



# PHE Weekly National Influenza Report

Summary of UK surveillance of influenza and other seasonal respiratory illnesses

04 April 2019 – Week 14 report (up to week 13 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.

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## Summary – Week 13 (ending 31 March 2019)

- During week 13, 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

- Twenty-three new acute respiratory outbreaks have been reported in the past 7 days. Fourteen outbreaks were reported from care homes where 5 tested positive for influenza A(not subtyped). Five outbreaks were reported from hospitals where 3 tested positive for influenza A(not subtyped) and 1 tested positive for influenza A(H3). Four outbreaks were reported from schools where 1 tested positive for influenza 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 6.0 per 100,000 registered population in participating GP practices for England, this is similar to 7.2 per 100,000 in week 12 2019.
- In the devolved administrations, ILI rates were **Below Baseline** threshold levels for Northern Ireland, Scotland and Wales.

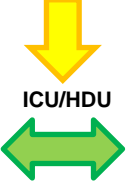
GP ILI  
Consultations  
England



### Secondary Care

- Hospitalisation rate observed was at **Low impact** levels, with a rate of 1.08 per 100,000 trust catchment population for England (21 NHS Trusts), this is a decrease from 1.15 per 100,000 in week 12.
- ICU/HDU admission rate observed was **Below baseline** levels, with a rate of 0.06 per 100,000 trust catchment population for England (140/143 NHS Trusts), this is a similar rate to the previous week which was at 0.08 per 100,000.
- There was one new laboratory confirmed influenza admission (1 influenza A(H3N2)) reported from the 6 Severe Respiratory Failure centres in the UK.

Hospitalisation



### All-cause mortality

- In week 13 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 13 and in Scotland in week 11 2019.

### Microbiological surveillance

- **Primary care:** Eleven samples tested positive for influenza (9 influenza A(H3N2), 1 influenza A(unknown subtype) and 1 influenza B) with a positivity of 33.3% through the UK GP sentinel swabbing schemes in week 13 2019.
- **Secondary care:** Influenza percent positivity was 9.3%, **Above Baseline** threshold level, this is similar to 10.9% in week 12. There were 192 detections recorded through the DataMart scheme (12 influenza A(H1N1)pdm09, 129 influenza A(H3), 48 influenza A(not subtyped) and 3 influenza B).

Secondary  
Care



### Vaccination

- Provisional data from the fifth monthly collection of influenza vaccine uptake in GP patients shows that in 40.2% of GP practices the proportions of people in England who had received the 2018/19 influenza vaccine in targeted groups by 28 February 2019 were: 47.0% in under 65 years in a clinical risk group, 45.0% in pregnant women and 71.4% in 65+ year olds. In 96.2% of GP practices reporting for the childhood collection the provisional proportions vaccinated by 28 February 2019 were: 43.8% in 2 year olds and 45.9% 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.

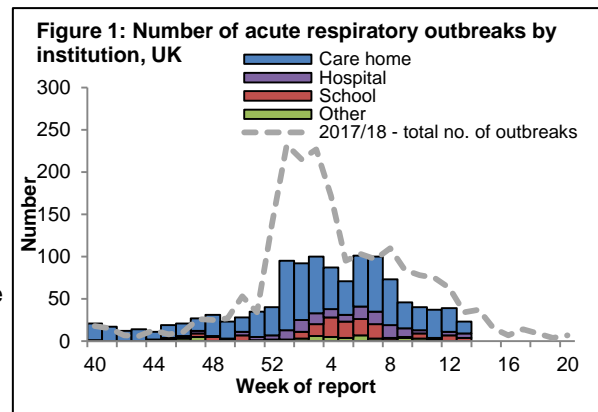
| Key                        |                                                |
|----------------------------|------------------------------------------------|
| Arrows (vs previous week): | Colour (intensity according to MEM threshold): |
| Increase                   | Below Baseline                                 |
| Decrease                   | Above Baseline/Low                             |
| Stable/No trend            | High                                           |
|                            | Very High                                      |
|                            | Medium                                         |

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

- Acute respiratory disease outbreaks

-Twenty-three new acute respiratory outbreaks have been reported in the past 7 days. Fourteen outbreaks were reported from care homes where 5 tested positive for influenza A(not subtyped). Five outbreaks were reported from hospitals where 3 tested positive for influenza A(not subtyped) and 1 tested positive for influenza A(H3). Four outbreaks were reported from schools where 1 tested positive for influenza A(not subtyped).

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



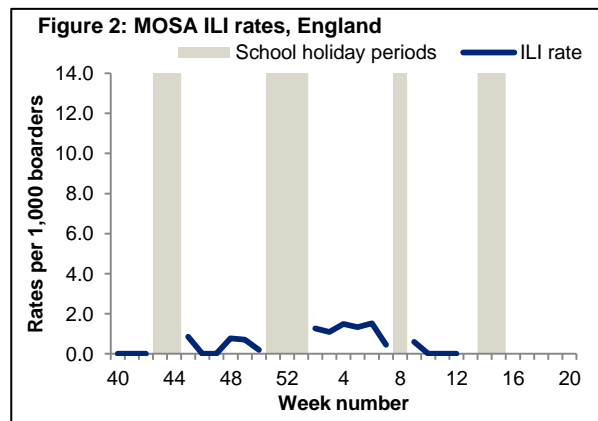
- Medical Officers of Schools Association (MOSA) & PHE surveillance scheme

- Boarding schools in England within the MOSA network are recruited each season to report various respiratory related illnesses including influenza like illnesses (ILI). For the 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](mailto:mosa@phe.gov.uk) for more information.

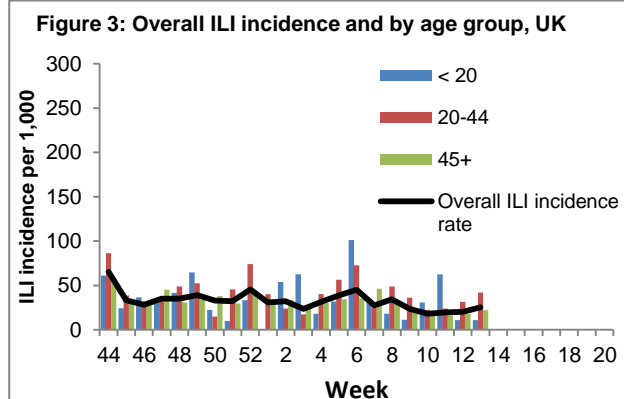


- FluSurvey

- 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 13 2019 was 25.2 per 1,000 (57/2,263 people reported at least 1 ILI) (Figure 3) compared to 20.1 per 1,000 in the previous week, with the highest rate seen in the 20-44 year olds (42.1 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.



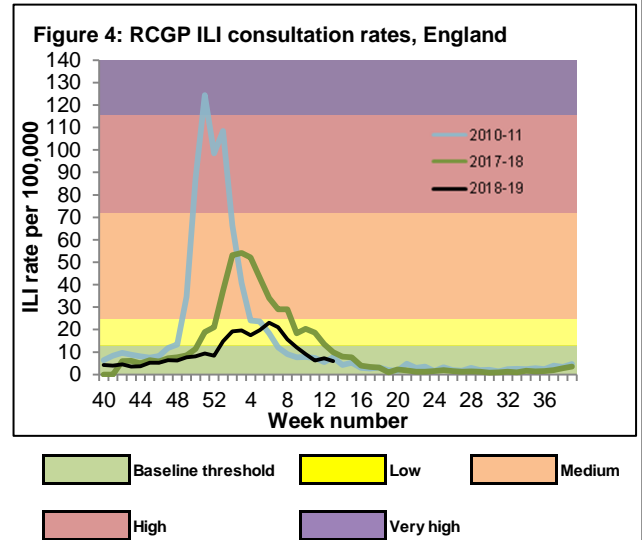
In week 13, the overall weekly influenza-like illness (ILI) GP consultation rate remained below baseline threshold levels in England. In the devolved administrations, ILI rates decreased or remained similar compared to the previous week and are below their respective baselines.

- GP ILI consultations in the UK

RCGP (England)

- The weekly ILI consultation rate through the RCGP surveillance was at 6.0 per 100,000 registered population in participating GP practices in week 13 2019, this is similar to 7.2 per 100,000 in week 12. This is below the baseline threshold (13.1 per 100,000) (Figure 4\*). By age group, the highest rates were seen in the <1 year olds (13.8 per 100,000) and in 15-44 year olds (7.4 per 100,000).

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



UK

- In week 13, 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 <1 year olds in Scotland (6.6 per 100,000), in the 75+ year olds in Wales (7.5 per 100,000) and in the 15-44 year olds in Northern Ireland and Wales (7.0 per 100,000 and 9.6 per 100,000 respectively).

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

| GP ILI consultation rates (all ages) | Week number |     |     |     |     |     |     |     |     |     |     |      |     |      |      |      |      |      |      |      |      |      |      |     |     |     |
|--------------------------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
|                                      | 40          | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51   | 52  | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11  | 12  | 13  |
| 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 | 6.0 |
| 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 | 6.7 |
| 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 | 7.3 | 4.7 |
| 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 | 5.7 |

\*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 4.4 per 100,000 in week 13 2019 (Figure 5).

- During week 13, further decreases were noted for GPIH consultations for ILI NHS 111 cold/flu calls and GPOOH consultations for remained at pre-epidemic levels.

- Figure 5 represents a map of GP ILI consultation rates in week 13 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 13**

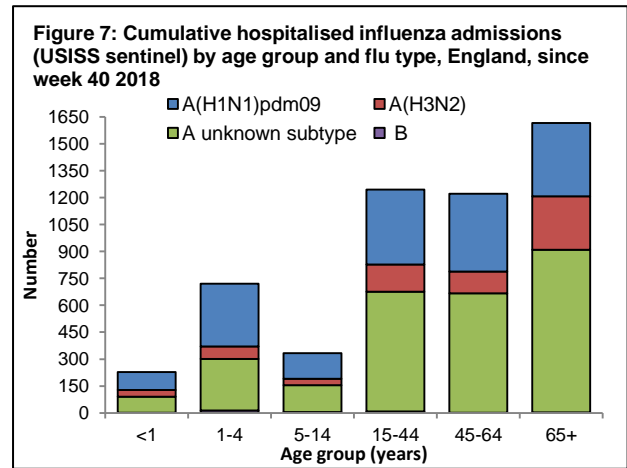
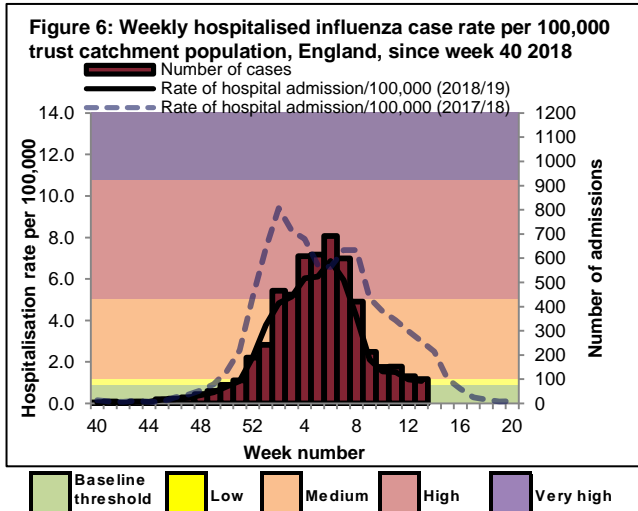


In week 13 2019, there were 100 hospitalised influenza cases (6 influenza A(H1N1)pdm09, 42 influenza A(H3N2) and 52 influenza A(unknown)) reported through the USISS sentinel hospital network across England (21 NHS Trusts). There were 32 new admissions to ICU/HDU with confirmed influenza (3 influenza A(H1N1)pdm09, 5 influenza A(H3N2), 24 influenza A(unknown subtype)) reported through the USISS mandatory ICU/HDU surveillance scheme across the UK (140/143 NHS Trusts in England).

- USISS sentinel weekly hospitalised confirmed influenza cases, England (week 13)

- In 13 2019, there were 100 hospitalised laboratory confirmed influenza cases (6 influenza A(H1N1)pdm09, 42 influenza A(H3N2) and 52 influenza A(unknown)) reported from 21 NHS Trusts across England through the USISS sentinel hospital network, with a rate of 1.08 per 100,000 trust catchment population compared to 1.15 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 5,363 hospitalised confirmed influenza admissions (1,850 influenza A(H1N1)pdm09, 717 influenza A(H3N2), 2,762 influenza A(unknown) and 34 influenza B) have been reported in the England since week 40 2018 via the sentinel scheme.

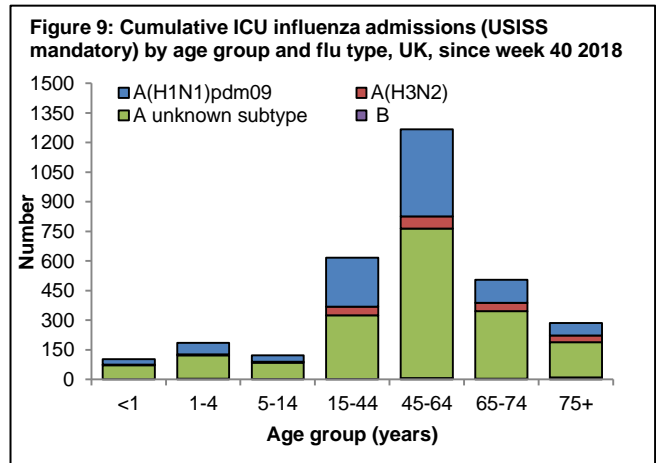
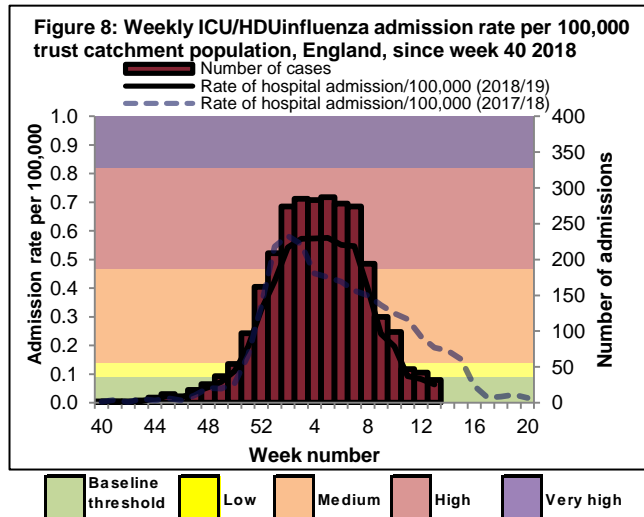


\*The Moving Epidemic Method (MEM) has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for ICU/HDU admission rates for the start of influenza activity (based on 6 seasons) in a standardised approach across Europe. For MEM threshold values, please visit: <https://www.gov.uk/guidance/sources-of-uk-flu-data-influenza-surveillance-in-the-uk#disease-severity-and-mortality-data>

- Number of new admissions and fatal confirmed influenza cases in ICU/HDU (USISS mandatory ICU scheme), UK (week 13)

- In week 13 2019, there were 32 new admissions to ICU/HDU with confirmed influenza (3 influenza A(H1N1)pdm09, 5 influenza A(H3N2) and 24 influenza A(unknown subtype)) reported through the USISS mandatory ICU scheme in the UK (140/143). The rate for England (n=32) was 0.06 per 100,000 trust catchment population (Figures 8 and 9) compared to 0.08 per 100,000 in week 12 2019. Four fatal influenza cases in ICU were reported in week 13 2019 in the UK.

- A total of 3,082 new admissions (987 influenza A(H1N1)pdm09, 196 influenza A(H3N2), 1,870 influenza A(unknown subtype) and 29 influenza B) and 305 confirmed deaths have been reported in the UK 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>

- USISS Severe Respiratory Failure Centre confirmed influenza admissions, UK (week 13)

- In week 13, there was one new admissions for laboratory confirmed influenza (1 influenza A(H3N2)) among the 6 Severe Respiratory Failure (SRF) centres in the UK.

- Since week 40 2018 there have been 95 confirmed influenza admissions (78 A(H1N1)pdm09, 5 A(H3N2) and 12 influenza A(unknown subtype) among ECMO centres.

### All-cause mortality data

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**In week 13 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 13 2019 and in Scotland in week 11 2019.**

- All-cause death registrations, England and Wales

- In week 12 2019, an estimated 10,402 all-cause deaths were registered in England and Wales (source: [Office for National Statistics](#)). This is a decrease compared to the 10,567 estimated death registrations in week 11 2019.

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

- In week 13 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 13 2019 and in Scotland in week 11 2019 (Table 2).

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

| Country          | Excess detected in week 13 2019? | Weeks with excess in 2018/19 |
|------------------|----------------------------------|------------------------------|
| England          | x                                | NA                           |
| Wales            | x                                | NA                           |
| Northern Ireland | x                                | 6                            |

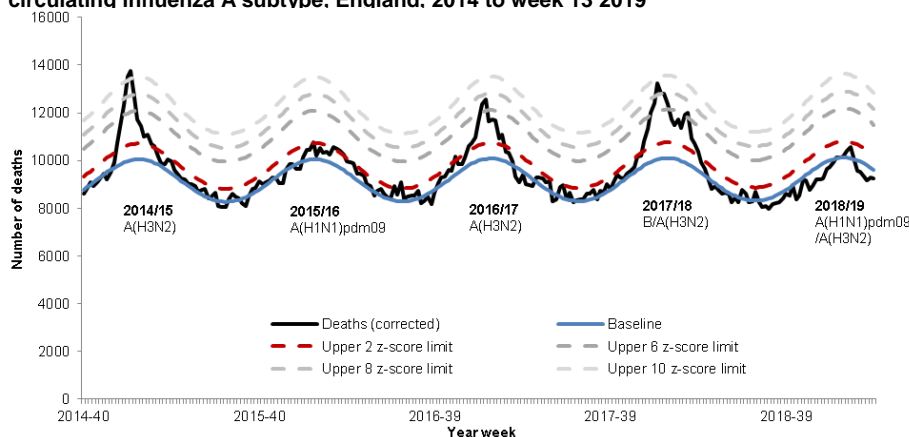
  

| Country  | Excess detected in week 11 2019? | Weeks with excess in 2018/19 |
|----------|----------------------------------|------------------------------|
| Scotland | x                                | 52-2                         |

\* 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 13 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.

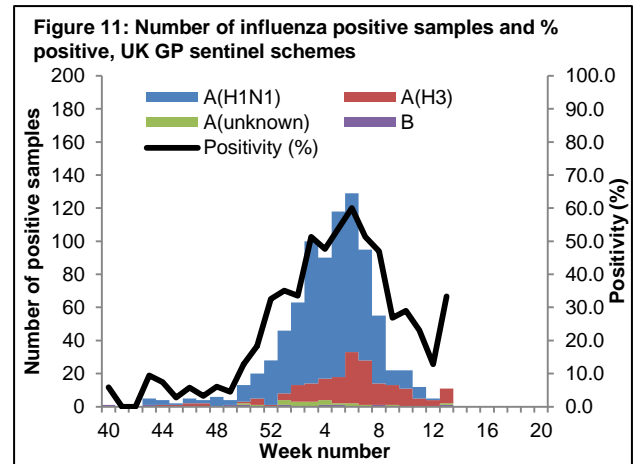


In week 13 2019, 11 samples tested positive for influenza (9 influenza A(H3N2), 1 influenza A(unknown subtype) and 1 influenza B) with a positivity of 33.3% through the UK GP sentinel schemes. 192 positive detections were recorded through the DataMart scheme (12 influenza A(H1N1)pdm09, 129 influenza A(H3), 48 influenza A(not subtyped) and 3 influenza B) with a positivity of 9.3%, this is just above the baseline threshold of 9.2%.

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

- In week 13 2019, 11 samples tested positive for influenza (9 influenza A(H3N2), 1 influenza A(unknown subtype) and 1 influenza B) with a positivity of 33.3% compared to 12.8% in week 12 2019 through the UK GP sentinel swabbing schemes (Figure 11).

Since week 40, a total of 860 samples (653 influenza A(H1N1)pdm09, 178 influenza A(H3), 20 influenza A(unknown subtype) and 9 influenza B) tested positive for influenza through this scheme.

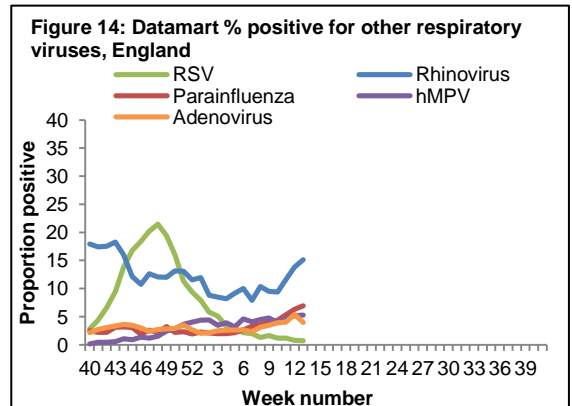
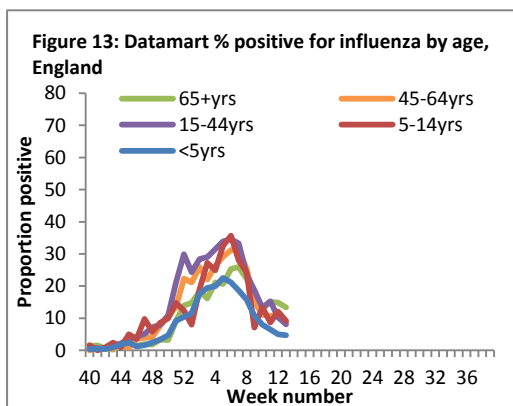
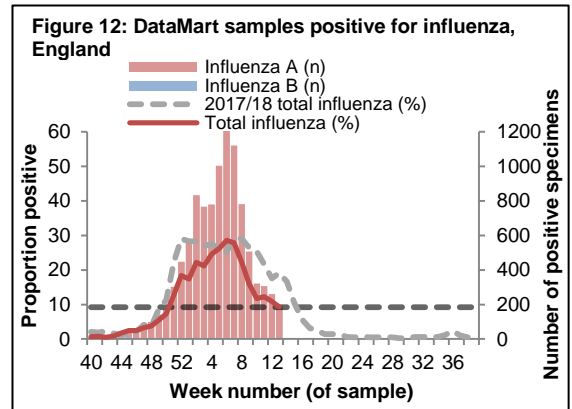


NB. Positivity (%) omitted when fewer than 10 specimens were tested

- Respiratory DataMart System (England)

- In week 13 2019, out of the 2,054 respiratory specimens reported through the Respiratory DataMart System, 192 samples were positive for influenza (12 influenza A(H1N1)pdm09, 129 influenza A(H3), 48 influenza A(not subtyped) and 3 influenza B) (Figure 12), with an overall positivity of 9.3% compared to 10.9% the previous week, which is just 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 13.4% in week 13 (Figure 13).

RSV positivity remained low. Rhinovirus and parainfluenza positivities increased slightly to 15.2% and 6.9% respectively in week 13 2019. Adenovirus positivity decreased to 4.0% in week 13. Human metapneumovirus (hMPV) positivity remained stable at 5.3% in week 13 (Figure 14).



\*The Moving Epidemic Method has been adopted by the European Centre for Disease Prevention and Control to calculate thresholds for GP ILI consultations for the start of influenza activity in a standardised approach across Europe. The threshold to indicate a likelihood of influenza community circulation for Datamart % positive as calculated through the Moving Epidemic Method is 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 eighty one 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 viruses belonging to the genetic subclade 3C.3a have been identified. 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 |
| <b>A(H1N1)pdm09</b>       | 243                       | 590          | 38             | 871   |
| <b>A(H3N2)</b>            | 0                         | 171          | 0              | 171   |
| <b>B/Yamagata-lineage</b> | 1                         | 0            | 0              | 1     |
| <b>B/Victoria-lineage</b> | 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

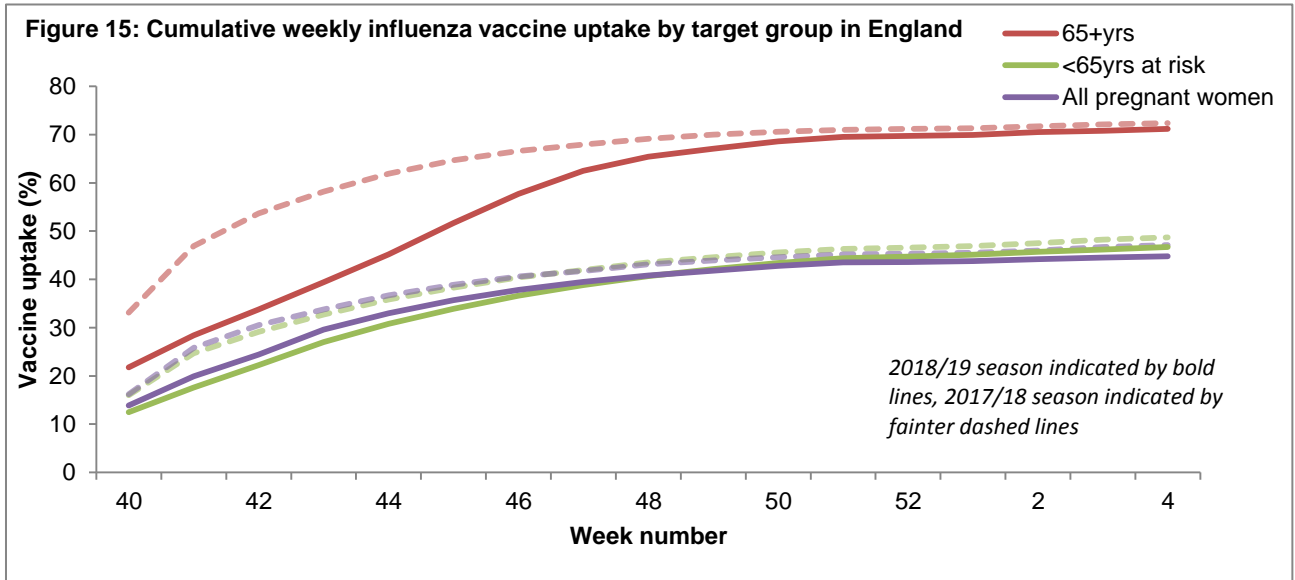
-Table 4 shows in the 12 weeks up to 31 March 2019, the proportion of all lower respiratory tract isolates of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Staphylococcus aureus*, MRSA and MSSA tested and susceptible to antibiotics. These organisms are the key causes of community acquired pneumonia (CAP) and the choice of antibiotics reflects the British Thoracic Society empirical guidelines for management of CAP in adults.

**Table 4: Antimicrobial susceptibility surveillance in lower respiratory tract isolates, 12 weeks up to 31 March 2019, E&W**

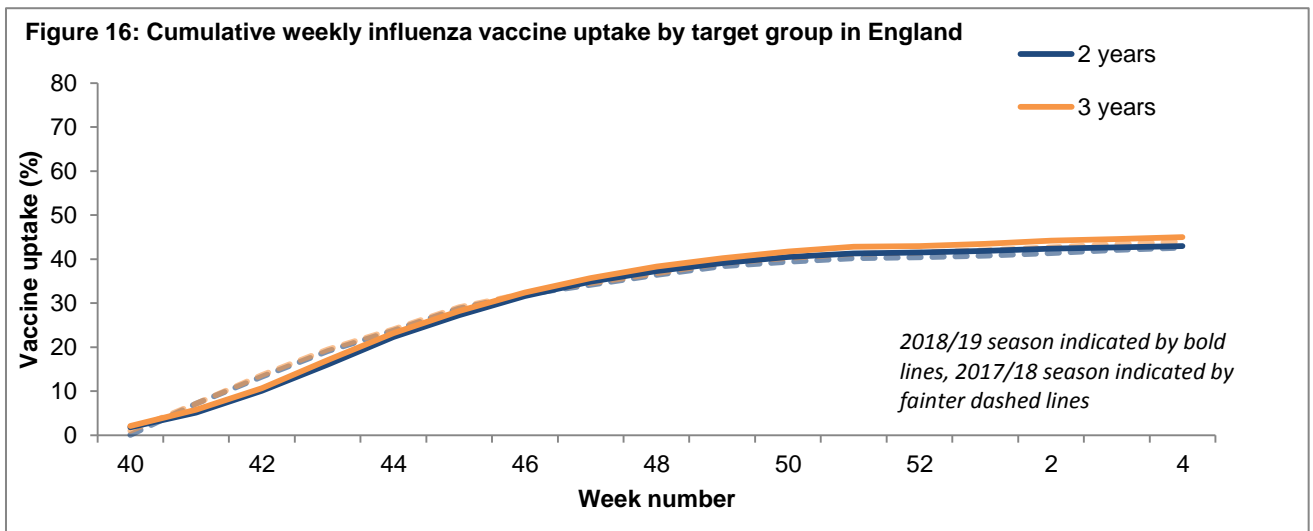
| Organism             | Antibiotic             | Specimens tested (N) | Specimens susceptible (%) |
|----------------------|------------------------|----------------------|---------------------------|
| <i>S. pneumoniae</i> | Penicillin             | 4777                 | 89                        |
|                      | Macrolides             | 5221                 | 83                        |
|                      | Tetracycline           | 5118                 | 85                        |
| <i>H. influenzae</i> | Amoxicillin/ampicillin | 20290                | 69                        |
|                      | Co-amoxiclav           | 21801                | 84                        |
|                      | Macrolides             | 4274                 | 4                         |
|                      | Tetracycline           | 21836                | 98                        |
| <i>S. aureus</i>     | Methicillin            | 7617                 | 92                        |
|                      | Macrolides             | 8494                 | 65                        |
| MRSA                 | Clindamycin            | 430                  | 45                        |
|                      | Tetracycline           | 563                  | 78                        |
| MSSA                 | Clindamycin            | 4687                 | 76                        |
|                      | Tetracycline           | 6474                 | 93                        |

\*Macrolides = erythromycin, azithromycin and clarithromycin

- 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



- 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



- 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 fifth [monthly](#) collection of influenza vaccine uptake in GP patients up to 28 February 2019 show that in 40.2% 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:
  - 47.0% under 65 year olds in a clinical risk group compared to 46.9% by 31 January 2019
  - 45.0% in pregnant women compared to 45.0% by 31 January 2019
  - 71.4% in 65+ year olds compared to 71.3% by 31 January 2019
- 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 decreased 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 29 March 2019 (Joint ECDC-WHO Europe Influenza weekly update)

In week 12 2019, influenza activity was reported to be widespread in the northern, southern and western areas of the European Region. Influenza A virus detections dominated with more A(H3N2) viruses than A(H1N1)pdm09 viruses and few influenza B viruses detected.

For week 12 2019, of 45 Member States and areas reporting on intensity, 11 reported baseline (eastern, northern, western areas), 30 reported low (across the region) and 4 reported medium (Bosnia and Herzegovina, Finland, Romania and Kosovo (in accordance with UNSCR 1244 (1999)) intensity. Of 45 Member States and areas reporting on geographic spread, 4 reported no activity (Bulgaria, Cyprus, Israel, Uzbekistan), 13 reported sporadic cases (across the region), 7 reported local spread (in northern, southern, western areas), 10 reported regional spread (across the region) and 11 reported widespread activity (in northern, southern, western areas).

For week 12 2019, 406 (38.4%) of 1,058 sentinel specimens tested positive for an influenza virus; 405 were type A and 1 was type B. Of 213 subtyped A viruses, 39.9% were A(H1N1)pdm09 and 60.1% were A(H3N2).

For week 12 2019, 74 laboratory-confirmed influenza cases were reported in ICUs, all were influenza type A viruses. Among the 51 laboratory confirmed influenza cases in other wards reported, all were influenza type A viruses.

For week 12 2019, 4,130 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; 97.8% were type A and 2.2% were type B. Of 1,207 A viruses subtyped, 44.9% were A(H1N1)pdm09 and 55.1% were A(H3N2).

For week 12 2019, data from the 22 Member States or areas reporting to the [EuroMOMO](#) project were included in pooled analyses. The pooled estimates indicated that the excess mortality observed in previous weeks has returned to normal levels.

- [United States of America](#) updated on 29 March 2019 (Centre for Disease Control report)

During week 12, influenza activity decreased but remains elevated in the United States. Influenza A(H1N1)pdm09 viruses predominated from October to mid-February and influenza A(H3N2) viruses have been more commonly identified since late February. Small numbers of influenza B viruses have also been reported.

A cumulative rate of 52.5 laboratory-confirmed influenza-associated hospitalisations per 100,000 population was reported, with the highest rate among those aged 65+ years old.

Nationwide during week 12, the proportion of outpatient visits for influenza-like illness (ILI) decreased to 3.8% 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 11, was 7.4%, above the epidemic threshold (7.2% for week 11) in the National Center for Health Statistics (NCHS) Mortality Surveillance System.

One influenza-associated paediatric death (influenza A(H1N1)pdm09) was reported to the CDC during week 12.

- [Canada](#) updated on 29 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. Influenza A(H1N1)pdm09 has been the predominant subtype to date this season, with detections of influenza A(H3N2) steadily increasing since mid-January and accounted for 72% of subtyped influenza A detections in week 12.

In week 12, the percentage of tests positive for influenza continued to increase slightly to 21.8%. A total 1,735 laboratory detections of influenza were reported, of which 93% were influenza A. Influenza A(H3N2) accounted for 72% of subtyped influenza A detections.

In week 12, 1.6% of visits to healthcare professionals were due to ILI.

To date this season, 2,592 influenza-associated hospitalisations have been reported by participating provinces and territories, of which 2,558 (98.7%) were associated with influenza A, with the highest estimated rate seen among adults over 65 years of age.

To date this season, 464 ICU admissions and 127 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 01 April 2019 (WHO website)

In the temperate zone of the Northern hemisphere, influenza activity decreased 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(H3N2) as the dominant subtype followed by influenza A(H1N1)pdm09 and very few influenza B virus detections. ILI activity decreased in Canada and in the United States of America, but was reported at low levels in the former and moderate in the latter, compared to the same period of previous influenza seasons. Adults over 65 years had the highest hospitalisation rates this influenza season. In Mexico, influenza activity continued to decrease with all seasonal influenza subtypes co-circulating.

In Europe, influenza activity decreased across the continent. Of 47 Member States and areas reporting on intensity, 34 reported baseline or low intensity and 13 reported medium intensity. Influenza A(H1N1)pdm09 and A(H3N2) viruses continued to co-circulate, with slightly more detections of A(H3N2).

In Central Asia, influenza detections continued to decrease in Kazakhstan.

In Northern Africa, influenza activity continued to increase in Tunisia, with detections of predominantly influenza A(H3N2) virus. In Egypt and Morocco, influenza detections were low.

In Western Asia, influenza activity continued to decrease overall with all seasonal influenza subtypes co-circulating. Influenza percent positivity remained elevated in Kuwait and Saudi Arabia, with detections of influenza A(H1N1)pdm09 and B viruses.

In East Asia, influenza activity continued to be reported, although decreased from the peak in week 03/2019. While all seasonal influenza subtypes co-circulated, the proportion of influenza A(H3N2) and B (Victoria-lineage) viruses increased in the recent weeks. Influenza activity continued to decrease but remaining above seasonal threshold in 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 Republic of Korea, after a first wave of influenza activity predominated by influenza A(H1N1)pdm09 virus, a second wave appeared to start with detections of influenza A(H3N2) and B viruses.

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 Guatemala. • 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 continued to be reported in Kenya, Madagascar and Mauritius, with both influenza A virus subtypes co-circulating in the sub-region.

In Southern Asia, influenza activity appeared to decrease, with influenza A(H1N1)pdm09 virus predominating. Influenza activity decreased slightly in India with influenza A(H1N1)pdm09 virus most frequently detected followed by influenza A(H3N2) viruses. Influenza activity continued to decrease in Nepal, with detections of influenza A(H1N1)pdm09 and B viruses.

In South East Asia, few countries reported in this reporting period. Influenza activity remained elevated in Thailand, with influenza B (Victoria-lineage) most frequently detected followed by influenza A viruses. Decreased influenza activity was reported in Lao PDR and the Philippines.

The WHO GISRS laboratories tested more than 176,726 specimens between 04 March 2019 and 17 March 2019. 43,084 were positive for influenza viruses, of which 39,652 (92.0%) were typed as influenza A and 3,432 (8.0%) as influenza B. Of the sub-typed influenza A viruses, 8,769 (49.9%) were influenza A (H1N1)pdm09 and 8,795 (50.1%) were influenza A (H3N2). Of the characterized B viruses, 119 (5.1%) belonged to the B-Yamagata lineage and 2,193 (94.9%) 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 03 April 2019

Up to 03 April 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 1,475 suspected cases in the UK since September 2012 that have been investigated for MERS-CoV and tested negative.

From [1 February to 28 February 2019](#), the National IHR Focal Point of Saudi Arabia reported 68 additional cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection, including 10 deaths. Of the 68 MERS cases reported in February, 19 cases occurred in cities other than Wadi Aldwasir.

Globally, since September 2012 and up to 28 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](#))
- 2018/19 Northern Hemisphere seasonal influenza vaccine recommendations ([WHO](#))