

# HPS Monthly National Seasonal Respiratory Report

Week ending 18 March 2018 – week 11

## 1 Overall assessment

In week 11, the overall assessment remains green (below baseline activity).

- GP consultation rate for influenza-like illness (ILI) remains below the baseline threshold for normal seasonal activity.
- The colour indicator for influenza in closed settings remains yellow (normal season activity). Virological detections of influenza in secondary care continue to reduce.
- In week 11, no statistically significant all-cause mortality excess was observed. It is difficult to assess the contribution of influenza to the very high\* statistically significant excess in all-cause mortality reported in weeks 52, 1 and 2, but ICU mortality due to laboratory confirmed influenza remains below expected seasonal range.
- Vaccine uptake rates increased in week 11. It's not too late to be vaccinated - vaccination of those eligible for seasonal influenza remains the most important preventative measure to reduce influenza.
- An increase in community circulation of influenza prompted the issue of a [CMO letter](#) in week 50 and the advice that GPs may prescribe antivirals remains in force.

## 2 Summary

Indicator	Data	Comment	Change from previous week
Community Influenza Transmission	GP consultations	There has been a small increase in ILI rate but remains below the baseline threshold for normal seasonal activity (from 24.9 in week 10 to 26.4 per 100,000 in week 11).	↔
	NHS24 calls	The proportion of NHS24 calls for respiratory infection symptoms remained similar to the previous week; 18.2% in week 11 compared to 18.4% in week 10. Change over from legacy to new IT system limits comparability with previous season's data.	
	Primary care virology	The overall swab positivity from samples taken within the GP sentinel scheme was 0.0% (0/3). This should be interpreted with caution due to the low number of samples received.	
Influenza in Closed Settings	Outbreaks	Six new acute respiratory illness outbreaks were reported this week, all retrospective reports - a cumulative total of 127. The majority of the outbreaks have occurred in care homes.	↔
	Secondary care virology (ECOSS)	There was a further reduction in the total number of positive detections and swab positivity decreased slightly to 21% in week 11 (compared to 25.1% in week 10). The majority of detections this week were for influenza B. There are no NHS Boards reporting ward/bed pressure from influenza through Healthcare Infection Incident Assessment (HIIAT).	
	Severe Acute Respiratory Illness (SARI)	Eight new cases of laboratory confirmed influenza requiring ICU management were reported in week 11, all were retrospective – a cumulative total of 145 cases.	
Influenza Associated Mortality	SARI mortality	SARI case fatality rate remains below expected seasonal range: 23.4% (34/145).	↔
	Excess all-cause mortality	No statistically significant all cause mortality excess was observed between week 5 and week 11 (week 10 and 11 include a reporting delay adjustment). The contribution of flu to the excess all cause mortality cannot be determined at present but will be the subject of further investigation.	
Non-flu respiratory pathogens	Non-flu respiratory pathogens	In week 11, all six non-influenza respiratory pathogens under surveillance remained within expected seasonal levels with the exception of rhinovirus which were above expected seasonal levels in sentinel sources.	↔

### 3 Supporting data

Supporting data and further information is published in this section if any of the respiratory surveillance systems show a significant increase.

An increase in community circulation of influenza prompted the issue of a [CMO letter](#) in week 50 and the advice that GPs may prescribe antivirals remains in force.

#### Summary table colour interpretation:

- Green – below baseline activity;
- Yellow – normal season activity;
- Amber – moderate activity (above normal activity);
- Red – high activity (above moderate activity);
- Dark red – very high activity (above high activity);

#### A. Community Influenza Transmission

The community influenza transmission assessment remained green (below baseline activity). There was a slight increase in GP consultations for influenza-like illness in the current week which remained below the baseline for normal seasonal activity levels. NHS24 call proportions for respiratory infection symptoms have remained stable.

Indicators used to assess the transmission of influenza in the community should be interpreted with caution in week 9 and week 10 due to adverse weather experienced which is likely to have impacted primary care services and attendance.

##### A.1 GP consultations for influenza-like illness (ILI)

GP consultations for influenza-like illness (ILI) increased slightly but remained below baseline levels (from 24.9 in week 10 to 26.4 per 100,000 in week 11) and are below normal seasonal activity.<sup>1,2</sup> This value remained higher than the previous seasons for the same time period with exception of season 2015/16 (Figure 1). The age-specific rates remained above baseline levels for the 5-14, 15-44, 45-64 and 75+ year age groups. The rate for those under one year old, 1-4 and 65-74 year age groups remained at baseline levels in week 11.

#### Caveats:

- Consultation rate data is currently based only on EMIS practices which cover around 50% of GP practices in Scotland. For this reason, comparison of ILI rates in the current season to previous seasons should be interpreted with caution. HPS are working with INPS to overcome issues with their data and therefore INPS practices have been excluded from this reporting.

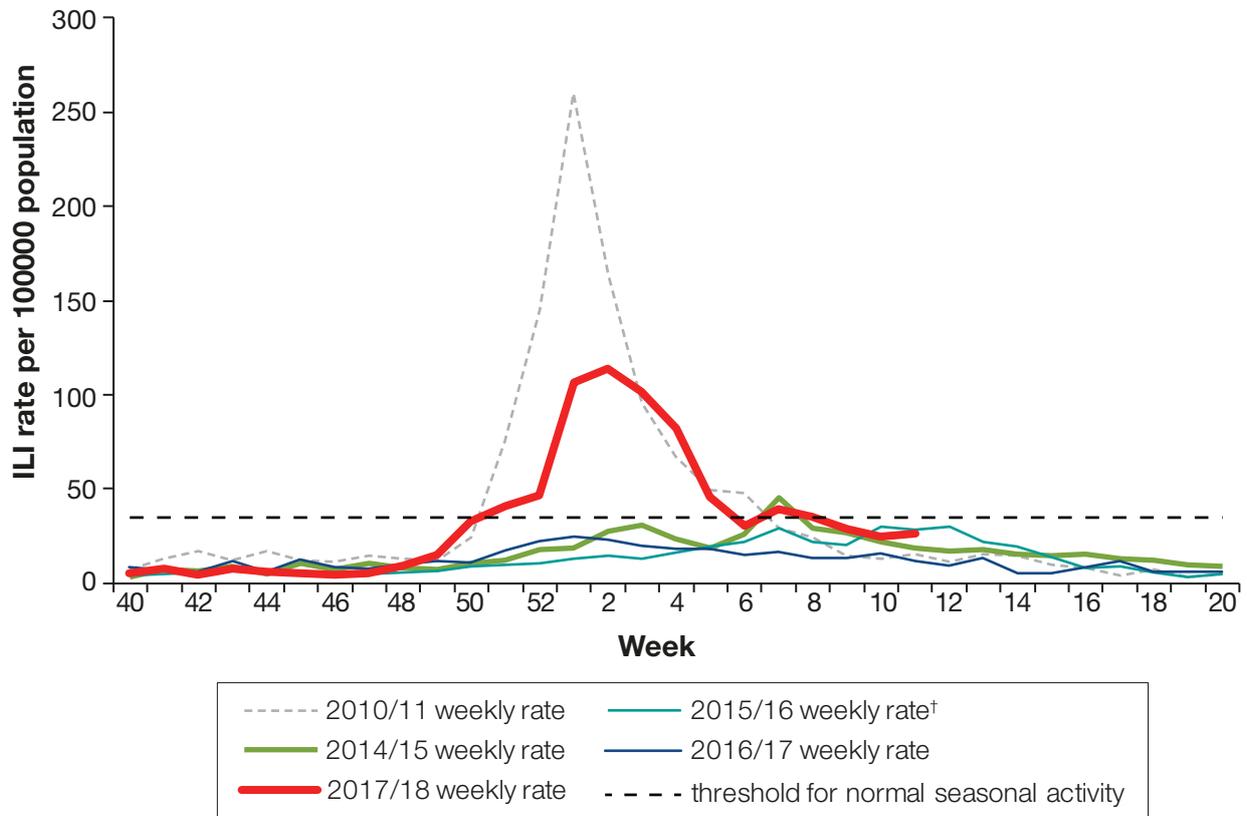
---

1 The baseline threshold for influenza-like illness consultation data is 34.5 consultations per 100,000 population. The range for normal seasonal activity is between 34.5 and 45.9 consultations per 100,000 population.

2 This influenza activity threshold is based on the Moving Epidemic Method (MEM), a standardised method of reporting influenza activity adopted by the UK and the European Centre for Disease Prevention and Control.

- All the GP consultation data depends on GPs using the appropriate Read codes and this is variable between practices.
- ILI rates may change slightly from week to week due to data reporting delays.

**Figure 1:** GP consultation rates for ILI in Scotland; weekly rates per 100,000 population, week 40 2017 to week 20 2018, compared to last 3 seasons and 2010/11 season.



<sup>†</sup> As year 2015 had 53 weeks, weeks 52 and 53 were averaged to produce week 52 figures for 2015/16

## A.2 NHS 24

The proportion of NHS24 calls for respiratory infection symptoms remained stable at 18.2% in week 11. This compares to 19.3%, 19.6% and 18.4% in weeks 8, 9 and 10 respectively.

- colds/flu (0.9%)
- coughs (4.0%)
- difficulty breathing (5.6%)
- fever (7.8%)

In October 2017, NHS24 changed over from a legacy system to a new IT system. Correlation between the data from the new system and historical data is being undertaken but is not yet available.

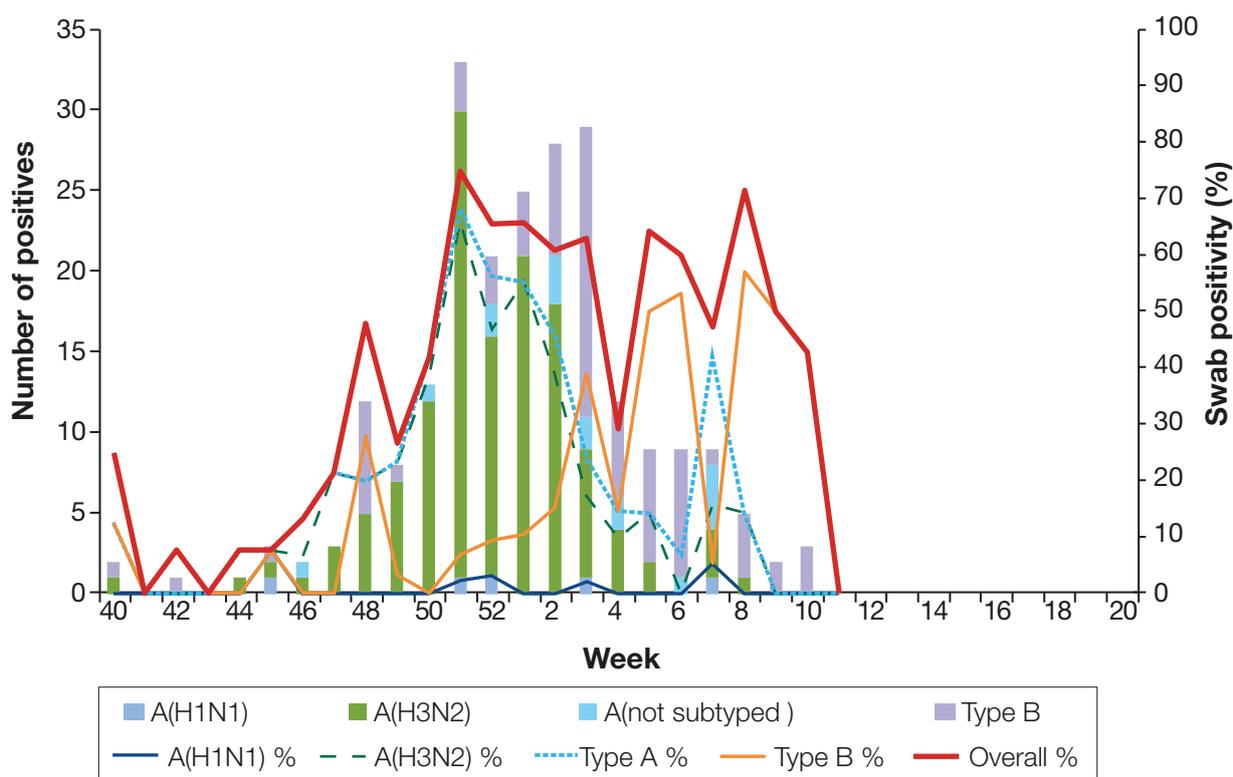
### A.3 Primary Care Virology

No samples taken within the GP sentinel scheme were positive for influenza (0/3) in week 11. This compares to 71.4% (5/7), 50.0% (2/4) and 42.9% (3/7) in weeks 8, 9 and 10 respectively and should be interpreted with caution due to the low number of samples received this week and previous weeks. So far this season, 66.7% (152/228) of influenza viruses have been influenza A and 33.8% (77/228) influenza B. Of the influenza viruses that have been subtyped thus far this season within the GP sentinel scheme, influenza A(H3N2) is predominant.

Caveats:

- Virological data is dynamic, therefore, the swab positivity and absolute numbers will change retrospectively week to week.

**Figure 2:** Weekly summary of GP Sentinel swab positivity (number and percentage positive) by influenza subtype.



### B. Influenza in Closed Settings

The colour indicator for influenza in closed settings remains yellow (normal season activity). There is continuing reduction in virological detections of influenza in secondary care. There are continuing reports, which are mainly retrospective, of further ARI outbreaks but these appear to be slowing. There were 6 new mainly retrospective reports of patients with severe acute respiratory infection of laboratory confirmed influenza being managed in intensive care.

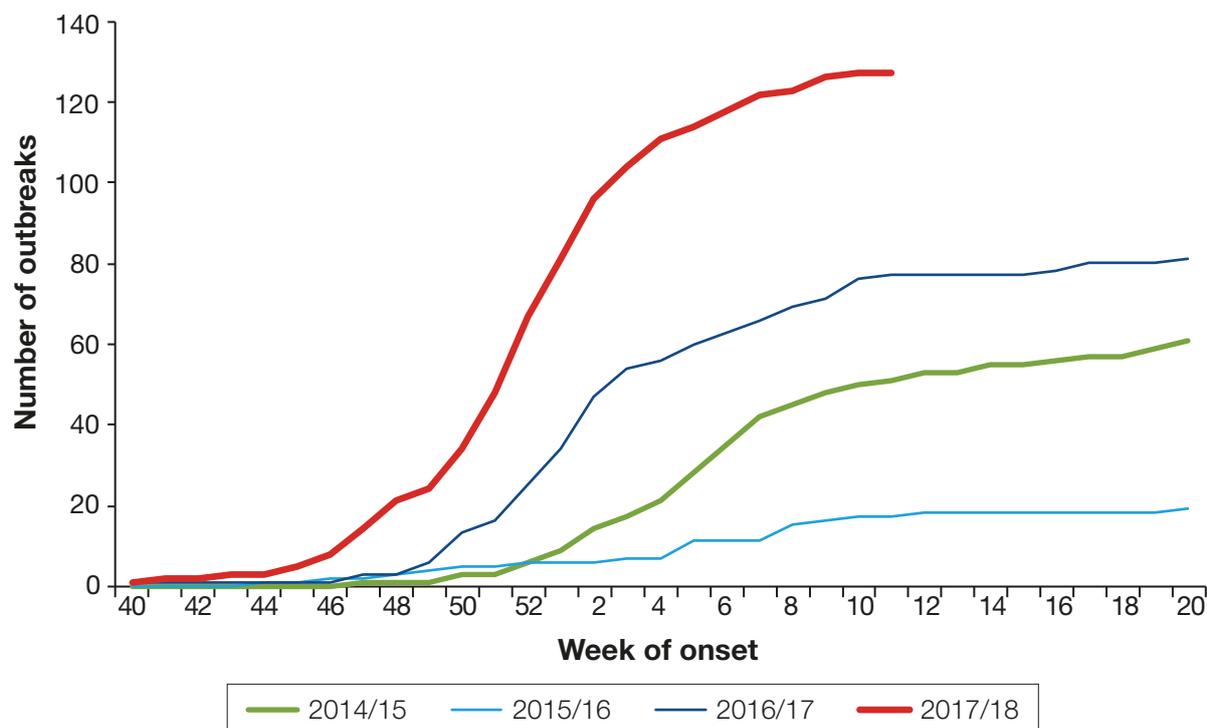
#### B.1 Acute Respiratory Illness (ARI) outbreaks

Compared with the same period in previous seasons, in 2017/18 we have observed an earlier increase and higher number of ARI outbreaks reported to HPS (Figure 3). One-hundred and twenty seven closed setting outbreaks have been reported since week 40. These were

geographically spread throughout Scotland: 22.8% in the North, 52.0% in the East and 25.2% in the West.<sup>3</sup> The majority of the outbreaks have occurred in care homes (68.5%, 87/127). Of the six retrospective outbreaks reported this week, four were in hospital settings.

The majority of outbreaks have been caused by influenza alone (77.2%, 98/127) with 51 caused by influenza A(not subtyped), 29 by influenza A(H3N2) and 18 by influenza B. Of the remaining outbreaks, these were either due to influenza in combination with another non-flu pathogen (6/127), non-flu pathogens (4/127) or pathogen unknown (19/127).

**Figure 3:** Cumulative number of respiratory outbreaks in 2017/18 season compared to seasons 2014/15 to 2016/17.



Note: Where week of onset is not available, week of report has been used instead. This may change retrospectively for the current season as updates are received.

**Caveat:**

- There is a time delay in receiving ARI forms and changes in the overall number and details of outbreaks may occur retrospectively week on week

**B.2 Secondary care virology (ECOSS)**

The number of swabs tested for influenza reduced compared with last week and the overall influenza swab positivity in secondary care (ECOSS) decreased to 21.0% (153/727) in week 11 (Figure 4). This compares to 24.7% (281/1136), 24.4% (245/1005) and 25.1% (257/1022) in weeks 8, 9 and 10 respectively. The number of positive samples has decreased for both influenza A and B. Influenza B swab positivity decreased from 19.9% in week 10 to 16.8% in week 11 and influenza A swab positivity decreased from 5.4% in week 10 to 4.3% in week 11.

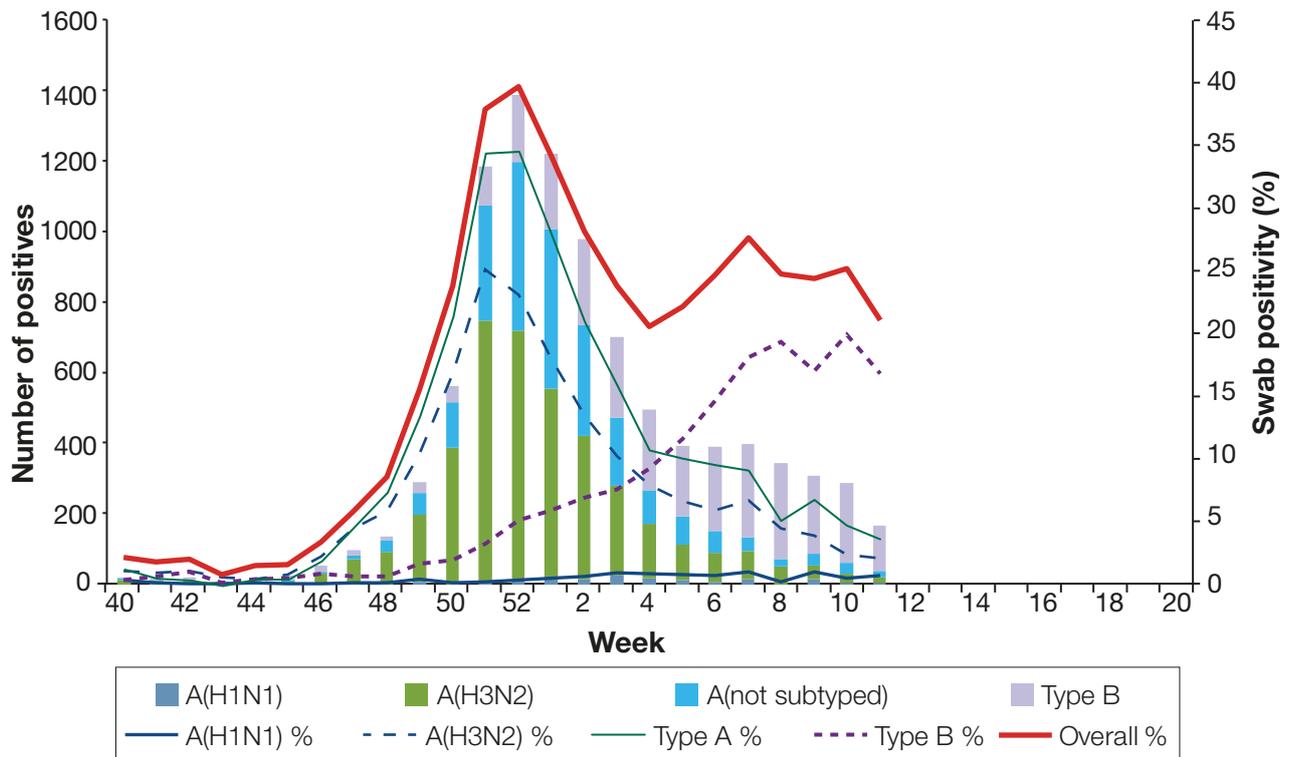
3 North: Western Isles, Shetland, Orkney, Highland, Grampian, Tayside. East: Fife, Lothian, Borders, Forth Valley. West: Greater Glasgow & Clyde, Lanarkshire, Ayrshire & Arran, Dumfries & Galloway.

In week 11, from non-sentinel sources (ECOSS), 167 samples were positive for influenza; 38 influenza A, (17 A(not subtyped), 15 A(H3N2) and 6 A(H1N1)) and 129 were positive for influenza B.

So far this season, 69.5% of influenza viruses have been influenza A and 30.9% influenza B. Of the influenza viruses that have been subtyped thus far this season, influenza A(H3N2) virus is predominant, which usually means a disproportionate burden borne by the elderly. For secondary care, this is a particular challenge as multi-morbidity in this age groups means that this poses particular difficulty for patient management. This may explain why there are differences in perception of the impact of the season by different parts of the NHS.

There are no NHS Boards reporting ward/bed pressure from influenza through Healthcare Infection Incident Assessment (HIIAT)

**Figure 4:** Weekly summary of ECOSS swab positivity (number and percentage positive) by influenza subtype.



### Virological genetic characterisation

Summary:

- The majority of influenza A(H3N2) viruses (55.4%, 92/166) are closely matched to 2017/18 season vaccine.
- Of the influenza B viruses sequenced, almost all belong to B/Yamagata lineage which is not present in the trivalent vaccine, but matches the quadrivalent vaccine.

As of the 20 March 2018, the West of Scotland Specialist Virology Centre (WoSSVC) has sequenced 245 influenza viruses for season 2017/18.

- Of the 12 A(H1N1)pdm09 influenza viruses that have been characterised, all belong in the genetic subgroup 6B.1 (A/Michigan/45/2015) which matches the 2017/18 vaccine strain.

- Of the 166 A(H3N2) influenza viruses sequenced, 92 belong to the genetic subclade 3C.2a (A/Hong Kong/4801/2014) which are closely matched to 2017/18 season vaccine; 56 belong to the genetic subclade 3C.2a.1(A/Singapore/IFIMH-16-0019/2016) which is the A(H3N2) virus recommended for inclusion in vaccines for the Southern Hemisphere 2018 season i.e. are not closely matched to this seasons vaccine and have been labelled by the media as “Australian flu”; and 18 belong to the genetic subclade 3C.3a (A/Switzerland/9715293/2013) which matches the vaccine strain from 2015-2016 i.e. are not closely matched to the vaccine this season but match previous vaccine used in 2015/16.
- Of the 67 influenza B viruses sequenced, 66 belonged to B/Yamagata lineage (B/Phuket/3073/2013) which is not present in the trivalent vaccine, but matches the quadrivalent vaccine. One sequenced virus was B/Victoria lineage (B/Norway/2409/2017) and protection from the current vaccine has not been fully analysed.
- An extra 429 influenza B viruses have been detected by real-time PCR, of which 426 belong to B/Yamagata lineage and three to B/Victoria lineage which is present in both trivalent and quadrivalent vaccine types.

#### Caveats:

- As there is a time delay between sample collection and the results becoming available through ECOSS, virological data is dynamic. Therefore, the swab positivity and absolute numbers will change retrospectively week to week. Point of care testing of patients for respiratory viruses has been widely used this year and therefore may have had an impact on the number of patients that are tested.
- Swab positivity is derived from data from the Glasgow, Edinburgh, Inverness, Aberdeen and Dundee laboratories, for which denominator data is available. This data covers approximately 95% of Scottish samples.

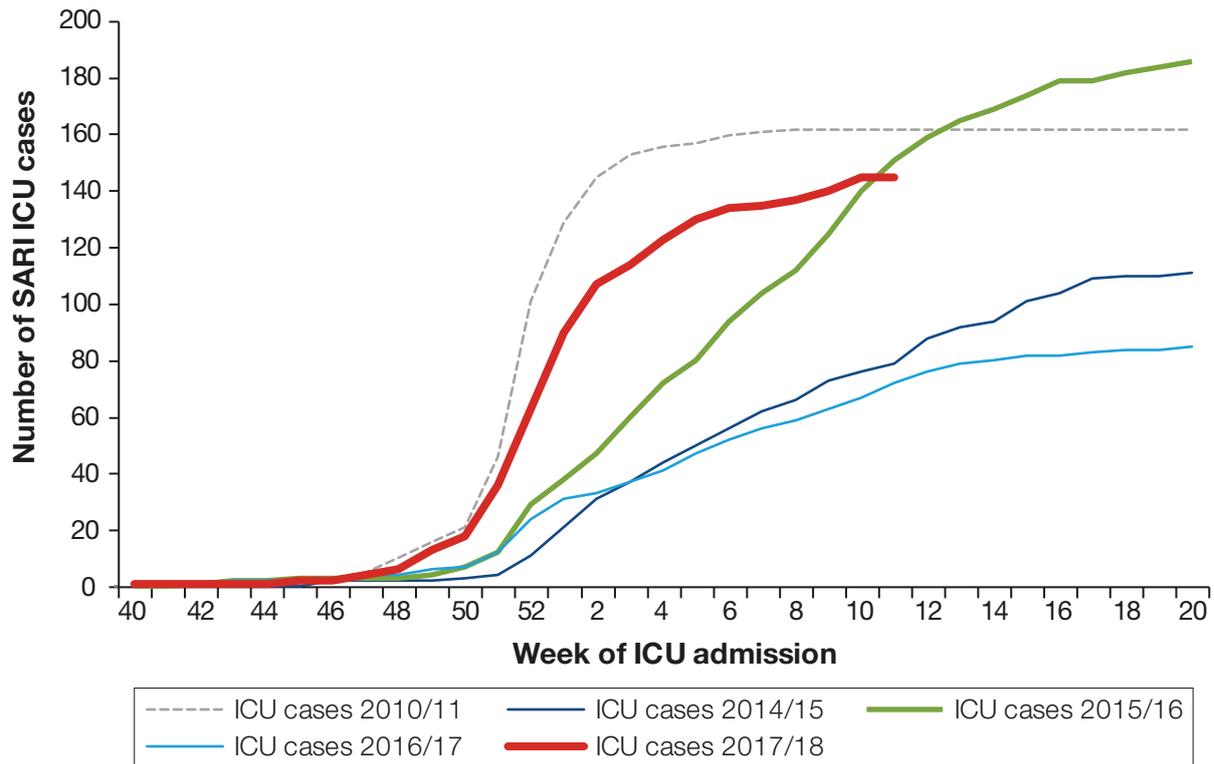
### B.3 Severe acute respiratory illness (SARI)

Eight new influenza cases with severe infection requiring intensive care management were reported to HPS in week 11 2018, all of which were retrospective reports. The cumulative total of cases is 145 which is higher than the total at the same period for the previous season but lower than 2015/16 and 2010/11 seasons (Figure 5). The total number of SARI cases by week is shown in figure 6.

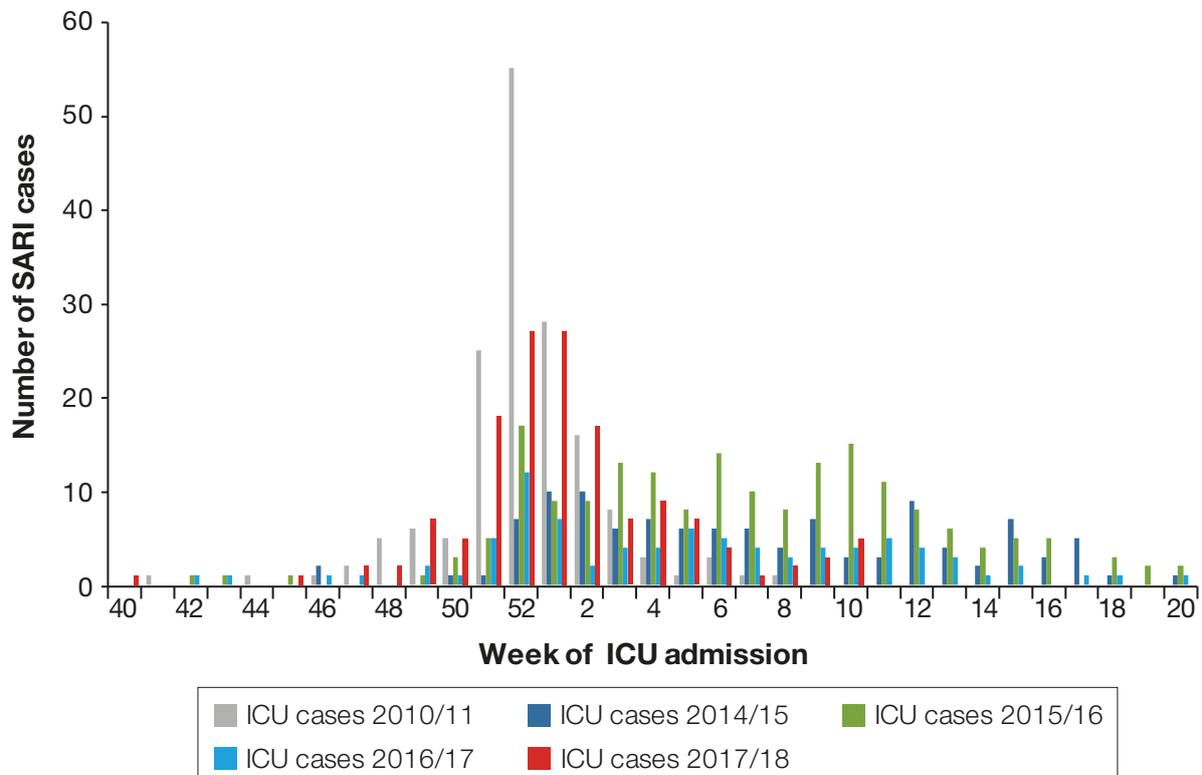
So far, the majority of SARI cases have been due to influenza A (72.4%) and of those subtyped, influenza A(H3N2) is predominant. Forty SARI cases have been caused by influenza B (27.6%).

Twenty four cases were reported by NHS boards in the North of Scotland (16.6%), 91 in the West of Scotland (62.8%) and 30 in the East of Scotland (20.7%).<sup>3</sup>

**Figure 5:** Cumulative number of influenza cases with severe infection requiring intensive care management by week of hospital admission, week 40 2017 to week 20 2018, compared to previous seasons.



**Figure 6:** Number of influenza cases with severe infection requiring intensive care management by week of hospital admission, week 40 2017 to week 20 2018, compared to seasons 2010/11, 2014/15, 2015/16 and 2016/17.



**Caveat:**

- There is a time delay in receiving SARI forms, therefore, changes in the overall numbers may occur retrospectively week on week.

## C. Influenza associated mortality

The influenza associated mortality assessment remained green (below baseline seasonal activity). In week 11, no statistically significant all-cause mortality excess was observed. It is difficult to assess the contribution of influenza to the very high\* statistically significant excess in all cause mortality reported in weeks 52, 1 and 2, but ICU mortality due to laboratory confirmed influenza is below the expected seasonal range.

### C.1 SARI mortality

There has been three further SARI deaths reported to HPS in week 11. SARI case-fatality rate is 23.4% (34/145) and is below the expected seasonal range (the case-fatality rate has ranged from 23.7% in season 2013/14 to 35.6% in seasons 2010/11 and 2014/15).

Caveat:

- There is a time delay in receiving information about the outcome of SARI cases, therefore, changes in the numbers/proportion of deaths may occur retrospectively week on week.

### C.2 All-cause mortality

Information on mortality from all causes is provided for management purpose from the General Registrar's Office for Scotland (now part of National Records of Scotland (NRS)). Excess mortality is defined as a statistically significant increase in the number of deaths reported over the expected number for a given point in time. This calculation allows for a weekly variation in the number of deaths registered and takes account of deaths registered retrospectively. Information is used to provide an early warning to the NHS of any seasonal increases in mortality to allow further investigation of excess detections.

There is no single cause of 'additional' deaths in the winter months but they are often attributed in part to cold weather (e.g. directly from falls, fractures, road traffic accidents), through worsening of chronic medical conditions, e.g. heart and respiratory complaints and through respiratory infections including influenza.

No statistically significant all cause mortality excess was observed between week 5 and week 11 (week 10 and 11 should be interpreted with caution due to reporting delay adjustments). A very high\* statistically significant excess was observed in weeks 52, 1 and 2 and a high\* statistically significant excess was observed in week 3. The contribution of flu to the excess all cause mortality cannot be determined at present but will be the subject of further investigation.

Summary table of statistically significant excess in all-cause mortality using EuroMOMO method:

<b>EuroMOMO scoring</b>	<b>Weeks</b>
Small excess	49, 50, 51, 4
High excess	3
Very high excess	52, 1, 2

\*Using the scoring categories agreed with EuroMOMO, a small statistically significant excess is synonymous with the EuroMOMO "above expected mortality" category i.e. a Z-score of 3-5.

EuroMOMO scoring categories are defined as below:

- No excess in all-cause mortality is defined as a Z-score of less than 3
- Above expected excess all-cause mortality is defined as a Z-score between 3-5
- High excess all-cause mortality is defined as a Z-score of 5-7
- Very high excess all-cause mortality is defined as a Z-score of greater than 7

For more information on EuroMOMO, Z-scores, current countries participation and interactive maps of reporting across the season please see <http://www.euromomo.eu/index.html>.

## D. Non-influenza respiratory pathogens

The non-influenza respiratory pathogens assessment is considered green (below baseline activity) because only rhinovirus levels exceeded expected seasonal levels.

### D.1 Non-influenza respiratory pathogens

There are several non-influenza respiratory pathogens being monitored both in primary care (through the GP Sentinel swabbing scheme) and in secondary care (through ECOSS). The pathogens under surveillance are: respiratory syncytial virus (RSV), rhinovirus, coronavirus, parainfluenza, human metapneumovirus and *Mycoplasma pneumoniae*

In week 10:

- All six non-influenza respiratory pathogens under surveillance remained within expected seasonal levels with the exception of rhinovirus which were above expected seasonal levels in sentinel sources.

## 4 Vaccine uptake

Provisional data to week 11 suggests a positive public response by adults to increased publicity about influenza. Vaccine uptake rates this month have increased and are similar or greater than 2016/17.

- 73.7% in people aged 65 years and over, compared with 72.8% in 2016-17
- 44.9% in under 65's at-risk, compared with 44.9% in 2016-17
- 47.8% in pregnant women (without other risk factors), compared with 48.8% in 2016-17
- 61.8% in pregnant women (with other risk factors), compared with 57.8% in 2016-17
- 56.9% in preschool children (2 to under 5 year olds), compared with 58.8% in 2016-17
- 71.3% in primary school children, compared with 72.9% in 2016-17

The next update of influenza vaccine uptake will be published in week 15.

## 5 International situation

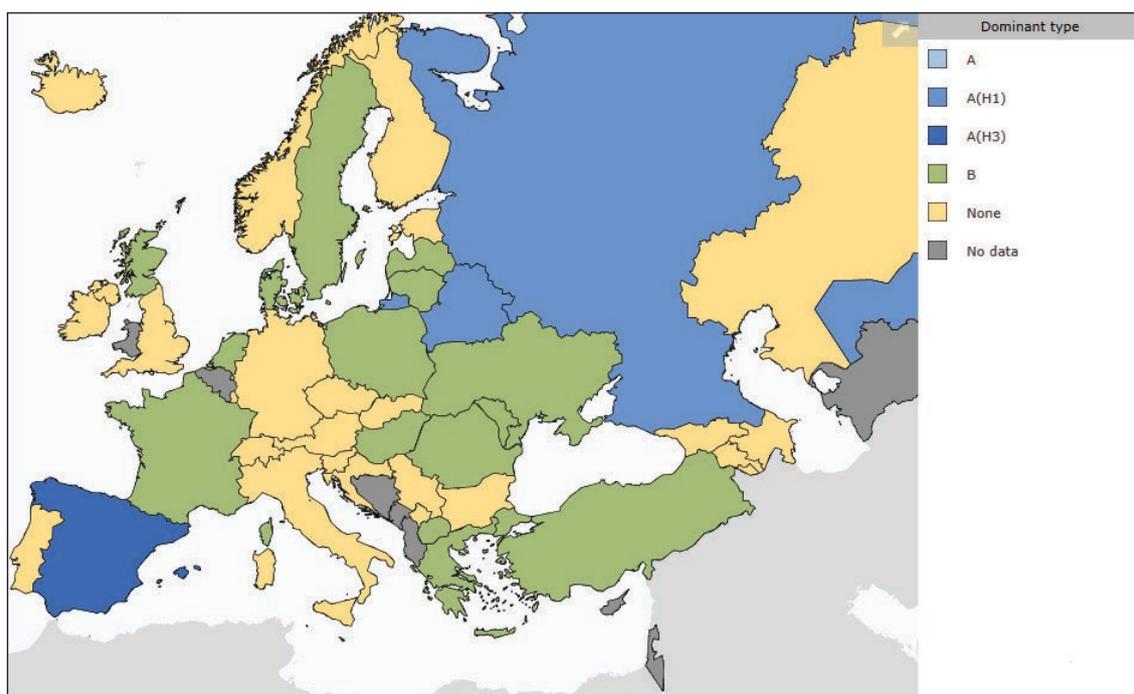
### UK:

- During week 10 (ending 15 March 2018), influenza continues to circulate, although activity has now peaked. Influenza A and B are co-circulating.
- In week 10, overall weekly ILI consultation rates across the countries of the UK were similar or decreased further compared to the previous week. By age group, the highest rates were seen in the 45-64 year olds in Northern Ireland, Wales and Scotland (22.7; 34.1 and 32.1 per 100,000 respectively).

### Europe:

- Influenza viruses continue to circulate widely in the Region, apart from some eastern European countries that have only recently reported increased activity. Similar to the previous week, 50% of the individuals sampled from primary healthcare settings tested positive for influenza virus, despite the peak rate for the Region occurring in week 05/2018. Both influenza virus types A and B were co-circulating with a higher proportion of type B viruses and with B/Yamagata continuing to be the dominant lineage.
- The majority of countries from the WHO Euro region reported influenza B as the dominant type with the exception of Russia and Uzbekistan reporting influenza A(H1N1) and Spain reporting influenza A(H3). In the remaining countries, no type was dominant. (Figure 7).

**Figure 7:** Geographical spread of influenza virus type/subtype among countries from the WHO Euro region – data to week 10 2018 (source: <https://flunewseurope.org/>).



## Links for more information

- The interim 2017/18 influenza seasonal vaccine effectiveness estimates from five European studies have been published on Eurosurveillance.
- The WHO have recommended that the following influenza viruses are included in the trivalent influenza vaccine for use in the 2018-19 northern hemisphere influenza season:
  - an A/Michigan/45/2015 (H1N1)pdm09-like virus;
  - an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus;
  - a B/Colorado/06/2017-like virus

It is recommended that the quadrivalent vaccine contains the above viruses and the B/Phuket/3073/2013-like virus, of the B/Yamagata/16/88-lineage.

## Further information for the Scottish 2017/18 season

- [HPS seasonal influenza web page](#)
- [Scottish Vaccine Update](#)
- [Historical end of season influenza vaccine uptake](#)

## UK and international influenza reports

- [PHE Weekly national flu report](#)
- [Flu News Europe website](#)
- [WHO influenza update](#)
- [EuroMOMO website](#)

### HPS National Seasonal Respiratory Report

**Published by:** Health Protection Scotland

Meridian Court, 5 Cadogan Street, Glasgow G2 6QE

**T:** 0141 300 1100    **F:** 0141 300 1170    **W:** <http://www.hps.scot.nhs.uk>

**Report produced by:** HPS Respiratory Team    **Email:** [NSS.hpsflu@nhs.net](mailto:NSS.hpsflu@nhs.net)

© Health Protection Scotland 2018