Influenza Surveillance in Ireland – Weekly Report

Influenza Week 3 2012 (16th – 22nd January 2012)

Intensive Care Society of Ireland

Summary

- **Influenza activity in Ireland remained stable and at low levels during week 3 2012.**
- The sentinel GP influenza-like illness (ILI) consultation rate was 11.9 per 100,000 population in week 3 2012, a slight decrease from the updated rate of 15.1 per 100,000 during week 2 2011.
    - ILI rates remained below the Irish baseline threshold (25.9 per 100,000 population).
    - ILI rates remained low in all age groups.
- The proportion of influenza–related calls to GP Out-of-Hours services remained at low levels and decreased during week 3 2012.
- Ten influenza positive specimens were detected by the NVRL during week 3 2012, all of which were influenza A (H3). To date this season, influenza A (H3) has been the dominant influenza virus detected.
- The proportion of respiratory syncytial virus (RSV) positive detections decreased further in week 3 2012. RSV reached peak positivity levels for this season during week 52 2011.
- Sporadic detections of adenovirus and human metapneumovirus were reported by the NVRL during week 3 2012, positivity levels for these viruses remained low.
- There was one confirmed influenza hospitalised case notified during week 3 2012.
- No confirmed influenza cases were admitted to critical care during week 3 2012. To date this season, one influenza A (H3) case admitted to critical care was reported to HPSC.
- No influenza-associated deaths were reported during week 3 2012. Two influenza-associated deaths were reported to HPSC to date this season.
- No influenza outbreaks were reported during week 3 2012. To date this season, one influenza outbreak has been reported.
- Influenza activity in the temperate regions of the northern hemisphere remained low overall although notable local increases in activity were reported in some areas of Canada, Europe (Turkey, Spain, Italy and Malta), northern Africa, China and the middle East. http://www.who.int/influenza/surveillance_monitoring/updates/en/index.html

Surveillance Systems

In order to monitor influenza activity in Ireland a number of surveillance systems are currently in place:

1. Irish College of General Practitioners (ICGP) GP sentinel surveillance system
2. Virological data from the National Virus Reference Laboratory (NVRL)
3. GP Out-of-Hours surveillance system
4. Influenza notifications reported on the Computerised Infectious Disease Reporting system (CIDR)
5. Enhanced surveillance of all hospitalised confirmed influenza cases aged 0-14 years
6. Intensive Care Society of Ireland (ICSI) enhanced surveillance of all critical care patients with confirmed influenza
7. Outbreak reporting on CIDR
8. Network of sentinel schools reporting absenteeism and sentinel hospitals reporting admission data

1. GP sentinel surveillance system

Clinical Data

During week 3 2012, 50 of 60 (83.3%) sentinel general practices provided data, with 16 practices (32.0%) reporting 27 influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 11.9 per 100,000 population, a slight decrease compared to the updated rate of 15.1 per 100,000 population reported during the previous week. The ILI rate for the season to date remains below the Irish baseline threshold (25.9 per 100,000 population).* Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

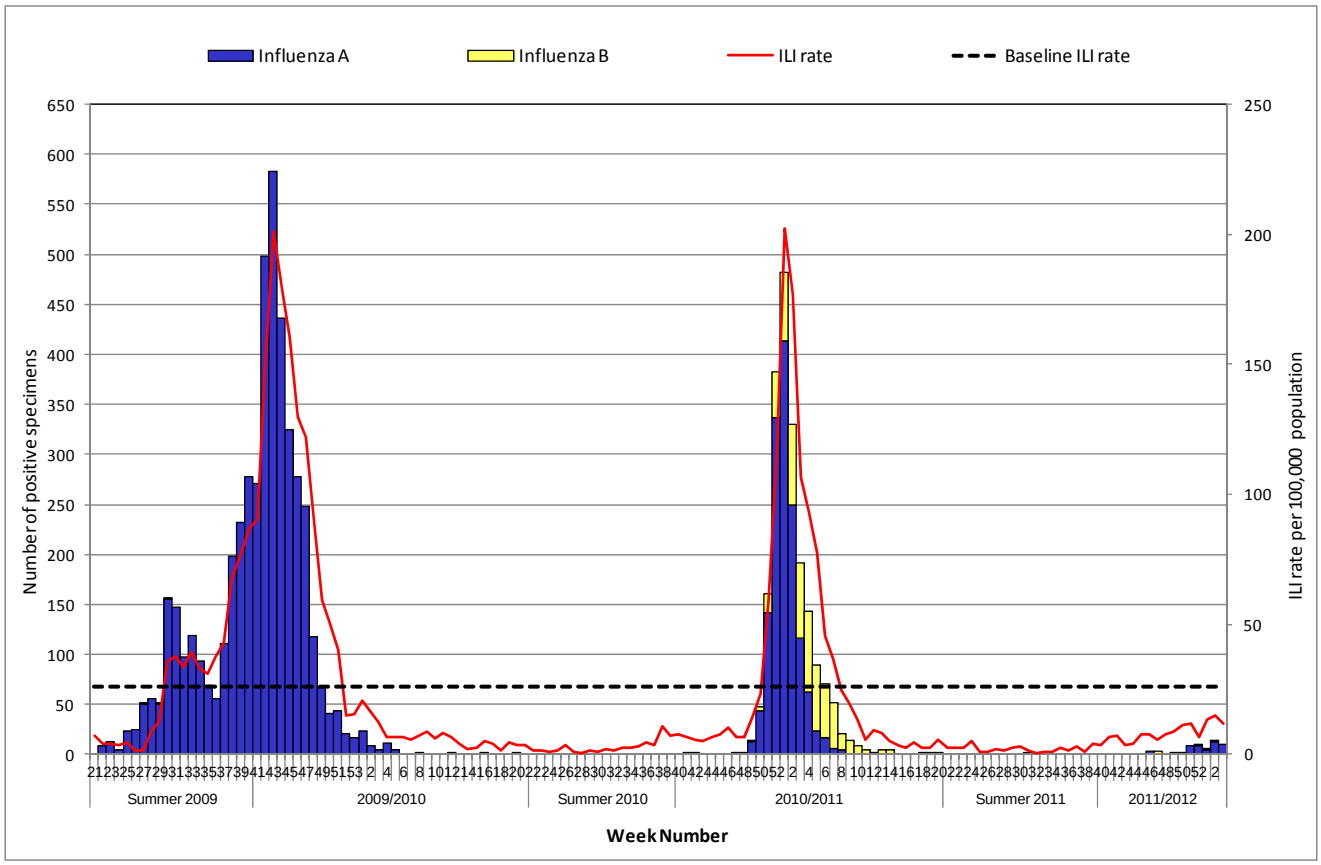

Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.

Source: Clinical ILI data from ICGP and virological data from the NVRL[†,‡]

ILI age specific rates decreased in all age groups and remained at low levels during week 3 2012. The highest ILI consultation rates were in the 5-14 year age group. One ILI case was reported in the 0-4 year age group (6.2 per 100,000 population), 5 in the 5-14 year age group (16.6 per 100,000), 20 in the 15-64 year age group (12.9 per 100,000) and one case was reported in those aged 65 years or older (4.0 per 100,000) during week 3 2012.

---

* The Irish baseline threshold was revised for the 2011/2012 influenza season following recommendations from the European Centre for Disease Prevention and Control (ECDC) and a review of Irish ILI data (2000/2001-2010/2011).

† Please note that in addition to the NVRL, Cork University Hospital (CUH) and Galway University Hospital(s) (GUH) also tested for influenza A (H1) 2009 during the pandemic period.

‡ Sentinel GP consultations and virological data are updated on an ongoing basis, ILI rates and virological data are adjusted accordingly.

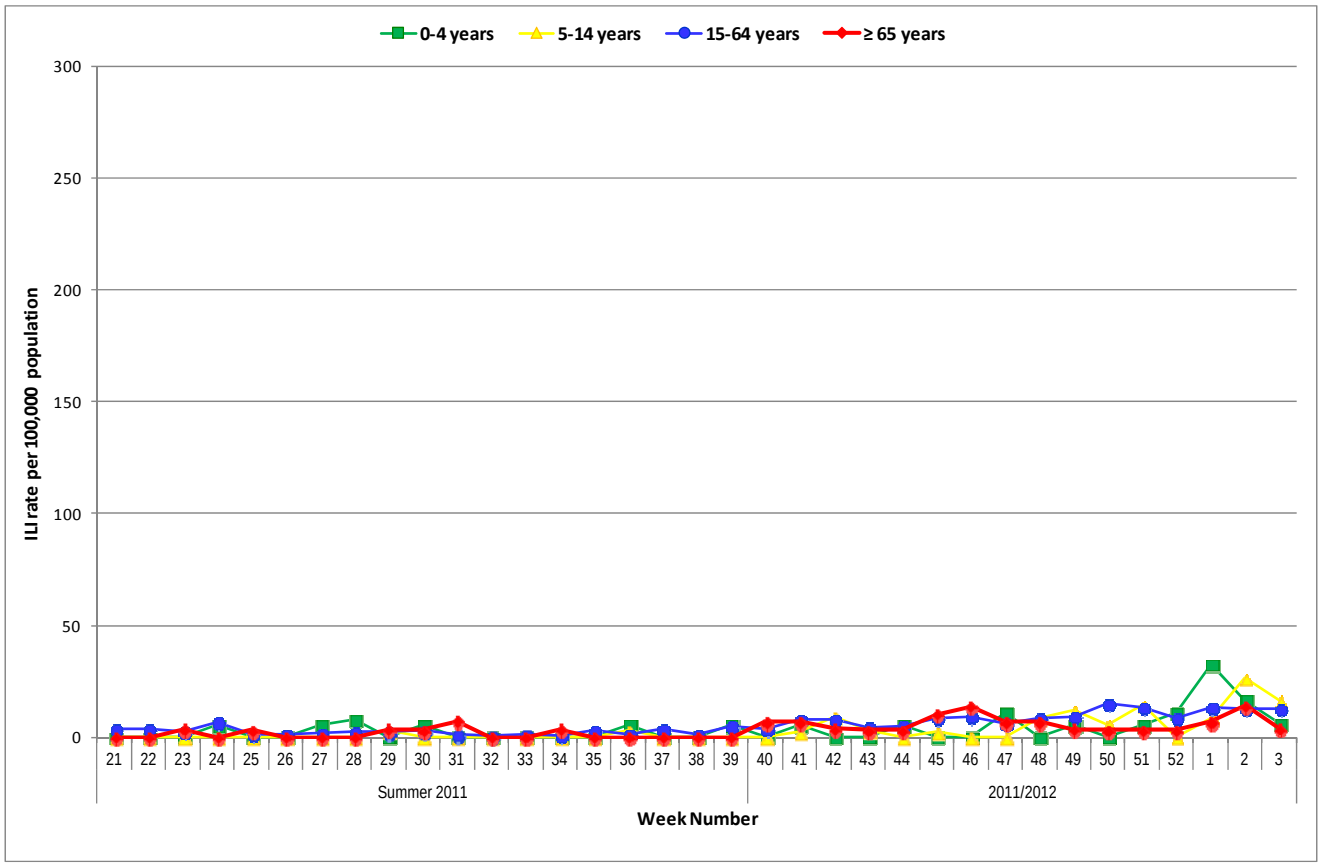

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2011 and the 2011/2012 influenza season to date *Source: ICGP ILI clinical data*

2. Influenza and Other Respiratory Virus Detections - National Virus Reference Laboratory

The data reported in this section for the 2011/2012 influenza season refers to specimens tested by the National Virus Reference Laboratory (NVRL). A total of 159 specimens (16 sentinel and 143 non-sentinel[§] specimens) were tested by the NVRL during week 3 2012. Ten (6.3%) influenza positive specimens were reported from sentinel and non-sentinel sources: all of which were influenza A (H3). Six influenza positive specimens (37.5%, 6/16) were reported from sentinel sources during week 3 2012. Four influenza positive detections (2.8%, 4/143) were reported from non-sentinel sources during week 3 2012. To date this season, the NVRL has detected 58 (3.1%) influenza positive specimens from all sources: 47 A (H3), 2 A (unsubtyped) and 9 B (figure 3 & 4, tables 1 & 2).

[§] 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.

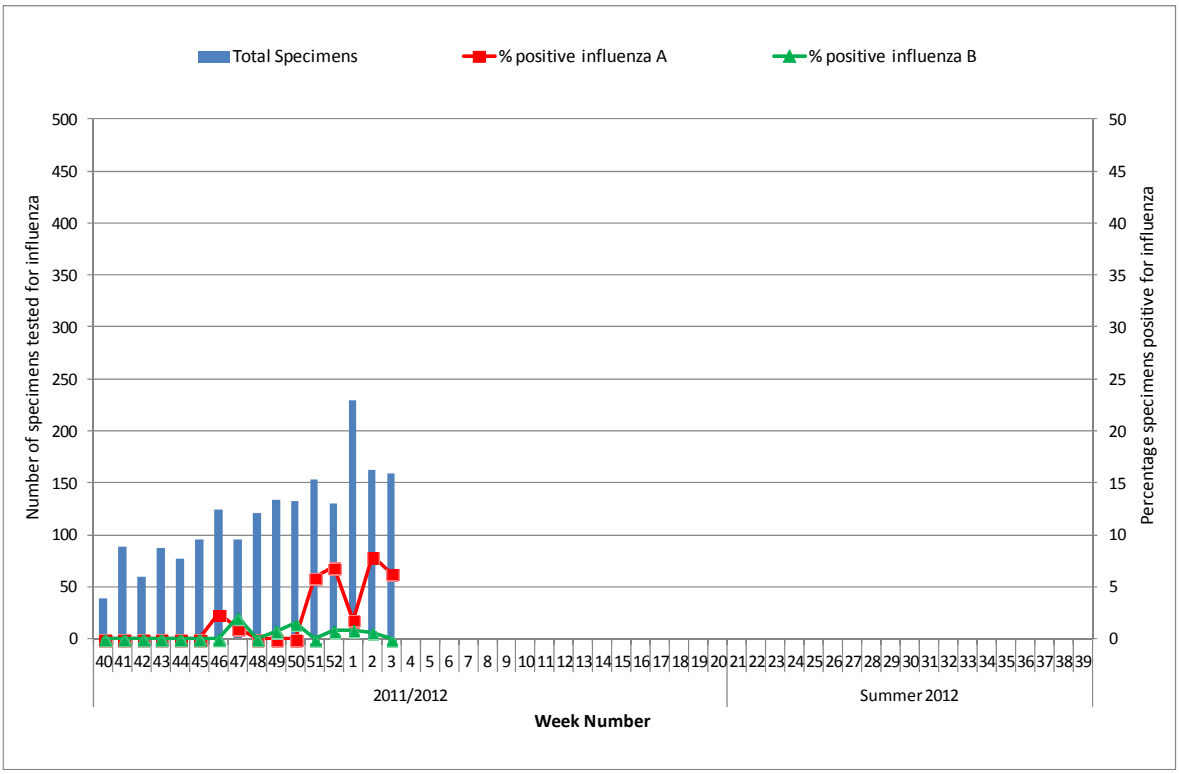

Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2011/2012 influenza season. *Source: NVRL*

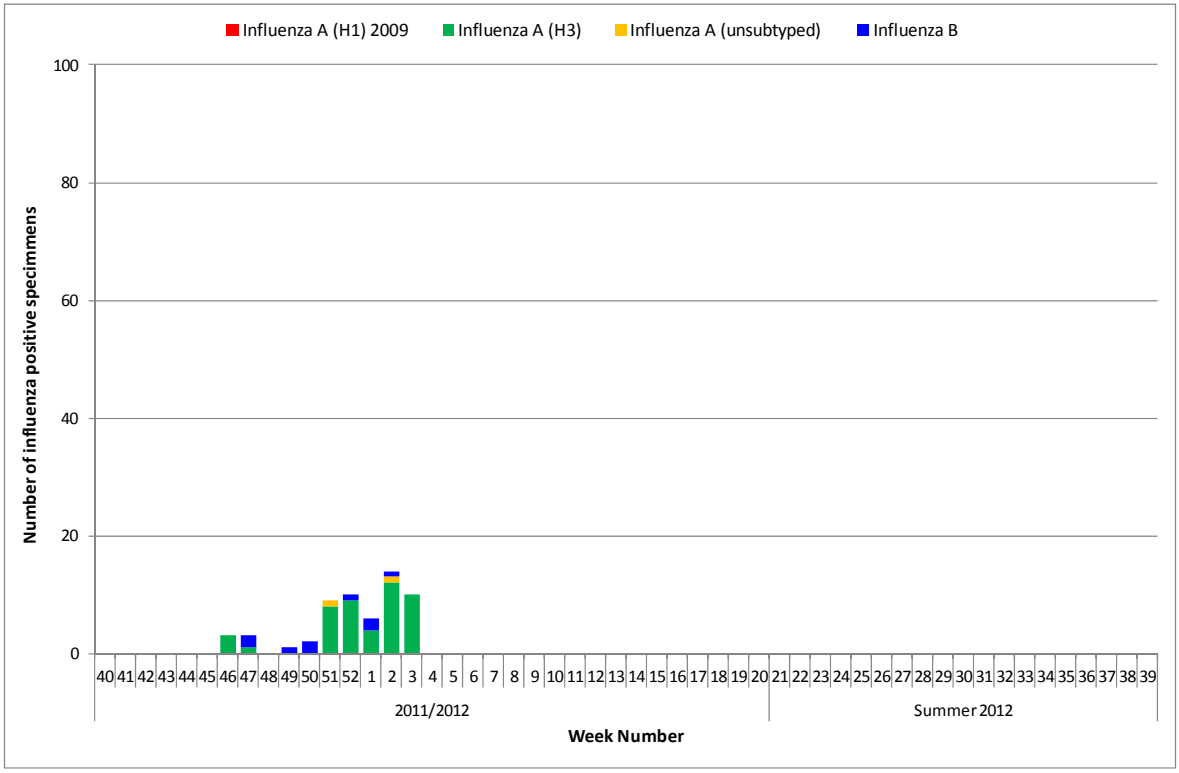

Figure 4: Number of sentinel and non-sentinel positive influenza specimens by influenza type/subtype by week for the 2011/2012 influenza season. *Source: NVRL*

Respiratory Syncytial Virus (RSV)

The proportion of non-sentinel specimens that tested positive for RSV reported from the NVRL decreased during week 3 2012, for the third consecutive week (figure 5). Twenty-four (16.8%) non-sentinel specimens were positive for RSV during week 3 2012, which is above levels detected during the same period last season. To date this season, the proportion of RSV positive specimens peaked at 33.9% during week 52 2011. Of 1705 non-sentinel specimens tested by the NVRL this season to date, 15.6% (n=266) were positive for RSV, compared to 1.3% (n=23) positive for influenza virus. It should be noted that RSV data only include specimens referred to the NVRL for RSV testing. Not all hospitals refer respiratory specimens for RSV testing to the NVRL.

RSV was made notifiable in Ireland on 1st January 2012. Two hundred and thirteen laboratory notifications of RSV were reported on Ireland's Computerised Infectious Disease Reporting System (CIDR) between weeks 1 and 3 2012, 94.4% of cases were 0-4 years of age. Laboratory notifications of RSV will be reported in more detail in the Weekly Infectious Disease Report for Ireland (which will be available on the HPSC website from mid-January 2012). http://www.hpsc.ie/hpsc/NotifiableDiseases/WeeklyIDReports/

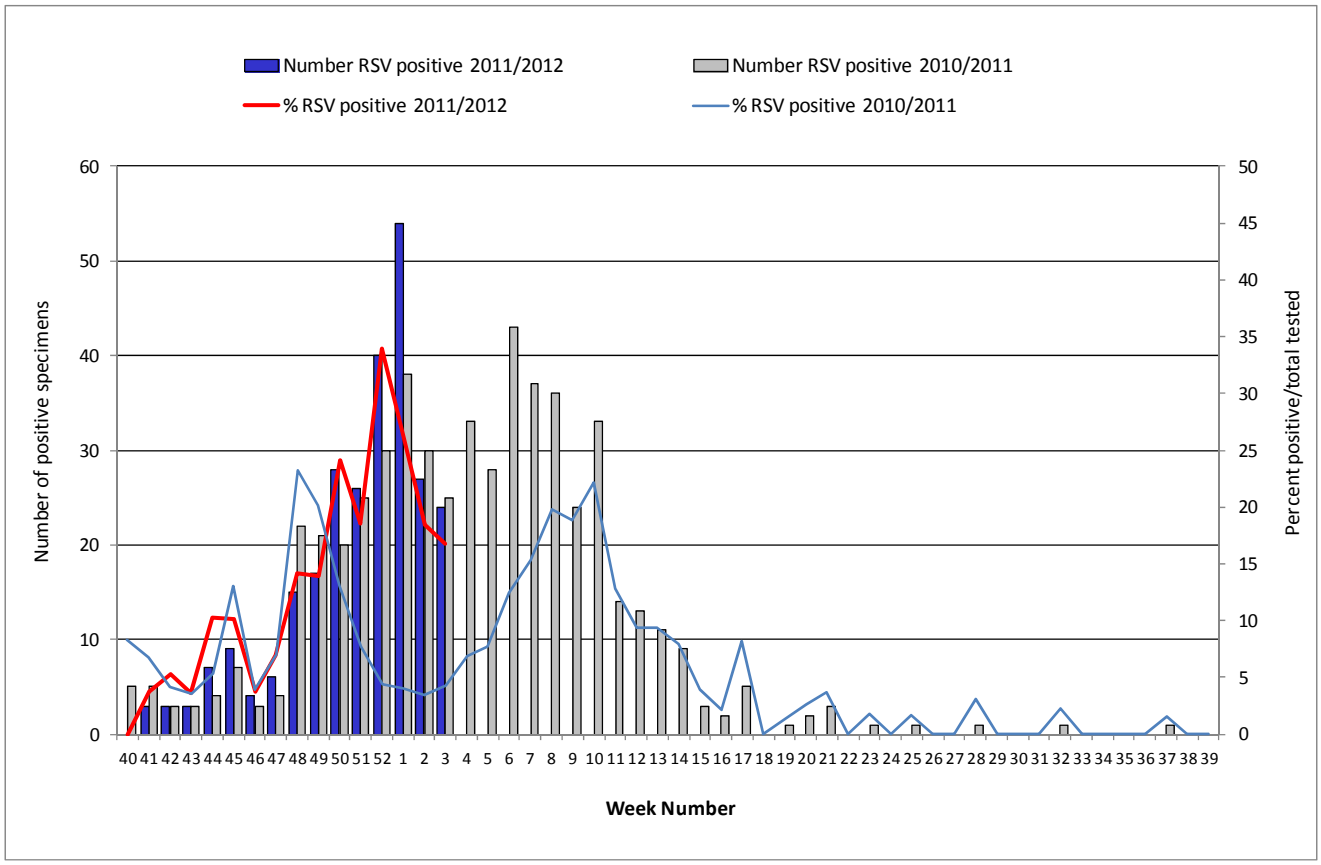

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2011/2012 season, compared to the 2010/2011 season. *Source: NVRL*

Other Respiratory Viruses

During week 3 2012, one (0.7%) adenovirus and five (3.5%) human metapneumovirus (hMPV) positive detections were reported by the NVRL from non-sentinel sources. There were no positive non-sentinel detections of parainfluenza viruses reported for week 3 2012. To date this season, there have been sporadic detections of adenovirus, parainfluenza virus type 1 (PIV-1), PIV-2 and hMPV. Figure 6 shows the percentage positive non-sentinel specimens tested by the NVRL for RSV, Adenovirus, PIV-1, -2 and -3, hMPV and influenza virus.

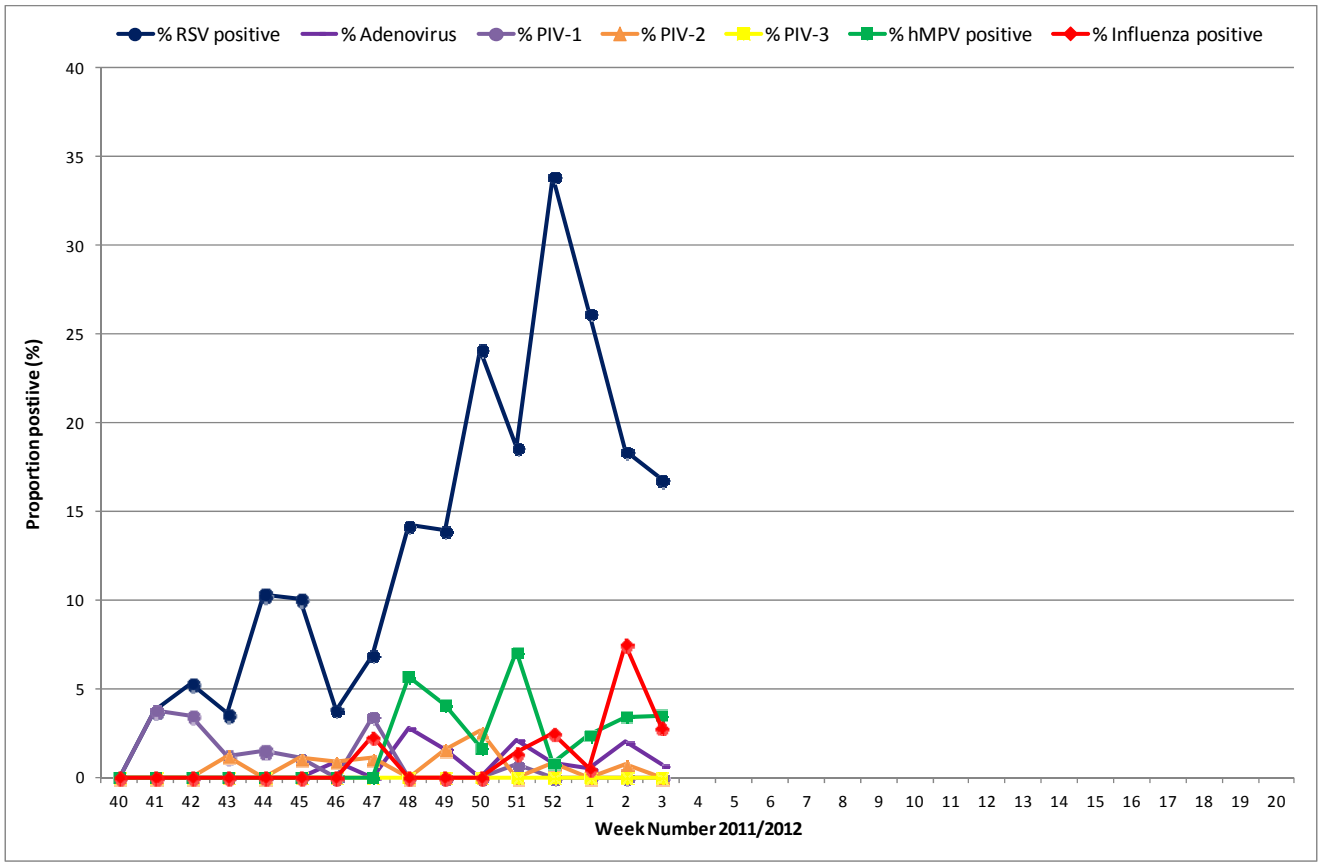

Figure 6: Percentage positive non-sentinel specimens tested by the NVRL for respiratory syncytial virus (RSV), Adenovirus, Parainfluenza viruses (PIV) types -1, -2 and -3, human metapneumovirus (hMPV) and influenza virus during the 2011/2012 season. *Source: NVRL*

Table 1: Number of sentinel and non-sentinel[**] respiratory specimens tested by the NVRL and positive influenza results, for week 3 2012 and the 2011/2012 influenza season to date. *Source: NVRL*

Week number	Specimen type	Total specimens tested	Number influenza positive	% Influenza positive	Influenza A					Influenza B
					A (H1) 2009	A (H3)	A (H1)	A (unsubtyped)	Total influenza A	
3 2012	Sentinel	16	6	37.5	0	6	0	0	6	0
	Non-sentinel	143	4	2.8	0	4	0	0	4	0
	Total	159	10	6.3	0	10	0	0	10	0
2011/2012	Sentinel	183	35	19.1	0	27	0	0	27	8
	Non-sentinel	1705	23	1.3	0	20	0	2	22	1
	Total	1888	58	3.1	0	47	0	2	49	9

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 3 2012 and the 2011/2012 influenza season to date. *Source: NVRL*

Week number	Total specimens tested	RSV	% RSV Positive	Adenovirus	% Adenovirus positive	PIV-1	% PIV-1	PIV-2	% PIV-2	PIV-3	% PIV-3	hMPV	% hMPV
3 2012	143	24	16.8	1	0.7	0	0.0	0	0.0	0	0.0	5	3.5
2011/2012	1705	266	15.6	15	0.9	12	0.7	11	0.7	0	0.0	39	2.3

[**] 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 reported on a weekly basis for each HSE area. Influenza activity is based on sentinel GP ILI consultation rates, laboratory confirmed influenza cases and ILI/influenza outbreaks.

Sporadic influenza activity (based on ILI cases and/or laboratory confirmed influenza cases) was reported from HSE-E,-M, -MW, -NE, -S and -SE during week 3 2012. No influenza activity was reported from HSE-NW and -W during this period (figure 7).

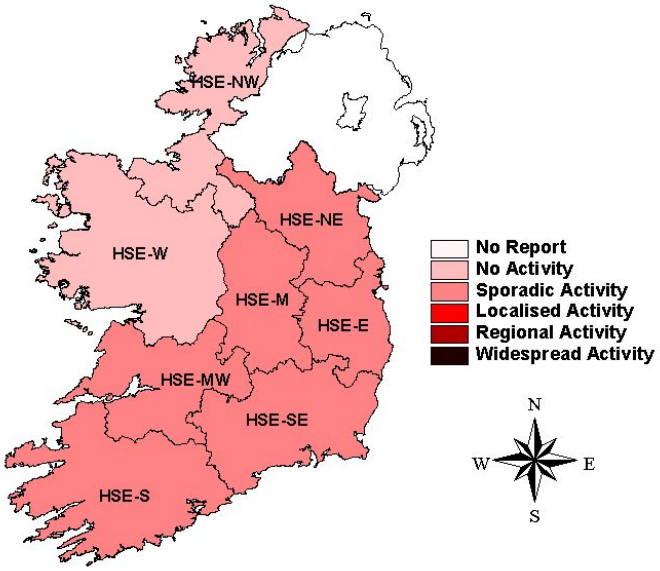

Figure 7: Map of provisional influenza activity by HSE-Area during influenza week 3 2012

Sentinel hospitals and schools

The Departments of Public Health have established at least one sentinel hospital in each HSE-Area, to report data on total hospital admissions, total emergency admissions and total respiratory admissions by age group on a weekly basis. Sentinel primary and secondary schools were also established in each HSE-Area, in close proximity to the sentinel GPs, to report absenteeism data on a weekly basis. Hospital admissions and school absenteeism data act as a crude indicator for influenza activity.

Overall, national respiratory admissions reported from sentinel hospitals for weeks 50 - 52 2011 were at higher levels than those reported for weeks 40 - 49 2011. National data for weeks 1-3 2012 are currently incomplete. Respiratory admissions in three sentinel hospitals (in HSE-E, W and –SE) increased slightly during week 3 2012, compared to the previous week. One sentinel secondary school in HSE-SE reported a slight increase in absenteeism for unexplained reasons during week 3 2012.

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. Clinical details from all calls are recorded. 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 and decreased during week 3 2012 for the third consecutive week, to 1.7%, compared to 2.2% in week 2 2012. Four GP Out-of-Hours services reported during week 3 2012 (figure 8).

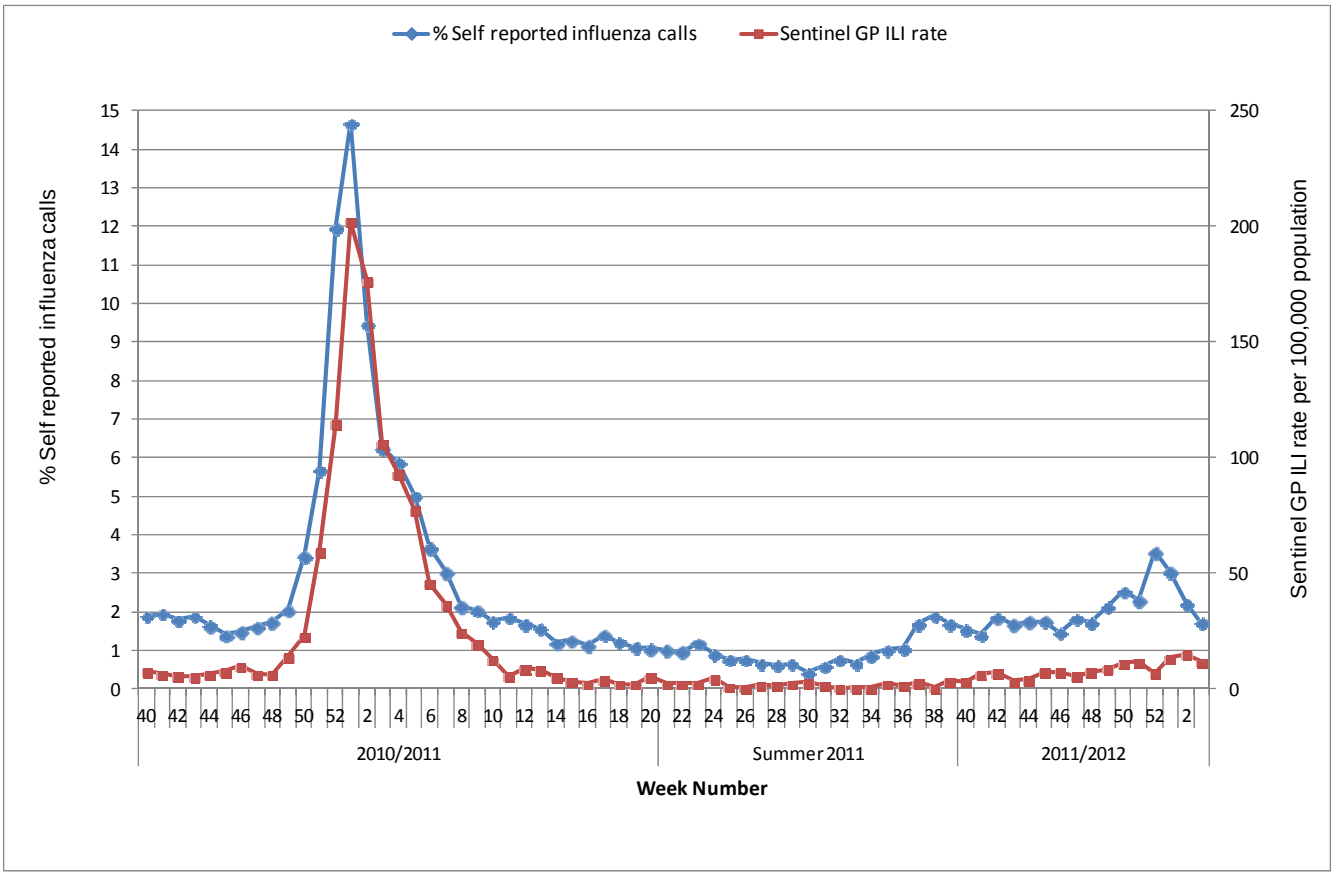

Figure 8: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 and 2011/2012 seasons
Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.

5. Influenza notifications and hospitalisation status (CIDR)

Laboratory confirmed influenza cases notified on Ireland's Computerised Infectious Disease Reporting System (CIDR) include all positive influenza specimens reported from all laboratories testing for influenza and reporting to CIDR. Currently, the NVRL is the only laboratory subtyping positive influenza A specimens for *all* influenza A subtypes.

Twelve laboratory confirmed influenza cases were notified during week 3 2012: 9 A (unsubtyped) and 3 A (H3). One confirmed influenza hospitalised case (associated with influenza A) was notified on CIDR for week 3 2012. Between weeks 40 2011 and week 3 2012, ten confirmed influenza cases were hospitalised: four A (H3), five A (unsubtyped) and one B. Age specific hospitalisation rates per 100,000 population for all confirmed influenza

cases are at low levels in all age groups, with the highest age specific rates currently being reported in the 0-4 year age group (table 3).

6. Intensive Care Society of Ireland (ICSI) enhanced surveillance of all critical care patients with confirmed influenza

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. No confirmed influenza cases were admitted to critical care units during week 3 2012. HPSC has been notified of one confirmed influenza case (an influenza A H3 case) admitted to critical care between week 40 2011 and week 3 2012.

Table 3: Age specific rate per 100,000 population by age group (years) for all confirmed influenza hospitalised cases and cases admitted to ICU for the 2011/2012 influenza season to date. *Source: CIDR and ICU enhanced surveillance system*

	Hospitalised		Admitted to ICU	
Age (years)	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
0-4	3	1.0	0	0.0
5-14	1	0.2	0	0.0
15-24	0	0.0	0	0.0
25-34	0	0.0	0	0.0
35-44	1	0.2	0	0.0
45-54	0	0.0	0	0.0
55-64	2	0.5	1	0.2
65+	3	0.6	0	0.0

7. Mortality surveillance

No influenza-associated deaths were reported to HPSC during week 3 2012. To date this season, two influenza-associated deaths have been reported to HPSC, both in patients aged 65 years or older during week 2 2012. One patient was infected with influenza B and the other was infected with influenza A (H3).[††]

8. Outbreak surveillance

No new influenza outbreaks were reported during week 3 2012. To date this season, only one influenza outbreak has been reported, an influenza A hospital outbreak reported during week 2 2012. There was one RSV outbreak reported from a hospital during week 1 2012.

9. International summary

United Kingdom

Overall influenza activity remained at low levels in week 2 2012 in the UK. The weekly primary care ILI consultation rate was low in England (7.8 per 100,000), Wales (7.2 per 100,000), Northern Ireland (25.4 per 100,000) and Scotland (14.1 per 100,000). The proportion of NHS Direct calls for colds/influenza remained below the early warning threshold for influenza. The proportion of calls for fever was below threshold levels. One new acute respiratory disease outbreak was reported in week 2 2012. Four influenza A (H3) detections were recorded in the UK sentinel GP schemes in week 2 2012, with an overall positivity of 3.8%. Twenty-eight (3.6%) of the 770 respiratory specimens reported to Data Mart (England) tested positive for influenza in week 3 2012. The majority of positive samples were influenza A (H3) (25 A (H3) and three A unsubtyped). The proportion of samples positive for RSV decreased, with the highest positivity in the 0 - 4 year age group. The proportion of samples positive for hMPV increased slightly, and remained stable for parainfluenza, rhinovirus and adenovirus. Eight new admissions to ICU/HDU with confirmed influenza were reported across the UK in

[††] It should be noted that 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.

week 2 2012. Since week 40 2011, there have been a total of 49 ICU/HDU influenza admissions with 15 (30.6%) resulting from influenza A (H1N1) 2009, six (12.2%) from influenza A (H3N2), 24 (49%) from A (unsubtyped) and four (8.2%) from influenza B. Excess all-cause mortality remains within expected levels for this time of year for England and Wales up to week 2 2012 as calculated by the HPA. No excess mortality was seen in Scotland in the last four weeks. Twenty-two influenza viruses have been antigenically characterised this season, 21 A (H3N2) viruses similar to the A/Perth/16/2009 strain (included in the 2011/2012 influenza vaccine) and one B virus which belonged to the B-Yamagata lineage. http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/

Europe

Influenza transmission is progressing slowly in Europe this season and is currently dominated by influenza A (H3N2) viruses. During week 2 2012, low influenza activity was notified by 25 of the 27 countries reporting to ECDC and Italy and Spain reported medium intensity of influenza activity. Italy reported regional influenza spread, while Finland, the Netherlands, Norway and Spain reported localised spread. Sporadic activity was reported by 16 countries. No geographic spread was reported by five countries. Of 803 sentinel specimens tested during week 2 2012, 137 (17.1%) were positive for influenza viruses. This is higher than in week 1 2012 and continues an upward progression since December. Of the 1752 influenza virus detections in sentinel and non-sentinel specimens since week 40 2011, 1644 (93.8%) were type A and 108 (6.2%) were type B viruses. Of 908 influenza A viruses subtyped, 57 (6.3%) were A (H1) 2009 and 851 (93.7%) were A (H3) viruses. No antiviral resistance has been detected to date this season. Since week 40 2011, 195 severe acute respiratory infection (SARI) cases have been reported by six countries. Seventy-seven SARI cases were confirmed influenza-positive cases: 30 were A (H3), 15 were A (H1N1) 2009, 27 A (unsubtyped) and five were influenza B viruses.
http://ecdc.europa.eu/en/healthtopics/influenza/epidemiological_data/Pages/Weekly_Influenza_Surveillance_Overview.aspx

USA

During week 2 2012, influenza activity in the United States remained relatively low. The proportion of ILI outpatient visits was 1.2%, which is below the national baseline of 2.4%. Of the 3,771 specimens tested, 138 (3.7%) were positive for influenza: 15 A (H1N1) 2009, 65 A (H3), 52 A (unsubtyped) and 6 B. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. No influenza-associated paediatric deaths were reported. CDC has antigenically characterised 197 influenza viruses this season, 19 were characterised as A/California/7/2009-(H1N1)-like, 158 were A/Perth/16/2009-(H3N2)-like and eight were characterised as B/Brisbane/60/2008-like, all of which are components of the 2011/2012 influenza vaccine. Nine influenza B viruses tested belong to the B/Yamagata lineage of viruses. Two A (H3N2) viruses (2/160; 1.2%) tested showed reduced titres with antiserum produced against A/Perth/16/2009. One A (H1N1) 2009 virus (1/20; 5.0%) tested showed reduced titres with antiserum produced against A/California/7/2009. http://www.cdc.gov/flu/weekly/

Canada

During week 2 2012, influenza activity was increasing in more regions across Canada; however, activity remained low in certain areas. The national ILI consultation rate decreased compared to previous weeks, however remained within expected levels for this time of year. Eight influenza outbreaks were reported during week 2 2012: three in hospitals and five in a long term care facilities. One hundred and thirty-four laboratory detections of influenza were reported during week 2 2012: 73 A (H3), 9 A (H1N1) 2009, 14 A (unsubtyped) and 38 B. Eighteen influenza-associated hospitalisations were reported during week 2 2012: 3 paediatric and 15 adult. The proportion of influenza virus detections by type/subtype this season to date is as follows: 79.4% influenza A (74% - A (H3); 8% - A (H1N1) 2009; 18% - A unsubtyped) and 20.6% influenza B. Thirty-five influenza A viruses were antigenically characterised as A/Perth/16/2009-(H3N2)-like and 19 were characterised as A/California/7/2009-(H1N1)-like, which are both included in the 2011/2012 influenza vaccine. Fourteen of the influenza B viruses antigenically characterised were related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The other 21 B viruses antigenically characterised were related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. http://www.phac-aspc.gc.ca/fluwatch/index-eng.php

Worldwide (WHO)

The WHO Global Influenza Programme monitors influenza activity worldwide and publishes an update every two weeks. As of 20th January 2012, influenza activity in the temperate regions of the northern hemisphere remained low overall though notable local increases in activity were reported in some areas of Canada, Europe (Turkey, Spain, Italy and Malta), northern Africa (Tunisia and Algeria), China and the middle East (the Islamic Republic of Iran). Countries in the tropical zone reported generally low or undetectable levels of influenza activity with the exception of southern China, where influenza type B detections were increasing, and Costa Rica, which continued to report influenza A (H3N2) albeit at declining levels. Influenza activity in the temperate countries of the southern hemisphere was at inter-seasonal levels, although Chile, Paraguay and Australia all reported persistent low level transmission of A (H3N2) during their summer season. The most commonly detected virus type or subtype throughout the northern hemisphere temperate zone has been influenza A (H3N2) with the exception of Mexico, where influenza A (H1N1) 2009 is the predominant subtype circulating, and China which is reporting a predominance of influenza type B. Other than Mexico, only very small numbers of influenza A (H1N1) 2009 have been reported globally. Reports from countries that do antigenic characterisation indicate that nearly all influenza A viruses tested are antigenically related to those viruses included in the current trivalent influenza vaccine. While many of the influenza type B viruses are of the Yamagata lineage, which is not included in the current vaccine, overall numbers of influenza B virus detections are quite low compared to influenza type A (with the exception of China noted above). Oseltamivir resistance has continued to be observed at very low levels and has not increased notably over levels reported in previous seasons. http://www.who.int/influenza/surveillance_monitoring/updates/en/index.html

Avian influenza

As of 24th January 2012, 583 confirmed human cases of avian influenza A (H5N1) and 344 (59.0%) deaths have been reported to WHO from 15 countries since 2003. The latest confirmed cases were reported from Cambodia, Indonesia, Egypt, Vietnam and China in January 2012.
http://www.who.int/influenza/human_animal_interface/en/index.html

10. Northern hemisphere influenza vaccine for the 2011/2012 season

Following a WHO Consultation, it is recommended that vaccines for use in the 2011/2012 influenza season (northern hemisphere) contain the following viruses:

- an A/California/7/2009 (H1N1)-like virus;
- an A/Perth/16/2009 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus.

The recommended 2011/2012 influenza vaccine remains unchanged from the 2010/2011 influenza vaccine.
http://www.who.int/influenza/vaccines/2011_02_recommendation.pdf

Further information on influenza in Ireland and internationally

Ireland	www.hpsc.ie
Northern Ireland	http://www.fluawareni.info/
Europe – ECDC	http://ecdc.europa.eu/

Acknowledgements

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