



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 07 (ending 18 February 2018), influenza continues to circulate widely, although activity has now peaked. Influenza A and B are co-circulating. The Department of Health has issued an [alert](#) on the prescription of antiviral medicines by GPs.

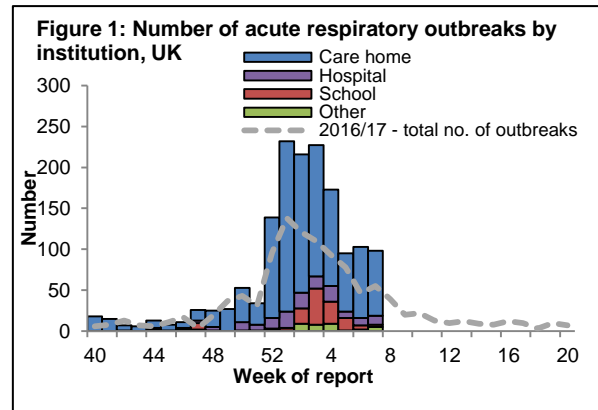
- [Community influenza surveillance](#)
  - Ninety-eight new acute respiratory outbreaks have been reported in the past 7 days compared to 104 in the previous week. Seventy-nine outbreaks were from care homes, where 29 tested positive for influenza A(unknown subtype), 17 were positive for influenza B, one was positive for influenza A(H3), one was positive for influenza A(H1N1)pdm09, one was positive for a mixed infection of influenza A(unknown subtype) and influenza B and another for enterovirus. Eleven outbreaks were from hospitals where three tested positive for influenza A(unknown subtype), four were positive for influenza B and another for a mixed infection of influenza A(unknown subtype) and influenza B. Three outbreaks were from schools where one tested positive for influenza A(unknown subtype). The remaining four outbreaks were reported from the Other settings category, where two tested positive for influenza B and another for influenza A(unknown subtype).
- [Overall weekly influenza GP consultation rates across the UK](#)
  - In week 07, the overall weekly influenza-like illness (ILI) GP consultation rate was 29.1 per 100,000 in England, compared to 34.0 per 100,000 in week 05. This remains above the medium intensity threshold of 24.2 per 100,000 for this season. In the devolved administrations, ILI rates continue to decrease in Northern Ireland and Wales but an increase was noted in Scotland
  - Through the Syndromic Surveillance systems, GP consultations for influenza-like illnesses (ILI) continued to decrease across most age groups. GP Out of Hours ILI consultations and NHS 111 cold/flu calls remained stable but above expected levels. Emergency department attendances for respiratory infections increased slightly during week 07.
- [Influenza-confirmed hospitalisations](#)
  - In week 07, there were 150 new admissions to ICU/HDU with confirmed influenza (eight influenza A(H1N1)pdm09, eight influenza A(H3N2), 48 influenza A(unknown subtype) and 86 influenza B) reported across the UK (122/144 Trusts in England) through the USSS mandatory ICU scheme with a rate of 0.35 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 07, there were 756 hospitalised confirmed influenza cases (42 influenza A(H1N1)pdm09, 176 influenza A(H3N2), 142 influenza A(unknown subtype) and 396 influenza B) reported through the USSS sentinel hospital network (all levels of care) (21 NHS Trusts across England), with a rate of 7.26 per 100,000 compared to 6.53 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 three new influenza admissions (one influenza A(H3N2), one influenza A(unknown subtype) and one influenza B) reported from the six Severe Respiratory Failure centres in the UK in week 07.
- [All-cause mortality data](#)
  - In week 07 2018, statistically significant excess all-cause mortality by week of death was seen overall and in the 65+ year olds in England, through the EuroMOMO algorithm. In the devolved administrations, statistically significant excess all-cause mortality for all ages was observed in Northern Ireland but not in Scotland and Wales in week 07 2018.
- [Microbiological surveillance](#)
  - Sixty-four samples tested positive for influenza (seven influenza A(H1N1)pdm09, 21 influenza A(H3), one influenza A(unknown subtype) and 35 influenza B) through the UK GP sentinel schemes, with an overall positivity of 57.1% in week 07, compared to 48.8% in week 06.
  - Eight hundred and twenty-seven positive detections were recorded through the DataMart scheme (263 influenza A(H3), 115 influenza A(unknown subtype), 27 influenza A(H1N1)pdm09 and 422 influenza B) with a positivity of 30.6% in week 07 compared to 25.1% in week 06, which is above the baseline threshold of 8.6%.
- [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 fourth monthly collection of influenza vaccine uptake by frontline healthcare workers show 67.6% were vaccinated by 31 January 2018, compared to 63.0% vaccinated in the previous season by 31 January 2017.
  - Provisional data from the fourth 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 January 2018 in targeted groups was as follows: 62.6% in children of school year Reception age (4-5 years); 60.9% in children of school Year 1 age (5-6 years); 60.3% in children of school Year 2 age (6-7 years); 57.5% in children of school Year 3 age (7-8 years) and 55.7% 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.
  - [WHO](#) have published their recommendations for the composition of the 2018/19 northern hemisphere influenza vaccine.
- [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-eight new acute respiratory outbreaks were reported in the past 7 days.**

- Acute respiratory disease outbreaks

- Ninety-eight new acute respiratory outbreaks have been reported in the past 7 days compared to 104 in the previous week. Seventy-nine outbreaks were from care homes, where 29 tested positive for influenza A(unknown subtype), 17 were positive for influenza B, one was positive for influenza A(H3), one was positive for influenza A(H1N1)pdm09, one was positive for a mixed infection of influenza A(unknown subtyped) and influenza B and another for enterovirus. Eleven outbreaks were from hospitals where three tested positive for influenza A(unknown subtype), four were positive for influenza B and another for a mixed infection of influenza A(unknown subtype) and influenza B. Three outbreaks were from schools where one tested positive for influenza A(unknown subtype). The remaining four outbreaks were reported from the Other settings category, where two tested positive for influenza B and another for influenza A(unknown subtyped).

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



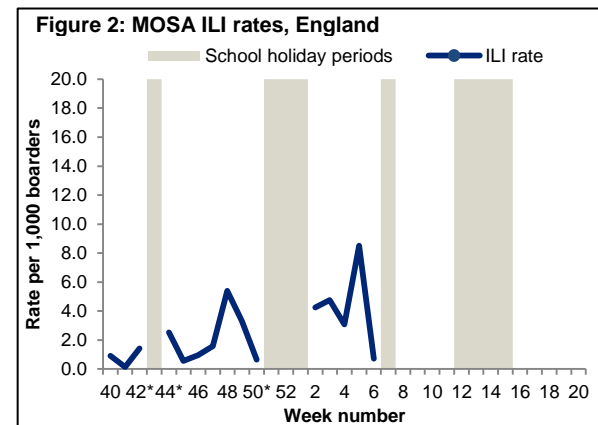
- Medical Officers of Schools Association (MOSA) & PHE surveillance scheme

- 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 06 was 0.7 per 1,000 boarders compared to 8.5 per 1,000 boarders in week 05.

-Since week 40, 34 outbreaks have been reported from 11 MOSA schools, with a total of 204 ILI cases identified. Out of the 34 outbreaks, six 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](mailto:mosa@phe.gov.uk) for more information.



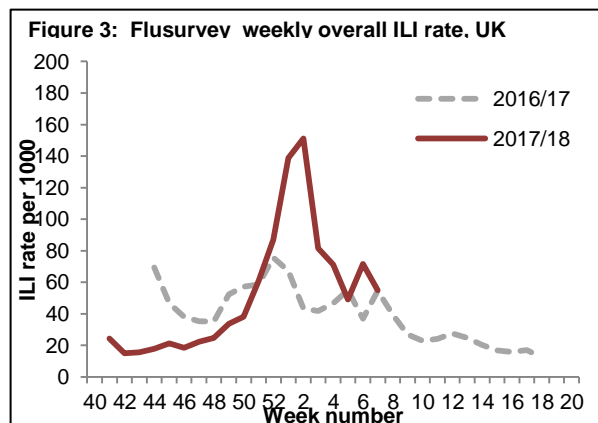
\*represents weeks where not all schools will be reporting due to varying school holiday periods.

- 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 07 was 54.9 per 1,000 (176/3,203 people reported at least 1 ILI) (Figure 3) compared to 71.6 per 1,000 in week 06.

- 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.



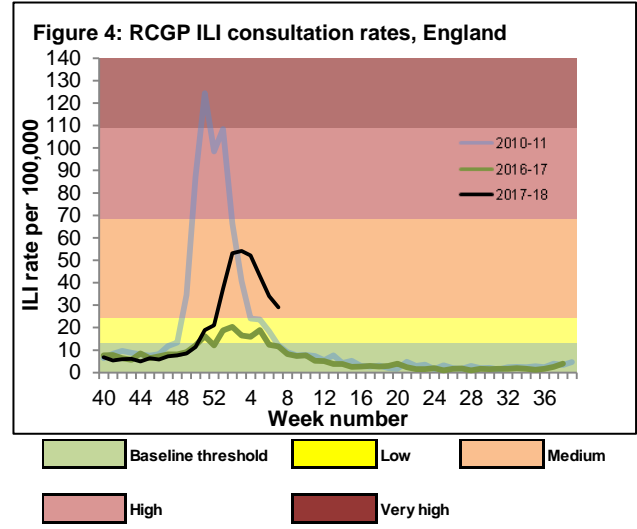
In week 07, the overall weekly influenza-like illness (ILI) GP consultation rate continued to decrease but remains above the baseline threshold in England. In the devolved administrations, ILI rates continue to decrease in Northern Ireland and Wales but an increase was noted in Scotland

- GP ILI consultations in the UK

**RCGP (England)**

- The weekly ILI consultation rate through the RCGP surveillance is at 29.1 per 100,000 in week 07 compared to 34.0 per 100,000 in week 06. 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 (42.1 per 100,000) and 15-44 year olds (31.4 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 07, overall weekly ILI consultation rates across the countries of the UK continue to decrease compared to the previous week with the exception of Scotland which saw an increase. (Table 1).
- By age group, the highest rates were seen in the 45-64 year olds in Northern Ireland, Wales and Scotland (40.6 per 100,000; 64.9 per 100,000 and 56.7 per 100,000 respectively).

**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	6	7
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	34.0	29.1
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	52.4	44.3	42.8
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	30.3	39.4
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	30.6	25.2

\*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 22.9 per 100,000 in week 07 (Figure 5).

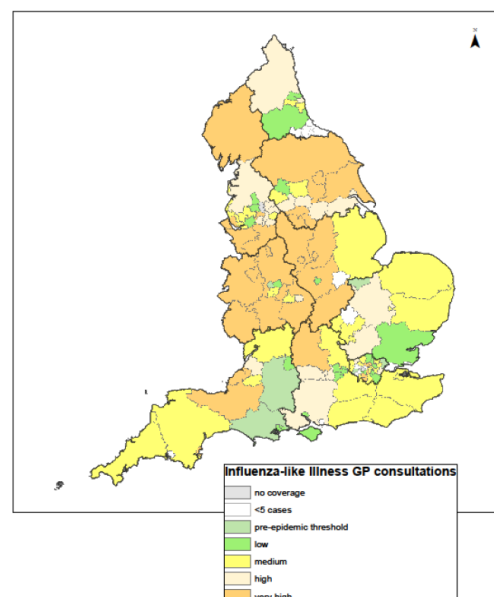
During week 07, GP consultations for influenza-like illnesses (ILI) continued to decrease across most age groups. GP Out of Hours ILI consultations and NHS 111 cold/flu calls remained stable but above expected levels. Emergency department attendances for respiratory infections increased slightly during week 07.

Figure 5 represents a map of GP ILI consultation rates in week 07 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 07**

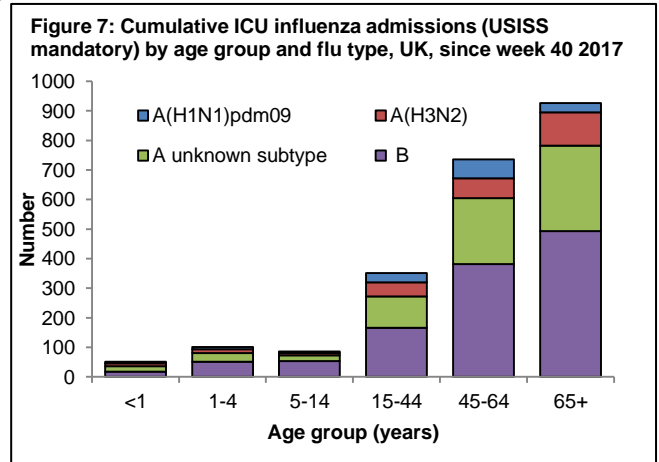
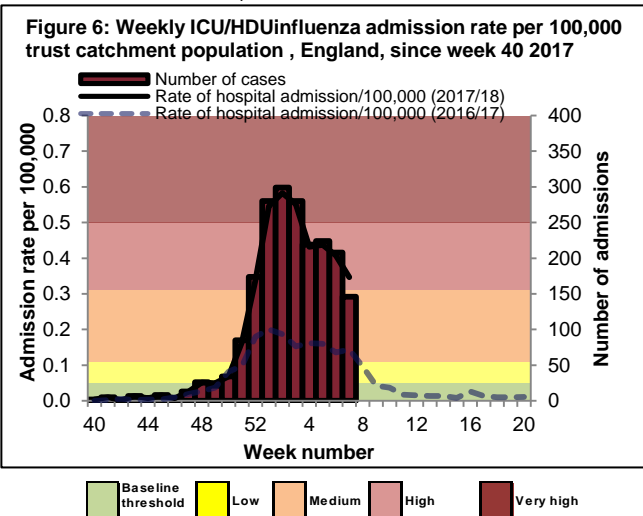


In week 07 2018 there were 150 new admissions to ICU/HDU with confirmed influenza (eight influenza A(H1N1)pdm09, eight influenza A(H3N2), 48 influenza A(unknown subtype) and 86 influenza B) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (120 Trusts in England). There were 756 hospitalised confirmed influenza cases (42 influenza A(H1N1)pdm09, 176 influenza A(H3N2), 142 influenza A(unknown subtype) and 396 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 07)

- In week 07, there were 150 new admissions to ICU/HDU with confirmed influenza (eight influenza A(H1N1)pdm09, eight influenza A(H3N2), 48 influenza A(unknown subtype) and 86 influenza B) reported across the UK (120/144 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.35 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 20 deaths were reported to have occurred in week 06 in the UK.

A total of 2,251 new admissions (143 influenza A(H1N1)pdm09, 260 influenza A(H3N2), 684 influenza A(unknown subtype) and 1,164 influenza B) and 271 confirmed deaths have been reported in the UK since week 40 2017.

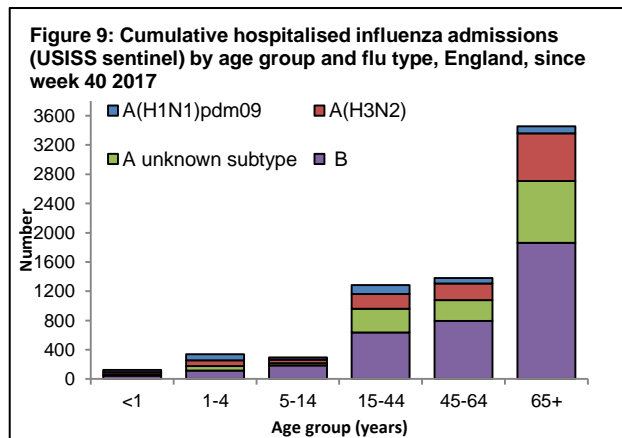
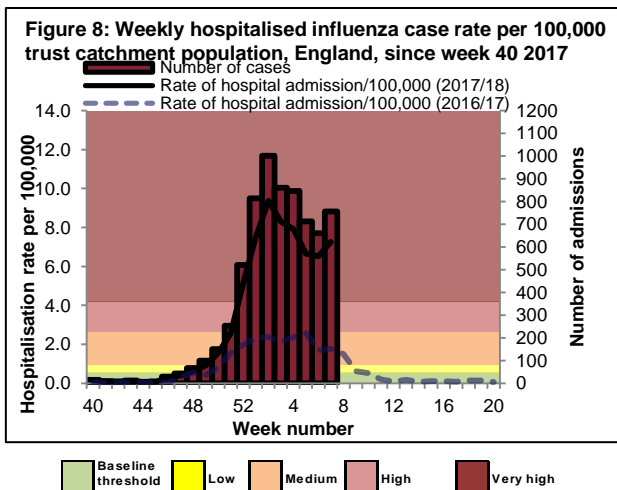


\*The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for ICU/HDU admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, please visit: <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 07)

- In week 07, there were 756 hospitalised confirmed influenza cases (42 influenza A(H1N1)pdm09, 176 influenza A(H3N2), 142 influenza A(unknown subtype) and 396 influenza B) reported from 22 NHS Trusts across England through the USISS sentinel hospital network, with a rate of 7.26 per 100,000 compared to 6.53 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 6,878 hospitalised confirmed influenza admissions (439 influenza A(H1N1)pdm09, 1,240 influenza A(H3N2), 1,561 influenza A(unknown subtype) and 3,638 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 07)

- In week 07, there were three new influenza admissions (one influenza A(H1N1)pdm09, one influenza A(unknown subtype) and one influenza B) reported from the six Severe Respiratory Failure (SRF) centres in the UK. Since week 40, a total of 36 laboratory confirmed influenza admissions (seven influenza A(H1N1)pdm09, three influenza A(H3N2), eleven influenza A(unknown subtype) and 15 influenza B) were reported from the SRFs for the season to date.

In week 07 2018, statistically significant excess all-cause mortality by week of death was observed overall and in the 65+ year olds in England, through the EuroMOMO algorithm. In the devolved administrations, statistically significant excess all-cause mortality for all ages was observed in Northern Ireland and Wales but not in Scotland and Wales in week 07 2018.

- All-cause death registrations, England and Wales

- In week 06 2018, an estimated 12,495 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is a decrease compared to the 13,285 estimated death registrations in week 05 2018.

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

- In week 07 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 50-04 and week 06-07). By age group statistically significant excess mortality was seen in the 65+ year olds (this excess has been seen from week 50 to week 07) (Figure 10) and subnationally (all ages) in the North East, West & East Midlands and South East 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 and Wales but not in Scotland and Wales in week 07 2018 (Table 2).

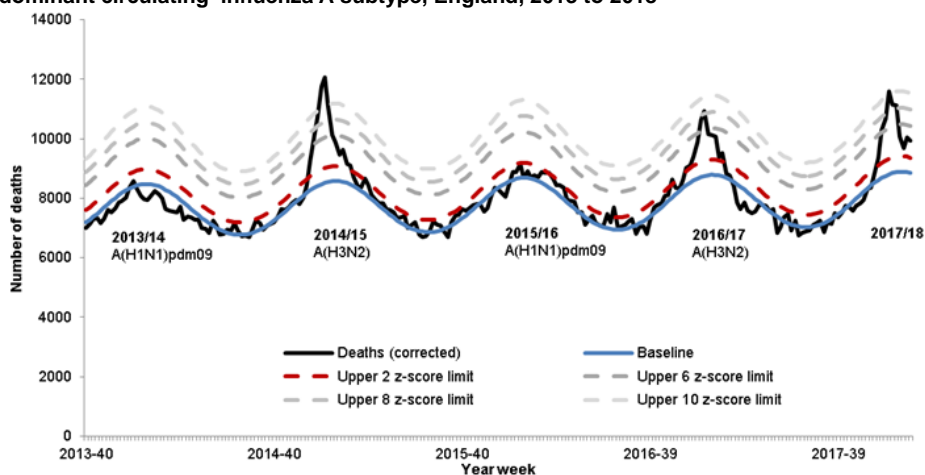
Table 2: Excess mortality by UK country, for all ages\*

Country	Excess detected in week 07 2018?	Weeks with excess in 2017/18
England	✓	50-04,06-07
Wales	×	51-03
Scotland	×	49-04
Northern Ireland	✓	51-07

\* 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

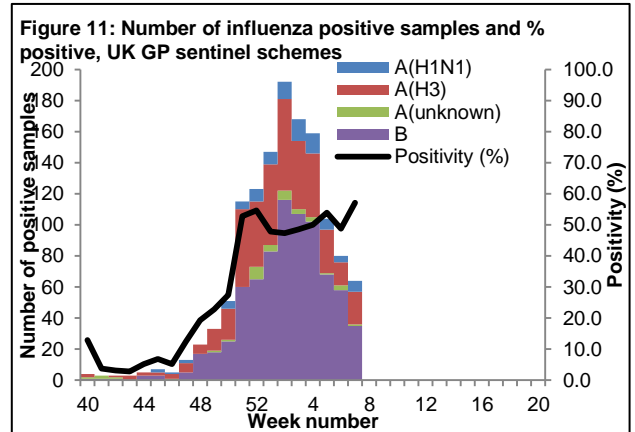


In week 07 2018, 64 samples tested positive for influenza (seven influenza A(H1N1)pdm09, 21 influenza A(H3), one influenza A(unknown subtype) and 35 influenza B) through the UK GP sentinel schemes, with an overall positivity of 57.1% compared to 48.8% in week 06. Eight hundred and twenty-seven positive detections were recorded through the DataMart scheme (263 influenza A(H3), 115 influenza A(unknown subtype), 27 influenza A(H1N1)pdm09 and 422 influenza B) with a positivity of 30.6% in week 07 compared to 25.1% in week 06, which is above the baseline threshold of 8.6%.

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

-In week 07, 64 samples tested positive for influenza (seven influenza A(H1N1)pdm09, 21 influenza A(H3), one influenza A(unknown subtype) and 35 influenza B) through the UK GP sentinel schemes, with an overall positivity of 57.1% compared to 48.8% in week 06 through the UK GP sentinel swabbing schemes (Figure 11).

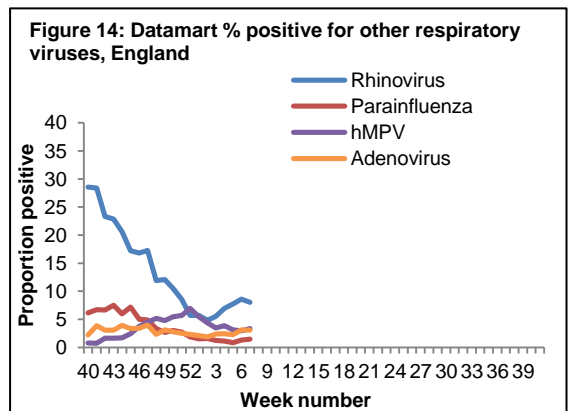
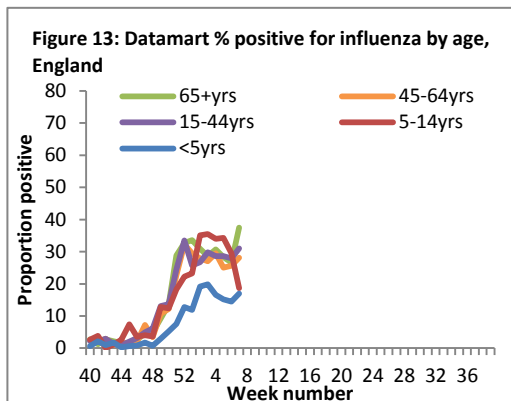
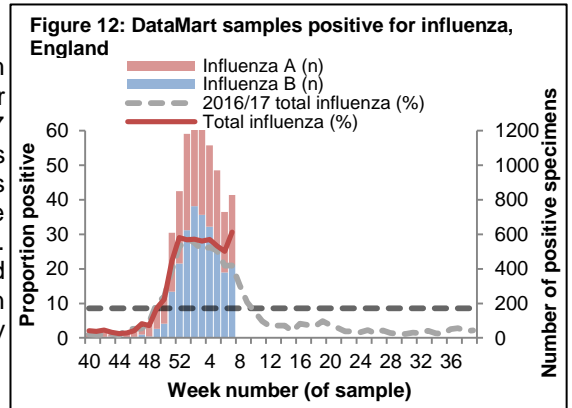
Since week 40, a total of 1,302 samples (411 influenza A(H3), 36 influenza (unknown subtype), 87 influenza A(H1N1)pdm09 and 768 influenza B) tested positive for influenza through this scheme.



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

- Respiratory DataMart System (England)

In week 07 2018, out of the 2,701 respiratory specimens reported through the Respiratory DataMart System, 827 samples (30.6%) were positive for influenza (263 influenza A(H3), 115 influenza A(unknown subtype), 27 influenza A(H1N1)pdm09 and 422 influenza B) (Figure 12), which is above the MEM baseline threshold for this season of 8.6%. This compares to 25.1% in week 06. The highest positivity for influenza by age group was seen in the 65+ year olds at 37.5% in week 07 (Figure 13). The overall positivity for RSV was low at 1.7% in week 07. Rhinovirus and adenovirus positivity remained stable at 8.0% and 3.1% respectively in week 07. Parainfluenza and human metapneumovirus (hMPV) positivity remained low at 1.5% and 3.4% respectively in week 07 (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 878 influenza viruses detected since week 37 (Table 3). Four hundred and six influenza B viruses have been analysed; 400 were characterised as belonging to the B/Yamagata/16/88-lineage and 6 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. Three influenza B viruses have been characterised where sequencing of the haemagglutinin (HA) gene shows they belong 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 305 A(H3N2) influenza viruses detected since late summer, showed that the majority belong to genetic subclade 3C.2a, with 115 belonging to a cluster within this genetic subclade designated as 3C.2a1. Three viruses belonging to the genetic subclade 3C.3a were detected. The Northern Hemisphere 2017/18 influenza A(H3N2) vaccine strain A/HongKong/4801/2014 belongs in genetic subclade 3C.2a.

Of 167 A(H1N1)pdm09 influenza viruses characterised, those 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. 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			
	Genetic and antigenic	Genetic only	Antigenic only	Total
<b>A(H1N1)pdm09</b>	42	52	73	167
<b>A(H3N2)</b>	1	304	0	305
<b>B/Yamagata-lineage</b>	71	203	126	400
<b>B/Victoria-lineage</b>	5	1	0	6

- 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, 161 influenza A(H3N2) have been tested for oseltamivir susceptibility; 157 are susceptible but four are resistant. Of 147 A(H3N2) viruses with zanamivir susceptibility testing data, 145 are susceptible and two are resistant. One hundred and seventy-two influenza A(H1N1)pdm09 virus have been tested for oseltamivir susceptibility and all but three were fully susceptible. Eighty-four of the 172 influenza A(H1N1)pdm09 virus were also tested for zanamivir susceptibility and were all fully susceptible. Two hundred and ninety-seven influenza B viruses have been tested for oseltamivir and all but one were fully susceptible. Two hundred and eighty-five out of the 297 influenza B viruses have also been tested for zanamivir susceptibility and all but one was fully susceptible.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 18 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.

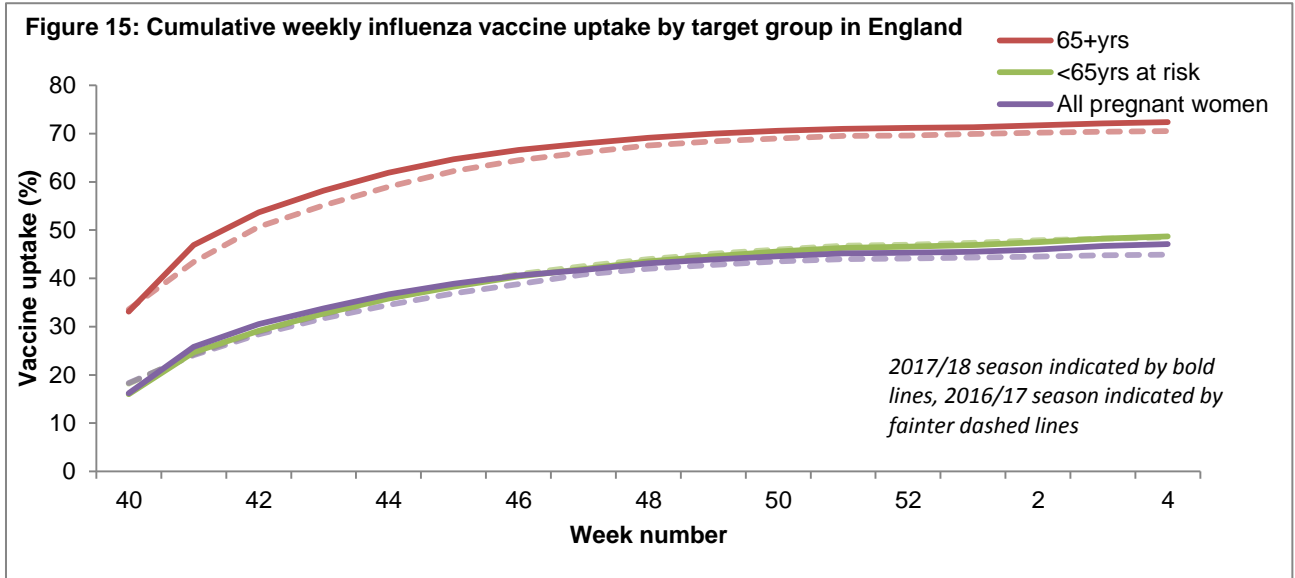
**Table 4: Antimicrobial susceptibility surveillance in lower respiratory tract isolates, 12 weeks up to 18 February 2018, E&W**

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
<i>S. pneumoniae</i>	Penicillin	4612	89
	Macrolides	5077	83
	Tetracycline	4976	86
<i>H. influenzae</i>	Amoxicillin/ampicillin	19508	68
	Co-amoxiclav	20918	85
	Macrolides	8363	3
	Tetracycline	20973	98
<i>S. aureus</i>	Methicillin	7611	91
	Macrolides	8288	67
MRSA	Clindamycin	466	44
	Tetracycline	629	81
MSSA	Clindamycin	4439	77
	Tetracycline	6357	94

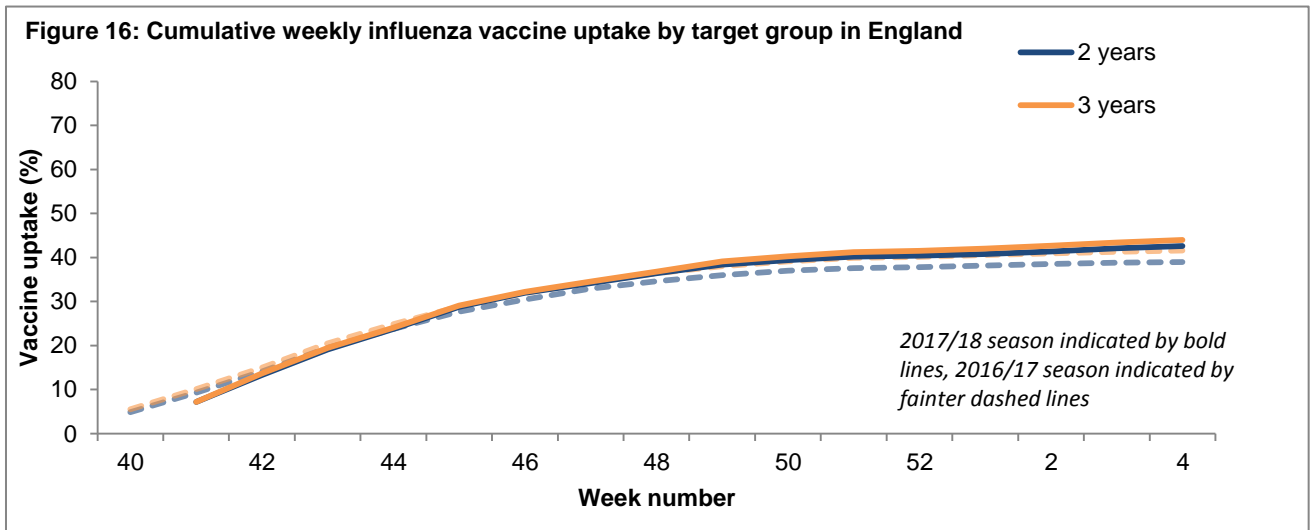
\*Macrolides = erythromycin, azithromycin and clarithromycin



- 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 67.6% were vaccinated by 31 January 2018 from 99.2% of all organisations, compared to 63.0% vaccinated in the previous season by 31 January 2017. The [report](#) provides uptake at national, NHS local team, “old” area teams and Trust-level.

- Provisional data from the fourth [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 January 2017 in targeted groups was as follows:
  - 62.6% in children school year Reception age (4-5 years)
  - 60.9% in children school year 1 age (5-6 years)
  - 60.3% in children school year 2 age (6-7 years)
  - 57.5% in children school year 3 age (7-8 years)
  - 55.7% 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 16 February 2018 (Joint ECDC-WHO Europe Influenza weekly update)

In week 06/2018, 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 virus types A and B were co-circulating with a higher proportion of type B viruses. Different proportions of circulating influenza virus types and A subtypes were observed between countries.

In week 06/2018, influenza activity was at variable levels across the region. Of 46 Member States reporting on intensity, Albania and Luxembourg reported very high intensity, while Finland, Germany, Ireland, Slovakia, Sweden and Kosovo (in accordance with Security Council resolution 1244 (1999)) reported high intensity; 26 Member States and the UK (England, Northern Ireland and Wales) reported medium intensity and 12 Member States and the UK (Scotland) low intensity.

For week 06/2018, 1, 837 (51%) of 3 603 sentinel specimens tested positive for influenza viruses. Of these, 27.8% were type A and 72.2% were type B. Of 377 subtyped A viruses, 67.9% were influenza A(H1N1)pdm09 and 32.1% A(H3N2). Of 600 type B viruses ascribed to a lineage, 99% were B/Yamagata and 1% B/Victoria.

In week 06, the overall numbers of reported laboratory confirmed ICU cases continued to decrease, 308 laboratory-confirmed influenza-infected cases were reported, with the majority reported by the United Kingdom (57%). A total of 634 cases was reported from other wards, with the majority of cases reported by Ireland (25%) and Denmark (56%) in week 06.

Since week 40/2017, type A influenza virus was detected in 55% and type B in 45% of the cases in ICUs. Of 986 subtyped influenza A viruses, 60% were A(H1N1)pdm09 and 40% A(H3N2). Of 2 894 cases with known age, 48% were 15–64 years old and 46% 65 years and older.

For week 06/2018, data from 20 countries or regions reporting to the [EuroMOMO](#) project were received and included in the pooled analyses of all-cause excess mortality. European mortality among the elderly has increased significantly over the past weeks in the western part of the Region.

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 16 February 2018 (Centre for Disease Control report)

During week 06, influenza activity remained elevated in the United States.

The most frequently identified influenza virus subtype reported by public health laboratories during week 06 was influenza A(H3). The percentage of respiratory specimens testing positive for influenza in clinical laboratories remained elevated.

A cumulative rate of 67.9 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.

The proportion of outpatient visits for influenza-like illness (ILI) was 7.5%, which is above the national baseline of 2.2%.

- [Canada](#) updated on 16 February 2018 (Public Health Agency report)

Overall, influenza activity in Canada remains at peak levels. Activity is starting to slow down in some parts of the country, but at the national level, several indicators of influenza circulation increased in week 06

In week 06, the number of laboratory detections of influenza A and B were similar. Detections of influenza A are within expected levels for this time of year, however, circulation of influenza B is greater than observed during the past seven seasons.

In week 06, 3.6% 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 06, 88 influenza-associated hospitalizations were reported by participating provinces and territories.

To date this season, 3,252 influenza-associated hospitalizations have been reported, 78% of which were associated with influenza A, and 2,231 cases (69%) were in adults 65 years of age or older. To date, 292 ICU admissions and 142 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 19 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.

In Canada, influenza activity remain elevated while influenza-like illness (ILI) activity continued to increase and was above the 5-year average for this time of the year. Influenza B detections increased in recent weeks reaching equal proportion as influenza A detections.

In the United States of America (USA), influenza activity remained high, with influenza A (H3N2) viruses most frequently detected followed by influenza B viruses. Hospitalization cumulative rate for influenza were reported at high levels, and above levels observed during the same period over the previous seven seasons. In both Canada and the USA, adults aged 65 years and older accounted for the majority of influenza cases and influenza-related hospitalizations. In Mexico, influenza activity decreased slightly, with influenza A(H3N2) virus predominantly detected.

In Europe, influenza activity remained high in most countries. All seasonal influenza subtypes co-circulated across the region, but influenza B virus predominated in most countries. ILI and influenza detections increased further in most countries in Eastern and Northern Europe, and appeared to have peaked in few countries in Southwestern Europe. Influenza B detections increased in Denmark, Estonia, Norway, and Sweden. Influenza illness indicators appeared to decrease in Ireland and the United Kingdom, but influenza-related hospitalizations remain high in England.

In Northern Africa, influenza detections remained high in Algeria, Egypt and Morocco, and continued to decrease in Tunisia. Influenza A(H1N1)pdm09 virus predominated in Algeria and Tunisia, and detections of influenza A(H1N1)pdm09 and influenza B were reported in Egypt and Morocco.

In Western Asia, influenza activity continued to be reported across the region. In some countries of the Arabian Peninsula, influenza activity appeared to have peaked, while increased influenza A(H1N1)pdm09 detections were reported in Iraq. In Israel, influenza activity remained high with influenza B viruses predominating. Detections of influenza B-Yamagata lineage and influenza A(H1N1)pdm09 were reported in Armenia.

In Central Asia, influenza A and B detections increased across the region in recent weeks.

In East Asia, influenza activity remained high across the region. ILI activity appeared to decrease in Northern and Southern China but influenza detections remained elevated, with influenza B-Yamagata lineage and influenza A(H1N1)pdm09 viruses predominating. ILI consultation rate remained high in Hong Kong SAR, China, with influenza B most frequently detected. Decreased detections of influenza A(H1N1)pdm09 were reported in the Democratic People's Republic of Korea. In Mongolia, respiratory illness indicators and influenza detections appeared to decrease while influenza B-Yamagata lineage virus predominately detected in recent weeks. In the Republic of Korea, ILI activity decreased although influenza A(H3N2) and B virus detections remained high.

In Southern Asia, influenza activity remained low in general. Detection of influenza A(H1N1)pdm09 and influenza A(H3N2) viruses continued to increase in Pakistan, while activity decreased in the Islamic Republic of Iran.

In South East Asia, low levels of influenza activity were reported in most countries. Increased detections of influenza A(H1N1)pdm09 and influenza B-Yamagata lineage viruses were reported in Singapore.

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 A(H1N1)pdm09 detections were reported in Madagascar.

In the Caribbean and Central American countries, respiratory illness indicators and influenza activity remained low in general. Influenza activity increased in Puerto Rico, with influenza A(H3N2) and B viruses co-circulating. Increased detections of influenza B virus were reported in Suriname. Influenza activity decreased in Jamaica.

In the tropical countries of South America, influenza activities and respiratory illness indicators were generally low with a few exceptions. Influenza A(H3N2) detections slightly increased in Colombia. Influenza activity remained elevated in Ecuador, with influenza A(H1N1)pdm09 virus predominating.

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

The WHO GISRS laboratories tested more than 302,596 specimens between 22 January 2018 to 04 February 2018. 98,068 were positive for influenza viruses, of which 54,142 (55.2%) were typed as influenza A and 43,926 (44.8%) as influenza B. Of the sub-typed influenza A viruses, 10,290 (58%) were influenza A(H1N1)pdm09 and 7,441 (42%) were influenza A(H3N2). Of the characterized B viruses, 7,553 (92.5%) belonged to the B-Yamagata lineage and 615 (7.5%) 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 21 February 2018

Up to 21 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 1,142 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](#))