

-The Northern Ireland ILI rate has increased at 32.1 per 100,000 in week 01 compared to 20.9 per 100,000 in week 52 (Figure 3). This remains below the baseline threshold (47.9 per 100,000).
 -The highest rates were seen in the 65-74 year olds (48.6 per 100,000) and 45-64 year olds (46.2 per 100,000).

Wales

-The Welsh ILI rate continues to increase at 21.1 per 100,000 in week 01 compared to 13.4 per 100,000 in week 52 (Figure 3). This remains above the baseline threshold (10.3 per 100,000), and has breached its medium intensity threshold.

- The highest rates were seen in the 65-74 year olds (38.2 per 100,000) and 15-44 year olds (25.8 per 100,000).

Scotland

-The Scottish ILI rate remains the same at 13.6 per 100,000 in week 01 compared to 13.6 per 100,000 in week 52 (Figure 3). This remains below the baseline threshold (36.1 per 100,000).

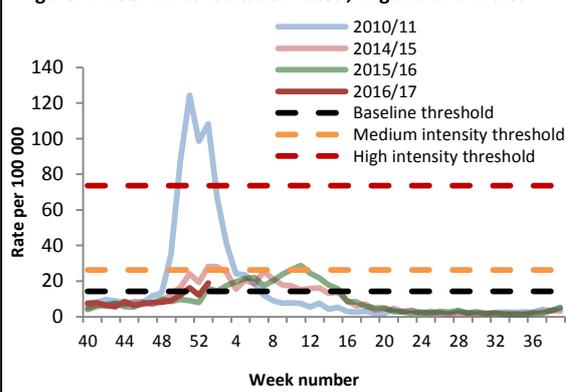
-The highest rates were seen in 45-64 year olds (16.6 per 100,000) and 15-44 year olds (15.6 per 100,000).

RCGP (England and Wales)

- The weekly ILI consultation rate through the RCGP surveillance is at 18.8 per 100,000 in week 01 compared to 12.0 per 100,000 in week 52. This is above the baseline threshold (14.3 per 100,000), consistent with influenza circulating in the community (Figure 4*). By age group, the highest rates were seen in <1 year olds (28.0 per 100,000) and 45-64 year olds (25.7 per 100,000).

- Due to bank holidays in week 01 (ending 08 January 2017), GP surgeries were only open for four days – data should therefore be interpreted with caution.

Figure 4: RCGP ILI consultation rates , England and Wales



GP In Hours Syndromic Surveillance System (England)

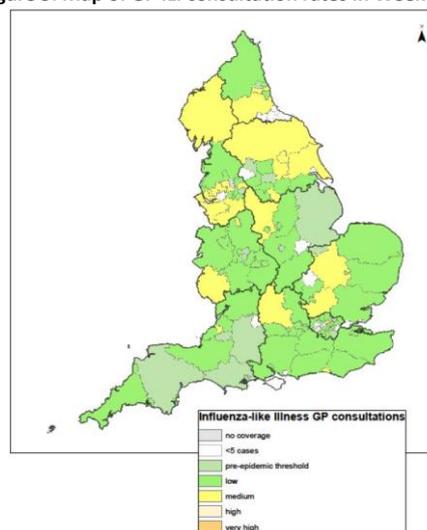
-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system is at 18.0 per 100,000 in week 01 (Figure 5).

Figure 5 represents a map of GP ILI consultation rates in Week 01 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 01



Influenza confirmed hospitalisations

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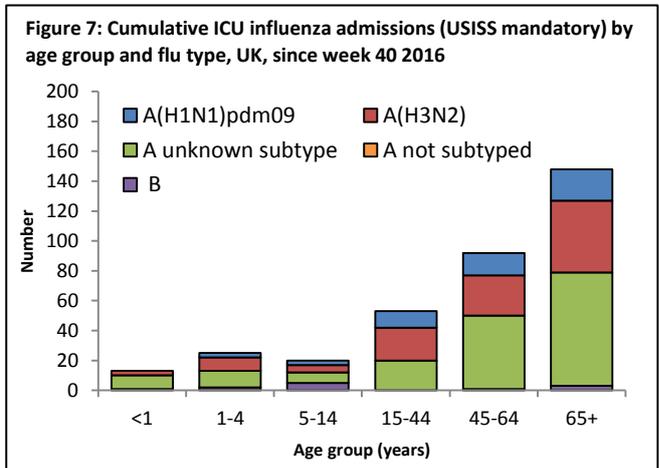
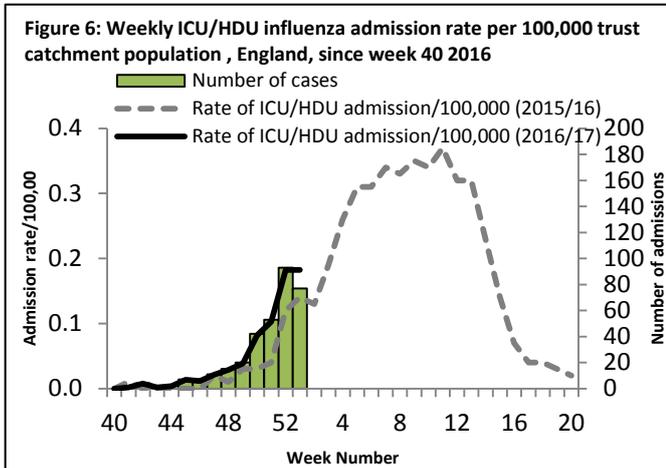
In week 01, there were 84 admissions to ICU/HDU with confirmed influenza (22 influenza A(H3N2), 47 influenza A(unknown subtype) and 15 influenza A(H1N1)pdm09) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (126 Trusts). 110 hospitalised confirmed influenza cases (82 influenza A(H3N2), 26 influenza A(not subtyped) and 2 influenza B) were reported through the USISS sentinel hospital network across England (17 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 01)

- In week 01, there were 84 admissions to ICU/HDU with confirmed influenza (22 influenza A(H3N2), 47 influenza A(unknown subtype) and 15 influenza A(H1N1)pdm09) were reported across the UK (126/156 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.18 per 100,000 compared to a rate of 0.18 per 100,000 in week 52 (Figures 6 and 7). Eight deaths were reported in week 01.

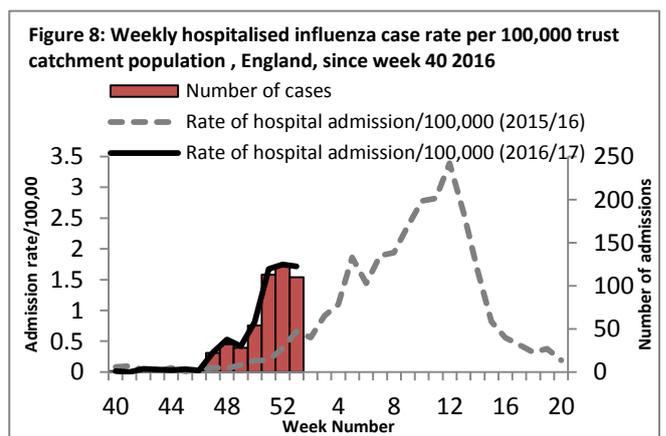
A total of 351 admissions (114 influenza A(H3N2), 53 influenza A(H1N1)pdm09, 172 influenza A(unknown subtype), and 12 influenza B) and 32 confirmed deaths have been reported since week 40 2016.



- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 01)

- In week 01, there were 110 hospitalised confirmed influenza cases (82 influenza A(H3N2), 26 influenza A(not subtyped) and 2 influenza B) reported through the USISS sentinel hospital network from 17 NHS Trusts across England (Figure 8), a rate of 1.72 per 100,000 compared to 1.75 per 100,000 in the previous week.

A total of 497 hospitalised confirmed influenza admissions (330 influenza A(H3N2), 152 influenza A(not subtyped) and 15 influenza B) have been reported since week 40 2016.



- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 01)

- In week 01, 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.

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 51 2016, an estimated 11,493 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is an increase compared to the 10,533 estimated death registrations in week 50 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	-	-

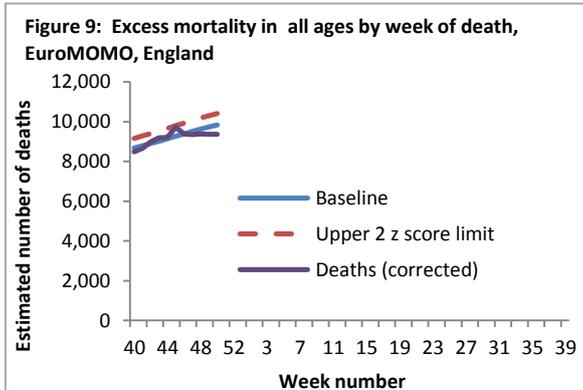
* Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold

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 01 2017, 44 samples tested positive for influenza (34 influenza A(H3N2), 7 influenza A(unknown subtype), 1 influenza A(H1N1)pdm09 and 2 influenza B) through the UK GP sentinel schemes with an overall positivity of 37.6%. 591 positive detections were recorded through the DataMart scheme (482 influenza A(H3N2), 104 influenza A(not subtyped) and 5 influenza B) with a positivity of 27.4% in week 01.

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

-In week 01, 44 samples tested positive for influenza (34 influenza A(H3N2), 7 influenza A(unknown subtype), 1 influenza A(H1N1)pdm09 and 2 influenza B) through the UK GP sentinel swabbing schemes, with an overall positivity of 37.6% compared to the same (37.6%) in week 52 (Table 3).

Since week 40 2016, 309 samples (266 influenza A(H3N2), 20 influenza A(unknown subtype), 4 influenza A(H1N1)pdm09 and 19 influenza B) have tested positive for influenza through this scheme.

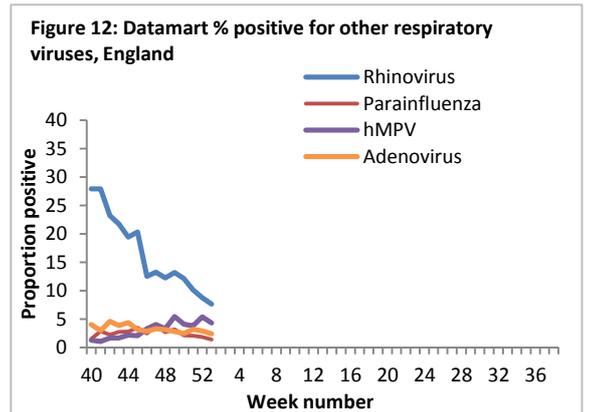
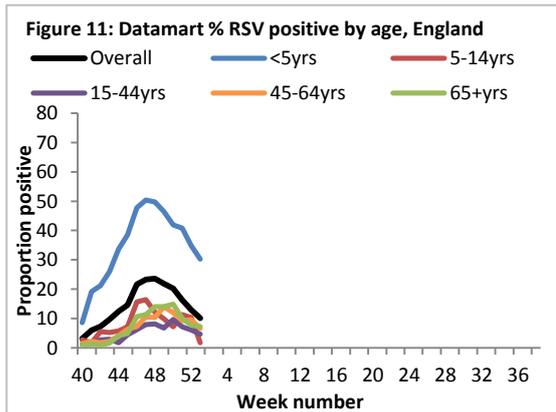
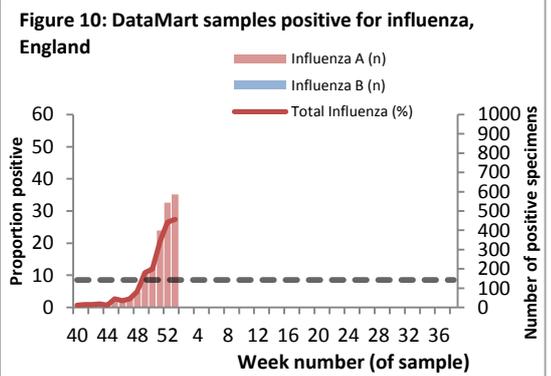
Table 3: Sentinel influenza surveillance in the UK

Week	England	Scotland	Northern Ireland	Wales
49	19/111 (17.1%)	9/93 (9.7%)	3/6 (-)	3/16 (18.8%)
50	40/124 (32.3%)	15/89 (16.9%)	3/9 (-)	2/10 (20%)
51	43/151 (28.5%)	14/84 (16.7%)	5/14 (35.7%)	4/15 (26.7%)
52	37/85 (43.5%)	21/66 (31.8%)	3/8 (-)	4/14 (28.6%)
01	31/73 (42.5%)	8/32 (25%)	5/10 (50%)	0/2 (-)

NB. Proportion positive omitted when fewer than 10 specimens tested

- Respiratory DataMart System (England)

In week 01 2017, out of the 2,159 respiratory specimens reported through the Respiratory DataMart System, 591 samples (27.4%) were positive for influenza (482 influenza A(H3N2), 104 influenza A(not subtyped) and 5 influenza B) (Figure 10), which is above the MEM threshold for this season of 8.6%. The highest positivity by age group was seen in the 65+ year olds (36.4%). The overall positivity for RSV continued to decrease at 10.1% in week 01 compared to 13.0% in week 52. The highest positivity was noted in the <5 year olds at 30.2% in week 01 compared to 34.8% in week 52 (Figure 11). Positivity for rhinovirus and adenovirus decreased in week 01, at 7.6%. Positivity for parainfluenza and adenovirus remained at similarly low levels at 1.4% and 2.4% respectively in week 01. Positivity for human metapneumovirus (hMPV) decreased from 5.4% in week 52 to 4.3% in week 01.



*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 44 A(H3N2) influenza viruses since week 40 showed that they all belong to genetic subclade 3C.2a, with 28 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 to 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

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, 38 influenza A(H3N2) have been tested for neuraminidase inhibitor susceptibility; 36 are fully susceptible. Two A(H3N2) viruses have been detected with an R292K amino acid substitution, which causes resistance to oseltamivir and a reduction in susceptibility to zanamivir. Both R292K cases have been identified in patients with underlying medical conditions, in samples taken after exposure to oseltamivir. Only one influenza A(H1N1)pdm09 virus and one influenza B (Yamagata) virus have been tested and both were fully susceptible to neuraminidase inhibitors.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 08 January 2017, 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 08 January 2017, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	3,795	91
	Macrolides	4,292	82
	Tetracycline	4,157	83
<i>H. influenzae</i>	Amoxicillin/ampicillin	14,758	69
	Co-amoxiclav	15,247	87
	Macrolides	5,385	14
<i>S. aureus</i>	Tetracycline	14,919	98
	Methicillin	6,159	90
	Macrolides	6,642	68
MRSA	Clindamycin	367	44
	Tetracycline	545	83
MSSA	Clindamycin	3,200	77
	Tetracycline	5,217	92

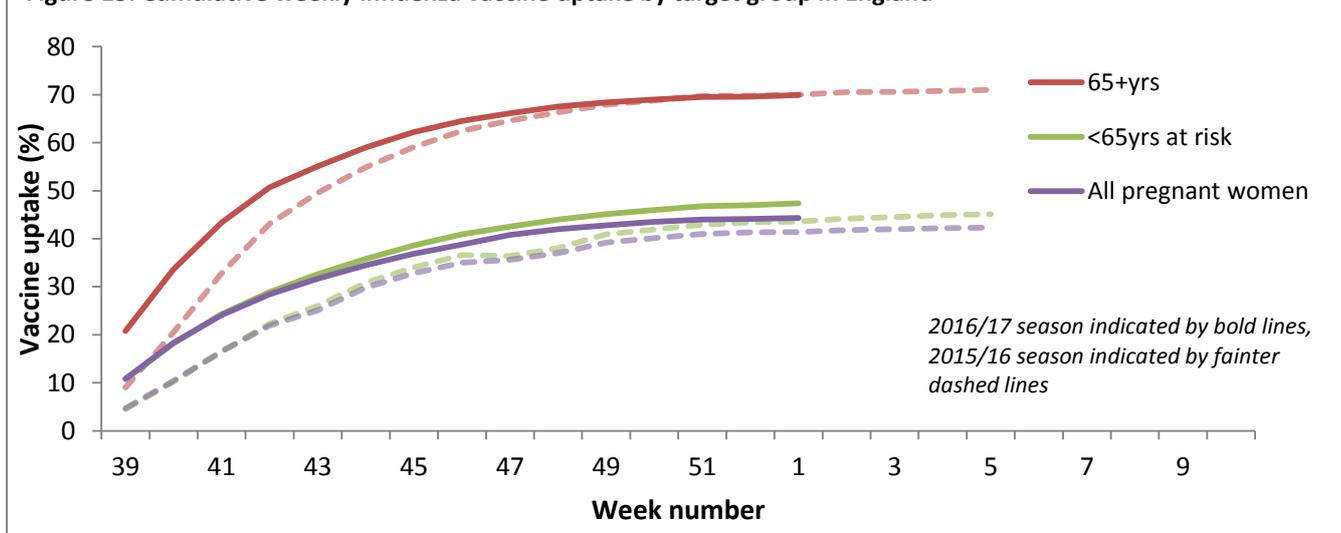
*Macrolides = erythromycin, azithromycin and clarithromycin

Vaccination

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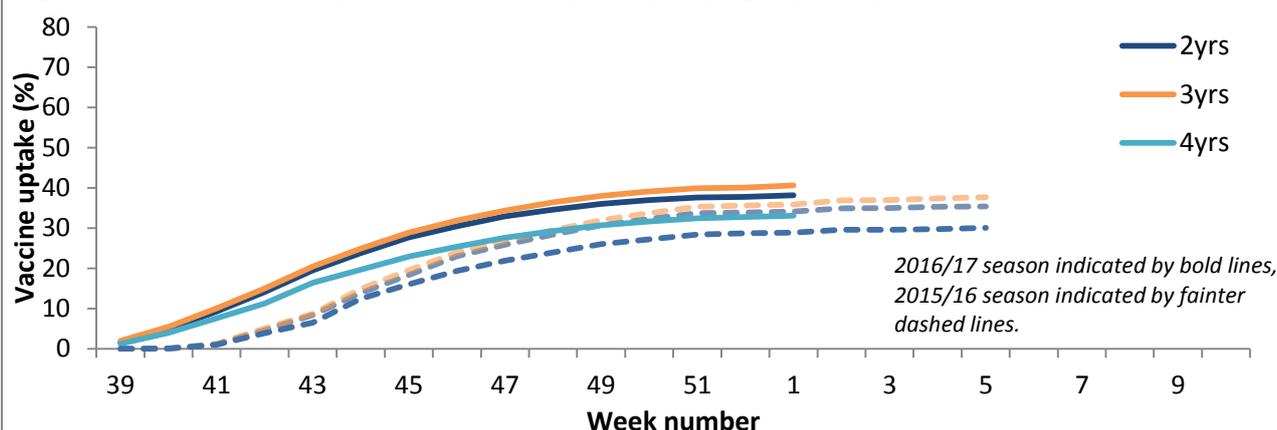
- Up to week 01 2017 in 88.6% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2016/17 influenza vaccine in targeted groups was as follows, with vaccination activity starting earlier than last season (Figure 13):
 - 47.4% in under 65 years in a clinical risk group
 - 44.3% in pregnant women
 - 69.9% 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 01 2017 in 94.2% 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):
 - 38.2% in all 2 year olds
 - 40.6% in all 3 year olds
 - 33.1% 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 continued to increase, with many countries especially in Europe and East Asia passing their seasonal threshold early in comparison with previous years. Worldwide, influenza A(H3N2) virus was predominant.

- [Europe](#) updated on 06 January 2017 (Joint ECDC-WHO Influenza weekly update)

In week 52/2016, influenza activity continued to increase across the region with high or very high intensity in 7 out of 43 reporting countries.

In week 52/2016, 981 of 1 974 (50%) sentinel specimens tested positive for influenza virus. Of these, 98% were type A and 2% were type B. The great majority (>99%) of subtyped influenza A viruses were A(H3N2). The lineage of 9 influenza B viruses was determined and 6 were B/Victoria lineage.

For week 52/2016, 5 out of 7 countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases reported data. Of the 15 countries that conduct sentinel surveillance on severe acute respiratory infection (SARI), 8 reported data.

Of 1,304 SARI cases reported, 284 were tested for influenza and 101 (36%) were positive: 85 influenza A(H3N2) and 16 type B viruses were detected. Since week 40/2016, 14, 927 SARI cases have been reported from 15 countries with 3,494 being tested for influenza of which 1,157 (33%) were positive: 995

(86%) were infected by type A and 162 (14%) by type B viruses. Of the influenza A viruses 964 were A(H3N2) and 31 were A not subtyped.

For week 52/2016, 7,336 specimens from non-sentinel sources (such as hospitals, schools, non-sentinel primary care facilities, nursing homes and other institutions) tested positive for influenza viruses. Of these, 98% were type A and 2% type B, with 99% of the subtyped influenza A viruses being A(H3N2).

- [United States of America](#) updated on 06 January 2017 (Centre for Disease Control report)

During week 52, influenza activity increased in the United States.

The most frequently identified influenza virus subtype reported by public health laboratories during week 50 was influenza A (H3). The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased.

A cumulative rate for the season of 4.9 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.

Nationwide during week 52, the proportion of outpatient visits for influenza-like illness (ILI) was 3.4%, which is above the national baseline of 2.2%.

- [Canada](#) updated on 06 January 2017 (Public Health Agency report)

Seasonal influenza activity continues to increase in Canada, with greater numbers of influenza detections, hospitalizations and outbreaks being reported in weeks 51 and 52.

A total of 1,948 positive influenza detections were reported in week 52. Influenza A(H3N2) continues to be the most common subtype detected.

71 laboratory-confirmed influenza outbreaks were reported in week 52, with the majority occurring in long-term care facilities.

Adults aged 65+ years accounted for the largest proportion of hospitalizations and deaths reported from adult sentinel networks and participating Provinces and Territories.

Influenza activity started early this season, but so far activity has been lower than the 2014-15 season when A(H3N2) was the predominant subtype.

- [Global influenza update](#) updated on 09 January 2017 (WHO website)

Influenza activity in the temperate zone of the northern hemisphere continued to increase, with many countries especially in Europe and East Asia passing their seasonal threshold early in comparison with previous years. Worldwide, influenza A(H3N2) virus was predominant. The majority of influenza viruses characterized so far is similar antigenically to the reference viruses representing vaccine components for 2016-2017 influenza season. The majority of recently circulating viruses tested for antiviral sensitivity is susceptible to the neuraminidase inhibitor antiviral medications.

In North America, influenza activity continued to increase with influenza A(H3N2) virus predominating. Influenza-like illness (ILI) levels just surpassed the seasonal thresholds in the United States. In the United States, respiratory syncytial virus (RSV) activity increased.

In Europe, influenza activity was increasing, with influenza A (H3N2) virus being the most prominent subtype. Persons aged over 65 years were most frequently associated with severe disease.

In East Asia, influenza activity continued to increase with influenza A(H3N2) viruses predominant. In Western Asia, influenza activity increased slightly. In Southern Asia influenza activity increased mainly due to influenza A(H3N2). Increased activity was reported in recent weeks by the Islamic Republic of Iran and Sri Lanka. In South East Asia, influenza activity continued to decrease, with influenza A(H3N2) virus and influenza B predominating in the region.

In Northern Africa, continued increased influenza detections were reported in Morocco and Tunisia with influenza A(H3N2) virus dominating. In West Africa, influenza continued to be detected in Ghana with B viruses dominating.

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

In the temperate zone of the Southern Hemisphere, influenza activity is at inter-seasonal levels.

Based on FluNet reporting, the WHO GISRS laboratories tested more than 124,657 specimens between 12 December 2016 and 25 December 2016. 25,263 were positive for influenza viruses, of which 24,223 (95.9%) were typed as influenza A and 1,040 (4.1%) as influenza B. Of the sub-typed influenza A viruses, 159 (1.3%)

were influenza A(H1N1)pdm09 and 11,927 (98.7%) were influenza A(H3N2). Of the characterized B viruses, 67 (34.9%) belonged to the B-Yamagata lineage and 125 (65.1%) to the B-Victoria lineage.

- [Avian Influenza](#) latest update on 23 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 (NHFPC) 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 [30 December 2016](#), the Department of Health, Hong Kong Special Administrative Region (SAR) notified WHO of a case of laboratory-confirmed human infection with avian influenza A(H7N9) virus.

A total of 809 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 11 January 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 918 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

Globally, since September 2012, WHO has been notified of 1,879 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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- 2016/17 Northern Hemisphere seasonal influenza vaccine recommendations ([WHO](#))