Influenza Surveillance in Ireland – Weekly Report

Influenza Week 20 2015 (11th – 17th May 2015)

Summary

Overall, all indicators of influenza activity continued to decline and were at low levels in Ireland during week 20 2015 (the week ending 17th May 2015).

- Influenza-like illness (ILI): The sentinel GP influenza-like illness (ILI) consultation rate was low at 2.6 per 100,000 population in week 20 2015.
  - ILI rates remained below the Irish baseline threshold (18.2/100,000 population).
  - Age specific ILI rates have remained low in all age groups in recent weeks.
- GP Out of Hours: The proportion of influenza–related calls to GP Out-of-Hours services remained at low levels during week 20 2015.
- National Virus Reference Laboratory (NVRL):
  - Influenza positivity remained low during week 20 2015. Thirteen (6.2%) influenza positive specimens were reported from the NVRL during week 20 2015, all of which were positive for influenza B.
  - Influenza B has been the predominant influenza virus circulating since week 12 2015, albeit at low levels.
  - Low numbers of positive detections of respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses and human metapneumovirus (hMPV) have been reported in recent weeks.
- Respiratory admissions: The latest complete respiratory admissions data reported from sentinel hospitals was low.
- Hospitalisations: Eight confirmed influenza hospitalised cases were notified to HPSC during the week ending 17th May 2015. For the 2014/2015 season to date, 978 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: To date this season, 53 confirmed influenza cases were admitted to critical care units and reported to HPSC: 25 associated with A(H3), nine with A(H1)pdm09, nine with influenza A (not subtyped) and 10 with B. The median age of confirmed influenza cases admitted to critical care units to date this season is 66 years.
- Mortality: Forty-one 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: Three acute respiratory general outbreaks from HSE-S were reported to HPSC during the week ending 17th May 2015: two outbreaks were associated with influenza A and one outbreak had no pathogen identified. Of the 89 confirmed influenza outbreaks reported this season, the majority have been associated with influenza A(H3) in residential care facilities for the elderly.
- International: Globally, influenza activity remained at low levels. In the northern hemisphere influenza activity was approaching inter-seasonal levels and in the southern hemisphere activity remained low.

1. GP sentinel surveillance system - Clinical Data

During week 20 2015 (the week ending 17th May 2015), seven influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 2.6 per 100,000 population, a decrease compared to the rate of 3.1 per 100,000 population during week 19 2015. ILI rates remained 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).

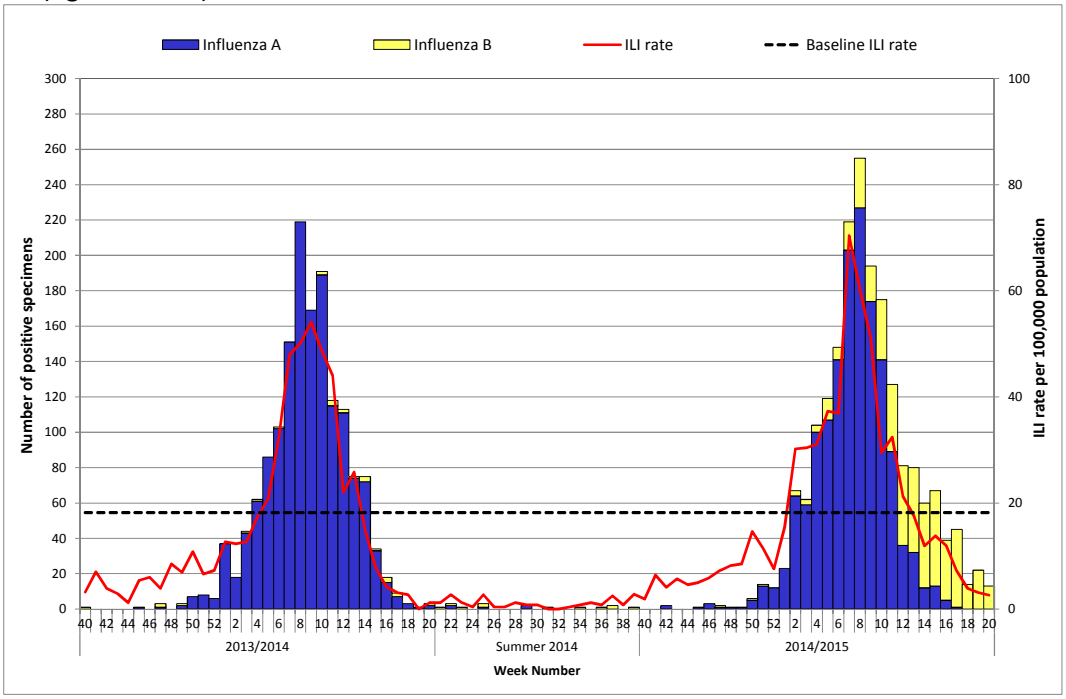

Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season. *Source: ICGP and NVRL*

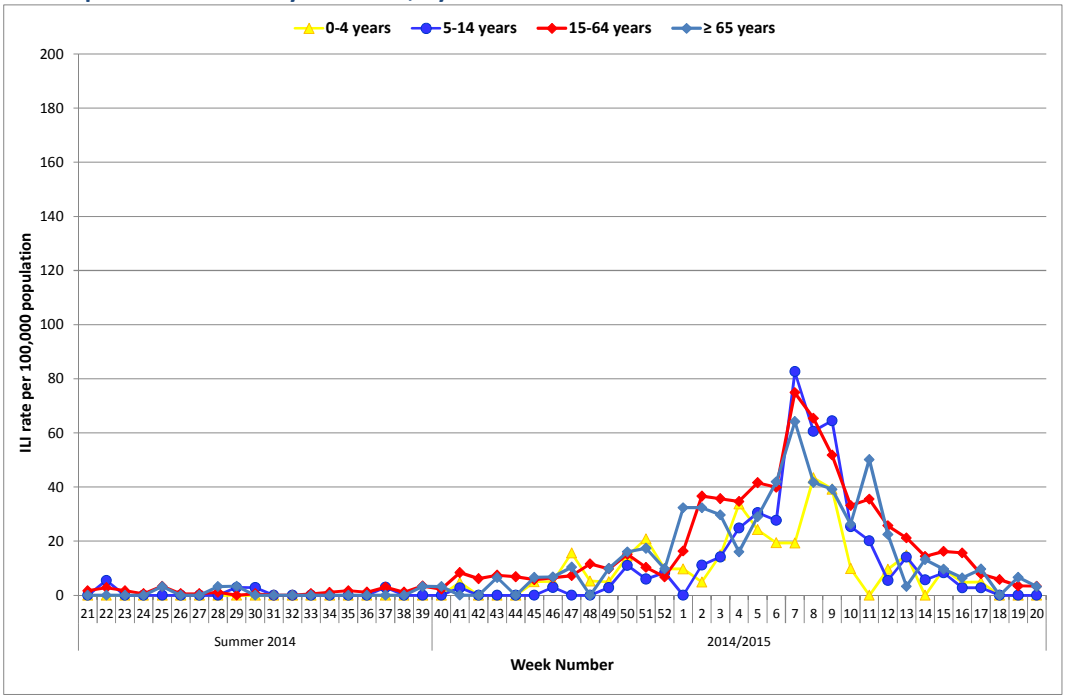

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2014 and the 2014/2015 influenza season to date. *Source: ICGP.*

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 remained low during week 20 2015. Thirteen (6.2%) influenza positive specimens were reported from the NVRL during week 20 2015, all positive for influenza B.
    - Influenza B has been the predominant influenza virus circulating since week 12 2015.
- Overall this season, influenza A(H3) viruses have predominated, with 62.9% (1230/1956) 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 20 2015:
    - Of two sentinel specimens tested for influenza during week 20 2015, both were negative.
    - 13 of 207 (6.3%) non-sentinel specimens were influenza positive, all of which were positive for influenza B.
- Low numbers of positive detections of respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses and human metapneumovirus (hMPV) have been reported in recent 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/antigenic characterisation of influenza viruses circulating this season has been carried out by the NVRL, on 74 positive samples to date. Of the 30 A(H3N2) viruses attributed to a genetic group, most fell into genetic subgroups that have been shown to be antigenically dissimilar to the current A(H3N2) vaccine virus: 80% (24/30) in genetic subgroup 3C.2a, represented by A/Hong Kong/5738/2014; and one virus was in genetic subgroup 3C.3a, represented by A/Switzerland/9715293/2013. Of the remaining viruses, 13% (4/30) fell into genetic group 3C.3, represented by A/Samara/73/2013, which has been shown to be antigenically similar to the current A(H3N2) vaccine virus. One additional virus could not be attributed to a genetic group.
- Seventeen influenza B viruses were characterised and were B/Yamagata-like viruses, which were included in the 2014/2015 influenza vaccine. Twenty-seven influenza A(H1)pdm09 viruses were genetically/antigenically characterised and all were similar to the 2014/2015 A(H1)pdm09 vaccine strain.
- These data, together with international data, indicate that the A(H3N2) component of 2014/2015 influenza vaccine probably had limited effectiveness. Further genetic and antigenic testing is ongoing, and the NVRL and HPSC are continuing to carefully monitor the situation.

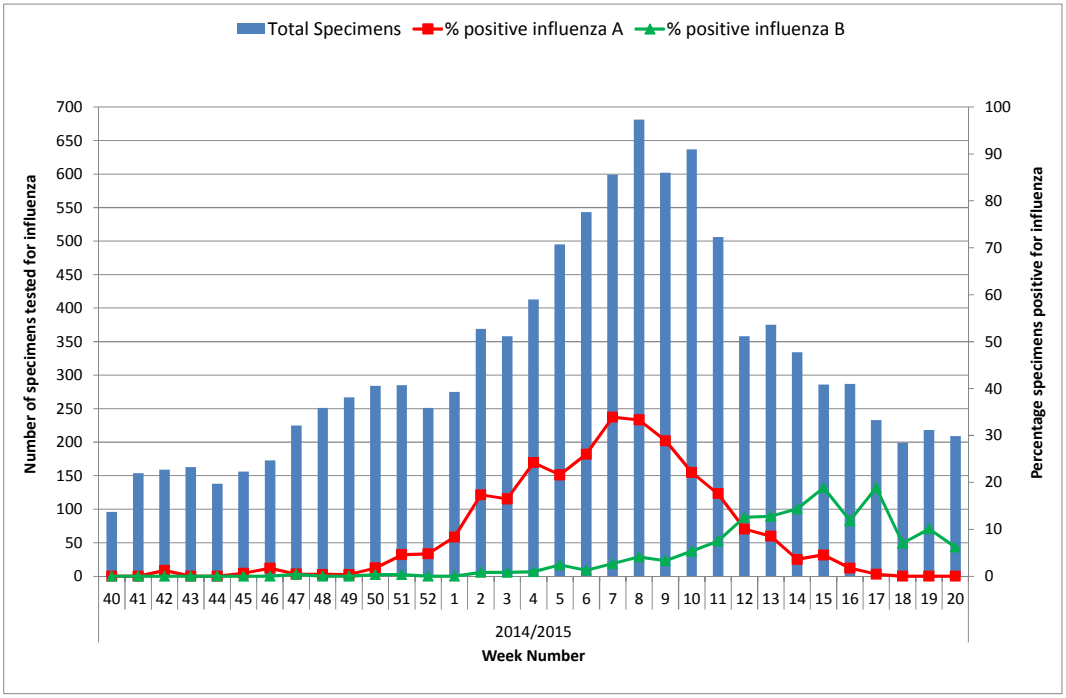

Figure 3: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive by week for the 2014/2015 influenza season. *Source: NVRL*

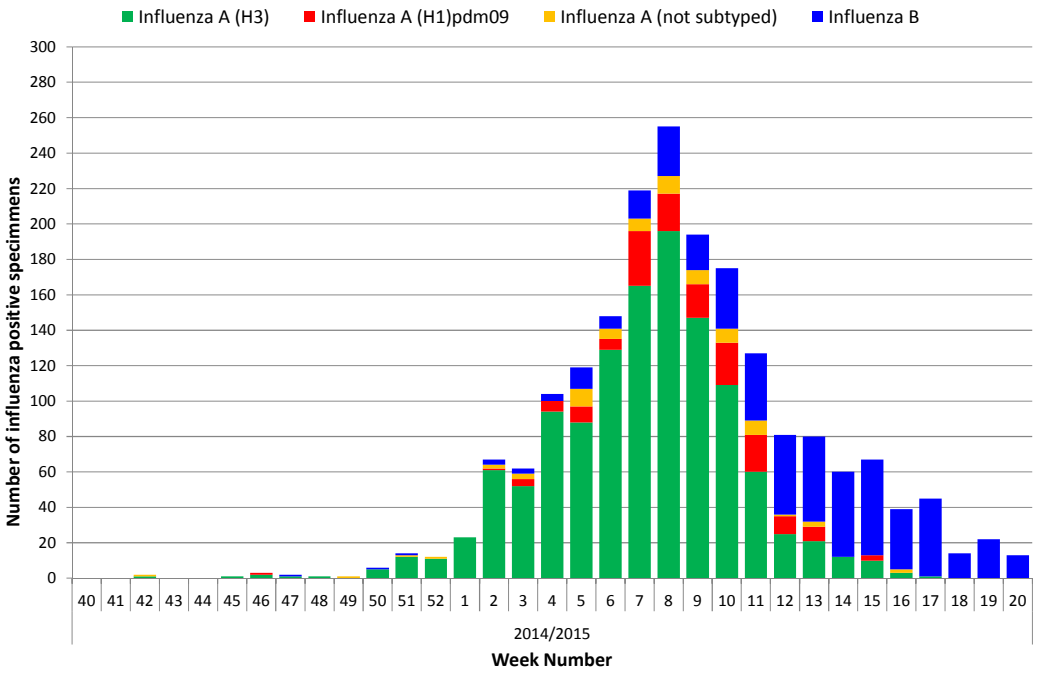

Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2014/2015 influenza season. *Source: NVRL.*

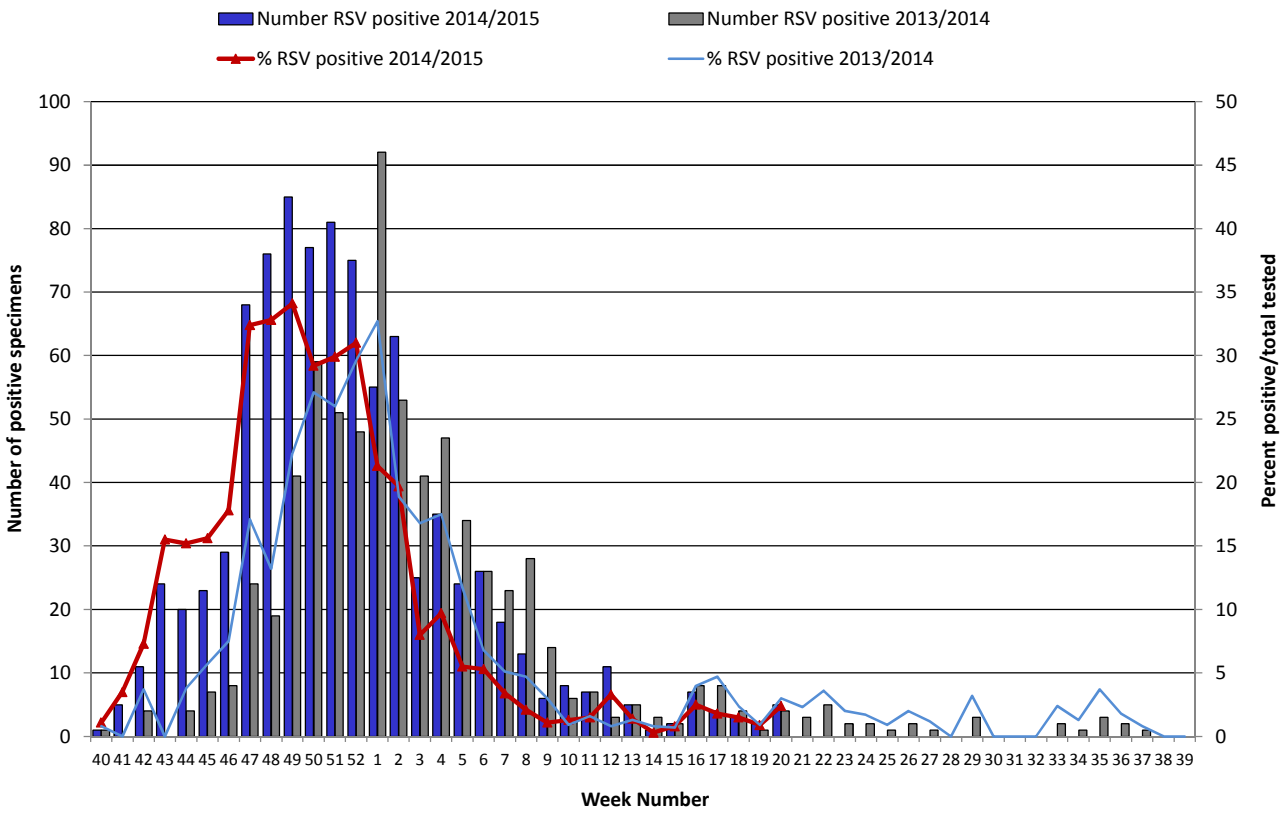

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2014/2015 season, compared to the 2013/2014 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[*] respiratory specimens tested by the NVRL and positive influenza results, for week 20 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	
20 2015	Sentinel	2	0	0.0	0	0	0	0	0
	Non-sentinel	207	13	6.3	0	0	0	0	13
	Total	**209**	**13**	**6.2**	**0**	**0**	**0**	**0**	**13**
2014/2015	Sentinel	782	378	48.3	35	227	4	266	112
	Non-sentinel	9797	1578	16.1	129	1003	68	1200	378
	Total	**10579**	**1956**	**18.5**	**164**	**1230**	**72**	**1466**	**490**

Table 2: Number of sentinel and non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 20 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
20 2015	Sentinel	2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	207	5	2.4	5	2.4	1	0.5	0	0.0	1	0.5	0	0.0	5	2.4
	Total	**209**	**5**	**2.4**	**5**	**2.4**	**1**	**0.5**	**0**	**0.0**	**1**	**0.5**	**0**	**0.0**	**5**	**2.4**
2014/2015	Sentinel	782	28	3.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	24	3.1
	Non-sentinel	9797	895	9.1	73	0.7	3	0.0	0	0.0	74	0.8	4	0.0	203	2.1
	Total	**10579**	**923**	**8.7**	**73**	**0.7**	**3**	**0.0**	**0**	**0.0**	**74**	**0.7**	**4**	**0.0**	**227**	**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 20 2015, localised influenza activity was reported in HSE-S (associated with two influenza outbreaks), sporadic influenza activity was reported in HSE-E and -MW, and no influenza activity was reported in all other areas (figure 6).

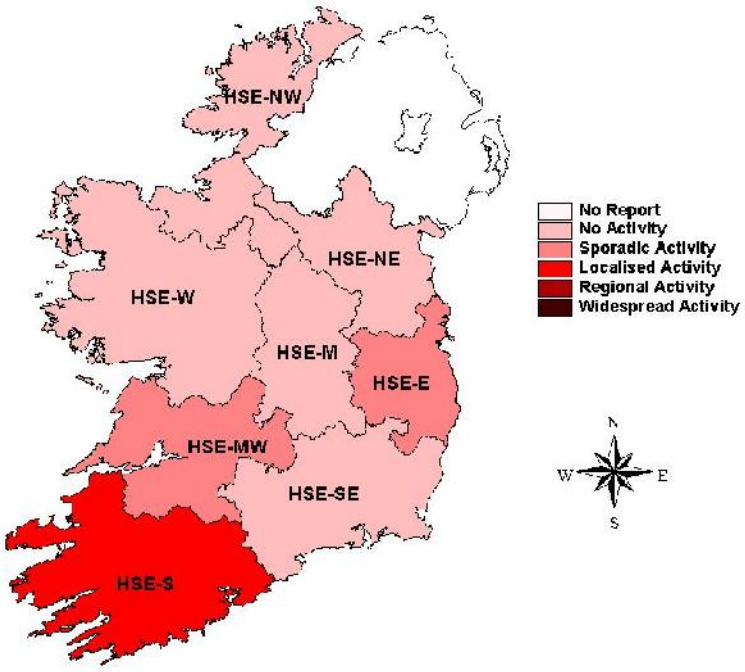

Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 20 2015.

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 239, during week 20 2015. Data for weeks 19 and 20 2015 were incomplete; with data reported from 7/8 sentinel hospitals. Respiratory admissions reported from sentinel hospitals during the 2014/2015 season peaked during week 51 2015 at 464 (figure 7).

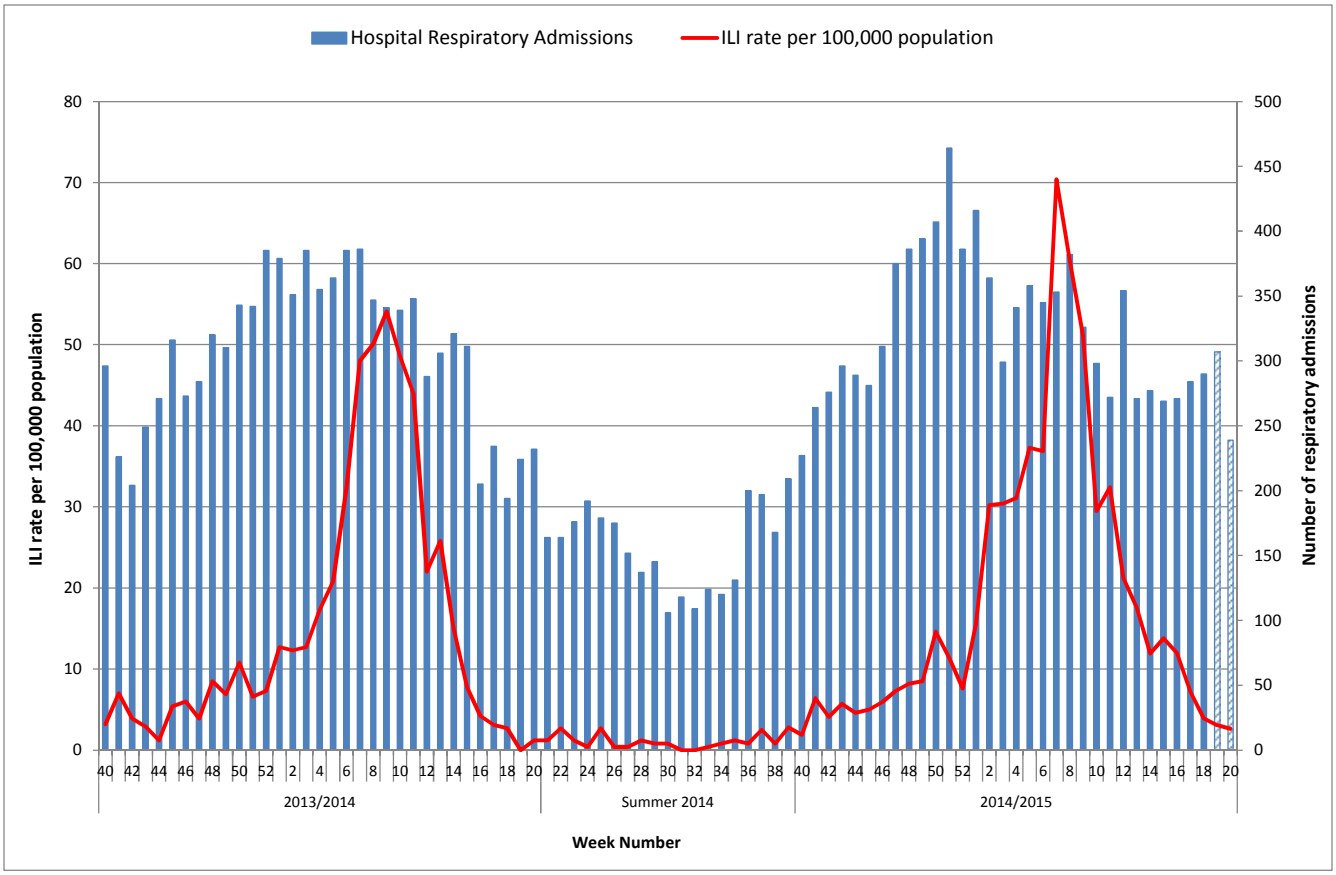

Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. *Source: Departments of Public Health - Sentinel Hospitals & ICGP. It should be noted that data for weeks 19 & 20 2015 were incomplete.*

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 has remained at low levels, at 1.8% during week 20 2015 (figure 8). For the 2014/2015 influenza season, the proportion of influenza–related calls to GP Out-of-Hours services peaked at 4.6% during week 7 2015.

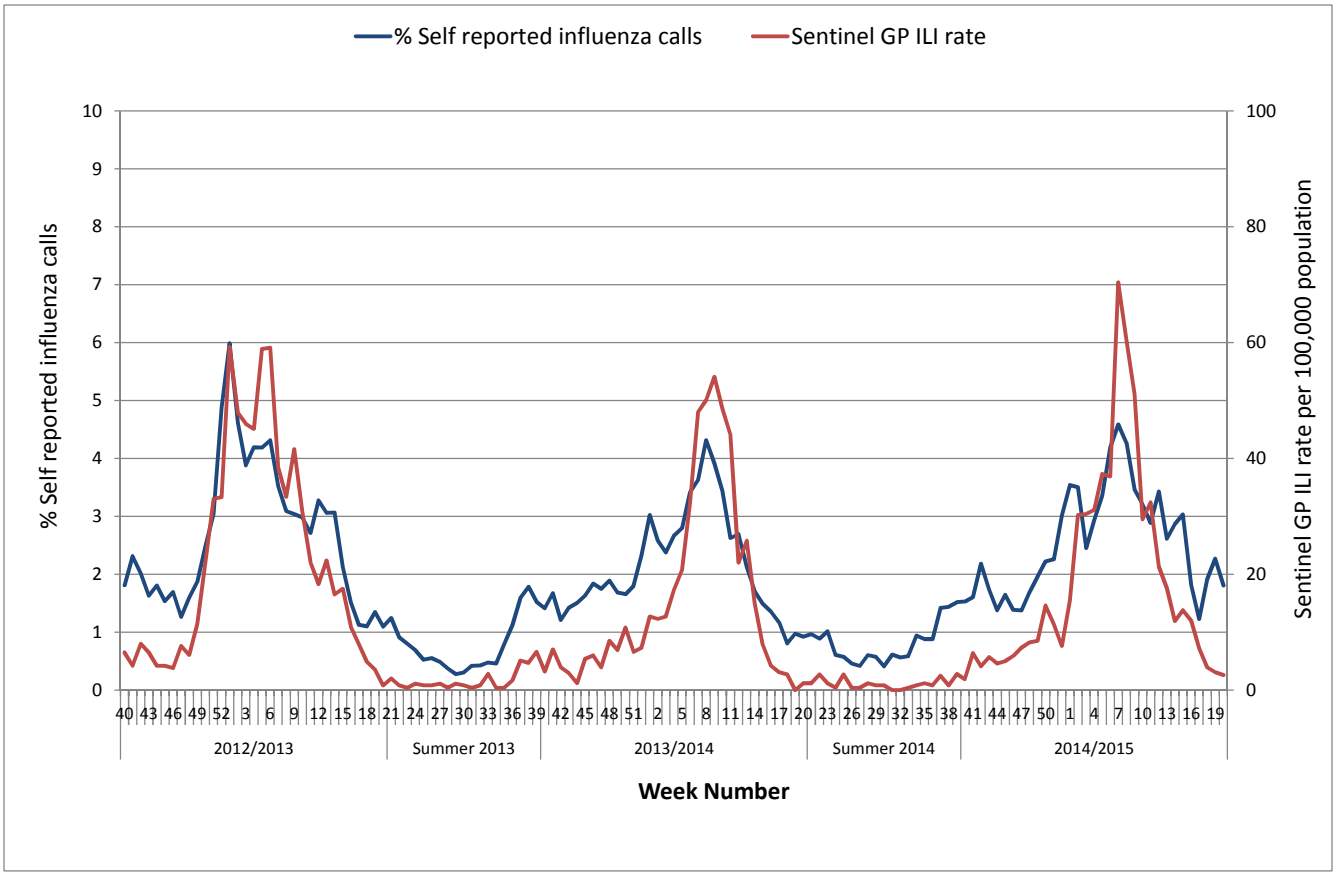

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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

- Eight confirmed influenza hospitalised cases were notified to HPSC during the week ending 17th May 2015, all of which were positive for influenza B.
- For the 2014/2015 season to date (up to week ending 17th May 2015), 978 confirmed influenza cases were reported as hospitalised to HPSC, 455 associated with A(H3), 87 with A(H1)pdm09, 219 with A (not subtyped) and 217 with influenza B. The number of confirmed influenza hospitalised cases peaked during the week ending 22nd February 2015 (week 8 2015), with 201 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.

To date this season, 53 confirmed influenza cases were admitted to critical care units and reported to HPSC: 25 associated with A(H3), nine with A(H1)pdm09, nine with influenza A (not subtyped) and 10 with B. The highest age specific rates are in those aged 65 years and older, with a median age of 66 years (table 3).

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.*

	Hospitalised		Admitted to ICU	
Age (years)	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
<1	54	74.6	1	1.4
1-4	78	27.5	3	1.1
5-14	77	12.4	0	0.0
15-24	43	7.4	1	0.2
25-34	77	10.2	1	0.1
35-44	73	9.7	6	0.9
45-54	50	8.6	6	1.0
55-64	102	22.0	6	1.3
≥65	423	79.0	29	5.4
Total	**978**	**21.3**	**53**	**1.2**

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/

- Forty-one influenza-associated deaths were reported to HPSC this season to date, 21 were associated with influenza A(H3), five 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. One case was in the 15-44 year age group, five 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. No excess all-cause mortality has been reported since week 10 2015 in Ireland, after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm.
- In Belgium, Denmark, England, France, Greece, Hungary, Ireland, the Netherlands, Portugal, Scotland, Spain, Sweden, Switzerland, and Wales excess mortality among the elderly was observed at the beginning of the year. For all of these countries the excess mortality observed this winter has ended and is back to expected levels. Excess all-cause mortality cannot be attributed with certainty to specific causes, but may be associated with circulating influenza, extreme cold or increase in acute respiratory illness. The excess mortality reported this year coincided 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. Estonia, Finland and Northern Ireland did not seem to experience excess mortality among the elderly this winter season.
- For further details see http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=21065

9. Outbreak Surveillance

- Three acute respiratory general outbreaks were reported to HPSC during the week ending 17th May 2015: two outbreaks were associated with influenza A (one associated with influenza AH3 and one with A-not subtyped) and one outbreak had no pathogen identified. All three outbreaks were in community hospitals/residential care facilities in HSE-S.
- For the 2014/2015 influenza season to date (up to the week ending 17th May 2015), 114 acute respiratory outbreaks were reported to HPSC. Eighty-nine of these outbreaks were associated with influenza: 61 associated with A(H3), four with both A(H3) and A(H1)pdm09, four with A(H1)pdm09, nine with A (not subtyped) and 11 with influenza B. Four outbreaks were associated with RSV, four with hMPV and 17 acute respiratory outbreaks had no pathogens identified. The majority of acute respiratory outbreaks this season occurred in residential care facilities/community hospital settings (95 of 114; 83%), mainly affecting the elderly. Seventeen 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.

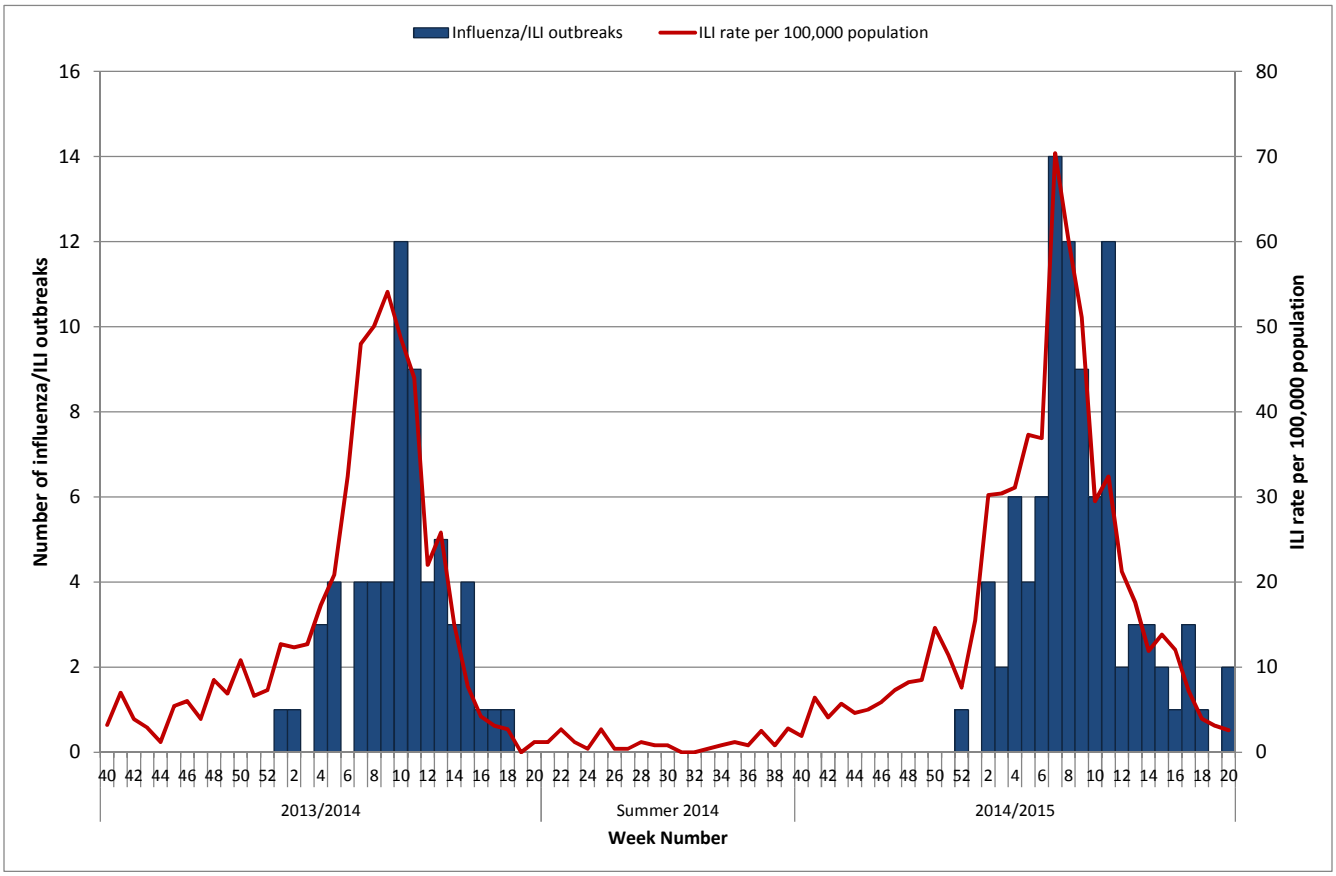

Figure 9: Number of influenza/ILI outbreaks and national sentinel GP ILI consultation rate per 100,000 population by week and influenza season. *It should be noted that the week numbers run Monday to Sunday, as per the international influenza surveillance calendar. Source: Computerised Infectious Disease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

10. International Summary

- In Europe, influenza activity continued to decrease and remained at low intensity in most reporting countries. The proportion of influenza virus positive sentinel specimens decreased to 9% during week 19 2015, which was below seasonal thresholds. Influenza A(H1)pdm09, A(H3) and B viruses continued to circulate; with influenza B viruses accounting for 67% of sentinel detections in week 19 2015.
- Globally, influenza activity remained at low levels. In the northern hemisphere influenza activity was approaching inter-seasonal levels and in the southern hemisphere activity remained low. Countries in the tropical zones reported low influenza activity with the exception of some countries in tropical Asia and West Africa.
- 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.
- 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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