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Influenza Pandemic 2009: A Review

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Influenza Pandemic 2009: A Review

Pandemic (H1N1) 2009 is a new influenza virus that has never circulated among humans before. After outbreaks in North America early in 2009, the virus spread rapidly around the world. Pandemic influenza is transmitted like seasonal influenza but people had virtually no immunity to it. Most reported cases have been mild and people have recovered fully but the infection can be severe in a small minority of cases. Compared with seasonal influenza, the H1N1 virus affects a much younger age group in all categories – those most frequently infected, hospitalised, requiring intensive care, and dying.

H1N1 Epidemiology Cork and Kerry

The first confirmed cases of H1N1 influenza in Cork and Kerry occurred in early June and a total of 913 confirmed cases were reported up until the end of December. The laboratory confirmed cases were only a small percentage of the cases in the community as once the mitigation phase was declared in July swabbing was recommended only in specific circumstances including hospitalised cases, cases identified via the GP sentinel surveillance system and institutional outbreaks. Therefore the vast majority of community cases were not confirmed.

General Epidemiology: Key Facts

- Cases peaked at 121 per week in the last week of October, see Figure 1. The national figures peaked a week earlier.
- Gender breakdown 51% female and 49% male.
- Highest age specific incidence rate (333 cases per 100,000) in the 5 to 14 year age group, see Figure 2.
- Rapid decrease in incidence with increasing age with very low rate (20 cases per 100,000) in those 65 years and over, see Figure 2.

The age specific incidence rates in Cork and Kerry are consistent with the national picture.

Hospitalisations and Deaths

In total, 190 confirmed cases were hospitalised, 21% of total confirmed cases. Based on national estimates it is assumed that there were in the order of 30,000 cases in Cork and Kerry in 2009. Therefore our overall estimated hospitalisation rate was 0.6%.

The highest hospitalisation rate was in the 0-4 year age group (130 per 100,000) and the lowest in the 65 years and over age group (8 per 100,000).

Hospitalisations peaked in the last week of October at the same time as the peak in cases.

Figure 1. Confirmed H1N1 cases by week, Cork and Kerry 2009

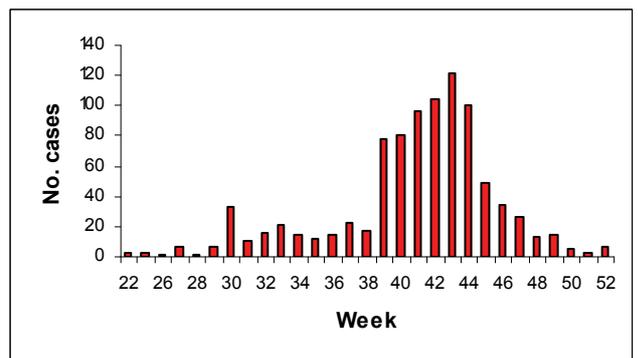
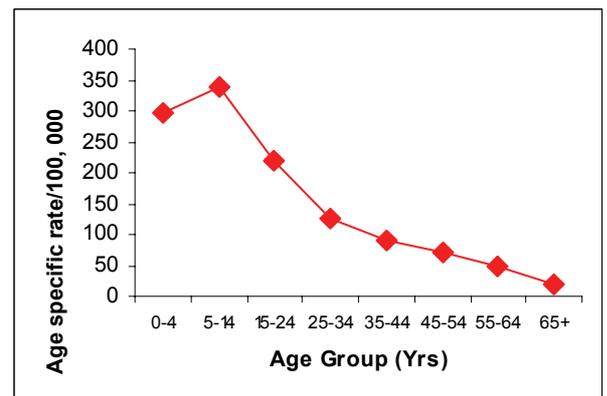


Figure 2. Age specific rate of confirmed H1N1 cases in Cork and Kerry per 100,000 population, 2009



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Figure 3. Age specific H1N1 hospitalisation rate per 100,000 population, Cork and Kerry 2009

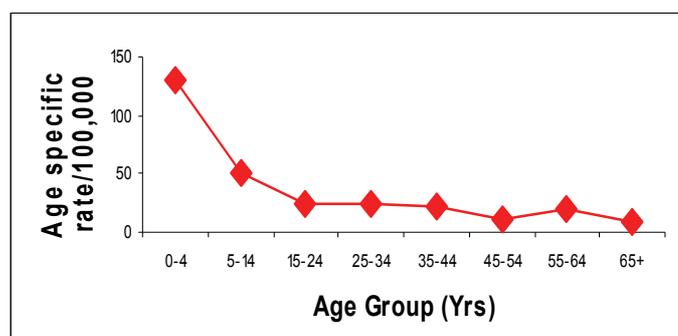
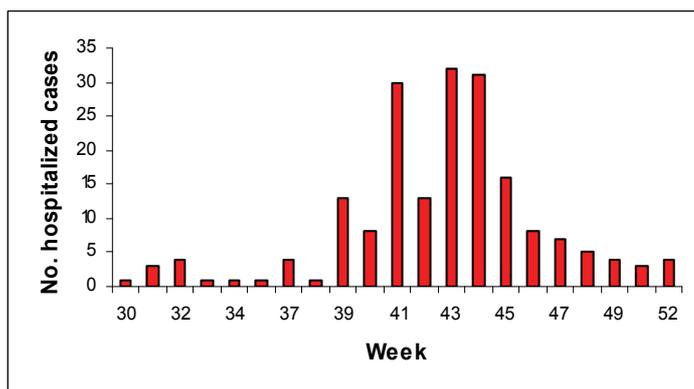


Figure 4. Number of H1N1 cases hospitalised per week in Cork and Kerry 2009



Males outnumbered females (53% to 47%) in hospitalised cases whereas females outnumbered males (51% to 49%) in confirmed cases. Over half (54%) of the hospitalised cases had no recorded risk factor for severe illness. Table 1 shows the frequency of risk factors that were recorded, some patients had a number of conditions listed. The length of stay ranged from 1 to 79 days, with an average of 3.5 days. There were nine admissions in pregnant women, 1 in the first trimester, 1 in the second trimester and 5 in the third trimester (data unavailable in 2 cases).

Sixteen cases were admitted to ICU, five of whom had no recorded risk factor for severe H1N1 illness. The greatest number

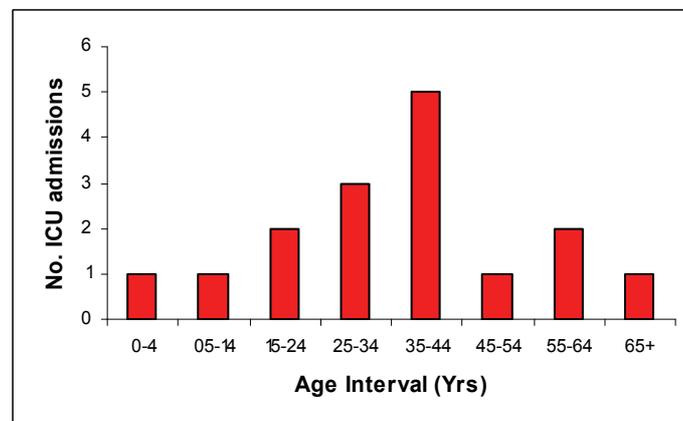
Table 1. Risk factors of hospitalised H1N1 cases, Cork and Kerry 2009

Risk Factor	No. Cases	Percent
People on medication for asthma	21	17.4
Chronic Heart Disease	11	9.1
Chronic Respiratory Disease	9	7.4
Pregnancy	9	7.4
Immunosuppression	8	6.6
Diabetes Mellitus	6	4.9
Chronic Neurological Disease	4	3.3
Chronic Renal Disease	4	3.3
Haemoglobinopathies	3	2.5
Post partum <= 6 weeks	2	1.7
Severely obese	2	1.7
Chronic Liver Disease	1	0.8
Other	41	33.9
Total	121	100.0

of ICU admissions were in the 25-34 year age group, see Figure 5. The length of stay in ICU ranged from <1 day to 50 days.

There were five recorded deaths in Cork and Kerry with H1N1 as the main or a contributory cause of death, all had pre-existing risk factors for severe illness. All were aged between 35 and 64 years.

Figure 5. Number of H1N1 ICU admissions per week, Cork and Kerry 2009



Immunisation

The national H1N1 immunisation campaign commenced on 2nd of November and by January 6th almost 600,000 vaccinations were recorded. This represents 14% of the total population. Almost half of those vaccinated were in the “at risk” groups. Chronic respiratory disease was the most commonly recorded risk category. Vaccination of the population is continuing, currently focusing on school children.

Conclusions

After transmission at low levels over the summer months the pandemic wave peaked in late October. The peak was earlier and was considerably higher than is common with seasonal influenza. A large majority of those infected experienced a mild, self-limiting illness or an asymptomatic infection.

There is uncertainty internationally about the possible pattern of infection from January onwards – will there be continuing transmission, further waves or only very little transmission? Transmission in the population depends on the level of immunity, either from clinical infection, asymptomatic infection or immunisation. Sufficient post-pandemic wave serology data are still lacking to predict the future pattern.

It is also difficult to predict what the mix of pandemic and seasonal influenza viruses will be for the remainder of the 2009/2010 influenza season. To date there have been very few other influenza viruses circulating. The experience in the Southern Hemisphere is that the pandemic influenza A (H1N1) has reduced other influenza A and B viruses. However, there remains a possibility of seasonal influenza A and B epidemics in 2010 now that the pandemic wave has passed.

NOTE: 2009 data are provisional