

Influenza Surveillance in Ireland – Weekly Report

Influenza Weeks 16 & 17 2016 (18th April – 1st May 2016)



Summary

Influenza activity in Ireland was at low levels during weeks 16 and 17 2016 (weeks ending April 24th and May 1st, 2016). Sporadic cases of influenza A(H1N1)pdm09 and influenza B continue to be reported in community and hospital settings, at low and decreasing levels.

- **Influenza-like illness (ILI):** The sentinel GP influenza-like illness (ILI) consultation rate was 2.2 per 100,000 population in week 17 2016, a decrease compared to the rate of 8.3 per 100,000 reported during week 16 2016.
 - ILI rates have remained below the Irish baseline ILI threshold (18 per 100,000 population), for seven consecutive weeks.
 - ILI age specific rates were low in all age groups during weeks 16 and 17 2016.
- **GP Out of Hours:** The proportion of influenza-related calls to GP Out-of-Hours services during weeks 16 and 17 2016, continued to decrease and was at low levels.
- **National Virus Reference Laboratory (NVRL):** Influenza positivity reported from the NVRL for all respiratory specimens (sentinel and non-sentinel) decreased to 7% during week 17 2016. Sporadic detections of influenza A(H1N1)pdm09 and influenza B continue to be detected at low levels.
- Sporadic detections of RSV, parainfluenza viruses, adenovirus and human metapneumovirus were reported during weeks 16 and 17 2016.
- All influenza A(H1N1)pdm09 and A(H3N2) viruses characterised in Ireland this season belong to genetic groups that are antigenically similar to the strains recommended for inclusion in the 2015/2016 trivalent influenza vaccines. Influenza B viruses characterised this season in Ireland belong to the B/Victoria lineage; these viruses are not present in the 2015/2016 trivalent vaccine used in Ireland. Trivalent vaccines are the most widely used influenza vaccines in Europe.
- **Hospitalisations:** For the 2015/2016 season to date, 1801 confirmed influenza hospitalised cases were notified to HPSC: 936 were associated with influenza A(H1N1)pdm09, 7 with A(H3N2), 260 with A (not subtyped) and 598 with influenza B.
- **Critical care admissions:** The last reported confirmed influenza case admitted to a critical care unit was on April 28th 2016. For the 2015/2016 season to date, 154 confirmed influenza cases (106 associated with influenza A(H1N1)pdm09, one with A(H3N2), 21 with influenza A-not subtyped and 26 with influenza B) were admitted to critical care units and reported to HPSC.
- **Mortality:** 67 notified influenza cases died and were reported to HPSC for the 2015/2016 season to date.
- **Outbreaks:** One acute respiratory infection outbreak in a community hospital/residential care facility was reported in HSE-NW during week 16 2016.
- **International:** Influenza activity continued to decrease in the European Region, with most countries reporting decreasing trends. Influenza A(H1N1)pdm09 viruses have predominated this season in most countries, although in recent weeks there has been a shift towards influenza B circulation.

1. GP sentinel surveillance system - Clinical Data

- During week 17 2016, 5 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 2.2 per 100,000 population, a decrease compared to the rate of 8.3 per 100,000 reported during week 16 2016. ILI rates have remained below the Irish baseline ILI threshold (18 per 100,000 population), for seven consecutive weeks (figure 1).
- ILI age specific rates remained low in all age groups during weeks 16 and 17 2016 (figure 2).
- HPSC in consultation with the European Centre for Disease Prevention and Control (ECDC) has revised the Irish baseline ILI threshold for the 2015/2016 influenza season to 18 per 100,000 population; this threshold indicates the likelihood that influenza is circulating in the community. The Moving Epidemic Method (MEM) has been adopted by ECDC to calculate thresholds for GP ILI consultations in a standardised approach across Europe.¹
- The baseline ILI threshold, medium (57/100,000 population) and high (114/100,000 population) intensity ILI thresholds are shown in figure 1.

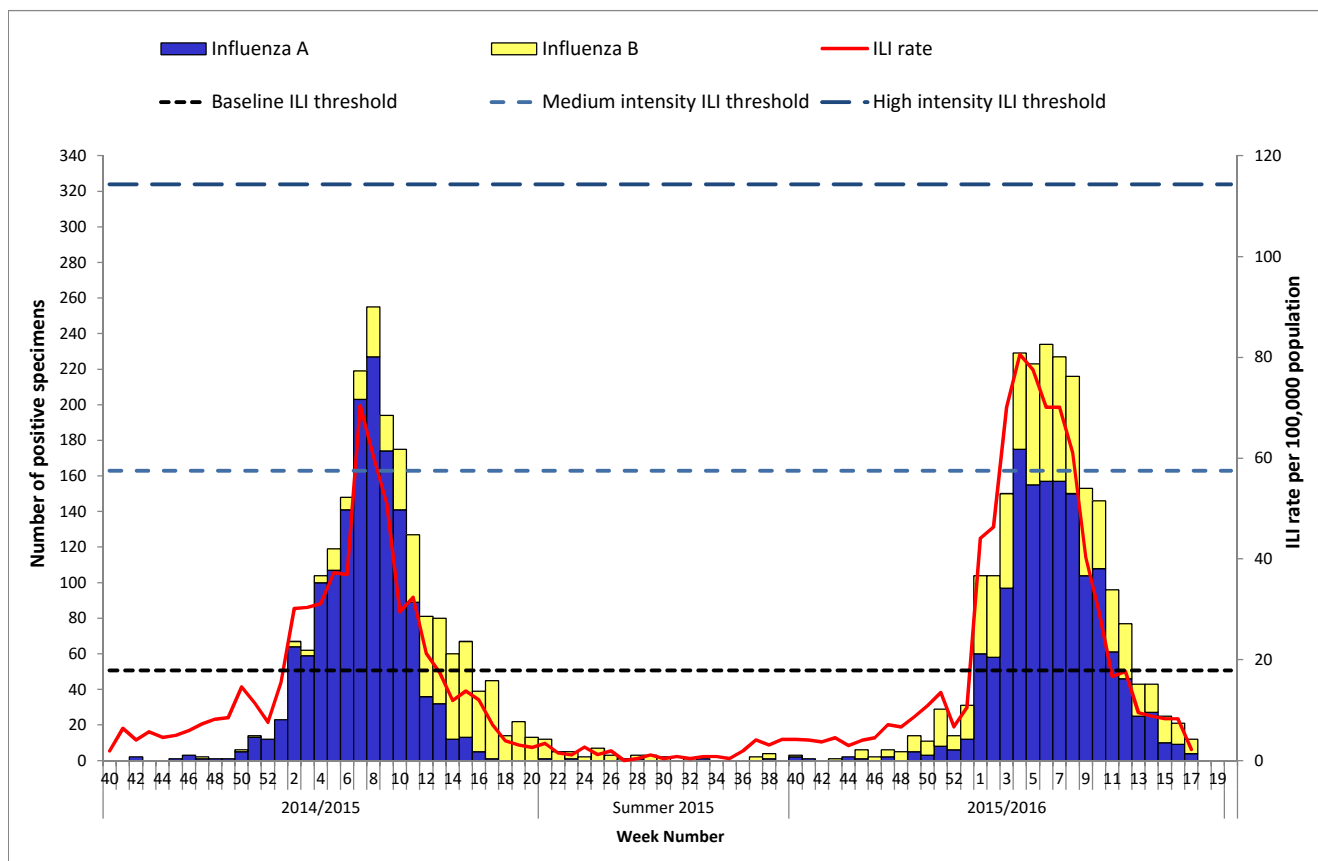


Figure 1: ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold, medium and high intensity ILI thresholds¹ and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.
 Source: ICGP and NVRL

¹ For further information on the Moving Epidemic Method (MEM) to calculate ILI thresholds:
<http://www.ncbi.nlm.nih.gov/pubmed/22897919>

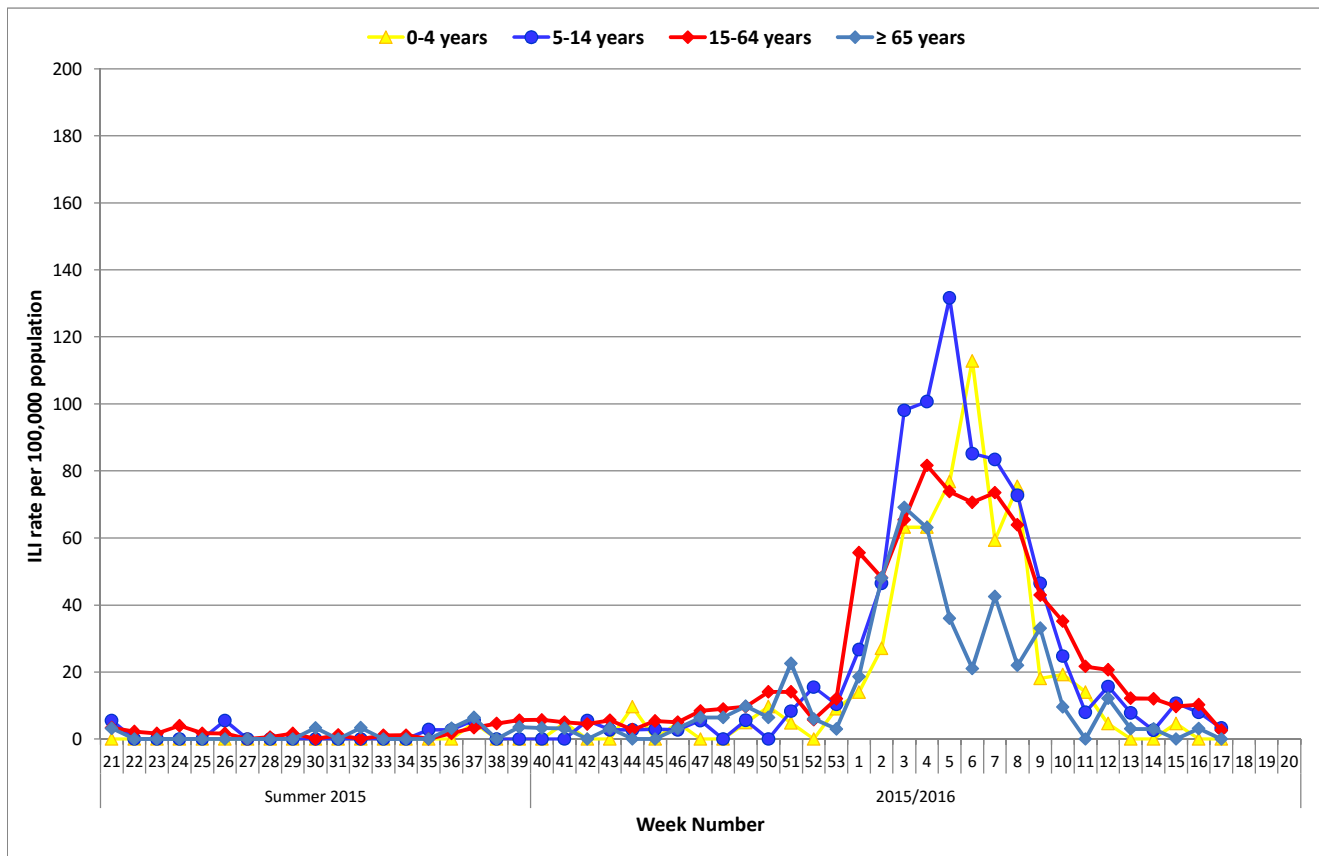


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2015 and the 2015/2016 influenza season to date. Source: ICGP.

2. Influenza and Other Respiratory Virus Detections - NVRL

The data reported in this section for the 2015/2016 influenza season refers to sentinel and non-sentinel respiratory specimens routinely tested for influenza, respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses types 1, 2, 3 & 4 (PIV-1, -2, -3 & -4) and human metapneumovirus (hMPV) by the National Virus Reference Laboratory (NVRL) (figures 3, 4 & 5, tables 1 & 2).

- Influenza positivity reported from the NVRL for all respiratory specimens (sentinel and non-sentinel) decreased to 6% during week 16 2016 and 7% during week 17 2016.
 - Overall, positive detections of both influenza A(H1)pdm09 and influenza B have decreased each week for the last 11 consecutive weeks.
- Sporadic detections of influenza A(H1)pdm09 and influenza B continue to be detected at very low levels in community and hospital settings (figures 3 & 4).
- Data from the NVRL for weeks 16 and 17 2016 and the 2015/2016 season to date are detailed in tables 1 and 2.
- RSV positivity peaked in week 51 2015. During weeks 16 and 17 2016, only one RSV positive specimen was reported. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2015/2016 season, compared to the 2014/2015 season.
- Sporadic detections of RSV, adenovirus, parainfluenza and human metapneumovirus (hMPV) from sentinel and non-sentinel sources were reported by the NVRL during weeks 16 and 17 2016 (table 2).
- The overall proportion of non-sentinel specimens positive for seasonal respiratory viruses* was low at 9% during week 16 2016 and 11% during week 17 2016. * Seasonal respiratory viruses tested by the NVRL are detailed above.

- Genetic characterisation of influenza viruses circulating this season in Ireland has been carried out by the NVRL, on 77 influenza positive specimens to date. Fifty-seven influenza A(H1)pdm09 viruses have been genetically characterised; all belong to the genetic group A/South Africa/3626/2013 (subgroup 6B), which is a genetic group of viruses that is antigenically similar to the 2015/2016 influenza A(H1)pdm09 vaccine strain. Five influenza A(H3) viruses have been genetically characterised, both belong to the genetic group A/Hong Kong/4801/2014 (3C.2a), which is a genetic group of viruses that is antigenically similar to the 2015/2016 influenza A(H3) vaccine strain. Fifteen influenza B viruses were characterised as belonging to the genetic group B/Victoria/2/87 (clade 1A), which is a genetic group of viruses antigenically similar to B/Brisbane/60/2008. The B/Victoria viruses are not present in the 2015/2016 trivalent influenza vaccine used in Ireland.
- Trivalent influenza vaccines are the most widely used influenza vaccines in Europe. The most prevalent influenza B virus lineage detected this season in Europe, is B/Victoria, which is not present in trivalent vaccines. Most influenza A(H1N1)pdm09 and A(H3N2) viruses genetically characterised in Europe this season to date, belong to genetic groups that are antigenically similar to the 2015/2016 influenza vaccine strains. Recommendations for the [vaccine composition](#) for the 2016/2017 season in the northern hemisphere are available: including a virus of the B/Victoria lineage in trivalent vaccines is advised.

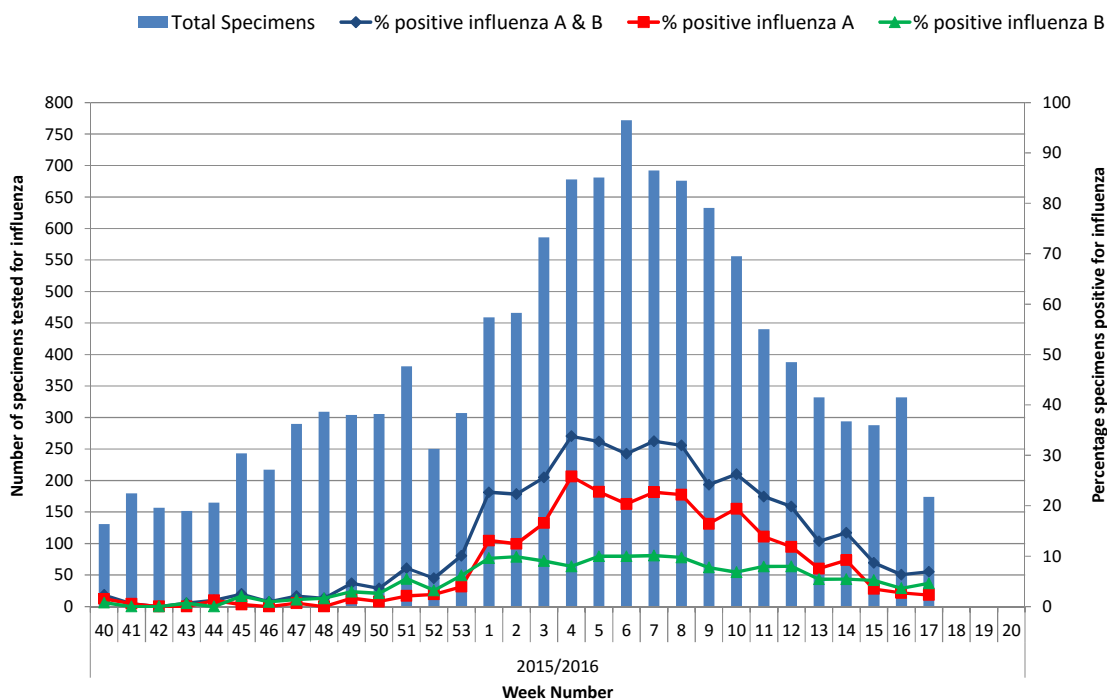


Figure 3: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive by week for the 2015/2016 influenza season. Source: NVRL

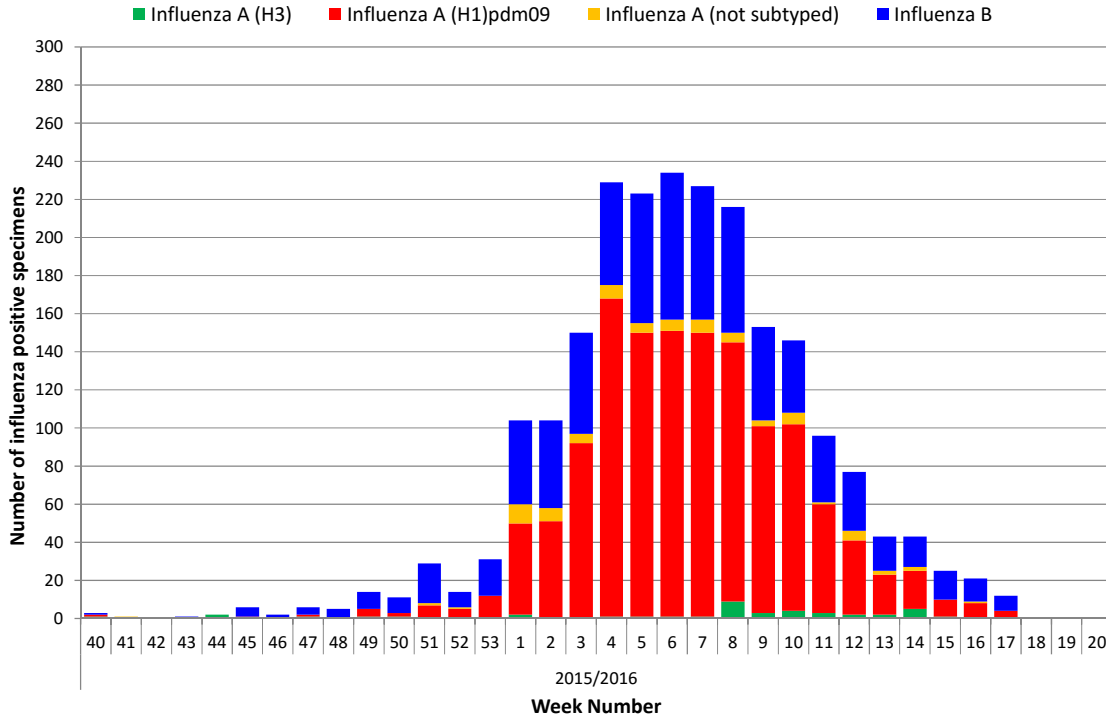


Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2015/2016 influenza season. *Source: NVRL.*

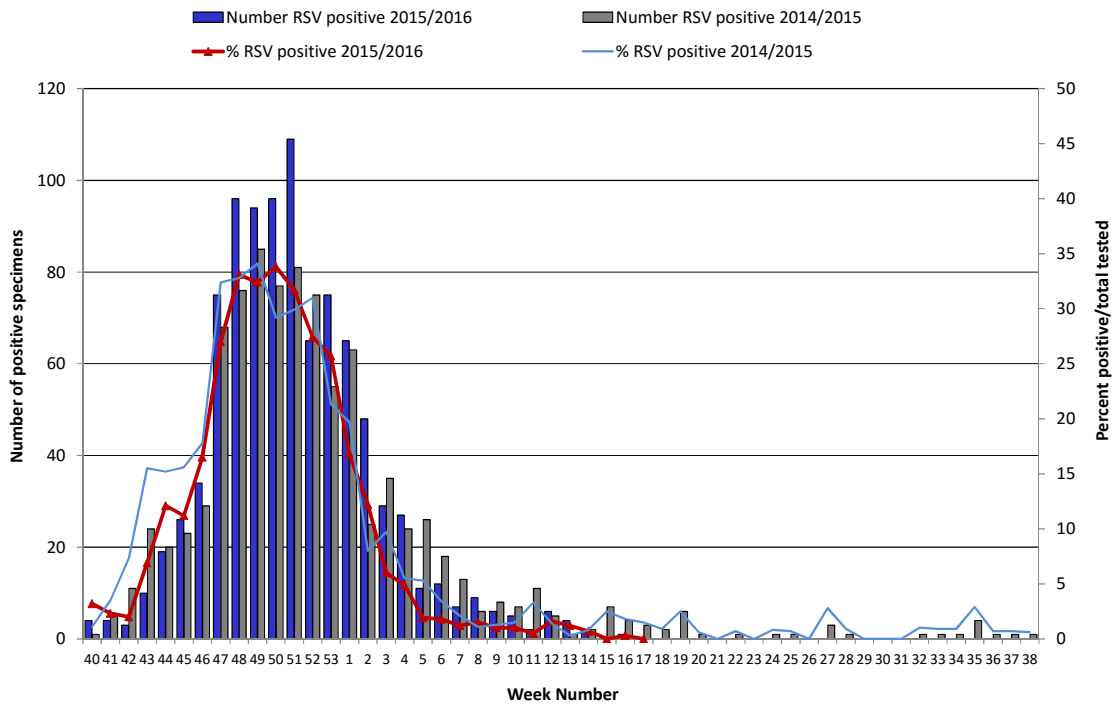


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL by week during the 2015/2016 season, compared to the 2014/2015 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[†] respiratory specimens tested by the NVRL and positive influenza results, for weeks 16 and 17 2016 and the 2015/2016 season to date. Source: NVRL

Week	Specimen type	Total tested	Number influenza positive	% Influenza positive	Influenza A				Influenza B
					A(H1)pdm09	A(H3)	A (not subtyped)	Total influenza A	
16 2016	Sentinel	14	4	28.6	0	0	1	1	3
	Non-sentinel	318	17	5.3	8	0	0	8	9
	Total	332	21	6.3	8	0	1	9	12
17 2016	Sentinel	4	0	0.0	0	0	0	0	0
	Non-sentinel	170	12	7.1	4	0	0	4	8
	Total	174	12	6.9	4	0	0	4	8
2015/2016	Sentinel	1146	570	49.7	312	6	10	328	242
	Non-sentinel	10693	1658	15.5	1017	35	65	1117	541
	Total	11839	2228	18.8	1329	41	75	1445	783

Table 2: Number of sentinel and non-sentinel respiratory specimens tested by the NVRL for seasonal respiratory viruses and positive results, for weeks 16 and 17 2016 and the 2015/2016 season to date. Source: NVRL

Week	Specimen type	Total tested	RSV	% RSV	Adenovirus	% Adenovirus	PIV-1	% PIV-1	PIV-2	% PIV-2	PIV-3	% PIV-3	PIV-4	% PIV-4	hMPV	% hMPV
16 2016	Sentinel	14	0	0.0	2	14.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	318	1	0.3	5	1.6	0	0.0	0	0.0	4	1.3	1	0.3	2	0.6
	Total	332	1	0.3	7	2.1	0	0.0	0	0.0	4	1.2	1	0.3	2	0.6
17 2016	Sentinel	4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	170	0	0.0	3	1.8	0	0.0	0	0.0	1	0.6	0	0.0	3	1.8
	Total	174	0	0.0	3	1.7	0	0.0	0	0.0	1	0.6	0	0.0	3	1.7
2015/2016	Sentinel	1146	27	2.4	14	1.2	6	0.5	1	0.1	0	0.0	0	0.0	17	1.5
	Non-sentinel	10693	944	8.8	144	1.3	65	0.6	28	0.3	50	0.5	0	0.0	191	1.8
	Total	11839	971	8.2	158	1.3	71	0.6	29	0.2	50	0.4	0	0.0	208	1.8

[†] Please note that non-sentinel specimens relate to specimens referred to the NVRL (other than sentinel specimens) and may include more than one specimen from each case.

3. Regional Influenza Activity by HSE-Area

The geographical spread of influenza activity is reviewed on a weekly basis using sentinel GP ILI consultation rates, laboratory data and outbreak data.

The geographical spread of influenza/ILI during the week ending April 24, 2016 (week 16 2016) and the week ending May 1, 2016 (week 17 2016) is shown in figure 6. During week 16 2016, sporadic influenza activity was reported in HSE-E, -NE, -SE, -S and -MW and no influenza activity in HSE-M, -NW and -W. During week 17 2015, sporadic influenza activity was reported in HSE-E, -SE and -S and no influenza activity was reported in HSE-NE, -NW, -W, -M and -MW (figure 6).

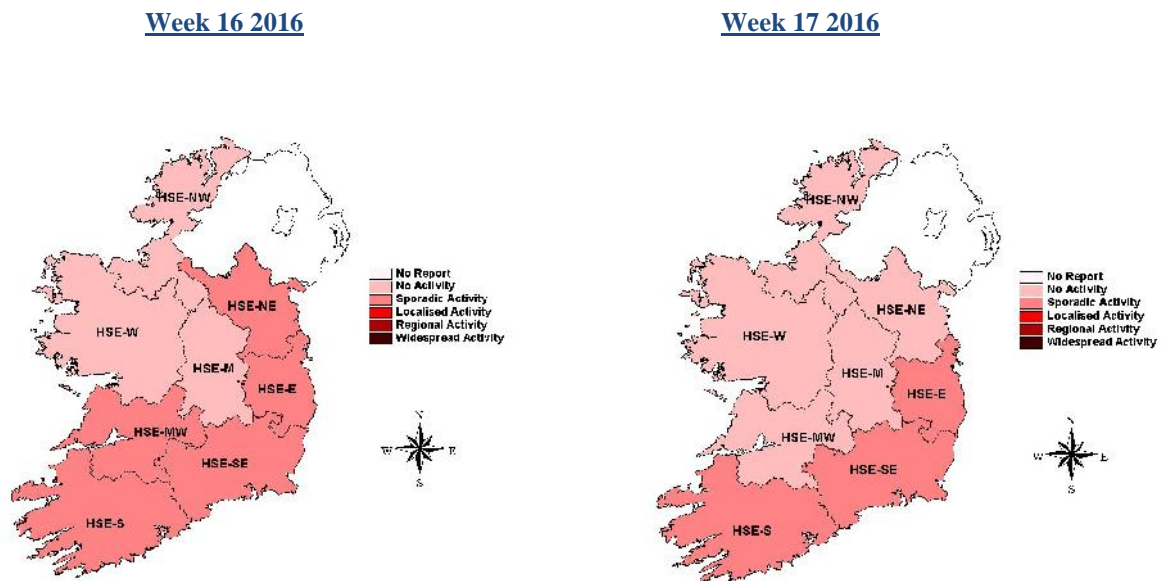


Figure 6: Map of provisional influenza activity by HSE-Area during influenza weeks 16 & 17 2016.

Sentinel hospitals

The Departments of Public Health have established at least one sentinel hospital in each HSE-Area, to report data on total, emergency and respiratory admissions on a weekly basis. For the 2015/2016 influenza season, eight sentinel hospitals are regularly reporting respiratory admissions data.

Respiratory admissions reported from a network of sentinel hospitals have decreased significantly to 275 during week 16 2016 and 179 during week 17 2016, compared to peak admissions reported during week 51 2015 (n=501) (figure 7). It should be noted that seven of eight sentinel hospitals reported data during week 16 2016 and six of eight sentinel hospitals reported during week 17 2016.

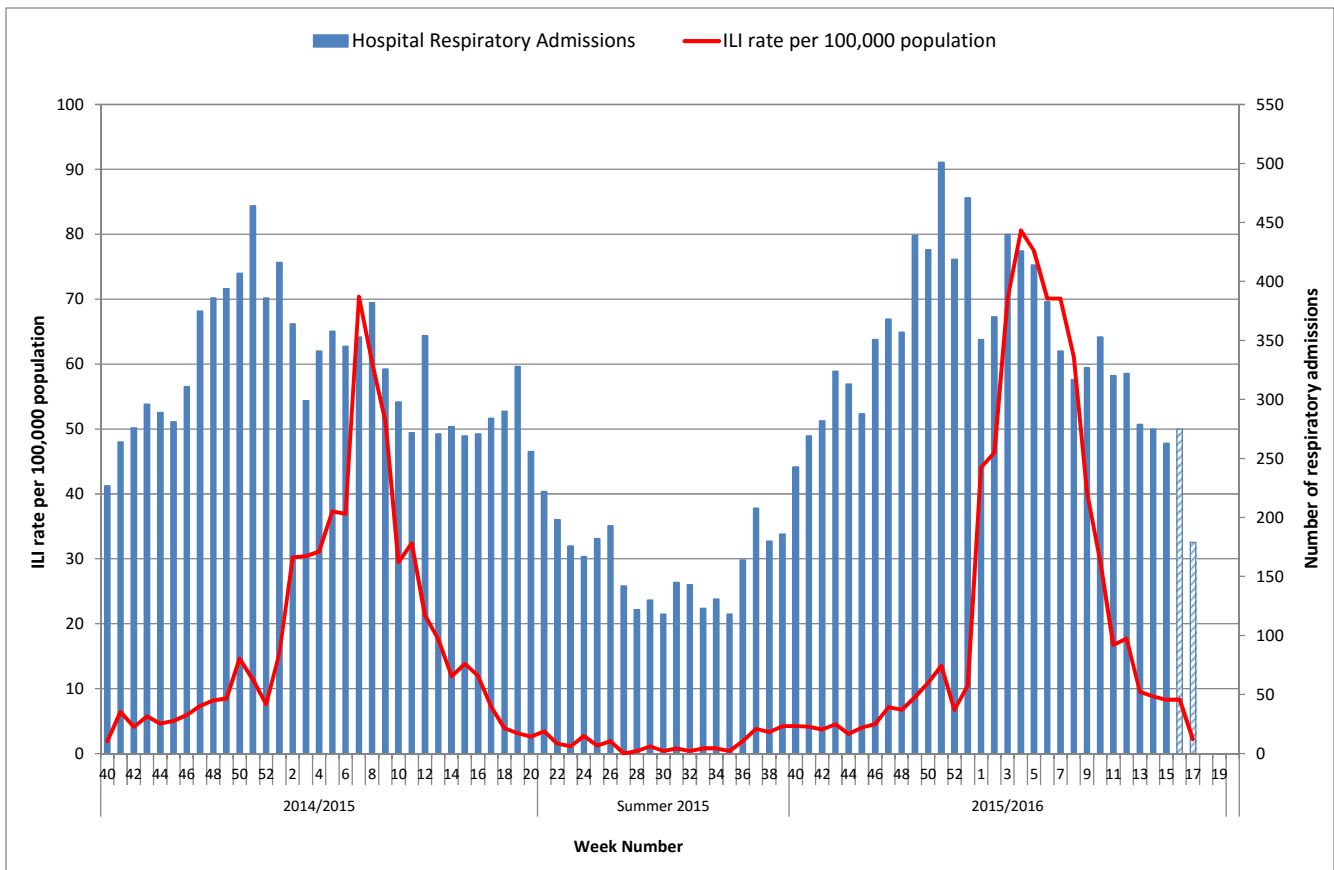


Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. Source: Departments of Public Health - Sentinel Hospitals & ICGP. Data were missing from one sentinel hospital for week 16 2016 and two sentinel hospitals for week 17 2016; these weeks are represented by the hatched bars.

4. GP Out-Of-Hours services surveillance

The Department of Public Health in HSE-NE is collating national data on calls to nine of thirteen GP Out-of-Hours services in Ireland. Records with clinical symptoms reported as flu or influenza are extracted for analysis. This information may act as an early indicator of increased ILI activity. However, data are self-reported by callers and are not based on coded influenza diagnoses.

The proportion of influenza-related calls to GP Out-of-Hours services remained low at 1.4% and 1.5% during weeks 16 and 17 2016, respectively (figure 8). For the 2015/2016 season, the proportion of influenza-related calls to GP Out-of-Hours services peaked at 5.1% during week 5 2016.

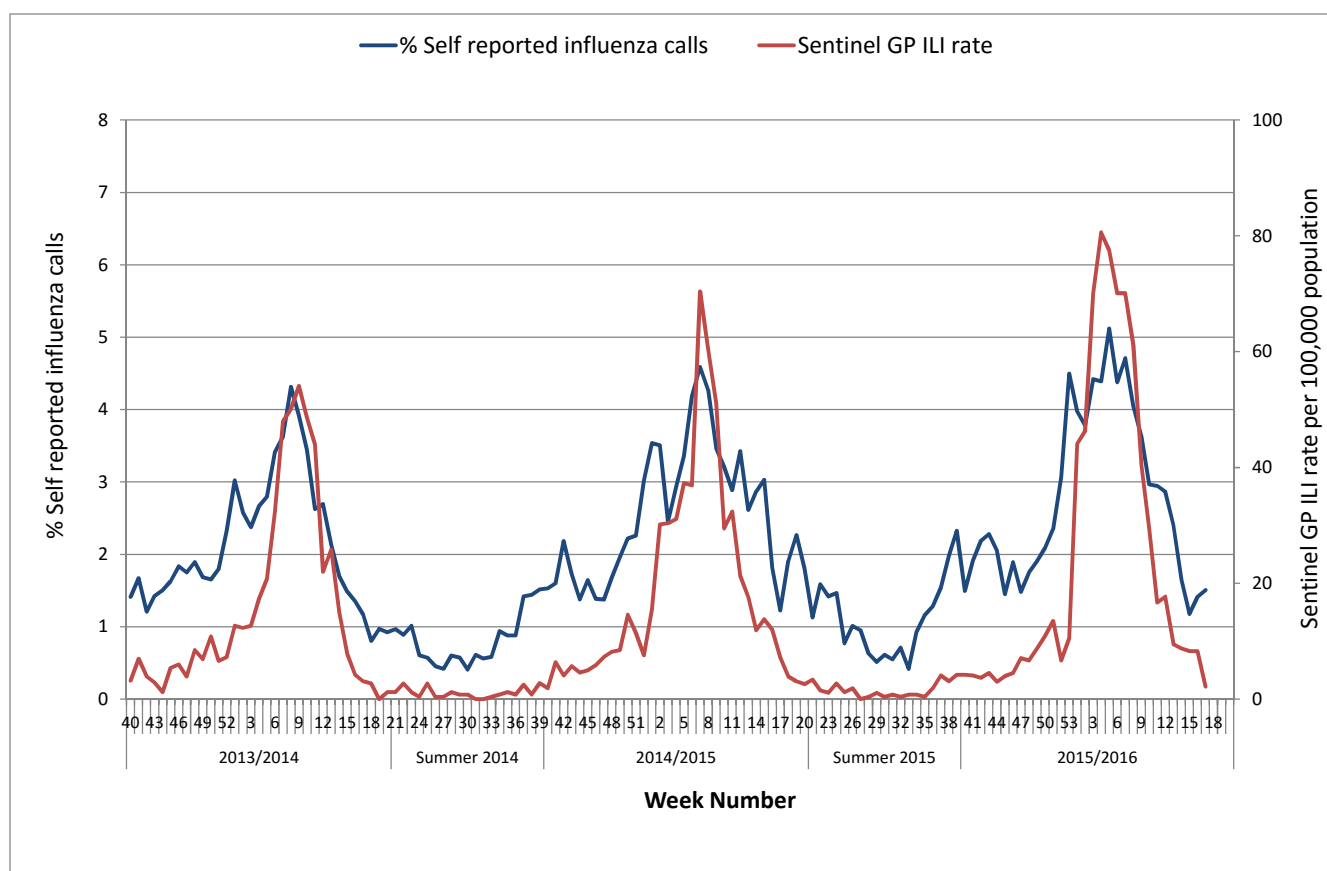


Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.

5. Influenza & RSV notifications

Influenza and RSV cases notifications are reported on Ireland’s Computerised Infectious Disease Reporting System (CIDR), including all positive influenza/RSV specimens reported from all laboratories testing for influenza/RSV and reporting to CIDR.

Influenza and RSV notifications are reported in the [Weekly Infectious Disease Report for Ireland](#). RSV notifications remained low, with only one case notified during week 17 2016. Influenza notifications decreased to 43 during week 17 2016, a significant decrease compared to the peak (n=550) in notifications during week 7 2016.

6. Influenza Hospitalisations

During week 17 2016 (week ending May 1, 2016), 15 confirmed influenza hospitalised cases were notified to HPSC, a decrease compared to 25 cases during week 16 2016. For the 2015/2016 season to date, 1801 confirmed influenza hospitalised cases were notified to HPSC: 936 were associated with influenza A(H1)pdm09, 7 with A(H3), 260 with A (not subtyped) and 598 with influenza B. The highest age specific rates were in those aged less than five years (table 3). The median age of hospitalised cases for the season to date is 30 years (ranging from 0-94 years).

7. Critical Care Surveillance

The Intensive Care Society of Ireland (ICSI) are continuing with the enhanced surveillance system set up during the 2009 pandemic, on all critical care patients with confirmed influenza. HPSC process and report on this information on behalf of the regional Directors of Public Health/Medical Officers of Health.

For the 2015/2016 season to date, 154 confirmed influenza cases (106 associated with influenza A(H1)pdm09, one with A(H3), 21 with influenza A-not subtyped and 26 with influenza B) were admitted to critical care units and reported to HPSC. The highest age specific rates were in those aged less than one year. The median age of cases admitted to critical care units for the season to date is 52 years (ranging from 0-86 years) (table 3). The last reported confirmed influenza case admitted to a critical care unit was admitted on April 28th 2016.

Table 3: Age specific rates for confirmed influenza cases hospitalised and admitted to critical care during the 2015/2016 influenza season to date. Age specific rates are based on the 2011 CSO census.

Age (years)	Hospitalised		Admitted to ICU	
	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
<1	108	149.2	12	16.6
1-4	360	126.8	12	4.2
5-14	267	42.8	7	1.1
15-24	84	14.5	2	0.3
25-34	181	24.0	5	0.7
35-44	163	21.6	22	3.2
45-54	117	20.2	21	3.6
55-64	143	30.9	33	7.1
≥65	378	70.6	40	7.5
Total	1801	39.3	154	3.4

8. Mortality Surveillance

Influenza-associated deaths include all deaths where influenza is reported as the primary/main cause of death by the physician or if influenza is listed anywhere on the death certificate as the cause of death. HPSC receives daily mortality data from the General Register Office (GRO) on all deaths from all causes registered in Ireland. These data have been used to monitor excess all-cause and influenza and pneumonia deaths as part of the influenza surveillance system and the European Mortality Monitoring Project. These data are provisional due to the time delay in deaths' registration in Ireland. <http://www.euromomo.eu/>

- Sixty-seven notified influenza cases died and were reported to HPSC for the 2015/2016 season to date: 45 associated with influenza A(H1)pdm09, 10 with influenza A-not subtyped, 11 with influenza B and one possible influenza case. The median age of confirmed influenza cases who died this season is 64 years.
- No excess all-cause mortality was reported in Ireland during weeks 16 and 17 2016. For the 2015/2016 season to date, excess all-cause mortality was reported during weeks 1 and 4 2016, after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm. Please note these data are provisional due to the time delay in deaths' registration in Ireland.

9. Outbreak Surveillance

- During weeks 16 2016, one acute respiratory infection outbreak was reported in HSE-NW in a community hospital/residential care facility.
- To date this season (up to the week ending May 1, 2016), 59 acute respiratory/influenza outbreaks have been reported to HPSC: 33 outbreaks associated with influenza (27 with influenza A(H1N1)pdm09, two with influenza A –not subtyped and four with influenza B), eight with RSV, two with parainfluenza type 1, two with hMPV, one with rhinovirus and 13 with unknown pathogens. Forty-three outbreaks were in community hospital/residential care facilities, 11 were in acute hospital settings, two were in schools and three in day-care centres (two of which were for those with intellectual disabilities). Family outbreaks are not included in this report. *All outbreaks notified to HPSC are reported in the [HPSC Outbreak Weekly Report](#).*

10. International Summary

- As of May 2 2016, overall influenza activity continued to decrease in the Northern Hemisphere. A predominance of influenza B virus activity continued to be reported in parts of North America, in Northern Temperate Asia, South-East Asia and in parts of Europe. In a few countries in the Southern Hemisphere, slight increases in influenza-like illness (ILI) activity were reported.
- In the European Region, influenza activity peaked during weeks 5-7 2016. Influenza A(H1N1)pdm09 viruses have predominated this season in most countries of the WHO European Region, although in recent weeks there has been a shift towards influenza B circulation. In several European countries there were more reports of severe cases, predominantly associated with A(H1N1)pdm09 and in those aged 15-64 years, than in the previous season. The number of severe cases has decreased in recent weeks. Influenza A(H1N1)pdm09 viruses may cause more severe disease and deaths in those aged less than 65 years, than A(H3N2) viruses. Most of the viruses characterised to date this season in Europe have been similar to the strains recommended for inclusion in the trivalent or quadrivalent vaccines for the 2015/2016 season for the northern hemisphere.
- See [ECDC](#) and [WHO](#) influenza surveillance reports for further information. ECDC and WHO have both published mid-season influenza risk assessments, available on the [ECDC](#) and [WHO](#) websites.

- Further information is available on the following websites:

Northern Ireland <http://www.fluawareni.info/>

Europe – ECDC <http://ecdc.europa.eu/>

Public Health England <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/>

United States CDC <http://www.cdc.gov/flu/weekly/fluactivitysurv.htm>

Public Health Agency of Canada <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

- Information on Middle Eastern Respiratory Syndrome Coronavirus (MERS), including the latest ECDC rapid risk assessment is available on the [ECDC website](#). Further information and guidance documents are also available on the [HPSC](#) and [WHO](#) websites.
- Further information on avian influenza is available on the [ECDC website](#). The latest ECDC rapid risk assessment on highly pathogenic avian influenza A of H5 type is also available on the [ECDC website](#).

11. WHO recommendations on the composition of influenza virus vaccines

On February 25, 2016, the WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2016/2017 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Hong Kong/4801/2014 (H3N2)-like virus; a B/Brisbane/60/2008-like virus. <http://www.who.int/influenza/vaccines/virus/recommendations/en/>

The WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2015/2016 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Switzerland/9715293/2013 (H3N2)-like virus; a B/Phuket/3073/2013-like virus. <http://www.who.int/influenza/vaccines/virus/recommendations/en/>

Further information on influenza in Ireland is available at www.hpsc.ie

Acknowledgements

This report was prepared by Lisa Domegan and Joan O'Donnell, HPSC. HPSC wishes to thank the sentinel GPs, the ICGP, NVRL, Departments of Public Health, ICSI and HSE-NE for providing data for this report.