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Influenza Weekly Surveillance Bulletin

Northern Ireland, Week 2 (8th January – 14th January 2018)

Summary

In week 2, the surveillance data indicates a moderate seasonal flu activity. Both GP and OOH consultation rates increased in week 2 (week commencing 8th January 2018). Total detections of influenza virus fell in week 2; however, cases of influenza B continue to rise.

Northern Ireland Primary Care Consultation Rates

- GP consultation rates for combined flu and flu-like illness (flu/FLI) increased from 52.6 per 100,000 population in week 1, 2018 to 65.2 per 100,000 population in week 2. Rates continue to increase but the level of increase is much lower than between week 52 and week 1. Rates remain above the Moving Epidemic Method (MEM) threshold for moderate level flu activity[1].
- OOH GP consultation rates for flu/FLI increased from 24.0 per 100,000 population in week 1, 2018 to 29.1 per 100,000 population in week 2.

Microbiological Surveillance (Flu and RSV)

- The proportion of all positive influenza specimens fell slightly from 48% in week 1, 2018 to 45% in week 2. However, positivity rates for influenza B increased over this period (13% in week 1 to 15% in week 2).
- RSV continued to decline from 7% in week 1, 2018 to 5% in week 2.

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 274 detections in week 1, 2018 to 237 in week 2.
- There were 19 cases reported in ICU with laboratory confirmed influenza in week 2 giving a total of 50 cases this season to date.
- Three deaths were reported in week 2 among ICU patients bringing the total deaths in ICU with confirmed Influenza to eight.

Influenza Outbreaks across Northern Ireland

- There were four confirmed influenza outbreaks reported to the PHA in week 2 and an additional four suspected influenza outbreaks. The total confirmed Influenza outbreaks to date are 21.

Mortality

- There was a small statistically significant excess in all-cause mortality reported in Northern Ireland in week 2[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 12-14 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

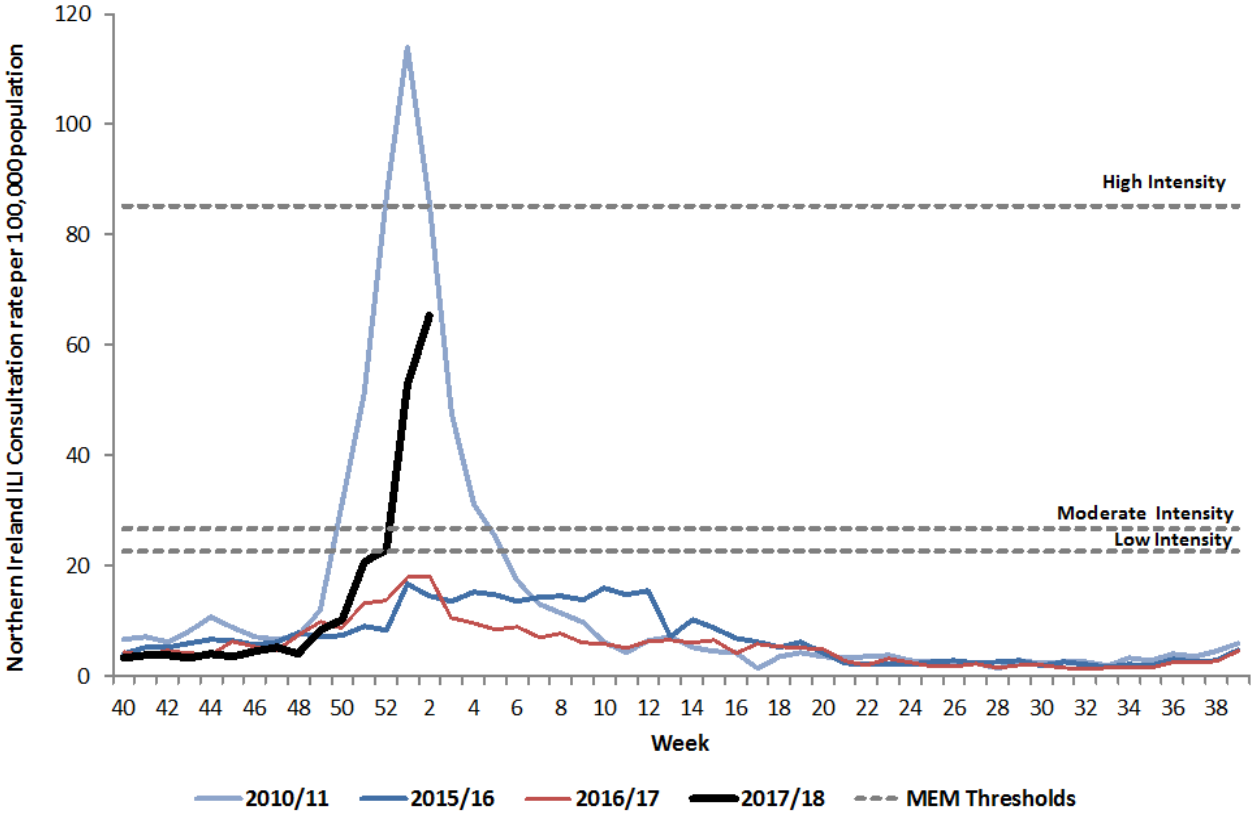


Figure 2. Northern Ireland GP consultation rates for flu/FLI and number of influenza positive detections 2012/13 – 2017/18

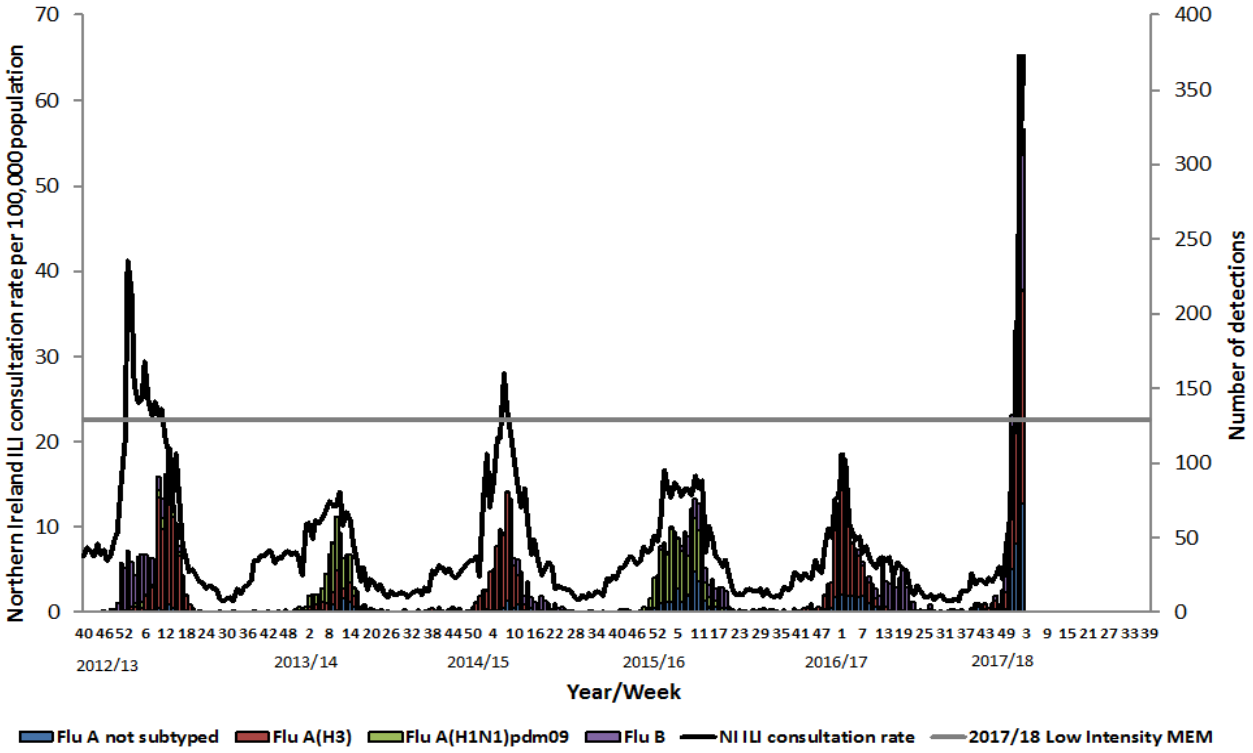
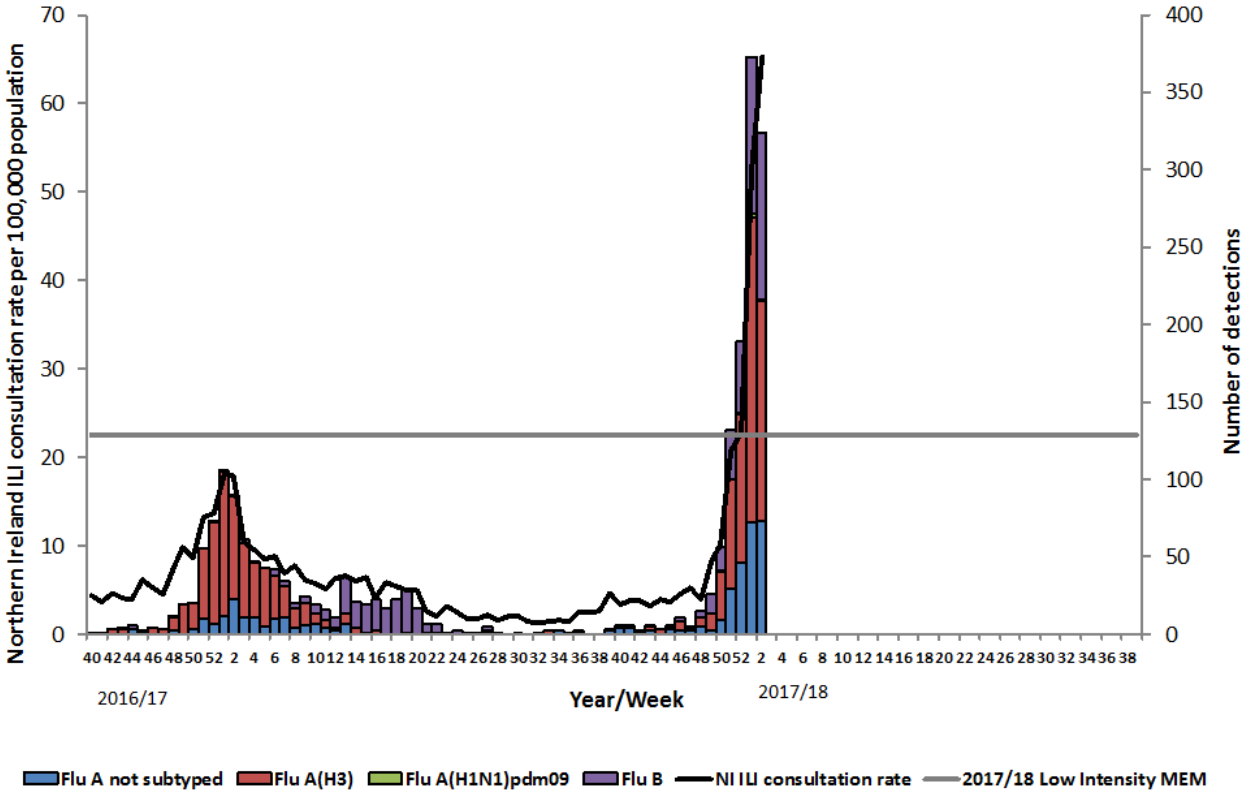


Figure 3. Northern Ireland GP consultation rates for flu/FLI and number of virology 'flu' detections from week 40, 2016



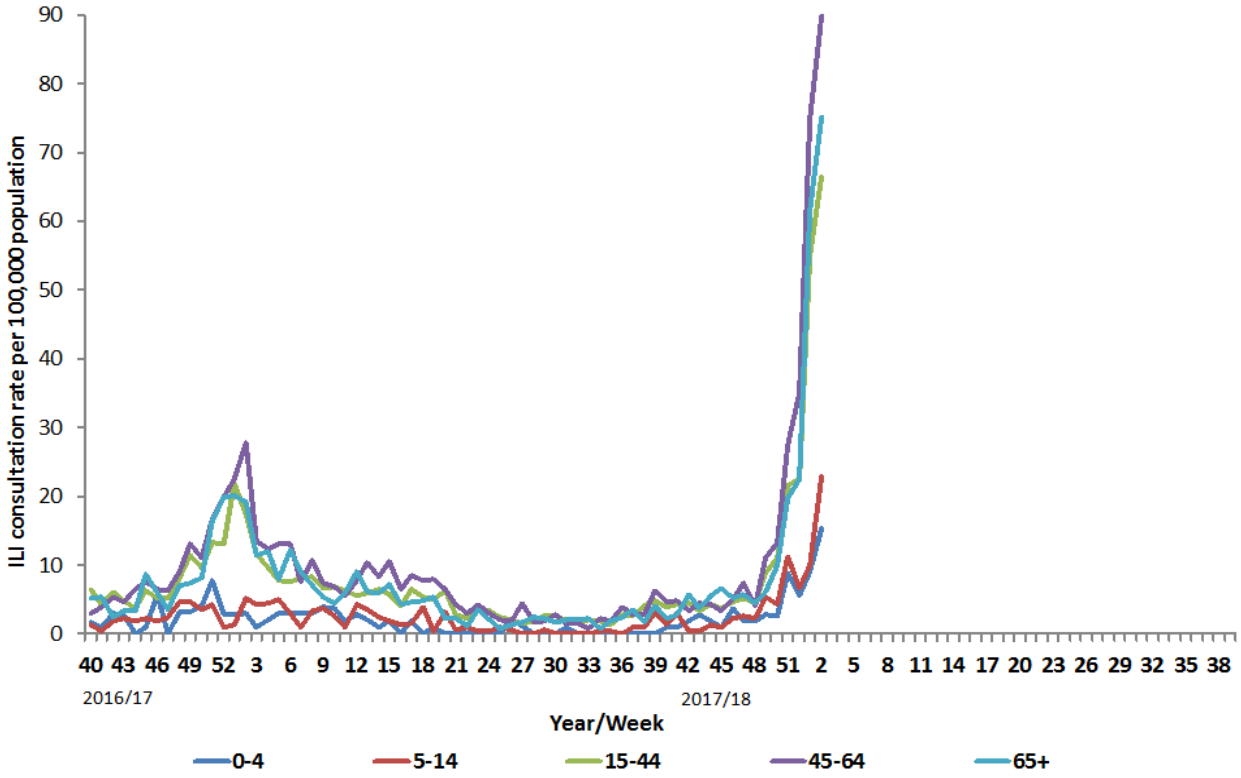
Comment

NI GP consultation rates increased from 52.6 per 100,000 population in week 1, 2018 to 65.2 per 100,000 population in week 2, and activity remains at moderate intensity (between 26.6 to <85.1 per 100,000 population). The NI GP consultation rate in week 2 is 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 373 in week 1, 2018 to 324 in week 2. However, detections of influenza B increased slightly from 101 in week 1 to 108 in week 2. At this point in the season there have been a total of 573 detections of influenza A(H3), 327 of influenza B, 254 of influenza A (typing awaited), and 6 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 increased in all groups in week 2, 2018 with those aged 45-64 years continuing to increase; rates in this group are now at 89.9 per 100,000 population. The second highest rate was in those aged over 65 years at 75.1 per 100,000, with rates also high in those aged 15-44 years at 66.5 per 100,000. The lowest age-specific rate continues to be in the 0-4 year age group (Figure 4).

Out-of-Hours (OOH) Centres Call Data

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

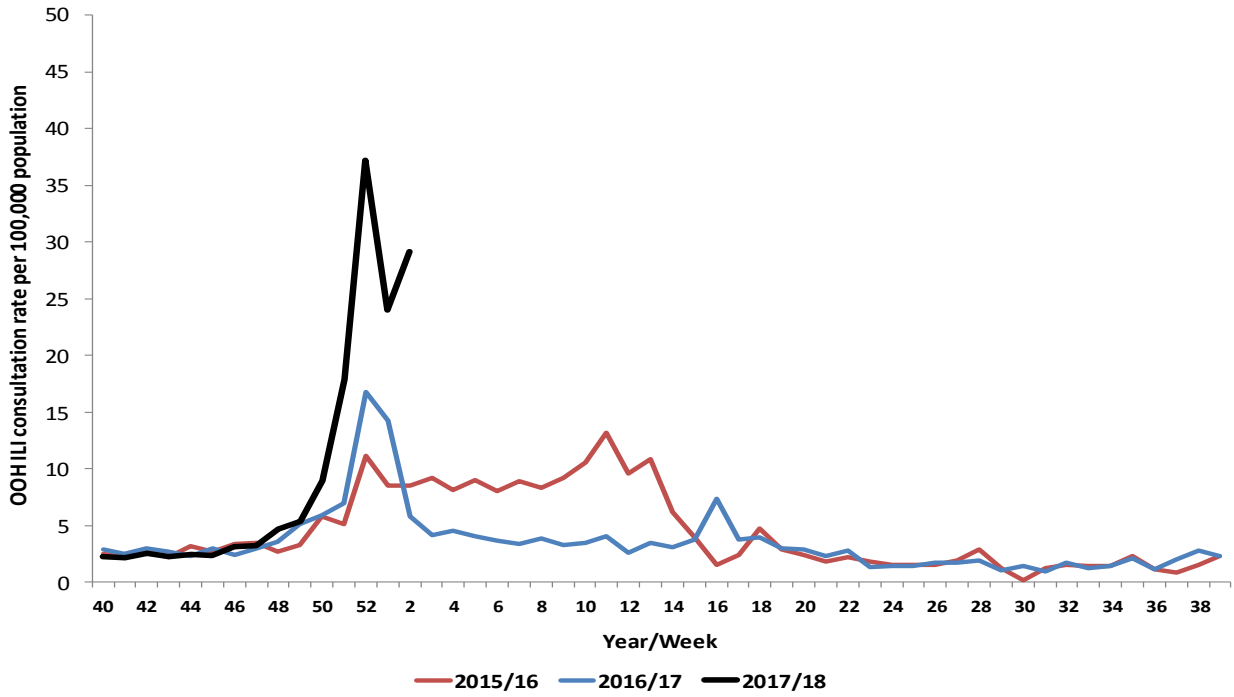
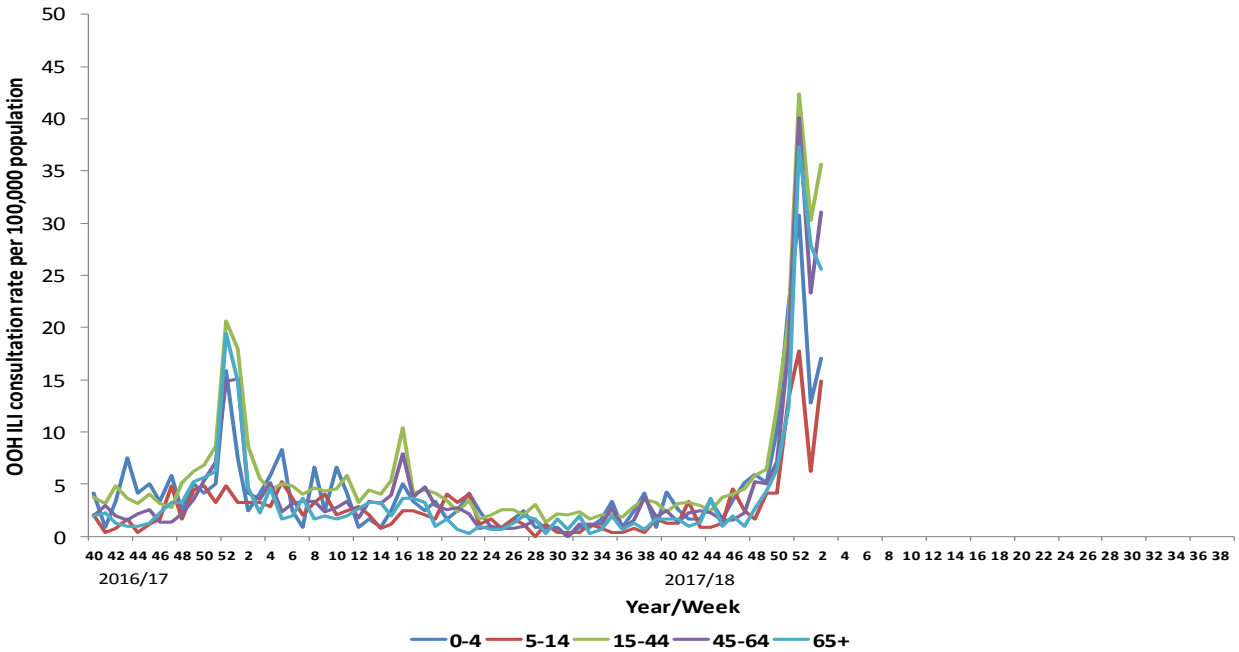


Figure 6. OOH call rates of flu/FLI by age-group from week 40, 2016



Comment

OOH GP consultation rates increased in week 2, 2018 from 24.0 per 100,000 in week 1 to 29.1 per 100,000 population. Rates remain significantly higher than those in the same period in 2016/17 (5.8 per 100,000 population) (Figure 5).

The proportion of calls related to flu in OOH centres decreased from 5.2% in week 1, 2018 to 4.6% in week 2.

OOH flu/FLI rates increased among all age groups in week 2, 2018 except for a slight decrease for those aged 65+ years old (decreased from 27.9 to 25.6 per 100,000).

Similar to the previous report the highest age-specific OOH flu/FLI rate in week 2, 2018 was in the 15-44 years age group (35.6 per 100,000 population). The lowest rate in week 2 was in the 5-14 year olds (14.9 per 100,000 population) (Figure 6).

Virology Data

Table 1. Virus activity in Northern Ireland by source, Week 2, 2017/18								
Source	**Specimens Tested**	Flu AH3	Flu A(H1N1) 2009	A (untyped)	Flu B	RSV	**Total influenza Positive**	**% Influenza Positive**
Sentinel	46	16	0	1	16	1	33	72%
Non-sentinel	670	126	1	72	92	32	291	43%
Total	**716**	**142**	**1**	**73**	**108**	**33**	**324**	45%

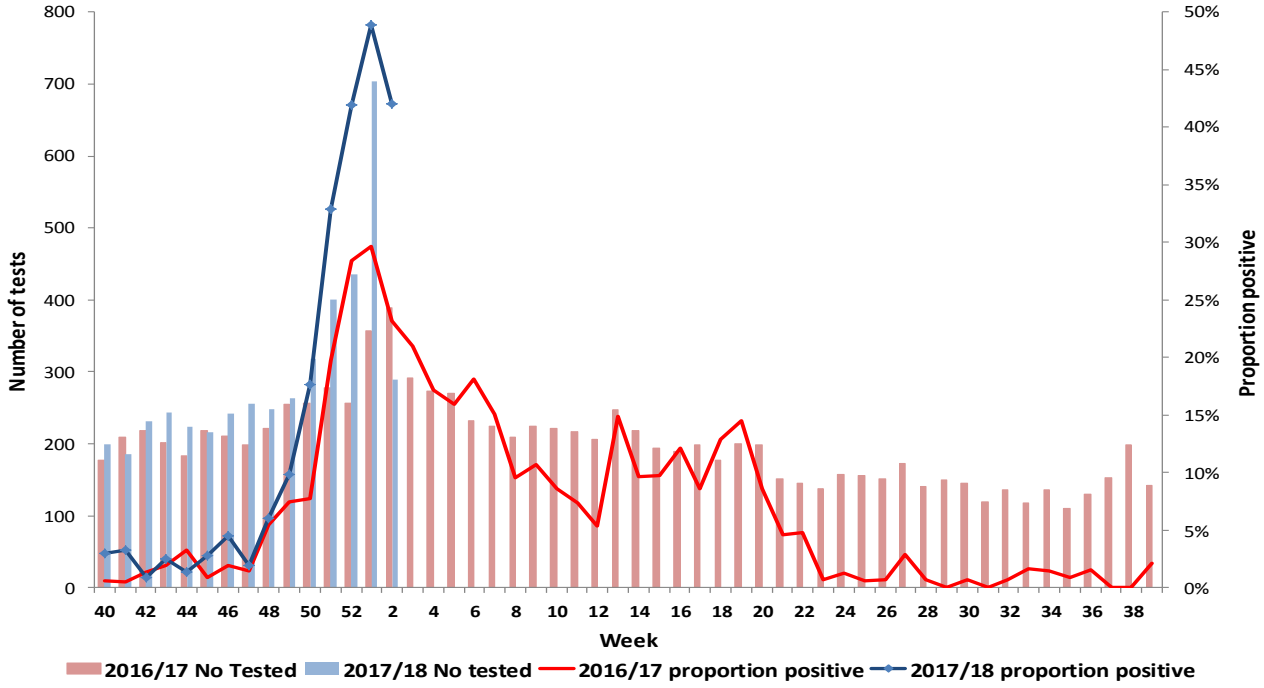
Table 2. Cumulative virus activity from all sources by age group, Week 40 - 2, 2017/18						
	Flu AH3	**Flu A(H1N1) 2009**	**A (untyped)**	**Flu B**	**Total Influenza**	**RSV**
0-4	**14**	**0**	**18**	**7**	**39**	**302**
5-14	**14**	**0**	**4**	**9**	**27**	**9**
15-64	**204**	**4**	**94**	**174**	**476**	**71**
65+	**340**	**2**	**138**	**137**	**617**	**109**
Unknown	**1**	**0**	**0**	**0**	**1**	**1**
All ages	**573**	**6**	**254**	**327**	**1160**	**492**

Table 3. Cumulative virus activity by age group and source, Week 40 - Week 2, 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	**0**	**0**	**1**	**0**	**1**	**0**	**14**	**0**	**17**	**7**	**38**	**302**
5-14	**2**	**0**	**0**	**1**	**3**	**1**	**12**	**0**	**4**	**8**	**24**	**8**
15-64	**36**	**4**	**8**	**45**	**93**	**7**	**168**	**0**	**86**	**129**	**383**	**64**
65+	**14**	**0**	**3**	**7**	**24**	**0**	**326**	**2**	**135**	**130**	**593**	**109**
Unknown	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**
All ages	**52**	**4**	**12**	**53**	**121**	**8**	**521**	**2**	**242**	**274**	**1039**	**484**

Note

All virology data are provisional. 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



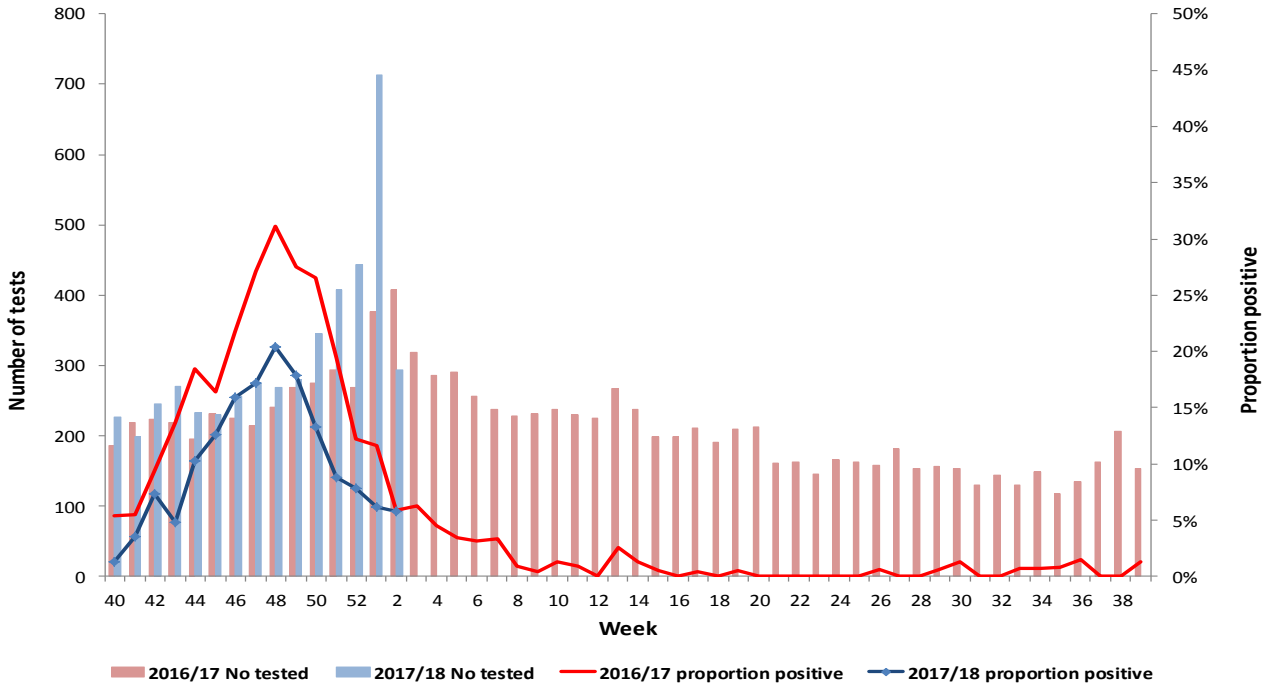
Comment

During week 2, 2018 there were 716 specimens submitted for virological testing. There were 324 detections of influenza in total (positivity rate of 45%), of which 142 were influenza A(H3), 108 influenza B, 73 influenza A (typing awaited) and there was one detection of influenza A(H1N1)pdm09 (Figure 7 and Table 1).

There were 46 samples submitted through the GP based sentinel scheme across Northern Ireland during this period, of which 33 (72%) were positive for influenza. Of the 33 positive, 16 were reported as influenza A(H3), 16 as influenza B, and one report of 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

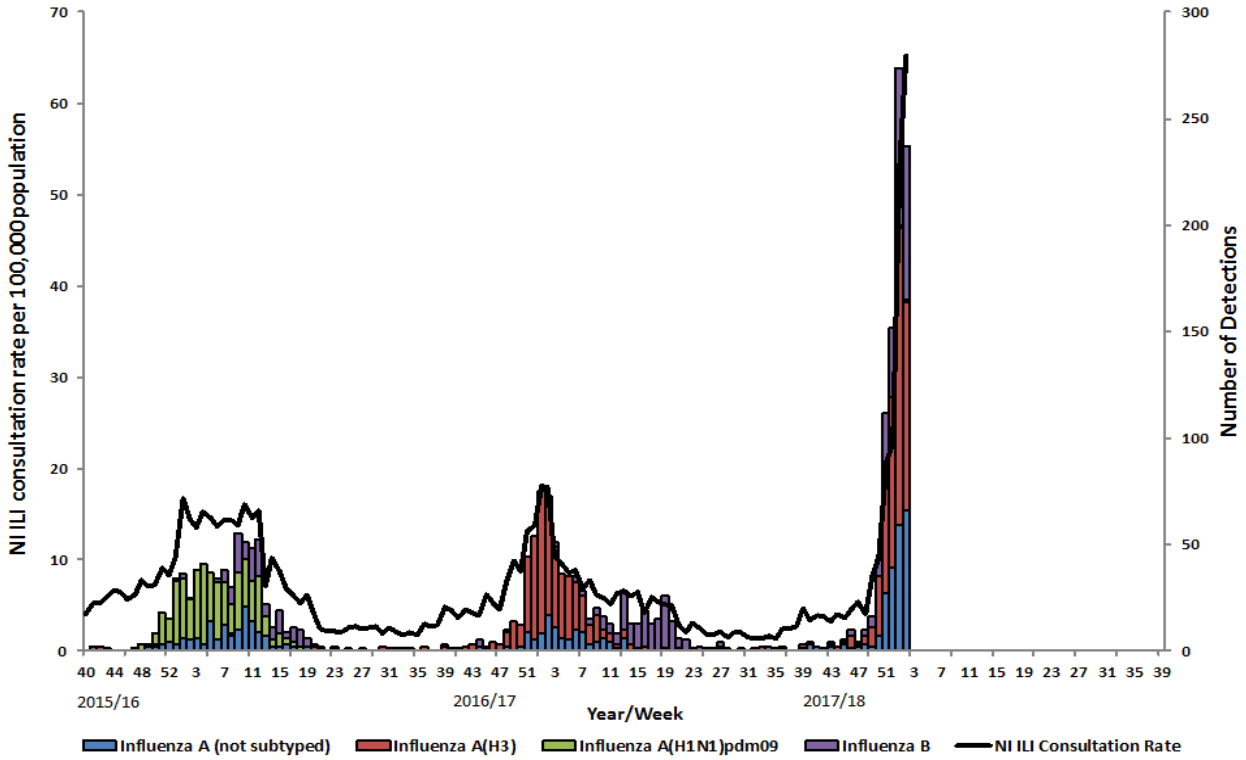


Comment

During week 2, 2018 there were 33 positive detections of RSV giving a positivity rate of 5%, slightly lower than the same period in 2016/17 (6%). To date there have been a total of 492 detections of RSV of which the majority (61%) 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



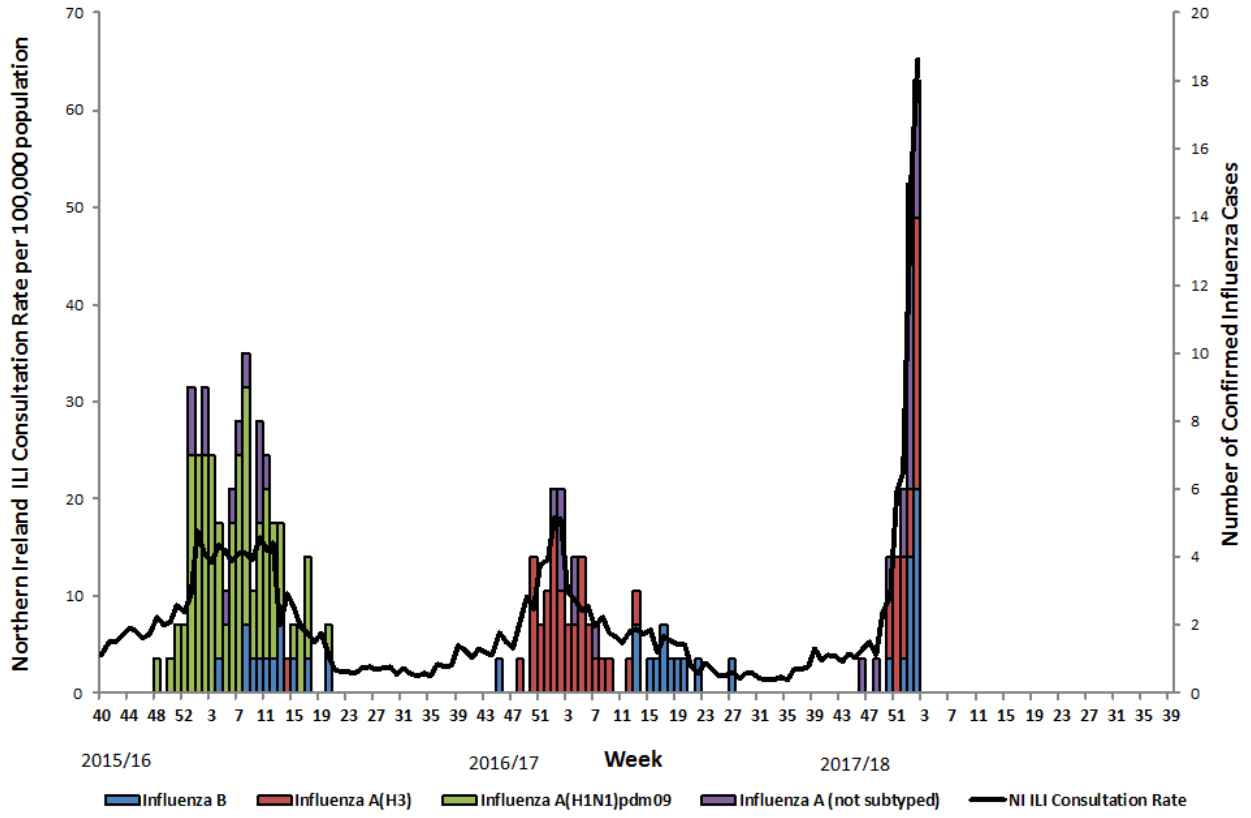
Comment

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 2, 2018 there were a total of 237 detections of influenza from specimens taken in hospital settings across Northern Ireland. Of these there were 98 detections of influenza A(H3), 72 of influenza B, 66 of influenza A (typing awaited) and 1 detection influenza A(H1N1)2009. This represents a decrease from week 1 (274 positive reports); however, it should be kept in mind that not all positive specimens for week 2 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 2, 2018 19 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 eight. There have been 50 confirmed cases of influenza in ICU reported this season to date, of which 19 have been typed as influenza A(H3), 12 influenza B, 18 influenza A (typing awaited) and one confirmed case of both influenza A and B (not shown in figure 10).

These case numbers remain below those seen during previous seasons (2015/16 season: 16 deaths and 113 confirmed cases of influenza in ICU; 2014/15 season: 10 deaths and 70 confirmed cases of influenza in ICU).

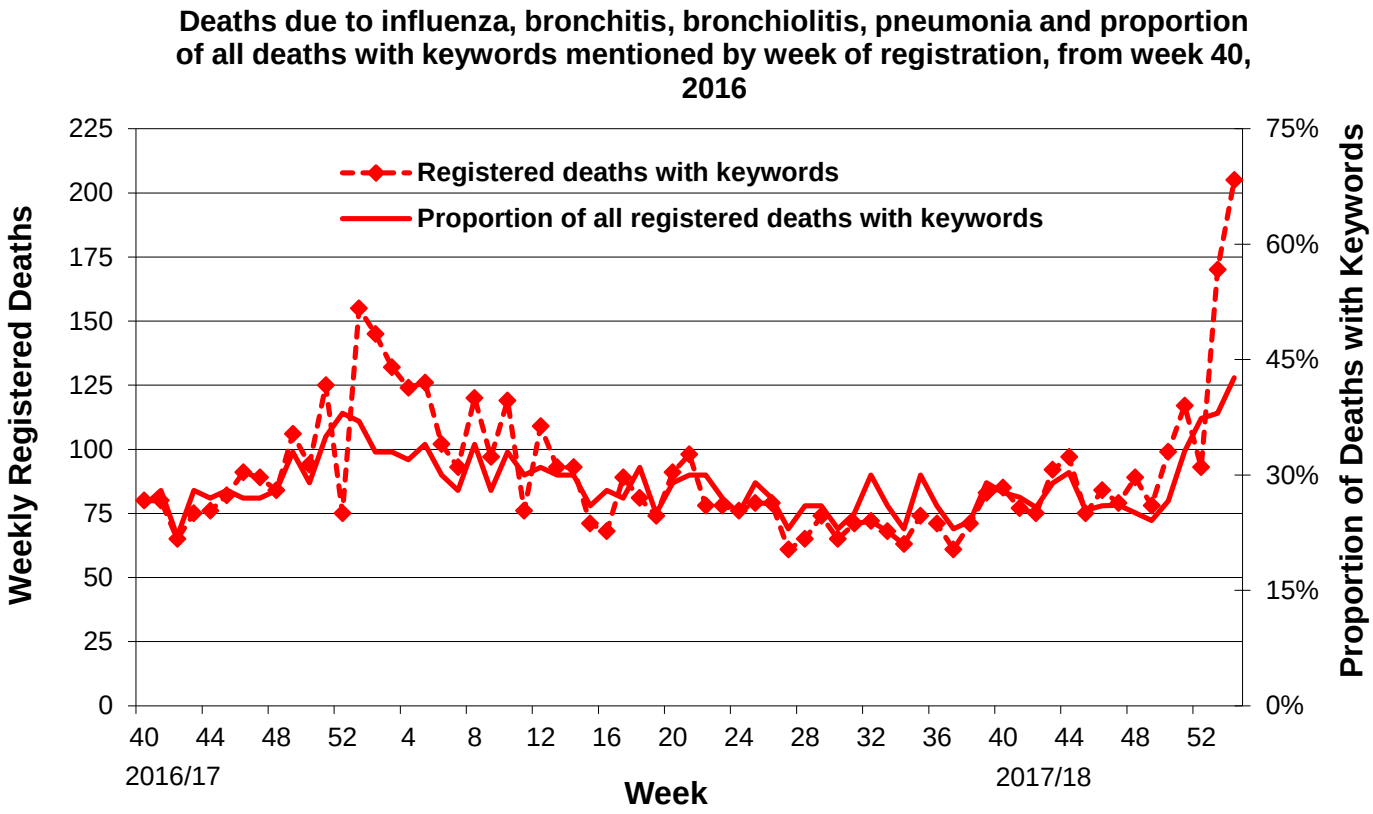
Outbreak Surveillance

During week 2, 2018 there were four confirmed influenza outbreaks in care homes and a further four influenza outbreaks reported to the PHA that meet the clinical definition of influenza but are not yet confirmed. The total confirmed Influenza outbreaks to date are 21.

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 2, 2018 the proportion of deaths related to respiratory keywords increased from 38% in week 1 to 43% in week 2. In week 2 there were 481 registered deaths, of which 205 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 a small statistically significant excess in all-cause mortality reported in Northern Ireland in week 2, 2018. Following updated data there have been a total of seven weeks in the season to date where there has been a small statistically significant excess all-cause mortality (weeks 47 and weeks 49-2). 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.

To 30th November 2017, provisional data suggested that vaccine uptake for those aged 65 years and over was 66.8%, slightly lower than the same period in the 2016/17 (68%); while 48.2% of those under 65 and in an at risk group received the vaccine, compared with 50.8% in this group in 2016/17. Similar to last season, all children aged between 2 and 4 years and all primary school children in 2017/18 have been offered the seasonal influenza vaccine. To 30th November 2017, provisional data suggested that vaccine uptake among 2-4 year old children was 44.9%, slightly lower than in 2016/17 when 48.9% had received the vaccine during the same period. Provisional data on uptake among children in primary school by end of November 2017 was 75.3% compared with 77.6% in 2016/17.

International Summary

Europe

Week 1/2018 (1–7 January 2018)

- 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.

- Of the individuals sampled, on presenting with ILI or ARI to sentinel primary healthcare sites, 42% tested positive for influenza viruses, similar to the 44% in the previous week.
- EuroMOMO data showed excess mortality in the elderly (>65 years of age) for the United-Kingdom (Scotland), Spain and Portugal.

2017/18 season overview

- From sentinel sources, 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.
- For type B viruses from both sentinel and non-sentinel sources, B/Yamagata lineage viruses have greatly outnumbered those of the B/Victoria lineage.
- While low in number, 64% of the genetically characterized A(H3N2) viruses belonged to clade 3C.2a, the vaccine virus clade as 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.
- Based on data submitted to the EuroMOMO project there has, over the past weeks, been increased mortality among the elderly, notably in the southwest and the north of the British Isles.
- 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.

http://www.flunewseurope.org/

Worldwide (WHO)

As at 8th January 2018 (based on update to 24th December):

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(H3N2) and B viruses accounted for the majority of influenza detections although influenza A(H1N1)pdm09 viruses were predominant in some countries.

- In North America, overall influenza activity continued to increase in the region, with detections of predominantly influenza A(H3N2) viruses.
- In Europe, influenza activity increased above baseline levels in most countries in Northern and Southwestern Europe with sharp increases in respiratory illness indicators in some countries. Activity remained low in countries in Eastern Europe. Influenza B virus detections remained frequent 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 Israel and Jordan with predominantly influenza B and A(H1N1)pdm09 virus detections, respectively.
- In Central Asia, low to no influenza activity was reported.

- In East Asia, influenza activity continued to increase in recent weeks. In both Northern and Southern China, ILI and influenza activity continued to increase, with influenza B Yamagata-lineage viruses predominantly detected followed by influenza A(H3N2) viruses. Increasing detections of influenza B and A(H3N2) viruses were reported in the Republic of Korea.
- In South East Asia, low levels of influenza activity were reported.
- In Southern Asia, increased influenza activity was reported in Iran with detection of all seasonal subtypes.
- In Northern Africa, influenza activity was predominantly due to influenza A(H1N1)pdm09 virus detections. Activity increased in Egypt and Morocco; and Tunisia reported sharp increases in activity.
- In Western Africa, influenza activity continued at lower levels compared to previous weeks. Detections of predominantly influenza A(H1N1)pdm09 viruses were reported from Burkina Faso, Côte d'Ivoire, Ghana and Togo. In Middle Africa, Cameroon reported activity with influenza A and B viruses and the Democratic Republic of Congo reported detections of influenza A(H1N1)pdm09 viruses. In Eastern Africa, sporadic influenza detections were reported in Madagascar, Mozambique, and the United Republic of Tanzania.
- In the Caribbean and Central American countries, low to no influenza activity was reported.
- In the tropical countries of South America, low to no influenza activity was reported.
- In the temperate zone of the Southern Hemisphere, influenza activity decreased overall to inter-seasonal levels.
- National Influenza Centres (NICs) and other national influenza laboratories from 105 countries, areas or territories reported data to FluNet for the time period from 11 December 2017 to 24 December 2017 (data as of 2018-01-07 15:48:27 UTC). The WHO GISRS laboratories tested more than 179990 specimens during that time period. 40431 were positive for influenza viruses, of which 26351 (65.2%) were typed as influenza A and 14080 (34.8%) as influenza B. Of the sub-typed influenza A viruses, 3357 (30.7%) were influenza A(H1N1)pdm09 and 7582 (69.3%) were influenza A(H3N2). Of the characterized B viruses, 5620 (86.3%) belonged to the B-Yamagata lineage and 891 (13.7%) 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

For further information on the Enhanced Surveillance of Influenza in Northern Ireland scheme or to be added to the circulation list for this bulletin please contact:

Dr Cathriona Kearns
Epidemiological Scientist
Public Health Agency

Dr Muhammad Sartaj
Public Health Consultant
Public Health Agency

Email: flusurveillance@hscni.net

This report was compiled by Dr Cathriona Kearns, Mr Paul Cabrey, Dr Mark O'Doherty and Dr Muhammad Sartaj.