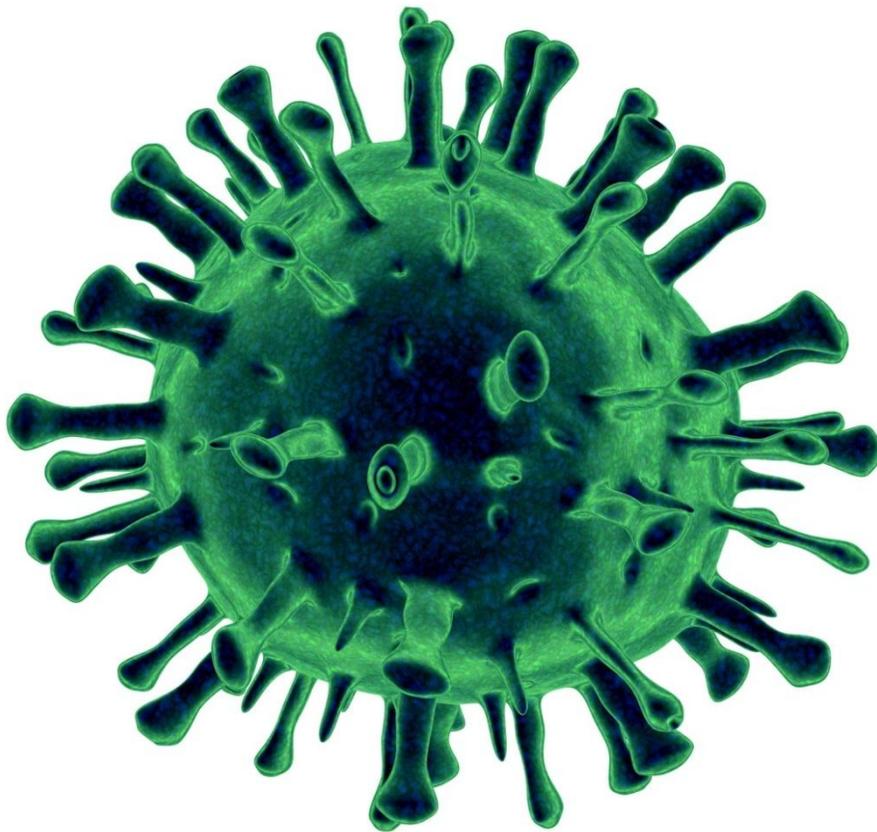


Surveillance of Influenza In Northern Ireland

2013 – 2014



Contents

- Summary 1
- Introduction..... 2
- Sources of data 2
 - Sentinel GP surveillance..... 2
 - Out-of-Hours Centres 3
 - Virological surveillance 3
 - Mortality data 3
 - Mandatory ICU surveillance scheme 4
 - Vaccine uptake monitoring 4
 - Emergency Department Syndromic Surveillance System..... 4
- Enhanced influenza surveillance system 5
 - GP Clinical 'flu/FLI surveillance 5
 - Respiratory Syncytial Virus..... 10
 - Antiviral resistance..... 11
 - Mandatory ICU surveillance scheme 12
 - Mortality monitoring 14
- National and International situation 18
- Conclusion..... 19
- Acknowledgements 20
- References 21

Summary

The 2013/14 influenza season started later than in 2012/13, it did not last as long and was noted at generally lower levels throughout than the previous season. Clinical indices began to increase in early January and peaked in mid-March, with community syndromic indicators not exceeding the baseline threshold at any time during the season. GP influenza-like illness consultation rates in 2013/14 were lower than those in the 2012/13 season for the majority of the season and remained low overall.

Overall no one age group appeared predominantly affected with rates fluctuating throughout the season. The highest rate overall however was noted among the youngest age group during the peak period.

In contrast to 2013/14, influenza A(H1N1)pdm09 was the predominant strain of the virus circulating, followed by a substantial proportion of influenza A(H3) strain. Unlike the previous season, detections of influenza B were small in number and proportion, and although detections of the strain became more consistent in the latter weeks of the season, they remained generally low.

The number of patients with confirmed influenza admitted to intensive care was similar in comparison with the previous season, although slightly lower in number. The median age of these patients increased compared to 2012/13. The number of fatalities in intensive care patients confirmed with influenza increased from seven to fifteen, all of whom had one or more co-morbidities and over 65 year age group being the predominant age group.

The proportion of over 65 year olds who received the 2013/14 seasonal influenza vaccine was 75.4%, and the proportion of those in a clinical risk group aged under 65 years who received the vaccine was 76.4%. The uptake rate in over 65 year olds slightly increased in comparison to the previous year, while uptake among those in a clinical risk group aged under 65 years decreased slightly but remained well above the UK average. The proportion of pregnant women vaccinated during the season decreased to 58.0% but also remains above the UK average. Influenza vaccine uptake in frontline healthcare workers increased this season to 24.0% but was still significantly lower than the rest of the UK.

For the first time this season all children aged 2 and 3 years and children in primary year 6 were offered the influenza vaccine. The uptake rate among 2 – 3 year olds at the end of March 2014 was 55.5%, while 80.5% of children in primary year 6 received the vaccine during the same period. These figures were the highest achieved in the UK.

Introduction

This report describes influenza activity in Northern Ireland in the 2013/14 winter season period. In Northern Ireland, the activity of influenza and other respiratory viruses is monitored by the Public Health Agency (PHA). Data are collated from a number of surveillance systems to provide information on types and extent of the influenza strains circulating in the region. Outputs from the surveillance activities are used to produce timely reports to inform health professionals, the media and the public on influenza activity trends and uptake of the seasonal influenza vaccine. Surveillance is carried out throughout the year; however, the focus in this report is primarily on the winter season, covering the period from week 40 2013 (w/c 30/09/2013) to week 20 2014 (ending 18/05/2014).

Sources of data

Sentinel GP surveillance

In 2013/14, information from 37 sentinel GP practices across Northern Ireland was reported weekly by age group on combined clinical consultations for influenza and influenza-like illness ('flu/FLI) and clinical consultations for acute respiratory infections (ARI). These practices account for 11.6% of the population. Thirty-two of the 37 practices agreed to participate in enhanced virological surveillance during the winter period, taking nasal and throat swabs of a sample of patients presenting with clinical influenza.

To aid interpretation of GP consultation rates and enable comparison with previous years, a provisional threshold 'flu/FLI rate of 52.9 consultations per 100,000 population has been established to distinguish baseline from seasonal influenza activity. For the 2013/14 season the threshold was updated using a new methodology to provide a more robust and standardised measure. The new threshold is explained below.

New consultation baseline threshold

A key feature required of influenza surveillance is the ability to detect when circulation starts each winter so that relevant control and prevention interventions and resources can be mobilised in a timely fashion. Influenza-like illness (ILI) GP consultation rates are traditionally considered a key indicator; if the rate per 100,000 population goes above a specific pre-assigned value or "threshold", this denotes the start of significant influenza circulation in the community. Previously we used an historical threshold based on clinical judgement and expert opinion for quantifying influenza activity (70 consultations per 100,000 population). Limitations of this threshold included inconsistency with rates observed in recent seasons and the inability to compare internationally. A new approach, known as the Moving Epidemic Method (MEM), which has been piloted by the European Centre for Disease Control (ECDC), was adopted this year in the four UK countries to provide more robust baseline thresholds and to harmonise influenza surveillance data across the UK and Europe. The MEM threshold for NI in 2013/14 is 52.9 consultations per 100,000 population. The MEM threshold varies by each UK country.

Out-of-Hours Centres

Automated data extractions on clinical consultations for 'flu/FLI and ARI by age groups were collected weekly from all Out-of Hours (OOH) centres across the region, covering the entire population of Northern Ireland. This data supplements the GP in-hours surveillance programme.

Virological surveillance

Respiratory samples accompanied with demographic and epidemiological information are sent from primary care sentinel practices and from non-sentinel sources, which include hospitals and non-sentinel GP practices, to the Regional Virology Laboratory (RVL) for testing. Specimens are tested by PCR for influenza and other respiratory virus infections. In 2013/14 all samples were tested for influenza A and its main subtypes (including H1N1pdm09, AH1 and AH3), influenza B, respiratory syncytial virus (RSV), mycoplasma pneumoniae, bordetella pertussis, chlamydomphila pneumoniae, metapneumovirus, parainfluenza, pneumocystis jerevecii, respiratory adenovirus and rhinovirus. Due to historical variation in testing methods, only RSV is reported in the PHA annual report. The RVL also sends a subsample of influenza specimens to Public Health England Respiratory Virus Unit (PHE-RVU) annually during the winter influenza season for antiviral resistance monitoring and further strain identification.

Mortality data

The Northern Ireland Statistics and Research Agency (NISRA) provides weekly mortality data to the PHA on the total number of registered deaths, including both all-cause mortality and mortality due to selected respiratory infections (some of which may be attributable to influenza and other respiratory infections, or complications thereof). Due to delays in death registrations, the number of registered deaths over a time period does not necessarily equal the number of deaths occurring in that period. Searches of the medical certificates of the cause of death are performed using a number of keywords that could be associated with influenza, including; bronchiolitis; bronchitis; influenza; and pneumonia. Death registrations containing these keywords are presented as a proportion of all registered deaths.

Excess mortality estimations are also provided by Public Health England using the EuroMOMO (Mortality Monitoring in Europe) model based on raw death data supplied by NISRA. EuroMOMO is a project coordinated by the Statens Serum Institut in Denmark, providing European countries with a common approach to analyse their mortality data and compare them to other countries. The algorithm provides expected and observed weekly number of deaths corrected for reporting delay and standardised for the total population by age group and region. If the number of observed deaths exceeds the number of expected deaths, excess mortality is reported for that week. Please note that despite delay correction, the reported mortality data is provisional due to the time delay in registration and so the above observations may vary from week to week. The overall objective is to develop a routine public health mortality monitoring system aimed at detecting and measuring, on a real time basis, the

excess number of deaths related to influenza and other potential acute public health threats across European countries.

Mandatory ICU surveillance scheme

Since 2011/12 Northern Ireland has participated in the national mandatory ICU surveillance scheme, reporting the aggregate number of patients who are admitted to ICU/HDU with confirmed influenza and any deaths occurring in this group, from the five Health and Social Care Trusts (HSCT). The Critical Care Network for Northern Ireland (CCaNNI) reports this data weekly to the PHA.

Vaccine uptake monitoring

The Joint Committee on Vaccination and Immunisation (JCVI) recommended that all those aged 65 years and over and those aged between 6 months and 65 years who fall into a clinical at-risk group, be offered the seasonal 2013/14 trivalent influenza vaccine. Pregnant women have now become one of the risk groups for whom seasonal flu vaccine is routinely recommended and are offered the vaccine in primary care. Health and social care workers are also offered the vaccine, delivered by their occupational health departments.

In 2013/14 for the first time, all children aged 2 and 3 years, and school children in primary year 6 (includes children born between July 2003 and July 2004) were offered the influenza vaccine, as the first step of a phased approach to meet the JCVI's recommendation that the routine annual flu vaccination programme be extended to all children aged 2 to 16 years of age (inclusive).

For winter 2013/14 the Department of Health, Social Services and Public Safety (DHSSPS) set the regional target of influenza immunisation uptake for both over 65s and the under 65 "at risk" group at 75%, remaining unchanged from the targets in the 2012/13 season. As this was the first year of the extended programme for children no specific uptake target was set for this group, but GPs were strongly encouraged to achieve a high uptake rate.

The Public Health Agency, in liaison with influenza immunisation co-ordinators in primary care, the Health and Social Care Board and Trusts in Northern Ireland, collates influenza vaccination statistics at intervals over the winter period.

Emergency Department Syndromic Surveillance System

In 2013/14, syndromic attendance data were collected from 3 emergency departments across Northern Ireland. The regular flu bulletin reported on numbers of patients attending with symptoms of influenza like illness, however this number remained very low throughout the season. For this reason we will not include any data in this report, however this data source will continue to contribute to our enhanced surveillance programme.

Enhanced influenza surveillance system

GP Clinical 'flu/FLI surveillance

GP consultation rates were lower than those seen in 2012/13 in what was another season characterised by unusually low influenza activity; similar to the pattern noted in 2011/12 and similar to the pattern noted this season across other regions of the UK. The GP sentinel consultation rate for 'flu/FLI' did not exceed the new baseline threshold level of 52.9 consultations per 100,000 at any point during the 2013/14 flu season. Consultation rates for 'flu/FLI' did not begin to increase until week 1 (week ending 05/01/2014), slightly later than the previous season but similar to 2011/12. The period when influenza consultation rates were raised was close to what would normally be expected at approximately 13 weeks in length. This season was slightly shorter than has been noted over the past two years, both of which were characterised by unusually long seasons. Rates peaked in week 11 (week ending 16/03/2013) at 39.2 per 100,000 population after which they decreased sharply in week 12, then rose for a small number of weeks before steadily decreasing for the remainder of the season. This season's peak was a later but smaller peak in comparison to 2012/13, when rates peaked at 87.0 per 100,000 population in week 1, but very similar to 2011/12 when rates also peaked in week 11 at 36.3 per 100,000.. Rates in 2013/14 generally exceeded those in 2012/13 earlier in the season from week 40 to around week 47 after which rates were considerably lower than in 2012/13, with the exception of weeks 14, 18 and 20 at the end of the season.

Figure 1. Sentinel GP consultation rate per 100,000 population for combined flu and flu-like illness 2008/09 - 2013/14 with positive detections of influenza

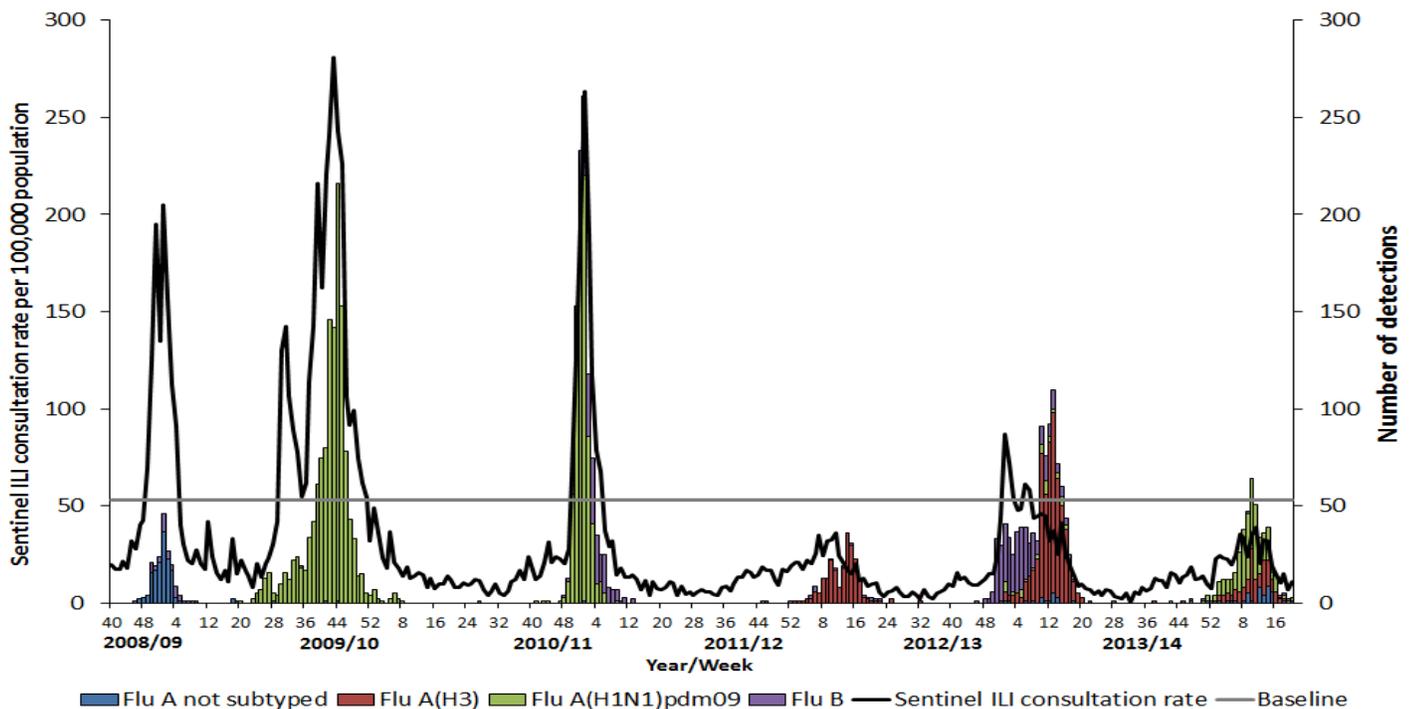
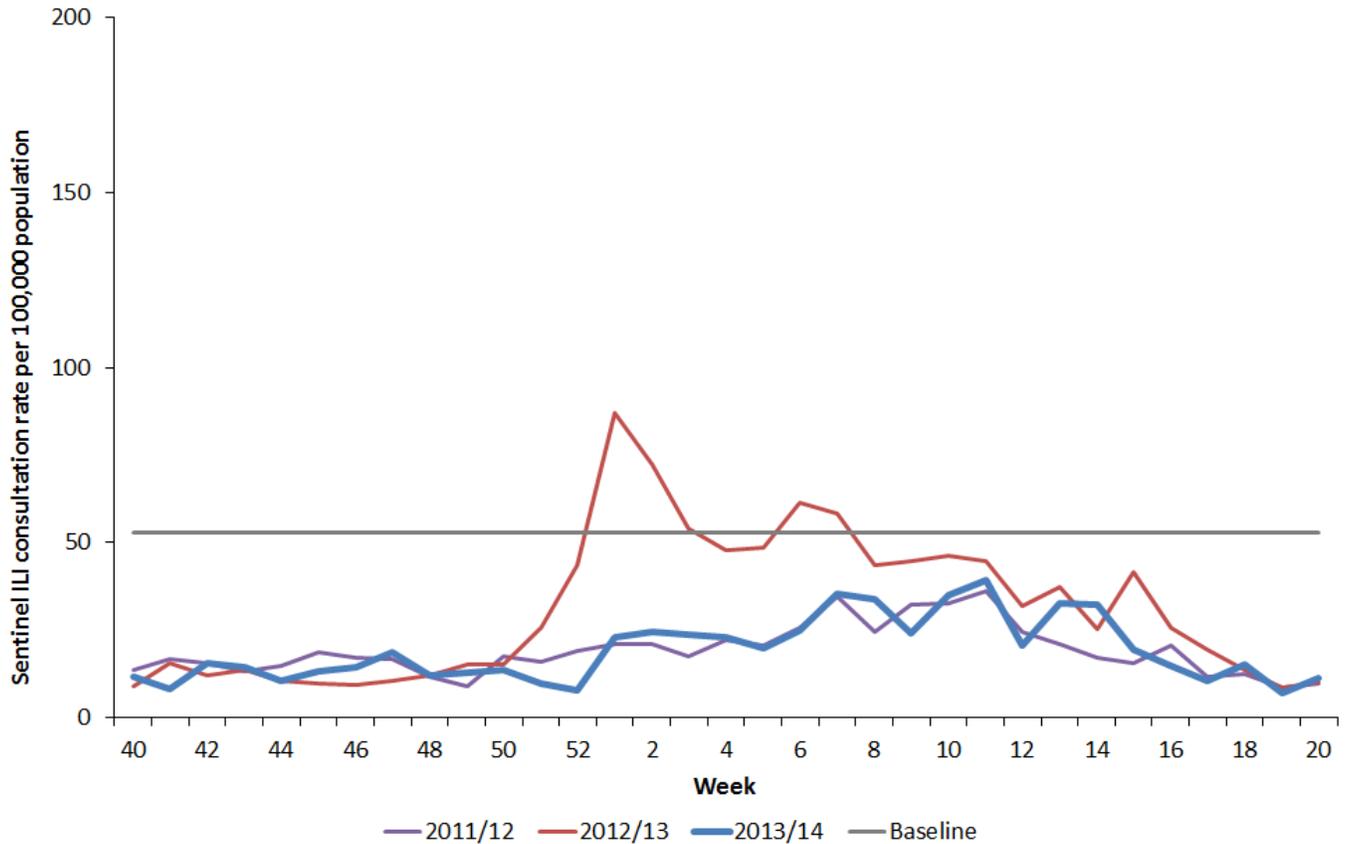


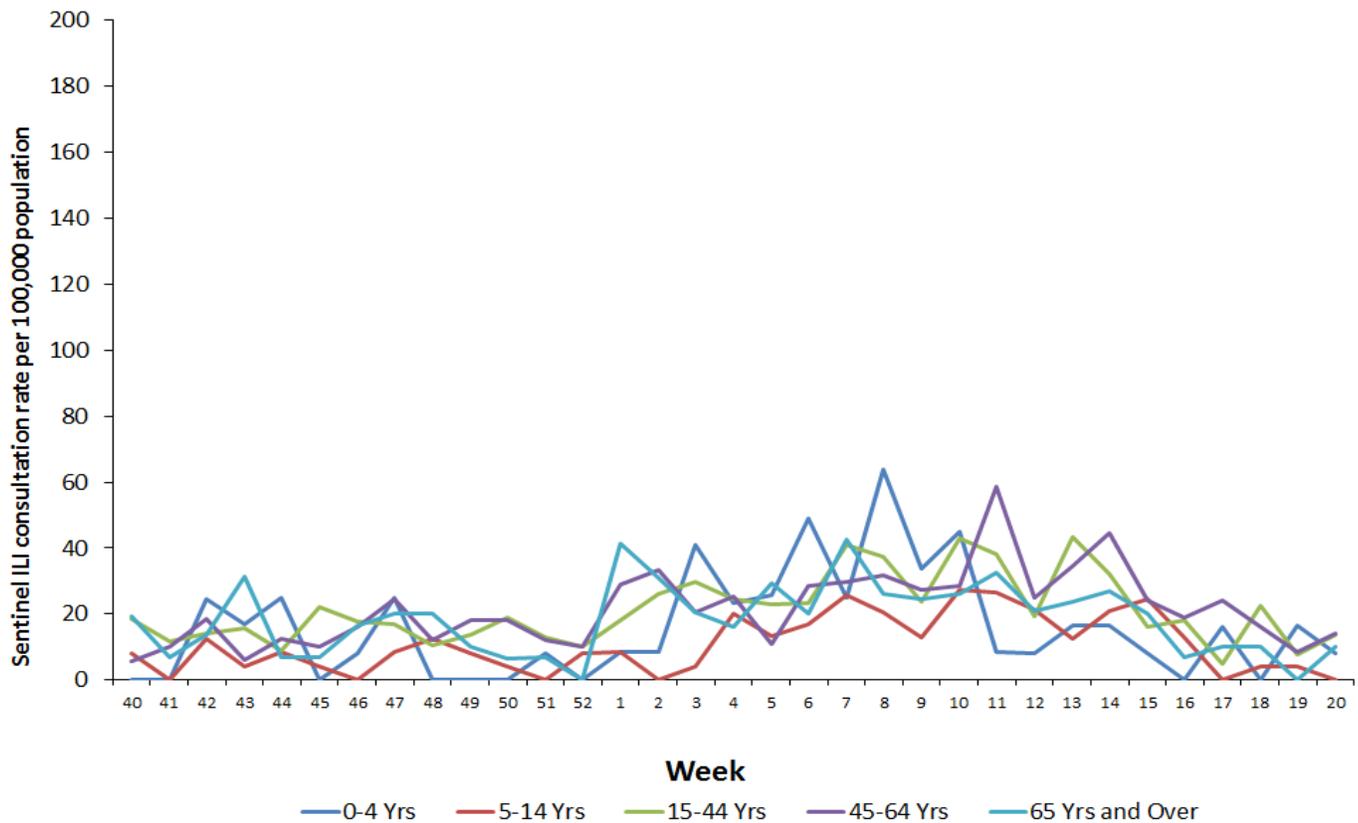
Figure 2. Sentinel GP consultation rate per 100,000 population for combined flu and flu-like illness 2011/12-2013/14



Age specific GP consultation rates among all age groups fluctuated throughout the 2013/14 influenza season. Similar to the 2012/13 season, the highest age specific rates were most consistently observed in the older age groups with age specific rates for the 45-64 years age group peaking at 58.7 per 100,000 in week 11 (week ending 16/03/2014). The highest age-specific peak rate overall however was noted in the 0-4 years age group at 63.9 per 100,000 population in week 8 (week ending 23/02/2014), although rates within this age-group fluctuated throughout the season ranging from 0.0 to 63.9 per 100,000 population. The lowest age-specific peak rate in 2013/14 was noted within the 5-14 years age group at 26.6 per 100,000 in week 11 (week ending 16/03/2014). Rates within the 15-44 years age group peaked later than the other age groups at 43.5 per 100,000 in week 13 (week ending 30/03/2014). Flu/FLI rates within the 0-4 and 65 years and over age groups peaked earliest in the season, with the latter peaking at 42.4 per 100,000 in week 7 (week ending 16/02/2014) (Figure 3).

The highest rates across the UK in 2013/14 were also seen generally in older adults.

Figure 3. Sentinel GP age-specific consultation rates per 100,000 population for combined flu and flu-like illness from weeks 40 - 20, 2013/14



Out-of-Hours Centres

Out-of-Hours centres ‘flu/FLI call rates decreased compared to the 2013/14 season, but were similar to 2011/12, remaining low overall. Call rates for ‘flu/FLI peaked in week 52 at 8.6 per 100,000 population, coinciding with the Christmas holiday period when the GP in-hours surgeries were closed. Total call rates throughout the season also peaked during the holiday periods of New Year, St. Patrick’s Day and Easter, when GP practices are closed. Outside periods when surgeries were closed, the highest peak of ‘flu/FLI calls was 8.2 per 100,000 in week 10 (week ending 09/03/2014). OOH Flu/FLI rates generally began to increase around week 5 (week ending 02/02/2014), remaining raised until around until week 14 (week ending 06/04/2014), a period of approximately 9 weeks.

The highest age-specific rate was in the 0-4 year age-group at 14.8 per 100,000 in week 14 (this was not a holiday period, but the rate was also higher than noted during holiday periods). The overall proportion of total calls for ‘flu/FLI also decreased compared to the previous season and remained low with proportions peaking at only 1.3% in week 10 (week ending 09/03/2014) (Figures 4 and 5).

Figure 4. OOH consultation rate per 100,000 population for combined flu and flu-like illness 2011/12 - 2013/14

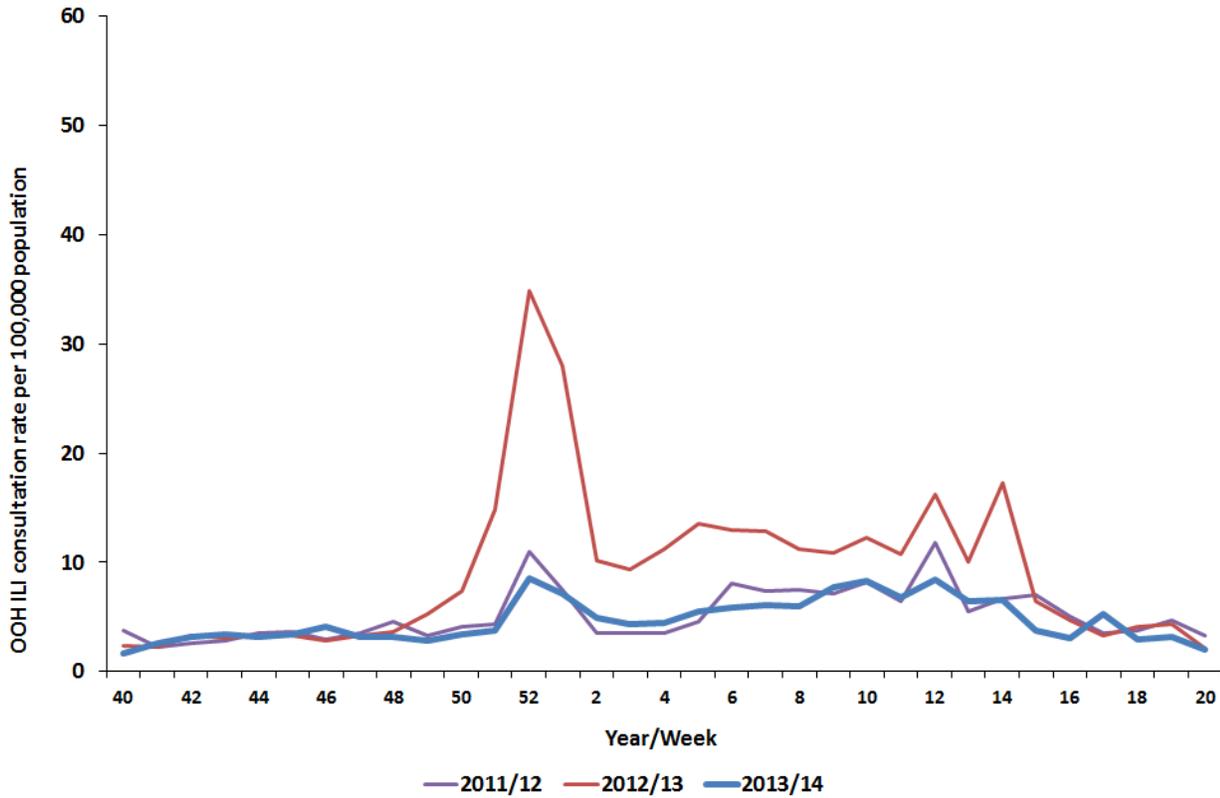
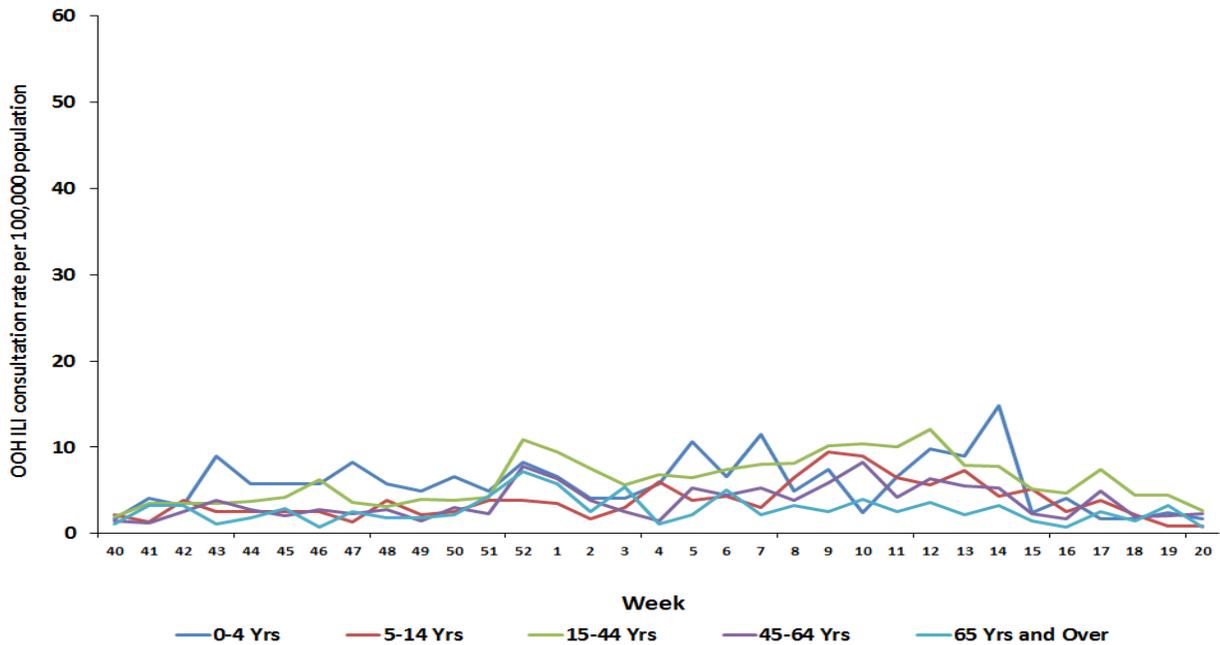


Figure 5. OOH call rates of flu and flu-like illness by age-group from weeks 40- 20 2013/14



Virus activity in Northern Ireland

The dominant circulating virus overall was influenza A (H1N1)pdm09, making up 61% (n=282) of all positive influenza specimens. Influenza A(H3) made up the next highest proportion with 29% (n=137), followed by influenza A (subtype not reported) at 9% (n=40) and influenza B at 1% (n=7).

The proportion of samples positive (all sources) for influenza began increasing from week 2, peaking at 26% overall (64/244 tests) in week 10 (Figure 6).

Over the whole winter season (week 40 2013 to week 20 2014) an estimated 177 samples were tested from samples taken by GPs in the sentinel scheme, of which 45 (25%) tested positive for influenza. Following the same pattern as the breakdown for samples overall, the predominant influenza type submitted by sentinel practices was A (H1N1)pdm09 with 69% (n=31) positive, followed by 29% (n=13) positive for influenza A (H3) and 2% positive for influenza A (subtype not reported) (n=1). In contrast to 2012/13, no GP sentinel samples tested positive for influenza B during the 2013/14 influenza season.

An estimated 4,989 samples were tested in Northern Ireland from non-sentinel sources during the same period, of which 421 (8%) tested positive for influenza. This compares with a positivity level of 19% (865/4605 samples) from non-sentinel sources last year. Of these 421 samples 60% (n=251) were positive for influenza A (H1N1)pdm2009, 29% (n=124) were positive for influenza A (H3), 1.5% (n=7) influenza B, and the remaining 39 samples positive for Influenza A, subtype not reported.

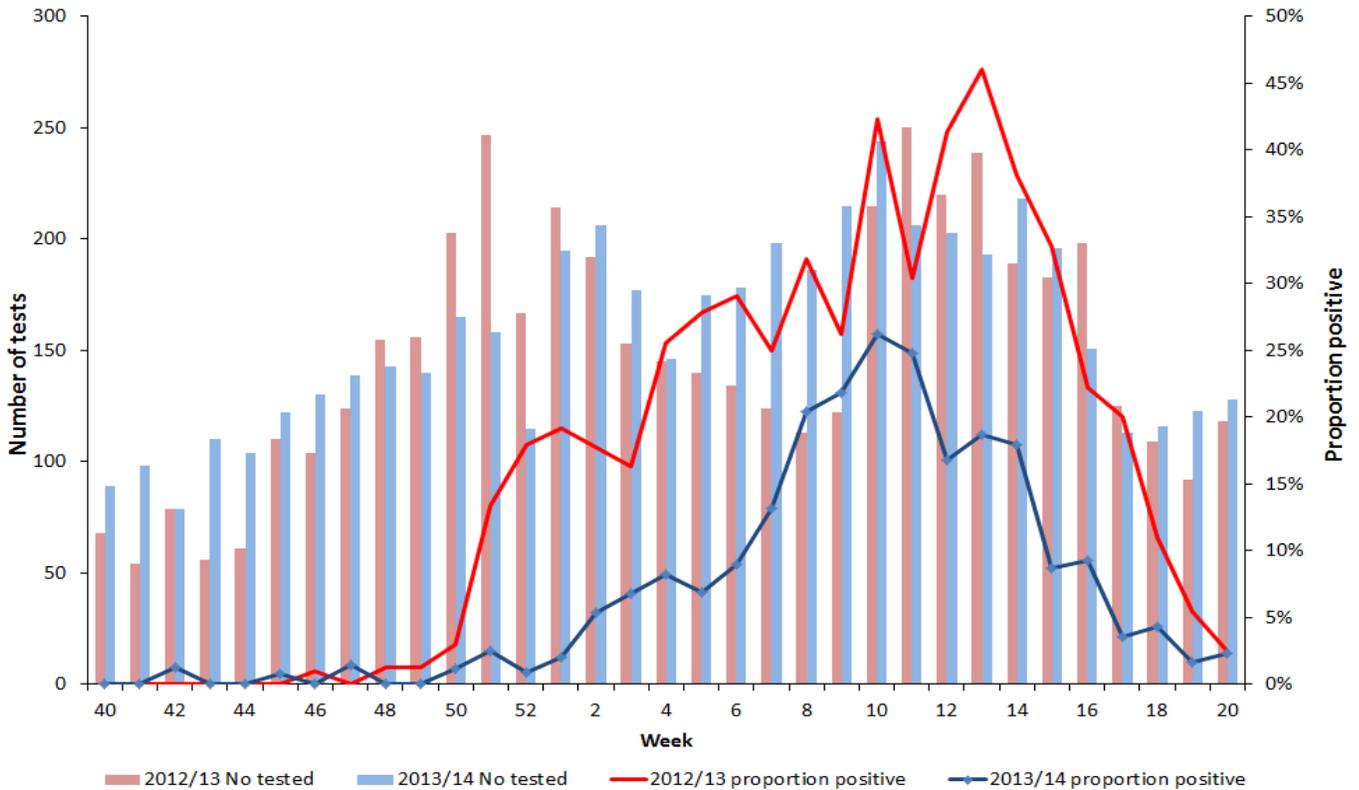
The first flu detection of the season was influenza A(H1N1)pdm2009 in week 42 (week ending 20/10/2013), with the first influenza A (H3) detection in week 45 (week ending 10/11/2013). The median age for confirmed cases of influenza A(H1N1)pdm09 in 2013/14 was 45 years; substantially lower than the median age for the predominant strain in 2012/13 (influenza A(H3) at 73 years).

Table 1. Proportion of influenza positives by age group, all sources

	0-4 yrs	5-14 yrs	15-44 yrs	45-64 yrs	Over 65 yrs
Influenza A (H1NI)pdm09	14%	4%	31%	30%	20%
Influenza A (H3)	9%	8%	18%	18%	47%
Influenza A (not subtyped)	7%	0%	40%	18%	35%
Influenza B	14 %	14%	14%	57%	0%
Total Positive	12%	5%	28%	26%	29%

**Age was unknown for 1 case positive for influenza A (H1N1)pdm09*

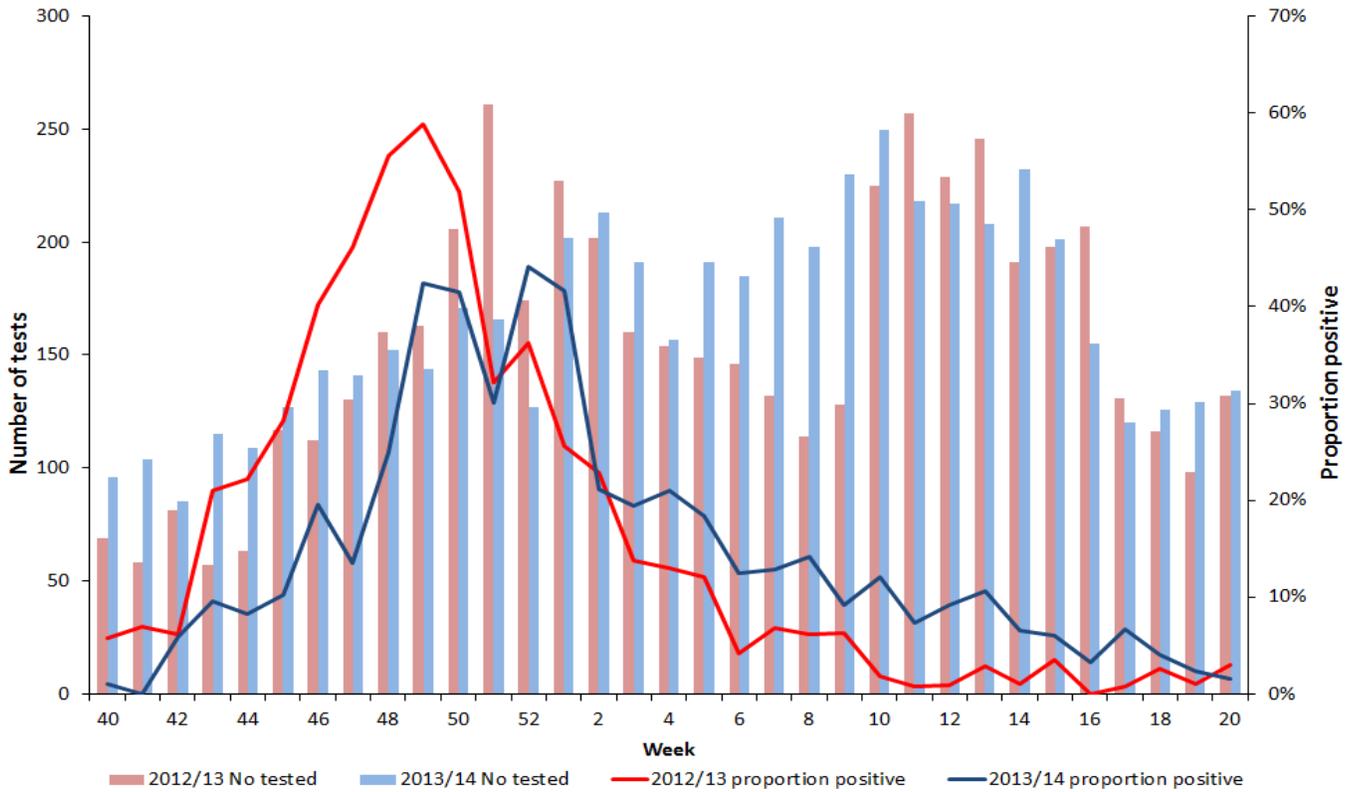
Figure 6. The number of samples tested (all sources) for influenza in Northern Ireland from weeks 40-20, 2012/13 & 2013/14 with the proportion positive



Respiratory Syncytial Virus

There were a total of 833 RSV detections reported from week 40 to week 20 2013/14, giving an overall positivity of 15% (833/5448). The principal activity period for RSV was from week 46 (week ending 17/11/2013) to week 5 (week ending 02/02/2014), with the proportion positive peaking around weeks 49 to 1 (02/12/2013 – 05/01/2014); and the number of detections peaking in week 1, approximately 4 weeks later than in 2012/13 (Figure 7). The majority (65%) of RSV detections were in the 0-4 year age group; however, this was lower than the proportion seen in this age group in the 2012/13 season (81%).

Figure 7. Number of samples tested for RSV and proportion positive in Northern Ireland 2012/13 and 2013/14



Antiviral resistance

A subset of influenza specimens are sent annually from the RVL in Belfast to the HPA Respiratory Virus Unit for molecular characterisation, including antiviral testing for the marker commonly associated with resistance to oseltamivir in influenza viruses. This season only one case from Northern Ireland was found to be resistant to oseltamivir.

Mandatory ICU surveillance scheme

Over the winter season a total of 52 ICU/HDU admissions with confirmed influenza were reported across Northern Ireland, a decrease compared to 59 admissions in 2012/13. The number of deaths in ICU admissions confirmed with influenza increased with a total of fifteen deaths in the 2013/14 season compared to seven deaths in the previous season. Of these admissions, 42 (81%) were reported as influenza A (H1N1)pdm09, 8 (15%) as influenza A (H3) and 2 (4%) as influenza A (subtype not reported), with the relative proportions of the flu types similar to that seen in the virology results overall.

The median age of cases admitted to ICU with influenza was 61 years (range 0–86 years). Forty of the cases were reported to be in a clinical risk group for influenza vaccination, with 50% (n=20) of these cases receiving the 2013/14 seasonal influenza vaccine.

Similar to the pattern in the virology results, the majority of ICU/HDU admissions throughout the season were confirmed with influenza A (H1N1)pdm09. There were no ICU/HDU admissions confirmed with influenza B (Figure 8). Similar to the previous year, the older age groups (45-64 and over 65 year olds) predominated and represented 63% (n=33) of the ICU/HDU admissions that were confirmed with influenza. Infants and children (aged <15) made up 15% (n=8) of admissions to ICU/HDU with confirmed flu (Figure 9).

Of the fifteen deaths, all had co-morbidities and risk factors for influenza vaccination, however only seven of these individuals received their seasonal flu vaccine.

Figure 8. Number of ICU admissions with confirmed influenza and sentinel consultation rate

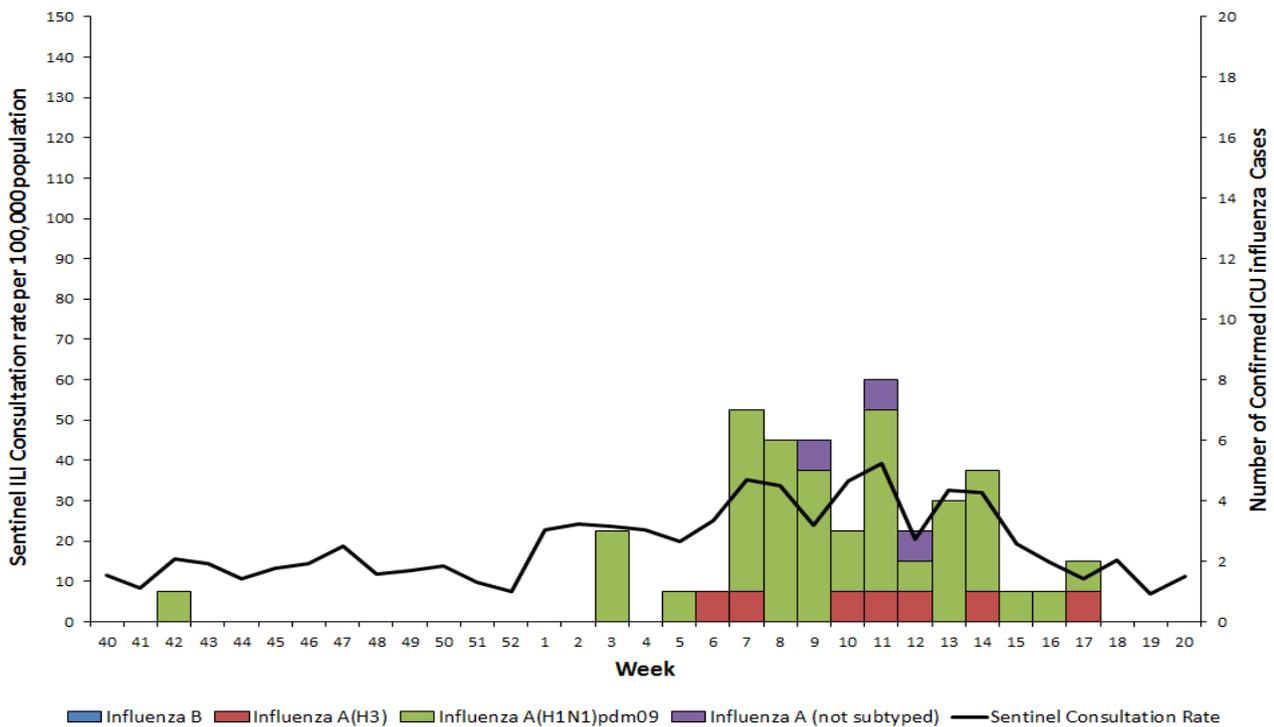
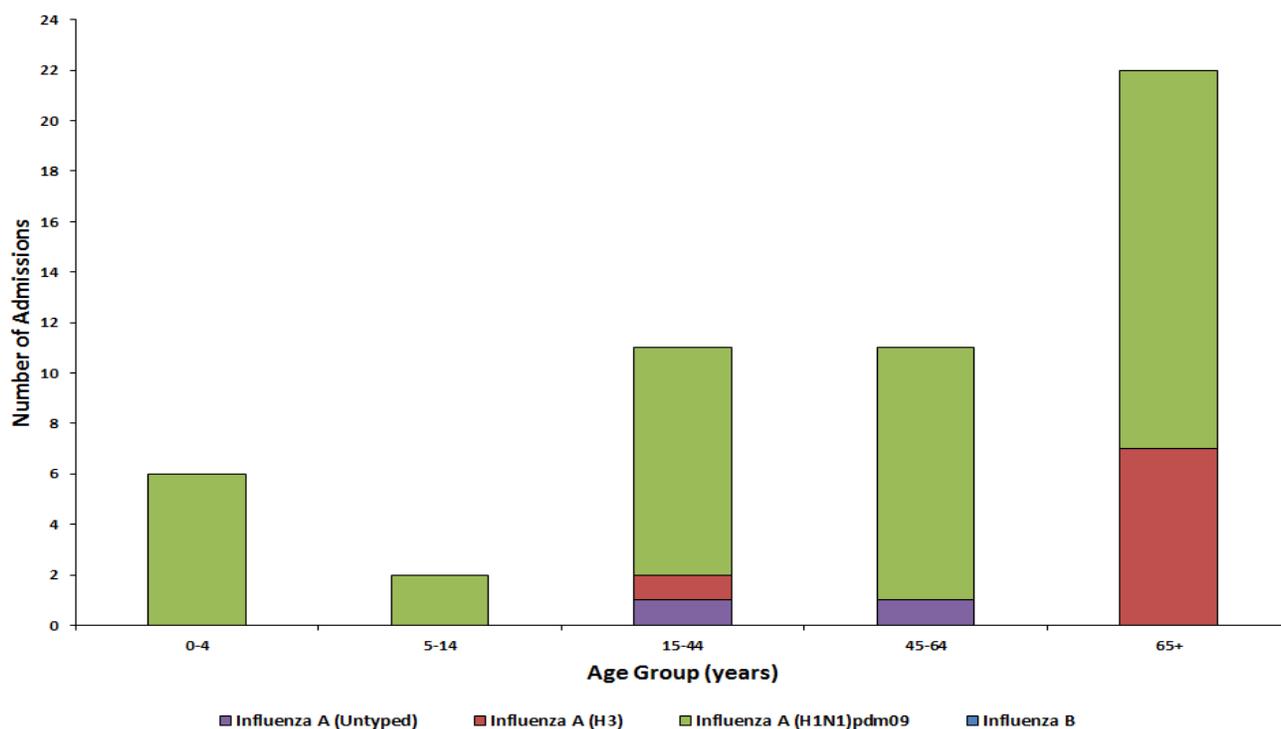


Table 2. ICU admissions with confirmed influenza

Age Group	No. of patients	Co-morbidity	Flu vaccine clinical risk group	Vaccinated	Flu A (H1N1) pdm09	Flu A (H3)	Flu A (untyped)	Deaths *
0-4	6	5	2	0	6	0	0	0
5-14	2	1	1	0	2	0	0	0
15-44	11	6	6	3	9	1	1	1
45-64	11	10	9	5	10	0	1	5
65+	22	17	22	13	15	7	0	9
All	52	39	40	21	42	8	2	15

**Deaths in critical care patients confirmed with influenza, however, these deaths may not necessarily be due to influenza. Ten of the fifteen deaths mentioned respiratory factors on the medical certificate of cause of death, with three of these mentioning influenza specifically as a cause.*

Figure 9. Number of ICU admissions with confirmed influenza by age group and influenza type



Outbreaks

A total of three respiratory related outbreaks were reported to the PHA during the 2013/14 winter season in comparison with 42 the previous year. All three outbreaks were confirmed with influenza - one with influenza A(H1N1)pdm09, one with influenza A (H3) and one with influenza A (subtype not reported).

One of the three outbreaks took place in an independent sector elderly care home and was confirmed as influenza A (H3). The two remaining outbreaks took place in hospital wards, of which one was confirmed as influenza A (H1N1)pdm09 and the other as influenza A (subtype not reported).

The attack rate amongst residents in the only influenza outbreak in a care home setting was 39%. The vaccination coverage in the care home residents was 100%, although their immunity may have waned if they were immunised early on in the season.

The three outbreaks this season occurred in weeks 10, 11, and 13. This was a marked difference to the 2012/13 season, when the majority of outbreaks occurred very late in the season.

Mortality monitoring

Similar to the previous season the total weekly registered deaths due to respiratory causes peaked in week 2 at 130 deaths registered. However, a peak would normally be expected in the period following the holiday period at Christmas and New Year due to delays in death registration. The proportion of registered deaths due to respiratory causes peaked at 36% in weeks 8, 12 and 19 compared to a peak of 40% in week 17 in 2012/13. This peak occurred at a similar time to the peak sentinel consultation rates occurred (week 11). Overall, the proportion of total registered deaths with respiratory keywords for the 2013/14 flu season was 29%, slightly lower than that in 2012/13 (31%) (Figure 10).

Figure 10. Deaths due to influenza, bronchitis, pneumonia and proportion of all deaths with keywords mentioned by week of registration, from week 40, 2012

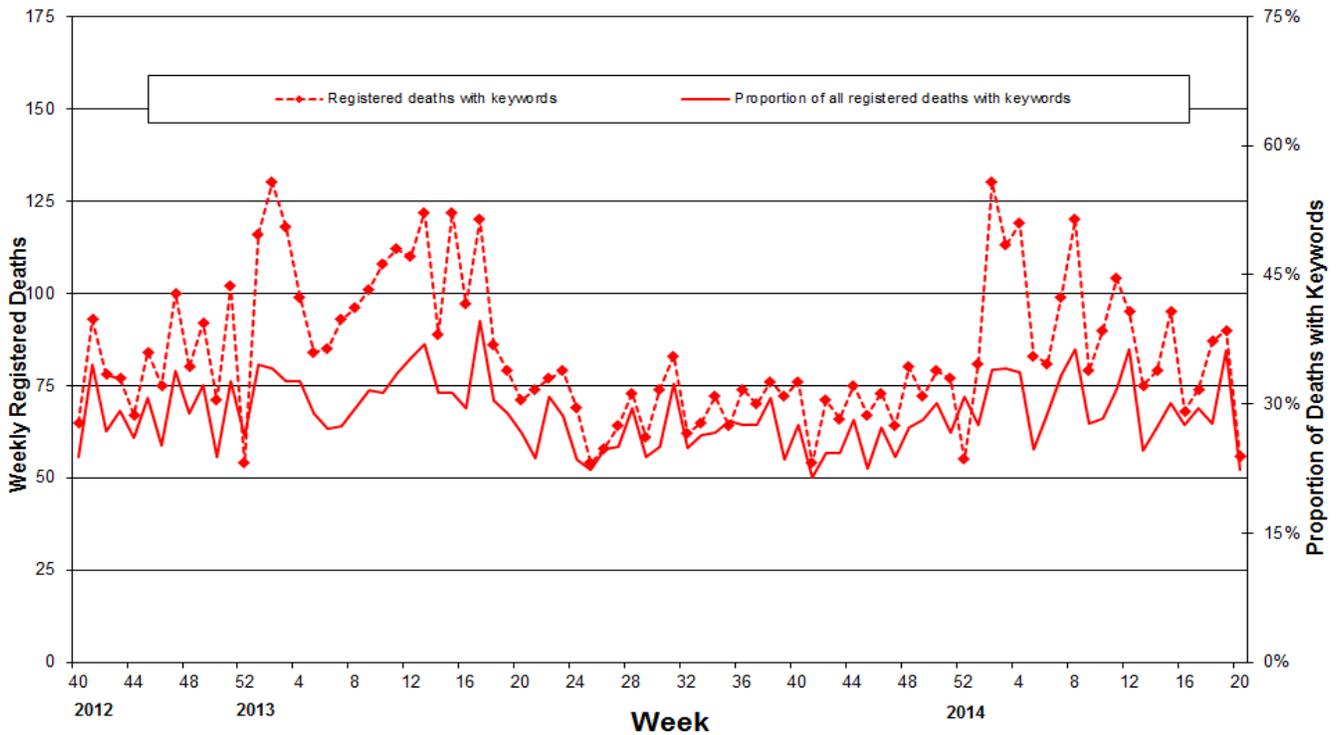
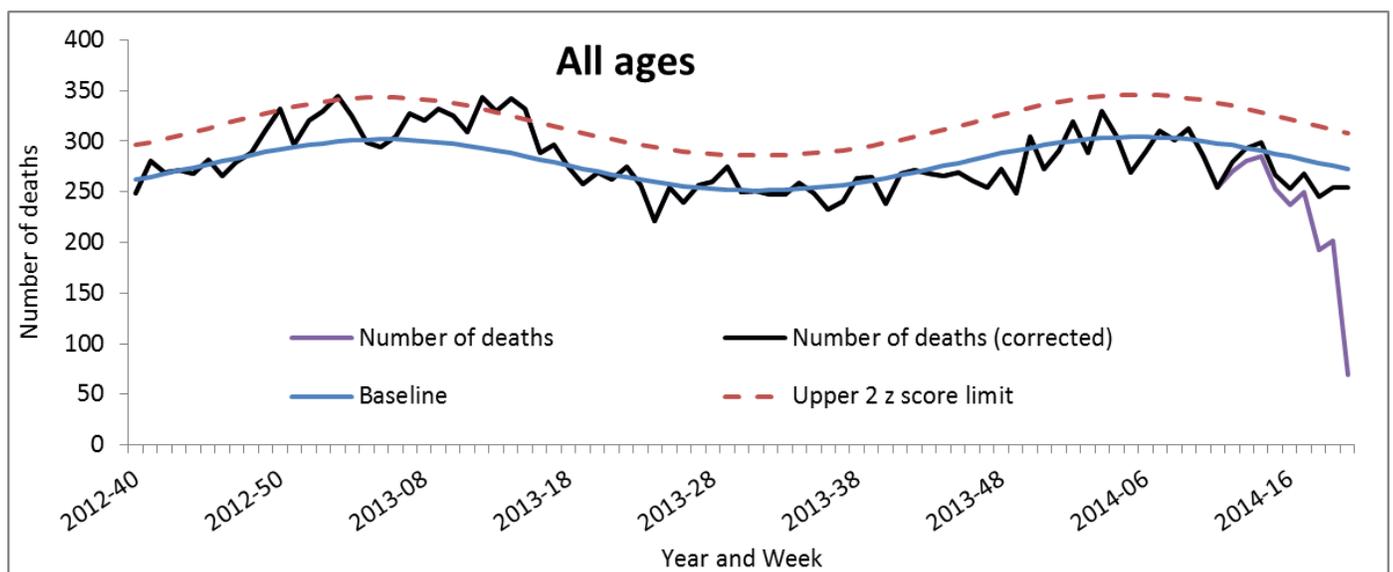


Figure 11 shows the observed and expected total number of deaths from the EuroMOMO model.

Figure 11. All age excess all-cause mortality by week of death, Northern Ireland 2012-2014 (calculated using the standardised EuroMOMO algorithm)



During the 2013/14 season there were no periods of excess mortality in Northern Ireland. This compares with three periods in 2012/13.

Seasonal Influenza Vaccine uptake

As at the end of March 2014, the proportion of people in Northern Ireland aged 65 years and over who had received the 2013/14 seasonal influenza vaccine was 75.4%, while the uptake in those aged under 65 in an at risk group was 76.4%, representing a slight increase in the vaccination rate among those aged 65 years and over compared to the 2012/13 season where there was a 75.0% uptake rate, and a decrease among those aged under 65 and at risk (80.2% in 2012/13) (Table 3).

An estimated 58.0% of pregnant women were vaccinated in the 2013/14 season compared with 64.6% in the previous season. However, it should be noted that these are estimates due to some approximations in the calculation of denominators.

The uptake rate for frontline health care workers across the five HSCTs receiving the seasonal influenza vaccine in 2013/14 was estimated to be 24.0%, an increase from the previous year (20.4%). This was significantly lower than the uptake in the rest of the UK, with England reporting 54.8%, Scotland 34.7% and Wales 40.6% in their frontline healthcare workers.

For the first time this season children aged 2 and 3 years and children in primary year 6 received the influenza vaccine for the first time. The uptake rate among 2 – 3 year olds at the end of March 2014 was 55.5%, in comparison with uptake rates of 41.1%, 50.1% and 37.8% for England, Scotland and Wales (provisional data) respectively during the same period (Table 3).

Influenza vaccine uptake rate among children in primary year 6 in Northern Ireland to 31st March was 80.5%, (Table 3).

Table 3. Seasonal Influenza vaccine uptake 2011/12 – 2013/14

Northern Ireland GP Influenza Vaccine Coverage Data			
	2013/2014	2012/2013	2011/2012
Number of Practices	351	353	353
Number of practices submitting return by 31 March	351	353	353
Number of 65+ receiving influenza vaccine between 1st October and 31 March	217,563	212,848	211,416
Registered 65+ population of practices submitting a return	288,424	283,668	274,678
Uptake rate for 65+ population at 31 March	75.4%	75.0%	77.0%
Number of under 65 "at risk" population receiving influenza vaccine between 1 October and 31 March	166,992	169,697	168,837
"At risk" population under 65 years of practices submitting a return	218,712	211,661	206,585
Uptake rate for under 65 "at risk" population at 31 March	76.4%	80.2%	81.7%
Uptake rate for trust frontline staff at 31 March	24.0%	20.4%	20.8%
Number of 2-3 year old children receiving influenza vaccine between 1st October and 31 March	28,247	-	-
Registered population of 2 – 3 years olds submitting a return	50,940	-	-
Uptake rate for 2 – 3 year olds at 31 March	55.5%	-	-
Total number of primary 6 children receiving influenza vaccine between 1st October and 31 March**	18,082	-	-
Total number of primary 6 children offered the vaccine	22,461	-	-
Uptake rate for primary 6 children at 31 March	80.5%	-	-

National and International situation

A similar picture to Northern Ireland was seen across the UK in the 2013/14 influenza season with consultation rates overall remaining low, peaking later and at a lower level than in the previous influenza season.

Nationally, seasonal activity was shorter than the previous season with influenza circulating for a period more characteristic of the general trend noted in recent years. Clinical indices peaked across the UK in January until March although activity in Wales showed no discernible peak. A predominant influenza A(H1N1)pdm09 season meant that younger adults were primarily affected across the UK, although the highest rate overall in NI was noted among 0-4 year olds.

Across the UK the predominant influenza type was influenza A(H1N1)pdm09, with a smaller proportion of influenza A (H3) and a rather small proportion of influenza B, with England and Northern Ireland experiencing higher proportions of influenza A (H3) than found in Scotland and Wales.

Respiratory outbreaks across the UK decreased substantially in 2013/14. Outbreak activity in the UK earlier in the season was primarily attributable to care homes with a peak noted in week 1, 2014. A second peak was distinctly observed in week 10 with the majority related to hospital settings. Across the UK the majority of outbreaks occurred in care homes (49%), followed by hospitals (39%), schools (9%), and other settings (3%).

Of those that were virologically tested, the majority of outbreaks in care home settings were due other respiratory viruses such as RSV, while the majority of hospital based outbreaks resulted from influenza A (H1N1)pdm09 or influenza A (unsubtyped).

Excess all-cause mortality in 2013/14 nationally was at lower levels than in 2012/13 with no significant excess deaths seen in any age group.

Throughout the UK in 2013/14, 27 influenza A (H1N1)pdm09 and 1 influenza A (H3) samples were found to be resistant to oseltamivir while none were resistant to zanamivir. WHO have reported only very low numbers of oseltamivir and zanamivir resistance detected during the season.

Internationally two novel respiratory viruses were of importance, MERS-coronavirus and influenza A(H7N9), both of which are associated with high mortality rates. The MERS-coronavirus was first detected globally in September 2012 with a total of 614 laboratory confirmed cases to date (MERS-CoV update – WHO, 21st May 2014). Local secondary transmission following importation has been reported from the United Kingdom, France and Tunisia, with most cases having either occurred in the Middle-East or having direct links to a primary case in the Middle-East. In total 181 confirmed cases have died giving a fatality rate of 30%.

Novel influenza A(H7N9) originated in China in March 2013 and is one of a sub-group that

normally circulates in birds. There have been two main periods of activity- April 2013 to August 2013 and September 2013 to May 2014. To date there have been 439 confirmed cases with 156 deaths (WHO Risk Assessment, to 28th February 2014).

Conclusion

Seasonal influenza activity throughout the winter season in 2013/14 remained low, with lower levels of activity recorded than in the 2012/2013 season. The period when influenza circulated was shorter than compared to recent seasons, with consultation rates remaining elevated for approximately 13 weeks.

Older age groups were more consistently affected overall, although the highest clinical consultation rate in Northern Ireland was noted in the youngest age group indicating activity in both children and adults. GP consultation rates fluctuated throughout the season among all age-groups, with relatively small numbers throughout possibly contributing to the variation.

The predominant strain overall was influenza A (H1N1)pdm09; followed by influenza A (H3), with detections of influenza B relatively low in comparison to the trend noted in 2012/13 when this strain dominated the earlier part of the season.

In contrast to 2012/13, there were very few respiratory related outbreaks reported (n=3) throughout the season in Northern Ireland, a substantial decrease from 42. The single care home outbreak involved a highly vaccinated population, again similar to the previous season.

Admissions to ICU/HDU that were confirmed with influenza also decreased slightly when compared to the previous season. The majority of admissions were in the older age groups; however, there were admissions for both infants and younger children; in all age groups the majority of admissions had co-morbidities. The number of deaths within ICU/HDU that were confirmed with influenza also increased. Again, all cases had co-morbidities. The relative proportions of admissions confirmed with each type of influenza was broadly similar to that seen in the virology data overall.

Vaccine uptake rates increased slightly in the over 65 year olds and fell slightly among those in the under 65 at risk group; however, the target set by the DHSSPS was still met in both groups. The uptake rate in frontline healthcare workers increased slightly but remained below the target level. The importance of vaccination in health care workers cannot be underestimated in contributing to protection for both themselves, their families and their patients. Uptake rates in pregnant women decreased compared to the previous season.

Vaccine uptake rates for 2-3 year olds and children in primary year 6 both achieved rates in excess of 50% with the uptake rate among both groups comparing favourably to England, Scotland and Wales.

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