

Influenza Surveillance in Ireland – Weekly Report

Influenza Weeks 16 & 17 2015 (13th – 26th April 2015)



 Intensive Care Society of Ireland

Summary

Overall, all indicators of influenza activity continued to decrease in Ireland during weeks 16 and 17 2015; however confirmed influenza outbreaks are still being reported.

- **Influenza-like illness (ILI):** The sentinel GP influenza-like illness (ILI) consultation rate was 7.2 per 100,000 population in week 17 2015, a decrease compared to the rate of 12.1 per 100,000 population during week 16 2015.
 - ILI rates remain below the Irish baseline threshold (18.2/100,000 population).
 - Age specific ILI rates have remained low in all age groups in recent weeks.
- **National Virus Reference Laboratory (NVRL):**
 - Influenza positivity decreased further during weeks 16 and 17 2015. Thirty-nine (13.6%) influenza positive specimens were reported from the NVRL during week 16 2015 and 31 (14.0%) during week 17 2015.
 - Influenza B has been the predominant influenza virus circulating since week 12 2015. The majority of influenza B positive specimens that were detected during weeks 16 and 17 2015 were associated with outbreaks in residential care facilities.
 - Low numbers of positive detections of respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses and human metapneumovirus (hMPV) have been reported in the last two weeks.
- **Respiratory admissions:** The latest complete respiratory admissions data reported from sentinel hospitals was low.
- **Hospitalisations:** 15 confirmed influenza hospitalised cases were notified to HPSC during the week ending 26th April 2015, compared to 44 during the previous week. For the 2014/2015 season to date, 937 confirmed influenza cases were reported as hospitalised. The median age of confirmed influenza hospitalised cases to date this season is 59 years.
- **Critical care admissions:** One confirmed influenza A(H3) case was admitted to a critical care unit and reported to HPSC during weeks 16 & 17 2015. To date this season, 48 confirmed influenza cases were admitted to critical care units and reported to HPSC: 24 associated with A(H3), nine with A(H1)pdm09, eight with influenza A (not subtyped) and seven with B. The median age of confirmed influenza cases admitted to critical care units to date this season is 69 years.
- **Mortality:** Thirty-nine influenza-associated deaths have been reported to HPSC this season, with a median age of 81 years. Between weeks 2 - 10 2015, excess all-cause mortality was reported in Ireland in those aged 65 years and older.
- **Outbreaks:** Five acute respiratory general outbreaks were reported to HPSC during weeks 16 and 17 2015: three outbreaks were associated with influenza B, one with influenza A(H3) and one outbreak had no pathogen identified. Of the 83 confirmed influenza outbreaks reported this season, the majority have been associated with influenza A(H3) in residential care facilities for the elderly.
- **International:** In Europe, influenza activity continued to decrease in most reporting countries. Influenza B viruses accounting for 75% of influenza positive sentinel detections for week 16 2015.

1. GP sentinel surveillance system - Clinical Data

During week 17 2015 (the week ending 26th April 2015), 19 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 7.2 per 100,000 population, a decrease compared to the rate of 12.1 per 100,000 population during week 16 2015. ILI rates remain below the Irish baseline threshold (18.2/100,000 population). Age specific ILI rates have remained low in all age groups in recent weeks (figures 1 & 2).

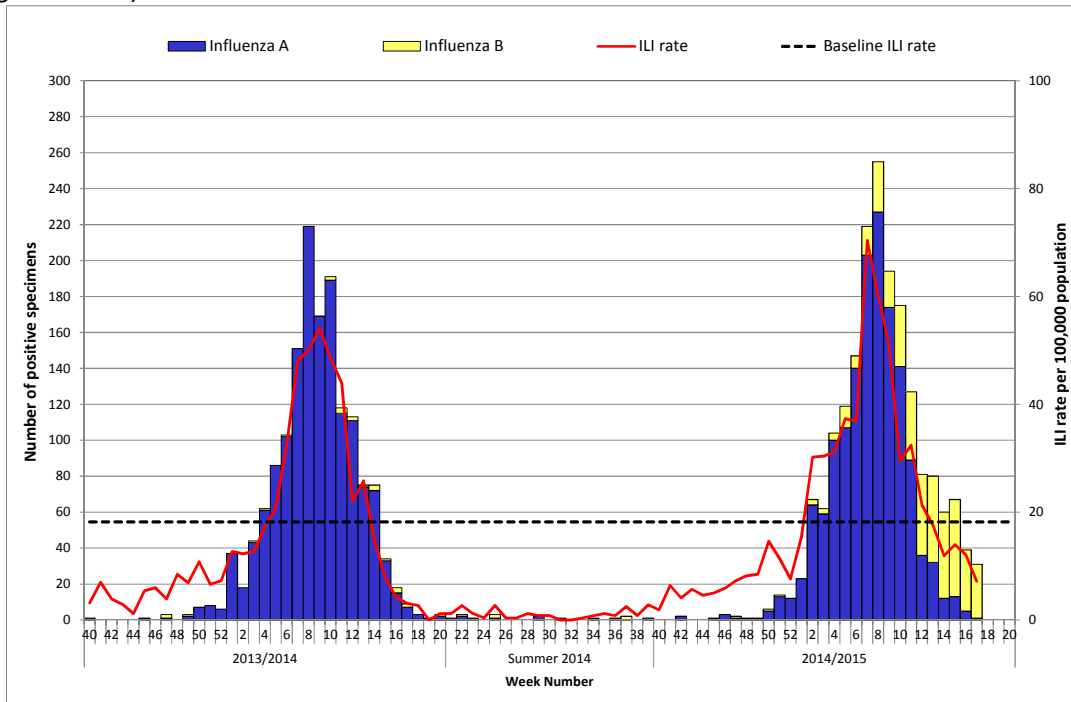


Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season. *Source: ICGP and NVRL*

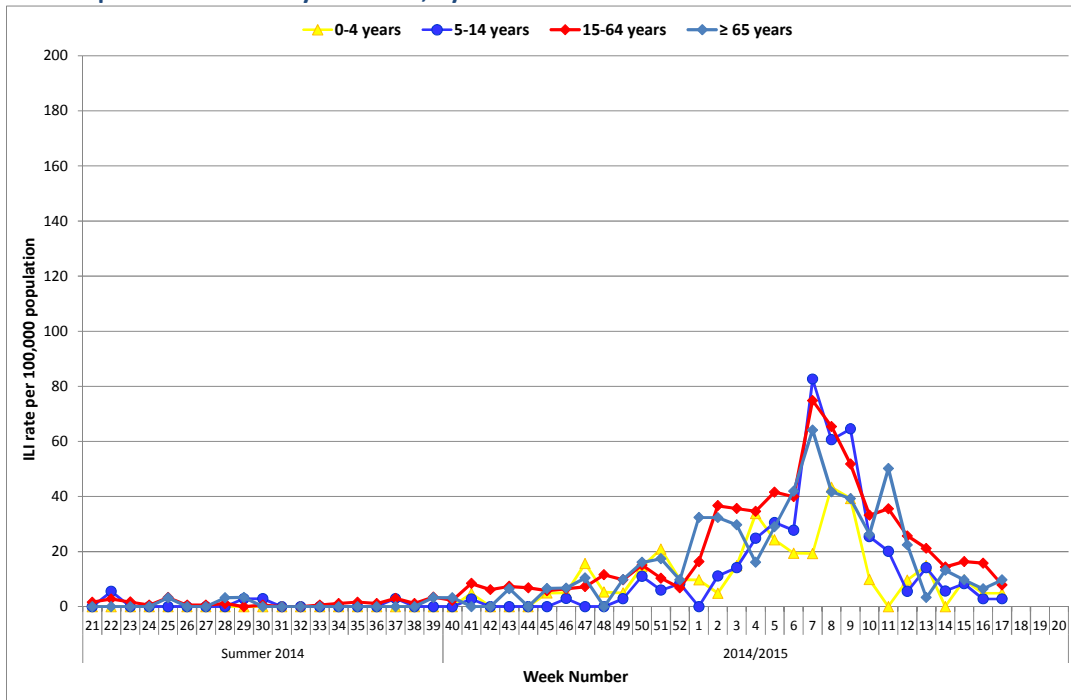


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2014 and the 2014/2015 influenza season to date. *Source: ICGP.*

2. Influenza and Other Respiratory Virus Detections - NVRL

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

- Influenza positivity decreased further during weeks 16 and 17 2015. Thirty-nine (13.6%) influenza positive specimens were reported from the NVRL during week 16 2015 and 31 (14.0%) during week 17 2015.
 - Influenza B has been the predominant influenza virus circulating since week 12 2015. The majority of influenza B positive specimens that were detected during weeks 16 and 17 2015 were associated with outbreaks in residential care facilities.
- Overall this season, influenza A(H3) viruses have predominated, with 65.0% (1229/1892) of confirmed influenza specimens reported by the NVRL positive for influenza A(H3). Influenza A(H3) viruses have accounted for 88.2% of all subtyped influenza A positive specimens this season.
- Week 17 2015:
 - 2 of 3 (66.7%) sentinel specimens were influenza positive, both of which were positive for influenza B.
 - 29 of 218 (13.3%) non-sentinel specimens were influenza positive: 1 A(H3) and 28 B.
- Week 16 2015:
 - 10 of 12 (83.3%) sentinel specimens were influenza positive: 1 A(H3), 1 A (not subtyped) and 8 B.
 - 29 of 275 (10.5%) non-sentinel specimens were influenza positive: 2 A(H3), 1 A (not subtyped) and 26 B.
- Low numbers of positive detections of respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses and human metapneumovirus (hMPV) have been reported in the last two weeks. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2014/2015 season, compared to the 2013/2014 season.

Genetic characterisation of influenza viruses circulating this season has been carried out by the NVRL, on 13 positive samples to date. A total of 11 influenza A(H3) viruses have been genetically characterised. Eight of 11 (72.7%) viruses were A/Hong Kong/5738/2014-like (3C.2a), which is a genetic group of viruses that have shown antigenic drift from the vaccine strain. The remaining viruses belong to the genetic group 3C.3, which is reportedly antigenically similar to the 2014/2015 influenza A(H3) vaccine strain. Two influenza B viruses were characterised and are B/Yamagata-like viruses, which are included in the 2014/2015 influenza vaccine. Further testing is ongoing, and the NVRL and HPSC are carefully monitoring the situation. The latest ECDC risk assessment on seasonal influenza for the 2014/2015 season in Europe, published on the 28th January 2015 is available [here](#).

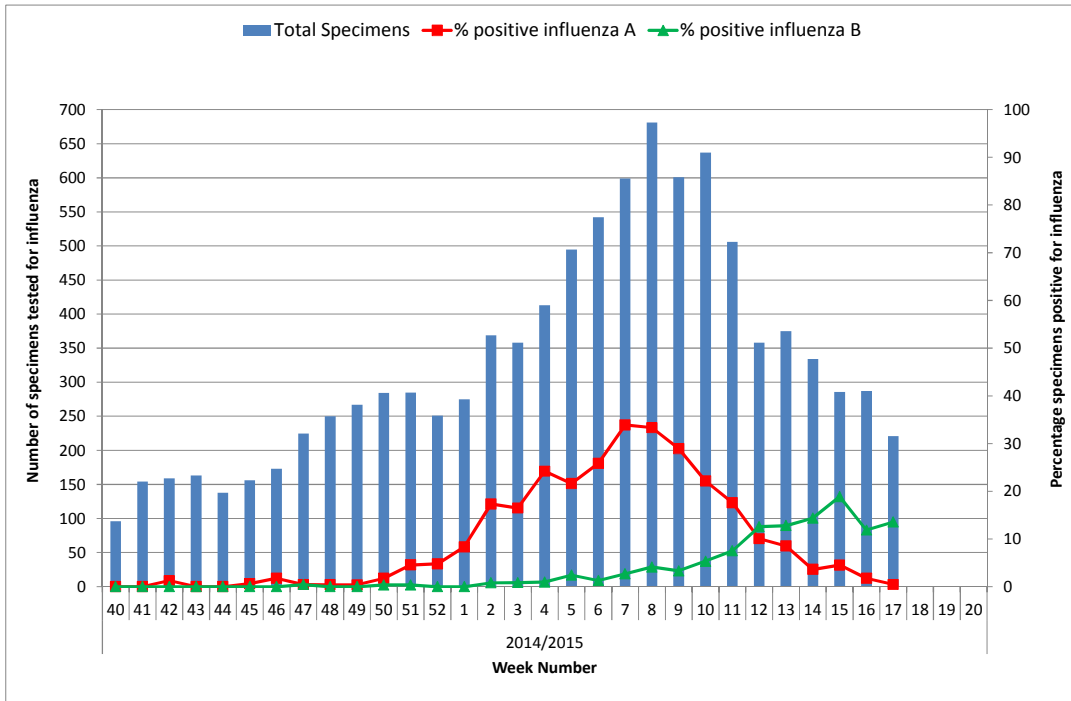


Figure 3: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive by week for the 2014/2015 influenza season. *Source: NVRL*

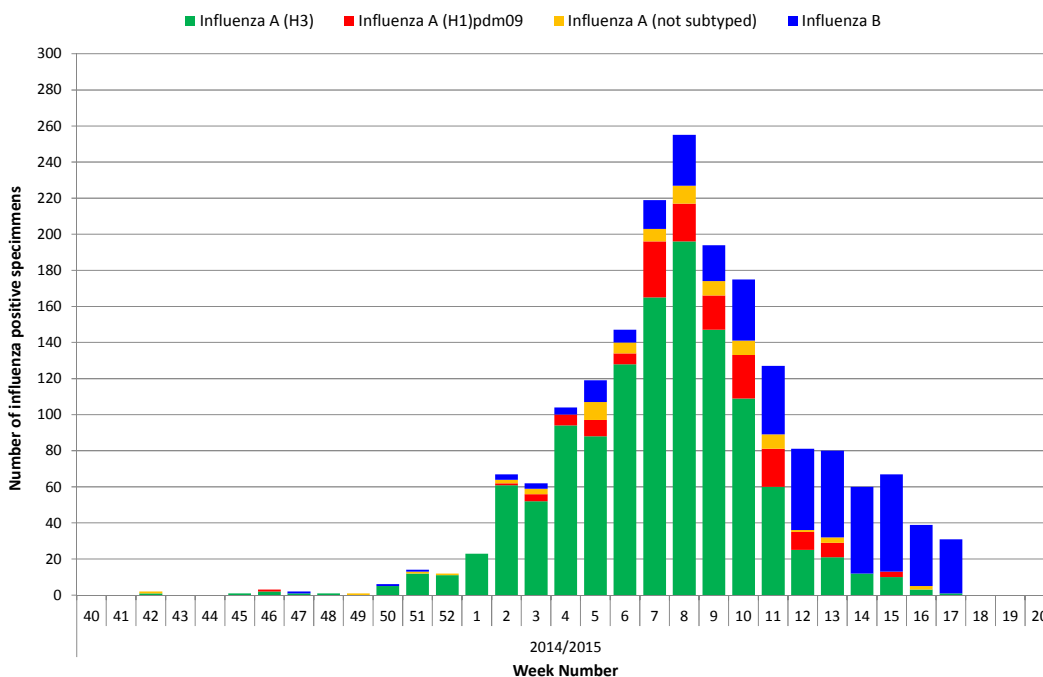


Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2014/2015 influenza season. *Source: NVRL.*

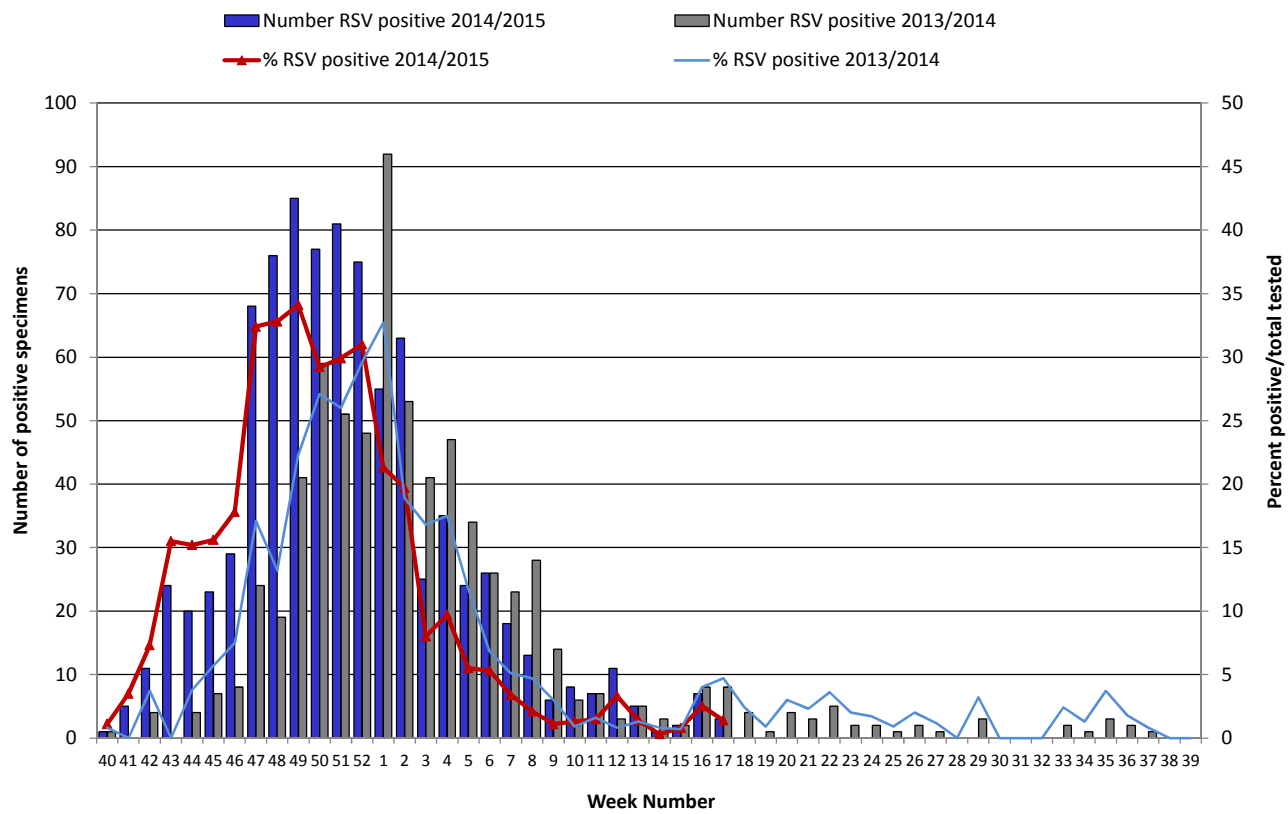


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2014/2015 season, compared to the 2013/2014 season. Source: NVRL.

Table 1: Number of sentinel and non-sentinel* respiratory specimens tested by the NVRL and positive influenza results, for weeks 16 and 17 2015 and the 2014/2015 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 2015	Sentinel	12	10	83.3	0	1	1	2	8
	Non-sentinel	275	29	10.5	0	2	1	3	26
	Total	287	39	13.6	0	3	2	5	34
17 2015	Sentinel	3	2	66.7	0	0	0	0	2
	Non-sentinel	218	29	13.3	0	1	0	1	28
	Total	221	31	14.0	0	1	0	1	30
2014/2015	Sentinel	768	373	48.6	35	226	4	265	108
	Non-sentinel	9170	1519	16.6	129	1003	68	1200	319
	Total	9938	1892	19.0	164	1229	72	1465	427

Table 2: Number of sentinel and non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for weeks 16 and 17 2015 and the 2014/2015 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 2015	Sentinel	12	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.3
	Non-sentinel	275	7	2.5	5	1.8	0	0.0	0	0.0	1	0.4	0	0.0	6	2.2
	Total	287	7	2.4	5	1.7	0	0.0	0	0.0	1	0.3	0	0.0	7	2.4
17 2015	Sentinel	3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	218	3	1.4	5	2.3	0	0.0	0	0.0	3	1.4	0	0.0	3	1.4
	Total	221	3	1.4	5	2.3	0	0.0	0	0.0	3	1.4	0	0.0	3	1.4
2014/2015	Sentinel	768	28	3.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	23	3.0
	Non-sentinel	9170	884	9.6	54	0.6	2	0.0	0	0.0	69	0.8	4	0.0	189	2.1
	Total	9938	912	9.2	54	0.5	2	0.0	0	0.0	69	0.7	4	0.0	212	2.1

* 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

Influenza activity is based on sentinel GP ILI consultation rates, laboratory data and outbreaks.

During week 16 2015, localised influenza activity was reported in HSE-E, sporadic influenza activity in HSE-NE, -MW, -SE, -S and -W and no influenza activity was reported in HSE- M and -NW. During week 17 2015, localised influenza activity was reported in HSE-E and -NW, sporadic influenza activity in HSE-NE, -MW, -SE, -S and no influenza activity was reported in HSE-M and -W (figure 6).

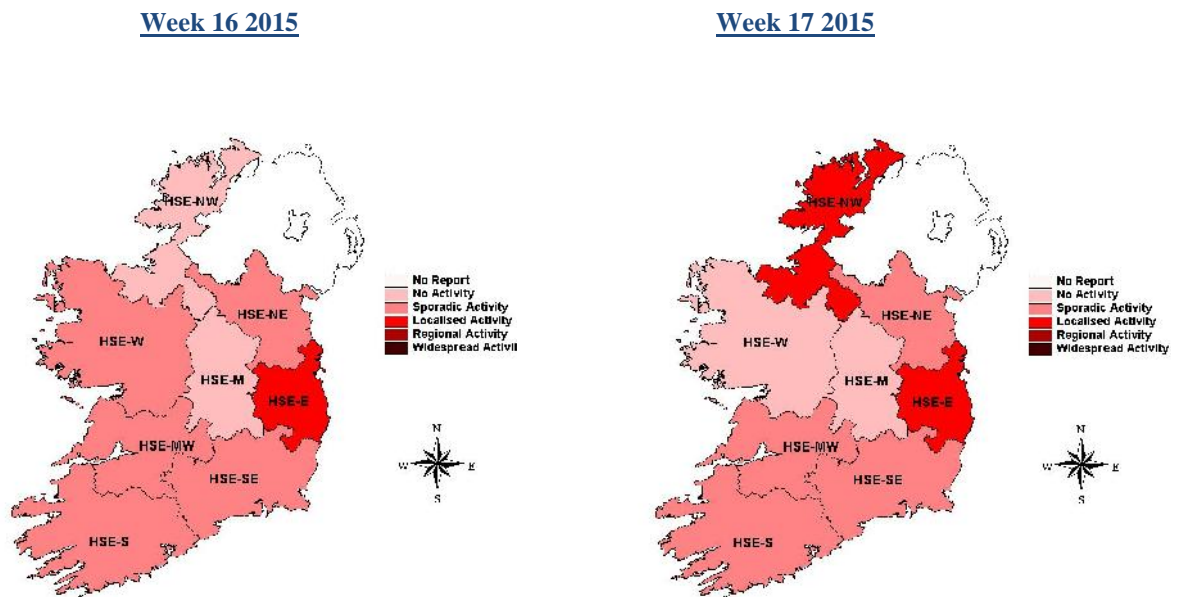


Figure 6: Map of provisional influenza activity by HSE-Area during influenza weeks 16 & 17 2015.

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.

Respiratory admissions reported from sentinel hospitals remained low at 269, during week 15 2015. Data for weeks 16 and 17 2015 were incomplete. Respiratory admissions reported from sentinel hospitals during the 2014/2015 season peaked during week 51 2015 at 464 (figure 7).

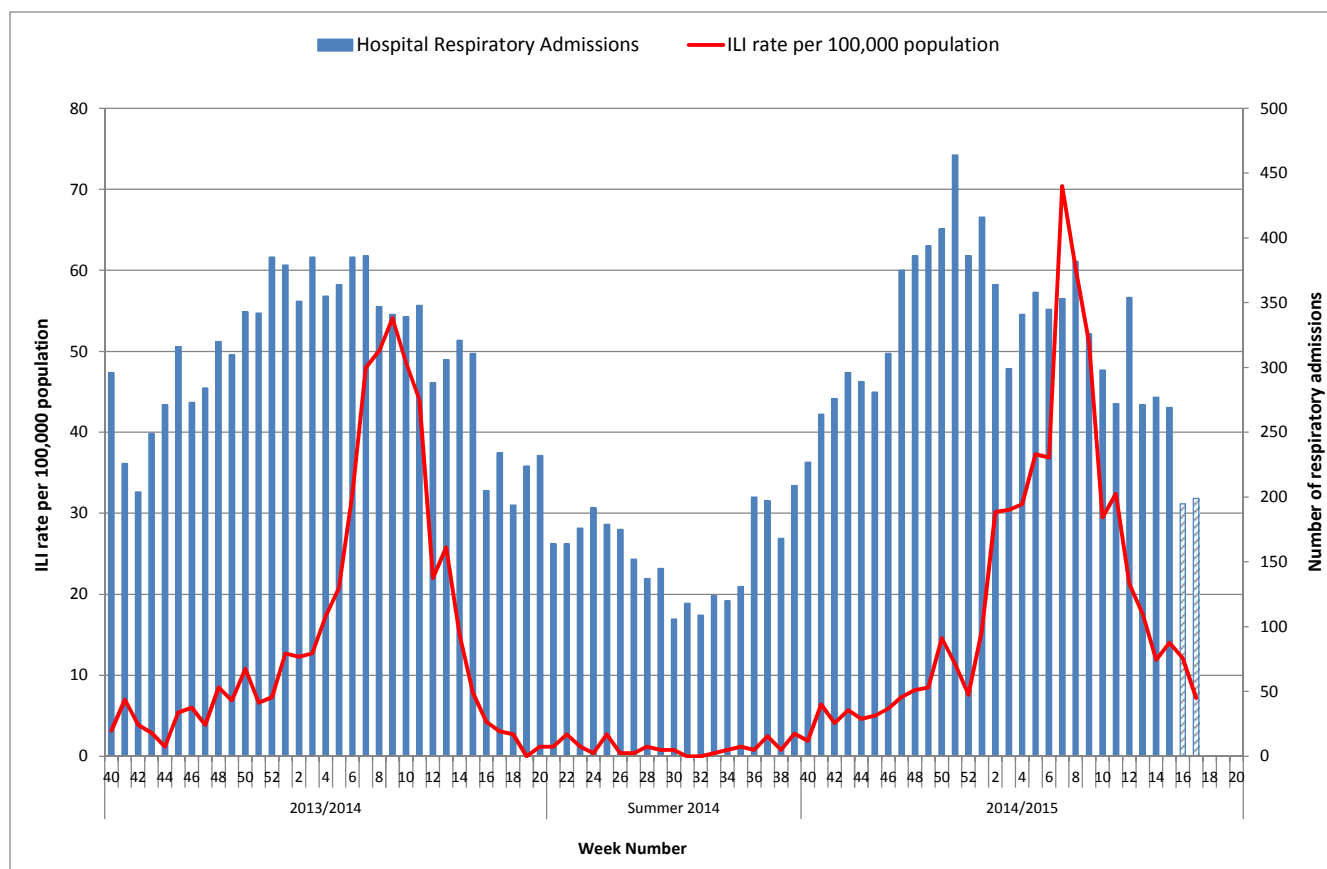


Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. Source: Departments of Public Health - Sentinel Hospitals & ICGP. It should be noted that data for weeks 16 & 17 2015 were incomplete.

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 was 2.0% during week 16 2015, compared to 3.0% during week 15 2015. Data for week 17 2015 were not available at the time of publication of this report (figure 8).

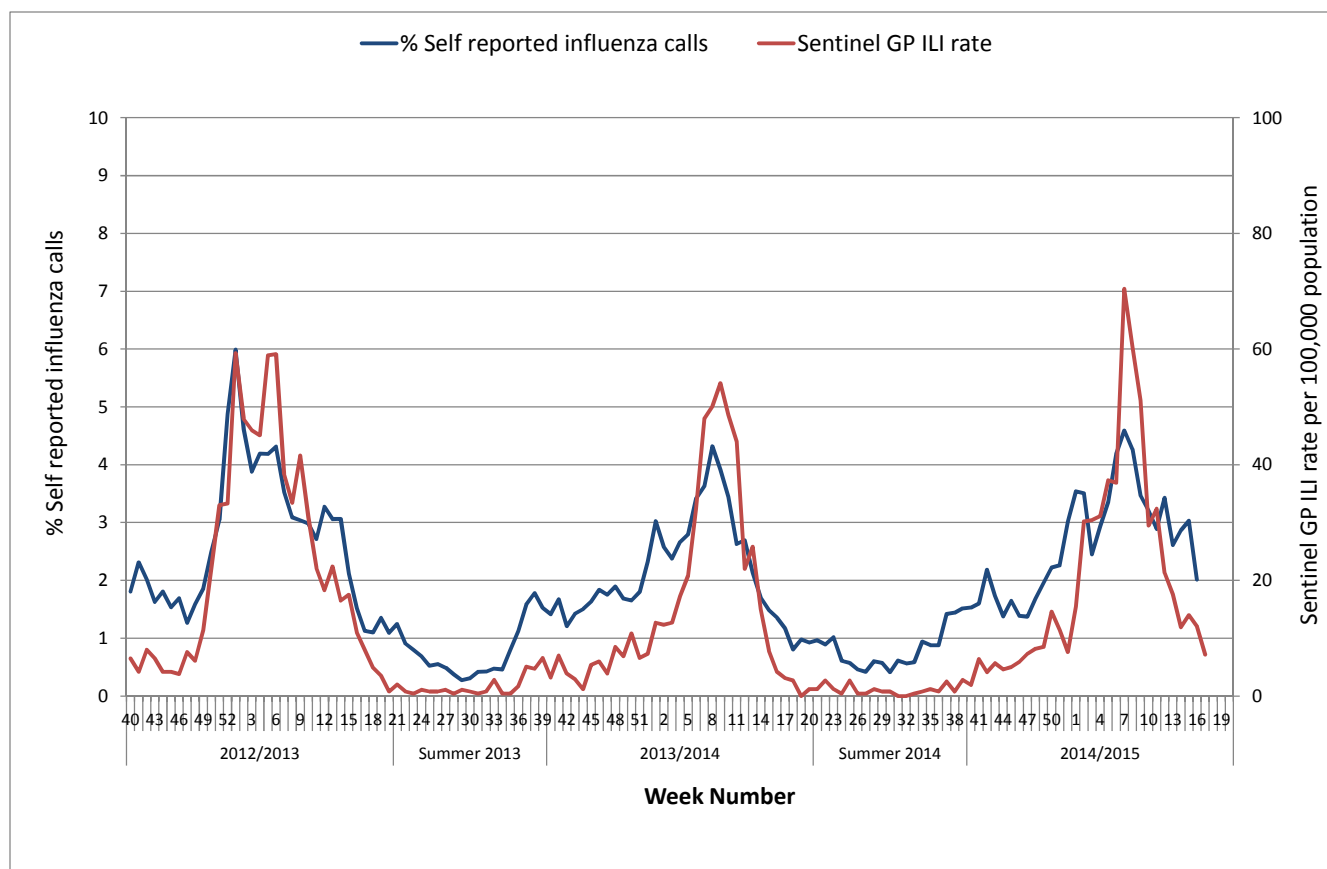


Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.

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](#).

6. Influenza Hospitalisations

- Fifteen confirmed influenza hospitalised cases were notified to HPSC during the week ending 26th April 2015, compared to 44 during the previous week. Approximately, 70% of confirmed influenza hospitalisations reported during weeks 16 and 17 2015 were associated with influenza B.
- For the 2014/2015 season to date (up to week ending 26th April 2015), 937 confirmed influenza cases were reported as hospitalised to HPSC, 449 associated with A(H3), 85 with A(H1)pdm09, 212 with A (not subtyped) and 191 with influenza B. The number of confirmed influenza hospitalised cases peaked during the week ending 22nd February 2015 (week 8 2015), with 137 hospitalised cases swabbed during that week. The median age of hospitalised confirmed influenza cases to date this season is 59 years. The highest age specific rates are in those aged 65 years and older (table 3).

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.

One new confirmed influenza A(H3) case was admitted to a critical care unit and reported to HPSC during weeks 16 and 17 2015. To date this season, 48 confirmed influenza cases were admitted to critical care units and reported to HPSC: 24 associated with A(H3), nine with A(H1)pdm09, eight with influenza A (not subtyped) and seven with B. The highest age specific rates are in those aged 65 years and older, with a median age of 69 years.

Table 3: Age specific rates for confirmed influenza cases hospitalised and admitted to critical care during the 2014/2015 influenza season to date. Age specific rates are based on the 2011 CSO census. Age group was unknown for one hospitalised case.

Age (years)	Hospitalised		Admitted to ICU	
	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
<1	53	73.2	0	0.0
1-4	74	26.1	0	0.0
5-14	72	11.6	0	0.0
15-24	40	6.9	1	0.2
25-34	73	9.7	1	0.1
35-44	67	8.9	5	0.7
45-54	49	8.5	6	1.0
55-64	94	20.3	6	1.3
≥65	414	77.3	29	5.4
Total	937	20.4	48	1.0

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/>

- Thirty-nine influenza-associated deaths were reported to HPSC this season to date, 20 were associated with influenza A(H3), four associated with influenza A(H1)pdm09, eight with influenza A (not subtyped) and three influenza B. Four deaths were in clinical ILI cases. The median age of influenza associated deaths for the 2014/2015 season to date, is 81 years. Four cases were in the 45-64 year age group and 35 cases were in those aged 65 years and older.
- Between weeks 2 and 10 2015, excess all-cause mortality was reported in Ireland in those aged 65 years and older. During weeks 16 and 17 2015, no excess all-cause mortality was reported in Ireland after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm.
- In Denmark, England, France, Hungary, Ireland, the Netherlands, Portugal, Scotland, Spain, Sweden, Switzerland, and Wales excess number of deaths among the elderly have been observed since the beginning of the year. For all these countries the excess deaths reported this winter appears to have ended. Excess all-cause mortality cannot be attributed with certainty to specific causes, but may be associated with circulating influenza, extreme cold or increases in acute respiratory illness. The excess this winter coincide with circulating influenza A(H3), and medium to high intensity influenza activity in most countries and additionally with cold snaps in Spain and Portugal in the first weeks of the year. For further details see <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=21065>

9. Outbreak Surveillance

- Five acute respiratory general outbreaks were reported to HPSC during weeks 16 and 17 2015: three outbreaks were associated with influenza B, one with influenza A(H3) and one outbreak had no pathogen identified. All five outbreaks were in community hospitals/residential care facilities.
- For the 2014/2015 influenza season to date (up to the week ending 26th April 2015), 109 acute respiratory outbreaks were reported to HPSC. Eighty-three of these outbreaks were associated with influenza: 61 associated with A(H3), three with both A(H3) and A(H1)pdm09, four with A(H1)pdm09, four with A (not subtyped) and 11 with influenza B. Four outbreaks were associated with RSV, four with hMPV and 18 acute respiratory outbreaks had no pathogens identified. The majority of acute respiratory outbreaks this season occurred in residential care facilities/community hospital settings (91 of 109; 83%), mainly affecting the elderly. Sixteen outbreaks occurred in acute hospitals, one in a hospital step down facility and one in a school. The number of confirmed influenza outbreaks reported to HPSC is shown in figure 9.

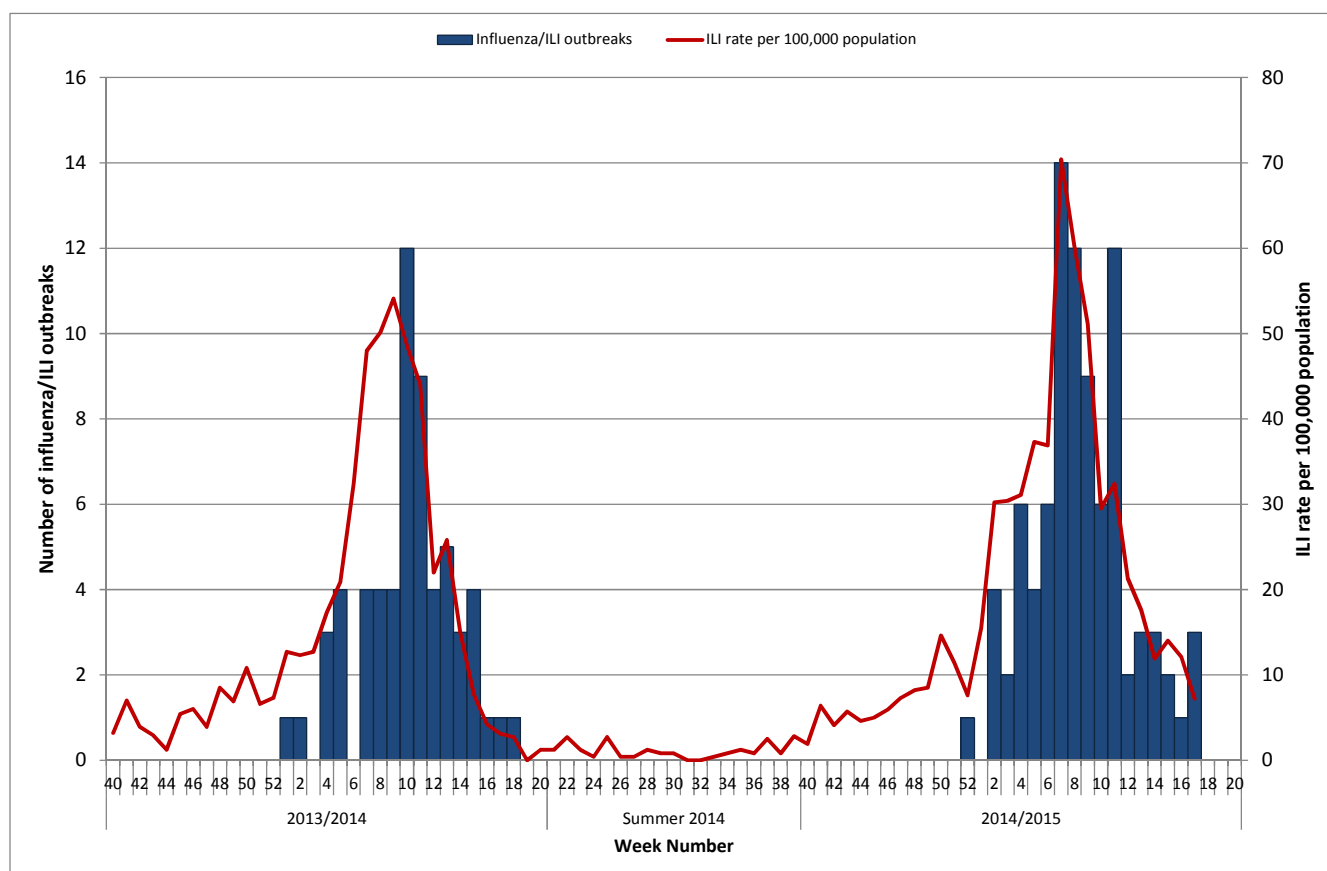


Figure 9: Number of influenza/ILI outbreaks and national sentinel GP ILI consultation rate per 100,000 population by week and influenza season. It should be noted that the week numbers run Monday to Sunday, as per the international influenza surveillance calendar. Source: Computerised Infectious Disease Reporting System (CIDR) & ICGP.

10. International Summary

- In Europe, influenza activity continued to decrease in most reporting countries. Influenza A(H1N1)pdm09, A(H3N2) and influenza B viruses continued to circulate in Europe, with influenza B viruses accounting for 75% of influenza positive sentinel detections for week 16 2015.
- Antigenic drift in the A(H3N2) and B/Yamagata viruses was observed during the 2014/2015 influenza season. The northern hemisphere vaccine did not provide optimal protection against the A(H3N2) viruses. The B/Yamagata component in the vaccine is likely to protect against circulating viruses. The observed reduction in effectiveness of the A(H3N2) component of the vaccine might have contributed to the excess mortality reported among older age groups. There are no indications of reduced sensitivity of influenza A or B viruses to the neuraminidase inhibitors oseltamivir or zanamivir.
- Influenza activity declined further in the northern hemisphere and was low in most regions globally. While influenza A(H3N2) viruses predominated this season in the northern hemisphere, the proportions of influenza A(H1N1)pdm09 and B viruses increased during the past few weeks.
- The ECDC risk assessment on seasonal influenza for the 2014/2015 season in Europe is available [here](#).
- 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>

- For the latest ECDC rapid risk assessment on human infection with low pathogenic avian influenza A(H7N7) see [here](#).
- The latest ECDC risk assessment on human infection with influenza A(H7N9) in China and Canada is available [here](#).
- The latest ECDC rapid risk assessment on human infection with avian influenza A(H5N1) in Egypt is available [here](#).
- Information on Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV), 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.

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. It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus.

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

Acknowledgements

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