Influenza Surveillance in Ireland – Weekly Report

Influenza Week 3 2016 (18th - 24th January 2016)

Summary

Influenza activity in Ireland continued to increase during week 3 2016 (week ending January 24, 2016), with activity at moderately high levels. Influenza A(H1)pdm09 and influenza B are co-circulating, with increasing hospitalisations and ICU admissions reported during this period. It is now recommended that antivirals be considered for the treatment or prevention of influenza in high risk groups.

- Influenza-like illness (ILI): The sentinel GP influenza-like illness (ILI) consultation rate was 76.5 per 100,000 population in week 3 2016, an increase compared to the updated rate of 50.6 per 100,000 reported during week 2 2016.
    - ILI rates remained above the Irish baseline ILI threshold (18 per 100,000 population).
    - During week 3 2016, ILI age specific rates increased in all age groups, with the highest age specific rates in the 5-14 year age group.
- GP Out of Hours: The proportion of influenza–related calls to GP Out-of-Hours services remained elevated during week 3 2016.
- National Virus Reference Laboratory (NVRL):
    - Influenza positivity increased during week 3 2016, compared to the previous week, with 114 (23.6%) influenza positive specimens reported: 68 A(H1)pdm09, 5 A (not subtyped) and 41 B.
    - The predominant influenza viruses circulating are influenza A(H1)pdm09 and influenza B.
    - Influenza B positivity peaked during week 53 2015 and has declined in recent weeks; while influenza A(H1)pdm09 positivity continues to increase.
    - RSV positive detections continue to decrease.
    - Positive detections of human metapneumovirus and parainfluenza viruses were reported during week 3 2016.
- Respiratory admissions: Respiratory admissions reported from a network of sentinel hospitals were at high levels during week 3 2016.
- Hospitalisations: 219 confirmed influenza hospitalised cases were notified to HPSC for the 2015/2016 season to date: 88 were associated with influenza A(H1)pdm09, 3 with A(H3), 37 with A (not subtyped) and 91 with influenza B.
- Critical care admissions: 11 confirmed influenza cases admitted to critical care units were reported to HPSC during the week ending January 24, 2016, bringing the season total to 27 cases.
- Mortality: Seven confirmed influenza cases died and were reported to HPSC for the 2015/2016 season to date.
- Outbreaks: One RSV outbreak in a nursing home in HSE-SE was reported to HPSC during week 3 2016.
- International: Influenza activity is increasing in Europe, with influenza A(H1N1)pdm09 viruses predominating this season to date.

1. GP sentinel surveillance system - Clinical Data

- During week 3 2016, 196 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 76.5 per 100,000 population, an increase compared to the updated rate of 50.6 per 100,000 reported during week 2 2016. ILI rates remain above the Irish baseline ILI threshold (18/100,000 population) and have now crossed the medium intensity ILI threshold (57/100,000 population) (figure 1).
- ILI age specific rates increased in all age groups during week 3 2016, with the highest rates in the 5-14 year age group at 109.1/100,000 population (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.

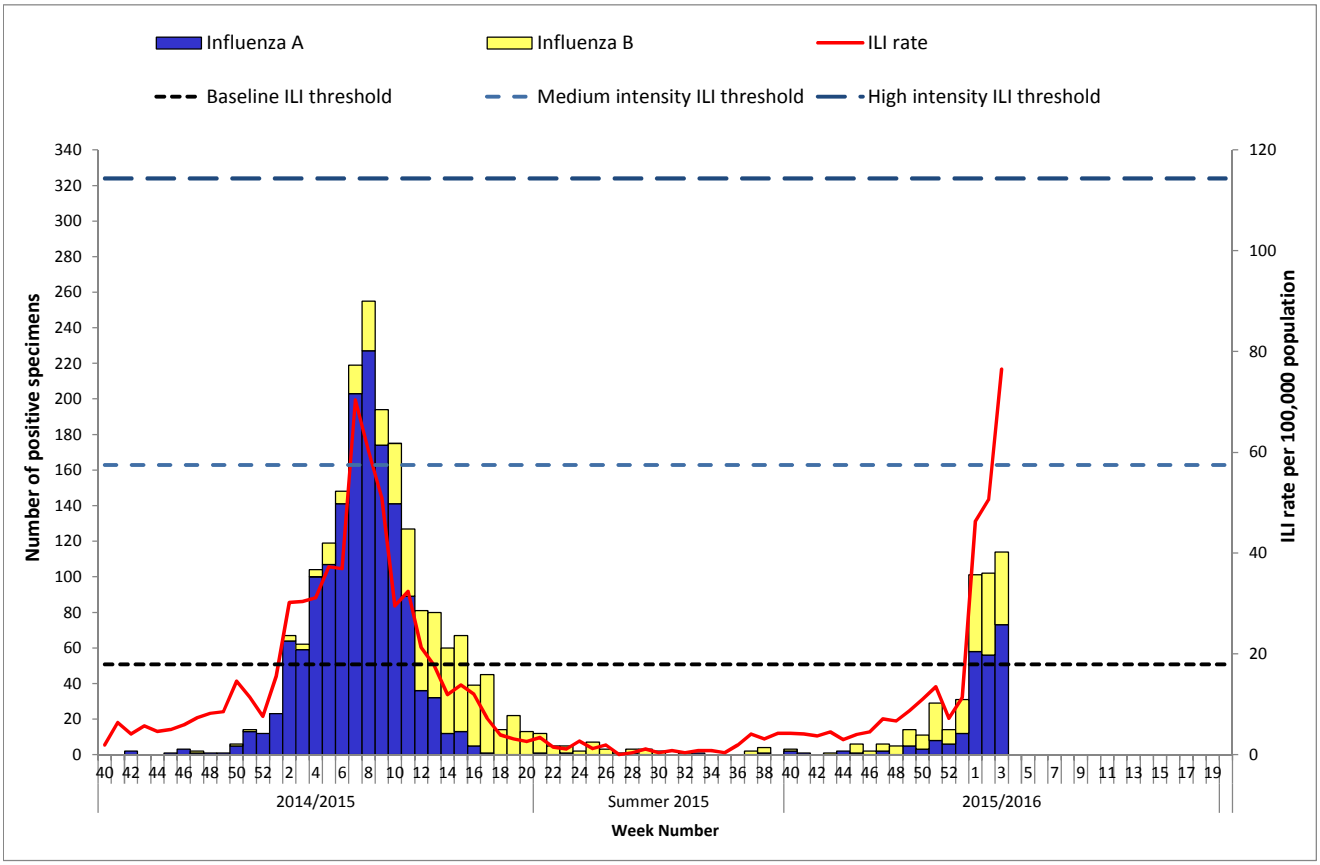

Figure 1: ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold, medium and high intensity ILI thresholds[1] and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.
Source: ICGP and NVRL

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

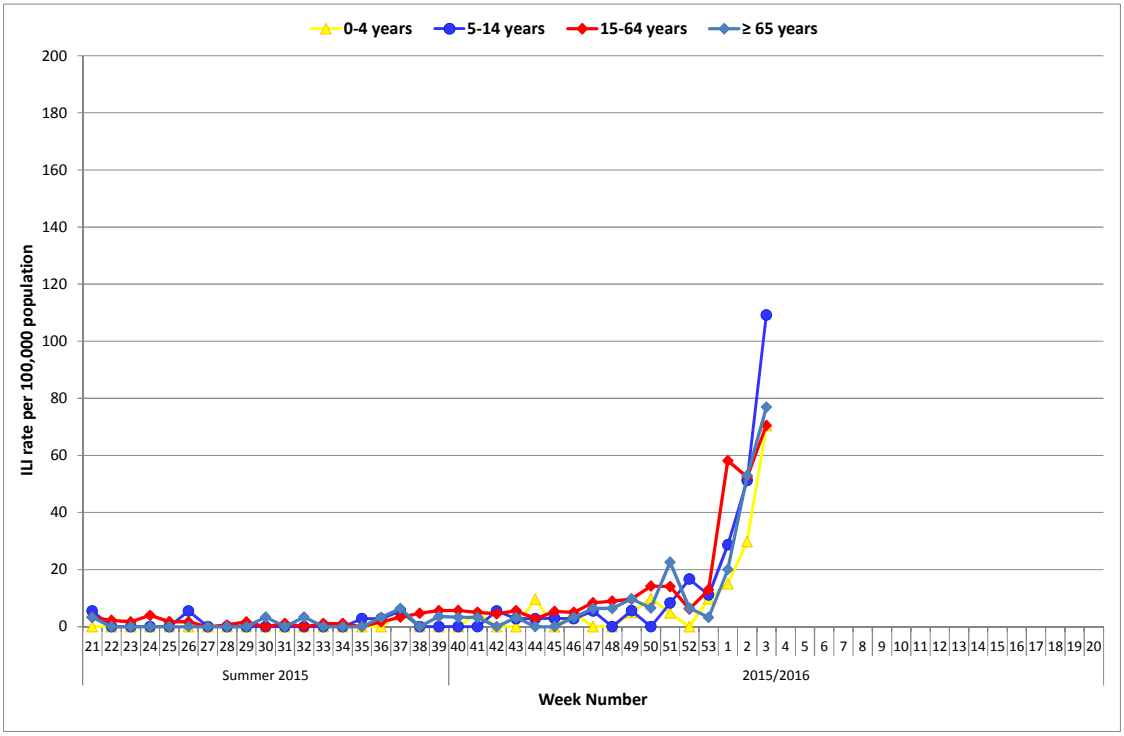

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2015 and the 2015/2016 influenza season to date. *Source: ICGP.*

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 increased slightly during week 3 2016, compared to the previous week, with 114 (23.6%) influenza positive specimens reported from the NVRL: 68 A(H1)pdm09, 5 A (not subtyped) and 41 B.
    - During week 3 2016, 59.6% of influenza positive specimens were influenza A(H1)pdm09 and 36% were influenza B. Influenza B positivity peaked during week 53 2015 and has declined in recent weeks. Influenza A(H1)pdm09 positivity is continuing to increase.
- Influenza A(H1)pdm09 and influenza B are currently co-circulating in Ireland (figure 3 & 4).
- Week 3 2016:
    - 41 of 70 (58.6%) sentinel specimens were influenza positive: 26 A(H1)pdm09 and 15 B.
    - 73 of 413 (17.7%) non-sentinel specimens were influenza positive: 42 A(H1)pdm09, 5 A (not subtyped) and 26 B.
- RSV continues to circulate at moderate levels, with positivity continuing to decrease following the RSV peak in week 51 2015. Twenty-eight (28/483; 5.8%) respiratory syncytial virus (RSV) positive sentinel and non-sentinel specimens were reported during week 3 2016. 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.
- Ten human metapneumovirus (hMPV) and seven parainfluenza virus (PIV-1, -2 & -3) positive sentinel and non-sentinel specimens were reported by the NVRL during week 3 2016 (table 2).
- The overall proportion of non-sentinel specimens positive for seasonal respiratory viruses* remained high, at 28.6% during week 3 2016. ** Seasonal respiratory viruses tested by the NVRL are detailed above.*

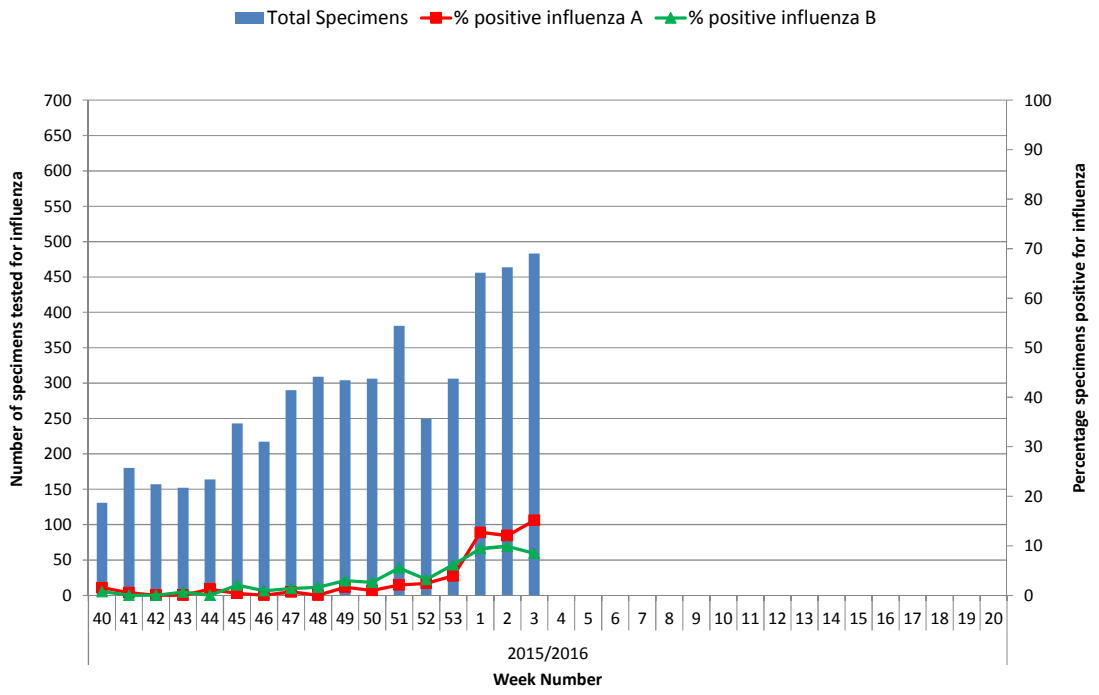

Figure 3: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive by week for the 2015/2016 influenza season. *Source: NVRL*

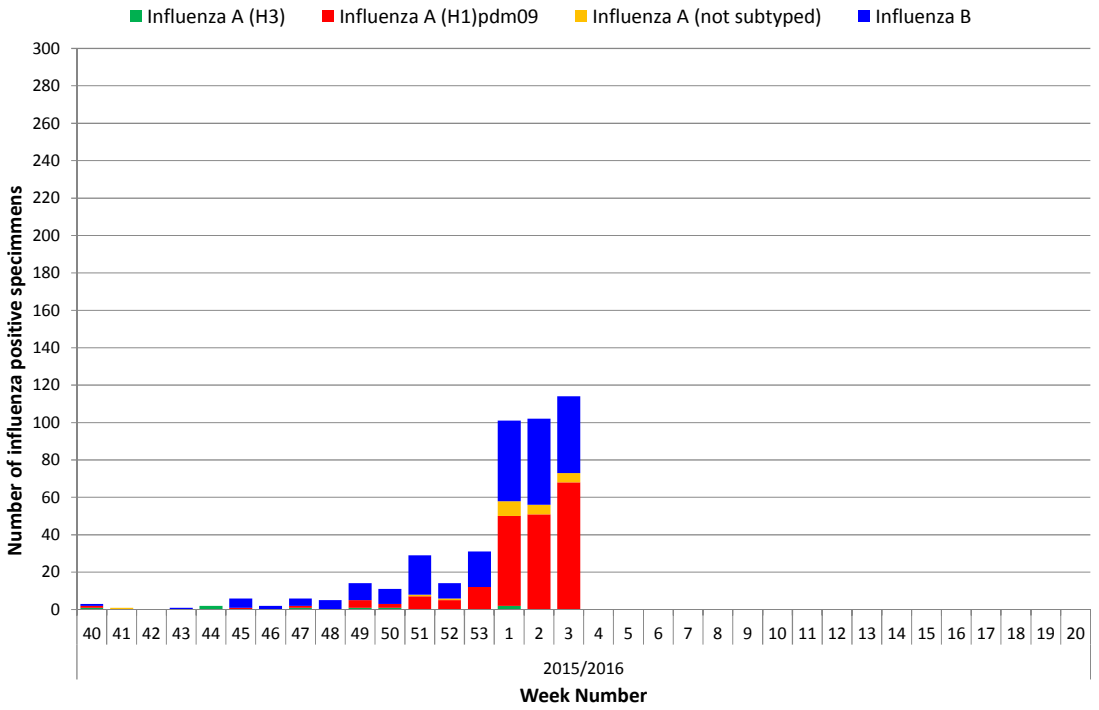

Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2015/2016 influenza season. *Source: NVRL.*

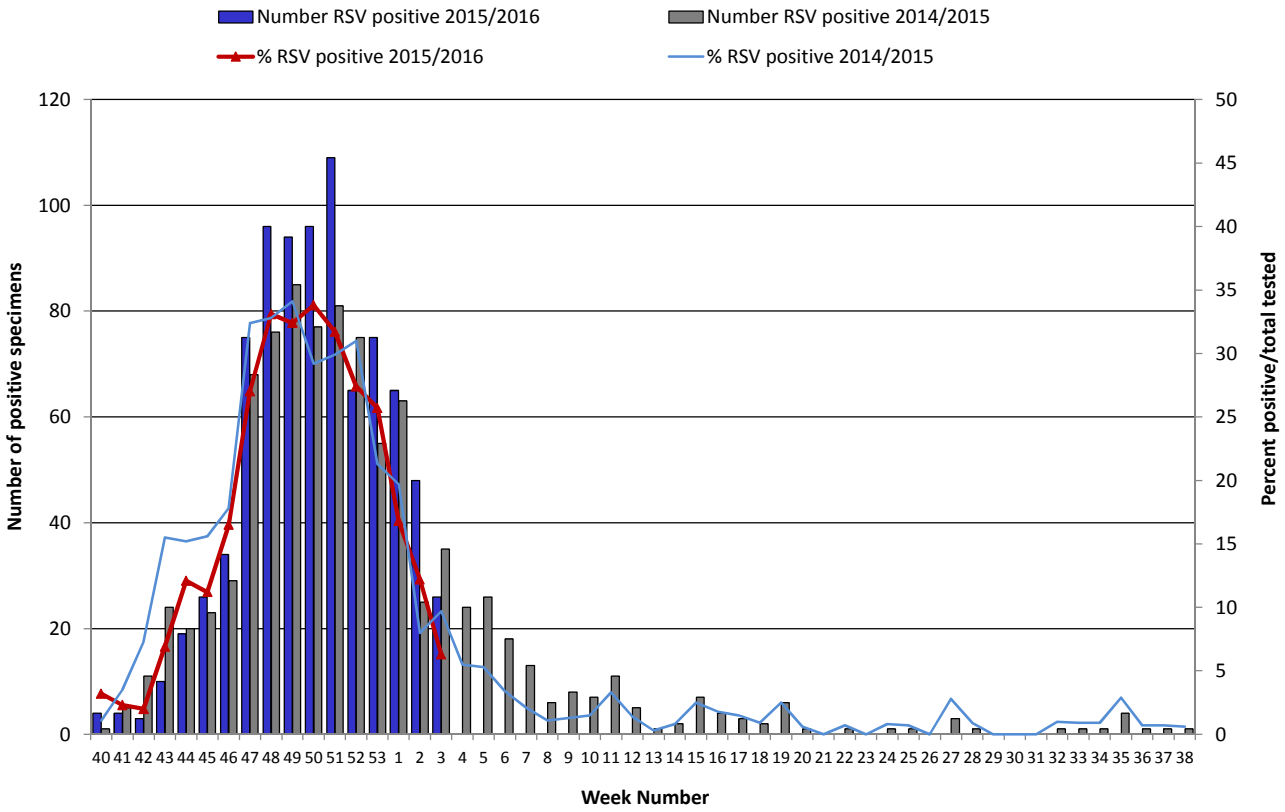

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL by week during the 2015/2016 season, compared to the 2014/2015 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[†] respiratory specimens tested by the NVRL and positive influenza results, for week 3 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	
3 2016	Sentinel	70	41	58.6	26	0	0	26	15
	Non-sentinel	413	73	17.7	42	0	5	47	26
	Total	**483**	**114**	**23.6**	**68**	**0**	**5**	**73**	**41**
2015/2016	Sentinel	391	157	40.2	73	2	1	76	81
	Non-sentinel	4402	285	6.5	127	6	20	153	132
	Total	**4793**	**442**	**9.2**	**200**	**8**	**21**	**229**	**213**

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 3 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
3 2016	Sentinel	70	2	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.4
	Non-sentinel	413	26	6.3	3	0.7	2	0.5	3	0.7	2	0.5	0	0.0	9	2.2
	Total	**483**	**28**	**5.8**	**3**	**0.6**	**2**	**0.4**	**3**	**0.6**	**2**	**0.4**	**0**	**0.0**	**10**	**2.1**
2015/2016	Sentinel	391	23	5.9	2	0.5	6	1.5	1	0.3	0	0.0	0	0.0	10	2.6
	Non-sentinel	4402	849	19.3	34	0.8	64	1.5	24	0.5	29	0.7	0	0.0	108	2.5
	Total	**4793**	**872**	**18.2**	**36**	**0.8**	**70**	**1.5**	**25**	**0.5**	**29**	**0.6**	**0**	**0.0**	**118**	**2.5**

[†] 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 January 24, 2016 (week 3 2016) is shown in figure 6. Widespread influenza activity was reported in HSE-E, -MW and –S, regional influenza activity was reported in HSE-SE and –W, localised activity was reported in HSE-NE and sporadic influenza activity was reported in HSE-M and -NW during week 3 2016.

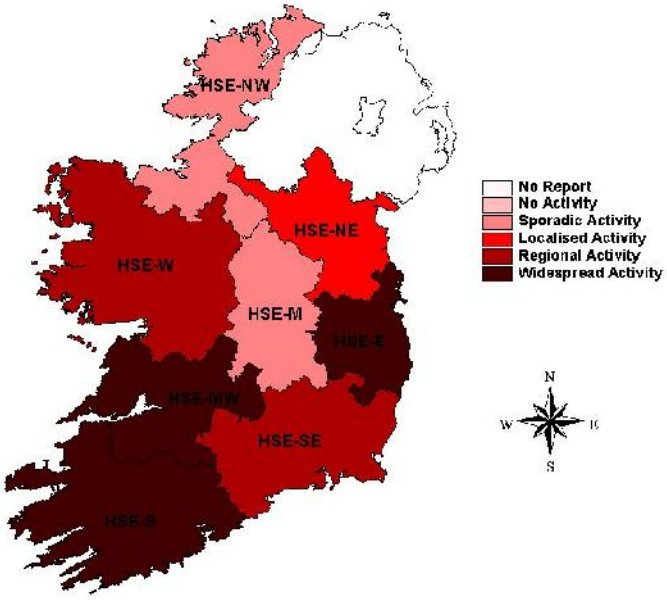

Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 3 2016

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 remained at high levels during week 3 2016 at 440, and increased compared to the previous two weeks (figure 7). Data were received from all eight sentinel hospitals for all weeks this season (weeks 40 2015 to 3 2016).

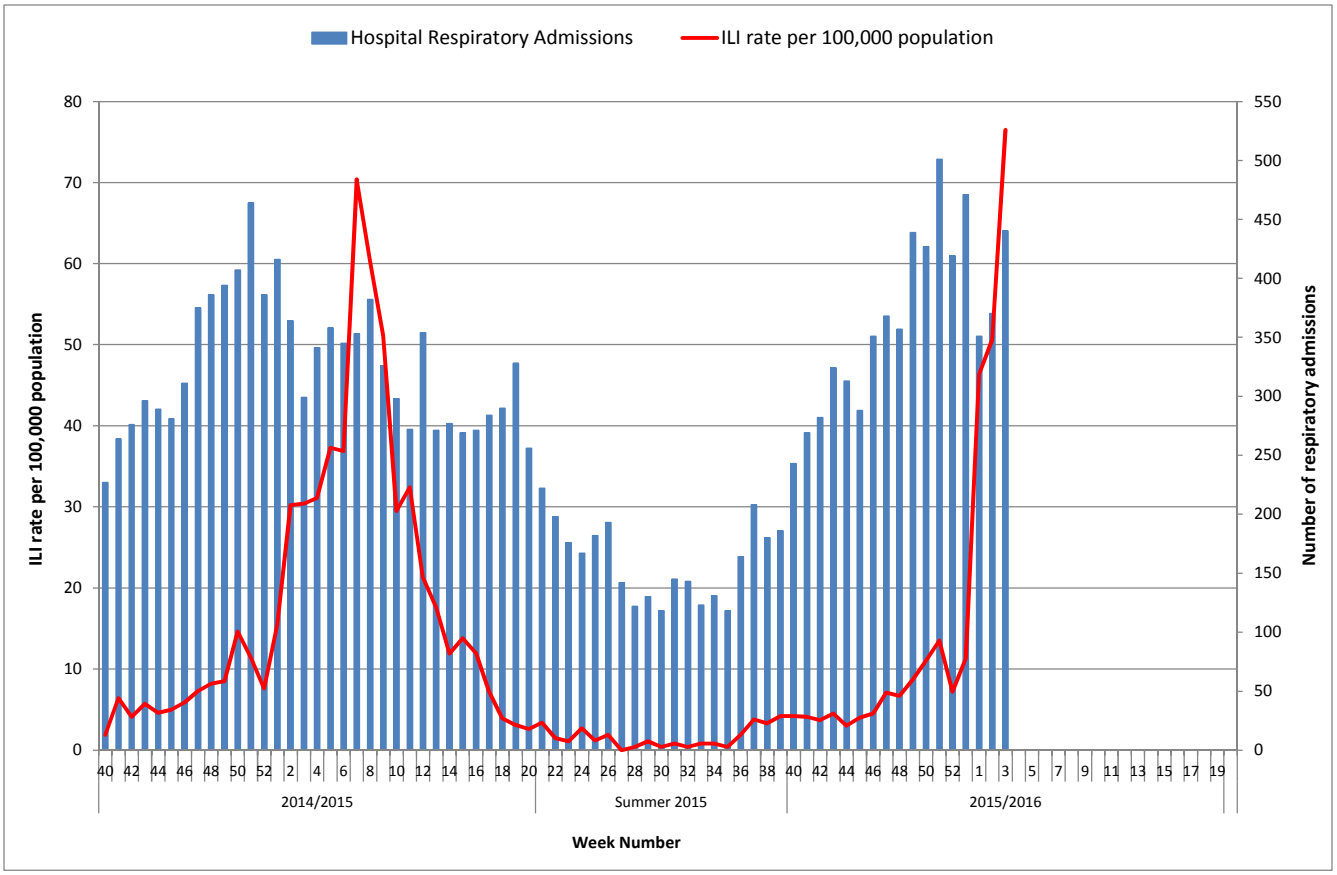

Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. *Source: Departments of Public Health - Sentinel Hospitals & ICGP.*

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 elevated during week 3 2016 at 3.9%, compared to 3.8% during week 2 2016 (figure 8).

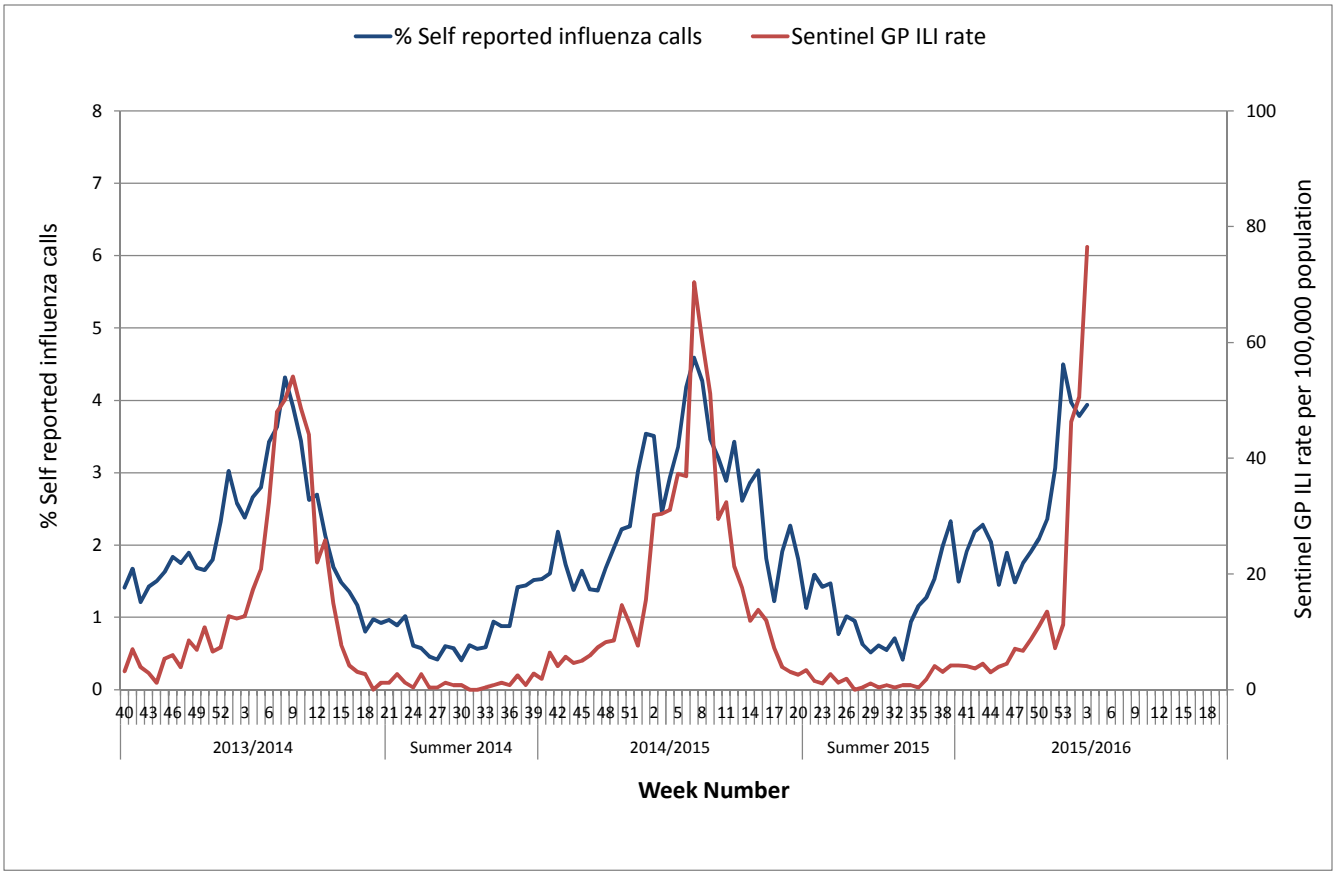

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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 continued to decrease during the week ending January 24, 2016, with 103 cases notified, compared to 182 during the previous week. Influenza notifications increased significantly during the week ending January 24, 2016, with 231 cases notified, compared to 147 during the previous week.

6. Influenza Hospitalisations

Eighty-two confirmed influenza hospitalised cases were notified to HPSC during week 3 2016 (week ending 24/01/2016), bringing the 2015/2016 season total to 219. Of these 219 notified hospitalised cases: 88 were associated with influenza A(H1)pdm09, 3 with A(H3), 37 with A (not subtyped) and 91 with influenza B. The proportion of influenza A(H1)pdm09 hospitalised cases has continued to increase each week since week 1 2016, while the proportion of influenza B hospitalised cases has decreased. The highest age specific rates were in those aged less than one year (table 3). The median age of hospitalised cases for the season to date is 26 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.

Eleven confirmed influenza cases admitted to critical care units were reported to HPSC during the week ending January 24, 2016. For the 2015/2016 season to date, 27 confirmed influenza cases (13 associated with influenza A(H1)pdm09, eight with influenza A-not subtyped and six 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 46 years (ranging from 0-77 years) (table 3).

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.

	Hospitalised		Admitted to ICU	
Age (years)	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
<1	14	19.3	2	2.8
1-4	36	12.7	2	0.7
5-14	35	5.6	1	0.2
15-24	21	3.6	0	0.0
25-34	33	4.4	2	0.3
35-44	16	2.1	5	0.7
45-54	11	1.9	4	0.7
55-64	19	4.1	6	1.3
≥65	34	6.4	5	0.9
Total	**219**	**4.8**	**27**	**0.6**

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/

- Seven confirmed influenza cases (four associated with influenza A(H1)pdm09, one with influenza A-not subtyped and two with influenza B) died and were reported to HPSC for the 2015/2016 season to date.
- No excess all-cause mortality was reported in Ireland for the 2015/2016 season to date, after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm.

9. Outbreak Surveillance

One RSV outbreak in a nursing home in HSE-SE was notified to HPSC during week 3 2016. To date this season (up to the week ending January 24, 2016), 19 acute respiratory/influenza outbreaks have been reported to HPSC: three outbreaks associated with influenza (one with influenza A and B, one with influenza B and one with influenza A(H1)pdm09), seven with RSV, two with parainfluenza type 1, two with hMPV and five with unknown pathogens. Sixteen outbreaks were in community hospital/residential care facilities, two were in acute hospital settings and one was in a school. 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 January 25 2016, globally, high levels of influenza activity continued in some countries in western Asia. Increasing influenza activity was reported in northern America, northern and eastern Europe and northern/temperate Asia. Most detected influenza viruses were influenza A(H1N1)pdm09.

Influenza activity is increasing in the WHO European Region, with influenza A(H1N1)pdm09 viruses predominating this season to date. The vast majority of subtyped influenza A viruses were A(H1N1)pdm09, and B viruses ascribed to a lineage were B/Victoria. The predominance of influenza A(H1N1)pdm09 corresponds with an increase in cases of severe acute respiratory infection in eastern European countries. See ECDC and WHO influenza surveillance reports for further information.

- 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

The WHO vaccine strain selection committee recommended that 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

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