PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

04 January 2018 – Week 01 report (up to week 52 data)

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

Summary

During week 52 (ending 31 December 2017), allowing for Christmas reporting breaks, influenza activity continues to increase across all surveillance indicators with notable increases for respiratory outbreaks and influenza confirmed hospitalisations. Influenza A and B are co-circulating, 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
  - One hundred and forty-one new acute respiratory outbreaks have been reported in the past 7 days. One hundred and twenty-five outbreaks were from care homes, where 18 tested positive for influenza A(unknown subtype), two were positive for influenza A(H3),19 were positive for influenza B, one was positive for RSV and another for human metapneumovirus (hMPV). Thirteen outbreaks were from hospitals, where seven tested positive for influenza A(unknown subtype) and three for influenza B. One outbreak was from a school with no test results available. The remaining two outbreaks were from the Other settings category, where one tested positive for influenza A(unknown subtype).
- Overall weekly influenza GP consultation rates across the UK
  - Due to bank holidays in week 52 (ending 31 December 2017), GP surgeries were only open for three days – data should therefore be interpreted with caution.
  - In week 52, the overall weekly influenza-like illness (ILI) GP consultation rate was 21.0 per 100,000 in England, compared to 18.9 per 100,00 in week 51. This is above the baseline threshold of 13.1 per 100,000 for this season. In the devolved administrations, ILI rates increased further with all countries now being above their respective baseline thresholds.
  - Through the Syndromic Surveillance systems, GP in hours consultations for influenza like illness (ILI) increased and are above seasonally expected levels and the highest rates were in the 15+ years age groups in week 52. There were also further increases in influenza-like illness indicators in emergency department attendances and NHS 111 cold/flu calls.
- Influenza-confirmed hospitalisations
  - In week 52, there were 114 new admissions to ICU/HDU with confirmed influenza (5 influenza A(H1N1)pdm09, 17 influenza A(H3N2), 46 influenza A(unknown subtype) and 46 influenza B) reported across the UK (108/144 Trusts in England) through the USISS mandatory ICU scheme with a rate of 0.29 per 100,000 for England, compared to 0.17 in the previous week. This is above the baseline threshold of 0.05 per 100,000 for the 2017/18 season.
  - In week 52, there were 421 hospitalised confirmed influenza cases (49 influenza A(H1N1)pdm09, 112 influenza A(H3N2), 81 influenza A(unknown subtype) and 179 influenza B) reported through the USISS sentinel hospital network (all levels of care) (19 NHS Trusts across England), with a rate of 6.82 per 100,000 compared to 2.33 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 one new influenza admission (influenza A(unknown subtype)) reported from one of the six Severe Respiratory Failure centres in the UK in week 52.
- 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
  - Thirty-five samples tested positive for influenza (three influenza A(H1N1)pdm09, nine influenza A(H3), 13 influenza A(unknown subtype) and 10 influenza B) through the UK GP sentinel schemes, with an overall positivity of 58.3%.
  - Five hundred and seventy-three positive detections were recorded through the DataMart scheme (179 influenza A(H3), 65 influenza A(unknown subtype), 17 influenza A(H1N1)pdm09 and 312 influenza B) with a positivity of 27.1% in week 52, which is above the baseline threshold of 8.6%. RSV activity continued to decrease at 9.9% in week 52.
- Vaccination
  - Up to week 51 2017, in 96.5% 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: 46.3% in under 65 years in a clinical risk group, 45.2% in pregnant women and 71.0% in 65+ year olds. In 96.5% 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: 40.2% in 2 year olds and 41.2% 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 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 while in the temperate zone of the southern hemisphere decreased at inter-seasonal levels. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

Community surveillance

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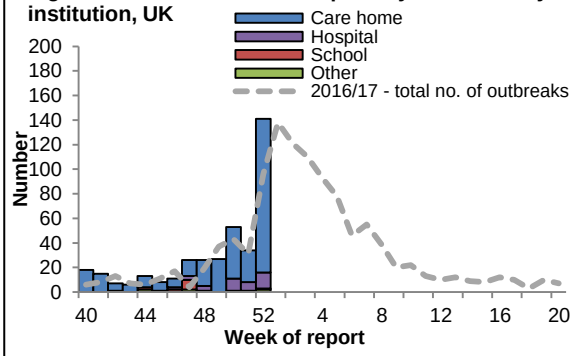
One hundred and forty-one new acute respiratory outbreaks were reported in the past 7 days.

- Acute respiratory disease outbreaks

- One hundred and forty-one new acute respiratory outbreaks have been reported in the past 7 days. One hundred and twenty-five outbreaks were from care homes, where 18 tested positive for influenza A(unknown subtype), two were positive for influenza A(H3),19 were positive for influenza B, one was positive for RSV and another for human metapneumovirus (hMPV). Thirteen outbreaks were from hospitals, where seven tested positive for influenza A(unknown subtype) and three for influenza B. One outbreak was from a school with no test results available. The remaining two outbreaks were from the Other settings category, where one 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

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



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

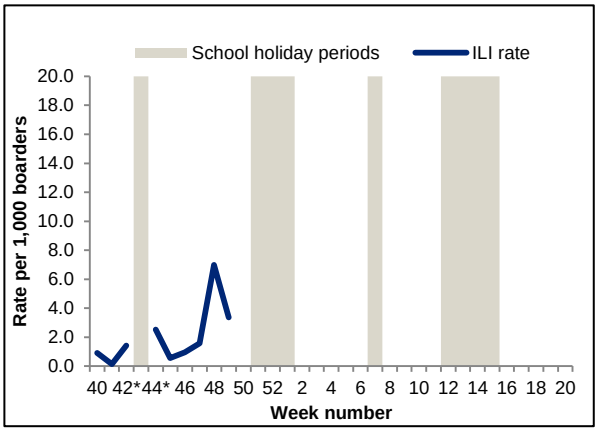
- Boarding schools in England within the MOSA network are recruited each season to report various respiratory related illnesses including influenza like illnesses (ILI). For the 2017/18 season, 21 MOSA schools have agreed to participate in the scheme, including a total of 7,575 boarders.

- 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 postive 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 for more information.

Figure 2: MOSA ILI rates, England



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

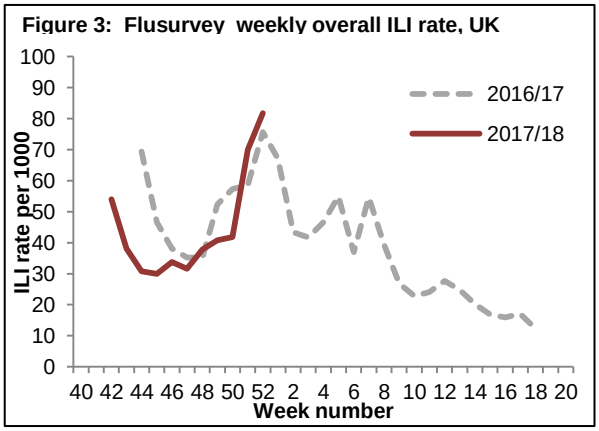
- FluSurvey

- 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 52 was 81.7 per 1,000 (153/1,872 people reported at least 1 ILI) (Figure 3) compared to 70.0 per 1,000 in week 51, with the highest rate seen in the 20-44 year olds (130.8 per 1,000).

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

Figure 3: Flusurvey weekly overall ILI rate, UK



Weekly consultation rates in national sentinel schemes

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In week 52, allowing for Christmas reporting breaks, the overall weekly influenza-like illness (ILI) GP consultation rate has increased further and continues to be above the baseline threshold in England. In the devolved administrations, ILI rates increased further with all countries now being above their respective baseline thresholds.

- GP ILI consultations in the UK

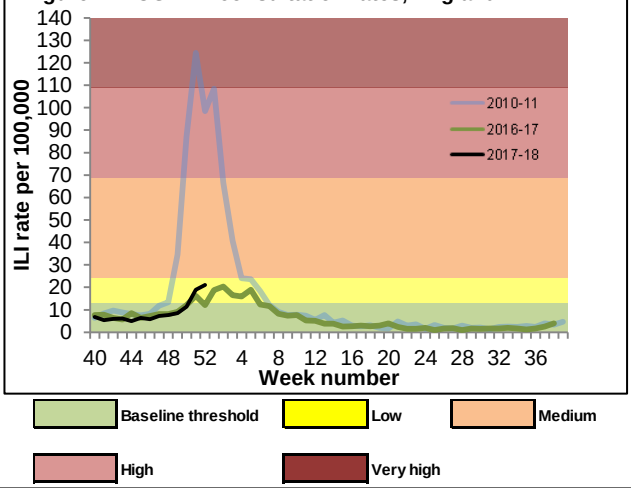
RCGP (England)

- The weekly ILI consultation rate through the RCGP surveillance is at 21.0 per 100,000 in week 52 compared to 18.9 per 100,000 in week 51. This is above the baseline threshold (13.1 per 100,000) (Figure 3*). By age group, the highest rates were seen in 45-64 year olds (33.7 per 100,000) and 15-44 year olds (20.1 per 100,000).

- Due to bank holidays in week 52 (ending 31 December 2017), GP surgeries were only open for three days – data should therefore be interpreted with caution.

**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-*

Figure 4: RCGP ILI consultation rates, England



UK

- In week 52, overall weekly ILI consultation rates across the countries of the UK have increased further and were above their respective baseline thresholds in all countries, with Scotland and Wales now being above the medium activity threshold (Table 1).

- By age group, the highest rates were seen in the 45-64 year olds in Northern Ireland and Scotland (35.0 per 100,000 and 67.8 per 100,000 respectively), in the 15-44 year olds in Wales (23.1 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	18.9	21.0				
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	17.7				
Scotland	10.0	15.3	8.3	10.8	12.4	11.7	10.3	9.1	9.4	18.4	32.5	40.0	46.3				
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				

**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 22.6 per 100,000 in week 52 (Figure 5).

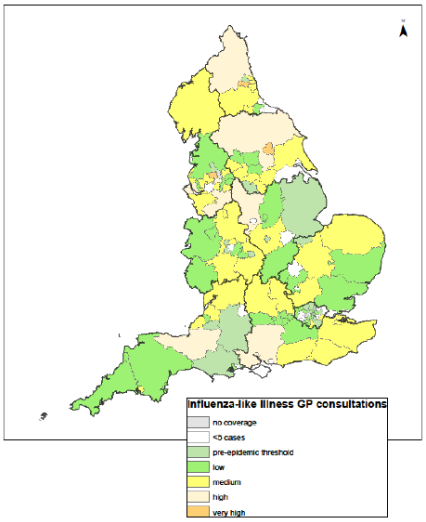
During week 52, GP consultations for influenza-like illnesses increased and are above seasonally expected levels with the highest rates in the 15+ years age groups. There were also further increases in influenza-like illness indicators in emergency department attendances and NHS 111 cold/flu calls.

Figure 5 represents a map of GP ILI consultation rates in week 52 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 52



Influenza confirmed hospitalisations (provisional)

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In week 52, there were 114 new admissions to ICU/HDU with confirmed influenza: (5 influenza A(H1N1)pdm09, 17 influenza A(H3N2), 46 influenza A(unknown subtype) and 46 influenza B) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (108 Trusts in England). There were 421 hospitalised confirmed influenza cases (49 influenza A(H1N1)pdm09, 112 influenza A(H3N2), 81 influenza A(unknown subtype) and 179 influenza B)) reported through the USISS sentinel hospital network across England (19 Trusts).

- Number of new admissions and fatal confirmed influenza cases in ICU/HDU (USISS mandatory ICU scheme), UK (week 52)

- In week 52, there were 114 new admissions to ICU/HDU with confirmed influenza: (5 influenza A(H1N1)pdm09, 17 influenza A(H3N2), 46 influenza A(unknown subtype) and 46 influenza B) reported across the UK (108/144 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.29 per 100,000 for England data (Figures 6 and 7), this is above the medium impact threshold of 0.11 per 100,000. A total of 24 deaths were reported to have occurred in week 52 in the UK.

A total of 355 new ICU admissions (39 influenza A(H1N1)pdm09, 45 influenza A(H3N2), 142 influenza A(unknown subtype) and 129 influenza B) and 48 confirmed deaths have been reported in the UK since week 40 2017.

Figure 6: Weekly ICU/HDUinfluenza admission rate per 100,000 trust catchment population , England, since week 40 2017

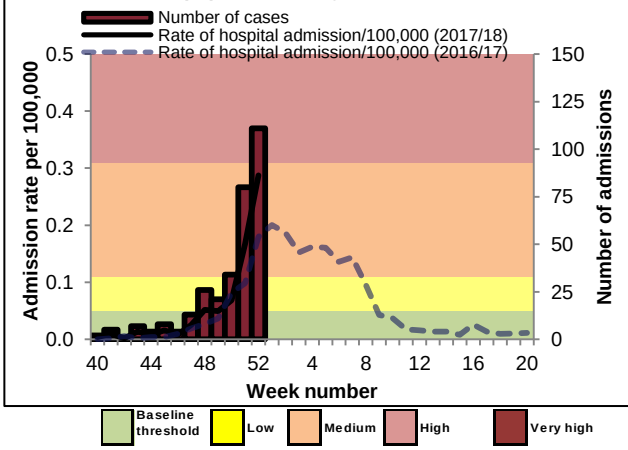
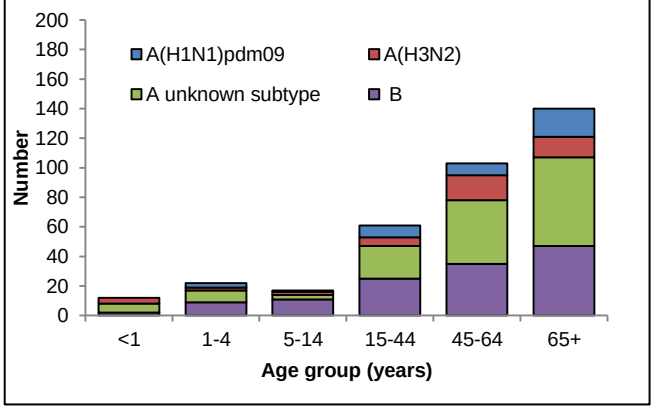


Figure 7: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2017



**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*

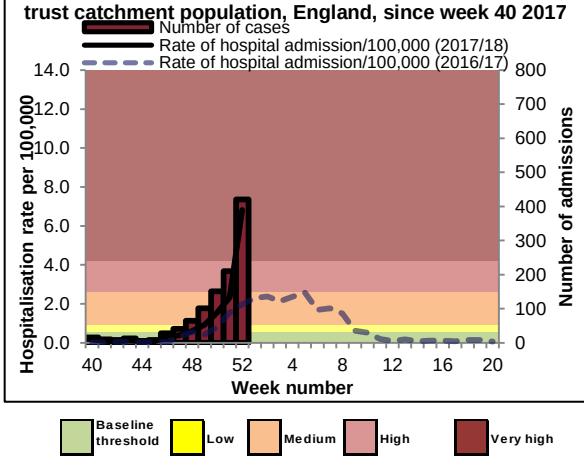
- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 52)

- In week 52, there were 421 hospitalised confirmed influenza cases (49 influenza A(H1N1)pdm09, 112 influenza A(H3N2), 81 influenza A(unknown subtype) and 179 influenza B) reported through the USISS sentinel hospital network from 19 NHS Trusts across England (Figure 8), a provisional rate of 6.82 per 100,000 in England compared to 2.33 per 100,000 in the previous week and above the very high impact threshold of 4.20 per 100,000.

- A total of 1,078 hospitalised confirmed influenza admissions (137 influenza A(H1N1)pdm09, 252 influenza A(H3N2), 291 influenza A(unknown subtype) and 398 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 hospital admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, pleasevisit:https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#disease-severity-and-mortality-data*

Figure 8: Weekly hospitalised influenza case rate per 100,000 trust catchment population, England, since week 40 2017



- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 52)

- In week 52, there was one new laboratory confirmed influenza admission (influenza A(unknown subtype)) reported from the six Severe Respiratory Failure (SRF) centres in the UK. Since week 40, a total of four laboratory confirmed influenza admissions (two influenza A(unknown subtype) and two influenza B) were reported from the SRFs for the season to date.

All-cause mortality data

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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

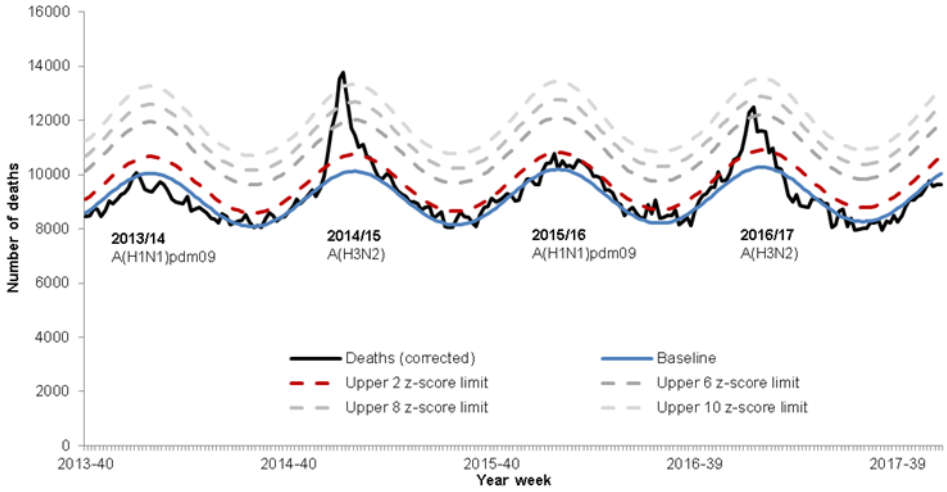
- In week 50 2017 in England, no excess mortality by week of death above the upper 2 z-score threshold was seen overall, by age group or subnationally, after correcting ONS disaggregate data for reporting delay with the standardised EuroMOMO algorithm (Figure 9). This data is provisional due to the time 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



Microbiological surveillance

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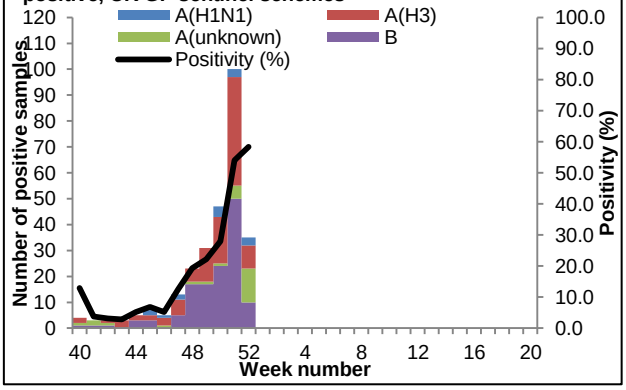
In week 52 2017, 35 samples tested positive for influenza (three influenza A(H1N1)pdm09, nine influenza A(H3), 13 influenza A(unknown subtype) and 10 influenza B) with an overall positivity of 58.3%. Five hundred and seventy-three positive detections were recorded through the DataMart scheme (179 influenza A(H3), 65 influenza A(unknown subtype), 17 influenza A(H1N1)pdm09 and 312 influenza B) with a positivity of 27.1% in week 52, which is above the baseline threshold of 8.6%. RSV activity continued to decrease at 9.9% in week 52.

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

-In week 52, 35 samples tested positive for influenza (three influenza A(H1N1)pdm09, nine influenza A(H3), 13 influenza A(unknown subtype) and 10 influenza B) with an overall positivity of 58.3% compared to 54.1% in week 51 through the UK GP sentinel swabbing schemes (Figure 10).

Since week 40, a total of 279 samples (106 influenza A(H3), 26 influenza (unknown subtype), fifteen influenza A(H1N1)pdm09 and 132 influenza B) tested positive for influenza through this scheme.

Figure 10: Number of influenza positive samples and % positive, UK GP sentinel schemes



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

- Respiratory DataMart System (England)

In week 52 2017, out of the 2,118 respiratory specimens reported through the Respiratory DataMart System, 573 samples (27.1%) were positive for influenza (179 influenza A(H3), 65 influenza A(unknown subtype), 17 influenza A(H1N1)pdm09 and 312 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 65+ year olds at 30.6% in week 52. The overall positivity for RSV continued to decrease at 9.9% in week 52 compared to 13.3% in week 51. The highest positivity for RSV by age group was seen in the <5 year olds at 31.4% in week 52 (Figure 12). Rhinovirus positivity continued to decrease after reaching its peak in week 49 (30.1%) and was at 5.1% in week 52. Adenovirus and parainfluenza positivity remained low at 2.5% and 1.7% respectively in week 52. Human metapneumovirus (hMPV) positivity increased further in week 52, at 7.7% (Figure 13).

Figure 11: DataMart samples positive for influenza, England

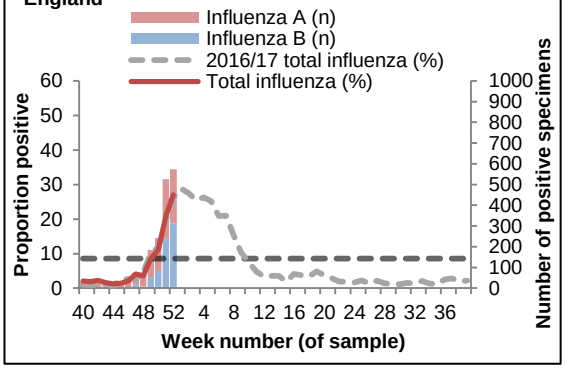


Figure 12: Datamart % positive for RSV by age, England

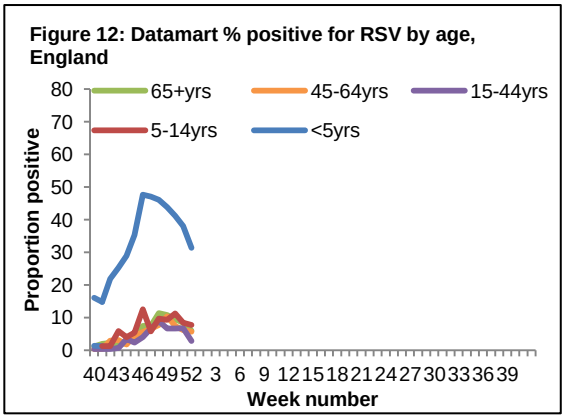
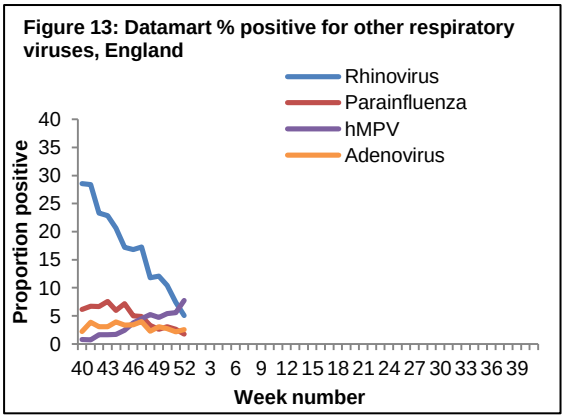


Figure 13: Datamart % positive for other respiratory viruses, England



**The Moving Epidemic Method has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity in a standardised approach across Europe. The threshold to indicate a likelihood of influenza community circulation for Datamart % positive as calculated through the Moving Epidemic Method is 8.6% in 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 124 influenza viruses detected since week 37 (Table 3). Of the 43 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 and to date during the current season. The 25 viruses antigenically analysed are similar to the A/Michigan/45/2015 Northern Hemisphere 2017/18 (H1N1)pdm09 vaccine strain.
Genetic characterisation of 56 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 five influenza B viruses have been analysed; 21 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 the 2017/18 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
A(H1N1)pdm09	9	18	16	43
A(H3N2)	0	56	0	56
B/Yamagata-lineage	5	13	3	21
B/Victoria-lineage	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, 37 influenza A(H3N2) have been tested for oseltamivir susceptibility; 34 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. Ninety-five influenza A(H1N1)pdm09 virus have been tested for oseltamivir susceptibility and all were fully susceptible. Twenty of the 95 influenza A(H1N1)pdm09 virus were also tested for zanamivir susceptibility and were fully susceptible. Eleven influenza B viruses have been tested for oseltamivir susceptibility and were fully susceptible.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 31 December 2017, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenza, Staphylococcus aureus,* MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community acquired pneumonia (CAP) and the choice of antibiotics reflects the British Thoracic Society empirical guidelines for management of CAP in adults.

Table 4: Antimicrobial susceptibility surveillance in lower respiratory tract isolates, 12 weeks up to 31 December 2017, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
S. pneumoniae	Penicillin	3974	90
	Macrolides	4395	82
	Tetracycline	4316	85
H. influenzae	Amoxicillin/ampicillin	15302	68
	Co-amoxiclav	16217	85
	Macrolides	6834	3
	Tetracycline	16359	98
S. aureus	Methicillin	6742	92
	Macrolides	7440	67
MRSA	Clindamycin	368	42
	Tetracycline	503	80
MSSA	Clindamycin	3966	77
	Tetracycline	5720	93

Macrolides = erythromycin, azithromycin and clarithromycin

Vaccination

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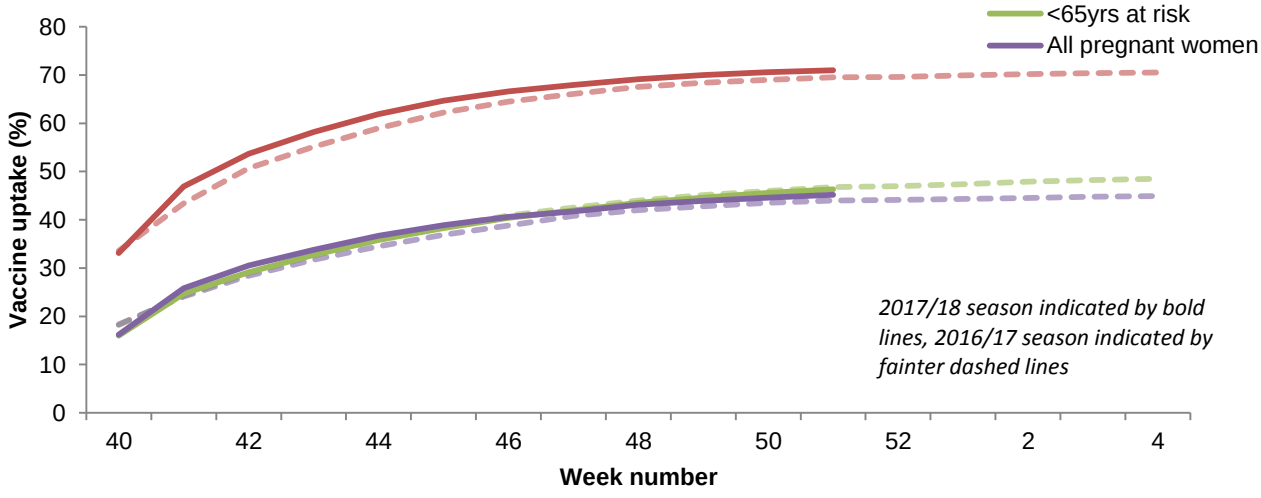
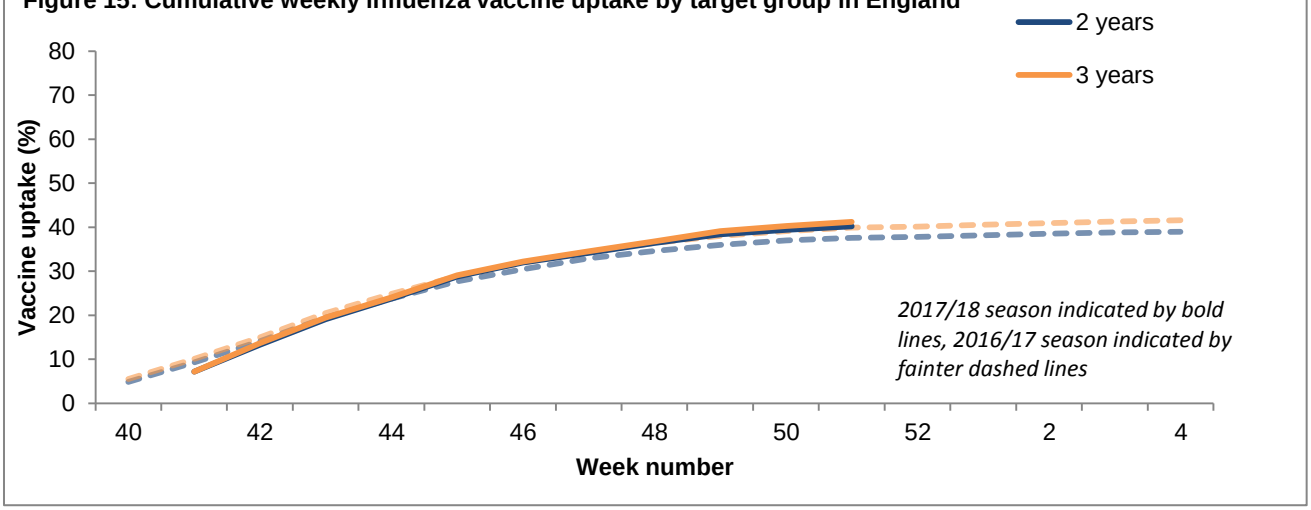
- Up to week 51 2017 in 96.5% of GP practices reporting weekly to Immform, the provisional proportion of people in England who had received the 2017/18 influenza vaccine in targeted groups was as follows (Figure 14):
  - 46.3% in under 65 years in a clinical risk group
  - 45.2% in pregnant women
  - 71.0% in 65+ year olds

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



- In 2017/18, all two- and three-year-olds continue to be eligible for flu vaccination, through their GPs. Up to week 51 2017 in 96.5% 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):
  - 40.2% in 2 year olds
  - 41.2% in 3 year olds

Figure 15: Cumulative weekly influenza vaccine uptake by target group in England



- 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

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

- Europe updated on 29 December 2017 (Joint ECDC-WHO Europe Influenza weekly update)

In week 51/2017, due to the holiday period, fewer countries reported data compared to previous weeks. While low intensity of influenza activity was reported by 28 of the 33 countries reporting on this indicator, medium intensity of influenza activity was reported by 5 countries (France, the Netherlands, Spain, Switzerland and Turkey) and one region (the United Kingdom – Scotland).

No geographic spread of influenza was reported by 6 of the 33 countries reporting on this indicator; 15 countries reported sporadic cases, 2 reported local geographic spread, 3 countries reported regional spread, and 7 countries (France, Norway, Portugal, Spain, Sweden, Switzerland and Turkey) reported widespread activity.

For week 51/2017, 471 (31.8%) of 1,483 sentinel specimens tested positive for influenza viruses. Of these, 47% were type A and 53% were type B. Out of 184 subtyped A viruses, 66% were influenza A(H1N1)pdm09 and 34% A(H3N2). Of 94 B viruses ascribed to a lineage, 98% were B/Yamagata and 2% B/Victoria.

For week 51/2017, 104 laboratory-confirmed influenza-infected cases from intensive care units (ICU) or other wards were reported by Romania (n=1), Spain (n=39), Sweden (n=3), and the United Kingdom (n=61).

Since week 40/2017, nine countries have reported 336 laboratory-confirmed hospitalized influenza cases in ICU or other wards. Of 336 cases in ICU, 211 (63%) were infected with type A viruses (32 A(H1N1)pdm09, 46 A(H3N2), 133 A un-subtyped) and 125 (37%) with type B viruses. A higher proportion of patients with influenza type B virus infection was observed in other wards: of 310 patients, 133 (43%) were infected with influenza type A (18 A(H1N1)pdm09, 29 A(H3N2), 86 A un-subtyped) and 177 (57%) with influenza B viruses.

For week 51/2017, 3,258 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% were type A and 41% type B viruses. The majority of viruses from non-sentinel specimens were not subtyped or assigned to a lineage.

For week 51/2017, no data was available from the EuroMOMO project. Data from week 50/2017 showed that all-cause excess mortality has been within normal ranges over the past few weeks for the 19 reporting countries and regions.

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 29 December 2017 (Centre for Disease Control report)

During week 51, influenza activity sharply increased in the United States.

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

A cumulative rate of 8.7 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.

The proportion of outpatient visits for influenza-like illness (ILI) was 5.0%, which is above the national baseline of 2.2%.

Three influenza-associated pediatric death was reported to CDC during week 51, two of which were associated with influenza B viruses.

- Canada updated on 22 December 2017 (Public Health Agency report)

Overall, influenza activity continues to increase across Canada. Some indicators increased slightly compared to the previous week; however, there was a notable increase in the number of outbreaks and hospitalizations reported in week 50.

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 50, 1.9% of visits to healthcare professionals were due to influenza-like illness; an increase compared to the previous week, and slightly below the 5-year average, but remains within the range of previous seasonal levels.

In week 50, 130 influenza-associated hospitalizations were reported by participating provinces and territories. This is a sharp increase from the number of influenza-associated hospitalization reported in week 49.

To date this season, 956 influenza-associated hospitalizations have been reported, 87% of which were associated with influenza A, and 645 cases (67%) 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, 70 ICU admissions and 25 deaths have been reported.

- Global influenza update updated on 25 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 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 continued to increase, but remained low in most of the countries, with detections of predominantly influenza B followed by influenza A(H3N2) viruses.

In Western Asia, elevated levels of influenza activity were reported in in recent weeks, with influenza A(H1N1)pdm09 predominantly detected. In Central Asia, low to no influenza activity was reported.

In East Asia, influenza activity remained low in most of the countries with the exception of China where influenza like illness (ILI) and influenza percentage positive continued to increase, with influenza 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. Detections of influenza A(H1N1)pdm09 and A(H3N2) viruses were reported in India and of all seasonal subtypes in the Islamic Republic of Iran.

In Northern Africa, low levels of influenza activity were reported. Detections of influenza A(H1N1)pdm09 virus increased slightly in Tunisia.

In Western Africa, influenza virus detections were reported in Burkina Faso, Ghana, and Sierra Leone, with influenza A(H1N1) pdm09 virus predominating. In Middle Africa, sporadic detections of influenza A were reported in Cameroon. In Eastern Africa, influenza A(H3N2) and B detections were reported in Madagascar and 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 decreased overall to inter-seasonal levels.

The WHO GISRS laboratories tested more than 127,006 specimens between 27 November 2017 to 10 December 2017. 15,344 were positive for influenza viruses, of which 9,579 (62.4%) were typed as influenza A and 5,765 (37.6%) as influenza B. Of the sub-typed influenza A viruses, 1,596 (30.1%) were influenza A(H1N1)pdm09 and 3,698 (69.9%) were influenza A(H3N2). Of the characterized B viruses, 2,640 (85.2%) belonged to the B-Yamagata lineage and 460 (14.8%) to the B-Victoria lineage.

- Avian Influenza latest update on 27 December 2017 (WHO website)

Influenza A(H5) viruses
Since the last update on 30 October 2017, one new laboratory-confirmed human case of influenza A(H5N6) virus infection was reported to WHO from China.

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 30 October 2017, one new laboratory-confirmed human cases of influenza A(H7N9) virus infection was reported to WHO from China.

Since 2013, a total of 1,565 laboratory-confirmed cases of human infection with avian influenza A(H7N9) viruses, including at least 612 deaths, have been reported to WHO.

Influenza A(H9N2)
Since the last update on 30 October 2017, one laboratory-confirmed human case of A(H9N2) was reported to WHO from China. Avian influenza A(H9N2) viruses are enzootic in poultry in China.

Influenza A(H1N1) variant viruses
Since the last update on 30 October 2017, one new laboratory-confirmed human infection with influenza A(H1N1)v viruses was detected in the state of Iowa in the United States (U.S).

Since 2005, 21 cases of A(H1N1)v influenza virus infections have been reported to the U.S Centers for Disease Control and Prevention (CDC). This is the first case reported in 2017.

Influenza A(H1N2) variant viruses
Since the last update on 30 October 2017, one new laboratory-confirmed human infection siwth influenza A(H1N2)v viruses was detected in the state of Colorado in the United States (U.S).

Since 2005, 13 cases of A(H1N2)v influenza virus infections have been reported to the U.S Centers for Disease Control and Prevention (CDC) and 4 of these occurred in 2017.

Influenza A(H3N2) variant viruses
Since 30 October 2017, two human infections with influenza A(H3N2)v viruses were detected in the U.S. in several states.

Since reporting of novel influenza A viruses became nationally notifiable in 2005, 433 human infections with influenza A(H3N2)v viruses have been reported to the U.S. CDC and 61 of these occurred in 2017.

- Middle East respiratory syndrome coronavirus (MERS-CoV) latest update on 03 January 2018

Up to 03 January 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 1,109 suspect cases in the UK that have been investigated for MERS-CoV and tested negative.

On 11 December 2017, the National IHR Focal Point of the United Arab Emirates (UAE) reported one additional case of Middle East Respiratory Syndrome (MERS-CoV) infection.

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.

Globally, since September 2012, WHO has been notified of 2,121 laboratory-confirmed cases of infection with MERS-CoV, including at least 740 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.

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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)