

## ECDC SURVEILLANCE REPORT

### Analysis of influenza A(H1N1)v individual case reports in EU and EEA countries

These data were provided by the national contact points for surveillance and for the Early Warning and Response System of the EU and EEA countries. ECDC wishes to acknowledge the continuous commitment and effort of all these individuals and their teams in ensuring the timely reporting of valid individual data from their respective countries.

#### Key findings

- Individual data were reported on 3,678 confirmed cases of influenza A(H1N1)v infection by 25 of the 28 affected EU/EEA countries until 29 June 2009;
- Travel-related cases account for one third of the reported cases. During the last 5 weeks the proportion of domestic cases increased by 18%, i.e. from 49% to 67%, when compared to the first 5-week period;
- Seventy-five percent of cases are reported in children and young adults under 30 years of age;
- Respiratory symptoms were reported from 89% of symptomatic cases;
- Gastro-intestinal symptoms were reported from 14% of symptomatic cases.

#### Comment on method for analysis

Due to the fact that detailed symptoms are not available for the majority of cases, and that no denominator can be defined, this analysis describes groups of symptoms rather than detailed symptoms. The distribution of symptoms is described among symptomatic patients only. The proportion of asymptomatic persons cannot be assessed with the current data available.

The individual case reports (n=3,678) form the basis of the analysis below. However, not all variables were reported for all cases, and therefore the denominator varies for each analysis. Data are most complete for country of infection (100%), and least complete for whether prophylaxis was taken by the case (13%), for the presence of underlying conditions (1%) and complications (11%). Due to the lack of information these data were not analysed.

## Number of cases, travel-association and hospital admission

As published in the ECDC situation report of 28 June, a total of 6,069 confirmed cases of influenza A(H1N1)v have been reported as aggregated case reports by 28 out of the 30 EU/ EEA countries. As of 28 June 2009, Liechtenstein and Malta did not report any cases.

Out of these, a total of 3,678 confirmed cases of influenza A(H1N1)v have been reported as individual case reports through the Early Warning and Response System by 25 of the 28 affected EU/EEA countries until 29 June 2009 11:40 CEST (Table 1). Country-specific publications and weekly bulletins on A(H1N1)v are available [1-6]. The UK accounts for 70% of the individual case reports.

The number of travel-related cases (having been outside the country of notification during the incubation period) is 1,106 (30%) among 3,667 A(H1N1)v cases with available information on travel. All other cases are considered as potential in-country transmission. The majority of cases in travellers reported returning from the USA (67%), followed by Mexico (16%), Canada (4%), the UK (4%), Argentina (2%), the Dominican Republic (2%) and Australia (2%). All other countries from where travellers returned accounted for less than 1% of imported cases.

The information on hospital admission was available for 3,405 cases (93%) reported from 23 countries. Among these, 403 (12%) were reported having been admitted to hospital. It is important to note that in some countries hospitalisation was reported for isolation purposes (e.g. Austria, France), and that other countries have changed their strategy for hospital admission (e.g. UK is admitting patients now on clinical grounds). Therefore the proportion of patients admitted to hospital is not an indicator for severity of disease.

**Table 1** Reported number of cases of influenza A(H1N1)v infection, travel association and hospital admission, EU/EEA countries, as of 29 June 2009

Country	Aggregated case reports	Individual case reports			
	Total cases <sup>(1)</sup>	Total cases <sup>(2)</sup>	Travel-related <sup>(2)</sup>	Hospitalised <sup>(2, 3)</sup>	Last reporting date
Austria	14	12	11	11	24/06
Belgium	43	43	32	12	19/06
Bulgaria	7	5	2	5	25/06
Cyprus	25	24	6	10	28/06
Czech Republic	9	9	9	2	24/06
Denmark	44	44	26	5	28/06
Estonia	13	13	11	8	26/06
Finland	36	31	28	3	29/06
France	239	236	170	162	26/06
Germany	388	395*	175	68	29/06
Greece	88	0	0	0	
Hungary	8	8	7	2	24/06
Iceland	4	4	3	0	22/06
Ireland	39	39	34	1	28/06
Italy	102	88	79	23	24/06

Latvia	1	1	1	1	25/06
Lithuania	1	0	0	0	??
Luxembourg	3	4	3	1	26/06
Netherlands	118	48	31	1	25/06
Norway	24	20	17	0	26/06
Poland	14	10	9	7	20/06
Portugal	11	4	4	3	24/06
Romania	25	25	16	25	29/06
Slovakia	9	9	8	8	29/06
Slovenia	4	0	0	0	??
Spain	541	113	74	0	28/05
Sweden	67	67	52	5	29/06
United Kingdom	4250	2426	298	40	23/06
<b>Total</b>	<b>6127</b>	<b>3678</b>	<b>1106</b>	<b>403</b>	<b>-</b>

(1) Reported daily through epidemic intelligence.

(2) Reported as individual data.

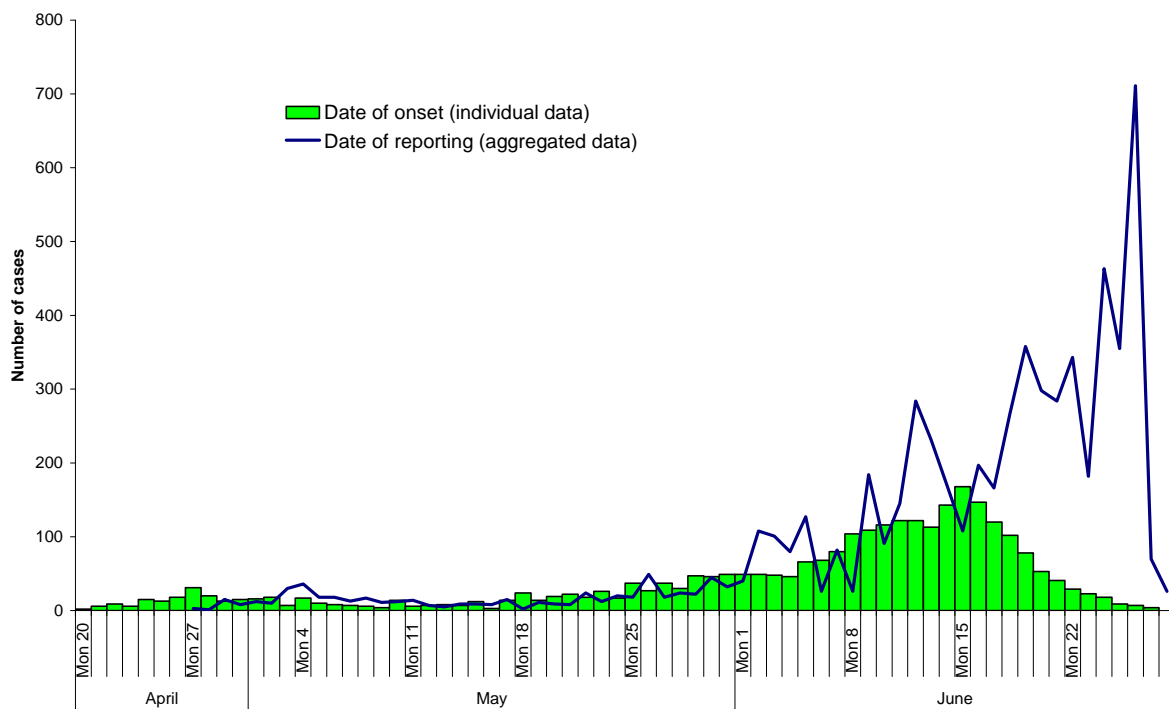
(3) Some hospitalisations were for isolation purposes.

\* some cases are double reported

## Epidemic curves

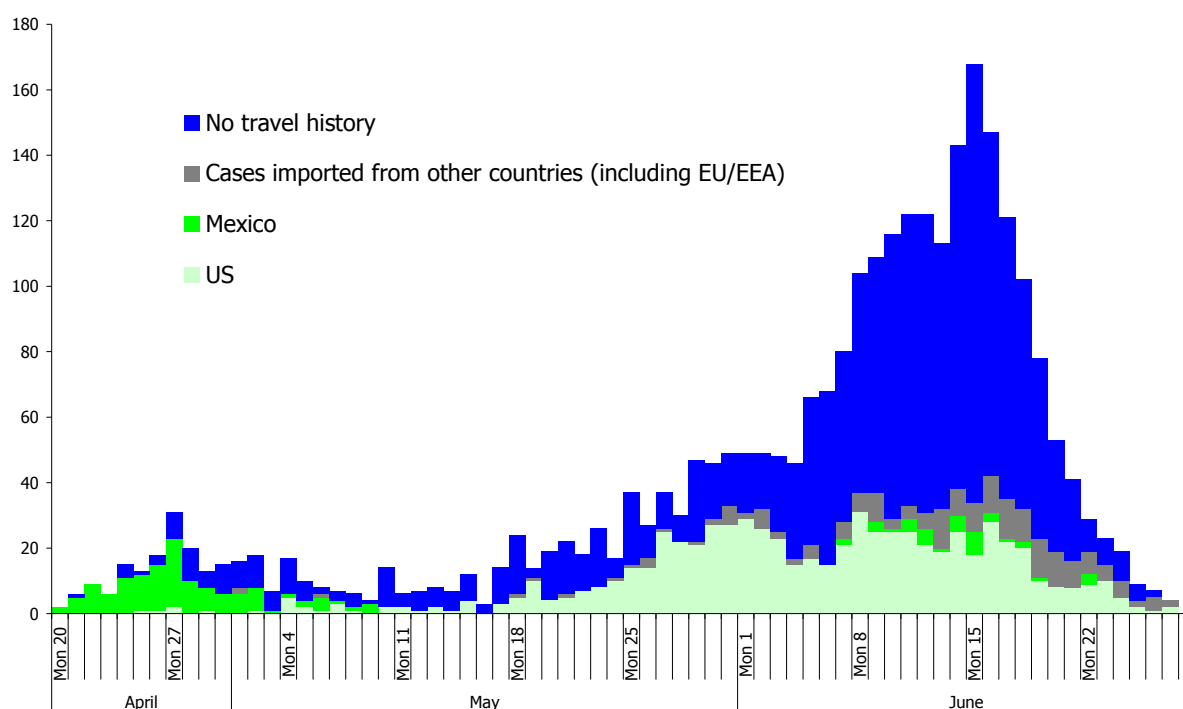
Figure 1 compares the distribution of A(H1N1)v influenza cases by date of onset from the individual case reports (n=3,678) with the distribution of A(H1N1)v cases by reporting date from the aggregated case reports (n=6,127) from 19 April to 29 June 2009. A first peak by onset of disease was observed on Monday 27 April and since then the number of cases increased in both reporting systems. Whereas the aggregated case reports are fluctuating significantly by day, the trend is still increasing. The individual case reports, which consider the date of onset of disease, show a smooth pattern of increase. In the last 2 weeks a decrease in the number of cases is observed (see discussion).

**Figure 1** Distribution of confirmed cases of A(H1N1)v infection by date of onset (n=3,678) and date of reporting (n=6,127), EU/EEA countries, as of 29 June,



Information both on the date of onset and travel history was available for 2,761 cases (75%). Figure 2 shows the distribution of travel-related and domestic cases of influenza A(H1N1)v infections by date of onset and country visited, as reported by 25 EU/EEA countries. In the first two weeks of the epidemic, a large proportion of cases had travelled to Mexico. The proportion of cases that travelled to the USA increased after the third week (10 May). The proportion of domestic cases increased from 49% during the first 5-week period, to 67% in the last 5-week period ( $p < 0.0001$ ). Cases with travel history within the EU/EEA countries were reported from 27 May onwards. Fifteen countries reported 57 cases with travel history to EU/EEA countries: UK (42), Spain (9), Ireland (2), Greece (1), Italy (1) and Poland (1), and one cases was reported with a travel both to Sweden and the UK.

**Figure 2** Distribution of travel-related and domestic individual case reports of influenza A(H1N1)v infection, by date of onset and country of travel, 25 EU/EEA countries, 20 April – 29 June 2009 (n=2,761)



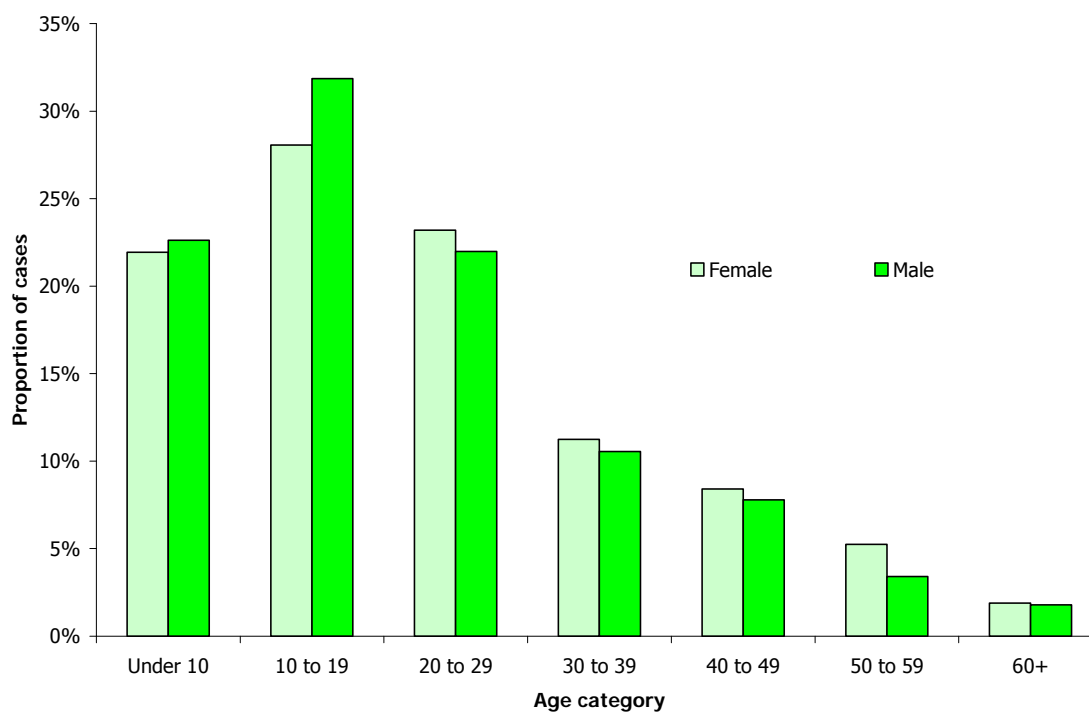
## Age and gender distribution

As shown in Table 2, information on age and gender of influenza A(H1N1)v infections is available for 3,315 cases (90%). The male-to-female ratio is 1.1 (1,756 males and 1,595 females). Children and young adults under 20 years of age account for 52% of cases and 75% of cases are under 30 years of age (Figure 3).

**Table 2** Distribution by age and gender of individual case reports of influenza A(H1N1)v infection, 25 EU/EEA countries, 20 April and 29 June (n=3,315)

Age groups	Female	Male	Total	Percentage
Under 10	347	392	739	22
10 to 19	444	552	996	30
20 to 29	367	381	748	23
30 to 39	178	183	361	11
40 to 49	133	135	268	8
50 to 59	83	59	142	4
≥60	30	31	61	2
<b>Total</b>	<b>1582</b>	<b>1733</b>	<b>3315</b>	

**Figure 3** Distribution by age and gender of individual case reports of influenza A(H1N1)v infection, 25 EU/EEA countries, 20 April and 29 June (n=3,315)

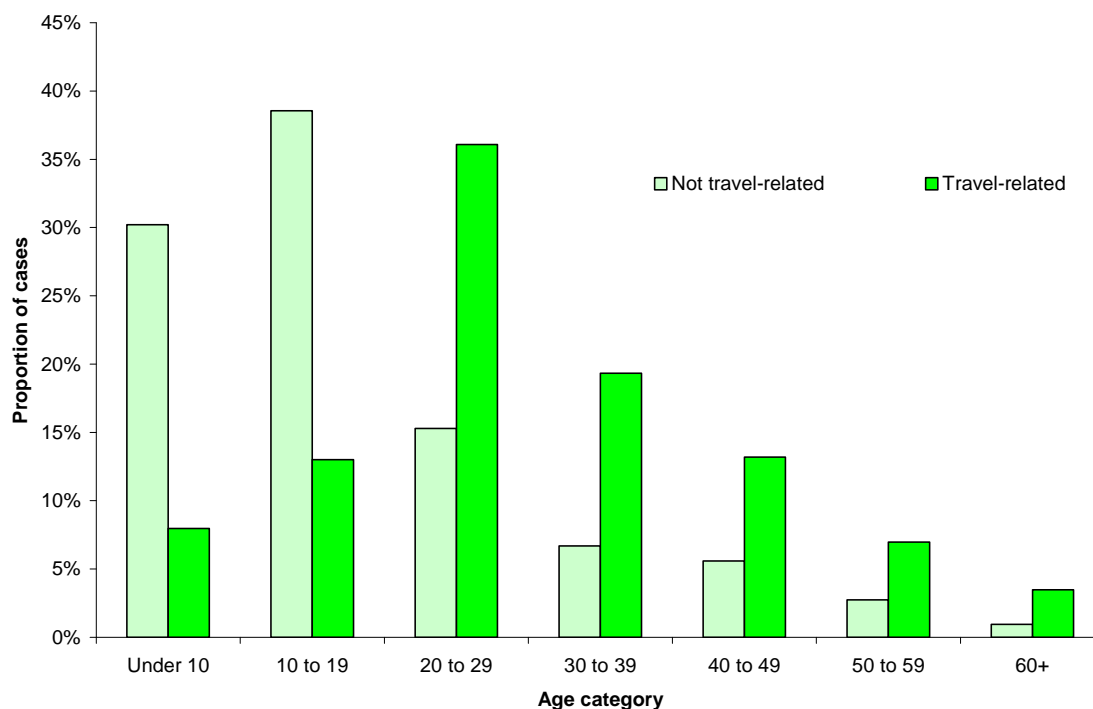


The proportion of travel-related cases aged 20 years or older (79%) was significantly higher when compared with domestic cases (31%,  $p < 0.001$ ). The highest number of travel related cases was observed in the age group 20 to 29 years and for domestic cases the age group 10 to 19 years (Figure 4). The median age of travel related cases is 27 years and of domestic cases 13 years.

**Table 3** Distribution by age and travel status of individual case reports of influenza A(H1N1)v infection, 25 EU/EEA countries, 20 April and 29 June (n=3,618)

Age groups	Domestic	Travel-related	Total
Under 10	763	87	850
10–19	974	142	1116
20–29	386	394	780
30–39	169	211	380
40–49	141	144	285
50–59	69	76	145
≥60	24	38	62
<b>Total</b>	<b>2526</b>	<b>1092</b>	<b>3618</b>

**Figure 4** Distribution by age and travel status of individual case reports of influenza A(H1N1)v infection, 25 EU/EEA countries, 20 April and 29 June (n=3,618)



## Clinical presentation

Among 2,436 symptomatic cases (66% of all reported cases), respiratory symptoms were reported most frequently (89%), followed by fever (78%). Gastro-intestinal symptoms were reported from 14% of cases.

Gastro-intestinal symptoms were more frequently reported from cases less than 20 years of age (18%) when compared with older cases (11%) ( $p < 0.0001$ ).

## Treatment and prophylaxis

Among 3,068 cases with available information on antiviral treatment, 60% were reported having received antiviral treatment.

Among 3,028 cases (82% of all reported cases) with available information on previous seasonal influenza vaccination, only 2% were reported having received vaccination during the last season.

## Discussion

Despite the fact that the total number of cases more than doubled since the last report on 17 June (from 2,719 to 6,127) the proportion of individual case reports increased from 32% to 60%. This is only due to the immense efforts countries are taking to provide the information. The higher the number of cases, the more difficult it is to obtain detailed information. Nevertheless, even the most affected countries are still reporting individual data to ECDC although with less detail. As the number of cases in the EU/EEA countries continues to increase individual reporting will become more and more difficult.

ECDC plans to publish these reports on a weekly basis, using the data available each Monday morning.

The observed decrease in the number of reported cases during the last two weeks is most likely due to a delay in diagnosis and to the high workload; it can be considered as reporting bias, which is common when using the date of onset. Therefore the last weeks of the epidemic curve have to be interpreted with caution.

The age difference among travel-related and domestic cases is partly due to school outbreaks, e.g. in the UK, Germany and France [2].

Vaccination coverage is low as the majority of cases does not belong to known risk groups for which seasonal influenza vaccination is generally recommended in most countries.

Compared to last week's report the proportion of antiviral treatment of cases decreased from 80% to 60% which is probably the result of countries moving from containment to mitigation strategy.

## Conclusion

Despite the fact that the seasonal influenza season is considered to be over, the transmission of the new strain is ongoing in Europe. Countries with early importation of cases, so called seeding events, are more likely to experience community transmission earlier, as happened in the UK. Thus the proportion of domestic cases is likely to increase in future.

The main affected age group of domestic cases are persons under 20 years of age. Nevertheless, it is still too early to conclude that these age groups remain the most affected ones. Seeding events resulted in school outbreaks but the disease might not have spread to the general population yet. Up to now, in Mexico and the US the main affected age groups were also persons below 20 years of age [7, 8].

No conclusion can be drawn for severity of illness as no relevant data are systematically collected. Recommendations for hospitalisation of cases, for isolation versus for clinical reasons, are different in EU/EEA countries and are likely to change over time, especially when countries decide to move from containment to mitigation. The available data on underlying conditions and complications are scarce. Efforts should be made to record this information as precise as possible. This will allow obtaining baseline data to assess if change in severity will occur in the predicted autumn wave.

ECDC together with the Member States and international organisations (WHO) are coordinating activities. The development of guidance to anticipate the future surveillance strategies at European level will be addressed in a meeting in Stockholm on 14-15 July.

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