



# PHE Weekly National Influenza Report

## Summary of UK surveillance of influenza and other seasonal respiratory illnesses

21 December 2017 – Week 51 report (up to week 50 data)

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

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

### Summary

During week 50 (ending 17 December 2017), influenza activity continues to increase for several indicators in particular the number of laboratory confirmed outbreaks, the proportion of laboratory samples positive for influenza in primary and secondary care and influenza admissions to hospital and intensive care. Respiratory Syncytial Virus (RSV) has reached peak activity and is now decreasing. The Department of Health has issued an [alert](#) on the prescription of antiviral medicines by GPs.

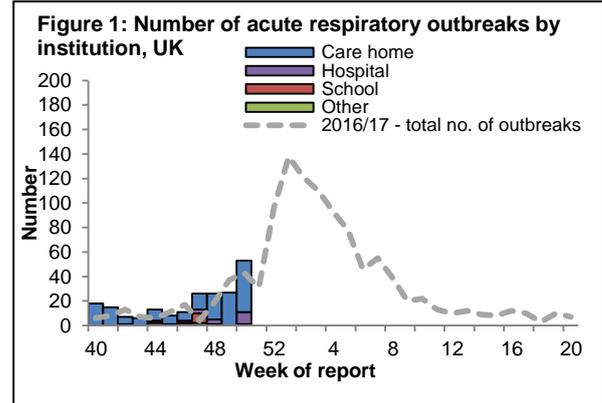
- [Community influenza surveillance](#)
  - Fifty-three new acute respiratory outbreaks have been reported in the past 7 days. Forty-two outbreaks were from care homes, where nine tested positive for influenza A(unknown subtype) and seven were positive for influenza B. Ten outbreaks were from hospitals, where five tested positive for influenza A(unknown subtype), three tested positive for influenza B and one tested positive for a co-infection of influenza A(unknown subtype) and B. The remaining outbreak was from a school which tested positive for influenza A(unknown subtype).
- [Overall weekly influenza GP consultation rates across the UK](#)
  - In week 50, the overall weekly influenza-like illness (ILI) GP consultation rate was 11.4 per 100,000 in England, compared to 8.5 per 100,000 in week 49. This is below but approaching the baseline threshold of 13.1 per 100,000 for this season. In the devolved administrations, ILI rates were also below baseline thresholds.
  - Through the Syndromic Surveillance systems, GP in hours consultations for influenza like illness (ILI) were increasing but remain within seasonally expected levels in week 50. There were increases in respiratory indicators across all systems, including influenza-like illness GP consultations/attendances and NHS 111 cold/flu calls.
- [Influenza-confirmed hospitalisations](#)
  - In week 50, there were 37 admissions to ICU/HDU with confirmed influenza (3 influenza A(H1N1)pdm09, 4 influenza A(H3N2), 12 influenza A(unknown subtype) and 18 influenza B) reported across the UK (126/144 Trusts in England) through the USISS mandatory ICU scheme with a rate of 0.07 per 100,000 for England. This is above the baseline threshold of 0.05 per 100,000 for the 2017/18 season.
  - In week 50, there were 144 hospitalised confirmed influenza cases (12 influenza A(H1N1)pdm09, 21 influenza A(H3N2), 54 influenza A(unknown subtype) and 57 influenza B) reported through the USISS sentinel hospital network (all levels of care) (22 NHS Trusts across England), with a rate of 1.48 per 100,000 compared to 0.93 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 was no new laboratory confirmed influenza admission reported from the six Severe Respiratory Failure centres in the UK in week 50.
- [All-cause mortality data](#)
  - In week 50 2017, no statistically significant excess all-cause mortality by week of death was seen through the EuroMOMO algorithm in England. In the devolved administrations, significant excess all-cause mortality was observed in Scotland in week 50 2017, but not in Wales or Northern Ireland.
- [Microbiological surveillance](#)
  - Eleven samples tested positive for influenza (one influenza A(H1N1)pdm09, four influenza A(H3), four influenza A(unknown subtype) and two influenza B) through the UK GP sentinel schemes, with an overall positivity of 45.8%.
  - Two hundred and eleven samples positive detections were recorded through the DataMart scheme (74 influenza A(H3), 21 influenza A(H1N1)pdm09, 41 influenza A(unknown subtype) and 75 influenza B) with a positivity of 11.1% in week 50, above the baseline threshold of 8.6%. RSV activity continues to decrease at 17.1% in week 50 and the highest positivity was seen in <5 year olds at 42.8%.
- [Vaccination](#)
  - Up to week 50 2017, in 94.1% 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: 45.6% in under 65 years in a clinical risk group, 44.6% in pregnant women and 70.6% in 65+ year olds. In 94.0% 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: 39.4% in 2 year olds and 40.3% in 3 year olds.
  - Provisional data from the second monthly collection of influenza vaccine uptake by frontline healthcare workers show 59.3% were vaccinated by 30 November 2017, compared to 55.6% vaccinated in the previous season by 30 November 2016.
  - Provisional data from the second 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 30 November 2017 in targeted groups was as follows: 50.0% in children of school year Reception age (4-5 years); 48.9% in children of school Year 1 age (5-6 years); 48.3% in children of school Year 2 age (6-7 years); 45.7% in children of school Year 3 age (7-8 years) and 44.4% in children of school Year 4 age (8-9 years).
  - Provisional data from the second monthly collection of influenza vaccine uptake in GP patients up to 30 November is now 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 increased slightly in the temperate zone of the northern hemisphere, with Canada seeing the start of the influenza season. In the temperate zone of the southern hemisphere activity appeared to have decreased at inter-seasonal levels. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

**Fifty-three new acute respiratory outbreaks were reported in the past 7 days.**

- Acute respiratory disease outbreaks

- Fifty-three new acute respiratory outbreaks have been reported in the past 7 days. Forty-two outbreaks were from care homes, where nine tested positive for influenza A(unknown subtype) and seven were positive for influenza B. Ten outbreaks were from hospitals, where five tested positive for influenza A(unknown subtype), three tested positive for influenza B and one tested positive for a co-infection of influenza A(unknown subtype) and B. The remaining outbreak was from a school which tested positive for influenza A(unknown subtype).

-Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and [respscidsc@phe.gov.uk](mailto:respscidsc@phe.gov.uk)



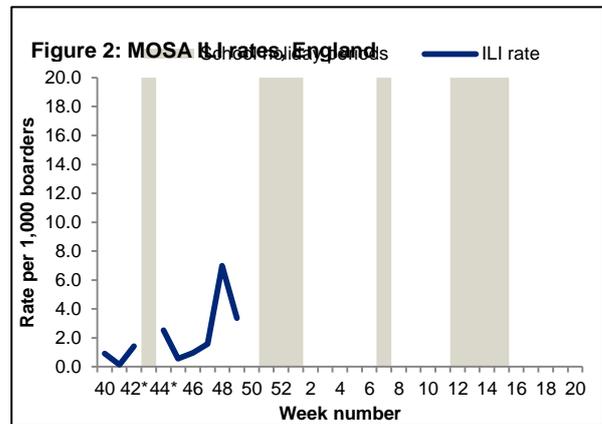
- Medical Officers of Schools Association (MOSA) & PHE surveillance scheme

- 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 49 was 3.4 per 1,000 boarders compared to 7.0 per 1,000 boarders in the previous week.

-Since week 40, 12 outbreaks have been reported from three MOSA schools, with a total of 95 ILI cases identified. Out of the 12 outbreaks, one tested positive for influenza B and another was negative for influenza.

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



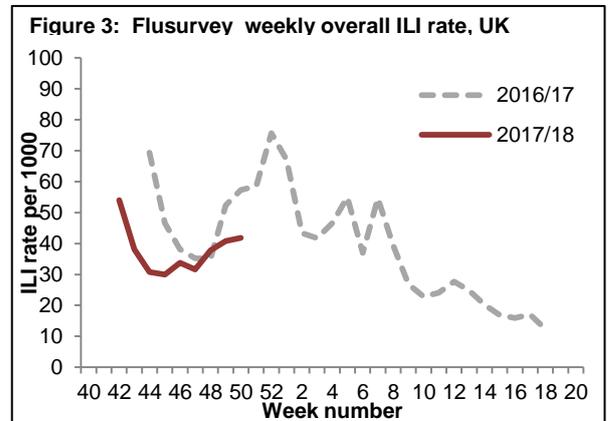
\*represents weeks where not all schools will be reporting due to varying school holiday periods.

- 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 50 was 41.8 per 1,000 (82/1,962 people reported at least 1 ILI) (Figure 3) compared to 40.8 per 1,000 in week 49, with the highest rate seen in the 45+ year olds (43.0 per 1,000).

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



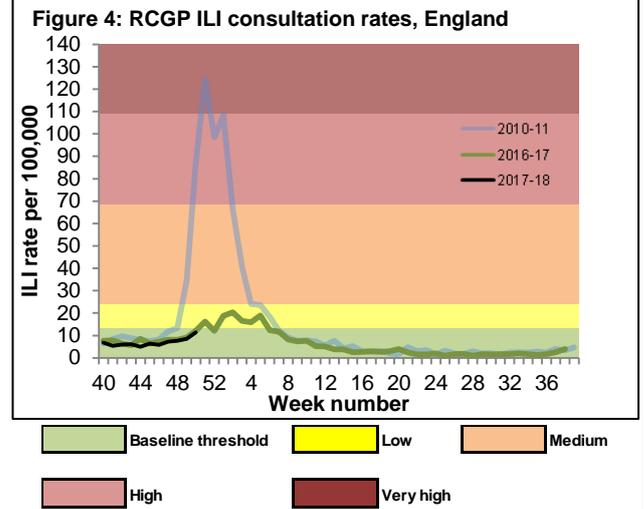
In week 50, the overall weekly influenza-like illness (ILI) GP consultation rate is increasing but remains below the baseline threshold in England. In the devolved administrations, ILI rates are increasing but remain low in week 50.

- GP ILI consultations in the UK

**RCGP (England)**

- The weekly ILI consultation rate through the RCGP surveillance is at 11.4 per 100,000 in week 50 compared to 8.5 per 100,000 in week 49. This is below but approaching the baseline threshold (13.1 per 100,000) (Figure 3\*). By age group, the highest rates were seen in 45-64 year olds (14.9 per 100,000) and <1 year olds (12.4 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 50, overall weekly ILI consultation rates across the countries of the UK were low (Table 1).
- By age group, the highest rates were seen in the 65-74 year olds in Scotland and Northern Ireland (47.8 per 100,000 and 14.9 per 100,000 respectively) and in the 75+ year olds in Wales (11.4 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
England (RCGP)	6.8	5.4	5.9	6.1	5.0	6.4	5.9	7.3	7.6	8.5	11.4						
Wales	5.7	6.5	6.6	5.4	5.0	5.4	6.2	6.4	5.9	6.4	8.2						
Scotland	10.1	15.3	8.3	10.8	12.4	11.7	10.3	9.1	9.4	18.4	32.5						
Northern Ireland	3.4	3.9	3.7	3.3	4.0	3.6	4.5	5.3	4.0	8.2	10.1						

\*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 8.8 per 100,000 in week 50 compared to 6.9 per 100,000 in week 49 (Figure 5).

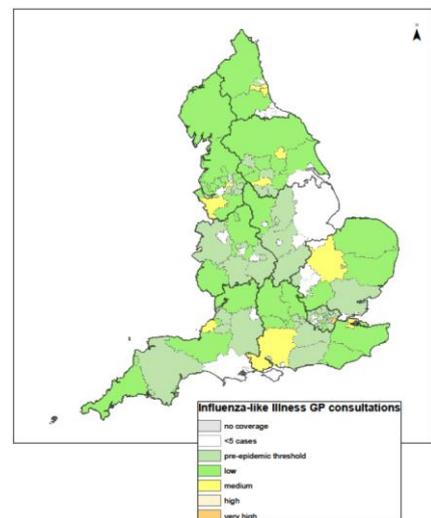
During week 50 there were increases in respiratory indicators across all systems, including influenza-like illness GP consultations and NHS 111 cold/flu calls.

Figure 5 represents a map of GP ILI consultation rates in week 50 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 [webpage](#).

**Figure 5: Map of GP ILI consultation rates in week 50**

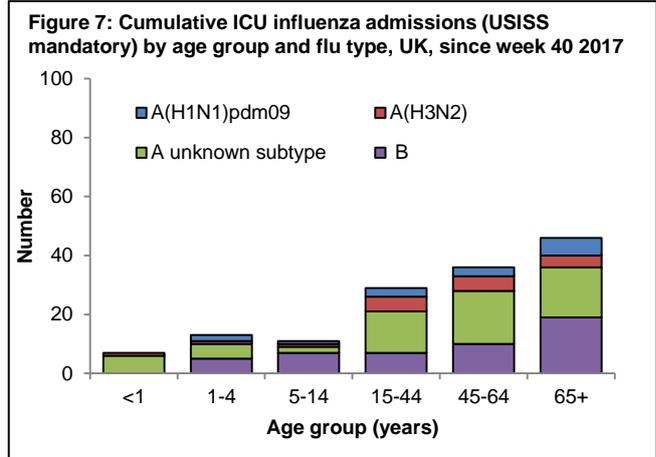
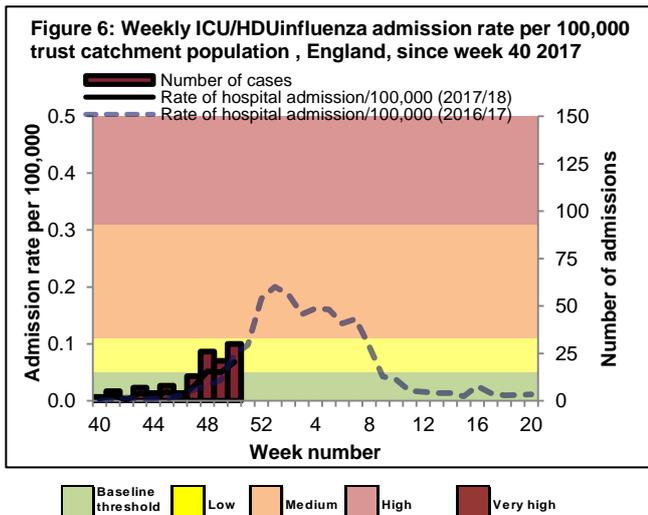


In week 50, there were 37 admissions to ICU/HDU with confirmed influenza (3 influenza A(H1N1)pdm09, 4 influenza A(H3N2), 12 influenza A(unknown subtype) and 18 influenza B) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (126 Trusts). One hundred and forty-four hospitalised confirmed influenza cases (12 influenza A(H1N1)pdm09, 21 influenza A(H3N2), 54 influenza A(unknown subtype) and 57 influenza B) were reported through the USISS sentinel hospital network across England (22 Trusts).

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

- In week 50, there were 37 admissions to ICU/HDU with confirmed influenza (3 influenza A(H1N1)pdm09, 4 influenza A(H3N2), 12 influenza A(unknown subtype) and 18 influenza B) reported across the UK (126/144 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.07 per 100,000 for England data (Figures 6 and 7) compared to 0.05 per 100,000 in week 49. This is at the baseline threshold of 0.05 per 100,000 for the 2017/18 season. One death was reported to have occurred in week 50.

A total of 142 new admissions (15 influenza A(H1N1)pdm09, 17 influenza A(H3N2), 62 influenza A(unknown subtype) and 48 influenza B) and 15 confirmed deaths have been reported in the UK since week 40 2017.

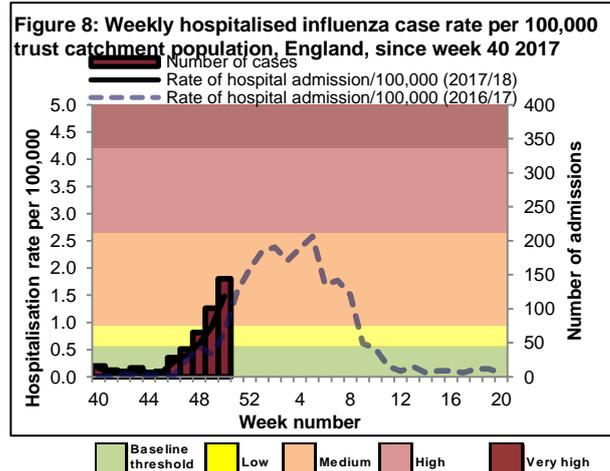


\*The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for ICU/HDU admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, please visit: <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 50)

- In week 50, there were 144 hospitalised confirmed influenza cases (12 influenza A(H1N1)pdm09, 21 influenza A(H3N2), 54 influenza A(unknown subtype) and 57 influenza B) reported through the USISS sentinel hospital network from 22 NHS Trusts across England (Figure 8), a rate of 1.48 per 100,000 compared to 0.93 per 100,000 in the previous week.

- A total of 440 hospitalised confirmed influenza admissions (75 influenza A(H1N1)pdm09, 71 influenza A(H3N2), 165 influenza A(unknown subtype) and 129 influenza B) have been reported 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 hospital 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 50)

- In week 50, there was no new laboratory confirmed influenza admission reported from the six Severe Respiratory Failure (SRF) centres in the UK. Since week 40, a total of two laboratory confirmed influenza admissions (one influenza A(unknown subtype) and one influenza B) were reported from the SRFs for the season to date.

In week 50 2017 in England, no statistically significant excess all-cause mortality by week of death was observed through the EuroMOMO algorithm in England. In the devolved administrations, significant excess all-cause mortality was observed in Scotland in week 50 2017, but not in Wales or Northern Ireland.

- All-cause death registrations, England and Wales

- In week 49 2017, an estimated 10,781 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is a slight decrease compared to the 10,538 estimated death registrations in week 48 2017.

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

- In week 50 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 (Figure 9). This data is provisional due to the time delay in registration; numbers may vary from week to week.

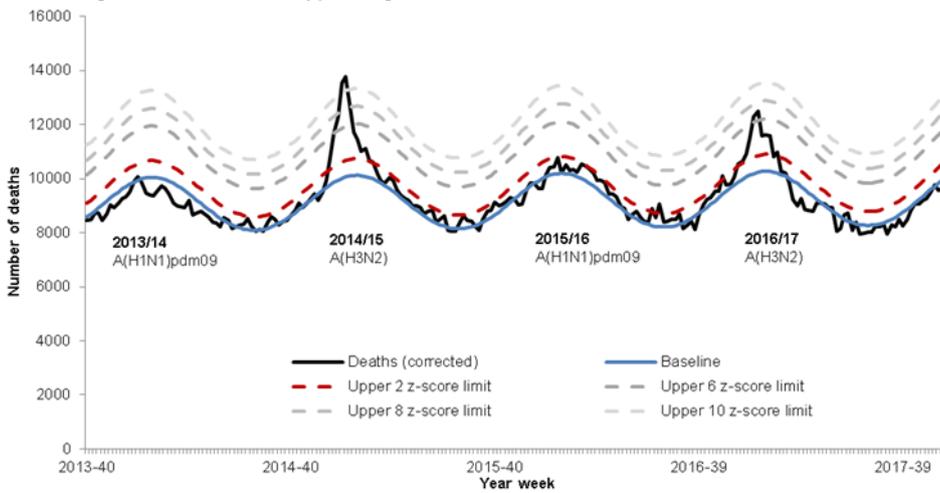
- In the devolved administrations, significant excess mortality above the threshold was observed Scotland in week 50, but not in Wales and Northern Ireland (Table 2).

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

Country	Excess detected in week 50 2017?	Weeks with excess in 2017/18
England	×	NA
Wales	×	NA
Scotland	✓	41,49,50
Northern Ireland	×	NA

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

**Figure 9: Weekly observed and expected number of all-age all-cause deaths, with the dominant circulating strain influenza A type, England, 2013 to 2017**

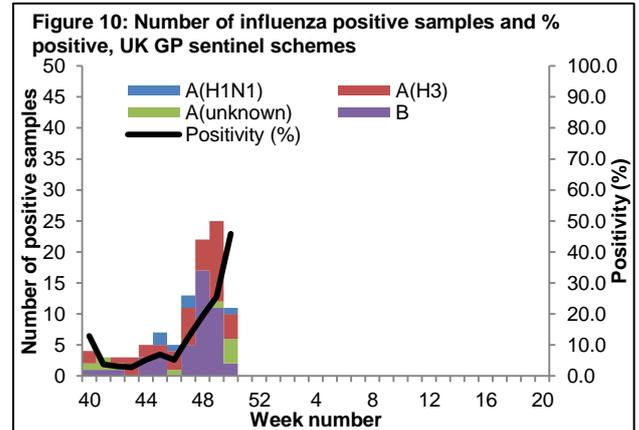


In week 50 2017, 11 samples tested positive for influenza (one influenza A(H1N1)pdm09, four influenza A(H3), four influenza A(unknown subtype) and two influenza B) through the UK GP sentinel schemes, with an overall positivity of 45.8%. Two hundred and eleven samples positive detections were recorded through the DataMart scheme (74 influenza A(H3), 21 influenza A(H1N1)pdm09, 41 influenza A(unknown subtype) and 75 influenza B) with a positivity of 11.1% in week 50, which is above the baseline threshold of 8.6%. RSV activity continued to decrease at 17.1% in week 50 and the highest positivity was seen in <5 year olds at 42.8%.

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

-In week 50, 11 samples tested positive for influenza (one influenza A(H1N1)pdm09, four influenza A(H3), four influenza A(unknown subtype) and two influenza B) with an overall positivity of 45.8% compared to 25.5% through the UK GP sentinel swabbing schemes (Figure 10).

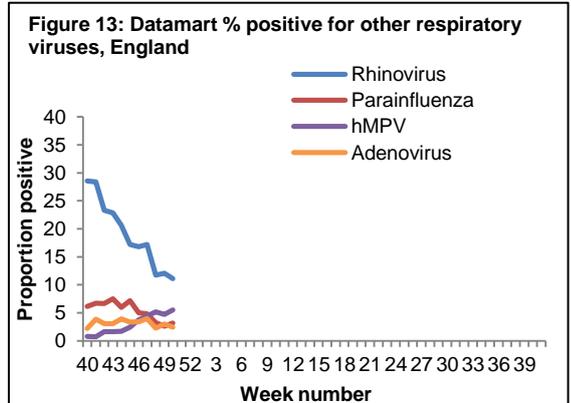
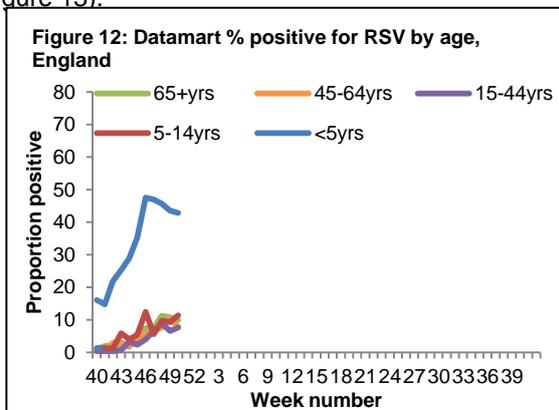
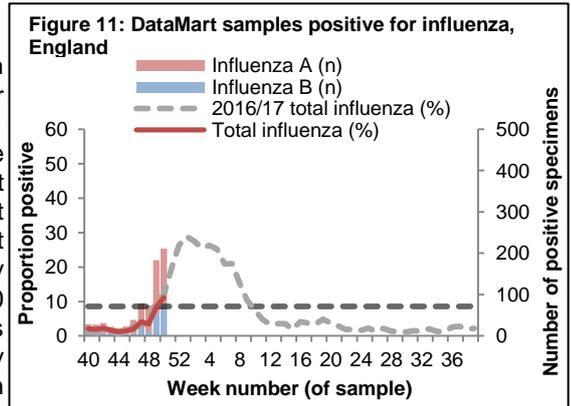
Since week 40, a total of 101 samples (41 influenza A(H3), 10 influenza (unknown subtype), six influenza A(H1N1)pdm09 and 44 influenza B) tested positive for influenza through this scheme.



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

- Respiratory DataMart System (England)

In week 50 2017, out of the 1,894 respiratory specimens reported through the Respiratory DataMart System, 211 samples (11.1%) were positive for influenza (74 influenza A(H3), 41 influenza A(unknown subtype), 21 influenza A(H1N1)pdm09 and 75 influenza B) (Figure 11), which is above the MEM baseline threshold for this season of 8.6%. The highest positivity for influenza by age group was seen in the 15-44 year olds at 14.6% in week 50. The overall positivity for RSV continued to decrease at 17.1% in week 50 compared to 19.2% in week 49. The highest positivity for RSV by age group was seen in the <5 year olds at 42.8% in week 50 (Figure 12). Rhinovirus positivity remained low and similar to the previous week at 11.1% in week 50. Adenovirus and parainfluenza positivity remained low at 2.5% and 3.2% respectively in week 50. Human metapneumovirus (hMPV) positivity increased slightly in week 50, at 5.5% (Figure 13).



\*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 has characterised 102 influenza viruses detected since week 37 (Table 3). Of the 26 A(H1N1)pdm09 influenza viruses that have been characterised, all belong in the genetic subgroup 6B.1, which was the predominant genetic subgroup in the 2016/17 season. The nine viruses antigenically analysed are similar to the A/Michigan/45/2015 Northern Hemisphere 2017/18 (H1N1)pdm09 vaccine strain.

Genetic characterisation of 54 A(H3N2) influenza viruses detected since late summer, showed that they all belong to genetic subclade 3C.2a, with 32 belonging to a cluster within this genetic subclade designated as 3C.2a1. The Northern Hemisphere 2017/18 influenza A(H3N2) vaccine strain A/HongKong/4801/2014 belongs in genetic subclade 3C.2a.

Twenty two influenza B viruses have been analysed; 18 were characterised as belonging to the B/Yamagata/16/88-lineage and 4 belonging to the B/Victoria/2/1987-lineage. Of the influenza B viruses antigenically characterised, the B/Victoria/2/87-lineage viruses were antigenically similar to B/Brisbane/60/2008, the influenza B/Victoria-lineage component of 2017/18 Northern Hemisphere trivalent and quadrivalent vaccines. B/Yamagata/16/88-lineage viruses were antigenically similar to B/Phuket/3073/2013, the influenza B/Yamagata-lineage component of 2016/17 Northern Hemisphere quadrivalent vaccine.

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

Virus	No. viruses characterised			
	Genetic and antigenic	Genetic only	Antigenic only	Total
<b>A(H1N1)pdm09</b>	5	17	4	26
<b>A(H3N2)</b>	0	54	0	54
<b>B/Yamagata-lineage</b>	4	13	1	18
<b>B/Victoria-lineage</b>	3	1	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 so far, 36 influenza A(H3N2) have been tested for oseltamivir susceptibility; 33 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 33 A(H3N2) viruses with zanamivir susceptibility testing data, 32 are susceptible and one (R292K mutant) has reduced susceptibility. Eighty-six influenza A(H1N1)pdm09 virus have been tested for oseltamivir susceptibility and all were fully susceptible. Fourteen of the 86 influenza A(H1N1)pdm09 virus were also tested for zanamivir susceptibility and were fully susceptible. Ten influenza B viruses have been tested for oseltamivir susceptibility and were fully susceptible.

- Antimicrobial susceptibility

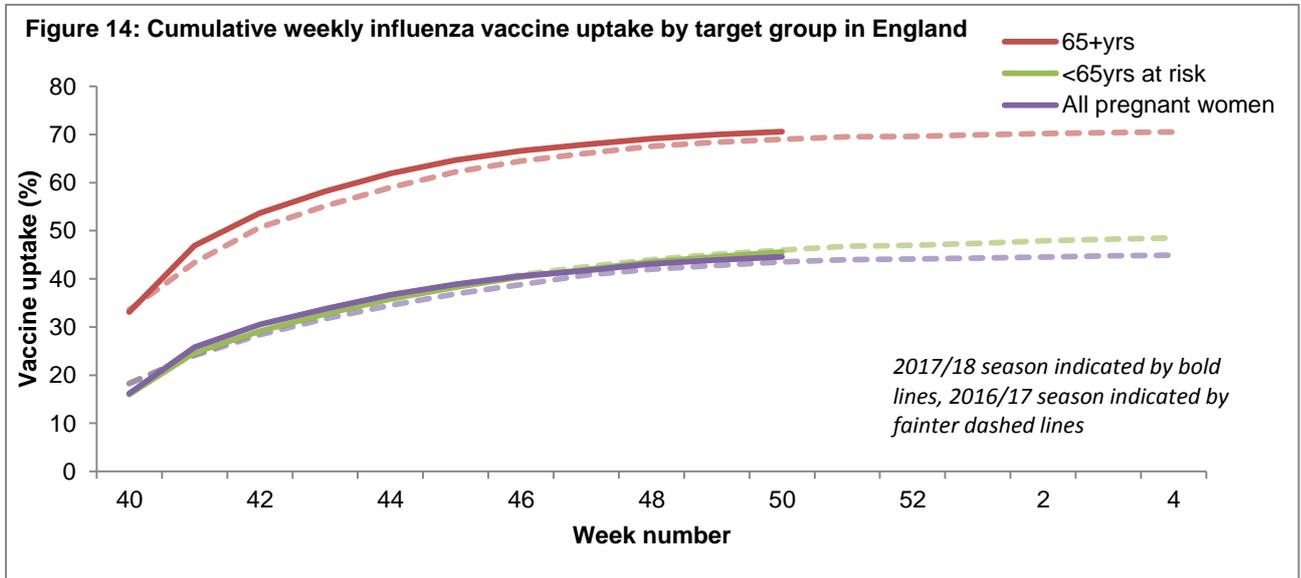
-Table 4 shows in the 12 weeks up to 17 December 2017, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community acquired 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 17 December 2017, E&W**

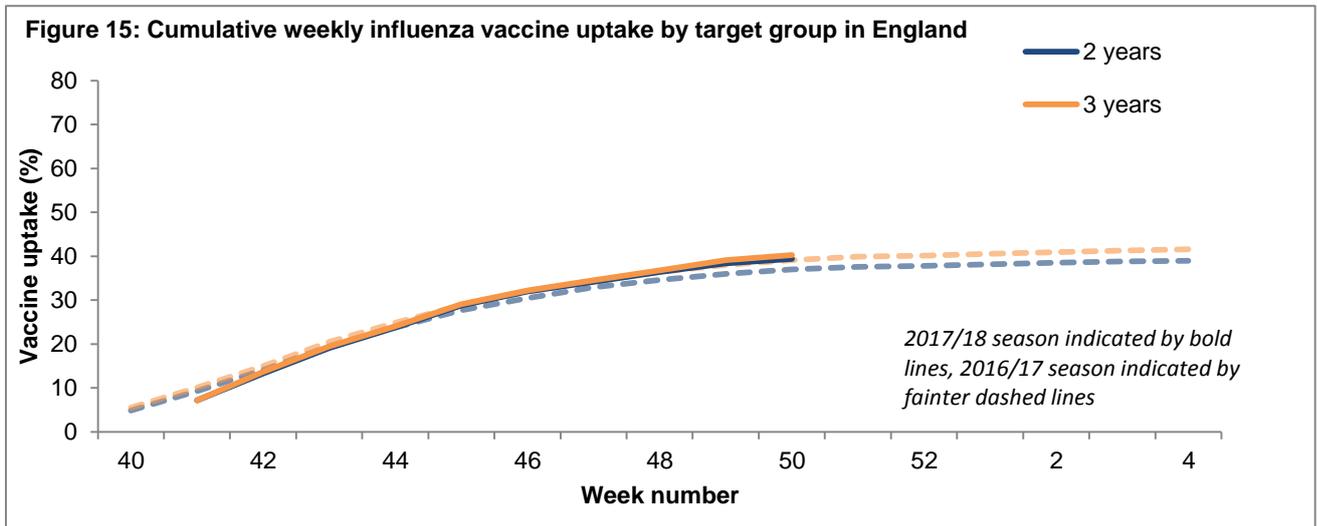
Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	3884	90
	Macrolides	4290	81
	Tetracycline	4226	84
<i>H. influenzae</i>	Amoxicillin/ampicillin	15147	68
	Co-amoxiclav	16046	85
	Macrolides	6725	3
	Tetracycline	16227	98
<i>S. aureus</i>	Methicillin	6759	92
	Macrolides	7464	66
MRSA	Clindamycin	366	41
	Tetracycline	505	80
MSSA	Clindamycin	3960	77
	Tetracycline	5747	93

\*Macrolides = erythromycin, azithromycin and clarithromycin

- Up to week 50 2017 in 94.1% 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 14):
  - 45.6% in under 65 years in a clinical risk group
  - 44.6% in pregnant women
  - 70.6% 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 50 2017 in 94.0% 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 15):
  - 39.4% in 2 year olds
  - 40.3% in 3 year olds



- Provisional data from the second monthly collection of influenza vaccine uptake by frontline healthcare workers show 59.3% were vaccinated by 30 November 2017 from 98.8% of all organisations, compared to 55.6% vaccinated in the previous season by 30 November 2016. The [report](#) provides uptake at national, NHS local team, “old” area teams and Trust-level.

- Provisional data from the second [monthly](#) collection of influenza vaccine uptake for children of school years Reception, 1,2, 3 and 4 age (from a sample of 100.0% 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 30 November 2017 in targeted groups was as follows:
  - 50.0% in children school year Reception age (4-5 yrs)
  - 48.9% in children school year 1 age (5-6 yrs)
  - 48.3% in children school year 2 age (6-7 yrs)
  - 45.7% in children school year 3 age (7-8 yrs)
  - 44.4% in children school year 4 age (8-9 yrs)
- Provisional data from the second [monthly](#) collection of influenza vaccine uptake in GP patients up to 30 November 2017 show that in 96.9% 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:
  - 43.3% in under 65 year olds in a clinical risk group
  - 42.9% in pregnant women
  - 69.1% in 65+ year olds
- Provisional data from the second [monthly](#) collection of influenza vaccine uptake in GP patients up to 30 November 2017 show that in 96.6% 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:
  - 36.3% in 2 year olds
  - 36.9% in 3 year olds

## International Situation

[| Back to top |](#)

**Influenza activity increased slightly in the temperate zone of the northern hemisphere, with Canada exceeding its seasonal threshold in week 45, indicating the start of the influenza season in Canada. In the temperate zone of the southern hemisphere activity appeared to have decreased at inter-seasonal levels. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.**

- [Europe](#) updated on 15 December 2017 (Joint ECDC-WHO Europe Influenza weekly update)

In week 49/2017, medium intensity of influenza activity was reported by France, while low intensity was inferred by the remaining 42 of the 43 countries reporting on this indicator.

No geographic spread of influenza was reported by 12 of the 43 countries reporting on this indicator; 26 countries reported sporadic cases, 2 reported local geographic spread, 1 country (France) reported regional spread, and 2 countries (Sweden and Turkey) reported widespread activity.

For week 49/2017, 118 (11%) of 1,070 sentinel specimens tested positive for influenza viruses: 22 A(H1N1)pdm09, 26 A(H3N2), 6 un-subtyped A viruses, 19 B/Yamagata, and 45 B viruses not ascribed to a lineage 42% of all influenza B virus detections were reported from Spain. This is the third consecutive week with more type B than type A virus detections. While the majority of type B viruses were not ascribed to a lineage, of those that were, 100% were B/Yamagata and of the type A viruses subtyped, 45.8% were influenza A(H1N1)pdm09 viruses.

For week 49/2017, 56 laboratory-confirmed influenza-infected cases from intensive care units (ICU) or other wards were reported by Denmark (n=5), France (n=12), Ireland (n=8); Romania (n=1), Spain (n=7), and United Kingdom (n=23).

Since week 40/2017, nine countries have reported laboratory-confirmed hospitalized influenza cases in ICU or other wards: 161 cases in ICU. Of 166 cases in ICU, 121 (73%) were infected with type A viruses (22 A(H1N1)pdm09, 23 A(H3N2), 76 A un-subtyped) and 45 (27%) with type B viruses. A higher proportion of patients with influenza type B virus infection was observed in other wards: of 122 patients, 66 (54%) were infected with influenza type A (13 A(H1N1)pdm09, 17 A(H3N2), 36 A un-subtyped) and 56 (46%) with influenza B viruses.

For week 49/2017, 1,322 specimens from non-sentinel sources (such as hospitals, schools, primary care facilities not involved in sentinel surveillance, nursing homes and other institutions) tested positive for influenza viruses. Of these, 59.2% were type A and 40.8% type B viruses. The majority of viruses from non-sentinel specimens were not subtyped or assigned to a lineage.

For week 49/2017, data from the 20 countries or regions reporting to the EuroMOMO project indicated all-cause mortality has been within normal ranges over the past few weeks.

- [United States of America](#) updated on 15 December 2017 (Centre for Disease Control report)

During week 49, influenza activity increased in the United States.

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

A cumulative rate of 4.3 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.

The proportion of outpatient visits for influenza-like illness (ILI) was 2.7%, which is above the national baseline of 2.2%.

One human infection with a novel influenza A virus (A(H3N2)variant) was reported in week 49.

One influenza-associated pediatric death was reported to CDC during week 49. This death was associated with an influenza A virus for which no subtyping was performed and occurred during week 44.

- [Canada](#) updated on 15 December 2017 (Public Health Agency report)

Overall, influenza activity continues to increase across Canada; however many indicators such as hospitalizations, outbreaks and geographic spread remained similar to the previous week.

The majority of influenza detections continue to be A(H3N2), although a substantially greater number of influenza B detections has also been reported compared to previous seasons.

In week 49, 1.8% of visits to healthcare professionals were due to influenza-like illness; a decrease compared to the previous week, and above the 5-year average.

In week 49, 69 influenza-associated hospitalizations were reported by participating provinces and territories.

To date this season, 704 influenza-associated hospitalizations have been reported, 89% of which were associated with influenza A, and 490 cases (70%) were in adults 65 years of age or older. The number of cases is considerably elevated relative to this period in the previous two seasons. To date, 47 ICU admissions and 19 deaths have been reported.

- [Global influenza update](#) updated on 11 December 2017 (WHO website)

Influenza activity increased slightly in the temperate zone of the northern hemisphere while in the temperate zone of the southern hemisphere activity appeared to have decreased at inter-seasonal levels. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

In North America, overall influenza activity continued to increase in the region, with detections of predominantly influenza A(H3N2) viruses.

In Europe, influenza activity increased since the previous weeks, but remained low, with detections of predominantly influenza B viruses followed by influenza A(H3N2) viruses.

In Western Asia, high levels of influenza activity were reported in Oman and Qatar in recent weeks, with detections of all seasonal influenza subtypes.

In Central Asia, respiratory illness indicators appeared to increase in Kazakhstan and Uzbekistan in recent weeks.

In East Asia, influenza activity remained low in general. In Northern China, ILI and influenza percentage positive continued to increase, with influenza A(H3N2) and B Yamagata-lineage viruses predominantly detected. In South East Asia, low levels of influenza activity were reported.

In Southern Asia, influenza activity remained low in general. In India, influenza A(H1N1)pdm09 and A(H3N2) detections continued to be reported.

In Northern Africa, sporadic influenza A virus detections were reported in Morocco and Tunisia. In Western Africa, influenza A(H1N1)pdm09 virus detections increased in Cote d'Ivoire and Ghana. In Middle Africa, influenza B detections were reported in Central African Republic. In Eastern Africa, influenza B Yamagata-lineage virus detections were reported in Mozambique.

In the Caribbean and Central American countries, respiratory illness indicators and influenza activity remained low in general but respiratory syncytial virus (RSV) activity remained high in several countries. In the tropical countries of South America, influenza and RSV activity remained at low levels overall.

In the temperate zone of the Southern Hemisphere, influenza activity appeared to have decreased overall.

The WHO GISRS laboratories tested more than 113,412 specimens between 13 November 2017 to 26 November 2017. 8,982 were positive for influenza viruses, of which 5,617 (62.5%) were typed as influenza A and 3,365 (37.5%) as influenza B. Of the sub-typed influenza A viruses, 1,122 (33%) were influenza A(H1N1)pdm09 and 2,273 (67%) were influenza A(H3N2). Of the characterized B viruses, 1,521 (80%) belonged to the B-Yamagata lineage and 381 (20%) to the B-Victoria lineage.

- [Avian Influenza](#) latest update on 30 October 2017 (WHO website)

#### **Influenza A(H5) viruses**

Since the last update on [27 September 2017](#), one new laboratory-confirmed human case of influenza A(H5N1) virus infection was reported to WHO from Indonesia.

Since 2003, a total of 860 laboratory-confirmed cases of human infection with avian influenza A(H5N1) virus, including 454 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 Africa, Europe and Asia.

#### **Influenza A(H7N9)**

Since the last update on [27 September 2017](#), no new laboratory-confirmed human cases of influenza A(H7N9) virus infection were reported to WHO.

Since 2013, a total of 1,564 laboratory-confirmed cases of human infection with avian influenza A(H7N9) viruses, including at least 612 deaths, have been reported to WHO.

#### **Influenza A(H1N2) variant viruses**

Between [28 September and 30 October 2017](#), one new laboratory-confirmed human infection with influenza A(H1N2)v virus was detected in the state of Ohio in the United States (U.S).

Since 2005, 12 cases of A(H1N2)v influenza virus infections have been reported to the U.S Centers for Disease Control and Prevention (CDC).

#### **Influenza A(H3N2) variant viruses**

Since [27 September 2017](#), 41 human infections with influenza A(H3N2)v viruses were detected in the U.S. in several states. Characterization of the viruses from these cases indicates they are similar to A(H3N2)v viruses previously detected and similar to the existing candidate vaccine virus.

Since reporting of novel influenza A viruses became nationally notifiable in 2005, 462 human infections with influenza A(H3N2)v viruses have been reported to the U.S. CDC and 59 of these occurred in 2017.

- [Middle East respiratory syndrome coronavirus \(MERS-CoV\)](#) latest update on 13 December 2017

Up to 20 December 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 1,107 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

Between [31 October and 8 December 2017](#), the National IHR Focal Point of the Kingdom of Saudi Arabia reported 18 additional cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection, including five deaths. Additionally, two deaths from a previously reported case were reported to WHO.

On [1 November 2017](#), the International Health Regulations (2005) national focal point of Oman reported one case of Middle East respiratory syndrome coronavirus (MERS-CoV) infection. Prior to this case, the most recent case of MERS-CoV from Oman was reported on 30 August 2017.

Globally, since September 2012, WHO has been notified of 2,102 laboratory-confirmed cases of infection with MERS-CoV, including at least 733 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

[| Back to top |](#)

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## Related links

[| Back to top |](#)

### 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](#))