

# Influenza Surveillance in Ireland – Weekly Report

Influenza Week 20 2016 (16<sup>th</sup> – 22<sup>nd</sup> May 2016)



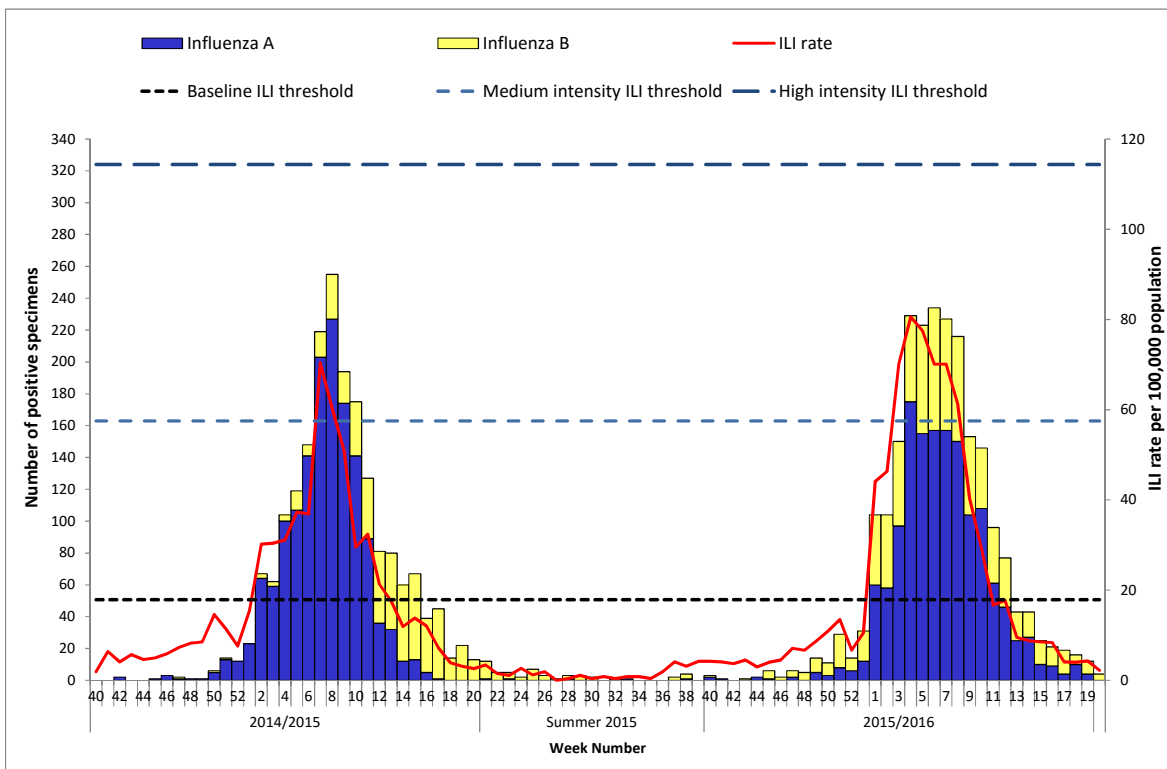
## Summary

**Overall, influenza activity in Ireland was at low levels during week 20 2016 (week ending May 22<sup>nd</sup> 2016). Sporadic confirmed influenza cases continue to be reported in acute hospital settings.**

- **Influenza-like illness (ILI):** The sentinel GP influenza-like illness (ILI) consultation rate was 2.2 per 100,000 population in week 20 2016, remaining low and decreasing slightly compared to the updated rate of 4.3 per 100,000 reported during week 19 2016.
  - ILI rates have remained below the Irish baseline ILI threshold (18 per 100,000 population), for 10 consecutive weeks.
  - ILI age specific rates were low in all age groups during week 20 2016.
- **GP Out of Hours:** The proportion of influenza-related calls to GP Out-of-Hours services during week 20 2016 remained at low levels.
- **National Virus Reference Laboratory (NVRL):** Influenza positivity reported from the NVRL for all respiratory specimens (sentinel and non-sentinel) decreased to 2.1% during week 20 2016. Sporadic detections of influenza continue to be detected at low levels.
- Sporadic detections of RSV, parainfluenza viruses, adenovirus and human metapneumovirus were reported during week 20 2016.
- All influenza A(H1N1)pdm09 and A(H3N2) viruses characterised in Ireland this season belong to genetic groups that are antigenically similar to the strains recommended for inclusion in the 2015/2016 trivalent influenza vaccines. The majority of influenza B viruses characterised this season in Ireland belong to the B/Victoria lineage; these viruses are not present in the 2015/2016 trivalent vaccine used in Ireland. Trivalent vaccines are the most widely used influenza vaccines in Europe.
- **Hospitalisations:** Eight confirmed influenza hospitalised cases were notified during week 20 2016. For the 2015/2016 season to date, 1842 confirmed influenza hospitalised cases were notified to HPSC: 941 were associated with influenza A(H1N1)pdm09, 7 with A(H3N2), 269 with A (not subtyped) and 625 with influenza B.
- **Critical care admissions:** The last reported confirmed influenza case admitted to a critical care unit was on April 30<sup>th</sup> 2016. For the 2015/2016 season to date, 156 confirmed influenza cases (107 associated with influenza A(H1N1)pdm09, one with A(H3N2), 21 with influenza A-not subtyped and 27 with influenza B) were admitted to critical care units and reported to HPSC.
- **Mortality:** 75 notified influenza cases died and were reported to HPSC for the 2015/2016 season to date. These deaths were notified from both community and hospital settings.
- **Outbreaks:** No new acute respiratory infection/influenza outbreaks were reported during week 20 2016.
- **International:** Influenza activity continued to decrease in the European Region, with most countries reporting decreasing trends. Influenza A(H1N1)pdm09 viruses have predominated this season in most countries, although in recent weeks there has been a shift towards influenza B circulation.

## 1. GP sentinel surveillance system - Clinical Data

- During week 20 2016, six influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 2.2 per 100,000 population, remaining low, and decreasing slightly compared to the updated rate of 4.3 per 100,000 reported during week 19 2016. ILI rates have remained below the Irish baseline ILI threshold (18 per 100,000 population), for 10 consecutive weeks (figure 1).
- During the 2015/2016 season, ILI rates were above baseline levels from week 1 – 10 2016, peaking at 80.6 per 100,000 during week 4 2016.
- ILI age specific rates remained low in all age groups during week 20 2016 (figure 2). For the 2015/2016 season, the highest age specific ILI rates were reported in the 5-14 year age group (peaking at 131.6/100,000), followed by the 0-4 year age group (112.9/100,000), the 15-64 year age group (81.7/100,000) and those aged 65 years and older (69.1/100,000).
- HPSC in consultation with the European Centre for Disease Prevention and Control (ECDC) has revised the Irish baseline ILI threshold for the 2015/2016 influenza season to 18 per 100,000 population; this threshold indicates the likelihood that influenza is circulating in the community. The Moving Epidemic Method (MEM) has been adopted by ECDC to calculate thresholds for GP ILI consultations in a standardised approach across Europe.<sup>1</sup>
- The baseline ILI threshold, medium (57/100,000 population) and high (114/100,000 population) intensity ILI thresholds are shown in figure 1.



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

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

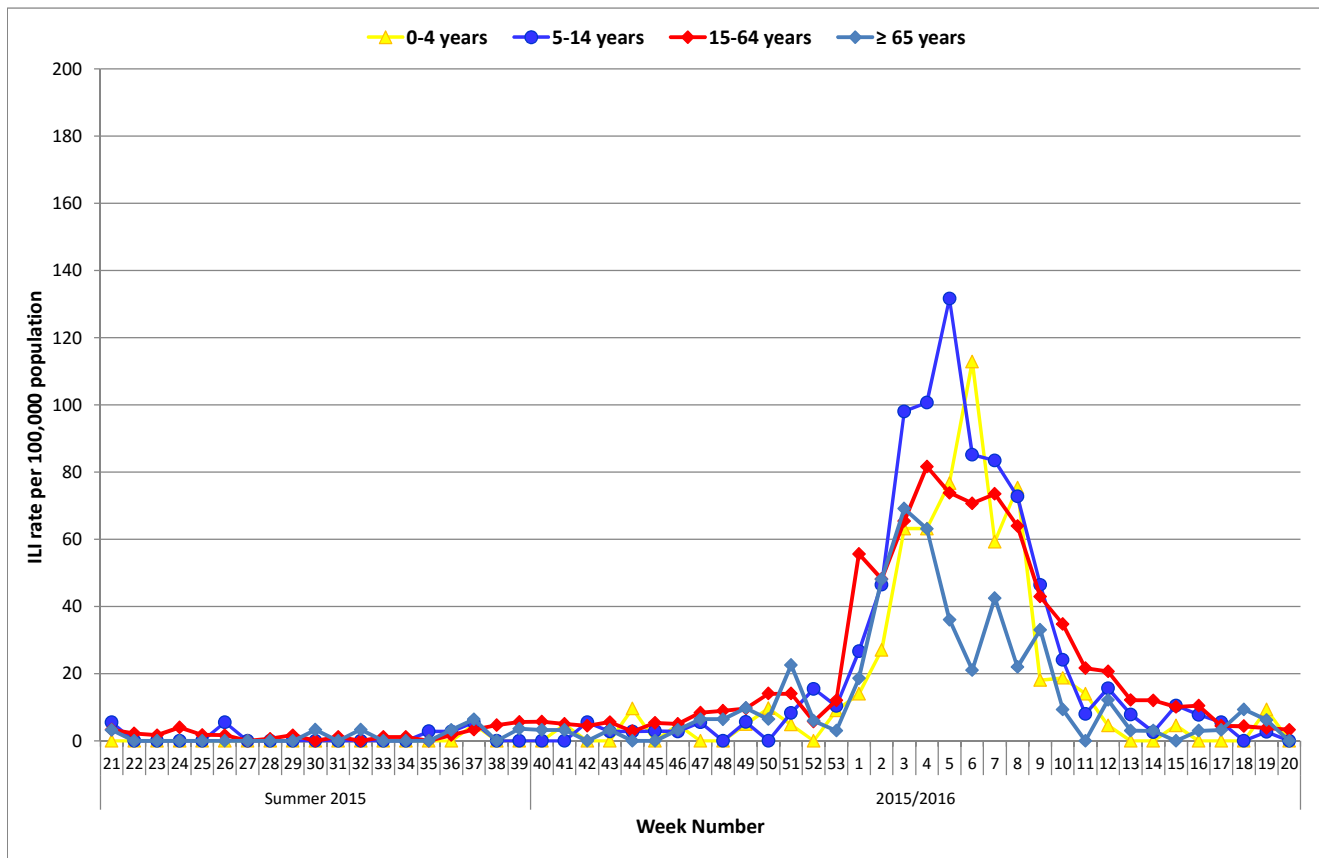


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2015 and the 2015/2016 influenza season to date. Source: ICGP.

## 2. Influenza and Other Respiratory Virus Detections - NVRL

The data reported in this section for the 2015/2016 influenza season refers to sentinel and non-sentinel respiratory specimens routinely tested for influenza, respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses types 1, 2, 3 & 4 (PIV-1, -2, -3 & -4) and human metapneumovirus (hMPV) by the National Virus Reference Laboratory (NVRL) (figures 3, 4 & 5, tables 1 & 2).

- Influenza positivity reported from the NVRL for all respiratory specimens (sentinel and non-sentinel) decreased to 2.0% during week 20 2016, compared to 5.4% during week 19 2016.
- Sporadic detections of influenza continue to be detected at very low levels in acute hospital settings (figures 3 & 4).
- Data from the NVRL for week 20 2016 and the 2015/2016 season are detailed in tables 1 and 2.
- RSV positivity peaked in week 51 2015. During week 20 2016, four RSV positive specimens were reported. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2015/2016 season, compared to the 2014/2015 season.
- Sporadic detections of adenovirus, parainfluenza and human metapneumovirus (hMPV) from non-sentinel sources were reported by the NVRL during week 20 2016 (table 2).
- The overall proportion of non-sentinel specimens positive for seasonal respiratory viruses\* was 2.1% during week 20 2016. \* Seasonal respiratory viruses tested by the NVRL are detailed above.

- Genetic characterisation of influenza viruses circulating this season in Ireland has been carried out by the NVRL, on 97 influenza positive specimens to date. Sixty-nine influenza A(H1)pdm09 viruses have been genetically characterised; all belong to the genetic group A/South Africa/3626/2013 (subgroup 6B), which is a genetic group of viruses that is antigenically similar to the 2015/2016 influenza A(H1)pdm09 vaccine strain. Eight influenza A(H3) viruses have been genetically characterised, both belong to the genetic group A/Hong Kong/4801/2014 (3C.2a), which is a genetic group of viruses that is antigenically similar to the 2015/2016 influenza A(H3) vaccine strain. One of 20 influenza B viruses genetically characterised belonged to the genetic group B/Phuket/3073/2013 (Yamagata lineage clade 3) which is a genetic group of viruses that is antigenically similar to the 2015/2016 influenza B vaccine strain. Nineteen influenza B viruses were characterised as belonging to the genetic group B/Victoria/2/87 (clade 1A), which is a genetic group of viruses antigenically similar to B/Brisbane/60/2008. The B/Victoria viruses are not present in the 2015/2016 trivalent influenza vaccine used in Ireland.
- Trivalent influenza vaccines are the most widely used influenza vaccines in Europe. The most prevalent influenza B virus lineage detected this season in Europe, is B/Victoria, which is not present in trivalent vaccines. Most influenza A(H1N1)pdm09 and A(H3N2) viruses genetically characterised in Europe this season to date, belong to genetic groups that are antigenically similar to the 2015/2016 influenza vaccine strains. Recommendations for the [vaccine composition](#) for the 2016/2017 season in the northern hemisphere are available: including a virus of the B/Victoria lineage in trivalent vaccines is advised.

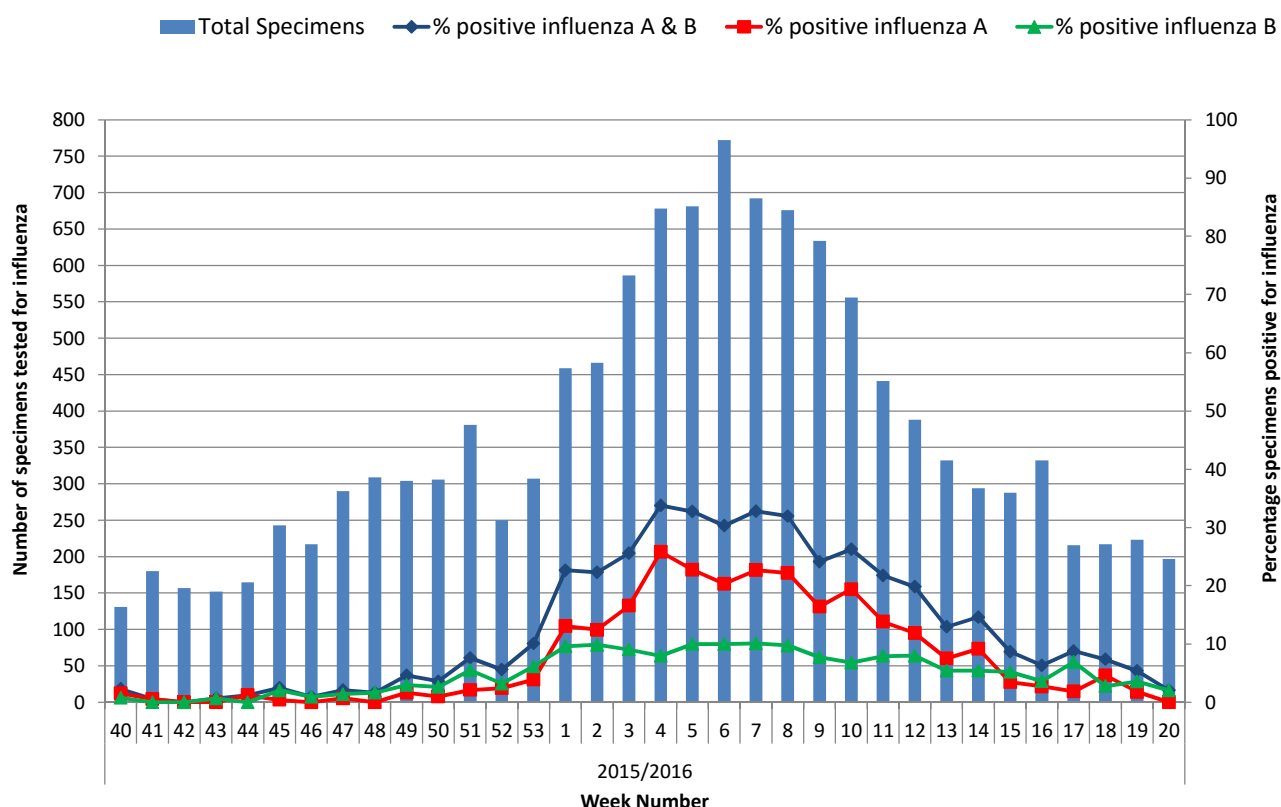


Figure 3: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive by week for the 2015/2016 influenza season. Source: NVRL

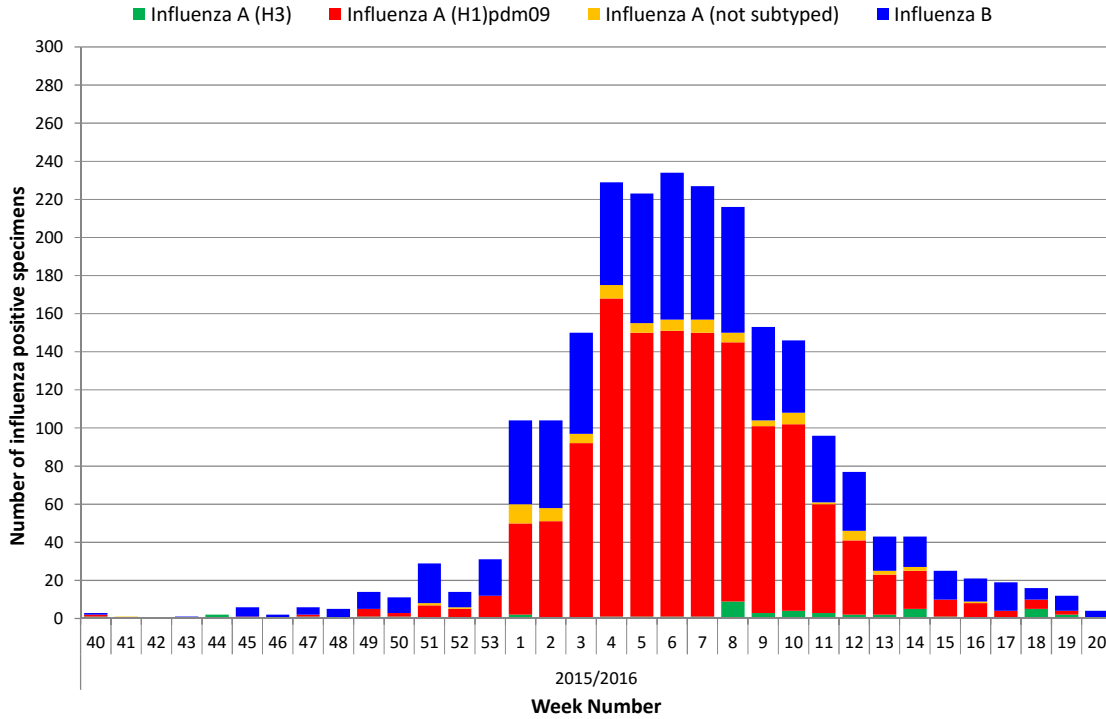


Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2015/2016 influenza season. Source: NVRL.

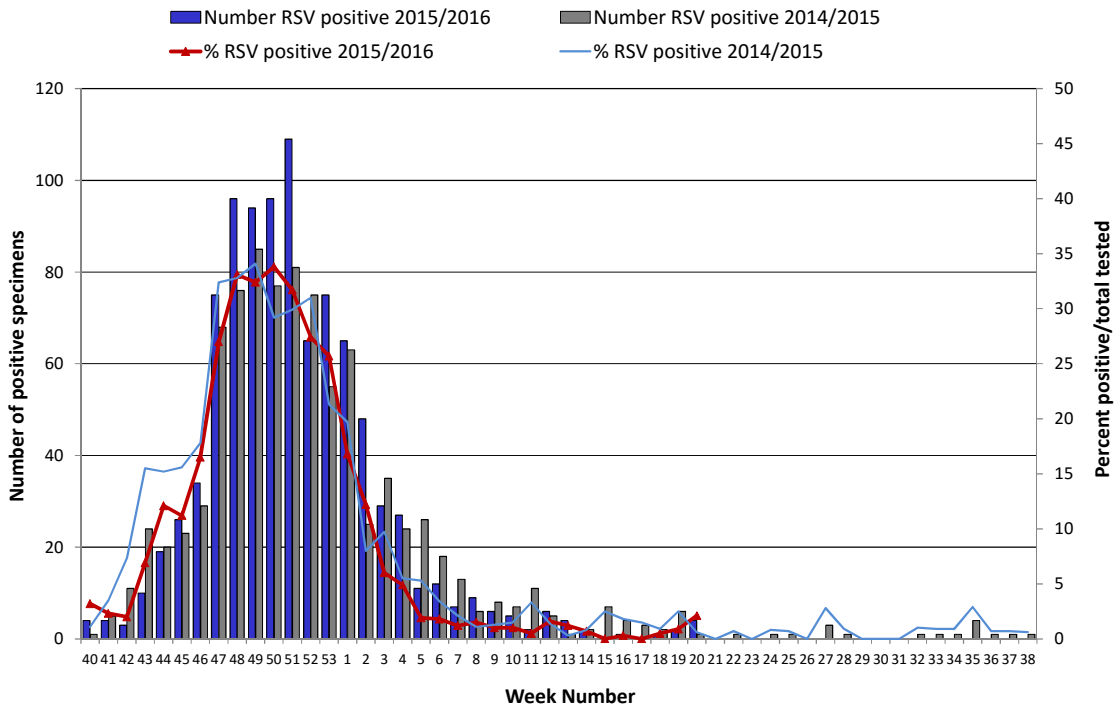


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL by week during the 2015/2016 season, compared to the 2014/2015 season. Source: NVRL.

**Table 1: Number of sentinel and non-sentinel<sup>†</sup> respiratory specimens tested by the NVRL and positive influenza results, for week 20 2016 and the 2015/2016 season to date. Source: NVRL**

| Week      | Specimen type | Total tested | Number influenza positive | % Influenza positive | Influenza A |           |                  |                   | Influenza B |
|-----------|---------------|--------------|---------------------------|----------------------|-------------|-----------|------------------|-------------------|-------------|
|           |               |              |                           |                      | A (H1)pdm09 | A (H3)    | A (not subtyped) | Total influenza A |             |
| 20 2016   | Sentinel      | 4            | 0                         | 0.0                  | 0           | 0         | 0                | 0                 | 0           |
|           | Non-sentinel  | 193          | 4                         | 2.1                  | 0           | 0         | 0                | 0                 | 4           |
|           | <b>Total</b>  | <b>197</b>   | <b>4</b>                  | <b>2.0</b>           | <b>0</b>    | <b>0</b>  | <b>0</b>         | <b>0</b>          | <b>4</b>    |
| 2015/2016 | Sentinel      | 1158         | 573                       | 49.5                 | 313         | 6         | 10               | 329               | 244         |
|           | Non-sentinel  | 11362        | 1694                      | 14.9                 | 1023        | 42        | 65               | 1130              | 564         |
|           | <b>Total</b>  | <b>12520</b> | <b>2267</b>               | <b>18.1</b>          | <b>1336</b> | <b>48</b> | <b>75</b>        | <b>1459</b>       | <b>808</b>  |

**Table 2: Number of sentinel and non-sentinel respiratory specimens tested by the NVRL for seasonal respiratory viruses and positive results, for week 20 2016 and the 2015/2016 season to date. Source: NVRL**

| Week      | Specimen type | Total tested | RSV        | % RSV      | Adenovirus | % Adenovirus | PIV-1     | % PIV-1    | PIV-2     | % PIV-2    | PIV-3     | % PIV-3    | PIV-4    | % PIV-4    | hMPV       | % hMPV     |
|-----------|---------------|--------------|------------|------------|------------|--------------|-----------|------------|-----------|------------|-----------|------------|----------|------------|------------|------------|
| 20 2016   | Sentinel      | 4            | 0          | 0.0        | 0          | 0.0          | 0         | 0.0        | 0         | 0.0        | 0         | 0.0        | 0        | 0.0        | 0          | 0.0        |
|           | Non-sentinel  | 193          | 4          | 2.1        | 4          | 2.1          | 0         | 0.0        | 1         | 0.5        | 2         | 1.0        | 3        | 1.6        | 2          | 1.0        |
|           | <b>Total</b>  | <b>197</b>   | <b>4</b>   | <b>2.0</b> | <b>4</b>   | <b>2.0</b>   | <b>0</b>  | <b>0.0</b> | <b>1</b>  | <b>0.5</b> | <b>2</b>  | <b>1.0</b> | <b>3</b> | <b>1.5</b> | <b>2</b>   | <b>1.0</b> |
| 2015/2016 | Sentinel      | 1158         | 27         | 2.3        | 14         | 1.2          | 6         | 0.5        | 1         | 0.1        | 0         | 0.0        | 0        | 0.0        | 17         | 1.5        |
|           | Non-sentinel  | 11362        | 951        | 8.4        | 158        | 1.4          | 65        | 0.6        | 29        | 0.3        | 59        | 0.5        | 0        | 0.0        | 199        | 1.8        |
|           | <b>Total</b>  | <b>12520</b> | <b>978</b> | <b>7.8</b> | <b>172</b> | <b>1.4</b>   | <b>71</b> | <b>0.6</b> | <b>30</b> | <b>0.2</b> | <b>59</b> | <b>0.5</b> | <b>0</b> | <b>0.0</b> | <b>216</b> | <b>1.7</b> |

<sup>†</sup> Please note that non-sentinel specimens relate to specimens referred to the NVRL (other than sentinel specimens) and may include more than one specimen from each case.

### 3. Regional Influenza Activity by HSE-Area

The geographical spread of influenza activity is reviewed on a weekly basis using sentinel GP ILI consultation rates, laboratory data and outbreak data.

The geographical spread of influenza/ILI during the week ending May 22, 2016 (week 20 2016) is shown in figure 6. During week 20 2016, sporadic influenza activity was reported in HSE-E, -NE, and -SE and no influenza activity in HSE-M, -MW, -S, -NW and -W.

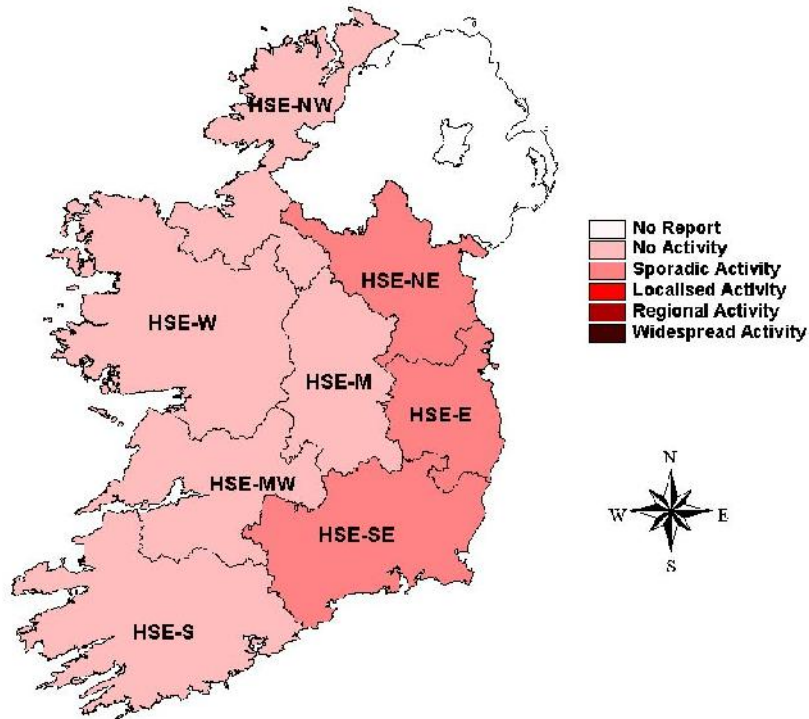


Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 20 2016.

#### Sentinel hospitals

The Departments of Public Health have established at least one sentinel hospital in each HSE-Area, to report data on total, emergency and respiratory admissions on a weekly basis. For the 2015/2016 influenza season, eight sentinel hospitals are regularly reporting respiratory admissions data.

Respiratory admissions reported from a network of sentinel hospitals have decreased to 257 during week 20 2016, compared to peak admissions reported during week 51 2015 (n=501) (figure 7). Complete data were reported from all eight sentinel hospitals for the 2015/2016 season.

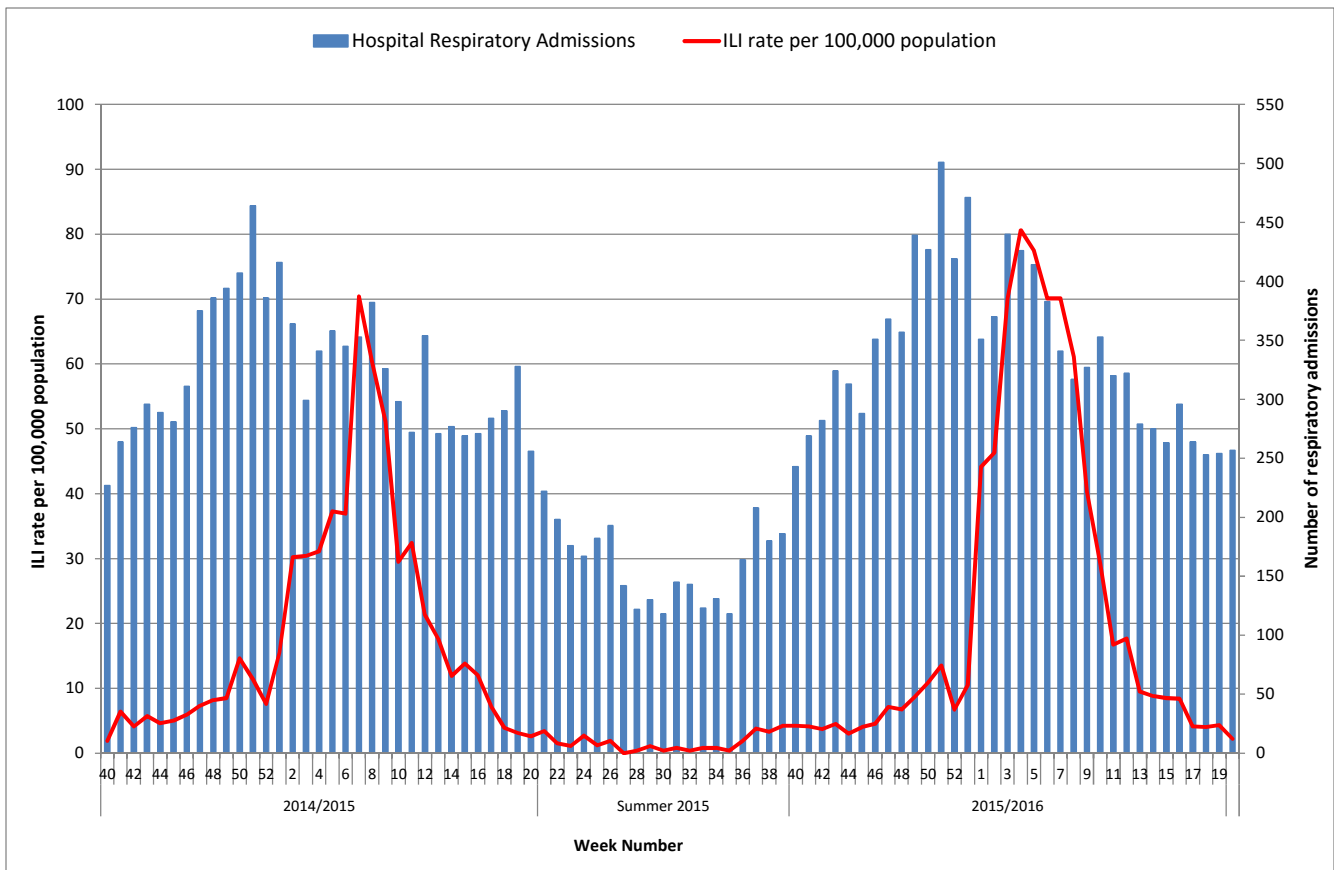


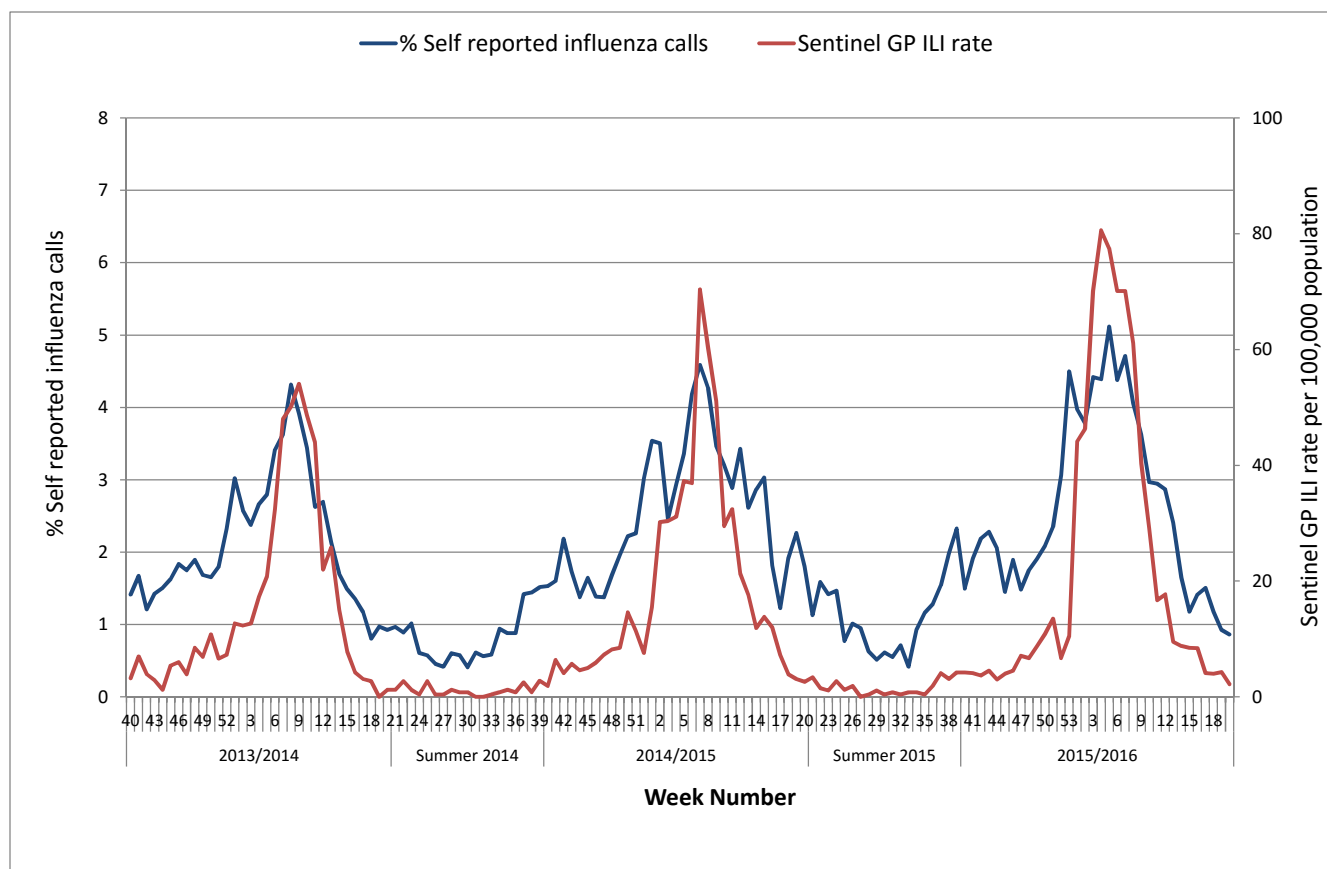
Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. Source: Departments of Public Health - Sentinel Hospitals & ICGP.

#### 4. GP Out-Of-Hours services surveillance

The Department of Public Health in HSE-NE is collating national data on calls to nine of thirteen GP Out-of-Hours services in Ireland. Records with clinical symptoms reported as flu or influenza are extracted for analysis. This information may act as an early indicator of increased ILI activity. However, data are self-reported by callers and are not based on coded influenza diagnoses.

The proportion of influenza-related calls to GP Out-of-Hours services remained low at 0.9% during week 20 2016 (figure 8). For the 2015/2016 season, the proportion of influenza-related calls to GP Out-of-Hours services peaked at 5.1% during week 5 2016.





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

## 5. Influenza & RSV notifications

Influenza and RSV cases notifications are reported on Ireland's Computerised Infectious Disease Reporting System (CIDR), including all positive influenza/RSV specimens reported from all laboratories testing for influenza/RSV and reporting to CIDR.

Influenza and RSV notifications are reported in the [Weekly Infectious Disease Report for Ireland](#). RSV notifications remained low, with only four cases notified during week 20 2016. Influenza notifications decreased to 20 during week 20 2016, compared to 55 during week 19 2016. During the 2015/2016 season, influenza notifications peaked at 550 in notifications during week 7 2016.

## 6. Influenza Hospitalisations

During week 20 2016 (week ending May 22, 2016), 8 confirmed influenza hospitalised cases were notified to HPSC, a decrease compared to 27 cases during week 19 2016. The majority (60%) of confirmed influenza hospitalised cases notified during weeks 19 and 20 2016 were associated with influenza B. Circulation of influenza B late in the season is a common occurrence in influenza seasons. For the 2015/2016 season to date, 1842 confirmed influenza hospitalised cases were notified to HPSC: 941 were associated with influenza A(H1)pdm09, 7 with A(H3), 269 with A (not subtyped) and 625 with influenza B. The highest age specific rates for the 2015/2016 season were in those aged less than five years (table 3). The median age of hospitalised cases for the season to date is 30 years (ranging from 0-97 years).

## 7. Critical Care Surveillance

The Intensive Care Society of Ireland (ICSI) are continuing with the enhanced surveillance system set up during the 2009 pandemic, on all critical care patients with confirmed influenza. HPSC process and report on this information on behalf of the regional Directors of Public Health/Medical Officers of Health.

For the 2015/2016 season to date, 156 confirmed influenza cases (107 associated with influenza A(H1)pdm09, one with A(H3), 21 with influenza A-not subtyped and 27 with influenza B) were admitted to critical care units and reported to HPSC. The highest age specific rates were in those aged less than one year. The median age of cases admitted to critical care units for the season to date is 52 years (ranging from 0-86 years) (table 3). The last reported confirmed influenza case admitted to a critical care unit was admitted on April 30<sup>th</sup> 2016.

**Table 3: Age specific rates for confirmed influenza cases hospitalised and admitted to critical care during the 2015/2016 influenza season to date. Age specific rates are based on the 2011 CSO census.**

| Age (years)  | Hospitalised |                                    | Admitted to ICU |                                    |
|--------------|--------------|------------------------------------|-----------------|------------------------------------|
|              | Number       | Age specific rate per 100,000 pop. | Number          | Age specific rate per 100,000 pop. |
| <1           | 109          | 150.5                              | 12              | 16.6                               |
| 1-4          | 367          | 129.3                              | 12              | 4.2                                |
| 5-14         | 269          | 43.2                               | 7               | 1.1                                |
| 15-24        | 86           | 14.8                               | 2               | 0.3                                |
| 25-34        | 184          | 24.4                               | 5               | 0.7                                |
| 35-44        | 163          | 21.6                               | 22              | 3.2                                |
| 45-54        | 119          | 20.5                               | 21              | 3.6                                |
| 55-64        | 151          | 32.6                               | 34              | 7.3                                |
| ≥65          | 394          | 73.6                               | 41              | 7.7                                |
| <b>Total</b> | <b>1842</b>  | <b>40.1</b>                        | <b>156</b>      | <b>3.4</b>                         |

## 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/>

- Seventy-five notified influenza cases died and were notified to HPSC for the 2015/2016 season to date: 48 associated with influenza A(H1)pdm09, 13 with influenza A-not subtyped, 13 with influenza B and one possible influenza case. The median age of confirmed influenza cases who died this season is 64 years. These deaths were notified from both community and hospital settings.
- No excess all-cause mortality was reported in Ireland during week 20 2016. For the 2015/2016 season to date, excess all-cause mortality was reported during weeks 1, 4 and 12 2016, after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm. Please note these data are provisional due to the time delay in deaths' registration in Ireland.

## 9. Outbreak Surveillance

- During week 20 2016, three retrospective influenza outbreaks (from January - April 2016) in HSE-E were notified to HPSC; two outbreaks were in acute hospital settings (one associated with influenza A – not subtyped and one associated with influenza B) and one influenza B outbreak was in a nursing home.
- For the 2015/2016 season (up to the week ending May 22, 2016), 63 acute respiratory/influenza outbreaks have been reported to HPSC: 36 outbreaks were associated with influenza (27 with influenza A(H1)pdm09, three with influenza A –not subtyped and six with influenza B), eight with RSV, two with parainfluenza type 1, two with hMPV, one with rhinovirus and 14 with unknown pathogens. Forty-five outbreaks were in community hospital/residential care facilities, 13 were in acute hospital settings, two were in schools and three in day-care centres (two of which were for those with intellectual disabilities). Family outbreaks are not included in this report. *All outbreaks notified to HPSC are reported in the [HPSC Outbreak Weekly Report](#).*

## 10. International Summary

- As of May 30<sup>th</sup> 2016, influenza activity in the northern hemisphere continued to decrease with a predominance of influenza B virus reported. In temperate countries in the southern hemisphere, influenza activity started to increase slightly in South America and South Africa, but remained low overall in most of Oceania.
- In the European Region, influenza activity continued to decrease in week 20 2016. During the 2015/16 season, influenza activity peaked during weeks 5-7 2016. Influenza A(H1N1)pdm09 viruses predominated this season in most countries of the WHO European Region, although in recent weeks there has been a shift towards influenza B circulation. In several European countries there were more reports of severe cases, predominantly associated with A(H1N1)pdm09 and in those aged 15-64 years, than in the previous season. The number of severe cases has decreased in recent weeks. Influenza A(H1)pdm09 viruses may cause more severe disease and deaths in those aged less than 65 years, than A(H3N2) viruses. Most of the viruses characterised to date this season in Europe have been similar to the strains recommended for inclusion in the trivalent or quadrivalent vaccines for the 2015/2016 season for the northern hemisphere.
- See [ECDC](#) and [WHO](#) influenza surveillance reports for further information. ECDC and WHO have both published mid-season influenza risk assessments, available on the [ECDC](#) and [WHO](#) websites.

- Further information is available on the following websites:
  - Northern Ireland <http://www.fluawareni.info/>
  - Europe – ECDC <http://ecdc.europa.eu/>
  - Public Health England <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/>
  - United States CDC <http://www.cdc.gov/flu/weekly/fluactivitysurv.htm>
  - Public Health Agency of Canada <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>
- Information on Middle Eastern Respiratory Syndrome Coronavirus (MERS), including the latest ECDC rapid risk assessment is available on the [ECDC website](#). Further information and guidance documents are also available on the [HPSC](#) and [WHO](#) websites.
- Further information on avian influenza is available on the [ECDC website](#). The latest ECDC rapid risk assessment on highly pathogenic avian influenza A of H5 type is also available on the [ECDC website](#).

## 11. WHO recommendations on the composition of influenza virus vaccines

On February 25, 2016, the WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2016/2017 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Hong Kong/4801/2014 (H3N2)-like virus; a B/Brisbane/60/2008-like virus. <http://www.who.int/influenza/vaccines/virus/recommendations/en/>

The WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2015/2016 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Switzerland/9715293/2013 (H3N2)-like virus; a B/Phuket/3073/2013-like virus. <http://www.who.int/influenza/vaccines/virus/recommendations/en/>

Further information on influenza in Ireland is available at [www.hpsc.ie](http://www.hpsc.ie)

### Acknowledgements

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