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Influenza Weekly Surveillance Bulletin

Northern Ireland, Weeks 17 - 18 (24 April 2017 – 7th May 2017)

Summary

At this point in the 2016/17 influenza season, influenza continues to circulate across the region, with the number of lab detections remaining stable across the two-week period. In-hours and OOH Flu/FLI consultations have fluctuated, which may be due to the post-holiday period. Influenza B remains the predominant strain in week 18 (week commencing 1st May 2017).

Weekly Influenza GP Consultation Rates

- GP consultation rates for combined flu and flu-like illness (flu/FLI) have fluctuated over the two-week period, increasing to 10.4 per 100,000 population in week 17 then decreasing to 9.4 per 100,000 population in week 18, 2017. Rates remain below the 2016/17 pre-epidemic threshold[1]
- OOH GP consultation rates for flu/FLI decreased to 3.7 per 100,000 population in week 17 and remained relatively stable at 3.9 per 100,000 population in week 18, 2017

Microbiological Surveillance

- The proportion of positive influenza detections from both sentinel and non-sentinel sources was 10% in weeks 17-18

Respiratory Syncytial Virus (RSV) Activity

- RSV activity has remained stable in weeks 17 and 18 with levels similar to the same period last season

Influenza Confirmed Intensive Care Unit (ICU) Cases and Deaths

- Three new cases were reported in ICU with laboratory confirmed influenza in weeks 17-18, there have been a total of 48 cases this season
- No deaths were reported in weeks 17-18 among ICU patients with laboratory confirmed influenza; there have been a total of eight deaths in ICU patients with laboratory confirmed influenza this season

Influenza Outbreaks across Northern Ireland

- Two confirmed influenza outbreaks were reported to the PHA. There have been a total of 15 confirmed influenza outbreaks this season

EuroMOMO

- Excess all-cause mortality data was unavailable in weeks 17 – 18, 2017

Influenza Vaccine Uptake in Northern Ireland

- To 31st March 2017; uptake was 71.9% among those aged 65 years and over, 57.1% among those under 65 in an at risk group, 52.6% among 2-4 year olds and 78.3% among primary school children

[1] The pre-epidemic threshold for Northern Ireland is 47.9 per 100,000 population this year (2016/17)

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 2016/17 season commenced on 3rd October 2016.

Surveillance systems used to monitor influenza activity include:

- GP sentinel surveillance representing 11.7% of Northern Ireland population;
- 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 critical care patients with confirmed influenza;
- Mortality data from Northern Ireland Statistics and Research Agency (NISRA);
- Excess mortality estimations are also provided by Public Health England using the EuroMOMO (Mortality Monitoring in Europe) model based on raw death data supplied by NISRA

NB: Please note changes in the y axes on figures 1 – 6 from last season's bulletin when interpreting the charts contained in this season's bulletin.

Sentinel GP Consultation Data

Figure 1. Sentinel GP consultation rates for flu/FLI 2014/15 - 2016/17

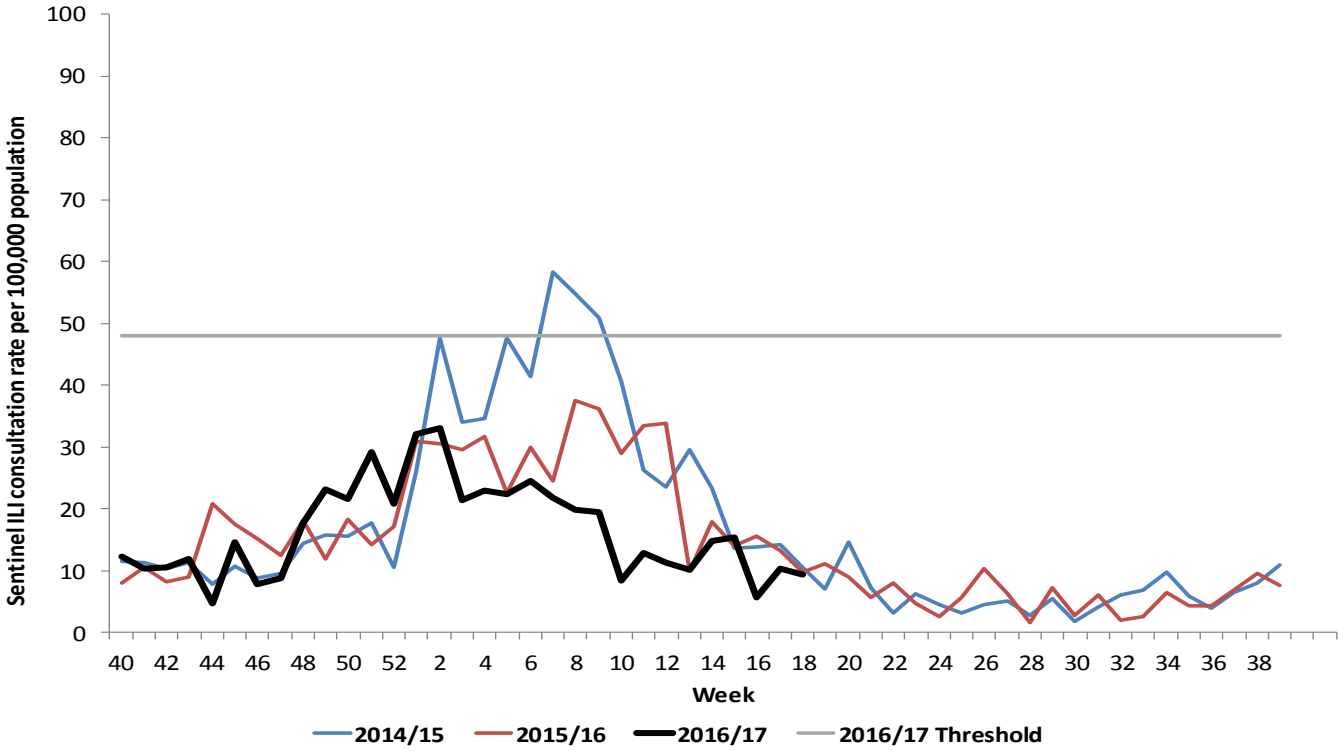


Figure 2. Sentinel GP combined consultation rates for flu/FLI and number of influenza positive detections 2011/12 – 2016/17

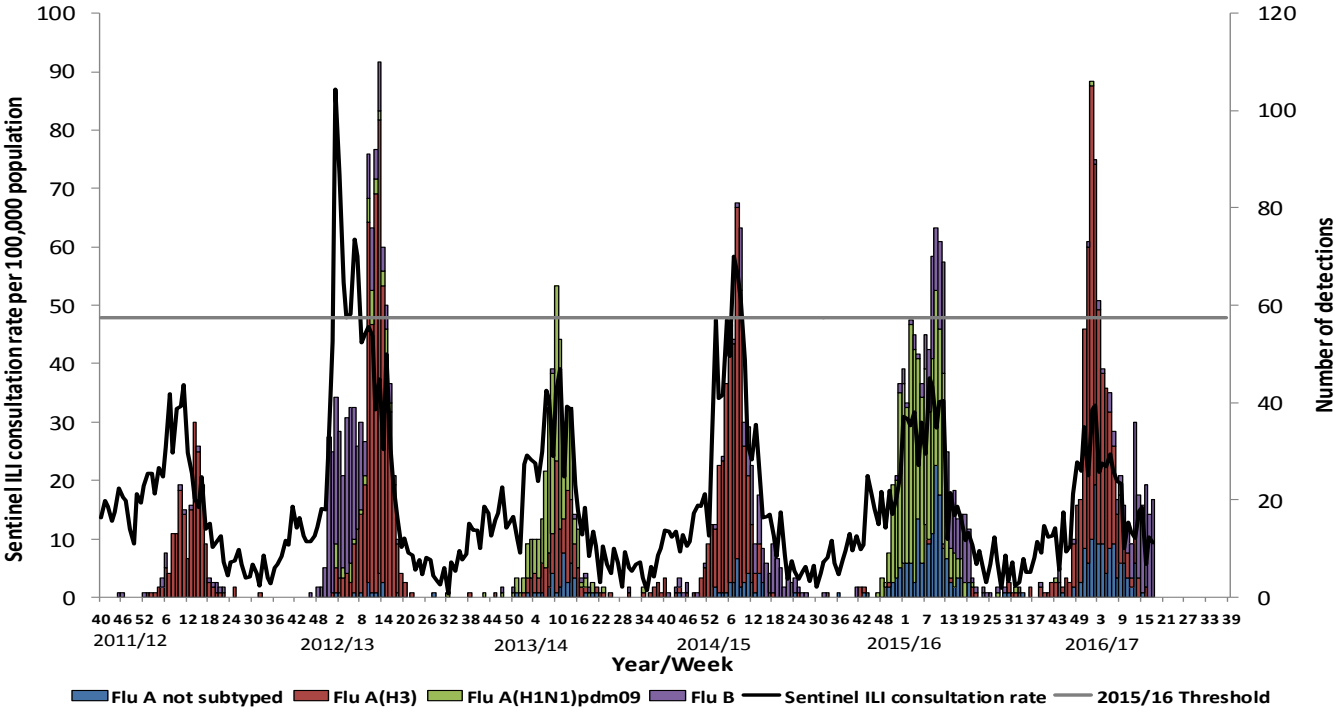
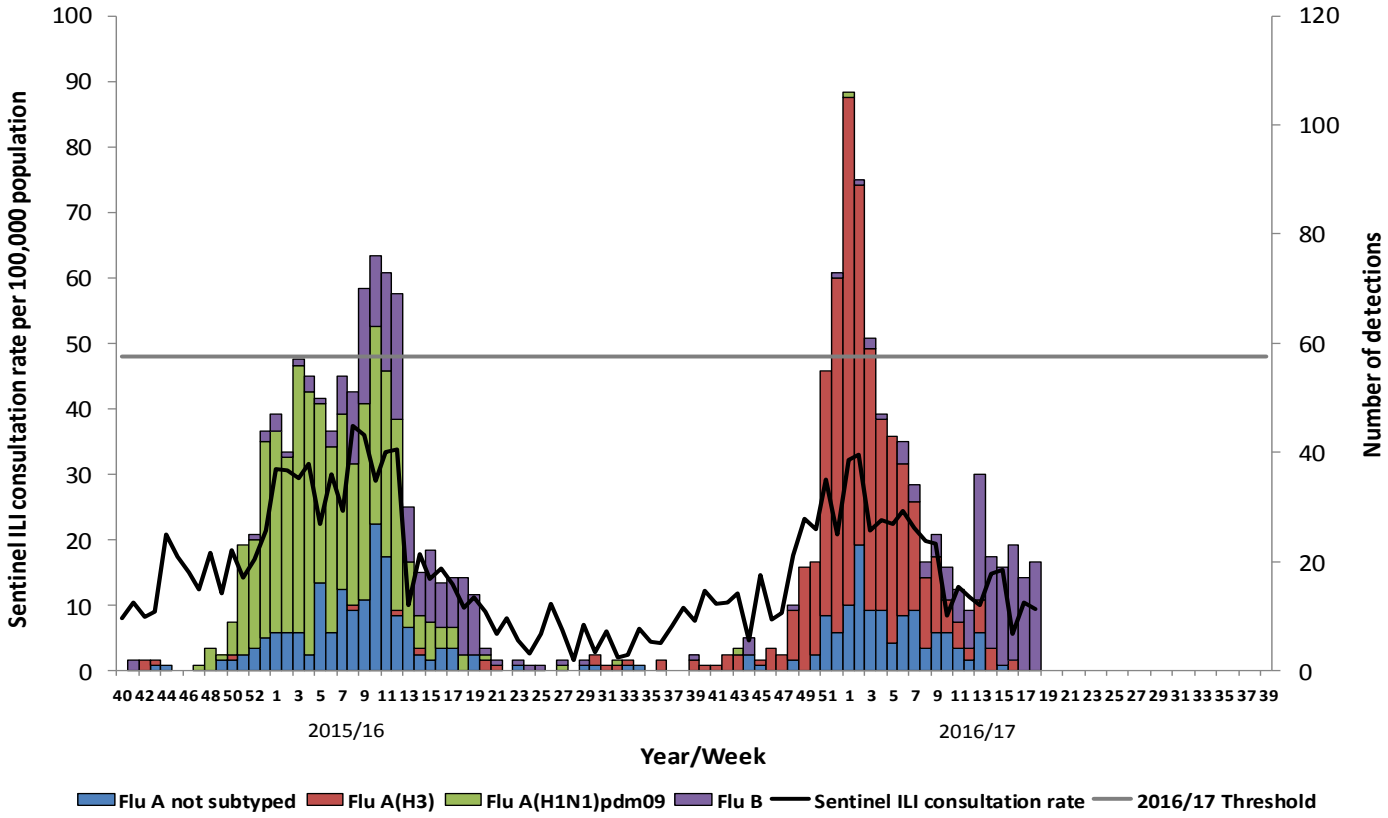


Figure 3. Sentinel GP consultation rates for flu/FLI and number of virology 'flu detections from week 40, 2015



Comment

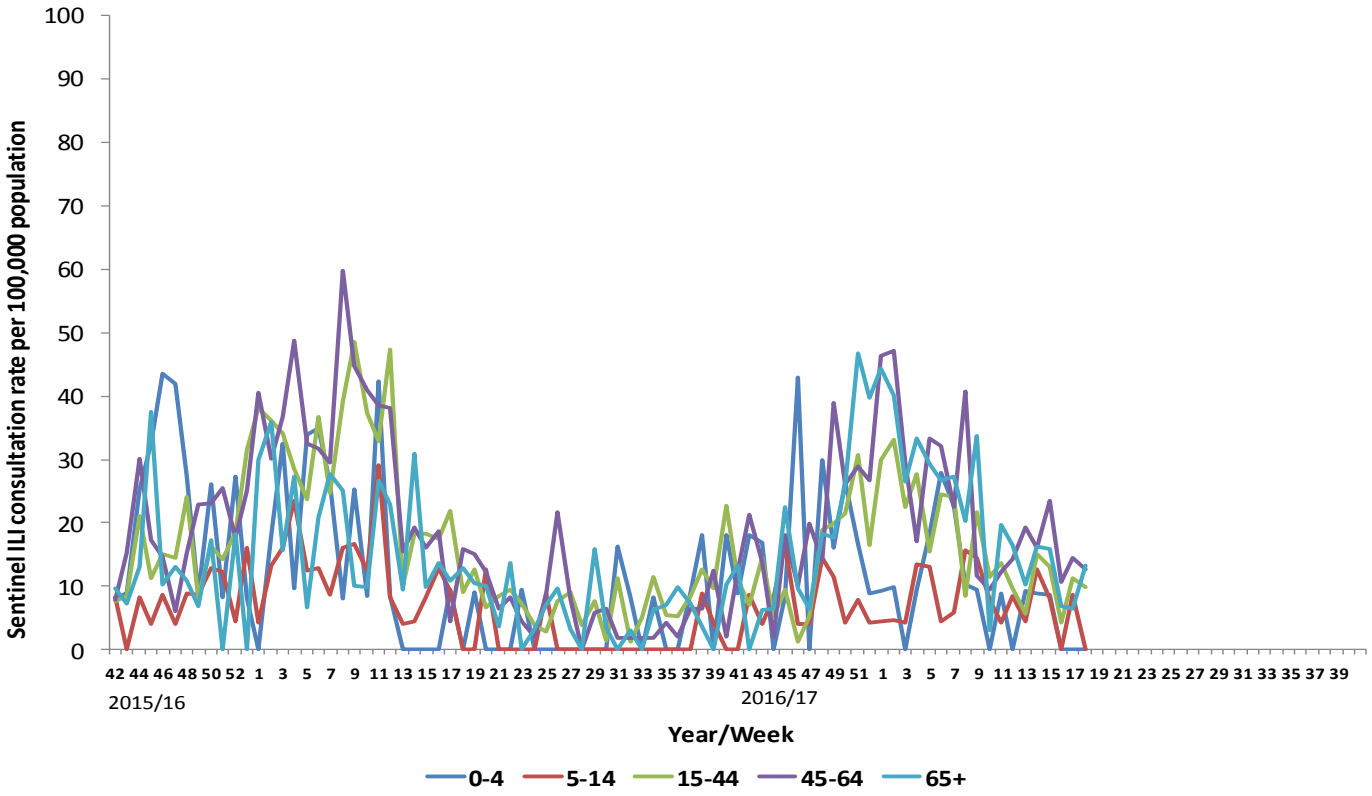
GP consultation rates have fluctuated across weeks 17 and 18, 2017. In week 17, rates increased to 10.4 per 100,000 population from 5.6 per 100,000 population in week 16, then decreased to 9.4 per 100,000 population in week 18. This fluctuation may be partly due to GP's reopening after the holiday period. The GP consultation rate in week 18 is similar to the same period in 2015/16 (9.7 per 100,000 population) but lower than in 2014/15 (10.4 per 100,000 population).

Rates remain below the pre-epidemic Northern Ireland 2016/17 threshold of 47.9 per 100,000.

The number of positive influenza laboratory detections in weeks 17 and 18 has remained relatively stable from week 16, while influenza B remains the predominant strain in recent weeks (Figures 1, 2 and 3).

Further information about laboratory detections of influenza is detailed on page 9.

Figure 4. Sentinel GP age-specific consultation rates for flu/FLI from week 40, 2015



Comment

Sentinel GP flu/FLI consultations have fluctuated among most age groups across weeks 17 and 18, 2017.

In weeks 17 and 18, 2017 the highest age-specific rate was noted among those aged 45-64 years (14.5 and 12.6 per 100,000 population respectively), with the lowest rate represented by those aged 0-4 years (zero consultations in both weeks).

Age-specific consultation rates in week 18 are similar among almost all age groups than the same time period in both 2015/16 and 2014/15 (Figure 4).

Out-of-Hours (OOH) Centres Call Data

Figure 5. OOH call rate for flu/FLI, 2014/15 – 2016/17

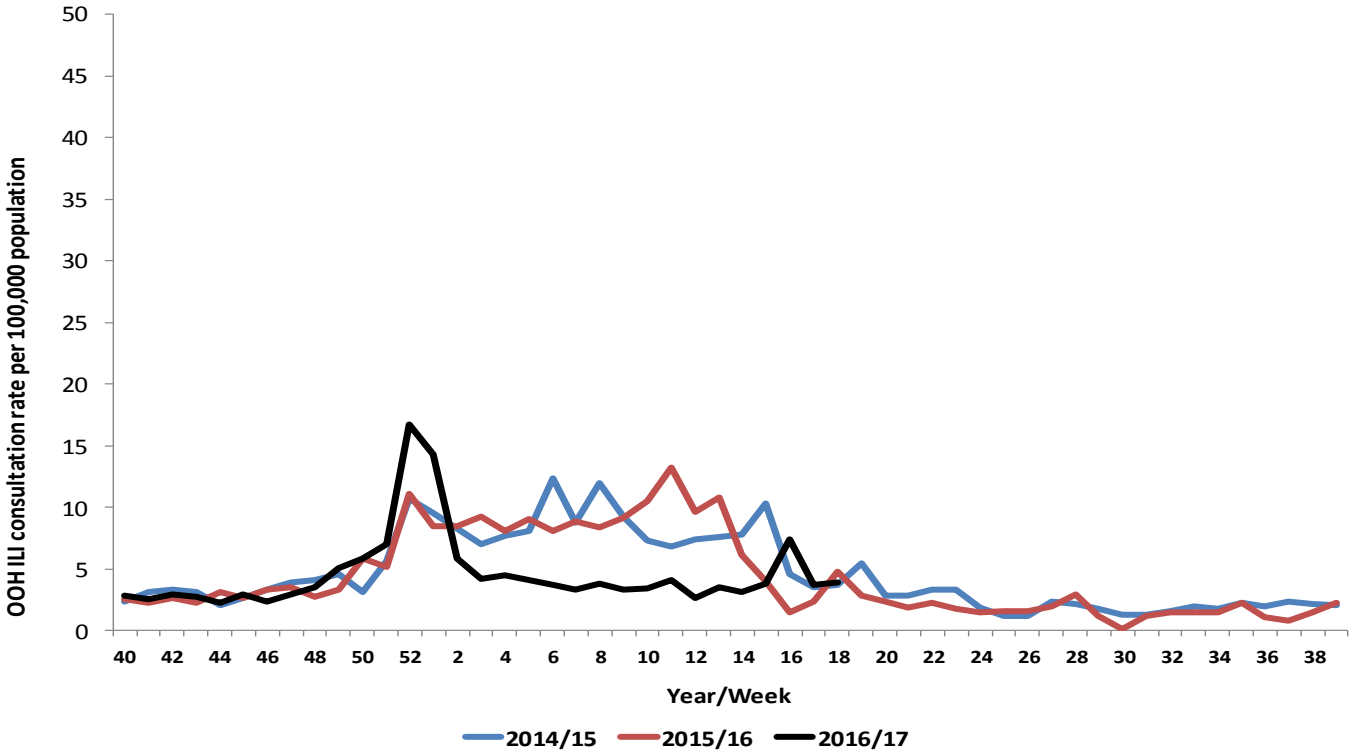
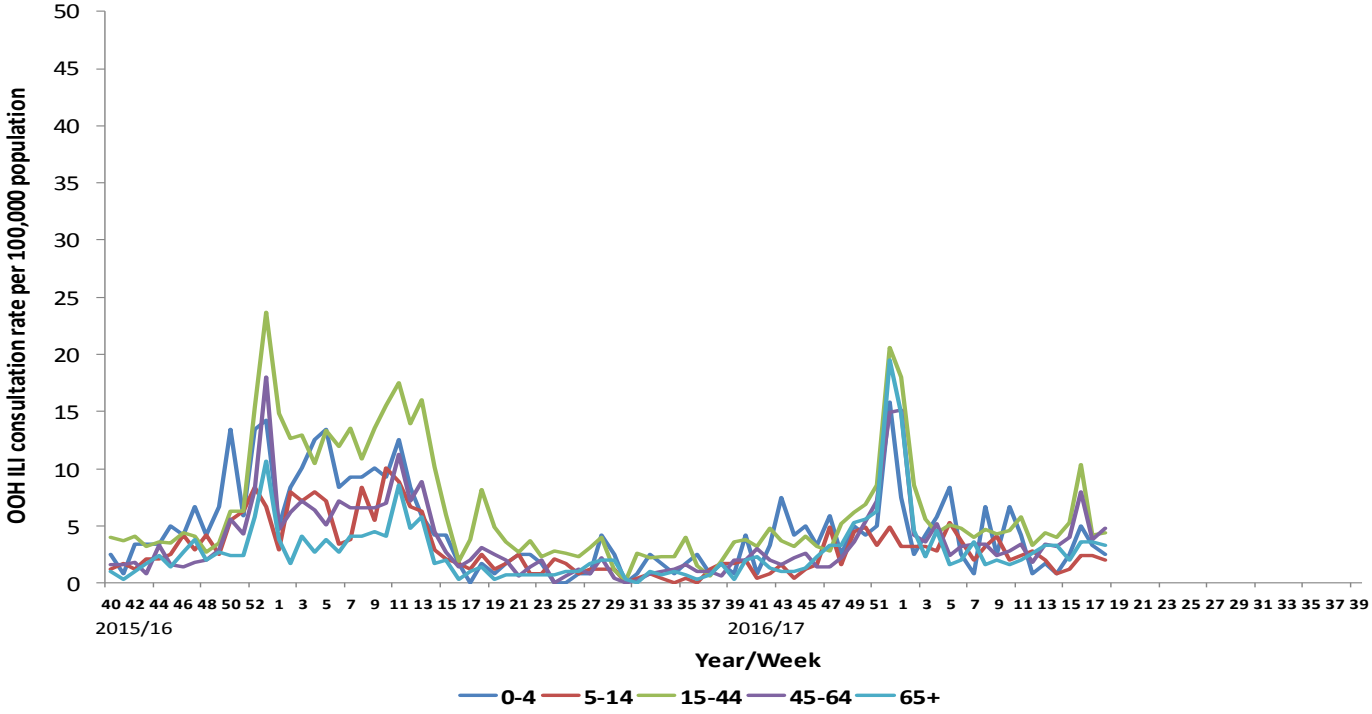


Figure 6. OOH Call rates of flu/FLI by age-group from week 40, 2015



Comment

During week 17, 2017 the OOH GP consultation rate decreased to 3.7 per 100,000 population from 7.4 per 100,000 population in week 16, and remained relatively stable at 3.9 per 100,000 population in week 18. The OOH GP consultation rate in week 18 is lower than the same period in 2015/16 (4.8 per 100,000 population) but similar to 2014/15 (3.7 per 100,000 population) (Figure 5).

The proportion of calls related to flu followed a similar trend and still represents less than 1% of total calls to the OOH service in both weeks 17 and 18, 2017.

During weeks 17 and 18, OOH flu/FLI rates have decreased among the 0-4 and 15-44 years age groups, with slight fluctuations noted among those aged 45-64 years. Rates among the 5-14 and 65 years and over age groups have remained relatively stable. The highest age-specific OOH flu/FLI rate in week 18 was noted among the 45-64 years age group (4.8 per 100,000 population) while those aged 5-14 years represented the lowest rate (2.5 per 100,000 population) (Figure 6).

Age-specific rates in week 18 are slightly higher among most age groups than those noted during the same period in 2015/16 but similar to those in 2014/15.

Virology Data

Table 1. Virus activity in Northern Ireland by source, Week 17 - 18, 2016/17								
Source	Specimens Tested	Flu AH3	Flu A(H1N1) 2009	A (untyped)	Flu B	RSV	Total influenza Positive	% Influenza Positive
Sentinel	12	0	0	0	3	0	3	25%
Non-sentinel	349	0	0	0	34	1	34	10%
Total	361	0	0	0	37	1	37	10%

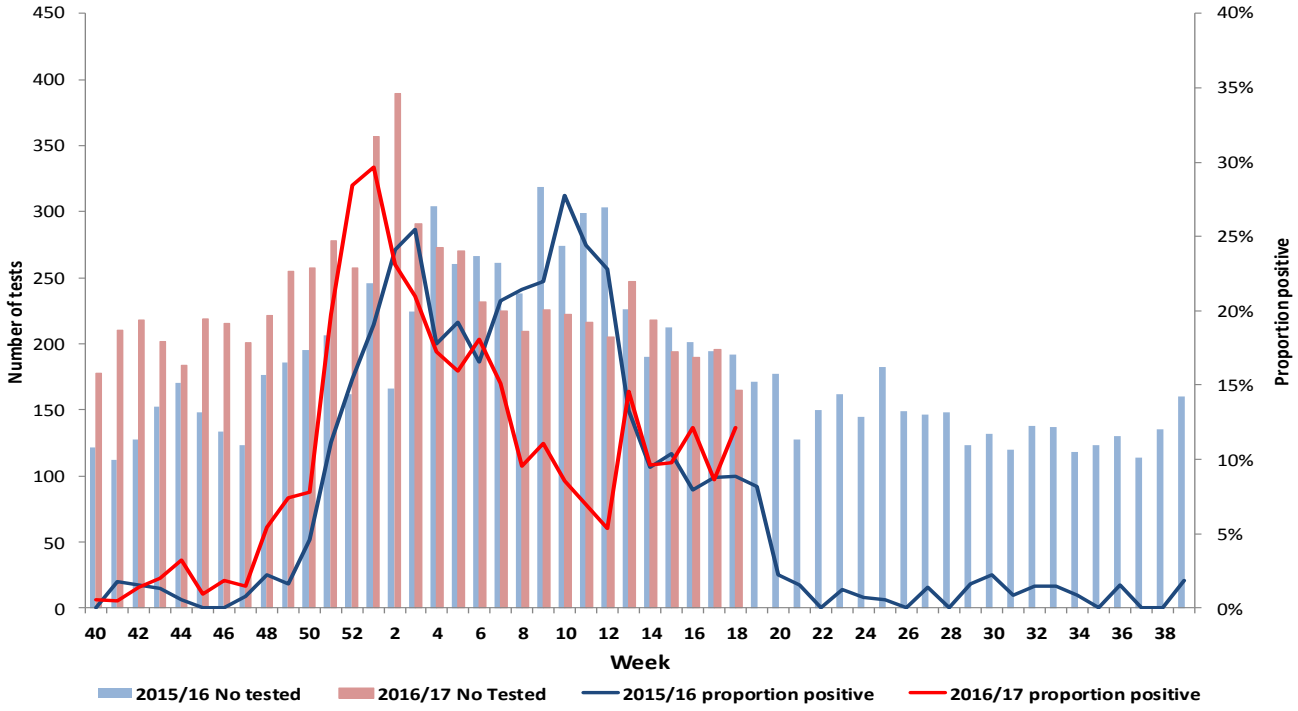
Table 2. Cumulative virus activity from all sources by age group, Week 40 - 18, 2016/17						
	Flu AH3	Flu A(H1N1) 2009	A (untyped)	Flu B	Total Influenza	RSV
0-4	20	0	6	3	29	456
5-14	12	0	3	2	17	16
15-64	237	1	56	74	368	100
65+	282	1	76	79	438	142
Unknown	0	0	0	0	0	0
All ages	551	2	141	158	852	714

Table 3. Cumulative virus activity by age group and source, Week 40 - Week 18, 2016/17												
	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	0	0	0	1	20	0	6	3	29	455
5-14	4	0	0	0	4	0	8	0	3	2	13	16
15-64	29	1	5	15	50	8	208	0	51	59	318	92
65+	5	1	2	5	13	3	277	0	74	74	425	139
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
All ages	38	2	7	20	67	12	513	0	134	138	785	702

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, 2015/16 and 2016/17, all sources



Comment

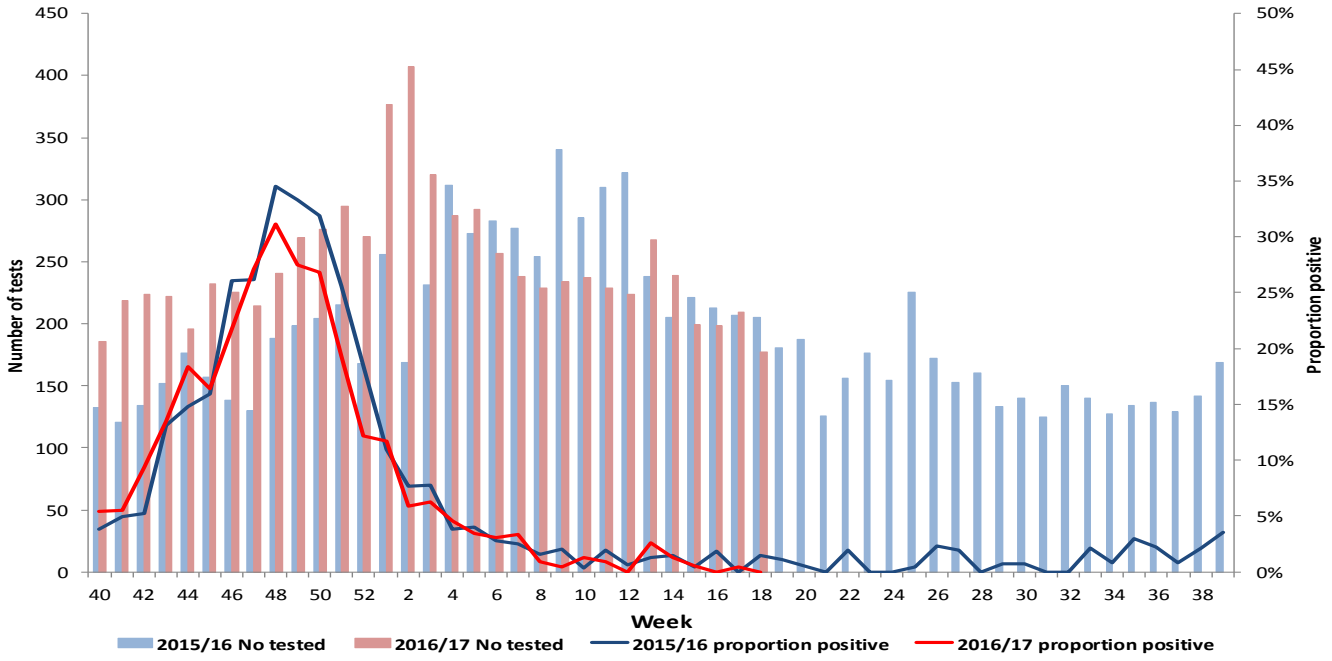
During weeks 17 and 18, 2017 there were 361 specimens submitted for virological testing. There were 37 detections of influenza in total (positivity rate of 10%), all typed as influenza B (Figure 7). There were no detections of influenza A(H3), influenza A(H1N1)pdm09 or influenza A (typing awaited).

There were three samples positive for influenza submitted through the GP based sentinel scheme across Northern Ireland, all typed as influenza B.

This season to date there have been a total of 852 detections of influenza, of which 551 have been typed as influenza A(H3). There have been 158 detections of influenza B, 141 of influenza A (typing awaited), and 2 detections of influenza A(H1N1)pdm09 (Tables 1, 2, 3; Figures 2 and 3).

Respiratory Syncytial Virus

Figure 8. Number of samples tested for RSV and proportion positive, 2015/16 and 2016/17, all sources

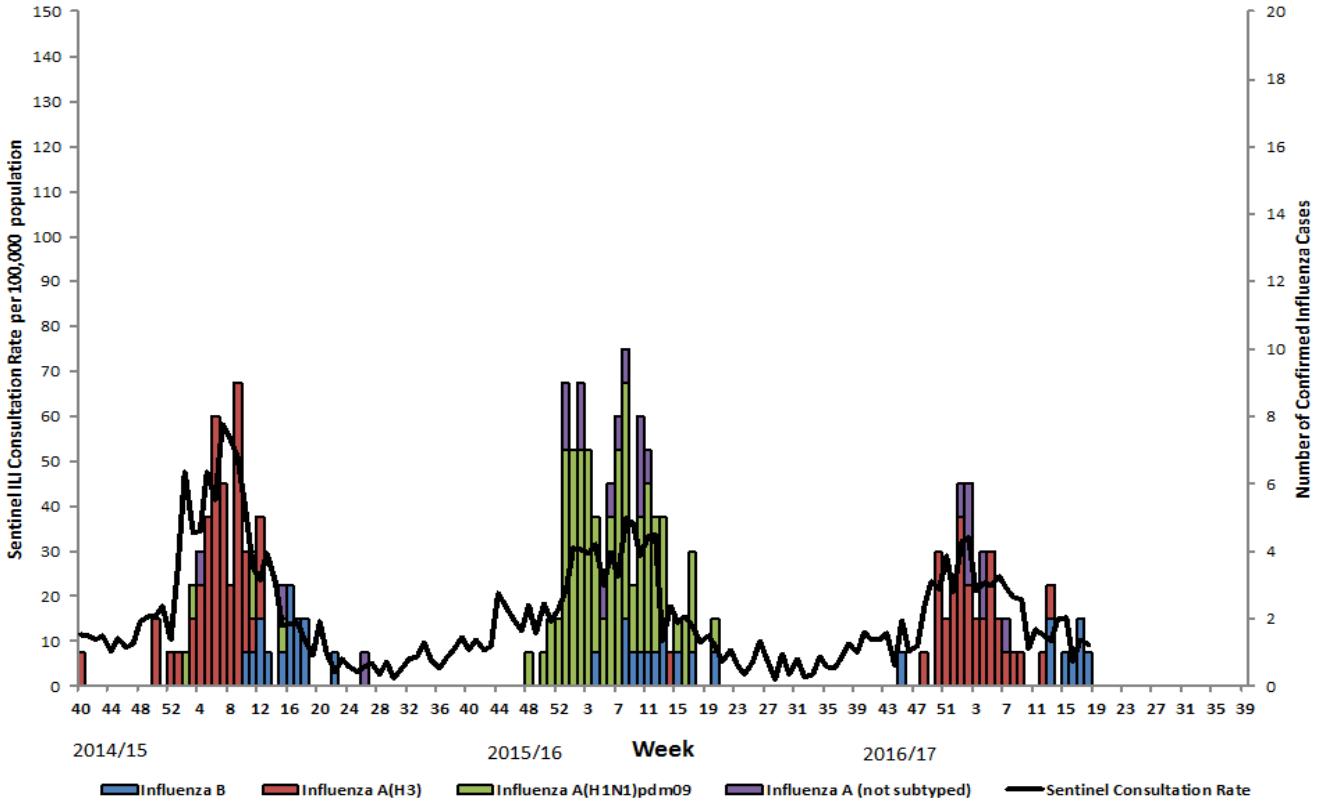


Comment

During weeks 17 and 18, 2017 there was one positive detection of RSV giving a positivity rate of less than 1%, similar to the same period in 2015/16 (less than 1%). To date there have been a total of 714 detections of RSV of which the majority (64%) were in those aged 0-4 years (Figure 8 and Table 2).

ICU/HDU Surveillance

Figure 9. Confirmed ICU influenza cases by week of specimen, with sentinel ILI consultation rate, 2014/15 - 2016/17



Comment

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

During weeks 17 and 18, three confirmed cases of influenza in ICU were reported to the PHA. There were no deaths reported in ICU patients with laboratory confirmed influenza.

There have been 48 confirmed cases of influenza in ICU reported this season to date, of which 33 have been typed as influenza A (H3), seven as influenza A (typing awaited) and eight influenza B. There have been nine deaths reported in confirmed cases of influenza in ICU this season to date.

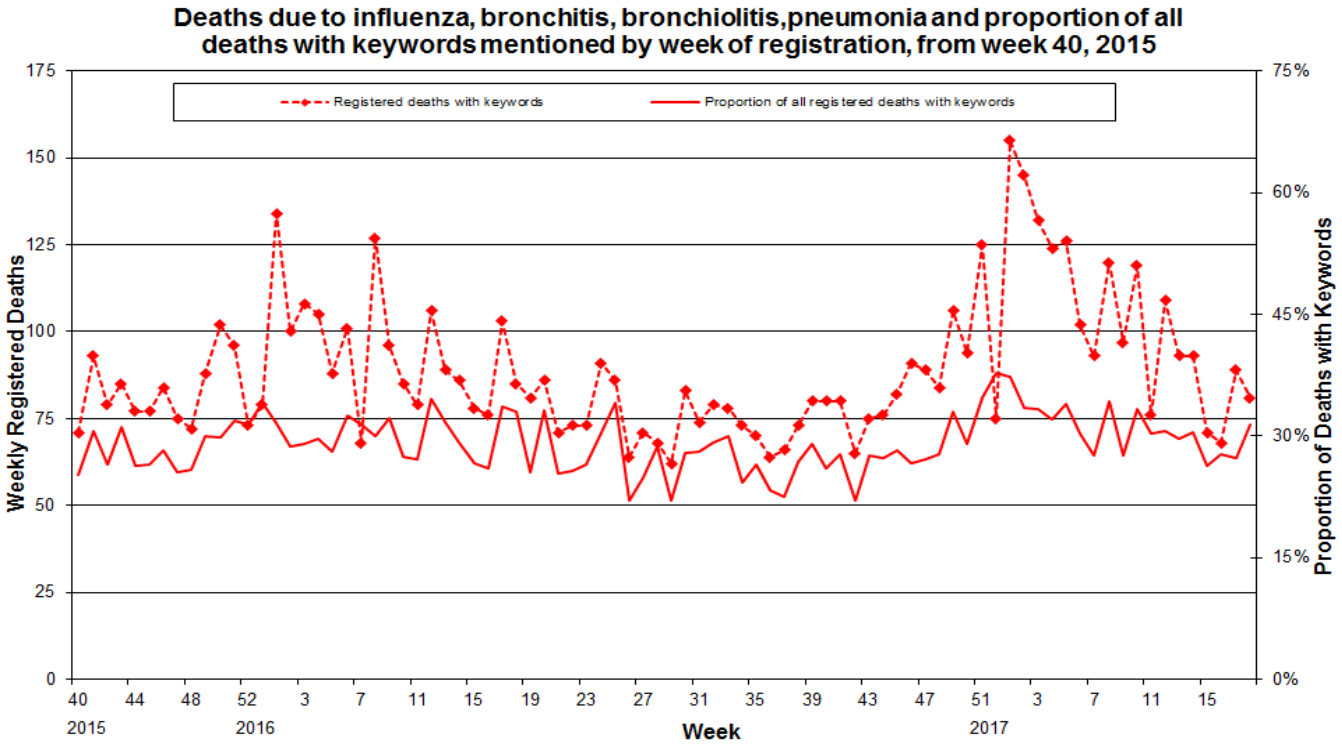
Outbreak Surveillance

During weeks 17 and 18, 2017 there were two confirmed influenza outbreaks reported to the PHA. There have been a total of 15 confirmed influenza outbreaks reported this season to date, of which eight have been confirmed as influenza A(H3), three as influenza A (typing awaited) and four as influenza B.

Mortality Data

Weekly mortality data is provided from Northern Ireland Statistics and Research Agency. 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 10. Weekly registered deaths



Comment

During week 17, 2017 the proportion of deaths related to respiratory keywords decreased to 27% from 28% in week 16, and then increased to 31% in week 18. In week 18 there were 258 registered deaths, of which 81 related to specific respiratory infections (Figure 10).

The proportion of deaths attributed to specific respiratory infections is lower at this point in the season than during the same period in 2015/16 (33%) but higher than in 2014/15 (28%).

EuroMOMO

EuroMOMO excess all-cause mortality data was unavailable in weeks 17 and 18, 2017 but will be updated in the next bulletin.

Influenza Vaccine Uptake

To 31st March 2017, provisional data suggested that vaccine uptake for those aged 65 years and over was 71.9%, lower than the same period in the 2015/16 (74.4%); while 57.1% of those under 65 and in an at risk group had received the vaccine, lower than in 2015/16 when 59.9% had received the vaccine in this group during the same period.

Similar to last season, all children aged between 2 and 4 years and all primary school children in 2016/17 have been offered the seasonal influenza vaccine. To 31st March 2017, provisional data suggested that vaccine uptake among 2-4 year old children was 52.6%, higher than in 2015/16 when 50.5% had received the vaccine during the same period. Provisional data suggests uptake among children in primary school was 78.3%, also higher than in 2015/16 when 76.8% had received the vaccine during the same period.

International Summary

Europe

Week 17, 2017

- Influenza activity across the region decreased further and all 40 reporting countries reported low influenza activity.
- The overall proportion of sentinel specimens testing positive for influenza viruses returned to the epidemic threshold value (10%).
- Type B viruses represented 95% of sentinel detections. However, the overall number of type B virus detections remained low.

Season Overview:

- After an earlier than usual start to the influenza season (week 46/2016), the influenza season is considered to be over in the great majority of countries in the Region, with influenza activity at inter-seasonal levels in all reporting countries and with the proportion of sentinel detections returning to the epidemic threshold value (10%).
- From week 40/2016 through week 10/2017, influenza A viruses predominated, accounting for 90% of all sentinel detections, and 99% of those subtyped were A(H3N2). Since week 11/2017, influenza B viruses have predominated, although absolute numbers of type B detections have remained low.
- Confirmed cases of influenza type A virus infection reported from hospitals have predominantly been in adults aged 65 years or older.
- Significant excess all-cause mortality has been observed in people aged 15–64 years, and markedly so in people aged 65 years or older, in the majority of the 20 reporting countries or regions. This is commonly seen when the predominant viruses circulating are A(H3N2).
- Two-thirds of the A(H3N2) viruses genetically characterized belong to subclade 3C.2a1, but remain antigenically similar to the clade 3C.2a vaccine virus, as described in the WHO

recommendations for vaccine composition for the northern hemisphere 2017–18. See also the WHO CC London February 2017 report.

- Vaccine effectiveness estimates for all age groups against A(H3N2) illness suggest moderate effectiveness in Canada (42%), the US (43%) and in Europe (38%).
- Of the viruses tested so far this season, one A(H3N2) virus has shown reduced susceptibility to oseltamivir and another A(H3N2) virus has shown reduced susceptibility to zanamivir.
- The developments during the season have been consistent with the conclusions of the ECDC risk assessment on seasonal influenza, updated on 25 January 2017, which suggested increased severe outcomes in the elderly due to the high prevalence of A(H3N2) viruses, resulting in pressure on some health care systems.

http://www.flunewseurope.org/

Worldwide (WHO) and CDC

As at 1st May 2017:

Influenza activity in the temperate zone of the northern hemisphere continued to decrease. Influenza activity remained low in the temperate zone of the southern hemisphere. Worldwide, influenza A(H3N2) and B viruses were predominant, with an increased proportion of influenza B viruses detected in recent weeks.

- In North America, overall influenza activity continued to decrease. In Canada, influenza A(H3N2) viruses continued to be the most common subtype of influenza detected, followed by influenza B virus; in Mexico, all seasonal influenza types/subtypes were detected; in the United States of America influenza B virus was predominant.
- In Europe, influenza activity continued to decrease to low levels, with detections of predominantly influenza B viruses in Northern and Eastern Europe. Influenza-like illness (ILI) and severe acute respiratory infection (SARI) indicators were generally low or below baseline in most countries.
- In Northern Africa, influenza activity remained low. Sporadic detections of influenza A(H3N2) viruses were reported in Tunisia.
- In Western Asia, influenza activity continued to decrease with influenza B viruses predominant in the region. SARI levels continued to decrease in Georgia, while remained stable in Armenia. In Oman, low influenza activity was reported with influenza A(H1N1)pdm09 virus predominant.
- In Central Asia, ILI and SARI activities continued to decrease; influenza virus detections were also low.
- In East Asia, influenza activity continued to be reported with all seasonal influenza types/subtypes detected in the region. In both Northern and Southern China, influenza A(H1N1)pdm09 virus detections increased in recent weeks. Influenza B virus detections continued to be reported in Southern China and the Republic of Korea; influenza B Victoria lineage was predominant in Southern China.
- In the Caribbean and Central America countries, respiratory virus activity remained low.
- In tropical South America, influenza activity increased slightly with influenza A(H3N2) viruses predominating. Other respiratory virus activities remained low in general, except in Colombia where elevated activity of respiratory syncytial virus (RSV) continued to be reported.
- In Western Africa, low levels of influenza activity continued to be reported in Côte d'Ivoire, Ghana, Senegal and Sierra Leone, with all seasonal influenza types/subtypes co-circulating in the region. In Eastern Africa, increased detections of influenza A(H3N2)and B viruses were reported in Madagascar and Tanzania in the recent weeks.

- In Southern Asia, influenza activity continued to be reported although it appeared to be decreasing. In India and the Maldives, influenza A(H1N1)pdm09 continued to be reported. In Pakistan, sporadic cases of influenza A(H3N2) viruses were reported in the recent weeks. In Bhutan, ILI levels and influenza activity appeared to decrease, with influenza A(H3N2) and B viruses circulating.
- In South East Asia, influenza activity remained low, with all seasonal influenza types/subtypes detected in the region.
- In the temperate zone of the Southern Hemisphere, influenza activity was at inter-seasonal levels. In Chile, ILI activity increased but has not reached the seasonal threshold in recent weeks, consistent with past seasonal trends.
- National Influenza Centres (NICs) and other national influenza laboratories from 95 countries, areas or territories reported data to FluNet for the time period from 03 April 2017 to 16 April 2017 (data as of 2017-04-27 11:16:47 UTC).The WHO GISRS laboratories tested more than 109373 specimens during that time period. 14597 were positive for influenza viruses, of which 6108 (41.8%) were typed as influenza A and 8489 (58.2%) as influenza B. Of the sub-typed influenza A viruses, 1358 (42.5%) were influenza A(H1N1)pdm09 and 1834 (57.5%) were influenza A(H3N2). Of the characterized B viruses, 747 (49.3%) belonged to the B-Yamagata lineage and 767 (50.7%) 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

We would like to extend our thanks to all those who assist us in the surveillance of influenza in particular the sentinel GPs, Out-of-Hours Centres, Apollo Medical, Regional Virus Laboratory, Critical Care Network for Northern Ireland, Public Health England and NISRA. Their work is greatly appreciated and their support vital in the production of this bulletin.

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://euroflu.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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