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Influenza Weekly Surveillance Bulletin

Northern Ireland, Week 3 (15th January – 21st January 2018)

Summary

In week 3, the surveillance data indicates a moderate seasonal flu activity, with indicators showing a decrease in flu activity from week 2. Both GP and OOH consultation rates decreased in week 3 (week commencing 15th January 2018). Total detections of influenza virus fell in week 3.

Northern Ireland Primary Care Consultation Rates

- GP consultation rates for combined flu and flu-like illness (flu/FLI) decreased from 65.2 per 100,000 population in week 2, 2018 to 52.1 per 100,000 population in week 3. Rates are beginning to decrease but remain above the Moving Epidemic Method (MEM) threshold for moderate level flu activity[1].
- OOH GP consultation rates for flu/FLI decreased from 29.1 per 100,000 population in week 2, 2018 to 27.8 per 100,000 population in week 3.

Microbiological Surveillance (Flu and RSV)

- The proportion of all positive influenza specimens fell from 45% in week 2, 2018 to 40% in week 3.
- RSV continued to decline from 5% in week 2, 2018 to 3% in week 3.

Secondary Care (Hospital both non-ICU and ICU)

- The number of detections of influenza from hospital wards reported to PHA decreased from a total of 273 detections in week 2, 2018 to 230 in week 3.
- There were 14 cases reported in ICU with laboratory confirmed influenza in week 3 giving a total of 64 cases this season to date.
- Three deaths were reported in week 3 among ICU patients bringing the total deaths in ICU with confirmed Influenza to 11.

Influenza Outbreaks across Northern Ireland

- There were five confirmed influenza outbreaks reported to the PHA in week 3 and an additional three suspected influenza outbreaks. The total confirmed Influenza outbreaks to date are 29.

Mortality

- There was a small statistically significant excess in all-cause mortality reported in Northern Ireland in week 3[2].

[1] The baseline MEM threshold for Northern Ireland is 22.58 per 100,000 population this year (2017/18). Low activity is 22.6 to <26.6, moderate activity 26.6 to <85.1, high activity 85.1 to <142.4 and very high activity is >142.4.

[2] 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 (see page 13-14 for more details).

Introduction

Influenza is an acute viral infection of the respiratory tract (nose, mouth, throat, bronchial tubes and lungs). There are three types of flu virus: A, B and C, with A and B responsible for most clinical illness. Influenza activity in Northern Ireland is monitored throughout the year to inform public health action and to prevent spread of the infection. The influenza season typically runs from week 40 to week 20. Week 40 for the 2017/18 season commenced on 2nd October 2017.

Surveillance systems used to monitor influenza activity include:

- Northern Ireland GP surveillance representing 98% of Northern Ireland population;
- Sentinel flu-swabber GP practices representing 11.2% of the NI population, contributing to the measurement of circulating influenza in the community
- GP Out-of-Hours surveillance system representing the entire population;
- Virological reports from the Regional Virus Laboratory (RVL);
- Influenza outbreak report notification to PHA Duty Room;
- Critical Care Network for Northern Ireland reports on patients in ICU/HDU with confirmed influenza;
- Mortality data from Northern Ireland Statistics and Research Agency (NISRA);
- Excess mortality estimations are calculated using the EuroMOMO (Mortality Monitoring in Europe) model based on raw death data supplied by NISRA

NB: Please note the change in the collection of Flu/FLI consultation data in 2017-18. Data will now be collected from 325 GP practices, representing 98% of the Northern Ireland (NI) population. This represents a change from previous seasons when data was collected from 37 sentinel GP practices (representing 11.7% of the NI population).

As a result, Flu/FLI consultation rates and the MEM threshold in 2017-18 will be generally lower than in previous years. Please take this into account when interpreting the figures in this season's bulletin.

Northern Ireland GP Consultation Data

Figure 1. Northern Ireland GP consultation rates for flu/FLI 2015/16 - 2017/18

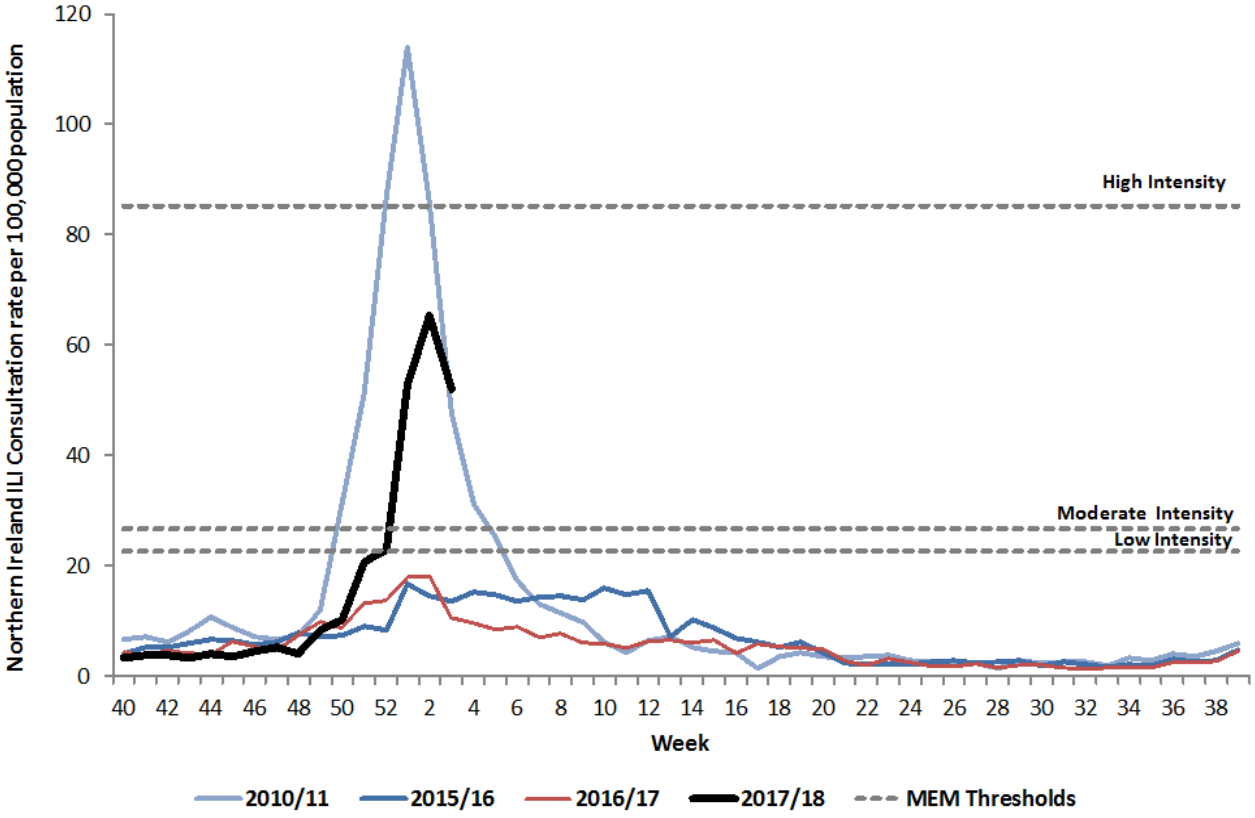


Figure 2. Northern Ireland GP consultation rates for flu/FLI and number of influenza positive detections 2012/13 – 2017/18

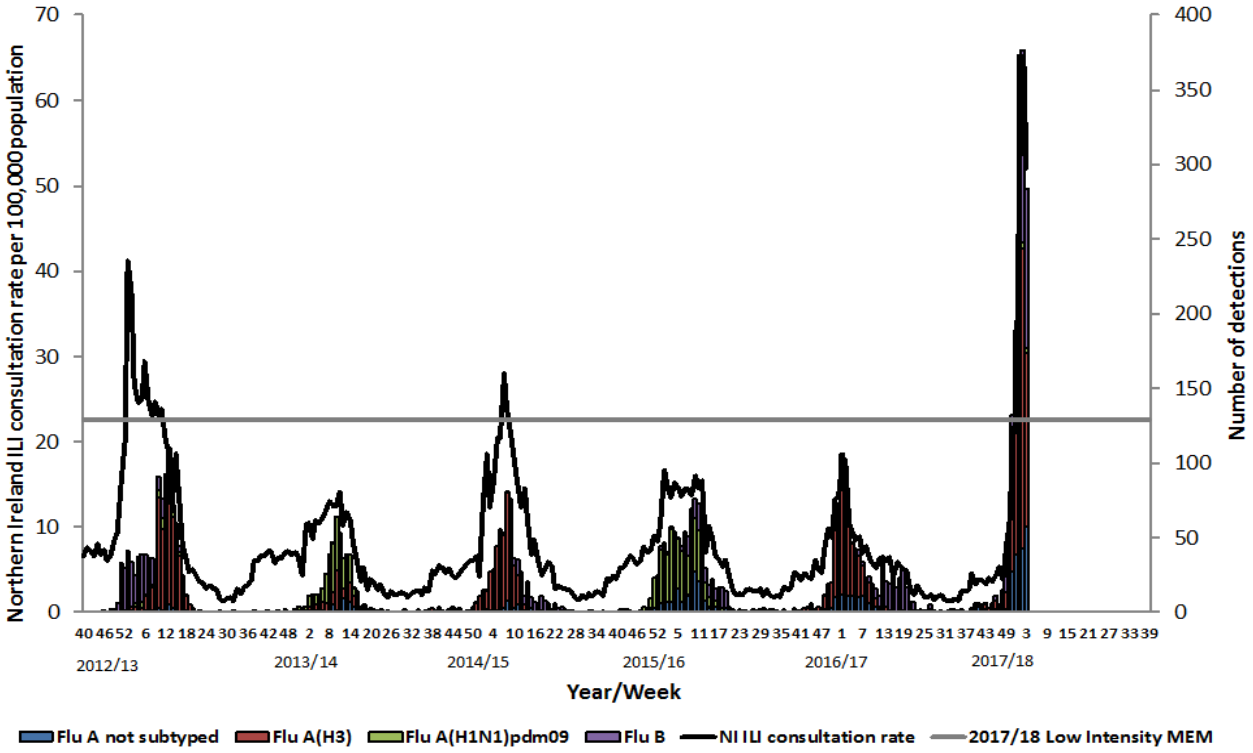
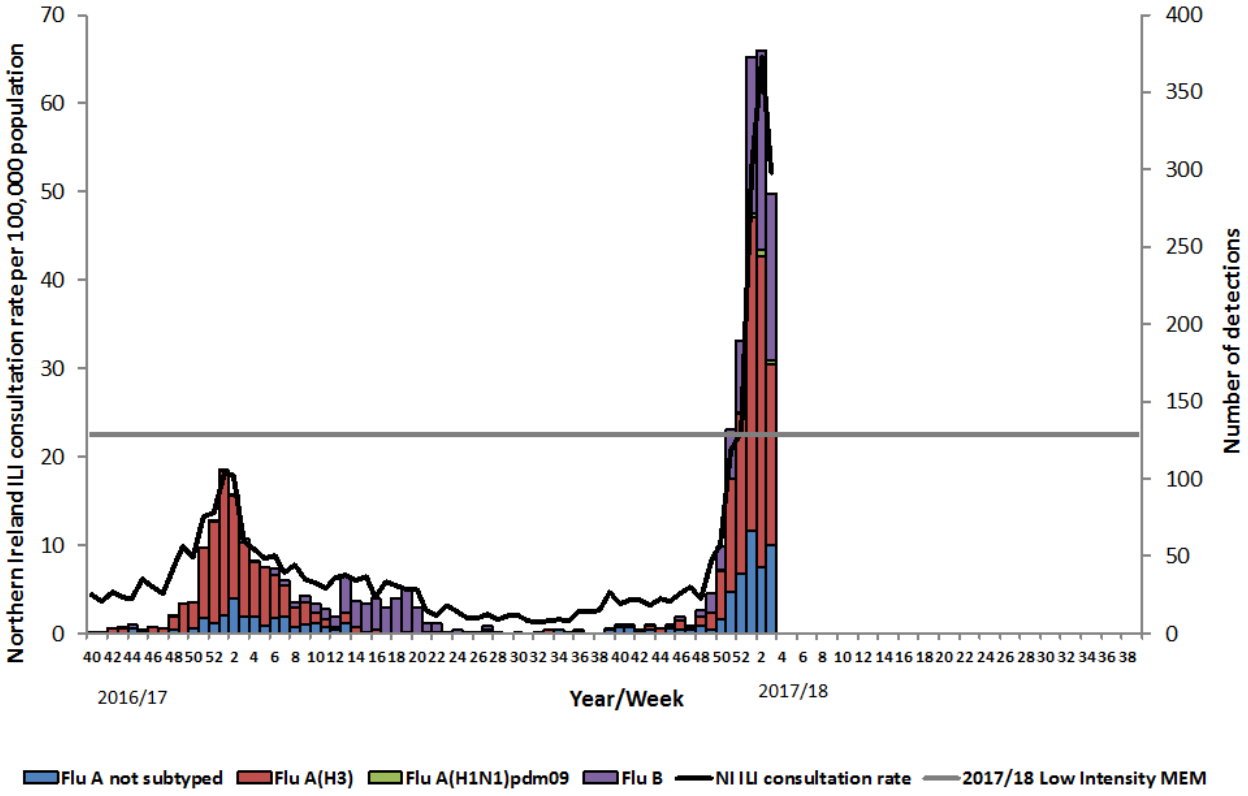


Figure 3. Northern Ireland GP consultation rates for flu/FLI and number of virology 'flu' detections from week 40, 2016



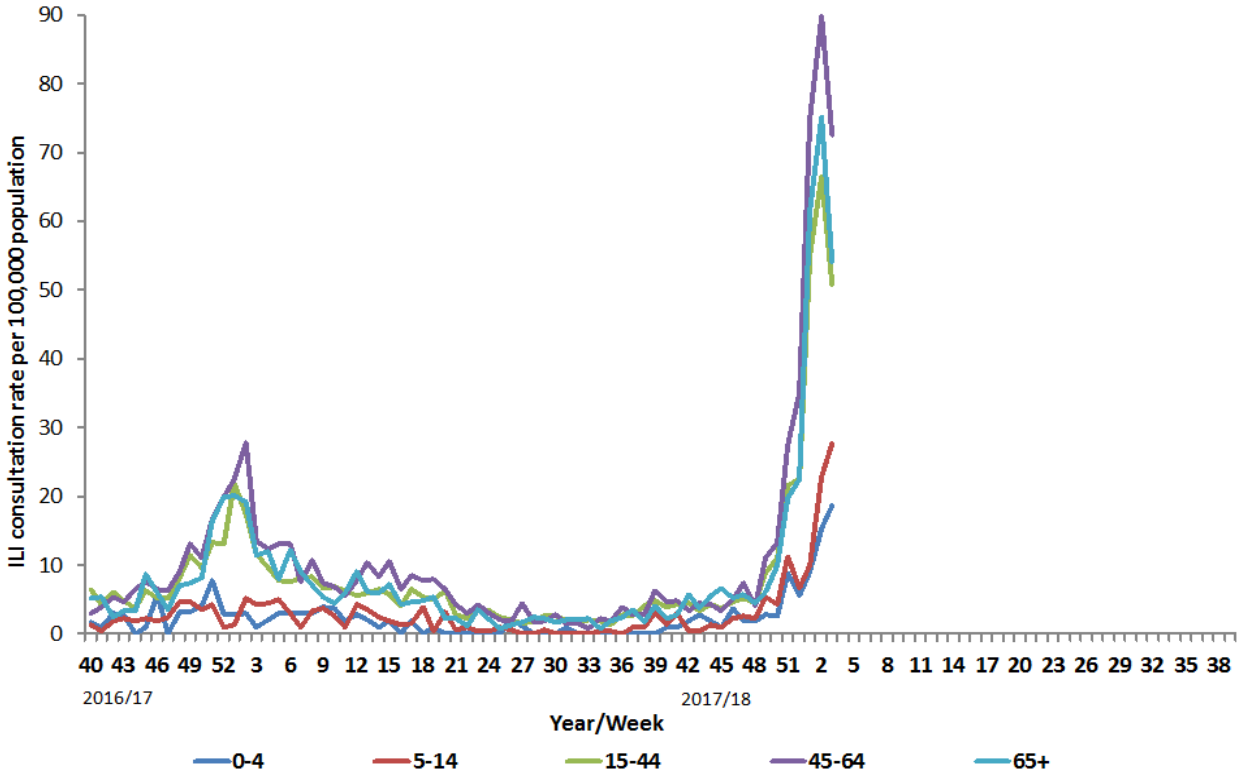
Comment

NI GP consultation rates decreased from 65.2 per 100,000 population in week 2, 2018 to 52.1 per 100,000 population in week 3, and activity remains at moderate intensity (between 26.6 to <85.1 per 100,000 population). The NI GP consultation rate in week 3 remains higher than rates for similar periods in the last number of years but remains below the peak rate of 113.9 per 100,000 in 2010/11 when the A(H1N1) strain was circulating (Figure 1).

The number of positive influenza laboratory detections decreased from 377 in week 2, 2018 to 284 in week 3. At this point in the season there have been a total of 764 detections of influenza A(H3), 455 of influenza B, 266 of influenza A (typing awaited), and 12 detections of influenza A(H1N1) 2009 (Figures 1, 2 and 3).

Further information about laboratory detections of influenza is detailed on page 8.

Figure 4. Northern Ireland GP age-specific consultation rates for flu/FLI from week 40, 2016



Comment

NI GP age-specific consultation rates have decreased in the older age groups in week 3, 2018. However, consultation rates in those aged 0-4 and 5-14 years continues to increase; rates in these groups are now at 18.6 and 27.6 per 100,000 population, respectively. Nevertheless, the lowest age-specific rate continues to be in the 0-4 year age group (Figure 4). The highest rate remains in those aged 45-64 years at 72.6 per 100,000, with the second highest rate being 54.2 per 100,000 in those aged over 65, and the third highest being 50.9 per 100,000 in those aged over 15-44.

Out-of-Hours (OOH) Centres Call Data

Figure 5. OOH call rate for flu/FLI, 2015/16 – 2017/18

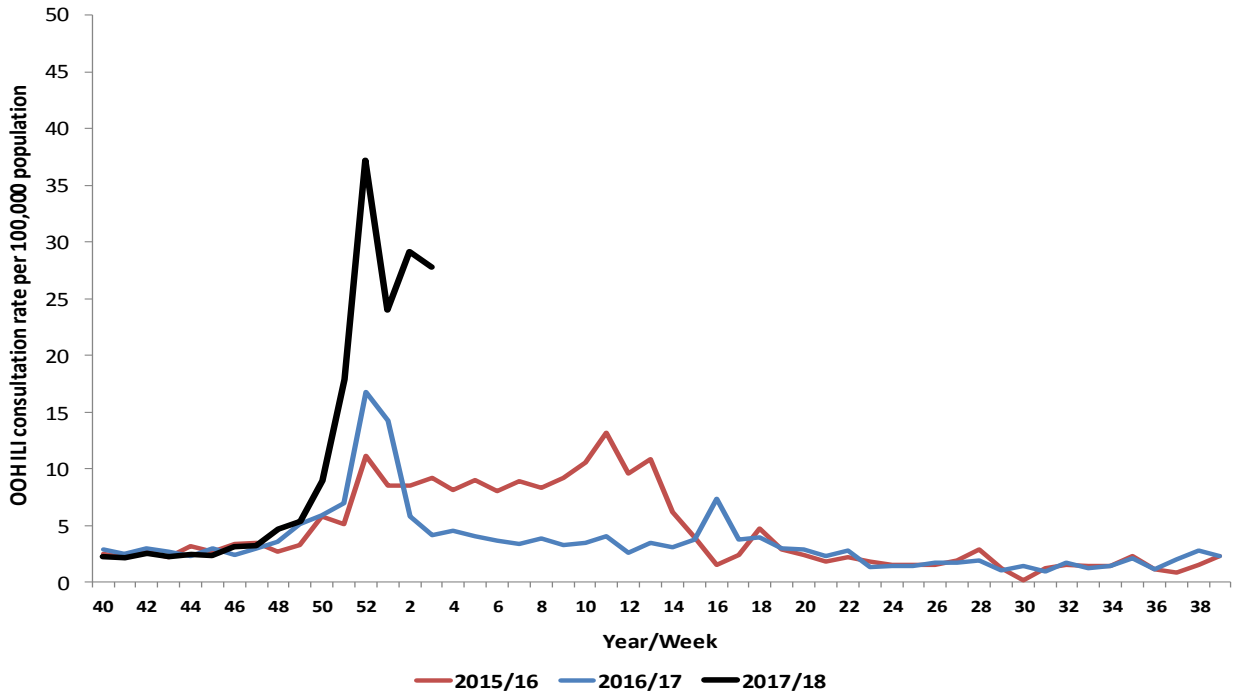
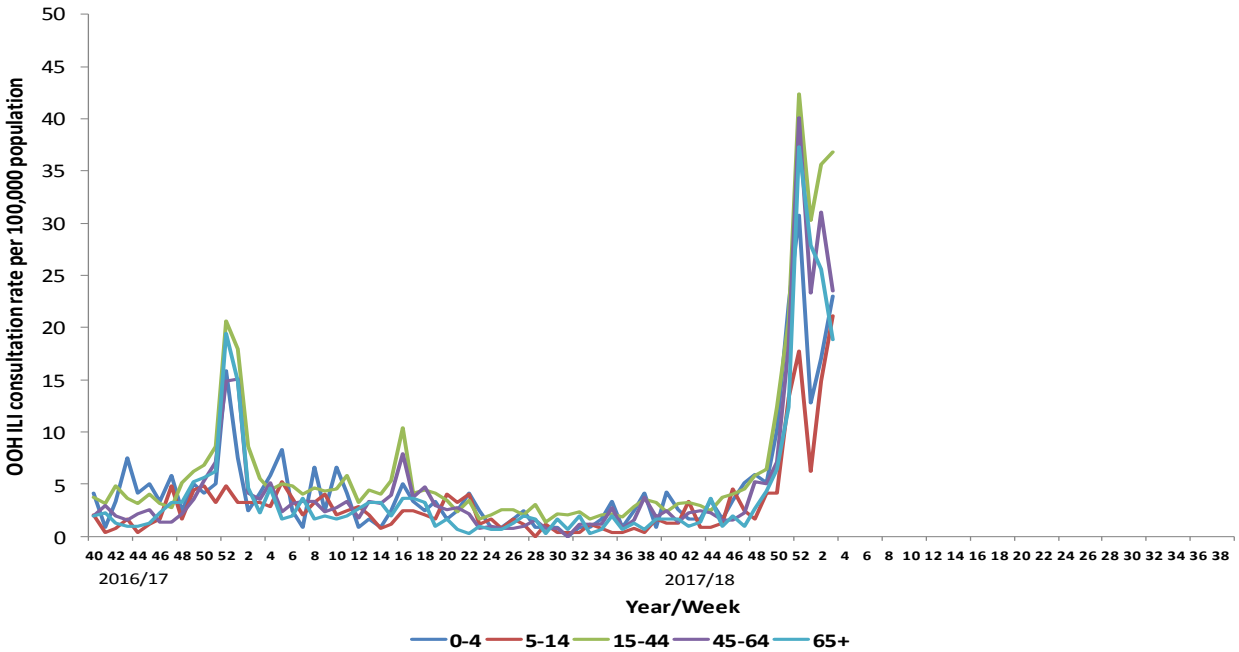


Figure 6. OOH call rates of flu/FLI by age-group from week 40, 2016



Comment

OOH GP consultation rates decreased in week 3, 2018 from 29.1 per 100,000 in week 2 to 27.8 per 100,000 population. Rates remain significantly higher than those in the same period in 2016/17 (4.2 per 100,000 population) (Figure 5).

The proportion of calls related to flu in OOH centres remained somewhat unchanged from 4.6% in week 2, 2018 to 4.4% in week 3.

OOH flu/FLI rates increased among all age groups in week 3, 2018 except for a decrease for those aged 45-64 (from 31.0 to 23.5 per 100,000 population) and 65+ years old (from 25.6 to 18.8 per 100,000 population).

Similar to the previous report the highest age-specific OOH flu/FLI rate in week 3, 2018 was in the 15-44 years age group (36.8 per 100,000 population). The lowest rate in week 3 was in the 65+ year olds (18.8 per 100,000 population) (Figure 6).

Virology Data

Table 1. Virus activity in Northern Ireland by source, Week 3, 2017/18								
Source	**Specimens Tested**	Flu AH3	Flu A(H1N1) 2009	A (untyped)	Flu B	RSV	**Total influenza Positive**	**% Influenza Positive**
Sentinel	55	13	1	1	12	0	27	49%
Non-sentinel	655	104	2	56	95	20	257	39%
Total	**710**	**117**	**3**	**57**	**107**	**20**	**284**	40%

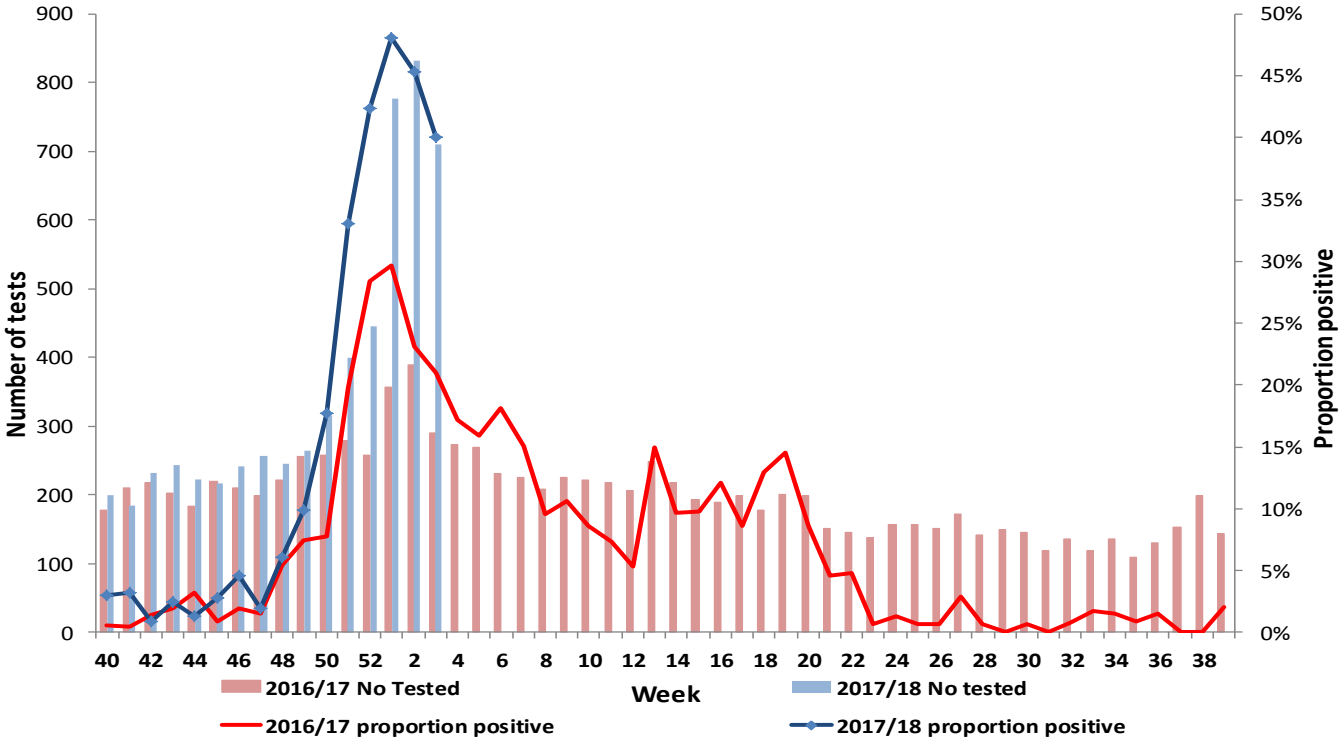
Table 2. Cumulative virus activity from all sources by age group, Week 40 - 3, 2017/18						
	Flu AH3	**Flu A(H1N1) 2009**	**A (untyped)**	**Flu B**	**Total Influenza**	**RSV**
0-4	**22**	**0**	**19**	**8**	**49**	**309**
5-14	**17**	**0**	**5**	**10**	**32**	**11**
15-64	**277**	**8**	**97**	**228**	**610**	**79**
65+	**447**	**4**	**145**	**209**	**805**	**116**
Unknown	**1**	**0**	**0**	**0**	**1**	**1**
All ages	**764**	**12**	**266**	**455**	**1497**	**516**

Table 3. Cumulative virus activity by age group and source, Week 40 - Week 3, 2017/18												
	Sentinel						**Non-sentinel**					
	Flu AH3	**Flu A(H1N1) 2009**	**A (untyped)**	**Flu B**	**Total Influenza**	**RSV**	**Flu AH3**	**Flu A(H1N1) 2009**	**A (untyped)**	**Flu B**	**Total Influenza**	**RSV**
0-4	**1**	**0**	**0**	**0**	**1**	**0**	**21**	**0**	**19**	**8**	**48**	**309**
5-14	**2**	**0**	**0**	**1**	**3**	**1**	**15**	**0**	**5**	**9**	**29**	**10**
15-64	**50**	**6**	**9**	**57**	**122**	**7**	**227**	**2**	**88**	**171**	**488**	**72**
65+	**19**	**0**	**2**	**12**	**33**	**0**	**428**	**4**	**143**	**197**	**772**	**116**
Unknown	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**
All ages	**72**	**6**	**11**	**70**	**159**	**8**	**692**	**6**	**255**	**385**	**1338**	**508**

Note

All virology data are provisional and reflect only data reported to PHA through the regional virology laboratory. Other local laboratories may be undertaking influenza testing and this data will be included in later bulletins. The virology figures for previous weeks included in this or future bulletins are updated with data from laboratory returns received after the production of the last bulletin. The current bulletin reflects the most up-to-date information available. Sentinel and non-sentinel samples are tested for influenza and for RSV. Cumulative reports of influenza A (untyped) may vary from week to week as these may be subsequently typed in later reports.

Figure 7. Number of samples tested for influenza and proportion positive, 2016/17 and 2017/18, all sources



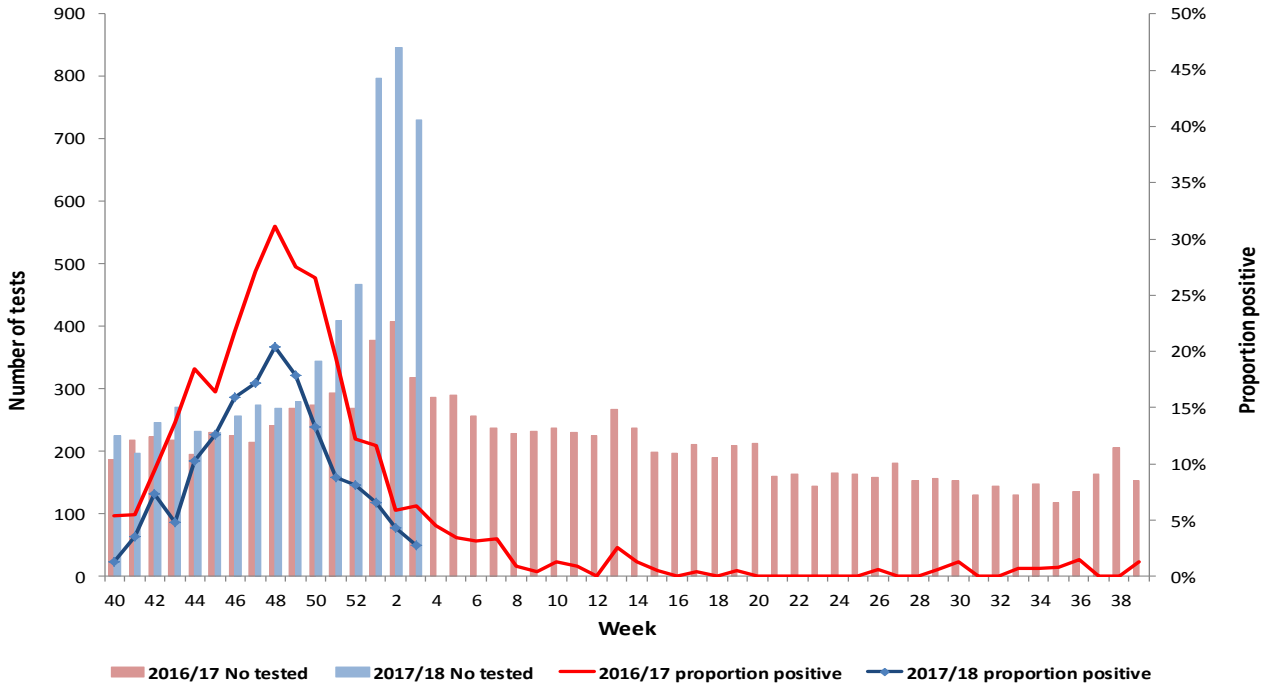
Comment

During week 3, 2018 there were 710 specimens submitted for virological testing. There were 284 detections of influenza in total (positivity rate of 40%), of which 117 were influenza A(H3), 107 influenza B, 57 influenza A (typing awaited) and there were three detections of influenza A(H1N1)pdm09 (Figure 7 and Table 1).

There were 55 samples submitted through the GP based sentinel scheme across Northern Ireland during this period, of which 27 (positivity rate of 49%) were positive for influenza. Of the 27 positive, 13 were reported as influenza A(H3), 12 as influenza B, one as influenza A(H1N1)2009 and one as influenza A (untyped) (Tables 1, 2, 3; Figures 2 and 3).

Respiratory Syncytial Virus (RSV)

Figure 8. Number of samples tested for RSV and proportion positive, 2016/17 and 2017/18, all sources

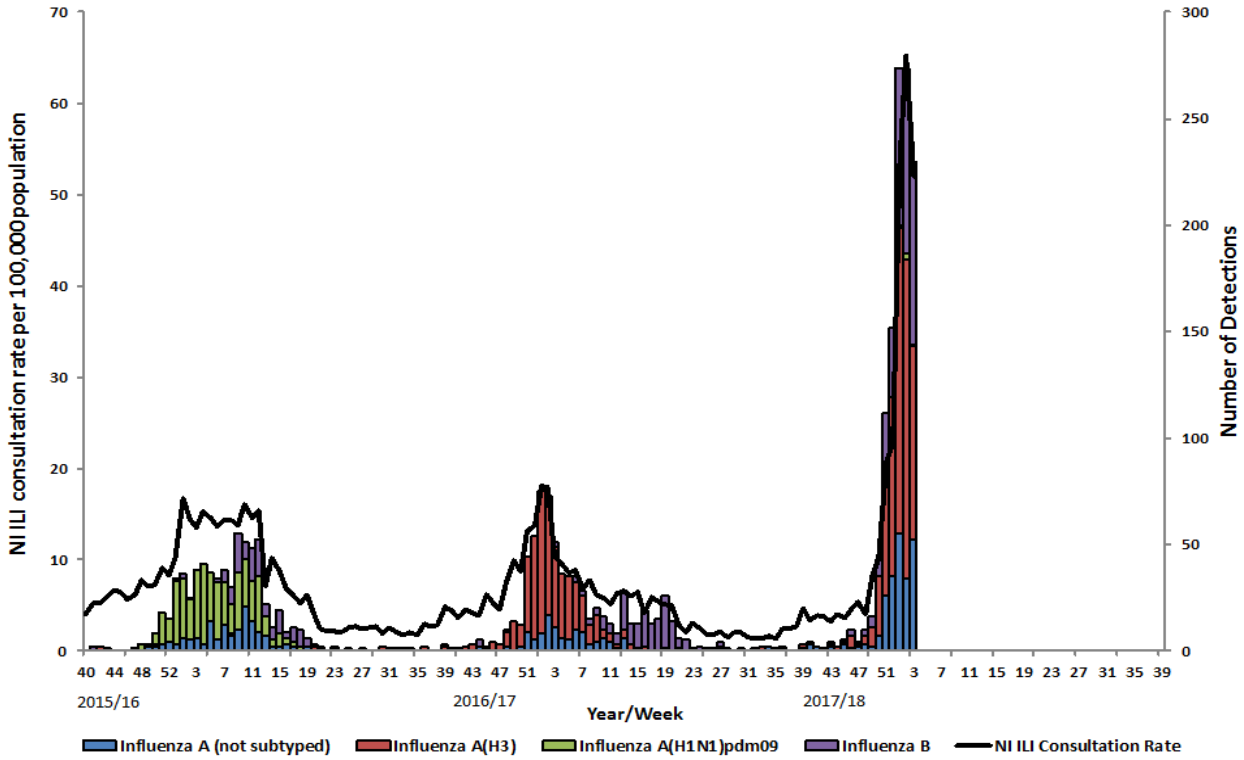


Comment

During week 3, 2018 there were 20 positive detections of RSV giving a positivity rate of 3%, lower than the same period in 2016/17 (6%). To date there have been a total of 516 detections of RSV of which the majority (60%) were in those aged 0-4 years (Figure 8 and Table 2).

Hospital Surveillance (Non-ICU/HDU)

Figure 9. Confirmed influenza cases in hospital by week of specimen, with Northern Ireland ILI consultation rate, 2015/16 - 2017/18



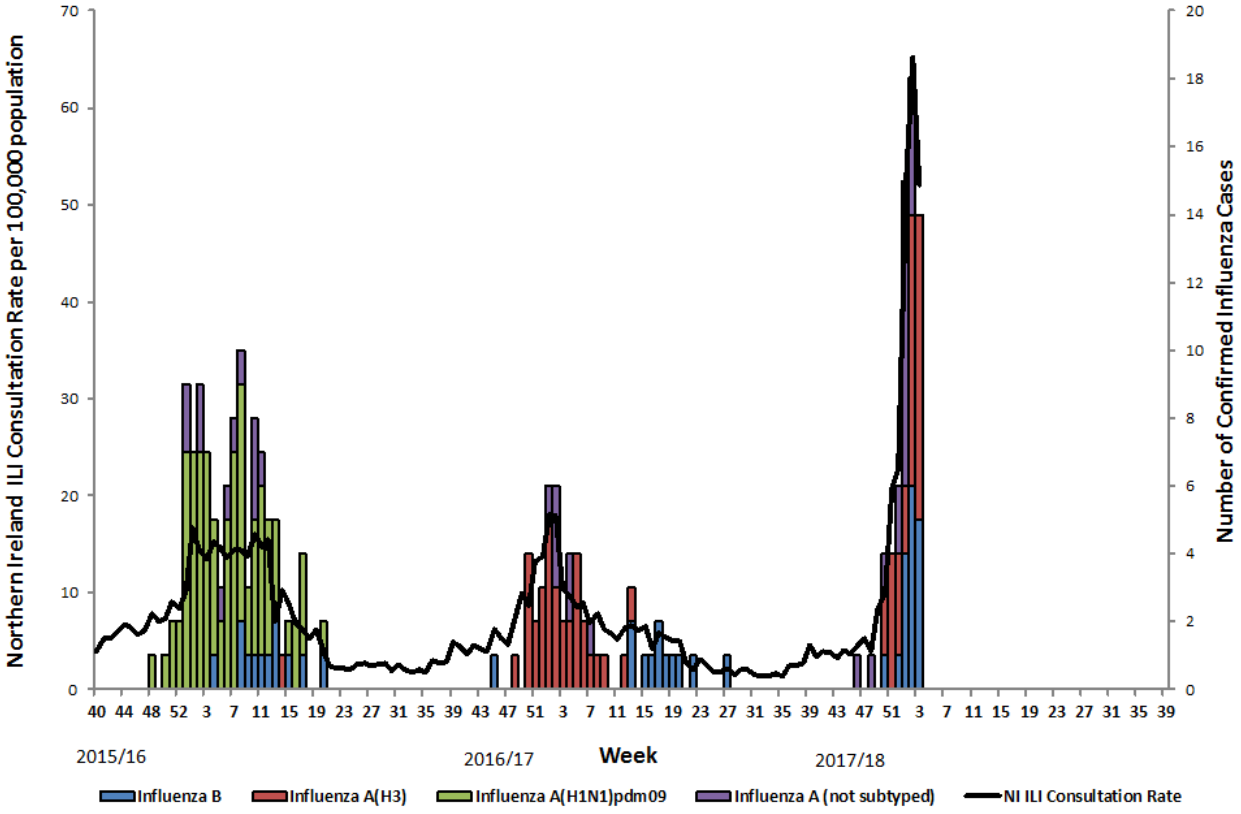
Comment

For the first time in 2017/18 the PHA will be reporting on detections of influenza from specimens taken in hospital wards across Northern Ireland, reported to PHA through the regional virology laboratory.

During week 3, 2018 there were a total of 230 detections of influenza from specimens taken in hospital settings across Northern Ireland. Of these there were 91 detections of influenza A(H3), 86 of influenza B, 52 of influenza A (typing awaited) and one detection influenza A(H1N1)2009. This represents a decrease from week 2 (273 positive reports); however, it should be kept in mind that not all positive specimens for week 3 may have been reported as this point.

ICU/HDU Surveillance

Figure 10. Confirmed ICU/HDU influenza cases by week of specimen, with Northern Ireland ILI consultation rate, 2015/16 - 2017/18



Comment

Data are collected on laboratory confirmed influenza patients and deaths in critical care (level 2 and level 3).

During week 3, 2018 14 confirmed cases of influenza in ICU were reported to the PHA. There were three deaths reported in ICU patients with laboratory confirmed influenza, bringing the total reported deaths in ICU this season with confirmed influenza to 11. There have been 64 confirmed case of influenza in ICU reported this season to date, of which 28 have been typed as influenza A(H3), 17 influenza B, 18 influenza A (typing awaited) and one confirmed case of both influenza A and B (not shown in figure 10).

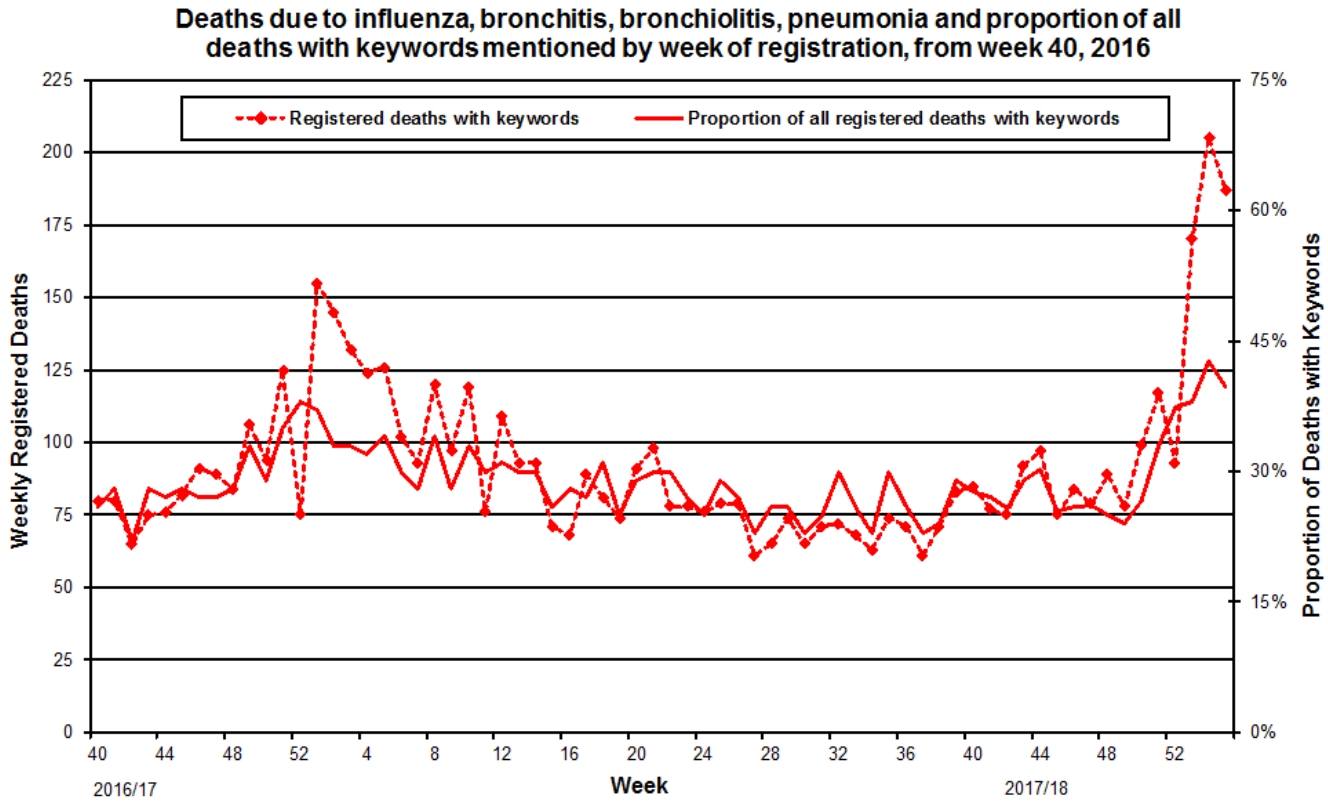
Outbreak Surveillance

During week 3, 2018 there were five confirmed influenza outbreaks in care homes and a further three influenza outbreaks reported to the PHA that meet the clinical definition of influenza but are not yet confirmed (eight in total). The total confirmed Influenza outbreaks to date are 29.

Mortality Data

Weekly mortality data is provided from Northern Ireland Statistics and Research Agency (NISRA). The data relates to the number of deaths from selected respiratory infections (some of which may be attributable to influenza, and other respiratory infections or complications thereof) registered each week in Northern Ireland. This is not necessarily the same as the number of deaths occurring in that period. Searches of the medical certificates of the cause of death are performed using a number of keywords that could be associated with influenza (bronchiolitis, bronchitis, influenza and pneumonia). Death registrations containing these keywords are presented as a proportion of all registered deaths.

Figure 11. Weekly registered deaths



Comment

During week 3, 2018 the proportion of deaths related to respiratory keywords decreased from 43% in week 2 to 40% in week 3. In week 3 there were 470 registered deaths, of which 187 related to specific respiratory infections (Figure 11). The proportion of deaths attributed to specific respiratory infections is higher at this point in the season to the same period in 2016/17 (33%) and in 2015/16 (29%).

EuroMOMO

Information on mortality from all causes is provided for management purpose from Public Health England. 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 health service 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.

For more information on EuroMOMO and interactive maps of reporting across the season please see http://www.euromomo.eu/index.html.

There was an excess all-cause mortality reported in Northern Ireland in week 3, 2018. Including this week, there has been a total of eight weeks in the season to date where there has been excess all-cause mortality (weeks 47 and weeks 49-3). This excess mortality was seen in the elderly (>65 years of age).

Please note this data is provisional due to the time delay in registration; numbers may vary from week to week.

Influenza Vaccine Uptake

	2017/18 (to Dec 31st)	2016/17 (to Dec 31st)
>65 years	68.5%	69.0%
<65 years at risk	50.4%	51.6%
Pregnant women	45.6%	45.9%
2 to 4 year olds	46.8%	49.4%
Primary School	75.8%	77.7%
Trust Frontline	31.6%	28.4%
NIAS	26.1%	9.4%

*vaccine uptake data is provisional

International Summary

Europe

Week 2/2018 (8–14 January 2018)

- Influenza activity was increasing in countries in northern, southern and western Europe.
- Both influenza types B and A viruses were co-circulating and different patterns of circulation were observed between countries in the Region.

- Of the individuals sampled, on presenting with ILI or ARI to sentinel primary healthcare sites, 46% tested positive for influenza viruses, similar to the previous weeks (42-50%).

2017/18 season overview

- From sentinel sources for the Region overall, a higher proportion of type B viruses compared to type A viruses has been detected. Of the type A detections, A(H1N1)pdm09 viruses have outnumbered A(H3N2) viruses
- From non-sentinel sources for the Region overall, a similar proportion of type B viruses compared to type A viruses has been detected. Of the type A detections, A(H3N2) viruses have outnumbered A(H1N1)pdm09 viruses.
- For type B viruses from both sentinel and non-sentinel sources, B/Yamagata lineage viruses have greatly outnumbered those of the B/Victoria lineage.
- Different patterns of dominant type and A subtype were observed across the countries in the Region, an important cause of the observed differences between sentinel, non-sentinel and severe influenza sources of information.
- While low in number, 64% of the genetically characterized A(H3N2) viruses belonged to clade 3C.2a, the clade of the vaccine virus described in the WHO recommendations for vaccine composition for the northern hemisphere 2017–18, and 36% to clade 3C.2a1, with viruses in both clades being antigenically similar.
- An early risk assessment based on data from EU/EEA countries was published by ECDC on 20 December 2017. First detections indicated circulation of A(H3N2) and B/Yamagata viruses in the highest proportions. As the A(H3N2) subtype dominated last season, a high proportion of the population should be protected.

Other news

- Based on data submitted to the EuroMOMO project there has, over the past weeks, been increased all-cause mortality among the elderly, notably in the southwestern part of the European Region and the United Kingdom (Scotland).
- The US CDC published a Health Alert Network (HAN) notice, regarding increased A(H3N2) activity that affects mostly people aged over 65 and younger children, leading to more hospitalizations and deaths. Based on the moderate vaccine effectiveness, detailed information on recommended antiviral treatment is provided. See full report here.

http://www.flunewseurope.org/

Worldwide (WHO)

As at 22nd January 2018 (based on update to 7th January):

Influenza activity continued to increase in the temperate zone of the northern hemisphere while in the temperate zone of the southern hemisphere activity was at inter-seasonal levels. Worldwide, influenza A accounted still for the majority of influenza detections (62%) but influenza B (mostly from the Yamagata lineage) has increased proportionally. Up to now, the majority of countries which started the season, reported influenza like illness reaching moderate levels in comparison with previous years, with few reaching already high levels. Some countries have reported levels of hospitalization and ICU admissions at levels reaching or exceeding peak levels of previous influenza seasons. WHO recommends countries with current influenza activity or entering their season to adopt necessary measures for ensuring appropriate case management,

compliance with infection control measures and seasonal influenza vaccination for high risk groups.

- In North America, overall influenza activity remained high, with detections of predominantly influenza A(H3N2) viruses.
- In Europe, influenza activity increased above baseline levels in most countries in Northern, Western and Southwestern Europe with sharp increases in some countries. Activity remained low in countries in Eastern Europe. Influenza B remained the virus most frequently detected and the subtype of the influenza A viruses detected varied depending on the country and the surveillance system (outpatient or inpatient systems).
- In Western Asia, increasing influenza activity was reported in some countries, with influenza A(H1N1)pdm09 and B viruses present in the region.
- In Central Asia, influenza activity remained low.
- In East Asia, high levels of illness indicators and influenza activity were reported in most of the countries. Influenza B-Yamagata lineage virus was predominantly detected followed by influenza A(H3N2) viruses.
- In South East Asia, low levels of influenza activity were reported.
- In Southern Asia, increased influenza activity continued to increase in Iran, with detection of all seasonal subtypes.
- In Northern Africa, detections of influenza A(H1N1)pdm09 virus sharply increased in Algeria and Tunisia. Detections of influenza B virus remained high in Egypt (together with influenza A(H1N1)pdm09) and Morocco.
- In Western Africa, influenza activity continued to decrease across the region. In Middle Africa, there were no updates available for this reporting period. In Eastern Africa, influenza activity remained low across the region.
- In the Caribbean and Central American countries, respiratory illness indicators and influenza activity remained low in general.
- In the tropical countries of South America, low to no influenza activity was reported.
- In the temperate zone of the Southern Hemisphere, influenza activity remained overall at inter-seasonal levels.
- National Influenza Centres (NICs) and other national influenza laboratories from 108 countries, areas or territories reported data to FluNet for the time period from 25 December 2017 to 07 January 2018 (data as of 2018-01-19 04:11:21 UTC).The WHO GISRS laboratories tested more than 225174 specimens during that time period. 70504 were positive for influenza viruses, of which 43898 (62.3%) were typed as influenza A and 26606 (37.7%) as influenza B. Of the sub-typed influenza A viruses, 6160 (41.1%) were influenza A(H1N1)pdm09 and 8825 (58.9%) were influenza A(H3N2). Of the characterized B viruses, 6960 (89.2%) belonged to the B-Yamagata lineage and 845 (10.8%) to the B-Victoria lineage.

http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html

http://www.cdc.gov/flu/weekly/

Acknowledgments

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The author also acknowledges the Northern Ireland Statistics and Research Agency (NISRA) and the General Register Office Northern Ireland (GRONI) for the supply of data used in this publication. NISRA and GRONI do not accept responsibility for any alteration or manipulation of data once it has been provided.

Further information

Further information on influenza is available at the following websites:

http://www.fluawareni.info

https://www.gov.uk/government/organisations/public-health-england

http://www.publichealth.hscni.net

http://www.who.int

http://ecdc.europa.eu

http://www.flunewseurope.org/

Internet-based surveillance of influenza in the general population is undertaken through the FluSurvey. A project run jointly by PHE and the London School of Hygiene and Tropical Medicine. If you would like to become a participant of the FluSurvey project please do so by visiting the Flusurvey website for more information.

Detailed influenza weekly reports can be found at the following websites:

Republic of Ireland:
http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Surveillance/InfluenzaSurveillanceReports/

England:
https://www.gov.uk/government/statistics/weekly-national-flu-reports

Scotland
http://www.hps.scot.nhs.uk/resp/seasonalInfluenza.aspx

Wales
http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=34338

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