

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 35 2009 (24th to 30th August 2009)



Summary

- Overall, the ILI rates during the past six weeks have remained relatively stable and would be considered to be normal seasonal activity for the winter period.
- The influenza-like illness (ILI) GP consultation rate decreased slightly to 33.7 per 100,000 population in week 35 (from the updated rate of 35.7/100,000 for week 34)*
- The proportion of flu-related calls to GP Out-of-Hours services decreased slightly during week 35
- Pandemic (H1N1) 2009 is the main influenza virus circulating; in week 35, 100% of specimens positive for influenza were pandemic (H1N1) 2009.
- Based on the surveillance of laboratory confirmed cases of pandemic (H1N1) 2009, as of 30th August:
 - 801 confirmed cases were notified in Ireland
 - Children and young adults remain the most affected groups; 84% of cases were less than 35 years of age
 - The highest age specific rate was observed in the 15-19 years age group.
 - Clinical illness continues to be mild in the majority of cases
- Two deaths from pandemic (H1N1) 2009 have been reported to date (in weeks 32 and 34).

Introduction

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

1. GP Sentinel surveillance system
2. GP Out-of-Hours system
3. Virological data from the NVRL
4. Enhanced surveillance system for pandemic (H1N1) 2009

Details of these surveillance systems are provided in Appendix A at the back of this report.

1. GP Sentinel surveillance system

Clinical Data

During week 35 2009, 53 of 61 (87%) ICGP sentinel general practices provided data, with 22 practices reporting 67 influenza-like illness (ILI) cases and 21 practices reporting no ILI cases. This corresponds to an ILI consultation rate of 33.7 per 100,000 population, which is a decrease compared to the updated rate of 35.7 per 100,000 population reported during week 34 2009.* The ILI rate remains above the baseline threshold level of 17.8 per 100,000 population and would be considered to be normal seasonal activity for the winter period. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the National Virus Reference Laboratory (NVRL) for recent influenza seasons.

* Since the last report, extra information on the number of ILI consultations occurring in Week 34 was provided by sentinel GPs and the rate for that week was adjusted accordingly.

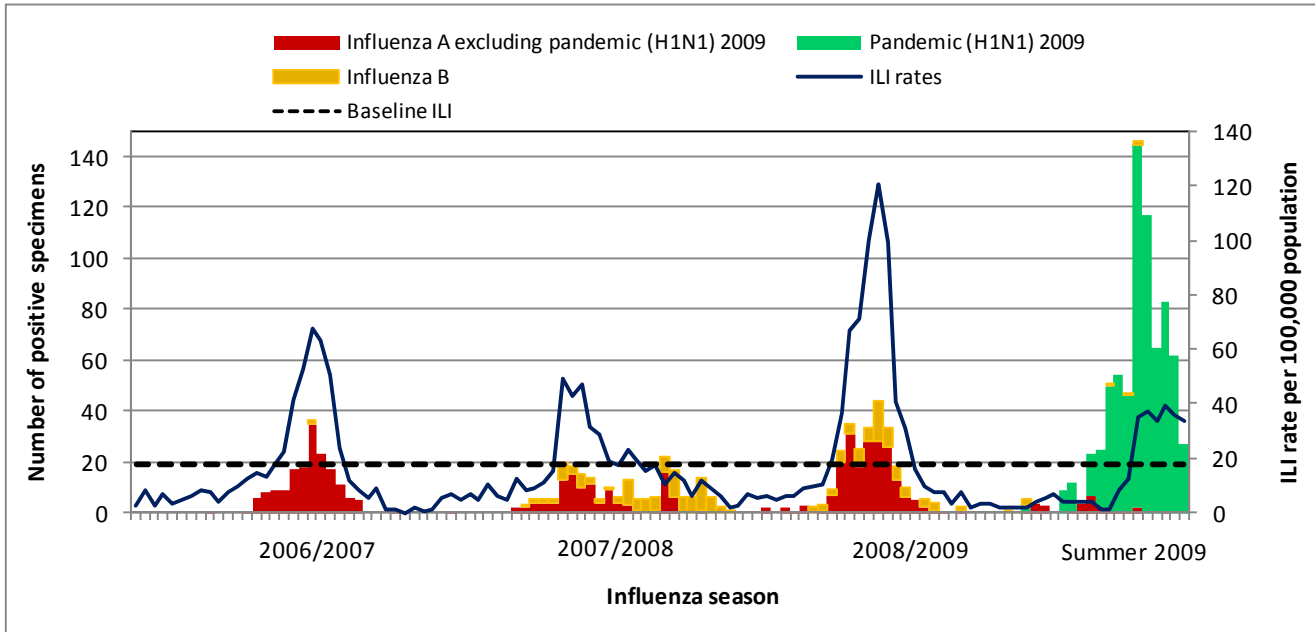


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens detected by the NVRL, by influenza week and season

During week 35 2009, sentinel GPs reported four ILI cases in the 0-4 year age group (28.2 per 100,000 population), six cases in the 5-14 year age group (22.8 per 100,000 population), 55 cases in the 15-64 year age group (40.4 per 100,000 population) and two cases in those aged 65 years and older (9.1 per 100,000 population) (figure 2).

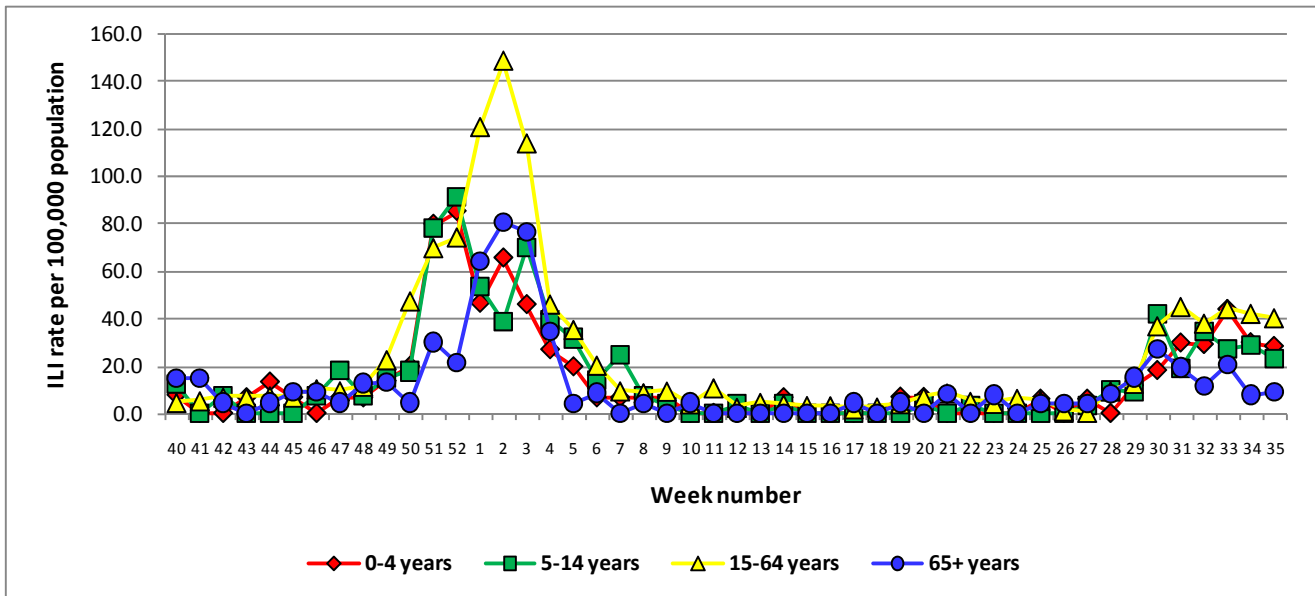


Figure 2: Age specific GP consultation rate for ILI per 100,000 population by week during the 2008/2009 and Summer 2009 influenza seasons

Regional Influenza Activity by HSE-Area

Influenza activity is reported on a weekly basis from the Departments of Public Health in 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 isolated cases of ILI and/or positive virological results) was provisionally reported by HSE-E, -M, -NE, -NW, -S, -SE and -W while localised activity (due to two small outbreaks) was reported by HSE-MW during week 35 2009 (figure 3).

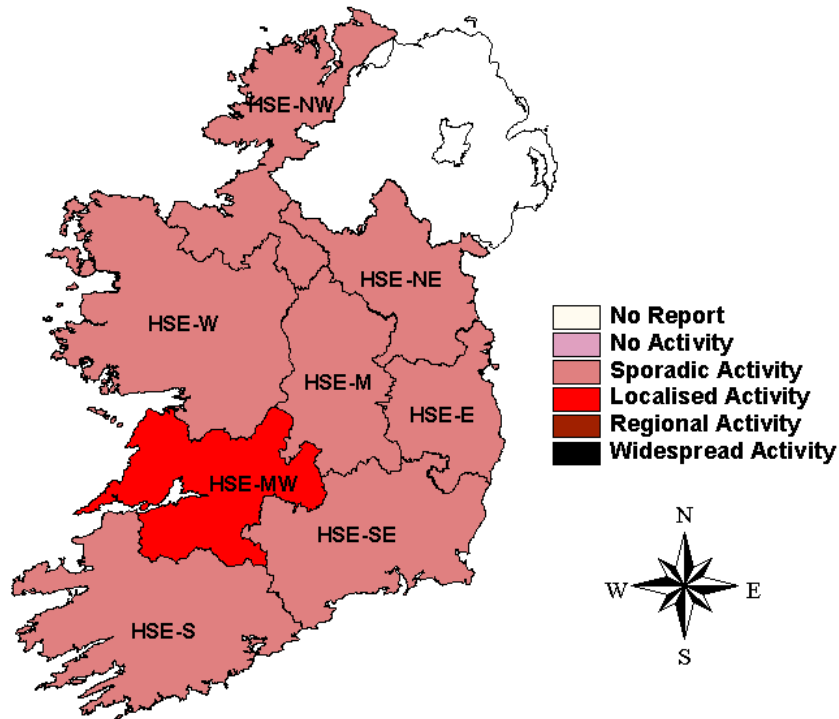


Figure 3: Map of provisional influenza activity by HSE area during influenza week 35 2009

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 area, in close proximity to the sentinel GPs, to report absenteeism data on a weekly basis. During influenza week 35 2009, hospital data were received from three HSE areas (HSE-E, HSE-M and HSE-W). No increases in the proportion of respiratory admissions were reported from sentinel hospitals. Sentinel school surveillance will resume next week.

2. GP out-of-hours services surveillance

The Department of Public Health in the HSE-NE is collating national data on calls to eight 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. There was a marked increase in the percentage of flu-related calls between weeks 28 to 30, which then stabilised during weeks 31 to 34. During week 35, the percentage of flu-related calls decreased slightly to 4.2% from 5.8% (figure 5).

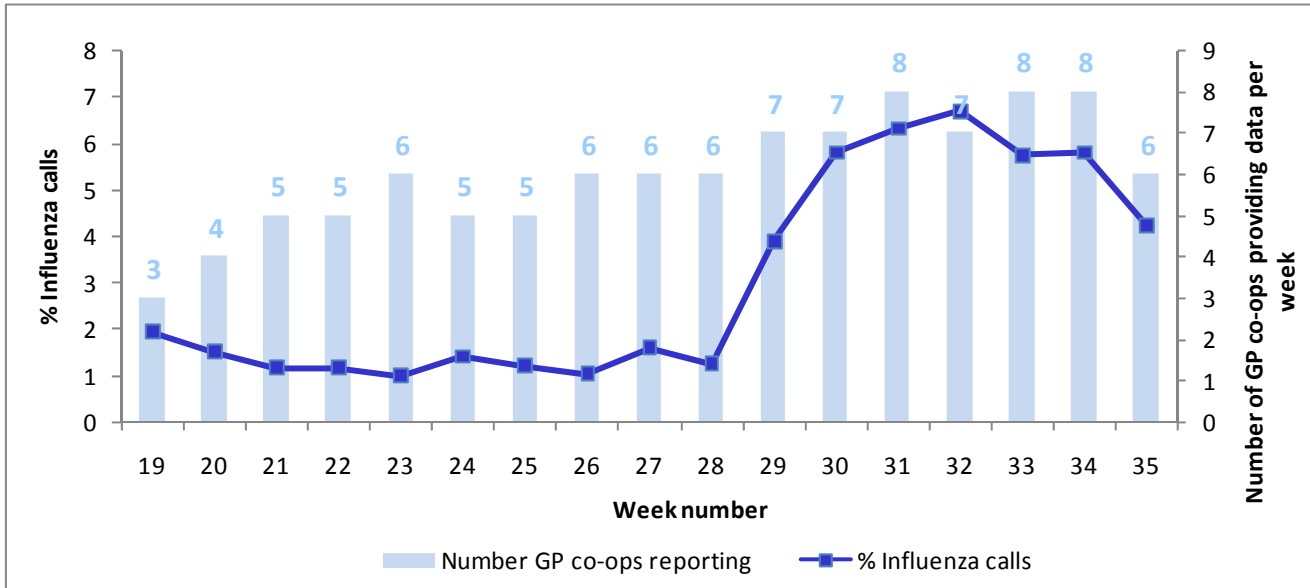


Figure 5: Flu-related call as a proportion of total calls to Out-of-Hours GP Co-ops by week

Source: HSE-NE. Not all services provided data for all weeks. Week 35: data received from CARE-Doc, NE-Doc, NoW-Doc, MI-Doc, Shannon-Doc, South-Doc.

3. Virological Data from the National Virus Reference Laboratory (NVRL)

Fifteen specimens from sentinel GPs were tested by the NVRL during week 35 2009, three (20%) of which were positive for pandemic (H1N1) 2009.

The NVRL tested 290 non-sentinel specimens taken during the same week. Twenty-four (8.3%) of the non-sentinel specimens tested positive for pandemic (H1N1) 2009[†]. No specimens were positive for other influenza A subtypes, influenza B or other respiratory viruses (table 1).

Pandemic (H1N1) 2009 is the main influenza virus circulating. During week 35, 100% of specimens positive for influenza were pandemic (H1N1) 2009, while for the summer 2009 season to date, pandemic (H1N1) 2009 has accounted for 96.7% of influenza positive specimens (table 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

Table 1: Number of sentinel and non-sentinel respiratory specimens and positive results, influenza week 35 2009 and Summer 2009 season to date

| Week number | Specimen type | Total specimens | No. influenza Positive | % Influenza Positive | Pandemic (H1N1) 2009 | Influenza A(H3) | Influenza A(H1) | Influenza A* | Influenza B | % Pandemic (H1N1) 2009 | RSV | % RSV Positive | Adenovirus | % Adenovirus positive |
|------------------------------|---------------|-----------------|------------------------|----------------------|----------------------|-----------------|-----------------|--------------|-------------|------------------------|-----------|----------------|------------|-----------------------|
| 35 2009 | Sentinel | 15 | 3 | 20.0 | 3 | 0 | 0 | 0 | 0 | 100.0 | NA | NA | NA | NA |
| | Non-sentinel | 290 | 24 | 8.3 | 24 | 0 | 0 | 0 | 0 | 100.0 | 0 | 0 | 0 | 0.0% |
| | Total | 305 | 27 | 8.9 | 27 | 0 | 0 | 0 | 0 | 100.0 | 0 | 0 | 0 | 0.0% |
| Summer season to date | Sentinel | 343 | 58 | 16.9 | 55 | 3 | 0 | 0 | 0 | 94.8 | NA | NA | NA | NA |
| | Non-sentinel | 4620 | 668 | 14.5 | 647 | 14 | 2 | 2 | 3 | 96.9 | 20 | 0.4 | 4 | 0.1% |
| | Total | 4963 | 726 | 14.6 | 702 | 17 | 2 | 2 | 3 | 96.7 | 20 | 0.4 | 4 | 0.1% |

*Influenza A - not subtyped yet, but not pandemic (H1N1) 2009

4. Laboratory confirmed cases of pandemic (H1N1) 2009

As of 30th August 2009, a total of 801 confirmed cases of pandemic (H1N1) 2009 infection were reported. Figure 6 shows the number of confirmed pandemic (H1N1) 2009 cases by week of notification. During week 34, only four cases were reported as having been infected outside of Ireland.

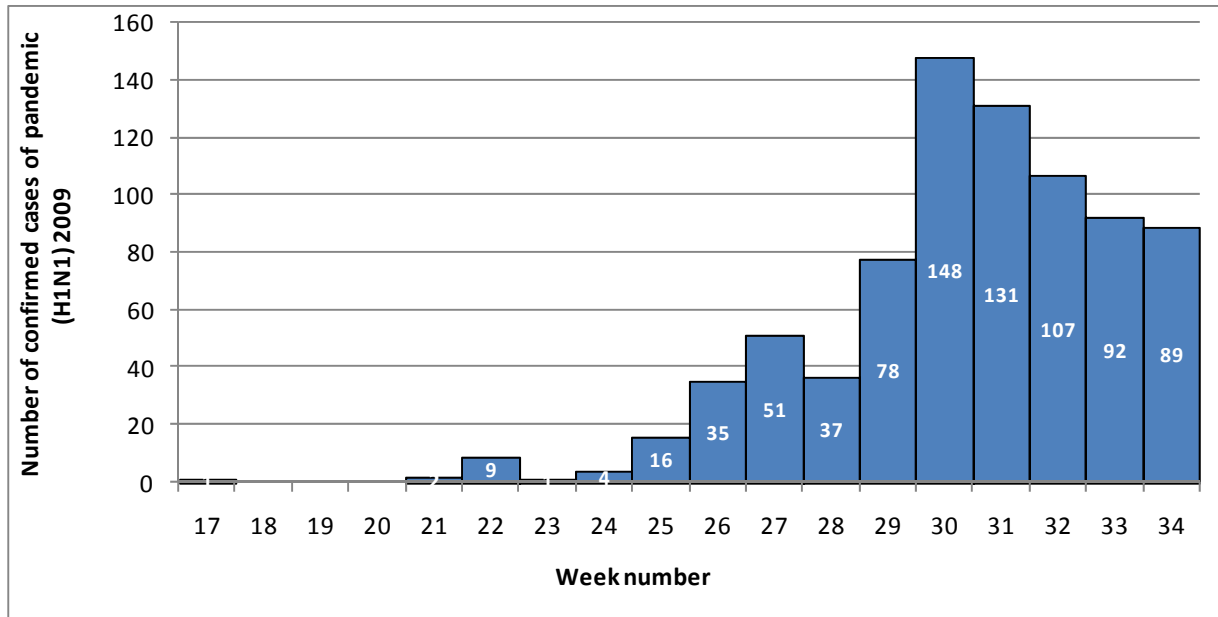


Figure 6: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification³

Age and Sex

Of the 801 confirmed cases reported to date, 408 were female (50.9%) and 386 were male (48.1%). The median age of cases was 22 years (range: 0-82 years) and 84% were less than 35 years of age. The highest age specific rate was observed in the 15-19 years age group. Figure 7 shows the number of cases and notification rates per 100,000 population by age group.

³As WHO has advised Member States to reduce laboratory testing of suspect cases and to move to clinical diagnosis of influenza-like illness, the number of laboratory confirmed cases of pandemic (H1N1) 2009 reported here understates the actual number of cases in the population.

Week number on figure 5 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore weeks 17-34 above is equivalent to weeks 18-35 on the influenza system

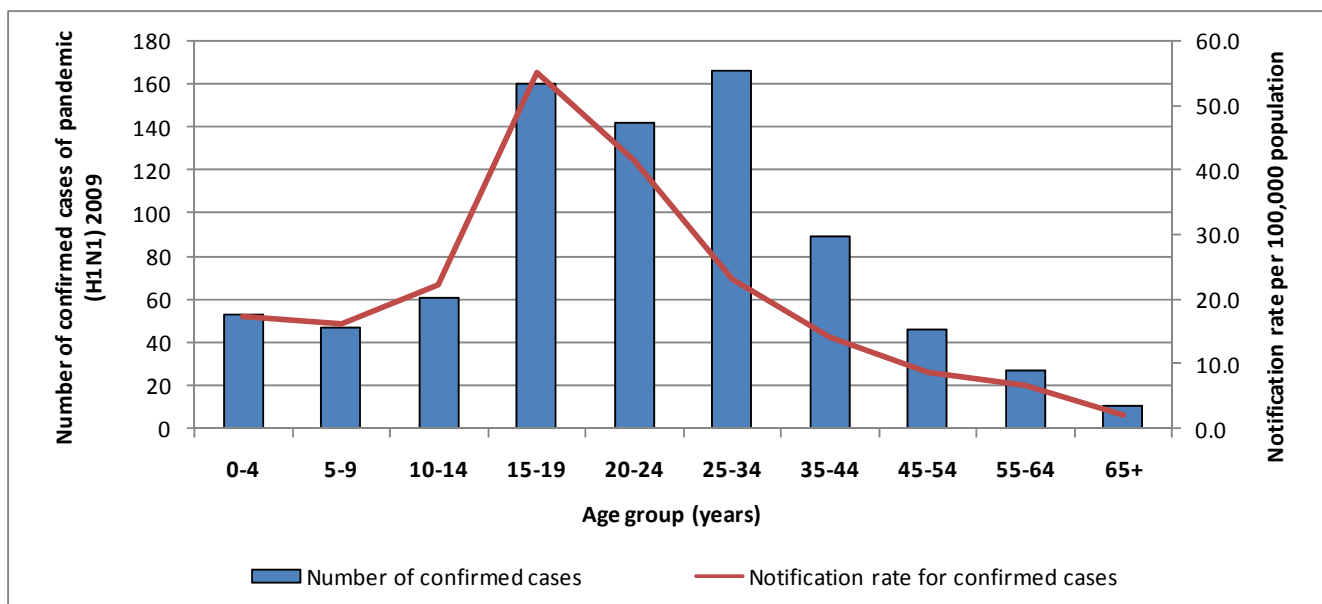


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 and notification rate per 100,000 population by age group (years)

HSE area

All HSE areas have reported confirmed cases. The numbers and rates by HSE area are shown in table 2. The highest rates for week 34 were in the HSE-MW and HSE-NW.

Table 2: Number and rate per 100,000 population for confirmed cases of pandemic (H1N1) 2009 by HSE area

| HSE Area | Week 34: 23/08/2009 - 29/08/2009 | | Week 17 - Week 34 | |
|--------------|----------------------------------|-----------------------------|---------------------------|-----------------------------|
| | Number of confirmed cases | Rate per 100,000 population | Number of confirmed cases | Rate per 100,000 population |
| HSE-E | 36 | 2.4 | 328 | 21.9 |
| HSE-M | 3 | 1.2 | 28 | 11.1 |
| HSE-MW | 11 | 3.0 | 65 | 18.0 |
| HSE-NE | 9 | 2.3 | 93 | 23.6 |
| HSE-NW | 7 | 3.0 | 66 | 27.8 |
| HSE-SE | 5 | 1.1 | 54 | 11.7 |
| HSE-S | 15 | 2.4 | 114 | 18.4 |
| HSE-W | 2 | 0.5 | 53 | 12.8 |
| Total | 88 | 2.1 | 801 | 18.9 |

(Week number in table 2 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore week 34 above is equivalent to week 35 on the influenza system)

Severity of illness

Clinical illness continues to be mild in the majority of cases. Two deaths have been reported to date in Ireland. The first death occurred in a female during week 32 2009 and the second death was in a male and occurred during week 34. Reported complications have been mostly respiratory in nature; 22 cases developed pneumonia and five developed acute respiratory distress syndrome (ARDS) (three of these also had pneumonia). Other reported complications included otitis media, chest infections, acute renal failure and multi-organ failure.

Of the 801 confirmed cases, 80 (10.0%) were reported as having been admitted to hospital. Sixty hospitalised cases have recovered or are recovering (75%), five are still ill (6.3%), outcome is awaited for thirteen (16.3%) and two cases died (2.5%). Table 3 shows the number of hospitalised cases by age group (years) and sex. Thirty-five (43.8%) of the hospitalised cases had pre-existing clinical conditions including chronic heart disease, chronic liver disease, chronic respiratory disease, chronic neurological disease, asthma, haemoglobinopathy, immunosuppression, diabetes mellitus, severe obesity (BMI >40) and pregnancy.

Table 3: Number of confirmed cases of pandemic (H1N1) 2009 admitted to hospital by age group (years) and sex

| Age group | Female | Male | Total |
|--------------|-----------|-----------|-----------|
| <1 yrs | 2 | 2 | 4 |
| 1-4 yrs | 2 | 3 | 5 |
| 5-9 yrs | 2 | 6 | 8 |
| 10-14 yrs | 2 | 2 | 4 |
| 15-19 yrs | 9 | 4 | 13 |
| 20-24 yrs | 5 | 5 | 10 |
| 25-34 yrs | 11 | 3 | 14 |
| 35-44 yrs | 3 | 4 | 7 |
| 45-54 yrs | 2 | 1 | 3 |
| 55-64 yrs | 3 | 5 | 8 |
| 65+ yrs | 2 | 2 | 4 |
| Total | 43 | 37 | 80 |

5. Outbreak surveillance

Twenty-nine outbreaks of pandemic (H1N1) 2009 have been reported in Ireland to date. These involved 368 people in total, of which 72 were laboratory confirmed cases. The number ill per outbreak has ranged between two and 150 people. Fifteen outbreaks occurred in family settings, eight occurred in educational settings and one each were in a community hospital/long-stay unit, a hotel, a crèche, a workplace and one involved travelling companions. Location was not specified for one outbreak.

International summary

The total numbers of confirmed cases and deaths worldwide by World Health Organization (WHO) region are shown in table 4. The numbers shown are likely to be an underestimate of the numbers of cases as many countries are now moving to selective testing policies.

Table 4: Reported number of confirmed pandemic (H1N1) 2009 cases and deaths by WHO region (Source: WHO 28th August 2009)

| Region | Cumulative total as of 13 th August 2009 | |
|-------------------------------------|---|----------------------|
| | Cases* | Deaths |
| Africa (AFRO) | 3843 | 11 |
| Americas (AMRO) | 110113 | 1876 |
| Eastern Mediterranean (EMRO) | 3128 | 10 |
| Europe (EURO) | Over 42,557 | At least 85 |
| South-East Asia (SEARO) | 15771 | 139 |
| Western Pacific (WPRO) | 34026 | 64 |
| Total | Over 209438 | At Least 2185 |

*Given that countries are no longer required to test and report individual cases, the number of cases reported significantly understates the actual number of cases.

United Kingdom

During week 34, influenza activity decreased in all regions and age groups in the UK, but remained higher than usual for the time of year. Although most cases continued to be mild, 57 people have died to date. The highest hospitalisation rates have consistently been in children aged less than 5 years.

http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1243928258754

USA

During week 33 (16th – 22nd August 2009), influenza activity remained stable or continued to decline in the United States, with 34 states and the district of Columbia reporting localised or sporadic activity and thirteen states reporting regional activity. Widespread activity was reported by two states and Puerto Rico. Ninety-nine percent of all subtyped influenza A viruses being reported to CDC were pandemic (H1N1) 2009 viruses.

<http://www.cdc.gov/flu/weekly/>

Canada

The national ILI consultation rate (12 consultations per 1,000 visits) decreased in comparison to the previous week and overall influenza activity has been decreasing in Canada in recent weeks. To date, cases under 15 years have the highest rates of hospitalisation, but mortality has been highest in those 45 years and older and in cases under one year of age.

<http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

New Zealand

ILI rates have been decreasing in New Zealand in recent weeks. This decline continued in week 34, but the ILI rate remains higher than for the same time period in previous years. To date, the highest ILI rates have been in children and teenagers aged 0 to 19 years. Pandemic (H1N1) 2009 has become the dominant strain among all influenza viruses currently identified in New Zealand. Typing results for viruses isolated since the emergence of pandemic (H1N1) 2009 have shown that 63.5% were pandemic (H1N1) 2009, 26% were seasonal influenza strains and 11% influenza A were untyped. So far the virus has been shown to be genetically stable and sensitive to oseltamivir. Markedly higher rates of severe disease have been observed in Maori and Pacific people compared to Europeans and others.

http://www.surv.esr.cri.nz/virology/influenza_weekly_update.php

Australia

As of 21st August, current national influenza activity appears to be decreasing. The national ILI consultation rate in week 33 was 28 per 1,000 patients seen, a decrease compared to 32 per 1,000 patients seen during week 32 2009. The proportion of influenza positive tests that were pandemic (H1N1) 2009 remained stable and varied between regions, with an average proportion of 87%. As of 2nd September, there were 35,095 confirmed cases of pandemic (H1N1) 2009 and 155 deaths associated with pandemic (H1N1) 2009. The total number of hospitalisations in Australia since pandemic (H1N1) 2009 was identified is 4,470 (13%). Of the 4,470 cases ever hospitalised, 384 are currently hospitalised with pandemic (H1N1) 2009 in Australia, 72 (18.8%) of which are in intensive care units. The highest hospitalisation rate occurred in young children aged less than 5 years of age (34.5 per 100,000 population).

<http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/updates>

Other countries

In the southern hemisphere, Chile and Argentina appear to have passed their peak of influenza activity and have either returned to baseline levels or are experiencing focal activity in later affected areas; while South Africa and Bolivia continue to experience high levels of influenza activity. Many countries in tropical regions (represented by Central America and tropical regions of Asia), continue to see increasing or sustained high levels of influenza activity with some countries reporting moderate strains on the healthcare system. In Central Asia, influenza and respiratory disease activity remains low overall, with some countries experiencing localised outbreaks. In Japan, the level of influenza activity has passed the seasonal epidemic threshold, signalling a very early beginning to the annual influenza season. Pandemic (H1N1) 2009 influenza virus continues to be the dominant circulating strain of influenza, both in the northern and southern hemisphere.

www.who.int/topics/influenza/en/

WHO Pandemic (H1N1) 2009 briefing - 29th August 2009:

WHO is advising countries in the northern hemisphere to prepare for a second wave of pandemic spread. Evidence from multiple outbreak sites demonstrates that the H1N1 pandemic virus has rapidly established itself and is now the dominant influenza strain in most parts of the world. Close monitoring of viruses by a WHO network of laboratories shows that viruses from all outbreaks remain virtually identical. Studies have detected no signs that the virus has mutated to a more virulent or lethal form.

Likewise, the clinical picture of pandemic influenza is largely consistent across all countries. The overwhelming majority of patients continue to experience mild illness. Although the virus can cause very severe and fatal illness, also in young and healthy people, the number of such cases remains small. Larger numbers of severely ill patients requiring intensive care are likely to be the most urgent burden on health services, creating pressures that could overwhelm intensive care units and possibly disrupt the provision of care for other diseases.

Current evidence points to some important differences between patterns of illness reported during the pandemic and those seen during seasonal epidemics of influenza. The age groups affected by the pandemic are generally younger. This is true for those most frequently infected, and especially so for those experiencing severe or fatal illness. To date, most severe cases and deaths have occurred in adults under the age of 50 years, with deaths in the elderly comparatively rare. This age distribution is in stark contrast with seasonal influenza, where around 90% of severe and fatal cases occur in people 65 years of age or older.

Full report available at:

http://www.who.int/csr/disease/swineflu/notes/h1n1_second_wave_20090828/en/index.html.

Eurosurveillance articles (27th August 2009):

Influenza A(H1N1)v in Germany: the first 10,000 cases

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19318>

Pandemic influenza A(H1N1)v in New Zealand: the experience from April to August 2009

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19319>

Further information on influenza in Ireland and internationally can be found on the following websites:

Ireland www.hpsc.ie
Europe – ECDC <http://ecdc.europa.eu/>
Europe – EISN www.eiss.org/index.cgi
Northern Ireland <http://www.cdscni.org.uk/>

Acknowledgements

HPSC wishes to thank the Departments of Public Health, HSE-NE, ICGP and NVRL for providing data for this report

Appendix A

Sentinel surveillance for influenza

This is the ninth season of influenza surveillance using computerised sentinel general practices in Ireland. The Health Protection Surveillance Centre (HPSC) is working in collaboration with the Irish College of General Practitioners (ICGP), the National Virus Reference Laboratory (NVRL) and the Departments of Public Health on this sentinel surveillance project. Sixty sentinel general practices covering 5.7% of the national population have been recruited to report on the number of patients with ILI on a weekly basis.

ILI is defined as the sudden onset of symptoms with a temperature of 38°C or more, with two or more of the following: headache, sore throat, dry cough and myalgia.

Sentinel GPs send a combined nasal and throat swab, to the NVRL, on at least five patients per week where a clinical diagnosis of ILI is made during the influenza season.

Influenza test results from the NVRL are also provided on both sentinel and non-sentinel specimens.

Laboratory confirmed pandemic (H1N1) 2009

Since the end of April 2009, a case-based surveillance system for pandemic (H1N1) 2009 has been in operation in Ireland following the declaration by World Health Organization (WHO) of a public health emergency of international concern due to the virus. Basic demographic data are collected on all laboratory confirmed cases and additional enhanced data are collected on all hospitalised laboratory confirmed cases. Data are collated on the Computerised Infectious Disease Reporting (CIDR) system using information available from the National Virus Reference Laboratory (NVRL), Departments of Public Health, clinicians and a number of other laboratories. Data presented in this report are based on details recorded on the CIDR system.