



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](#) | [Community surveillance](#) | [GP consultation rates](#) | [Hospitalisations](#) | [All-cause mortality](#) | [Microbiological surveillance](#) | [Vaccination](#) | [International](#) | [Acknowledgements](#) | [Related links](#)

Summary

During week 05 (ending 04 February 2018), influenza continues to circulate widely, although activity is now decreasing across several indicators. Influenza A and B are co-circulating. The Department of Health has issued an [alert](#) on the prescription of antiviral medicines by GPs.

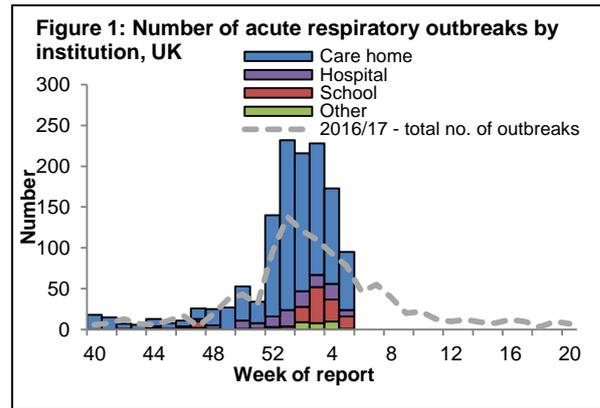
- [Community influenza surveillance](#)
 - Ninety-five new acute respiratory outbreaks have been reported in the past 7 days compared to 174 in the previous week. Seventy-one outbreaks were from care homes, where 13 tested positive for influenza A(unknown subtype), 25 were positive for influenza B and two were positive for influenza A(H3). Eight outbreaks were from hospitals where one tested positive for influenza A(unknown subtype) and four were positive for influenza B. Fifteen outbreaks were from schools where two tested positive for influenza A(unknown subtype) and two for influenza B. The remaining outbreak was reported from the Other settings category, with no test results available.
- [Overall weekly influenza GP consultation rates across the UK](#)
 - In week 05, the overall weekly influenza-like illness (ILI) GP consultation rate was 43.0 per 100,000 in England, compared to 52.1 per 100,000 in week 04. This remains above the medium intensity threshold of 24.2 per 100,000 for this season. In the devolved administrations, ILI rates have decreased but remain above their respective baseline thresholds.
 - Through the Syndromic Surveillance systems, GP consultations for influenza-like illnesses (ILI) decreased further across all age groups in week 05. A similar picture was noted for NHS 111 cold/flu calls and GP Out of Hours consultations where ILI continued to decrease further particularly in 15-64 year olds and 5-14 year olds. Emergency department attendances for respiratory infections remained stable and attendances for ILI decreased but remain above expected levels.
- [Influenza-confirmed hospitalisations](#)
 - In week 05, there were 166 new admissions to ICU/HDU with confirmed influenza (14 influenza A(H1N1)pdm09, 12 influenza A(H3N2), 50 influenza A(unknown subtype) and 90 influenza B) reported across the UK (122/144 Trusts in England) through the USSS mandatory ICU scheme with a rate of 0.37 per 100,000 for England, compared to 0.41 in the previous week. This is above the baseline threshold of 0.05 per 100,000 for the 2017/18 season.
 - In week 05, there were 639 hospitalised confirmed influenza cases (22 influenza A(H1N1)pdm09, 94 influenza A(H3N2), 159 influenza A(unknown subtype) and 364 influenza B) reported through the USSS sentinel hospital network (all levels of care) (20 NHS Trusts across England), with a rate of 6.81 per 100,000 compared to 7.95 per 100,000 in the previous week. This is above the baseline threshold of 0.56 per 100,000 for the 2017/18 season.
 - There were four new influenza admissions (one influenza A(H1N1)pdm09 and three influenza B) reported from the six Severe Respiratory Failure centres in the UK in week 05.
- [All-cause mortality data](#)
 - In week 05 2018, statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm overall and in the 65+ year olds in England. In the devolved administrations, statistically significant excess all-cause mortality for all ages was observed in Northern Ireland in week 05 2018.
- [Microbiological surveillance](#)
 - Sixty-five samples tested positive for influenza (five influenza A(H1N1)pdm09, 16 influenza A(H3), one influenza A(unknown subtype) and 43 influenza B) through the UK GP sentinel schemes, with an overall positivity of 54.6% compared to 50.3% in week 04.
 - Eight hundred and seventy-two positive detections were recorded through the DataMart scheme (205 influenza A(H3), 152 influenza A(unknown subtype), 24 influenza A(H1N1)pdm09 and 491 influenza B) with a positivity of 26.2% in week 05 compared to 28.2% in week 04, which is above the baseline threshold of 8.6%. RSV activity continued to decrease at 2.0% in week 05.
- [Vaccination](#)
 - Up to week 04 2018, in 96.9% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2017/18 influenza vaccine in targeted groups was: 48.7% in under 65 years in a clinical risk group, 47.1% in pregnant women and 72.4% in 65+ year olds. In 96.8% of GP practices reporting weekly to Immform, the provisional proportion of children in England who had received the 2017/18 influenza vaccine in targeted groups was: 42.6% in 2 year olds and 44.0% in 3 year olds.
 - Provisional data from the third monthly collection of influenza vaccine uptake by frontline healthcare workers show 63.9% were vaccinated by 31 December 2017, compared to 61.8% vaccinated in the previous season by 31 December 2016.
 - Provisional data from the third monthly collection of influenza vaccine uptake for children of school years Reception, 1, 2, 3 and 4 age show the provisional proportion of children in England who received the 2017/18 influenza vaccine via school, pharmacy or GP practice by 31 December 2017 in targeted groups was as follows: 61.8% in children of school year Reception age (4-5 years); 60.0% in children of school Year 1 age (5-6 years); 59.5% in children of school Year 2 age (6-7 years); 56.7% in children of school Year 3 age (7-8 years) and 54.8% in children of school Year 4 age (8-9 years).
 - Provisional data from the third monthly collection of influenza vaccine uptake in GP patients up to 31 December is available. The report provides uptake at national, Local Team (LT), Area Team (AT), Clinical Commissioning Group (CCG) and at Local Authority (LA) levels.
- [International situation](#)
 - Globally, influenza activity remained high in the temperate zone of the northern hemisphere while in the temperate zone of the southern hemisphere activity was at inter-seasonal levels. Worldwide, influenza A accounted still for the majority of influenza detections but influenza B (mostly from the Yamagata lineage) increased in recent weeks.

Ninety-five new acute respiratory outbreaks were reported in the past 7 days.

- Acute respiratory disease outbreaks

- Ninety- five new acute respiratory outbreaks have been reported in the past 7 days compared to 174 in the previous week. Seventy-one outbreaks were from care homes, where 13 tested positive for influenza A(unknown subtype), 25 were positive for influenza B and two were positive for influenza A(H3). Eight outbreaks were from hospitals where one tested positive for influenza A(unknown subtype) and four were positive for influenza B. Fifteen outbreaks were from schools where two tested positive for influenza A(unknown subtype) and two for influenza B. The remaining outbreak was reported from the Other settings category, with no test results available.

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



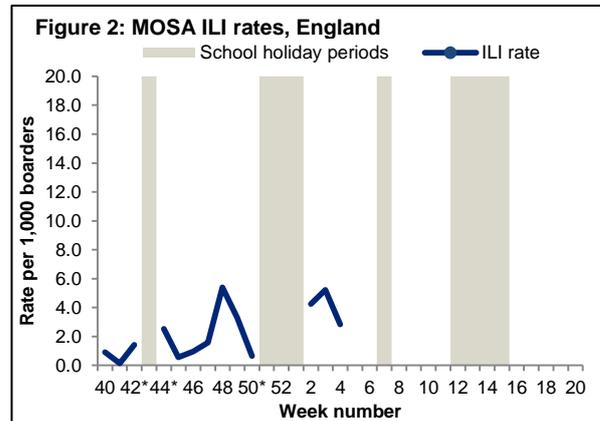
- Medical Officers of Schools Association (MOSA) & PHE surveillance scheme

- Boarding schools in England within the MOSA network are recruited each season to report various respiratory related illnesses including influenza like illnesses (ILI). For the 2017/18 season, 21 MOSA schools have agreed to participate in the scheme, including a total of 7,575 boarders.

- The overall ILI rate (all boarders) for week 04 was 2.8 per 1,000 boarders compared to 5.2 per 1,000 boarders in week 03.

-Since week 40, 29 outbreaks have been reported from nine MOSA schools, with a total of 180 ILI cases identified. Out of the 29 outbreaks, five tested positive for influenza B and two outbreaks were negative for influenza and other respiratory viruses.

- If you are a MOSA school and would like to participate in this scheme, please email mosa@phe.gov.uk for more information.



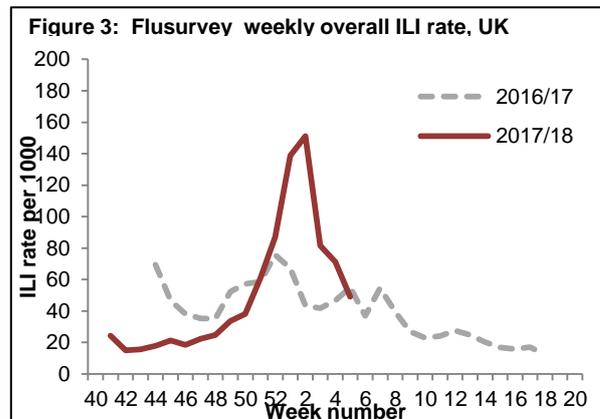
*represents weeks where not all schools will be reporting due to varying school holiday periods.

- 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 05 was 49.0 per 1,000 (167/3,406 people reported at least 1 ILI) (Figure 3) compared to 71.2 per 1,000 in week 04.

- 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.



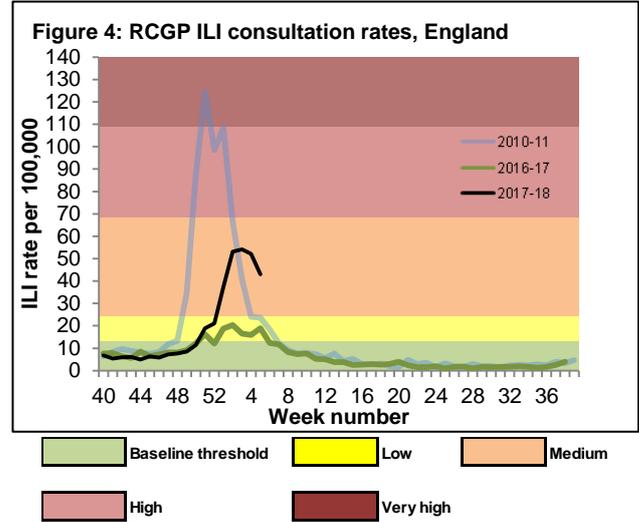
In week 05, the overall weekly influenza-like illness (ILI) GP consultation rate continued to decrease but remains above the baseline threshold in England. In the devolved administrations, ILI rates have decreased but remain above their respective baseline thresholds.

- GP ILI consultations in the UK

RCGP (England)

- The weekly ILI consultation rate through the RCGP surveillance is at 43.0 per 100,000 in week 04 compared to 52.1 per 100,000 in week 03. This is above the baseline threshold (13.1 per 100,000) and above the medium activity threshold (Figure 4*). By age group, the highest rates were seen in 45-64 year olds (56.3 per 100,000) and 15-44 year olds (44.2 per 100,000).

*The Moving Epidemic Method (MEM) 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 (based on 10 seasons excluding 2009/10) in a standardised approach across Europe. For MEM intensity threshold values, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#clinical-surveillance-through-primary-care>



UK

- In week 05, overall weekly ILI consultation rates across the countries of the UK continue to decrease compared to the previous week but remain above their respective medium activity thresholds in all countries, except in Wales which continues to be above its high activity threshold (Table 1).

- By age group, the highest rates were seen in the 45-64 year olds in Northern Ireland and Wales (39.6 per 100,000 and 71.8 per 100,000 respectively) and in the 75+ year olds in Scotland (67.2 per 100,000).

Table 1: GP ILI consultations in the UK for all ages with MEM thresholds applied*

GP ILI consultation rates (all ages)	Week number																	
	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5
England (RCGP)	6.8	5.4	5.9	6.1	5.0	6.4	5.9	7.3	7.6	8.5	11.4	18.9	21.0	37.3	53.1	54.1	52.1	43.0
Wales	5.7	6.5	6.6	5.4	5.0	5.4	6.2	6.4	5.9	6.4	8.7	13.2	16.7	36.4	62.1	74.7	53.0	55.5
Scotland	10.0	15.3	8.3	10.8	12.4	11.7	10.3	9.1	9.4	18.4	32.5	40.3	44.9	107.2	113.9	102.1	82.3	45.5
Northern Ireland	3.4	3.9	3.7	3.3	4.0	3.6	4.5	5.3	4.0	8.2	10.1	20.7	22.7	52.6	65.2	52.1	44.2	29.0

*The Moving Epidemic Method (MEM) 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 (based on 10 seasons excluding 2009/10), in a standardised approach across Europe. For MEM threshold values for each country, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#clinical-surveillance-through-primary-care>

GP In Hours Syndromic Surveillance System (England)

-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system is at 31.9 per 100,000 in week 05 (Figure 5).

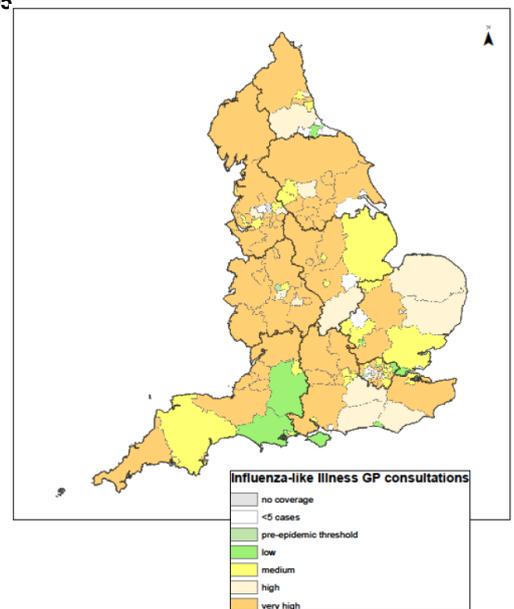
During week 05, GP consultations for influenza-like illnesses (ILI) decreased further across all age groups. A similar picture was noted for NHS 111 cold/flu calls and GP Out of Hours consultations where ILI continued also decreased further particularly in 15-64 year olds and 5-14 year olds. Emergency department attendances for respiratory infections remained stable and attendances for ILI decreased but remain above expected levels.

Figure 5 represents a map of GP ILI consultation rates in week 05 across England by upper tier Local Authorities (utLA), with influenza-like illness surveillance MEM thresholds applied.

ILI consultation rates presented for each utLA on the map should be interpreted in context of regional and national ILI activity; as MEM thresholds are calculated (based on previous influenza seasons from 2012/13 onwards) separately for each of the nine PHE centres and utLA rates are then compared to Centre-level thresholds only, therefore utLAs with higher background rates than the Centre may appear to have higher ILI activity.

-For further information, please see the syndromic surveillance

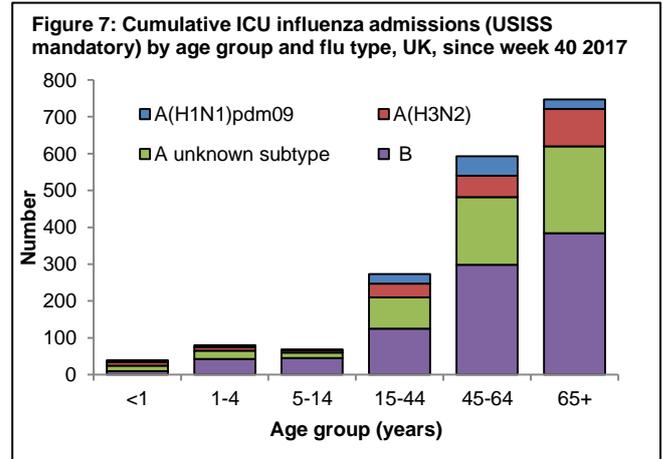
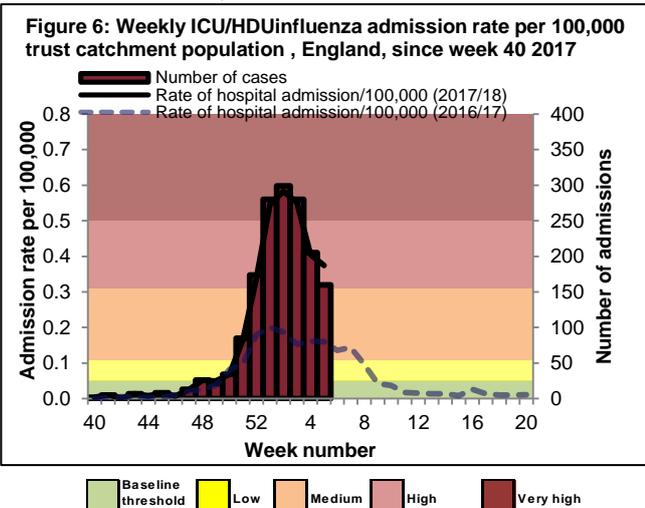
Figure 5: Map of GP ILI consultation rates in week 05



In week 05 2018 there were 166 new admissions to ICU/HDU with confirmed influenza (14 influenza A(H1N1)pdm09, 12 influenza A(H3N2), 50 influenza A(unknown subtype) and 90 influenza B) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (122 Trusts in England). There were 639 hospitalised confirmed influenza cases (22 influenza A(H1N1)pdm09, 94 influenza A(H3N2), 159 influenza A(unknown subtype) and 364 influenza B) were reported through the USISS sentinel hospital network across England (20 Trusts).

- Number of new admissions and fatal confirmed influenza cases in ICU/HDU (USISS mandatory ICU scheme), UK (week 05)
- In week 05, there were 166 new admissions to ICU/HDU with confirmed influenza (14 influenza A(H1N1)pdm09, 12 influenza A(H3N2), 50 influenza A(unknown subtype) and 90 influenza B) reported across the UK (122/144 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.37 per 100,000 compared to 0.41 per 100,000 in the previous week for England data (Figures 6 and 7), this is above the high impact threshold of 0.31 per 100,000. A total of 16 deaths were reported to have occurred in week 05 in the UK.

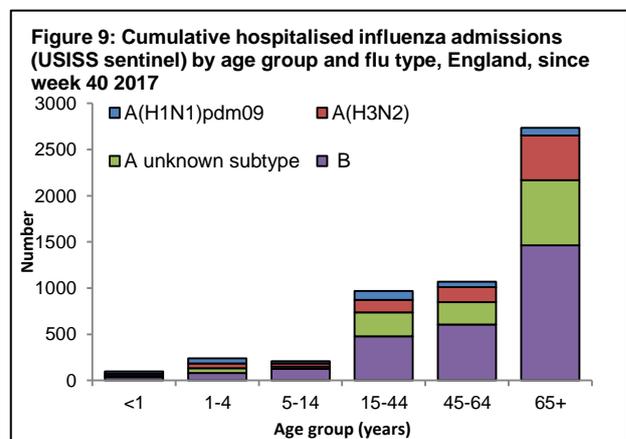
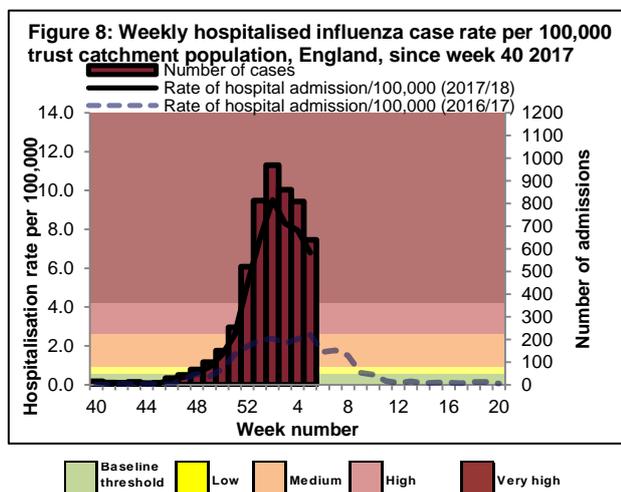
A total of 1,801 new admissions (118 influenza A(H1N1)pdm09, 221 influenza A(H3N2), 557 influenza A(unknown subtype) and 905 influenza B) and 215 confirmed deaths have been reported in the UK since week 40 2017.



*The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for ICU/HDU admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#disease-severity-and-mortality-data>

- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 05)
- In week 05, there were 639 hospitalised confirmed influenza cases (22 influenza A(H1N1)pdm09, 94 influenza A(H3N2), 159 influenza A(unknown subtype) and 364 influenza B) reported from 20 NHS Trusts across England through the USISS sentinel hospital network, with a rate of 6.81 per 100,000 compared to 7.95 per 100,000 in the previous week (Figures 6 and 7), this is above the very high impact threshold of 4.20 per 100,000.

A total of 5,316 hospitalised confirmed influenza admissions (341 influenza A(H1N1)pdm09, 884 influenza A(H3N2), 1,301 influenza A(unknown subtype) and 2,790 influenza B) have been reported since week 40 2017 via the sentinel scheme.



*The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for ICU/HDU admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#disease-severity-and-mortality-data>

- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 05)

- In week 05, there were four new influenza admissions (one influenza A(H1N1)pdm09 and three influenza B reported from the six Severe Respiratory Failure (SRF) centres in the UK. Since week 40, a total of 27 laboratory confirmed influenza admissions (six influenza A(H1N1)pdm09, two influenza A(H3N2), seven influenza A(unknown subtype) and 12 influenza B) were reported from the SRFs for the season to date.

In week 05 2018, statistically significant excess all-cause mortality by week of death was observed through the EuroMOMO algorithm overall and in the 65+ year olds in England. In the devolved administrations, statistically significant excess all-cause mortality for all ages was observed in Northern Ireland in week 05 2018.

- All-cause death registrations, England and Wales

- In week 04 2018, an estimated 13,935 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is a decrease compared to the 14,256 estimated death registrations in week 03 2018.

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

- In week 05 2018 in England, statistically significant excess mortality by week of death above the upper 2 z-score threshold was seen overall (this excess has been seen from week 50 to week 05). By age group statistically significant excess mortality was seen in the 65+ year olds (this excess has been seen from week 50 to week 05) (Figure 10) and subnationally in the North East & West, Yorkshire & Humber, East Midlands, East of England, London and South East & West regions, after correcting ONS disaggregate data for reporting delay with the standardised [EuroMOMO](#) algorithm. This data is provisional due to the time delay in registration; numbers may vary from week to week.

- In the devolved administrations, statistically significant excess all-cause mortality for all ages was observed in Northern Ireland in week 05 2018 (Table 2).

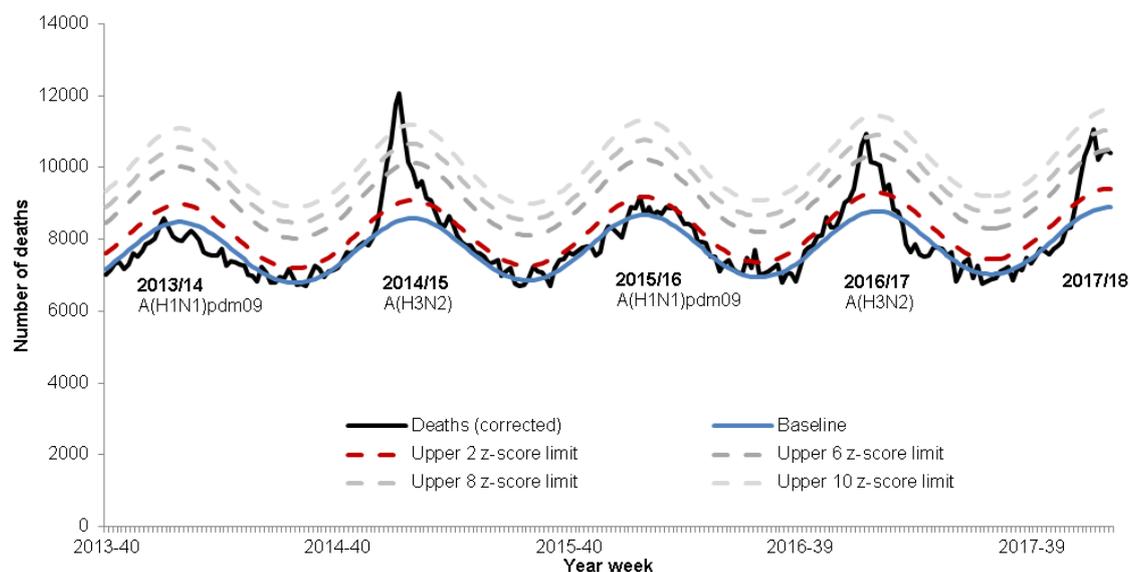
Table 2: Excess mortality by UK country, for all ages*

Country	Excess detected in week 05 2018?	Weeks with excess in 2017/18
England	✓	50-05
Wales	×	52,02
Scotland	×	49-04
Northern Ireland	✓	49, 51-05

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

* NA refers to no excess seen

Figure 10: Weekly observed and expected number of all-cause deaths in 65+ year olds, with the dominant circulating influenza A subtype, England, 2013 to 2018

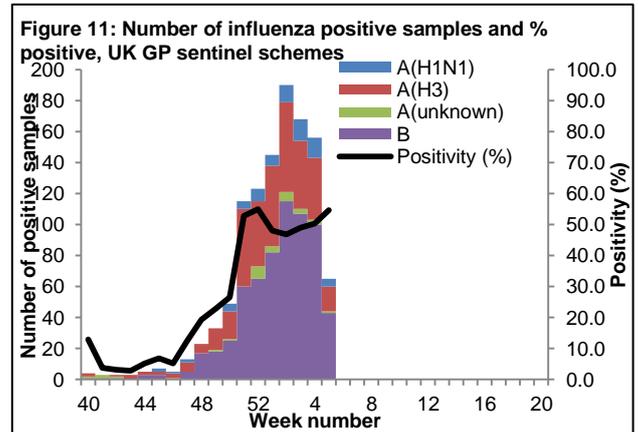


In week 05 2018, 65 samples tested positive for influenza (five influenza A(H1N1)pdm09, 16 influenza A(H3), one influenza A(unknown subtype) and 43 influenza B) through the UK GP sentinel schemes, with an overall positivity of 54.6% compared to 50.3% in week 04. Eight hundred and seventy-two positive detections were recorded through the DataMart scheme (205 influenza A(H3), 152 influenza A(unknown subtype), 24 influenza A(H1N1)pdm09 and 491 influenza B) with a positivity of 26.2% in week 05 compared to 28.2% in week 04, which is above the baseline threshold of 8.6%. RSV activity continued to decrease at 2.0% in week 05.

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

-In week 05, 65 samples tested positive for influenza (five influenza A(H1N1)pdm09, 16 influenza A(H3), one influenza A(unknown subtype) and 43 influenza B) through the UK GP sentinel schemes, with an overall positivity of 54.6% compared to 50.3% in week 04 through the UK GP sentinel swabbing schemes (Figure 11).

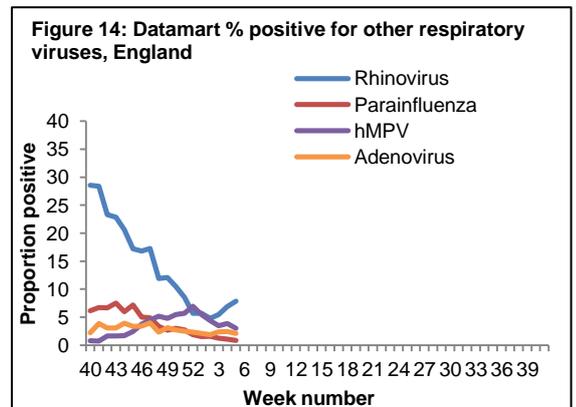
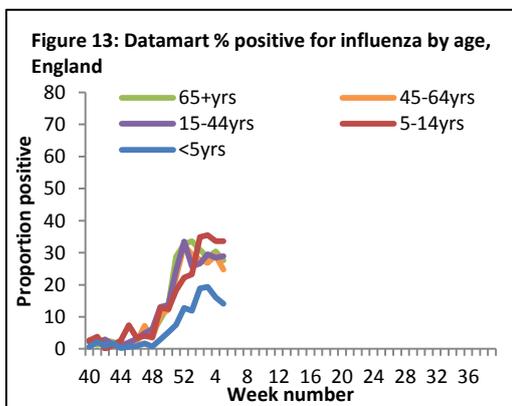
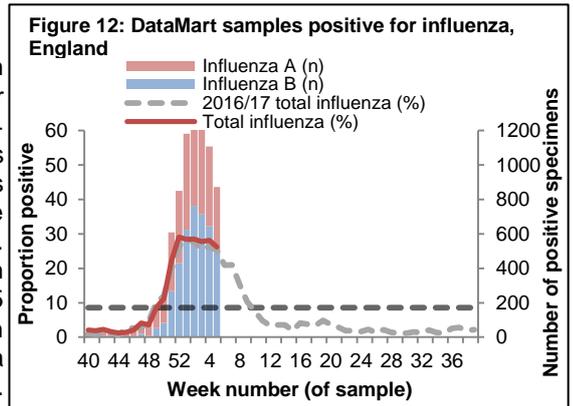
Since week 40, a total of 1,110 samples (359 influenza A(H3), 32 influenza (unknown subtype), 73 influenza A(H1N1)pdm09 and 646 influenza B) tested positive for influenza through this scheme.



NB. Positivity (%) omitted when fewer than 10 specimens were tested

- Respiratory DataMart System (England)

In week 05 2018, out of the 3,330 respiratory specimens reported through the Respiratory DataMart System, 872 samples (26.2%) were positive for influenza (205 influenza A(H3), 152 influenza A(unknown subtype), 24 influenza A(H1N1)pdm09 and 491 influenza B) (Figure 12), which is above the MEM baseline threshold for this season of 8.6%. This compares to 28.2% in week 04. The highest positivity for influenza by age group was seen in the 5-14 year olds at 33.6% in week 05 (Figure 13). The overall positivity for RSV continued to decrease and was at 2.0% in week 05. The highest positivity for RSV by age group was seen in the <5 year olds at 5.3% in week 05. Rhinovirus positivity increased to 7.8% in week 05 compared to 6.9% in week 04. Adenovirus and parainfluenza positivity remained low at 2.1% and 0.8% respectively in week 05. Human metapneumovirus (hMPV) positivity remained low at 3.0% in week 05 (Figure 14).



*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 2017/18.

- 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.

The PHE Respiratory Virus Unit (RVU) has characterised 609 influenza viruses detected since week 37 (Table 3). Two hundred and ninety nine influenza B viruses have been analysed; 295 were characterised as belonging to the B/Yamagata/16/88-lineage and 4 belonging to the B/Victoria/2/1987-lineage. All characterised B/Yamagata/16/88-lineage viruses to date are antigenically similar to B/Phuket/3073/2013, the influenza B/Yamagata-lineage component of the 2017/18 Northern Hemisphere quadrivalent vaccine. Three of the B/Victoria/2/87-lineage viruses are antigenically similar to B/Brisbane/60/2008, the influenza B/Victoria-lineage component of 2017/18 Northern Hemisphere trivalent and quadrivalent vaccines. A single influenza B virus has been characterised where sequencing of the haemagglutinin (HA) gene shows this virus belongs within genetic clade 1A of the B/Victoria lineage, in a subgroup characterised by deletion of two amino acids in the HA. These double deletion subgroup viruses are antigenically distinct from the 2017/18 N.hemisphere B/Victoria lineage vaccine component, with similar viruses having been identified in a minority of influenza B/Victoria lineage viruses in the 2016/17 season in the US and Norway, and since detected in low proportions in other countries, including in Europe.

Genetic characterisation of 192 A(H3N2) influenza viruses detected since late summer, showed that the majority belong to genetic subclade 3C.2a, with 83 belonging to a cluster within this genetic subclade designated as 3C.2a1. One virus belonging to the genetic subclade 3C.3a was detected. The Northern Hemisphere 2017/18 influenza A(H3N2) vaccine strain A/HongKong/4801/2014 belongs in genetic subclade 3C.2a.

Of 118 A(H1N1)pdm09 influenza viruses characterised, 64 that have been genetically characterised all belong in the genetic subgroup 6B.1, which was the predominant genetic subgroup in the 2016/17 season and to date during the current season. The 80 viruses antigenically analysed are similar to the A/Michigan/45/2015 Northern Hemisphere 2017/18 (H1N1)pdm09 vaccine strain.

Table 3: Viruses characterised by PHE Reference Laboratory, 2017/18

Virus	No. viruses characterised			Total
	Genetic and antigenic	Genetic only	Antigenic only	
A(H1N1)pdm09	26	38	54	118
A(H3N2)	1	191	0	192
B/Yamagata-lineage	56	145	94	295
B/Victoria-lineage	4	0	0	4

- 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.

During the current 2017/18 season since week 40 2017, 155 influenza A(H3N2) have been tested for oseltamivir susceptibility; 152 are susceptible. Two viruses have a deletion in the neuraminidase gene, at amino acids 245 to 248. This deletion reduces susceptibility to oseltamivir, but is not likely to reduce zanamivir susceptibility. One of these two oseltamivir resistant viruses has a E119V amino acid substitution in addition, also affecting oseltamivir susceptibility but not zanamivir. A third virus has a R292K amino acid change, which causes resistance to oseltamivir and reduced susceptibility to zanamivir. Of 145 A(H3N2) viruses with zanamivir susceptibility testing data, 144 are susceptible and one (R292K mutant) has reduced susceptibility. One hundred and sixty-five influenza A(H1N1)pdm09 virus have been tested for oseltamivir susceptibility and all but two were fully susceptible. The two A(H1N1)pdm09 oseltamivir resistant virus have the H275Y amino acid substitution, both of which emerged in children following oseltamivir treatment. These two viruses remain susceptible to zanamivir. Thirty-two of the 122 influenza A(H1N1)pdm09 virus were also tested for zanamivir susceptibility and were all fully susceptible. Two hundred and eighty-two influenza B viruses have been tested for both oseltamivir and all but one were fully susceptible. One hundred and forty-five out of the 152 influenza B viruses have also been tested for zanamivir susceptibility and all but one was fully susceptible. The one influenza B resistant virus had a D197N change, and this mutation reduces susceptibility to both oseltamivir and zanamivir.

- Antimicrobial susceptibility

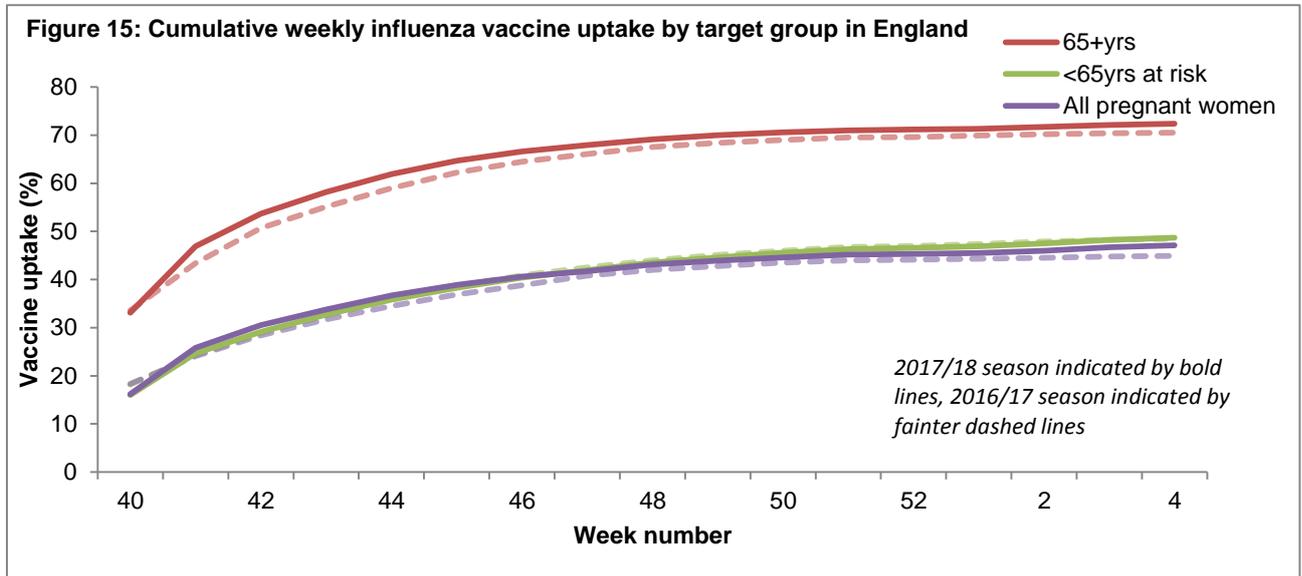
-Table 4 shows in the 12 weeks up to 04 February 2018, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community acquired 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 04 February 2018, E&W

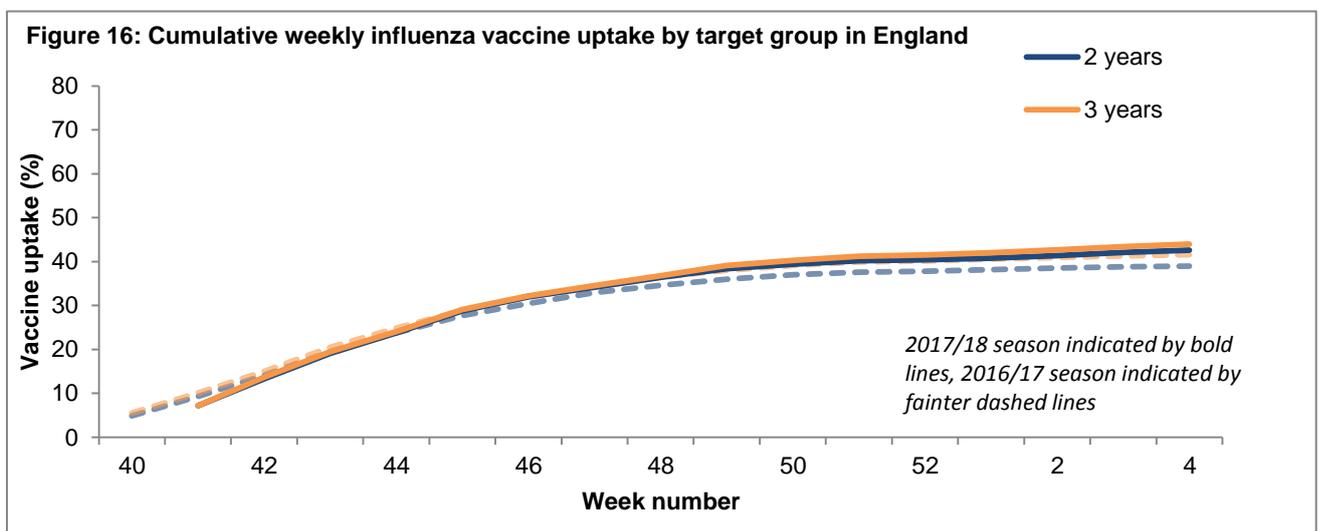
Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	4478	89
	Macrolides	4960	83
	Tetracycline	4861	86
<i>H. influenzae</i>	Amoxicillin/ampicillin	18556	68
	Co-amoxiclav	19835	85
	Macrolides	8289	3
	Tetracycline	19926	98
<i>S. aureus</i>	Methicillin	7485	91
	Macrolides	8152	67
MRSA	Clindamycin	437	45
	Tetracycline	596	83
MSSA	Clindamycin	4356	77
	Tetracycline	6285	93

*Macrolides = erythromycin, azithromycin and clarithromycin

- Up to week 04 2018 in 96.9% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2017/18 influenza vaccine in targeted groups was as follows (Figure 15):
 - 48.7% in under 65 years in a clinical risk group
 - 47.1% in pregnant women
 - 72.4% in 65+ year olds



- In 2017/18, all two- and three-year-olds continue to be eligible for flu vaccination, through their GPs. Up to week 04 2018 in 96.8% of GP practices reporting weekly to Immform, the provisional proportion of children in England who had received the 2017/18 influenza vaccine in targeted groups was as follows (Figure 16):
 - 42.6% in 2 year olds
 - 44.0% in 3 year olds



- Provisional data from the third monthly collection of influenza vaccine uptake by frontline healthcare workers show 63.9% were vaccinated by 31 December 2017 from 99.6% of all organisations, compared to 61.8% vaccinated in the previous season by 31 December 2016. The [report](#) provides uptake at national, NHS local team, “old” area teams and Trust-level.

- Provisional data from the third [monthly](#) collection of influenza vaccine uptake for children of school years Reception, 1,2, 3 and 4 age (from a sample of 96.7% of all Local Authorities in England) show the provisional proportion of children in England who received the 2017/18 influenza vaccine via school, pharmacy or GP practice by 31 December 2017 in targeted groups was as follows:
 - 61.8% in children school year Reception age (4-5 years)
 - 60.0% in children school year 1 age (5-6 years)
 - 59.5% in children school year 2 age (6-7 years)
 - 56.7% in children school year 3 age (7-8 years)
 - 54.8% in children school year 4 age (8-9 years)
- Provisional data from the third [monthly](#) collection of influenza vaccine uptake in GP patients up to 31 December 2017 show that in 98.0% of all GP practices in England responding to the main GP survey, the proportion of people in England who received the 2017/18 influenza vaccine was as follows:
 - 46.6% in under 65 year olds in a clinical risk group
 - 45.3% in pregnant women
 - 71.2% in 65+ year olds
- Provisional data from the third [monthly](#) collection of influenza vaccine uptake in GP patients up to 31 December 2017 show that in 97.4% of all GP practices in England responding to the child GP survey, the proportion of people in England who received the 2017/18 influenza vaccine was as follows:
 - 40.4% in 2 year olds
 - 41.5% in 3 year olds

International Situation

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Influenza activity remained high in the temperate zone of the northern hemisphere while in the temperate zone of the southern hemisphere activity was at inter-seasonal levels. Worldwide, influenza A accounted still for the majority of influenza detections but influenza B (mostly from the Yamagata lineage) increased in recent weeks.

- [Europe](#) updated on 02 February 2018 (Joint ECDC-WHO Europe Influenza weekly update)

In week 04/2018, overall influenza activity was widespread in the majority of reporting countries and while activity was increasing, intensity in most countries was reported as low to medium. Both influenza A and B are co-circulating with a higher proportion of type B viruses. Different patterns of type B and A subtype circulation were observed between countries in the Region.

In week 04/2018, influenza activity was at variable levels across the region. Of 39 Member States reporting on intensity, Luxembourg reported very high intensity, while Bulgaria, Iceland, Ireland, Italy, Switzerland and United Kingdom (Wales) and Kosovo reported high intensity, 16 medium and 16 low intensity.

For week 04/2018, 2,039 (51.9%) of 3,926 sentinel specimens tested positive for influenza viruses. Of these, 33.3% were type A and 66.7% were type B. Of 511 subtyped A viruses, 70.5% were influenza A(H1N1)pdm09 and 29.5% A(H3N2). Of 546 B viruses ascribed to a lineage, 97.3% were B/Yamagata and 2.7% B/Victoria.

In week 04, the overall numbers of reported laboratory confirmed ICU cases decreased, 245 laboratory-confirmed influenza-infected cases were reported, with the majority reported by the United Kingdom (72%). A total of 452 cases were reported from other wards, with the majority of cases reported by Ireland (50%) and Spain (25%).

Since week 40/2017, type A influenza virus was detected in 57% and type B in 43% of the cases in ICUs. Of 727 subtyped influenza A viruses, 59% were A(H1N1)pdm09 and 41% A(H3N2). Of 2 059 cases with known age, 49% were 15 to 64 years old and 45% 65 years and older. In the age group 15–64, type A influenza virus accounted for 70% of all infections with 81% of the 244 subtyped viruses being A(H1N1)pdm09. For patients aged 65 years and older, type A influenza virus was detected in 53% of the 924 cases with 65% of the subtyped A viruses being A(H1N1)pdm09.

For week 04/2017, data from 19 countries or regions reporting to the [EuroMOMO](#) project were received and included in the pooled analyses of all-cause excess mortality. Over the past few weeks, there has been increased all-cause mortality among the elderly, notably in Southern Europe and the United Kingdom (England and Scotland).

An [early risk assessment](#) based on data from EU/EEA countries was published by ECDC on 20 December 2017. First detections indicated circulation of A(H3N2) and B/Yamagata viruses in the highest proportions. As the A(H3N2) subtype dominated last season, a high proportion of the population should be protected.

- [United States of America](#) updated on 02 February 2018 (Centre for Disease Control report)

During week 04, influenza activity increased in the United States.

The most frequently identified influenza virus subtype reported by public health laboratories during week 04 was influenza A(H3). The percentage of respiratory specimens testing positive for influenza in clinical laboratories remained elevated.

A cumulative rate of 51.4 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.

The proportion of outpatient visits for influenza-like illness (ILI) was 7.1%, which is above the national baseline of 2.2%.

- [Canada](#) updated on 02 February 2018 (Public Health Agency report)

Overall, influenza activity in Canada remains at peak levels but there are signs that activity is starting to slow down in parts of the country.

The majority of influenza detections continue to be A(H3N2), although 40% of detections were influenza B in week 04. In week 04, the overall percentage of tests positive for influenza remained similar to the previous week at 31%.

In week 04, 3.0% of visits to healthcare professionals were due to influenza-like illness; a slight increase compared to the previous week, and slightly above the 5-year average.

In week 04, 130 influenza-associated hospitalizations were reported by participating provinces and territories.

To date this season, 3,018 influenza-associated hospitalizations have been reported, 79% of which were associated with influenza A, and 2,078 cases (69%) were in adults 65 years of age or older. To date, 271 ICU admissions and 120 deaths have been reported.

A [Canadian study](#) reported a mid-season estimate of influenza vaccine effectiveness of 42% overall. The study confirmed an anticipated low vaccine effectiveness of 17% against the A(H3N2) strain and moderate vaccine effectiveness against influenza B of 55%, which is circulating at high levels in Canada this season.

- [Global influenza update](#) updated on 05 February 2018 (WHO website)

Influenza activity remained high in the temperate zone of the northern hemisphere while in the temperate zone of the southern hemisphere activity was at inter-seasonal levels. Worldwide, influenza A accounted still for the majority of influenza detections but influenza B (mostly from the Yamagata lineage) increased in recent weeks. The majority of countries which are in the influenza season, reported influenza like illness reaching moderate levels in comparison with previous years, with few reaching levels exceeding those of previous years. Similarly, some countries have also reported levels of hospitalization and ICU admissions reaching or exceeding peak levels of previous influenza seasons. WHO recommends countries with current influenza activity or entering their season to adopt necessary measures for ensuring appropriate case management, compliance with infection control measures and seasonal influenza vaccination for high risk groups.

In North America, overall influenza activity remained high, with detections of predominantly influenza A(H3N2) viruses.

In Europe, influenza activity remained high in Northern and Southwestern Europe, and peaked in few countries but started to increase in Eastern Europe. Influenza B remained the virus most frequently detected and the subtype of the influenza A viruses detected varied depending on the country and the surveillance system.

In Western Asia, increasing influenza activity was reported in some countries, with influenza A(H1N1)pdm09 and B viruses present in the region.

In Central Asia, influenza activity increased slightly, although it remained low across the region. In East Asia, high levels of illness indicators and influenza activity were reported in most of the countries. Influenza A(H1N1)pdm09 and influenza B-Yamagata lineage viruses were predominantly detected.

In South East Asia, low levels of influenza activity were reported. In Southern Asia, influenza activity continued to be high in Iran and Pakistan, with detection of all seasonal influenza subtypes.

In Northern Africa, influenza detections remained high in Algeria, Egypt and Morocco, while decreased in Tunisia. Influenza A(H1N1)pdm09 virus and influenza B were predominantly detected in the region.

In Western Africa, little to no influenza activity was reported across the region. In Middle Africa, there were no updates available for this reporting period. In Eastern Africa, increased influenza activity was reported in Madagascar.

In the Caribbean and Central American countries, respiratory illness indicators and influenza activity remained low in general.

In the tropical countries of South America, influenza activity and respiratory illness indicators were generally low, with exception of Ecuador.

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

The WHO GISRS laboratories tested more than 277,231 specimens between 08 January 2018 to 21 January 2018. 88,612 were positive for influenza viruses, of which 53,213 (60.1%) were typed as influenza A and 35,399 (39.9%) as influenza B. Of the sub-typed influenza A viruses, 9,745 (50.3%) were influenza A(H1N1)pdm09 and 9,642 (49.7%) were influenza A(H3N2). Of the characterized B viruses, 7,778 (90.8%) belonged to the B-Yamagata lineage and 786 (9.2%) to the B-Victoria lineage.

- [Avian Influenza](#) latest update on 04 February 2018 (WHO website)

Influenza A(H5) viruses

Between [08 December 2017 to 25 January 2018](#), one new laboratory-confirmed human case of influenza A(H5N6) virus infection was reported to WHO from China.

A total of 19 laboratory-confirmed cases of human infection with influenza A(H5N6) virus, including six deaths, have been reported to WHO from China since 2014.

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 Africa, Europe and Asia.

Influenza A(H7N9)

Between [08 December 2017 to 25 January 2018](#), one new laboratory-confirmed human cases of influenza A(H7N9) virus infection was reported to WHO from China.

Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with avian influenza A(H7N9) viruses, including at least 613 deaths, have been reported to WHO.

Influenza A(H1N1) variant viruses

On [16 January 2018](#), Switzerland informed WHO of a case of human infection with a swine influenza A(H1N1)v virus.

Influenza A(H3N2) variant viruses

Between [08 December 2017 to 25 January 2018](#), one human infection with an influenza A(H3N2)v virus was reported in the U.S. in the state of Iowa.

Since reporting of novel influenza A viruses became nationally notifiable in 2005, 434 human infections with influenza A(H3N2)v viruses have been reported to the U.S. CDC and 62 of these occurred in 2017.

- [Middle East respiratory syndrome coronavirus \(MERS-CoV\)](#) latest update on 07 February 2018

Up to 07 February 2018, 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 1,136 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

Between [9 December 2017 and 17 January 2018](#), the National IHR Focal Point of The Kingdom of Saudi Arabia reported 20 additional cases of Middle East Respiratory Syndrome (MERS), including nine deaths. In addition, one death from a previously reported case was reported to WHO.

On [2 January 2018](#), the National IHR Focal Point of Malaysia reported one case of Middle East Respiratory Syndrome Coronavirus (MERS-CoV).

Globally, since September 2012, WHO has been notified of 2,143 laboratory-confirmed cases of infection with MERS-CoV, including at least 750 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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Sources of flu data

- [Clinical surveillance through primary care in the UK](#)
- [Outbreak reporting](#)
- [FluSurvey](#)
- [MOSA](#)
- [Real time syndromic surveillance](#)
- MEM threshold [methodology paper](#) and [UK pilot paper](#)

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](#))
- 2017/18 Northern Hemisphere seasonal influenza vaccine recommendations ([WHO](#))