PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

03 January 2020 – 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 – Week 52 (ending 29 December 2019)

- **During week 52, allowing for Christmas reporting breaks, influenza activity has continued to increase for several indicators.**
- **The impact of flu on healthcare services continues to be at moderate intensity levels for hospitalisations and ICU/HDU influenza admissions. The Department of Health & Social Care has issued an alert on the prescription of antiviral medicines by GPs.**
- **The available updated data in this report should be interpreted with caution due to delays in reporting during the Christmas period.**

Community

- 94 new acute respiratory outbreaks have been reported in the past 7 days. 53 outbreaks were reported from care homes where 12 tested positive for influenza A. Six outbreaks were reported from hospitals where 4 tested positive for influenza A. 34 outbreaks were reported from schools with no test results available. The remaining outbreak was from the Other settings category with no test results available.

Primary Care

- In week 51, the rate of influenza-like illness (ILI) continued to be **Above baseline** threshold levels. The overall weekly ILI GP consultation rate was 19.4 per 100,000 registered population in participating GP practices for England, an increase from 16.0 per 100,000 in the previous week.
- In the devolved administrations, ILI rate were at low levels in Northern Ireland for week 52. Data was not available for England, Scotland and Wales for week 52.

GP ILI Consultations England

Secondary Care

- Hospitalisation rate observed for laboratory confirmed influenza continues to be **at moderate intensity levels,** with a rate of 6.29 per 100,000 trust catchment population for England (17 NHS Trusts) compared to 7.14 per 100,000 in the previous week.
- ICU/HDU admission rate observed for laboratory confirmed influenza was **at moderate intensity levels**, with a rate of 0.38 per 100,000 trust catchment population for England (123/143 NHS Trusts) compared to 0.40 per 100,000 the previous week.
- There were five new laboratory confirmed influenza (2 influenza A(H3N2), 2 influenza A(unknown subtype) and 1influenza B) admissions reported from the 6 Severe Respiratory Failure centres in the UK.

Hospitalisation

ICU/HDU

All-cause mortality

- In week 50 2019, no statistically significant excess all-cause mortality by week of death was seen overall and by age group in England. In the devolved administrations, no statistically significant excess all-cause mortality for all ages was observed in Wales and Northern Ireland for week 50 and for Scotland in week 48 2019.

Microbiological surveillance

- Primary care: 10 samples tested positive for influenza (1 influenza A(H1N1)pdm09, 7 influenza A(H3) and 2 influenza A(not subtyped)), through the UK GP sentinel swabbing schemes in week 52 2019, with an overall influenza positivity of 62.5%.
- Secondary care: There were 358 influenza detections recorded through the DataMart scheme (16 influenza A(H1N1)pdm09, 246 influenza A(H3), 91 influenza A(not subtyped) and 5 influenza B). The overall influenza percent positivity was 22.2% and **Above baseline** threshold level.
- Virus Characterisation: 335 influenza A(H3N2) viruses have been genetically and/or antigenically characterised since week 40. 238 of 294 genetically characterised belong to the same subclade as the H3N2 component in this season's vaccine. 16 A(H1N1)pdm09 viruses have been characterised and are similar to the A(H1N1)pdm09 strain in this season's vaccine.

Secondary Care

Vaccination

- Weekly uptake: Up to week 51 2019, in 97.4% of GP practices reporting for the main collection, the provisional proportion of people in England who had received the 2019/20 influenza vaccine in targeted groups was: 40.1% in under 65 years in a clinical risk group, 40.9% in pregnant women and 70.2% in 65+ year olds. In 95.6% of GP practices reporting for the childhood collection, the provisional proportion vaccinated was: 35.7% in 2 year olds and 35.2% in 3 year olds.
- Provisional data from the second monthly collection of influenza vaccine uptake by frontline healthcare workers show 61.5% were vaccinated by 30 November 2019, compared to 61.0% vaccinated in the previous season by 30 November 2018.
- Provisional data from the second monthly collection of influenza vaccine uptake for children of school years reception to year 6 shows 46.4% in school year reception age, 45.8% in school year 1 age, 45.0% in school year 2 age, 43.7% in school year 3 age, 43.2% in school year 4 age, 41.3% in school year 5 and 39.7% in school year 6 age were vaccinated by 30 November 2019.

International situation

- In the temperate zone of the northern hemisphere, influenza activity and respiratory illness indicators continued to increase in most countries. In the temperate zones of the southern hemisphere, influenza activity returned to interseasonal levels. Worldwide, seasonal influenza A(H3N2) viruses accounted for the majority of detections.

Community surveillance

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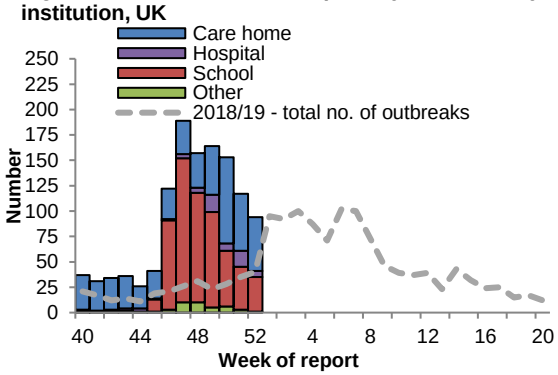
94 new acute respiratory outbreaks were reported in the past 7 days, with 16 confirmed with influenza.

- Acute respiratory disease outbreaks

- 94 new acute respiratory outbreaks have been reported in the past 7 days. 53 outbreaks were reported from care homes where 11 tested positive for influenza A(not subtyped) and another for influenza A(H1N1)pdm09. Six outbreaks were reported from hospitals where 4 tested positive for influenza A(not subtyped). 34 outbreaks were reported from schools with no test results available. The remaining outbreak was from the Other settings category with no test results available.

-Outbreaks should be recorded on HPZone and reported to the local Health Protection Teams and 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 2019/20 season, 17 MOSA schools have agreed to participate in the scheme, including a total of 4,000 boarders.

- The overall rate (all boarders) for week 49 was 2.5 per 1,000 boarders compared to 3.2 per 1,000 boarders in the previous week. Since week 40, three outbreaks have been reported with a total of 15 ILI cases.

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

- FluSurvey

- Internet-based surveillance of influenza-like illness in the general population is undertaken through FluSurvey. A project run by PHE to monitor ILI activity in the community.

- The overall ILI rate (all age groups) for week 52 was 29.5 per 1,000 (44/1,494 people reported at least 1 ILI), with the highest rate seen in the 20-44 year olds (53.5 per 1,000).

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

- FluDetector

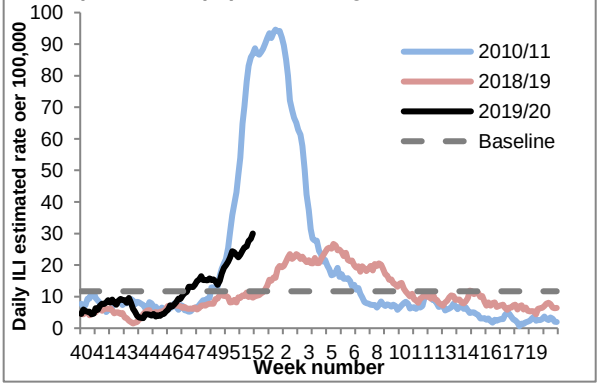
- Internet-based surveillance of influenza-like illness in the general population is also undertaken through FluDetector (https://fludetector.cs.ucl.ac.uk), a model assessing internet-based search queries for ILI.

- Daily ILI rate estimates are based on uniformly averaged search query frequencies for a week-long period (including the current day and the six days before it).

- The daily ILI rate estimates for week 51 increased and were above the baseline threshold of 11.7 per 100,000, with an overall weekly rate of 30.0 per 100,000 compared to 22.4 per 100,000 in week 50 (Figure 2).

-For more information on i-sense and the work carried out on early warning sensing systems for infectious disease visit https://www.i-sense.org.uk/

Figure 2: Daily estimated ILI Google search query rates per 100,000 population, England



Weekly consultation rates in national sentinel schemes

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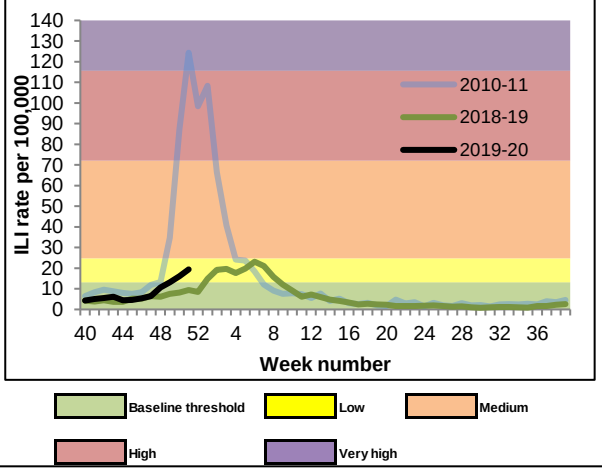
In week 51, the overall weekly influenza-like illness (ILI) GP consultation rate continued to increase and remain above the baseline threshold in England. In the devolved administrations, ILI rates were below baseline levels in Northern Ireland in week 52. Data was not available for England, Scotland and Wales for week 52.

RCGP (England)

- The weekly ILI consultation rate through the RCGP surveillance was 19.4 per 100,000 registered population in participating GP practices in week 51 compared to 16.0 per 100,000 in week 50. This is above the baseline threshold (12.7 per 100,000) (Figure 3*). By age group, the highest rates were seen in the 1-4 year olds (31.2 per 100,000) and in the 15-44 year olds (21.4 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*

Figure 3: RCGP ILI consultation rates, England



UK

- In week 52, overall weekly ILI consultation rates were below baseline levels in Northern Ireland. Data was not available for England, Scotland and Wales (Table 1).

- By age group, the highest rates were seen in the 1-4 year olds in Northern Ireland (15.4 per 100,000). Rates by age group were not available for England, Scotland and Wales.

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)	4.3	5.0	5.5	6.2	4.5	4.6	5.3	6.5	10.6	13.1	16.0	19.4	-				
Wales	1.7	4.0	4.2	6.2	1.7	4.2	3.7	10.1	10.6	7.4	22.0	28.6	-				
Scotland	5.1	6.2	4.4	4.0	7.9	5.0	7.0	11.8	12.3	14.0	19.4	21.7	-				
Northern Ireland	3.9	4.8	4.6	5.1	6.5	7.2	6.9	14.2	28.2	29.2	24.8	21.3	10.4				

**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 16.8 per 100,000 in week 52 2019 (Figure 4). GP In Hours consultations for ILI increased and are at medium intensity levels in most PHE centres. Rates have increased across all age groups.

During week 52, NHS 111 cold/flu calls remained stable at medium intensity levels. Calls decreased in children aged 5-14 years but increased in adults.

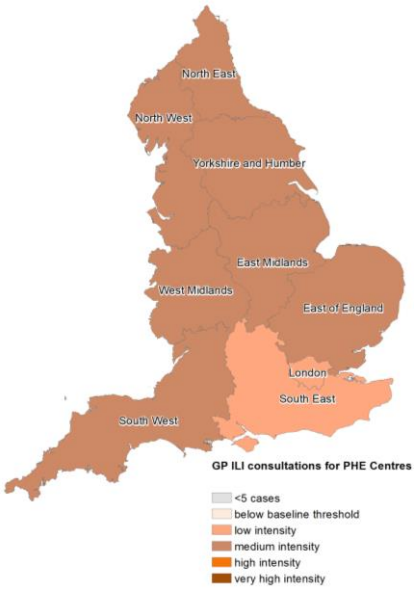
GP out-of-hours contacts for ILI remained stable and at medium intensity levels in week 52. Bronchitis/bronchiolitis contacts in children aged <1 year continued to decrease during week 52

Figure 4 represents a map of GP ILI consultation rates in week 52 across England by PHE centres, with influenza-like illness surveillance MEM thresholds applied.

ILI thresholds were calculated separately for each of the nine PHE Centres to allow for differences between areas e.g. background ILI rates are historically higher in London than other areas of England and based upon previous influenza seasons from 2012/13 on wards. ILI thresholds should be interpreted with caution and reference made to other GP surveillance systems incorporating more historical data.

-For further information, please see the syndromic surveillance webpage.

Figure 4: Map of GP ILI consultation rates in week 52



Influenza confirmed hospitalisations (provisional)

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In week 52 2019, there were 464 hospitalised confirmed influenza cases (13 influenza A(H1N1)pdm09, 97 influenza A(H3N2), 332 influenza A(not subtyped) and 22 influenza B) reported through the USISS sentinel hospital network across England (17 Trusts). There were 176 new admissions to ICU/HDU with confirmed influenza (12 influenza A(H1N1)pdm09, 26 influenza A(H3N2), 132 influenza A(not subtyped) and 6 influenza B)) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (123/143 Trusts in England).

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

In week 52, there were 464 hospitalised laboratory confirmed influenza cases (13 influenza A(H1N1pdm09), 97 influenza A(H3N2), 332 influenza A(not subtyped) and 22 influenza B) reported from 17 NHS Trusts across England through the USISS sentinel hospital network, with a rate of 6.29 per 100,000 trust catchment population (Figures 5 and 6) compared to 7.14 per 100,000 in week 51. This remains at medium intensity levels.

A total of 3,152 hospitalised confirmed influenza admissions (78 influenza A(H1N1)pdm09, 1,158 influenza A(H3N2), 1,825 influenza A(not subtyped), and 91 influenza B) have been reported in England since week 40 2019 via the sentinel scheme.

Figure 5: Weekly hospitalised influenza case rate per 100,000 trust catchment population, England, since week 40 2019

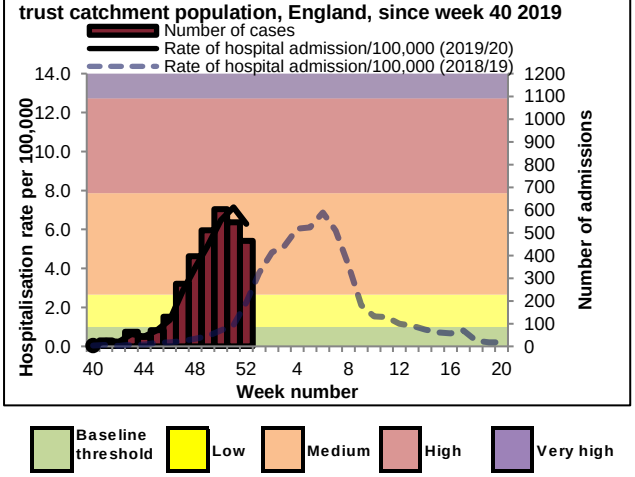
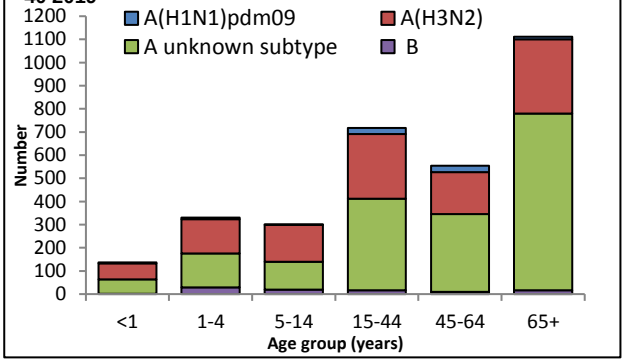


Figure 6: Cumulative hospitalised influenza admissions (USISS sentinel) by age group and flu type, UK, since week 40 2019



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

In week 52, there were 176 new admissions to ICU/HDU with confirmed influenza (12 influenza A(H1N1pdm09), 26 influenza A(H3N2), 132 influenza A(not subtyped) and 6 influenza B) reported across the UK (123/143 Trusts in England) through the USISS mandatory ICU scheme, with a rate of 0.38 per 100,000 (Figures 7 and 8) compared to 0.40 per 100,000 in week 51. This is above the medium impact threshold of 0.27 per 100,000. Five influenza laboratory confirmed deaths were reported to have occurred in ICU/HDU week 52 in the UK.

A total of 952 new admissions (76 influenza A(H1N1pdm09), 199 influenza A(H3N2), 646 influenza A(not subtyped) and 31 influenza B) and 38 confirmed deaths have been reported in the UK since week 40 2019.

Figure 7: Weekly ICU/HDUinfluenza admission rate per 100,000 trust catchment population , England, since week 40 2019

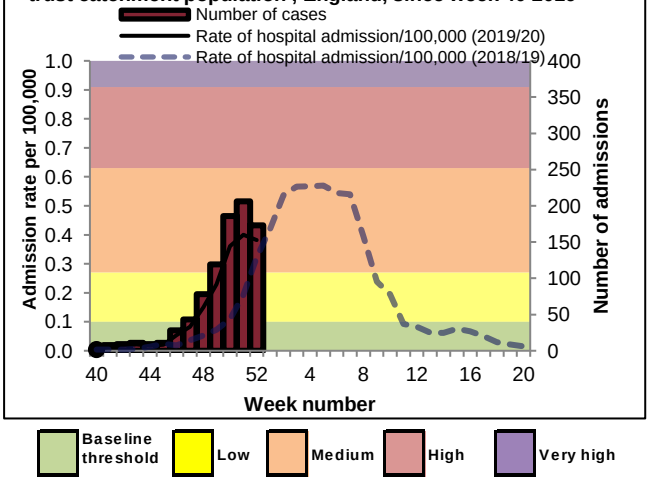
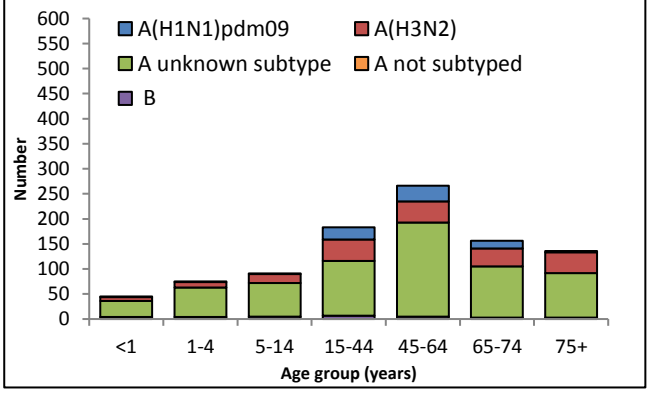


Figure 8: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2019



**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 7 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 52)

- In week 52, there were five new admissions with laboratory confirmed influenza (2 influenza A(H3N2), 2 influenza A(not subtyped) and 1 influenza B) among the 6 Severe Respiratory Failure (SRF) centres in the UK. Since week 40 2019, a total of 15 confirmed influenza admissions (1 influenza A(H1N1)pdm09, 4 influenza A(H3N2), 9 influenza A(unknown subtype) and 1 influenza B) have been reported among the 6 centres in the UK.

All-cause mortality data

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In week 50 2019, no statistically significant excess all-cause mortality by week of death was observed overall and by age group in England, through the EuroMOMO algorithm. In the devolved administrations, no statistically significant excess all-cause mortality for all ages was observed in Wales and Northern Ireland in week 50 2019 and for Scotland in week 48.

- All-cause death registrations, England and Wales

- In week 49 2019, an estimated 10,816 all-cause deaths were registered in England and Wales (source: Office for National Statistics). This is a slight decrease compared to the 10,958 estimated death registrations in week 48 2019.

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

- In week 50 2019 in England, no statistically significant excess mortality by week of death above the upper 2 z-score threshold was seen overall, by age group and sub-nationally (all ages), 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.

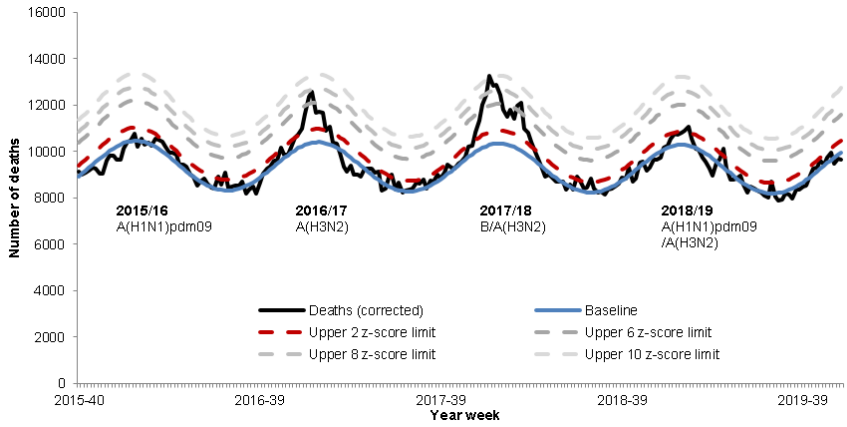
- In the devolved administrations, no statistically significant excess all-cause mortality for all ages observed in Wales and Northern Ireland in week 50 2019 and for Scotland in week 48 (Table 2).

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

Country	Excess detected in week 50 2019?	Weeks with excess in 2019/20
England	×	NA
Wales	×	42
Northern Ireland	x	48
Country	Excess detected in week 48 2019?	Weeks with excess in 2019/20
Scotland	×	41,46

** Excess mortality is calculated as the observed minus the expected number of deaths in weeks above threshold*
** NA refers to no excess seen*

Figure 9: Weekly observed and expected number of all-age all-cause deaths, with the dominant circulating influenza A subtype, England, 2015 to week 50 2019



**Note: Delays in receiving all registered deaths from April 2018, following changes in IT systems at ONS, may result in some delays in the model to adjust for most recent deaths.*

Microbiological surveillance

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In week 52 2019, 10 samples tested positive for influenza with an overall positivity of 62.5%, through the UK GP sentinel schemes. 358 positive detections were recorded through the DataMart scheme (16 influenza A(H1N1)pdm09, 246 influenza A(H3), 91 influenza A(not subtyped) and 5 influenza B) with a positivity of 22.2%, which remains above the baseline threshold of 9.7%.

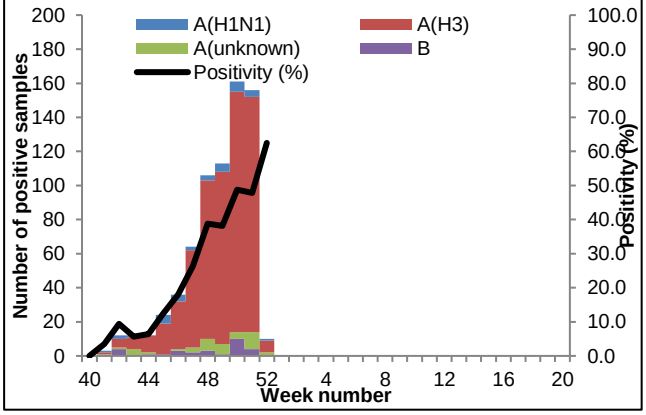
- Sentinel swabbing schemes in England (RCGP) and the Devolved Administrations

In week 52 2019, 10 samples tested positive for influenza (1 influenza A(H1N1)pdm09, 7 influenza A(H3) and 2 influenza A(not subtyped), with an overall positivity of 62.5% compared to 47.9% in the previous week, through the UK GP sentinel swabbing schemes (Figure 10).

These data should be interpreted with caution due to delays in reporting during the Christmas period.

Since week 40, a total of 709 samples (28 influenza A(H1N1)pdm09, 602 influenza A(H3N2), 38 influenza A(not subtyped), 21 influenza B, one co-infection of influenza A(H3N2) and B, three co-infections of influenza A(H1N1)pdm09 and B, two co-infections of influenza A(H1N1)pdm09, influenza A(H3) and influenza B and two co-infections of influenza A(not subtyped) and B) tested positive for influenza through this scheme.

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



- Respiratory DataMart System (England)

In week 52 2019, out of the 1,616 respiratory specimens reported through the Respiratory DataMart System, 358 samples were positive for influenza (16 influenza A(H1N1)pdm09, 246 influenza A(H3), 91 influenza A(not subtyped) and 5 influenza B) (Figure 11), with an overall positivity of 22.2%, which is above the MEM baseline threshold for this season of 9.7%. The highest positivity was seen among the 5-14 year olds at 38.4% in week 52.

RSV positivity continued to increase from 12.5% in week 51 to 14.4% in week 52. The highest positivity for RSV by age group was seen in the <5 year olds at 40.4% in week 52 compared to 34.5% in the previous week. Rhinovirus and human metapneumovirus (hMPV) positivity increased slightly at 8.6% and 2.9% respectively in week 52. Adenovirus and parainfluenza positivity remained low at 1.5% and 3.0% respectively in week 52 2019 (Figure 13).

These data should be interpreted with caution due to delays in reporting during the Christmas period.

Figure 11: DataMart samples positive for influenza, England

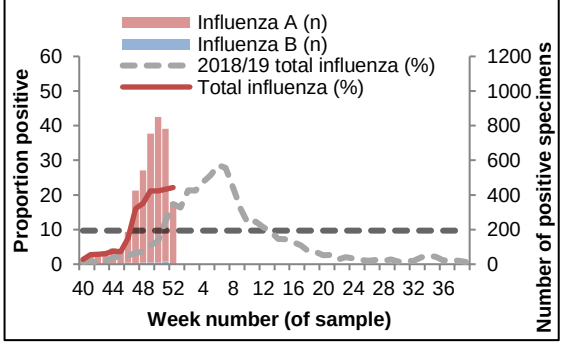


Figure 12: Datamart % positive for RSV by age, England

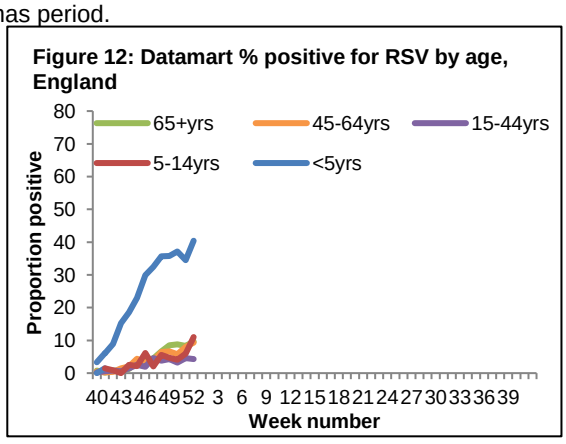
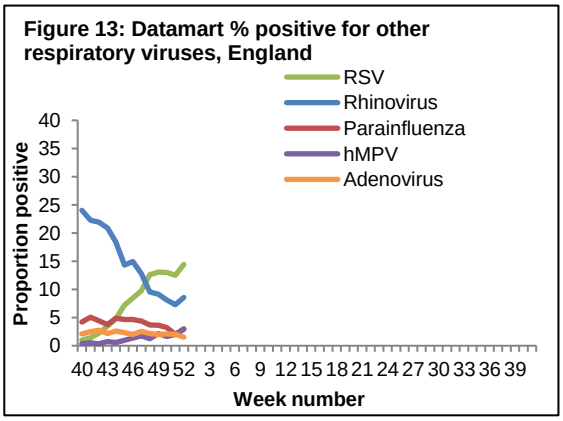


Figure 13: Datamart % positive for other respiratory viruses, England



**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 9.7% in 2019/20.*

- 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 335 influenza A(H3N2) viruses detected since week 40. Genetic characterisation of 294 of these shows that 238 belong to the genetic clade 3C.3a, and 56 fall into a cluster within the 3C.2a1 subclade, designated 3C.2a1b. The Northern Hemisphere 2019/20 influenza A(H3N2) vaccine strain belongs in genetic subclade 3C.3a. One hundred and sixty two A(H3N2) viruses have been antigenically characterised and are similar to the A/Kansas/14/2017-like Northern Hemisphere 2019/20 (H3N2) vaccine strain. Difficulties remain with detection and typing of A(H3N2) viruses by HI assays due to observed receptor binding changes, particularly with viruses from the 3C.2a1 subclade and these are under-represented in the antigenic characterisation data.
A total of 16 A(H1N1)pdm09 viruses have been characterised to date. Thirteen A(H1N1)pdm09 viruses have been genetically characterised, all fall in clade 6B.1A, as does the A(H1N1)pdm09 N. Hemisphere 2019/20 vaccine strain. Nine A(H1N1)pdm09 viruses have been antigenically characterised and are similar to the A/Brisbane/02/2018-like N. Hemisphere 2019/20 A(H1N1)pdm09 vaccine strain.
Seven influenza B viruses have been characterised to date, where sequencing of the haemagglutinin (HA) gene shows this virus belongs in genetic clade 1A of the B/Victoria lineage, clustering in a subgroup within this clade characterised by deletion of three amino acids in the HA. The N. Hemisphere 2019/20 B/Victoria-lineage quadrivalent and trivalent vaccine component virus (a B/Colorado/06/2017-like virus) belongs in genetic clade 1A, clustering in a subgroup with two deletions in the HA.
Different lineages may dominate during the season, and a close watch will be kept on the proportion of different viruses circulating to assist with the evaluation of vaccine effectiveness.

Table 3: Viruses characterised by PHE Reference Laboratory, 2019/20

Virus type/subtype	No. viruses characterised			
	Genetic and antigenic	Genetic only	Antigenic only	Total
A(H1N1)pdm09	6	7	3	16
A(H3N2) 3C.2a1	0	56	0	56
A(H3N2) 3C.3a	121	117	41	279
A(H3N2) total	121	173	41	335
B/Yamagata-lineage	0	0	0	0
B/Victoria-lineage	0	7	0	7

- Antiviral susceptibility

Influenza positive samples are screened for mutations in the virus neuraminidase gene known to confer oseltamivir and/or zanamivir resistance. Additionally, testing of influenza A(H1N1)pdm09, A(H3N2), and influenza B virus isolates for neuraminidase inhibitor susceptibility (oseltamivir and zanamivir) is performed at PHE-RVU using a functional assay. The data summarized below combine the results of both testing methods. The samples tested are routinely obtained for surveillance purposes, but diagnostic testing of patients suspected to be infected with neuraminidase inhibitor-resistant virus is also performed.

Since week 40 2019, 23 influenza A (H1N1) viruses, 250 influenza A (H3N2) and 3 influenza B viruses were tested for their susceptibility for both antiviral agents, oseltamivir and zanamivir, and all but two influenza A(H3N2) viruses are sensitive.

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 29 December 2019, 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 29 December 2019, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
S. pneumoniae	Penicillin	4039	87
	Macrolides	4406	82
	Tetracycline	4360	83
H. influenzae	Amoxicillin/ampicillin	14726	68
	Co-amoxiclav	16217	82
	Macrolides	2967	6
	Tetracycline	16360	98
S. aureus	Methicillin	7065	92
	Macrolides	7887	66
MRSA	Clindamycin	409	42
	Tetracycline	511	80
MSSA	Clindamycin	4735	72
	Tetracycline	6161	92

Macrolides = erythromycin, azithromycin and clarithromycin

Vaccination

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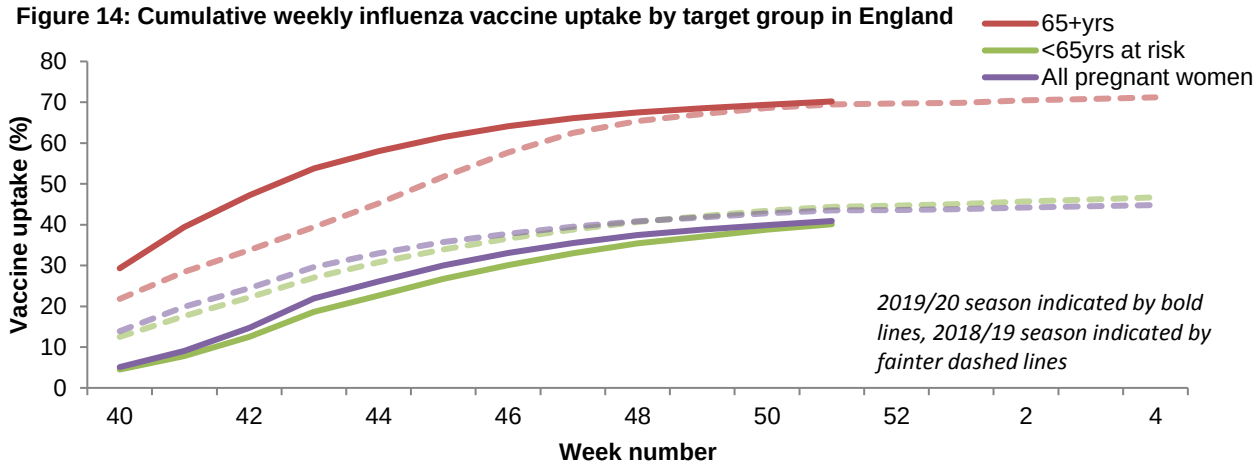
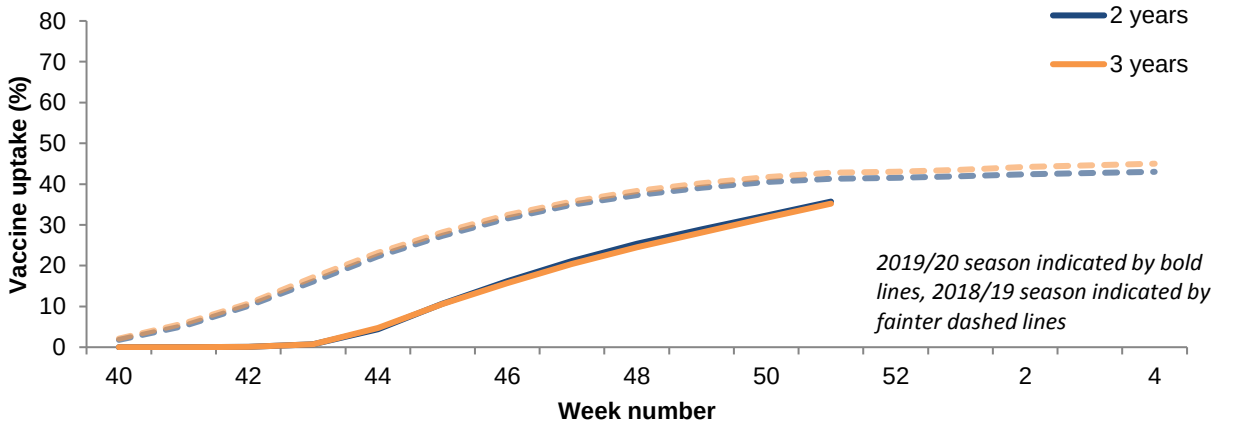
- Up to week 51 2019 in 97.4% of GP practices reporting weekly to Immform for the main collection, the provisional proportion of people in England who had received the 2019/20 influenza vaccine in targeted groups was as follows (Figure 14):
  - 40.1% in under 65 years in a clinical risk group
  - 40.9% in pregnant women
  - 70.2% in 65+ year olds

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



- In 2019/20, all 2 and 3 year olds continue to be eligible for influenza vaccination through their GPs. Up to week 51 2019, in 95.6% of GP practices reporting weekly to Immform for the childhood collection, the provisional proportion of children in England who had received the 2019/20 influenza vaccine in targeted groups was as follows (Figure 15):
  - 35.7% in 2 year olds
  - 35.2% in 3 year olds

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



- Provisional data from the second monthly collection of the influenza vaccine uptake by frontline healthcare workers show 61.5% were vaccinated by 30 November 2019 from 97.5% of all organisations, compared to 61.0% vaccinated in the previous season by 30 November 2018. The report provides uptake at national, NHS England local team and Trust-level.

- Provisional data from the second monthly collection of influenza vaccine uptake for children of school years Reception, 1, 2, 3, 4, 5 and 6 age (from a sample of 98.7% of all Local Authorities in England) show the provisional proportion of children in England who received the 2019/20 influenza vaccine via school, pharmacy or GP practice by 30 November 2019 in targeted groups in Table 5.

School Year	% Vaccine uptake (up to 30 November)	
	2019/20	2018/19
Reception (4-5 years)	46.4	49.6
Year 1 (5-6 years)	45.8	49.4
Year 2 (6-7 years)	45.0	47.7
Year 3 (7-8 years)	43.7	46.8
Year 4 (8-9 years)	43.2	45.2
Year 5 (9-10 years)	41.3	43.7
Year 6 (10-11 years)	39.7	-

- : Year 6 were not part of the programme in 2018/19

International Situation

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In the temperate zone of the northern hemisphere, influenza activity and respiratory illness indicators continued to increase in most countries. In the temperate zones of the southern hemisphere, influenza activity returned to interseasonal levels. Worldwide, seasonal influenza A(H3N2) viruses accounted for the majority of detections.

- Europe updated on 27 December 2019 (Joint ECDC-WHO Europe Influenza weekly update)

Overall in week 51, influenza activity continued to increase across the region, with the majority of countries reporting influenza A virus detections dominance.

For week 51 2019, of 28 Member States and areas reporting on intensity, 15 reported below/at baseline levels, 9 reported low intensity and 4 reported medium intensity. Of 28 Member States and areas reporting on geographic spread, 4 reported no activity, 14 reported sporadic cases, 4 reported local spread (across the Region), 3 reported regional spread and 3 reported widespread activity.

For week 51/2019, 273 (34%) of 799 sentinel specimens tested positive for an influenza virus; 67% were type A and 33% were type B. Of 154 subtyped A viruses, 69% were A(H1N1)pdm09 and 31% were A(H3N2) (Fig. 3 and Table 1). Of 20 type B viruses ascribed to a lineage, all were B/Victoria.

For the season to date, more influenza type A (n=1 279, 71%) than type B (n=533, 29%) viruses have been detected. Of 1 218 subtyped A viruses, 470 (39%) were A(H1N1)pdm09 and 748 (61%) were A(H3N2). Of 149 influenza type B viruses ascribed to a lineage, 97% were B/Victoria.

Since week 40/2019, more influenza type A (n=775, 95%) than type B (n=38, 5%) viruses were detected among laboratory confirmed influenza ICU cases. Of 233 subtyped influenza A viruses, 25% were A(H1N1)pdm09 and 75% A(H3N2). No influenza B viruses were ascribed to a lineage. Of 81 cases with known age, 44% were 15-64 years old and 42% were 65 years and older.

Since week 40/2019, more influenza type A (n=971, 94%) than type B (n=60, 6%) viruses were detected among laboratory confirmed influenza cases in wards other than ICU. Of 302 subtyped influenza A viruses, 13% were A(H1N1)pdm09 and 87% A(H3N2). No influenza B viruses were ascribed to a lineage. Of 1,031 cases with known age, 35% were 65 years and older and 27% were 15-64 years old.

For week 50 2019, pooled estimates from the EuroMOMO project of all-cause mortality from 21 countries or areas show all-cause mortality were within expected range for the time of year.

- United States of America updated on 27 December 2019 (Centre for Disease Control report)

During week 51, influenza activity continues to increase and has been elevated for the past seven weeks.

Nationwide during week 51, 5.1% of patient visits reported through the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) were due to influenza-like illness (ILI), which is above the national baseline of 2.4%.

During week 51, 22.1% of respiratory specimens tested by clinical laboratories were influenza positive.

The overall hospitalisation rate for the season increased to 6.6 per 100,000. This is similar to what has been seen at this time in recent seasons.

Based on National Centre for Health Statistics (NCHS) mortality surveillance data available on 26 December 2019, 5.7% of the deaths occurring during the week ending 14 December 2019 (week 50) were due to P&I. This percentage remains below the epidemic threshold of 6.7% for week 50.

22 influenza-associated paediatric deaths occurring during the 2019-2020 season have been reported to CDC. Sixteen deaths were associated with influenza B viruses. Five of these had the lineage determined and all were B/Victoria viruses. Six deaths were associated with influenza A viruses. Four of these had subtyping performed and all were A(H1N1)pdm09 viruses.

- Canada updated on 20 December 2019 (Public Health Agency report)

At national level, influenza activity continues to increase across multiple indicators in week 50, with influenza A and B circulating in equal proportion in Canada.

In weeks 50, a total of 1,272 laboratory detections of influenza were reported, of which 50.2% (638) were influenza A, with 87/145 subtyped influenza A detections being influenza A(H3N2).

The percentage of tests positive for influenza was 15.6%. This is similar to the average (15.3%) for week 50 over the past five seasons.

In week 50, 1.8% of visits to healthcare professionals were due to ILI, slightly above the average for this time of year (1.5%).

To date this season, 274 influenza-associated hospitalisations have been reported with the majority of cases being aged greater than 65 years and associated with influenza A(H3N2).

To date this season, 104 paediatric hospitalizations have been reported by the IMPACT network; 55% (57) of cases were associated with influenza B and 45 % (47) with influenza A. The largest proportion of hospitalizations (63%) were among children under 5 years of age.

- Global influenza update updated on 20 December 2019 (based on data up to 08 December 2019) (WHO website)

In the temperate zone of the northern hemisphere, influenza activity and respiratory illness indicators continued to increase in most countries. In the temperate zones of the southern hemisphere, influenza activity returned to interseasonal levels. Worldwide, seasonal influenza A(H3N2) viruses accounted for the majority of detections.

In the countries of North America, ILI and influenza activity continued to increase. All seasonal influenza subtypes co-circulated in Canada and the United States of America (USA), though the proportion of influenza B viruses was higher than in previous years for this period of the influenza season. Influenza B viruses accounted for almost half of the detections in Canada and were the predominant influenza type detected in the USA, followed by influenza A(H1N1)pdm09.

In Europe, influenza activity continued to increase across the region, although most countries are still reporting influenza activity rates at baseline or at low levels. Influenza A viruses were predominant in most countries, however influenza B viruses predominated in the east of the region and in Portugal.

In Central Asia, influenza activity increased with influenza B viruses most frequently detected.

In Northern Africa, activity remained at inter-seasonal levels. Morocco and Tunisia reported influenza B virus detections in recent weeks.

In Western Asia, influenza activity remained elevated overall. Influenza activity continued to increase in Bahrain, Iraq, Israel and Jordan with detections of predominately influenza A(H1N1)pdm09 and a small proportion of B viruses. In Oman and Qatar, influenza activity appeared to decrease with detections of predominantly influenza A(H3N2) and B viruses. Kuwait reported influenza detections at lower levels compared to previous weeks. Increased SARI levels continued to be reported in Saudi Arabia with detections of influenza A(H1N1)pdm09 and B viruses.

In East Asia, influenza activity increased in most countries, but remained low overall.

In the Caribbean countries, influenza activity was reported in some countries in the sub-region. In the tropical countries of South America, influenza activity was low in general.

In Western Africa and Eastern Africa, influenza activity and detections were generally low.

In Middle Africa, Cameroon reported influenza activity with detections of predominantly influenza A(H3N2) viruses during week ending 01 December 2019. SARI activity increased in the Democratic Republic of Congo but only one detection of influenza B/Victoria virus was reported.

In Southern Asia, influenza detections were low across reporting countries except for the Islamic Republic of Iran where influenza activity of predominantly influenza A(H1N1)pdm09 viruses was reported in recent weeks.

In South East Asia, influenza activity was reported in some countries. In recent weeks, influenza activity was elevated in the Lao People's Democratic Republic and the Philippines, with detections of predominantly influenza A(H3N2) and influenza B/Victoria-lineage in the former and influenza A(H3N2) in the latter.

The WHO GISRS laboratories tested more than 86,210 specimens between 25 November 2019 and 08 December 2019. 9,438 were positive for influenza viruses, of which 7,067 (74.9%) were typed as influenza A and 2,371 (25.1%) as influenza B. Of the sub-typed influenza A viruses, 1,216 (30.2%) were influenza A (H1N1)pdm09 and 2,809 (69.8%) were influenza A (H3N2). Of the characterized B viruses, 25 (5.2%) belonged to the B-Yamagata lineage and 458 (94.8%) to the B-Victoria lineage.

- Avian Influenza latest update on 25 November 2019 (WHO website)

Influenza A(H5) viruses
Between 27 September 2019 to 25 November 2019, no new laboratory-confirmed human cases of influenza A(H5) virus infection were 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. Overall, the risk assessment has not changed.

Influenza A(H7N9)
Between 27 September 2019 and 25 November 2019, no new laboratory-confirmed human case of influenza A(H7N9) virus infection were reported to WHO. Two were reported from China and one was reported from India, all three cases were in children.

Publicly available reports from animal health authorities in China indicate no influenza A(H7N9) virus detections in animals among samples collected in July and August of this year. Overall, the risk assessment has not changed.

Influenza A(H9N2)

Between 27 September and 25 November 2019, three new laboratory-confirmed human cases of influenza A(H9N2) virus infection were reported.

For more information on A(H5), A(H7N9), A(H9N2) and A(H1)v viruses, please see the September 2019 report: Antigenic and genetic characteristics of zoonotic influenza viruses and candidate vaccine viruses developed for potential use in human vaccines.

- Middle East respiratory syndrome coronavirus (MERS-CoV) latest update on 30 December 2019

Up to 30 December 2019, a total of five cases of Middle East respiratory syndrome coronavirus, MERS-CoV, (three imported and two linked cases) have been confirmed in the UK. On-going surveillance has identified 1,729 suspected cases in the UK since September 2012 that have been investigated for MERS-CoV and tested negative.

On 5 December 2019, the National IHR Focal Point for Qatar reported three laboratory-confirmed cases of Middle East respiratory syndrome (MERS-CoV) infection to WHO.

From 1 through 30 November 2019, the National IHR Focal Point of Saudi Arabia reported 10 additional cases of MERS-CoV infection and one associated death.

Globally, since September 2012 and up to 30 November 2019, WHO has been notified of 2,494 laboratory-confirmed cases of infection with MERS-CoV, including 858 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 very 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)
- 2019/20 Northern Hemisphere seasonal influenza vaccine recommendations (WHO)