PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

28 March 2019 – Week 13 report (up to week 12 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 12 (ending 24 March 2019)

- **During week 12, influenza continued to circulate in the community with activity indicators decreasing and Below Baseline.**
- **The impact of flu on healthcare services is at Low impact for hospitalisations and Below baseline for ICU/HDU influenza admissions.**
- **Influenza A(H1N1)pdm09 and influenza A(H3N2) are co-circulating. The Department of Health & Social Care has issued an alert on the prescription of antiviral medicines by GPs**

Community

- Forty new acute respiratory outbreaks have been reported in the past 7 days. Twenty-nine outbreaks were reported from care homes where 8 tested positive for influenza A(not subtyped), 1 for influenza A(H1N1)pdm09, 1 mixed infection of human metapneumovirus (hMPV), influenza A(not subtyped) and influenza A(H1N1)pdm09; and 1 mixed infection of rhinovirus and parainfluenza. Four outbreaks were reported from hospitals where 3 tested positive for influenza A(not subtyped). Seven outbreaks were reported from schools where 3 tested positive for Bordetella spp. and 1influenza A(not subtyped).

Primary Care

- The rate of influenza-like illness (ILI) was **Below Baseline** threshold levels. The overall weekly ILI GP consultation rate was 7.2 per 100,000 registered population in participating GP practices for England, this is similar to 6.2 per 100,000 in week 11 2019.
- In the devolved administrations, ILI rates were **Below Baseline** threshold levels for Northern Ireland, Scotland and Wales.

GP ILI Consultations England

Secondary Care

- Hospitalisation rate observed was at **Low impact** levels, with a rate of 1.18 per 100,000 trust catchment population for England (19 NHS Trusts), this is a decrease from 1.51 per 100,000 in week 11.
- ICU/HDU admission rate observed was **Below baseline** levels, with a rate of 0.08 per 100,000 trust catchment population for England (138/143 NHS Trusts), this is a similar rate to the previous week which was at 0.09 per 100,000.
- There was no new laboratory confirmed influenza admissions reported from the 6 Severe Respiratory Failure centres in the UK.

Hospitalisation

ICU/HDU

All-cause mortality

- In week 12 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 in week 12 and in Scotland in week 10 2019.

Microbiological surveillance

- Primary care: Two samples tested positive for influenza (1 influenza A(H3N2) and 1 influenza A(unknown subtype))with a positivity of 7.7% through the UK GP sentinel swabbing schemes in week 12 2019.
- Secondary care: Influenza percent positivity was 10.9%, **Above Baseline** threshold level, this is similar to 11.9% in week 11. There were 231 detections recorded through the DataMart scheme (13 influenza A(H1N1)pdm09, 160 influenza A(H3), 53 influenza A(not subtyped) and 5 influenza B).

Secondary Care

Vaccination

- Provisional data from the fourth monthly collection of influenza vaccine uptake in GP patients shows that in 99.6% of GP practices the proportions of people in England who had received the 2018/19 influenza vaccine in targeted groups by 31 January 2019 were: 46.9% in under 65 years in a clinical risk group, 45.0% in pregnant women and 71.3% in 65+ year olds. In 99.4% of GP practices reporting for the childhood collection the provisional proportions vaccinated by 31 January 2019 were: 43.1% in 2 year olds and 45.2% in 3 year olds.
- Provisional data from the fifth monthly collection of influenza vaccine uptake by frontline healthcare workers show 70.3% were vaccinated by 28 February 2019, compared to 68.7% vaccinated in the previous season by 28 February 2018.
- Provisional data from the fourth monthly collection of influenza vaccine uptake for children of school years reception to year 5 shows 63.9% in school year reception age, 63.4% in school year 1 age, 61.4% in school year 2 age, 60.2% in school year 3 age, 58.0% in school year 4 age and 56.2% in school year 5 age were vaccinated by 31 January 2019.
- WHO have published their recommendations for the composition of the 2019/20 Northern hemisphere influenza vaccine

International situation

- In the temperate zone of the Northern hemisphere, influenza activity continued to be reported with influenza A viruses predominating overall. In the temperate zones of the Southern hemisphere, influenza activity remained at inter-seasonal levels, with the exception of some parts of Australia which remained above inter-seasonal levels. Worldwide, seasonal influenza subtype A viruses accounted for the majority of detections.

Key

Arrows (vs previous week):
- Increase
- Decrease
- Stable/No trend

Colour (intensity according to MEM threshold):
- Below Baseline
- Above Baseline/Low
- Medium
- High
- Very High

Community surveillance

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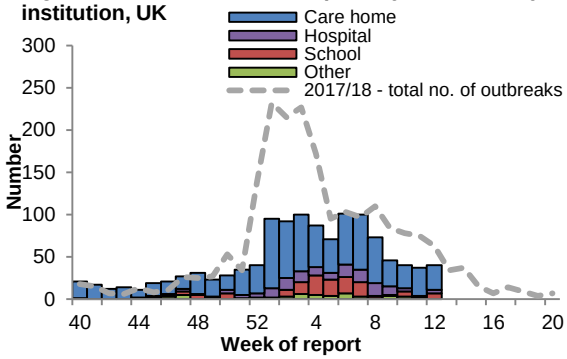
Forty new acute respiratory outbreaks were reported in the past 7 days.

- Acute respiratory disease outbreaks

-Forty new acute respiratory outbreaks have been reported in the past 7 days. Twenty-nine outbreaks were reported from care homes where 8 tested positive for influenza A(not subtyped), 1 for influenza A(H1N1)pdm09, 1 mixed infection of human metapneumovirus (hMPV), influenza A(not subtyped) and influenza A(H1N1)pdm09; and 1 mixed infection of rhinovirus and parainfluenza. Four outbreaks were reported from hospitals where 3 tested positive for influenza A(not subtyped). Seven outbreaks were reported from schools where 3 tested positive for Bordetella spp. and 1influenza A(not subtyped).

-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

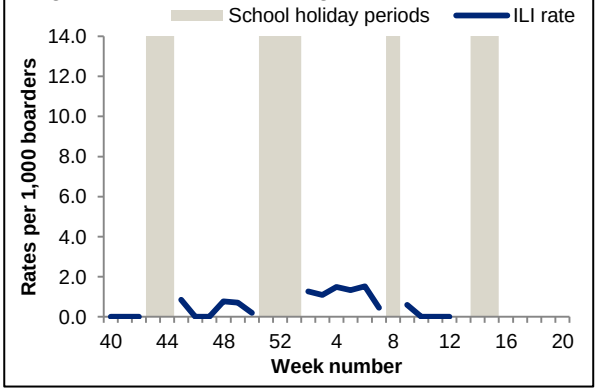
- Boarding schools in England within the MOSA network are recruited each season to report various respiratory related illnesses including influenza like illnesses (ILI). For the 2018/19 season, 21 MOSA schools have agreed to participate in the scheme, including a total of 6,661 boarders.

- The overall rate (all boarders) for week 12 was 0.0 per 1,000 boarders compared to 0.0 per 1,000 boarders in week 11.

-Since week 40, there have been 16 outbreaks reported from 10 MOSA schools, with a total of 59 ILI cases identified. Of the 16 outbreaks, 2 outbreaks have tested positive for influenza A (H1N1)pdm09 and 1 outbreak has tested positive for influenza B.

- 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



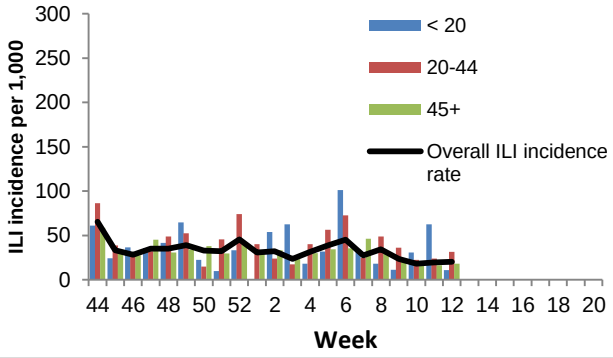
- FluSurvey

- 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 12 2019 was 20.1 per 1,000 (46/2,289 people reported at least 1 ILI) (Figure 3) compared to 19.4 per 1,000 in the previous week, with the highest rate seen in the 45+ year olds (17.9 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.

Figure 3: Overall ILI incidence and by age group, UK



Weekly consultation rates in national sentinel schemes

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In week 12, the overall weekly influenza-like illness (ILI) GP consultation rate continued to decrease with ILI rate below baseline threshold levels in England. In the devolved administrations, ILI rates decreased or remained similar compared to the previous week and are below their respective baselines.

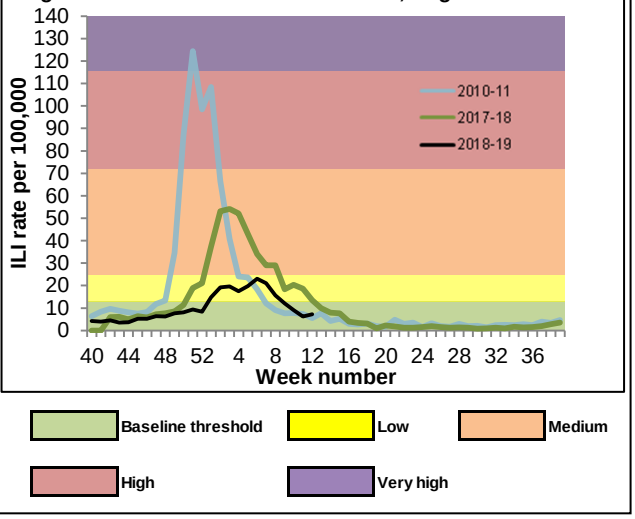
- GP ILI consultations in the UK

RCGP (England)

- The weekly ILI consultation rate through the RCGP surveillance was at 7.2 per 100,000 registered population in participating GP practices in week 12 2019, this is similar to 6.2 per 100,000 in week 11. This is below the baseline threshold (13.1 per 100,000) (Figure 4*). By age group, the highest rates were seen in 45-64 year olds (8.7 per 100,000) and in 1-4 year olds (8.0 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 4: RCGP ILI consultation rates, England



UK

- In week 12, overall weekly ILI consultation rates across countries of the UK have decreased or remained similar compared to the previous week, with all countries below their respective baseline threshold levels (Table 1).

- By age group, the highest rates were seen in the 45-64 year olds in Scotland (10.0 per 100,000) in the 75+ year olds in Wales (7.5 per 100,000) and in the 65-74 year olds in Northern Ireland (5.8 per 100,000).

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

GP ILI consultation rates (all ages)	Week number																							
	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12
England (RCGP)	4.2	3.9	4.5	3.6	3.6	5.3	5.2	6.4	6.2	7.6	8.1	9.4	8.4	14.8	19.2	19.6	17.5	19.7	23.1	21.1	15.7	12.1	9.1	6.2	7.2
Wales	7.0	3.6	4.2	6.6	6.3	6.4	4.5	4.7	6.5	3.2	4.5	9.0	9.5	14.6	20.3	22.8	15.6	20.3	21.3	17.1	17.3	8.2	8.7	7.4	4.5
Scotland	7.1	5.8	4.0	3.8	2.8	7.6	4.0	4.7	5.6	4.0	6.5	10.1	6.9	17.7	26.7	18.0	28.4	32.7	32.3	27.2	20.8	10.2	10.2	6.6	7.6
Northern Ireland	3.8	3.5	3.8	3.6	3.8	5.0	6.3	4.5	5.6	6.0	8.4	8.9	9.0	13.5	18.9	14.4	12.4	14.5	16.2	14.5	11.1	9.0	5.9	5.6	4.1

**The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity (based on 10 seasons excluding 2009/10), in a standardised approach across Europe. For MEM threshold values for each country, please visit: https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#clinical-surveillance-through-primary-care*

GP In Hours Syndromic Surveillance System (England)

-The weekly ILI consultation rate through the GP In Hours Syndromic Surveillance system is at 4.7 per 100,000 in week 12 2019 (Figure 5).

- During week 12, NHS 111 cold/flu calls, ED attendances and GPIH for ILI continued to decrease. GPOOH consultations for remained at pre-epidemic levels.

- Figure 5 represents a map of GP ILI consultation rates in week 12 across England by PHE centres, 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 12

Influenza confirmed hospitalisations (provisional)

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In week 12 2019, there were 94 hospitalised influenza cases (9 influenza A(H1N1)pdm09, 36 influenza A(H3N2) and 49 influenza A(unknown)) reported through the USISS sentinel hospital network across England (19 NHS Trusts). There were 45 new admissions to ICU/HDU with confirmed influenza (6 influenza A(H1N1)pdm09, 3 influenza A (H3N2), 36 influenza A(unknown subtype)) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (138/143 NHS Trusts in England).

- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 12)

- In 12 2019, there were 94 hospitalised laboratory confirmed influenza cases (9 influenza A(H1N1)pdm09, 36 influenza A(H3N2) and 49 influenza A(unknown)) reported from 19 NHS Trusts across England through the USISS sentinel hospital network, with a rate of 1.18 per 100,000 trust catchment population compared to 1.51 per 100,000 in the previous week (Figures 6 and 7). This is within the low impact range of 0.89 to <1.22 per 100,000.

- A total of 5,238 hospitalised confirmed influenza admissions (1,839 influenza A(H1N1)pdm09, 672 influenza A(H3N2), 2,694 influenza A(unknown) and 33 influenza B) have been reported in the England since week 40 2018 via the sentinel scheme.

Figure 6: Weekly hospitalised influenza case rate per 100,000 trust catchment population, England, since week 40 2018

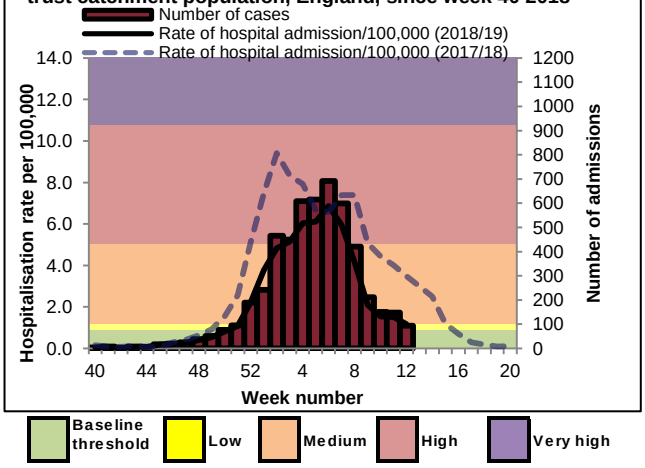
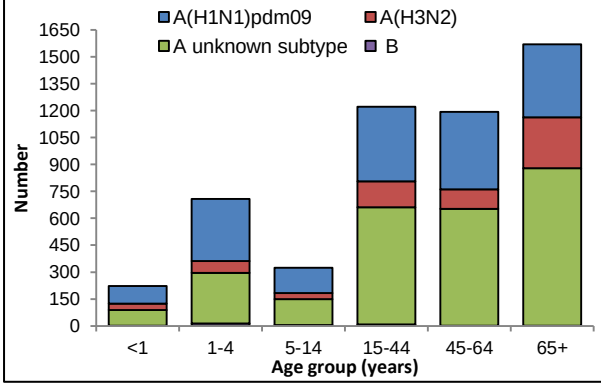


Figure 7: Cumulative hospitalised influenza admissions (USISS sentinel) by age group and flu type, England, since week 40 2018



**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*

- Number of new admissions and fatal confirmed influenza cases in ICU/HDU (USISS mandatory ICU scheme), UK (week 12)

- In week 12 2019, there were 45 new admissions to ICU/HDU with confirmed influenza (6 influenza A(H1N1)pdm09, 3 influenza A (H3N2) and 36 influenza A(unknown subtype)) reported through the USISS mandatory ICU scheme in the UK (138/143). The rate for England (n=41) was 0.08 per 100,000 trust catchment population (Figures 8 and 9) compared to 0.09 per 100,000 in week 11 2019). Five fatal influenza cases in ICU were reported in week 12 2019 in the UK.

- A total of 3,050 new admissions (985 influenza A(H1N1)pdm09, 191 influenza A(H3N2), 1,845 influenza A(unknown subtype) and 29 influenza B) and 300 confirmed deaths have been reported in the UK since week 40 2018.

Figure 8: Weekly ICU/HDUinfluenza admission rate per 100,000 trust catchment population, England, since week 40 2018

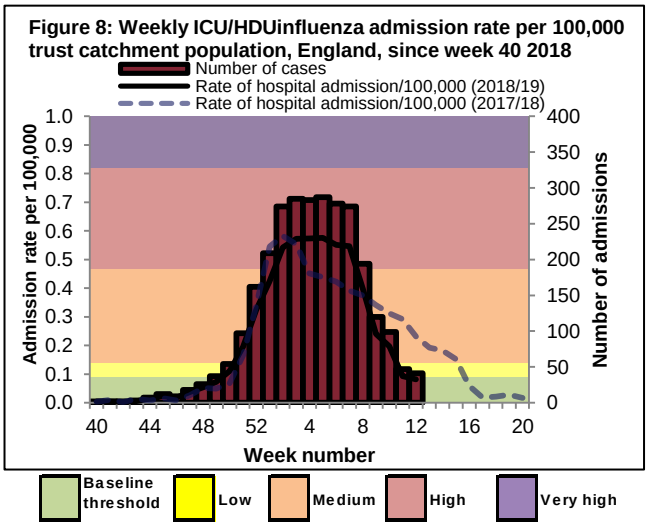
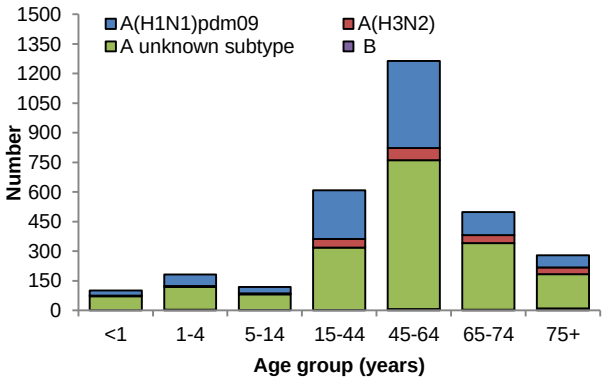


Figure 9: Cumulative ICU influenza admissions (USISS mandatory) by age group and flu type, UK, since week 40 2018



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- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 12)

- In week 12, there was no new admissions for laboratory confirmed influenza among the 6 Severe Respiratory Failure (SRF) centres in the UK.

- Since week 40 2018, there have been 92 confirmed influenza admissions (76 influenza A(H1N1)pdm09, 4 influenza A(H3N2) and 12 influenza A(unknown subtype)) to ECMO centres

All-cause mortality data

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In week 12 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 12 2019 and in Scotland in week 10 2019.

- All-cause death registrations, England and Wales

- In week 11 2019, an estimated 10,567 all-cause deaths were registered in England and Wales (source: Office for National Statistics). This is a decrease compared to the 10,898 estimated death registrations in week 10 2019.

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

- In week 12 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, statistically significant excess all-cause mortality for all ages was observed in Wales and Northern Ireland in week 12 2019 and in Scotland in week 10 2019 (Table 2).

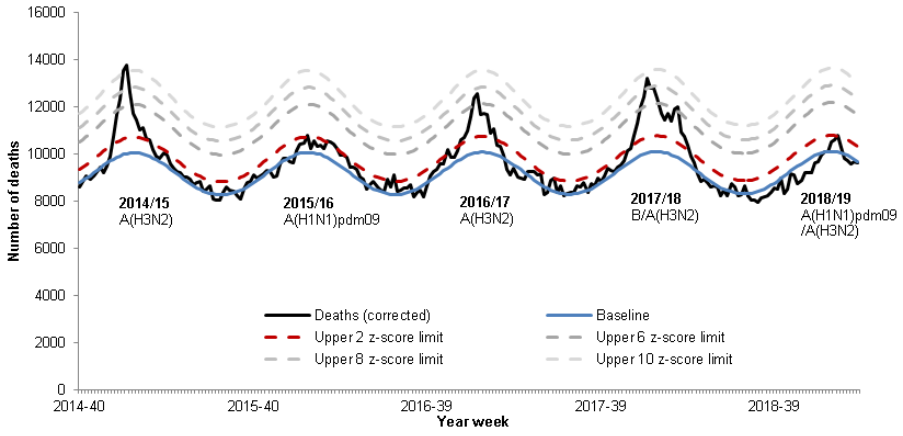
Table 2: Excess mortality by UK country, for all ages*

Country	Excess detected in week 12 2019?	Weeks with excess in 2018/19
England	×	6
Wales	×	NA
Northern Ireland	×	6
Country	**Excess detected in week 10 2019?**	**Weeks with excess in 2018/19**
Scotland	×	52-2

** 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-age all-cause deaths, with the dominant circulating influenza A subtype, England, 2014 to week 12 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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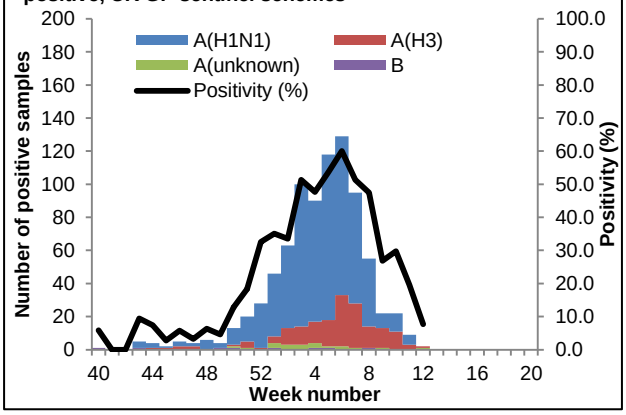
In week 12 2019, two samples tested positive for influenza (1 influenza A(H3N2) and 1 influenza A(unknown subtype)) with a positivity of 7.7% through the UK GP sentinel schemes. 231 positive detections were recorded through the DataMart scheme (13 influenza A(H1N1)pdm09, 160 influenza A(H3), 53 influenza A(not subtyped) and 5 influenza B) with a positivity of 10.9%, this is above the baseline threshold of 9.2%.

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

- In week 12 2019, two samples tested positive for influenza (1 influenza A(H3N2) and 1 influenza A(unknown subtype)pdm09) with an overall positivity of 7.7% compared to 19.6% in week 11 2019 through the UK GP sentinel swabbing schemes (Figure 11).

Since week 40, a total of 843 samples (651 influenza A(H1N1)pdm09, 164 influenza A(H3), 20 influenza A(unknown subtype) and 8 influenza B) tested positive for influenza through this scheme.

Figure 11: 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 12 2019, out of the 2,125 respiratory specimens reported through the Respiratory DataMart System, 231 samples were positive for influenza (13 influenza A(H1N1)pdm09, 160 influenza A(H3), 53 influenza A(not subtyped) and 5 influenza B) (Figure 12), with an overall positivity of 10.9% compared to 11.9% the previous week, which is above the MEM baseline threshold for this season of 9.2%. The highest positivity for influenza by age group was seen in the 65+ year olds at 15.0% in week 12 (Figure 13).

RSV positivity remained low. Rhinovirus, adenovirus and parainfluenza positivities increased slightly to 13.5%, 5.0% and 6.1% respectively in week 12 2019. Human metapneumovirus (hMPV) positivity remained stable at 4.6% in week 12(Figure 14).

Figure 12: DataMart samples positive for influenza, England

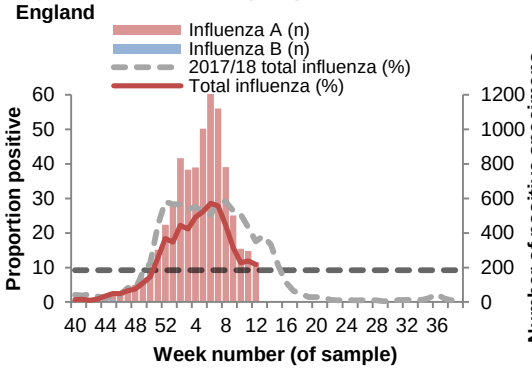


Figure 13: Datamart % positive for influenza by age, England

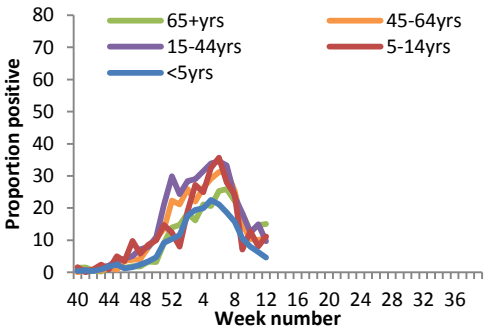
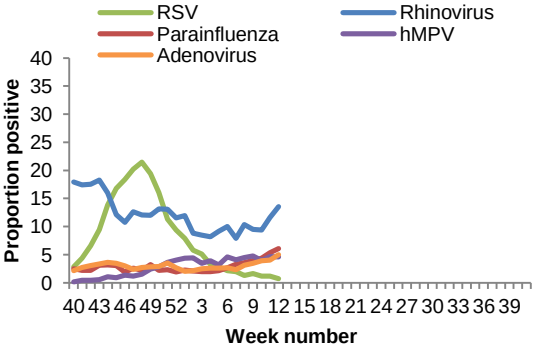


Figure 14: Datamart % positive for other respiratory viruses, England



**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 9.2% in 2018/19.*

- 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 871 influenza A(H1N1)pdm09 viruses detected since week 40. Genetic characterisation of 833 influenza A(H1N1)pdm09 viruses detected since week 40 shows that they all belong in the genetic subgroup 6B.1, which was the predominant genetic subgroup in the 2017/18 season. Two-hundred and forty-six A(H1N1)pdm09 viruses have been antigenically characterised and are similar to the A/Michigan/45/2015-like Northern Hemisphere 2018/19 (H1N1)pdm09 vaccine strain.
Genetic characterisation of 171 A(H3N2) influenza viruses shows that they all belong to genetic subclade 3C.2a, with 157 belonging to a cluster within this genetic subclade designated as 3C.2a1. Five virus belonging to the genetic subclade 3C.3a was detected. The Northern Hemisphere 2018/19 influenza A(H3N2) vaccine strain belongs in genetic subclade 3C.2a1.
Of three influenza B viruses characterised to date, two 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. One of them clusters in a subgroup characterised by deletion of two amino acids in the HA. The N.Hemisphere 2018/19 B/Victoria-lineage quadrivalent and trivalent vaccine component virus (a B/Colorado/06/2017-like virus), is a double deletion subgroup virus. The other influenza B virus has been characterised genetically as belonging to genetic clade 3 of the B/Yamagata lineage and antigenically as similar to the B/Phuket/3073/2013 B/Yamagata lineage vaccine component in the N.Hemisphere 2018/19 quadrivalent vaccine.

Table 3: Viruses characterised by PHE Reference Laboratory, 2018/19

Virus	No. viruses characterised			
	Genetic and antigenic	Genetic only	Antigenic only	Total
A(H1N1)pdm09	208	625	38	871
A(H3N2)	0	171	0	171
B/Yamagata-lineage	1	0	0	1
B/Victoria-lineage	0	2	0	2

- 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 2018/19 season since week 40 2018, 813 influenza A(H1N1)pdm09 viruses have been tested for oseltamivir susceptibility, 794 were fully susceptible and 19 were resistant confirmed by PHE-RVU. All 19 oseltamivir resistant cases have the H275Y amino acid substitution. 7 of the 19 cases are known to have received oseltamivir treatment. One case has no known exposure to oseltamivir. The remaining 11 cases are under investigation. 711 out of the 813 influenza A(H1N1)pdm09 virus have also been tested for zanamivir susceptibility and all were susceptible. 166 influenza A(H3N2) viruses have been tested for oseltamivir susceptibility and for zanamivir susceptibility and all were susceptible to both agents. Three influenza B viruses have been tested for susceptibility for both oseltamivir and zanamivir and all were susceptible to both agents

- Antimicrobial susceptibility

-Table 4 shows in the 12 weeks up to 24 March 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 24 March 2019, E&W

Organism	Antibiotic	Specimens tested (N)	Specimens susceptible (%)
S. pneumoniae	Penicillin	4964	89
	Macrolides	5423	83
	Tetracycline	5322	86
H. influenzae	Amoxicillin/ampicillin	20897	69
	Co-amoxiclav	22478	84
	Macrolides	4515	4
	Tetracycline	22497	98
S. aureus	Methicillin	7826	92
	Macrolides	8729	65
MRSA	Clindamycin	439	45
	Tetracycline	578	78
MSSA	Clindamycin	4821	76
	Tetracycline	6657	93

Macrolides = erythromycin, azithromycin and clarithromycin

Vaccination

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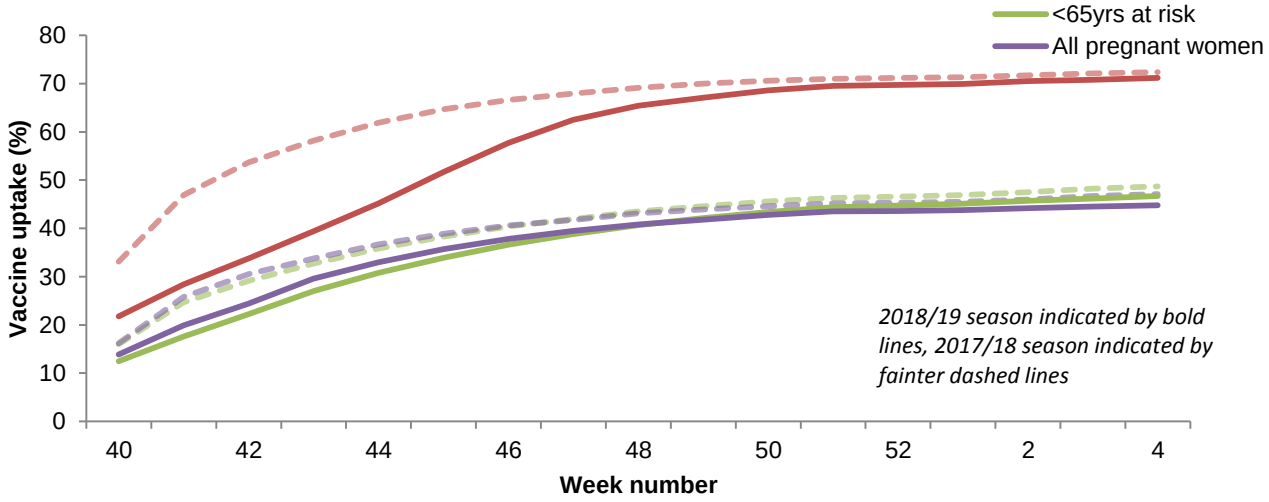
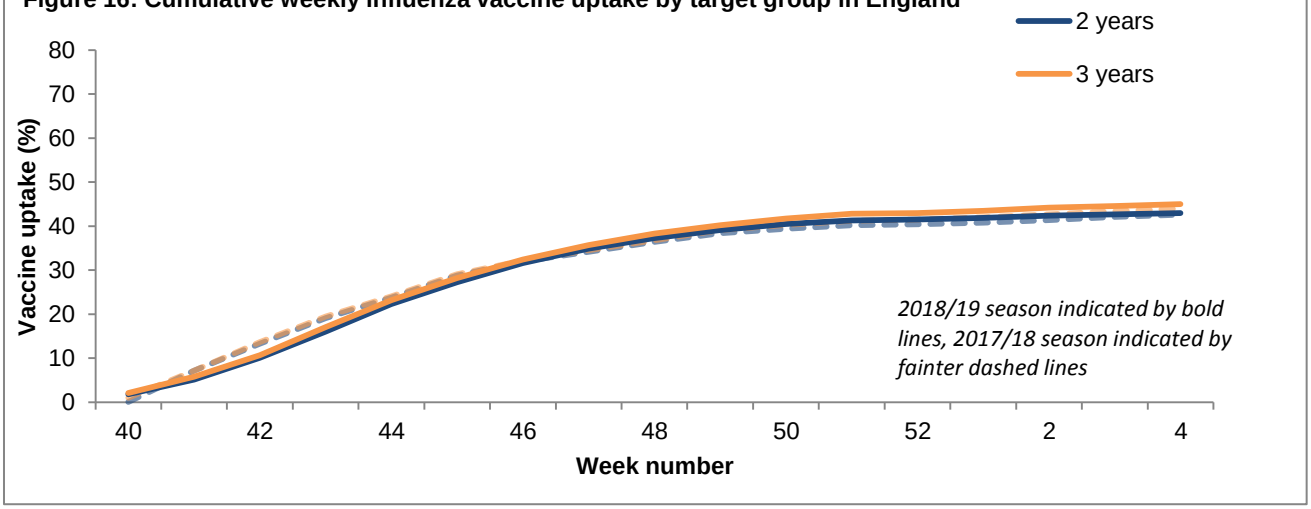
- Up to week 04 2019, in 97.4% of GP practices reporting weekly to ImmForm, the provisional proportion of people in England who had received the 2018/19 influenza vaccine in targeted groups was as follows (Figure 15):
  - 46.7% in under 65 years in a clinical risk group
  - 44.8% in pregnant women
  - 71.2% in 65+ year olds

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



- In 2018/19, all 2 and 3 year olds continue to be eligible for flu vaccination, through their GPs.
  Up to week 04 2019, in 97.5% of GP practices reporting weekly to ImmForm, the provisional proportion of children in England who had received the 2018/19 influenza vaccine in targeted groups was as follows (Figure 16):
  - 43.0% in 2 year olds
  - 45.0% in 3 year olds

Figure 16: Cumulative weekly influenza vaccine uptake by target group in England



- Provisional data from the fifth monthly collection of the influenza vaccine uptake by frontline healthcare workers show 70.3% were vaccinated by 28 February 2019 from 98.8% of all organisations, compared to 68.7% vaccinated in the previous season by 28 February 2018. The report provides uptake at national, NHS England local team and Trust-level.

- Provisional data from the fourth monthly collection of influenza vaccine uptake for children of school years Reception, 1, 2, 3, 4 and 5 age (from a sample of 100% of all Local Authorities in England) show the provisional proportion of children in England who received the 2018/19 influenza vaccine via school, pharmacy or GP practice by 31 January 2019 in targeted groups as follows:
    - 63.9% in children school year reception age (4-5 yrs) compared to 62.6% by 31 January 2018
    - 63.4% in children school year 1 age (5-6 yrs) compared to 60.9% by 31 January 2018
    - 61.4% in children school year 2 age (6-7 yrs) compared to 60.3% by 31 January 2018
    - 60.2% in children school year 3 age (7-8 yrs) compared to 57.5% by 31 January 2018
    - 58.0% in children school year 4 age (8-9 yrs) compared to 55.7% by 31 January 2018
    - 56.2% in children school year 5 age (9-10 yrs); age group not included in 2017/18 school vaccine programme.
- Provisional data from the fourth monthly collection of influenza vaccine uptake in GP patients up to 31 January 2019 show that in 99.6% of all GP practices in England responding to the main GP survey, the proportion of people in England who receive the 2018/19 influenza vaccine was as follows:
    - 46.9% under 65 year olds in a clinical risk group compared to 48.9% by 31 January 2018
    - 45.0% in pregnant women compared to 47.2% by 31 January 2018
    - 71.3% in 65+ year olds compared to 72.6% by 31 January 2018
- Provisional data from the fourth monthly collection of influenza vaccine uptake in GP patients up to 31 January 2019 show that in 99.4% of all GP practices in England responding to the child GP survey, the proportion of people in England who receive the 2018/19 influenza vaccine was as follows:
    - 43.1% in 2 year olds compared to 42.8% by 31 January 2018
    - 45.2% in 3 year olds compared to 44.2% by 31 January 2018
- The 2018/19 mid-season influenza vaccine effectiveness study was recently published. The report is based on 6 European studies including the UK, analysing influenza data from October 2018 to January 2019.

International Situation

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In the temperate zone of the Northern hemisphere, influenza activity continued to be reported with influenza A viruses predominating overall. In the temperate zones of the Southern hemisphere, influenza activity remained at inter-seasonal levels, with the exception of some parts of Australia where influenza activity remained above inter-seasonal levels. Worldwide, seasonal influenza subtype A viruses accounted for the majority of detections.

- Europe updated on 22 March 2019 (Joint ECDC-WHO Europe Influenza weekly update)

In week 11 2019, influenza activity was widespread in one-third of the countries and mainly in the northern, southern and western areas of the European Region. Influenza A virus detections dominated with slightly more A(H1N1)pdm09 viruses than A(H3N2) viruses and very few influenza B viruses detected.

For week 11 2019, of 47 Member States and areas reporting on intensity, 8 reported baseline (eastern, northern, western areas), 26 reported low (across the region) and 13 reported medium (across the region) intensity. Of 47 Member States and areas reporting on geographic spread, 2 reported no activity (Bulgaria, Tajikistan), 8 reported sporadic cases (across the region), 9 reported local spread (across the region), 12 reported regional spread (in eastern, southern, western areas) and 16 reported widespread activity (in northern, southern, western areas).

For week 11 2019, 398 (34.1%) of 1 167 sentinel specimens tested positive for an influenza virus; 391 were type A and 7 were type B. Of 309 subtyped A viruses, 39.5% were A(H1N1)pdm09 and 60.5% were A(H3N2).

For week 11 2019, 99 laboratory-confirmed influenza cases were reported in ICUs, all were influenza type A viruses. Among the 92 laboratory confirmed influenza cases in other wards reported, 98.9% of the cases were detected to have influenza type A viruses and 1.1% were detected to have influenza type B viruses.

For week 11 2019, 5, 057 specimens from non-sentinel sources (such as hospitals, schools, primary care facilities not involved in sentinel surveillance, or nursing homes and other institutions) tested positive for an influenza virus; 98.4% were type A and 1.6% were type B. Of 2, 053 A viruses subtyped, 47.4% were A(H1N1)pdm09 and 52.6% were A(H3N2).

For week 11 2019, data from the 24 Member States or areas reporting to the EuroMOMO project were included in pooled analyses. The pooled estimates indicated excess mortality among those aged 15-64 years and 65+ years observed in recent weeks has continued to decline.

- United States of America updated on 22 March 2019 (Centre for Disease Control report)

During week 11, influenza activity remains elevated in the United States. Influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B viruses continue to co-circulate.

A cumulative rate of 47.1 laboratory-confirmed influenza-associated hospitalisations per 100,000 population was reported, with the highest rate among those aged 65+ years old.

Nationwide during week 11, the proportion of outpatient visits for influenza-like illness (ILI) decreased slightly 4.4% which remains above the national baseline of 2.2%.

In week 11, the proportion of deaths attributed to pneumonia and influenza (P&I) reported up to week 10, was 7.1 %, below the epidemic threshold (7.3% for week 10) in the National Center for Health Statistics (NCHS) Mortality Surveillance System.

Eight influenza-associated pediatric deaths (2 influenza A(H1N1)pdm09, 2 influenza A(H3) and 3 influenza A(not subtyped) and 1 influenza B) were reported to the CDC during week 11.

- Canada updated on 22 March 2019 (Public Health Agency report)

Overall, influenza activity continues to be reported in almost all regions in Canada but is circulating at higher levels in eastern regions.

In week 11, a total of 1,721 laboratory confirmed detections of influenza were reported, of which 95% were influenza A, with influenza A(H3N2) accounting for 64% of subtyped A viruses. The percentage of tests positive for influenza from sentinel laboratories continued to increase slightly and was at 21.4%, which is above the seasonal threshold of 5.0%.

In week 11, 0.7% of visits to healthcare professionals were due to ILI, the percentage of visits for ILI is low compared to previous seasons.

To date this season, 2,474 influenza-associated hospitalisations have been reported by participating provinces and territories, of which 2,449 (99.0%) were associated with influenza A, with the highest estimated rate seen among adults over 65 years of age. To date this season, 446 ICU admissions and 109 deaths have been reported; all but 4 ICU admissions and all but 1 of the reported deaths were associated with influenza A, with the highest percentage reported in adults aged 45-64 years.

- Global influenza update updated on 18 March 2019 (WHO website)

In the temperate zone of the Northern hemisphere, influenza activity continued to be reported with influenza A viruses predominating overall. In the temperate zones of the Southern hemisphere, influenza activity remained at inter-seasonal levels, with the exception of some parts of Australia where influenza activity remained above inter-seasonal levels. Worldwide, seasonal influenza subtype A viruses accounted for the majority of detections.

In North America, influenza activity continued, with influenza A(H1N1)pdm09 as the dominant subtype followed by influenza A(H3N2) virus. In Canada, at national level, influenza activity increased slightly compared to the previous reporting period but remain low overall. In the United States, ILI activity started to decrease at the national level, but remained above the baseline. In Mexico, influenza activity appeared to decrease with all seasonal influenza subtypes co-circulating.

In Europe, influenza activity decreased across the continent, with still two thirds of countries above baseline for ILI activity. High intensity was reported in North Macedonia and Kosovo (in accordance with the Security Council resolution 1244 (1999)). Influenza activity remained elevated in some countries of Eastern Europe. Although influenza A(H1N1)pdm09 was the most frequently detected virus overall, influenza A(H3N2) viruses co-circulated and predominated in some countries.

In Central Asia, severe acute respiratory infections (SARI) levels remained elevated in Kazakhstan and Uzbekistan. Influenza detections of all seasonal influenza subtypes appeared to decrease in Kazakhstan.

In Northern Africa, influenza activity was reported in Algeria and Tunisia, with detections of both seasonal influenza A subtypes. In Egypt and Morocco, influenza detections and percent positive returned to low levels. In Western Asia, influenza activity decreased in most countries except in Armenia, Kuwait, Lebanon and Saudi Arabia, where activity remained elevated. Detections of all seasonal influenza subtypes were reported in the sub-region.

In East Asia, the influenza activity appeared to have plateaued after a decrease from the peak in week 03/2019. Although decreased, influenza activity remained above seasonal threshold in China and China, Hong Kong SAR. Influenza A(H1N1)pdm09 was the virus most frequently detected followed by influenza A(H3N2) and a smaller proportion of B Victoria-lineage.

In the Caribbean and Central American countries, influenza activity and respiratory syncytial virus (RSV) remained low overall. Increased detections of influenza A viruses were reported in Cuba and Jamaica.

In the tropical countries of South America, influenza and RSV activity were low in general.

In Western and Middle Africa, influenza detections were low across reporting countries. In Eastern Africa, influenza detections increased in Ethiopia, Kenya, Madagascar and Mauritius, with both influenza A virus subtypes co-circulating in the sub-region.

In Southern Asia, influenza activity remained elevated, with influenza A viruses predominating. In Afghanistan, SARI levels and influenza activity of predominately A(H1N1)pdm09 virus continued to decrease although ILI activity remained elevated. Influenza activity continued at high level in India with influenza A(H1N1)pdm09 virus most frequently detected followed by influenza A(H3N2) viruses. Influenza activity was reported in Nepal in recent weeks and appeared to have peaked at the end of January, with influenza A(H1N1)pdm09 predominating followed by a smaller proportion of influenza B viruses. In Pakistan, decreased influenza activity was reported with detections of all seasonal influenza subtypes.

In South East Asia, few countries reported in this reporting period. A sharp increase of influenza activity was reported in Thailand, with influenza B most frequently detected followed by influenza A viruses. Influenza activity appeared to decrease in the Philippines, with detections of predominantly influenza B Victoria-lineage virus.

The WHO GISRS laboratories tested more than 205,150 specimens between 18 February 2019 and 03 March 2019. 59,350 were positive for influenza viruses, of which 57,635 (97.1%) were typed as influenza A and 1,715 (2.9%) as influenza B. Of the sub-typed influenza A viruses, 14,751 (59.5%) were influenza A (H1N1)pdm09 and 10,037 (40.5%) were influenza A (H3N2). Of the characterized B viruses, 147 (19.0%) belonged to the B-Yamagata lineage and 625 (81.0%) to the B-Victoria lineage.

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

Influenza A(H5) viruses
Between 21 January 2018 and 12 February 2019, no new laboratory-confirmed human cases of influenza A(H5) virus infections were reported to WHO.

According to reports received by the World Organization for Animal Health (OIE), various influenza A(H5) subtypes continue to be detected in birds in Africa, Europe and Asia.

Influenza A(H7N9)
Between 21 January 2018 and 12 February 2019, no new laboratory-confirmed human cases of influenza A(H7N9) virus infection were reported to WHO. There have been no publicly available reports from animal health authorities in China of influenza A(H7N9) virus detections in animals in recent months.

Influenza A(H9N2)
Between 21 January 2018 and 12 February 2019, 2 new laboratory-confirmed case of influenza A(H9N2) virus infection was reported to WHO, both from China. Avian influenza A(H9N2) viruses are enzootic in poultry in China.

Influenza A(H3N2)v virus
Between 21 January 2018 and 12 February 2019, 1 new laboratory-confirmed human case of influenza A(H3N2)v virus infection was reported from Australia.

- Middle East respiratory syndrome coronavirus (MERS-CoV) latest update on 13 March 2019

Up to 27 March 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

1,470 suspected cases in the UK since September 2012 that have been investigated for MERS-CoV and tested negative.

The National IHR Focal Point of The Kingdom of Saudi Arabia notified WHO of an ongoing outbreak of Middle East Respiratory Syndrome coronavirus(MERS-CoV). Between 29 January 2019 and 13 February 2019, 39 cases of MERS-CoV were reported including 4 deaths.

Between 12 February and 18 February 2019, the National IHR Focal Point of Oman reported 8 additional cases of Middle East Respiratory Syndrome coronavirus(MERS-CoV).

Globally, since September 2012 and up to the end of February 2019, WHO has been notified of 2,374 laboratory-confirmed cases of infection with MERS-CoV, including 823 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)
- 2018/19Northern Hemisphere seasonal influenza vaccine recommendations (WHO)