



HPS Monthly National Seasonal Respiratory Report

Week ending 21 January 2018 – week 3

1 Overall assessment

In week 3, the overall assessment remains amber (moderate season activity).

- There has been a small reduction in the GP consultation rates for ILI which is suggestive that we have now passed the peak in GP consultations.
- There is evidence that virological detections of influenza in secondary care peaked in week 52 and are continuing to decrease. Influenza B detections are increasing in primary care settings.
- 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 within normal seasonal range.
- Vaccine uptake rates have increased. 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 reduction in ILI rate compared to last week (from 113.9 to 102.1 per 100,000). This is suggestive that we have now passed the peak in GP consultations.	↓
	NHS24 calls	The proportion of NHS24 calls for respiratory infection symptoms has decreased from 32.1% in week 52 to 22.1% in week 3. 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 remains high at 64.1% (25/39). This is mainly driven by the sharp increase in the number of positive samples for influenza B in week 3.	
Influenza in Closed Settings	Outbreaks	Twelve new acute respiratory illness outbreaks reported this week, of which 8 were retrospective reports - a cumulative total of 87. The majority of the outbreaks have occurred in care homes and the number and proportion occurring in hospitals is decreasing.	↓
	Secondary care virology (ECOSS)	Swab positivity is further reducing and was 23.4% in week 3. The majority of detections were influenza A (not subtyped). The number of NHS Boards that are reporting ward/bed pressure from influenza through Healthcare Infection Incident Assessment (HIIAT) has decreased.	
	Severe Acute Respiratory Illness (SARI)	Sixteen new cases of laboratory confirmed influenza cases requiring ICU management were reported in week 3, 13 of which were retrospective reports – a cumulative total of 96 cases. This is higher than the number reported in the last three seasons at this point in time, however, it is below the number reported in the 2010/11 season.	
Influenza Associated Mortality	SARI mortality	SARI case fatality rate has decreased, but is within normal seasonal levels: 26.0% (25/96).	↔
	Excess all-cause mortality	A very high* statistically significant excess was observed in weeks 52, 1 and 2 (week 2 includes a reporting delay adjustment). In week 3, a small* statistically significant excess was observed which should be interpreted with caution due to reporting delay adjustments. 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	RSV levels are decreasing. Adenovirus and human metapneumovirus have remained stable but are slightly above expected seasonal levels.	↔

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 amber (moderate activity). This reflects the moderate level of GP consultations for influenza-like illness. There has been a small reduction in the GP consultation rates for ILI which is suggestive that we have now passed the peak in GP consultations. This conclusion is supported by decreasing NHS24 call proportions for respiratory symptoms.

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

GP consultations for influenza-like illness (ILI) have decreased (102.1 per 100,000 population in week 3 compared with 113.9 per 100,000 population in week 2) but remained at a moderate activity level.^{1,2} This value is higher than previous seasons at the same period with the exception of season 2010/11 (Figure 1). The age-specific rates remained stable but above baseline levels for the 15-44, 45-64, 65-74 and 75+ year age groups. The rates for 1-4 and 5-14 year age groups increased slightly to above baseline levels this week. The rate for those under one year old remained at baseline levels in week 3.

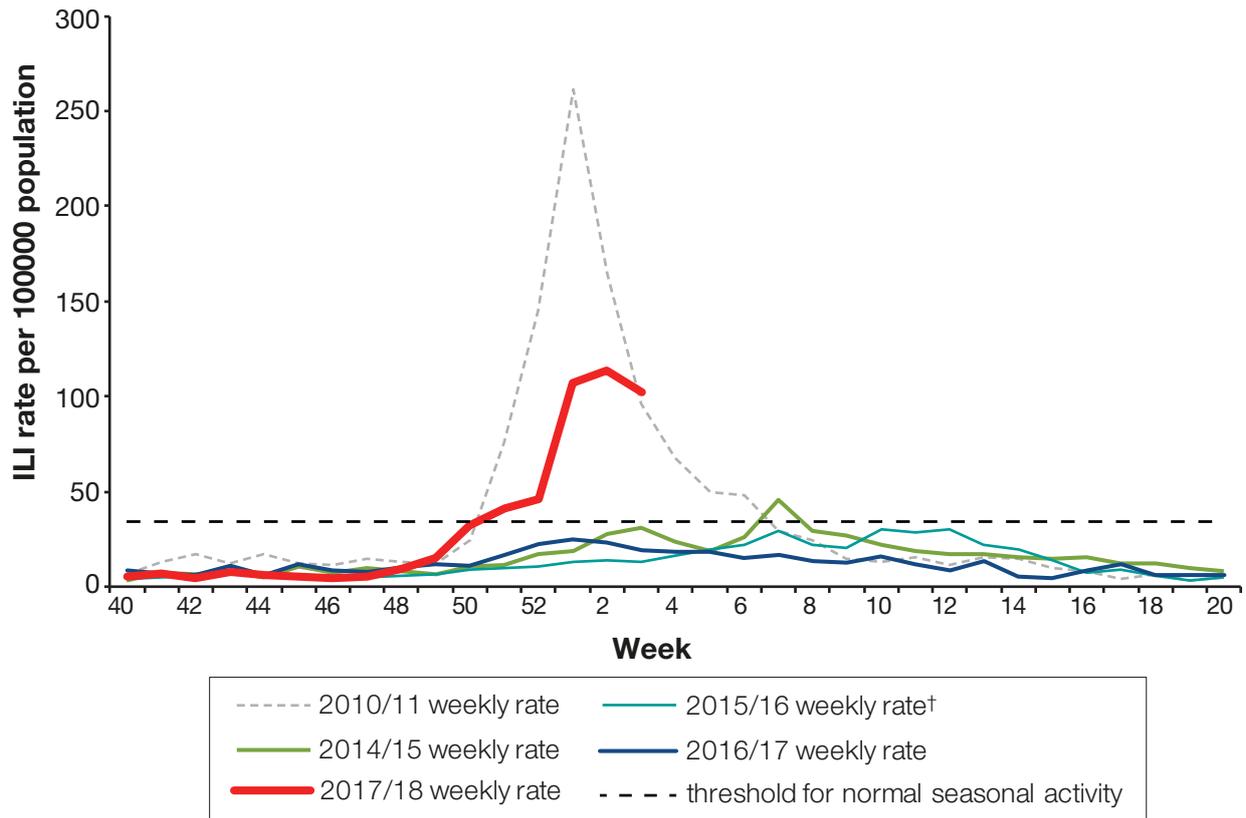
Caveats:

- Consultation rates 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.
- 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.

1 The moderate activity range for influenza-like illness consultation data is from 45.9 up to 212.7 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.

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



† 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 has further decreased from 32.1% in week 52 to 22.1% in week 3:

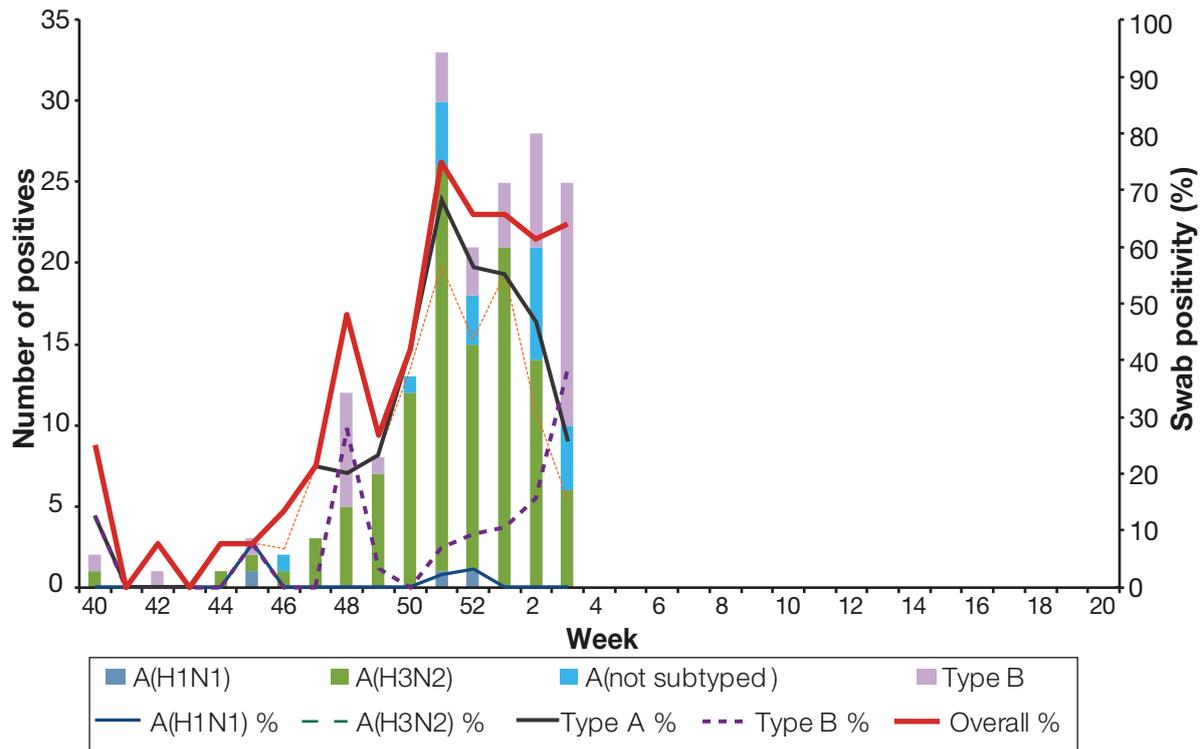
- colds/flu (1.8%)
- coughs (6.1%)
- difficulty breathing (6.8%)
- fever (7.5%)

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

The overall swab positivity from samples taken within the GP sentinel scheme remains high at 64.1% (25/39) in week 3 2018. This compares to 61.3% (28/45), 65.8% (25/38) and 65.6% (21/32) in weeks 2, 1 and 52 respectively. Although the number of samples positive for influenza B has been increasing over the past four weeks, the number has doubled in week 3 compared to week 2, resulting in a high swab positivity for influenza B at 38.5% in week 3 (15.6% in week 2). So far this season, 75.9% (132/174) of influenza viruses have been influenza A and 24.1% (42/174) influenza B. Of the influenza viruses that have been subtyped thus far within the GP sentinel scheme, influenza A(H3N2) is predominant.

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



B. Influenza in Closed Settings

The assessment of influenza in closed settings remained amber (moderate activity). There is evidence that virological detections of influenza in secondary care peaked in week 52 and are continuing to decrease. There are however continuing reports, which are mainly retrospective, of further ARI outbreaks and patients with severe acute respiratory infection of laboratory confirmed influenza being managed in intensive care but these appear to be slowing.

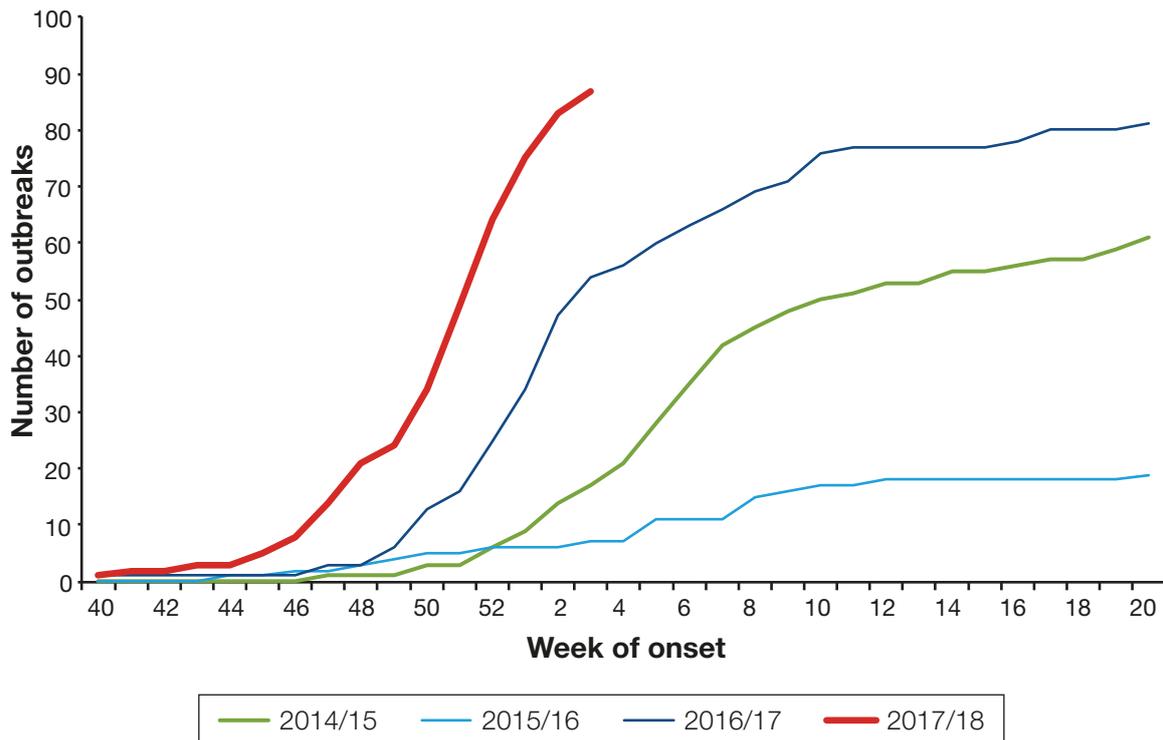
B.1 Acute Respiratory Illness (ARI) outbreaks

Compared with the same period in previous seasons, in 2017/18 we are observing an earlier increase and higher number of ARI outbreaks reported to HPS (Figure 3). Eighty seven closed setting outbreaks have been reported since week 40. These were geographically spread throughout Scotland: 25.3% in the North, 43.7% in the East and 31% in the West.³ The majority of the outbreaks have occurred in care homes (63.0%, 55/87). However, the proportion occurring in hospitals has reduced in the last four weeks (12/38, 31.6%) as compared to the previous four weeks (13/35, 37.1%).

The majority of outbreaks have been caused by influenza alone (75.9%, 66/87) with 36 caused by influenza A(not subtyped), 26 by influenza A(H3N2), and four by influenza B. Of the remaining outbreaks, these were either due to influenza in combination with another non-flu pathogen (3/87), non-flu pathogens (3/87) or pathogen unknown (15/87).

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

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 of outbreaks may occur retrospectively week on week.

B.2 Secondary care virology (ECOSS)

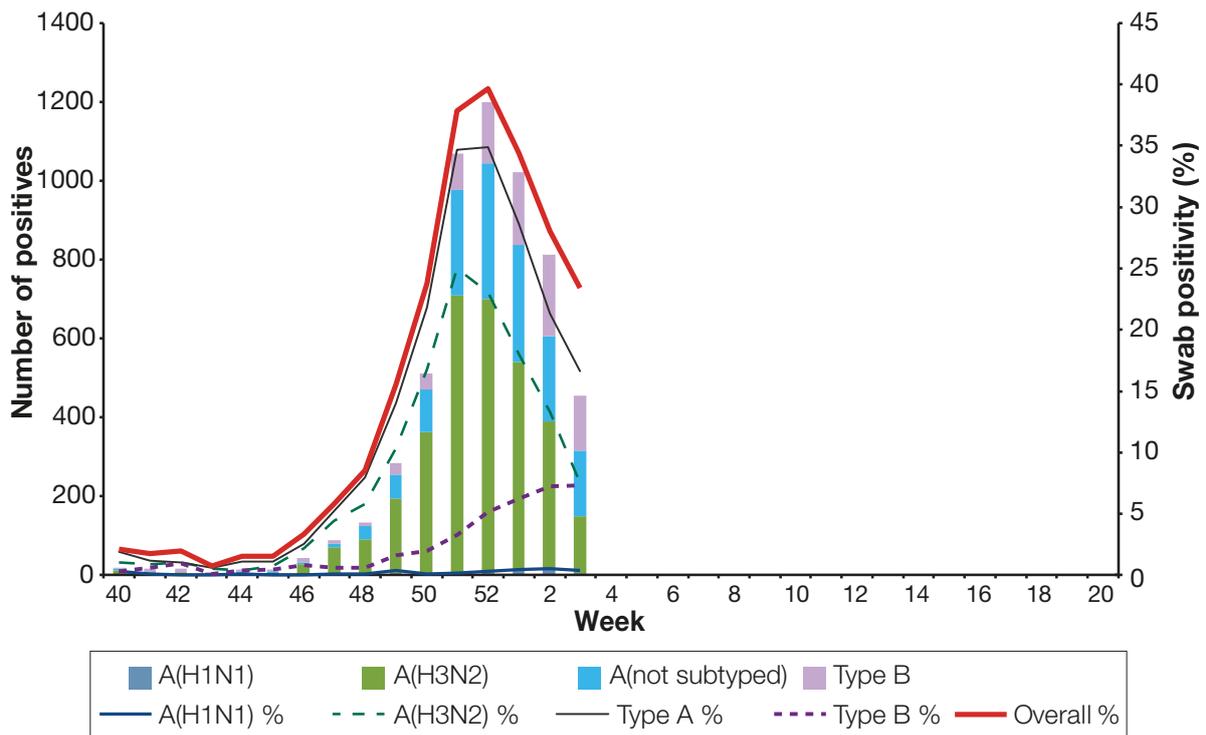
The overall virological influenza activity in secondary care (ECOSS) decreased from peak swab positivity in week 52 of 39.3% (1168/2974) to 23.4% (446/1905) in week 3 (Figure 4). This decrease has been driven by a decrease in influenza A, however, influenza A(H3N2) is still predominating. Influenza B activity increased earlier this year compared to the previous seasons; swab positivity for week 3 is similar to last week (7.3% for both weeks).

In week 3, from non-sentinel sources (ECOSS), 547 samples were positive for influenza; 375 influenza A, (217 A(not subtyped), 148 A(H3N2) and ten A(H1N1)), 159 were positive for influenza B, 12 were co-infections of influenza A(not subtyped) and B, and one was a co-infection of influenza A(H3N2) and B.

So far, this season has been dominated by influenza A(H3N2) viruses 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.

The number of NHS Boards that are reporting ward/bed pressure from influenza through Healthcare Infection Incident Assessment (HIIAT) has decreased.

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 (51.7%, 77/149) are closely matched to 2017/18 season vaccine.
- Of the influenza B viruses sequenced, all belong to B/Yamagata lineage which is not present in the trivalent vaccine, but matches the quadrivalent vaccine.

As of the 10 January 2018, the West of Scotland Specialist Virology Centre (WoSSVC) has sequenced 176 influenza viruses for season 2017/18.

- Of the four 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 149 A(H3N2) influenza viruses sequenced, 77 belong to the genetic subclade 3C.2a (A/Hong Kong/4801/2014) which are closely matched to 2017/18 season vaccine; 54 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 23 influenza B viruses sequenced, all belong to B/Yamagata lineage (B/Phuket/3073/2013) which is not present in the trivalent vaccine, but matches the quadrivalent vaccine. An extra 91 influenza B viruses have been detected by real-time PCR, of which 88 belong to B/Yamagata lineage and three to B/Victoria lineage. The B/Victoria lineage 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 97.8% of Scottish samples.

B.3 Severe acute respiratory illness (SARI)

Sixteen influenza cases with severe infection requiring intensive care management were reported to HPS in week 3 2018, 13 of which were retrospective reports. The cumulative total of cases is 96 which is higher than at the same period for the previous three seasons (Figure 5). The number of SARI cases by week is below the number reported in the 2010/11 season (Figure 6).

So far, the majority of SARI cases have been due to influenza A (77.1%) and of those subtyped, influenza A(H3N2) is predominant. Twenty-two SARI cases have been caused by influenza B (22.9%).

Nineteen cases were reported by NHS boards in the North of Scotland (19.8%), 58 in the West of Scotland (60.4%) and 19 in the East of Scotland (19.8%).³

Caveat:

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

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

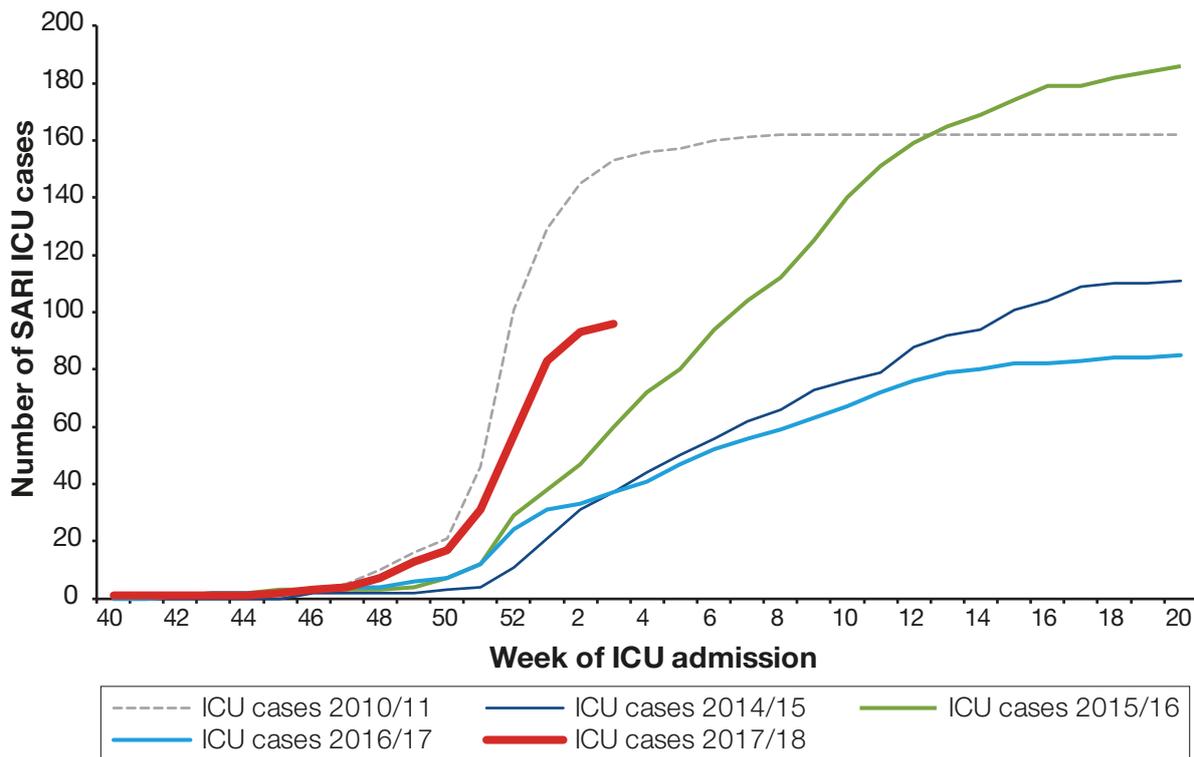
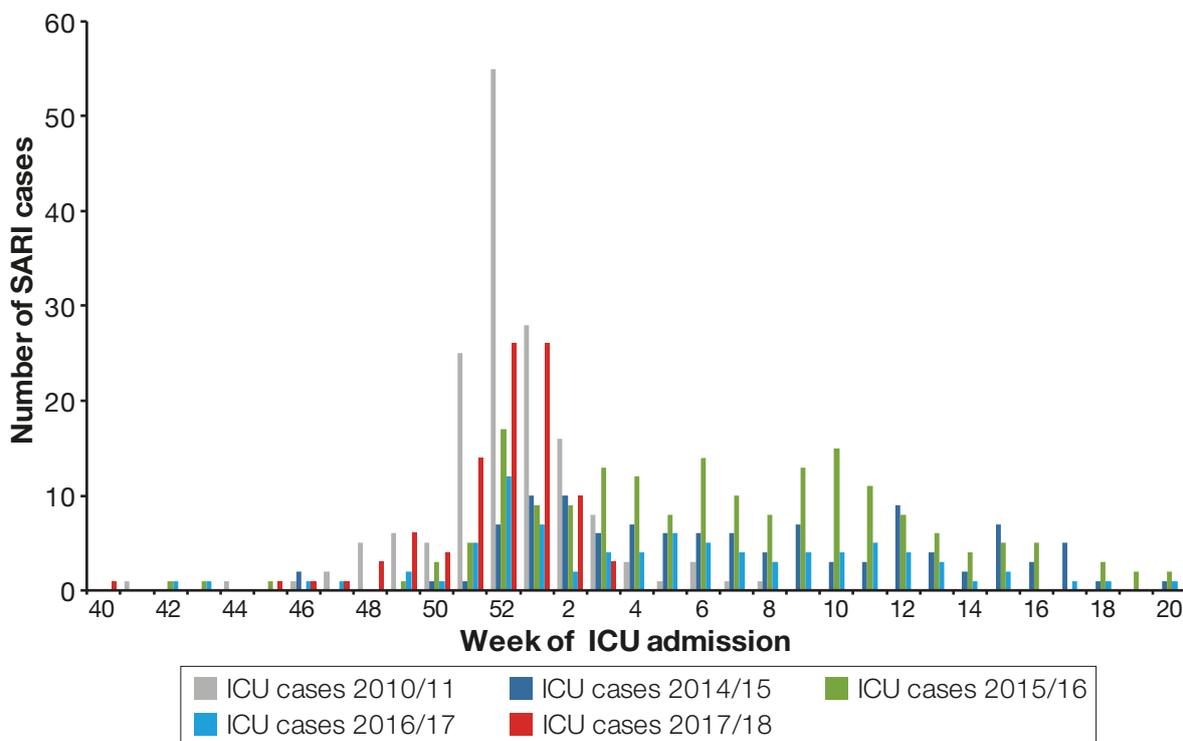


Figure 6: Number of influenza cases with severe infection requiring intensive care management by week of hospital admission, week 40 2017 to week 20 2018, compared to seasons 2010/11, 2014/15, 2015/16 and 2016/17



C. Influenza associated mortality

The influenza associated mortality assessment remained amber (moderate activity). 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 within normal seasonal range. In the most recent week, week 3, a small* statistically significant excess was observed.

C.1 SARI mortality

There have been a further four SARI deaths reported to HPS in week 3. SARI case-fatality rate remains within normal seasonal levels (26.0%, 25/96) compared to previous seasons (the case-fatality rate has ranged from 23.7% in season 2013/14 to 35.6% in seasons 2010/11 and 2014/15). Mortality reported to week 3 showed a small reduction from the previous week (26.3% in week 2).

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.

A very high* statistically significant excess was observed in weeks 52, 1 and 2 (week 2 includes a reporting delay adjustment). In week 3, a small* statistically significant excess was observed which should be interpreted with caution due to reporting delay adjustments. 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:

EuroMOMO scoring	Weeks
Small excess	49, 50, 51, 3
High excess	-
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 the majority of these pathogens remained within 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 3:

- RSV levels peaked in week 50 and have since been decreasing.
- Adenovirus and human metapneumovirus have remained stable but slightly above previous season's levels.
- Rhinovirus, coronavirus, parainfluenza and *Mycoplasma pneumoniae* have remained stable and within previous seasonal levels.

4 Vaccine uptake

Provisional data to week 3 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.

- 72.5% in people aged 65 years and over, compared with 72.0% in 2016-17
- 43.4% in under 65's at-risk, compared with 43.5% in 2016-17
- 46.4% in pregnant women (without other risk factors), compared with 44.8% in 2016-17
- 60.0% in pregnant women (with other risk factors), compared with 55.5% in 2016-17
- 55.1% in preschool children (2 to under 5 year olds), compared with 56.3% in 2016-17
- 71.1% in primary school children, compared with 71.7% in 2016-17

The next update of influenza vaccine uptake will be published in week 7.

5 International situation

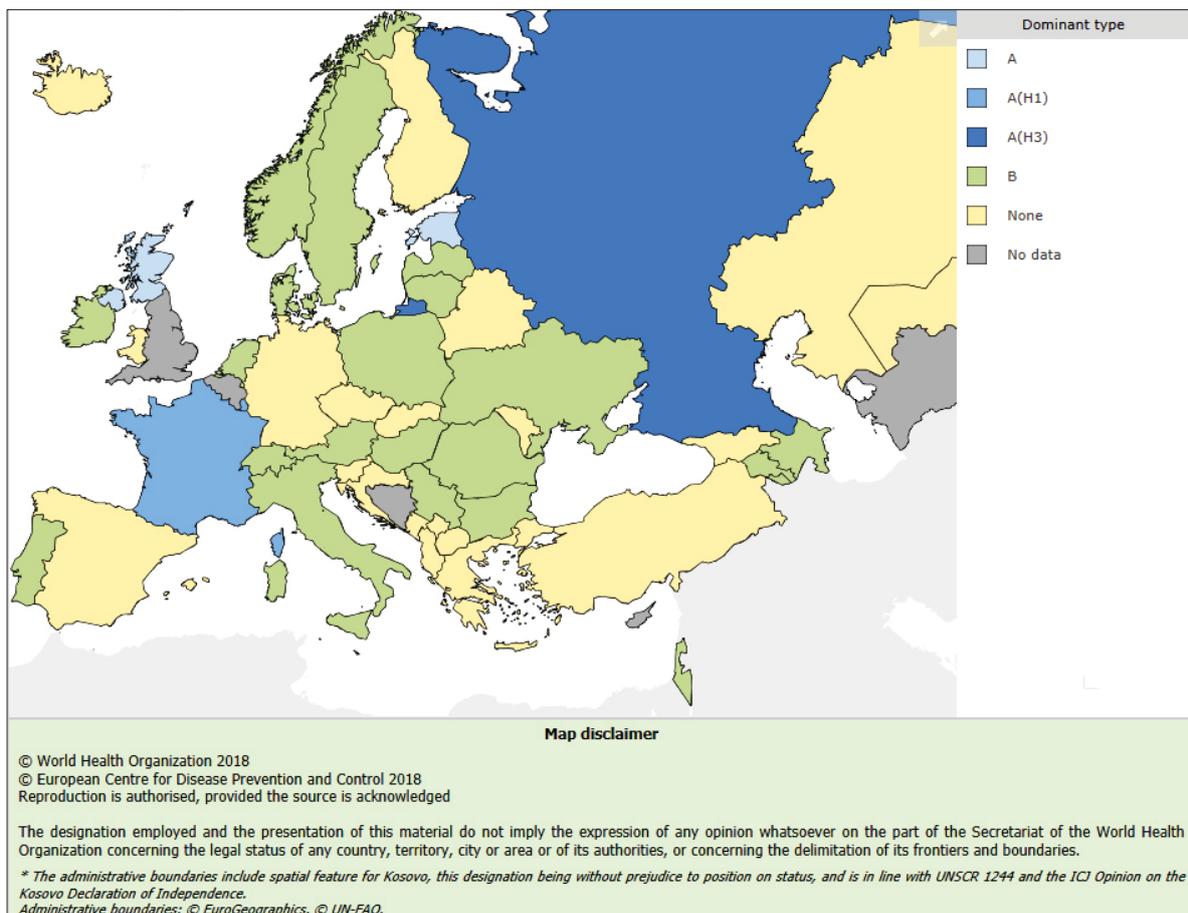
UK:

- In week 2, three of the four UK countries (England, Northern Ireland and Scotland) were within the moderate activity level for ILI GP consultation rate. Wales reported high activity for ILI consultations.
- Influenza B accounted for the majority of the influenza detections through the GP Sentinel Swabbing Schemes across the rest of the UK (influenza B swab positivity 53.1% (338/636) since week 40).

Europe:

- In week 2, influenza activity was increasing in countries in northern, southern and western Europe.
- Both influenza type A and B viruses were co-circulating and different patterns of circulation were observed across countries in the Region. The majority of European countries reported influenza B as the dominant type with exception of Scotland, Northern Ireland and Estonia reporting influenza A(not subtyped), and France reporting influenza A(H1N1). (Figure 7).
- EuroMOMO data showed increased excess all-cause mortality among the elderly, notably in the southwestern part of the European Region and the United Kingdom (Scotland).

Figure 7: Geographical spread of influenza virus type/subtype among European countries – data to week 2 2018 (source: <https://flunewseurope.org/>)



6 Links for more information

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](#)

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