

# NEW INFLUENZA A(H1N1) VIRUS INFECTIONS IN FRANCE, APRIL – MAY 2009

### New influenza A(H1N1) investigation teams\*<sup>1,2</sup>

1. French Institute for Public Health Surveillance (Institut de Veille Sanitaire, InVS), France
2. National Reference Centres for influenza viruses (North and South), France

Since the emergence of a new influenza A(H1N1) virus in North America and its international spread, an active surveillance of cases of infection due to this virus has been set up in France in order to undertake appropriate measures to slow down the spread of the new virus. This report describes the epidemiological and clinical characteristics of the 16 laboratory confirmed cases diagnosed in France as of 20 May 2009.

### Background

Human cases of new influenza A(H1N1) virus infection have been identified recently in many countries [1,2]. After the detection of the first cases in Mexico and in the United States and the spread of infection to further countries, the World Health Organization (WHO) declared the outbreak of a new influenza A(H1N1)swl (swine-like) virus infection to be a “public health emergency of international concern”. On 27 April 2009, the first cases were reported in the United Kingdom and in Spain in travellers returning from Mexico [3,4]. In response to the risk of spread of the disease in France, national active surveillance of respiratory illness among recent travellers in the affected areas (see definition below) has been set up. On 1 May 2009, the first cases were identified in France, and on 20 May 2009, the number of confirmed cases in France has reached a total of 16 cases.

### Methods

#### Organisation of the surveillance

The objective of the surveillance is to detect cases of influenza due to the novel virus in travellers coming back from the affected areas in order to implement control measures around each case and contain the indigenous spread of the virus.

A case definition triggering case investigation has been established and widely diffused [5]. A possible case is defined as a person with acute respiratory illness (defined as the occurrence of fever ( $\geq 38^{\circ}\text{C}$ ) or myalgia or asthenia and at least one respiratory symptom (cough or dyspnea)) and a history of travel in an affected area or a history of a close contact with a confirmed or possible case during the seven days before the onset of symptoms. Taking into account the international situation, the affected areas mentioned in the case definition are updated when needed [5]. On 20 May 2009, Mexico, United States, Canada, Panama, Dominican Republic and Japan were considered as affected areas.

A probable case is defined as a person with a positive PCR for influenza A virus or a possible case with a close contact with

a confirmed or probable case. A confirmed case is defined as an individual tested positive for the new influenza A(H1N1) virus with a specific PCR. As long as a possible case is neither confirmed nor discarded, he/she is considered as “currently under investigation”.

Protocols for case and contact management and for infection control were developed and distributed by the French Ministry of Health and the French Institute for Public Health Surveillance (Institut de Veille Sanitaire, InVS). Symptomatic persons coming from an affected area are advised to call the local hospital based mobile emergency unit (Centre 15). A medical practitioner assesses the case by phone and if the person meets the case definition for a possible case the Centre 15 calls the InVS, to validate the classification and guide the case management. Detailed information is available on flights coming from affected areas and at international airports and a 24/24 and 7/7 duty service by trained epidemiologists has been set up at InVS to answer calls from the Centre 15 or other health professionals. Hospitalisation of all possible or probable cases is recommended whatever the severity of symptoms. Nasal swabs from such cases have to be sent to one of the 24 laboratories which have been approved by the Ministry of Health to test those specimens for influenza A by PCR under BSL3 conditions. When the specific A(H1N1)swl PCR have been sent to all 24 laboratories, positive results have to be confirmed and further viral identification to be done by one of the two French National Reference Centres (NRC) for influenza viruses.

Curative treatment by neuraminidase inhibitor is recommended for cases, even those classified as possible ones. Prophylactic treatment by neuraminidase inhibitor is recommended for close contacts of probable or confirmed cases only. These close contacts are asked to follow a quarantine at home and to avoid unnecessary contacts with other people. In case of appearance of fever or respiratory signs, they should consult a medical professional immediately.

Case-base epidemiological and virological data are collected through an interactive application (adapted from Voozano®, Epiconcept®) allowing a real time exchange of information between epidemiologists from InVS, from the 15 French Interregional epidemiology units (Cire) located in mainland France, the two Cire located overseas and virologists of the NRCs.

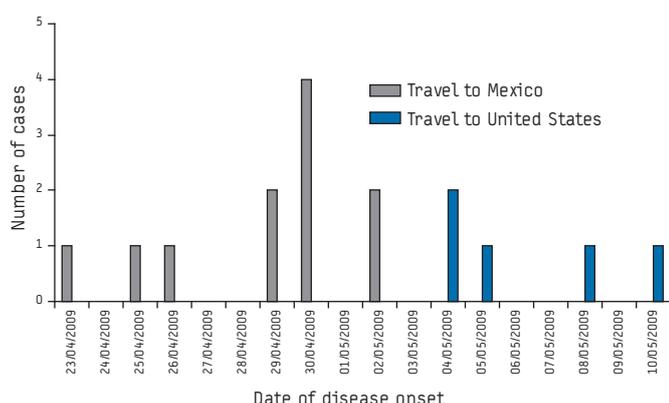
## Results

On 1 May 2009, France reported its first two laboratory-confirmed cases of the new influenza A(H1N1) virus infection in travellers returning from Mexico. By 20 May 2009, InVS and Cire had been involved in 1,613 reportings (41 located overseas). Among these, 348 were classified as possible or probable cases and 16 have been laboratory-confirmed for the new influenza A(H1N1) swl.

The rest of the analysis concerns the 16 confirmed cases. All cases acquired the infection abroad: 11 cases had a history of travel to Mexico and five cases travelled to United States: two came back from California and three from New-York (Figure). To date, no secondary case has been identified in France. Five cases were

**FIGURE**

**Cases of laboratory-confirmed new influenza A(H1N1) by day of disease onset and travel history, France, as of 20 May 2009**



**TABLE**

**Clinical features of confirmed cases of new influenza A(H1N1) virus infection, France, as of 20 May 2009**

Symptom	Cases with symptoms / Cases for whom information is available	Percentage
Cough	16*/16	100%
Fever ( $\geq 38.0^{\circ}\text{C}$ )	10**/16	62%
Asthenia	9/15	60%
Sore throat	8/14	57%
Myalgia	8/15	53%
Headache	3/15	20%
Sneezing	2/14	14%
Diarrhoea	2/16	13%
Conjunctivitis	2/15	13%
Joint pain	1/14	7%
Vomiting	1/16	6%
Shortness of breath	1/16	6%
Insomnia	1/16	6%

\*Cough was reported to be dry for 14 cases (93%) and was associated with a productive cough in three cases.

\*\* Fever was reported to be between  $38^{\circ}\text{C}$  and  $39.5^{\circ}\text{C}$ . Furthermore three more cases reported elevated temperature to  $37.5^{\circ}\text{C}$  (one case) and to  $37.7^{\circ}\text{C}$  (two cases).

symptomatic before return to France. Among the remaining 11 cases, disease onset occurred up to four days after return (mean and median: 2 days) and these cases reported themselves up to six days after disease onset (mean: 1.5 day, median: 1 day).

Cases were identified in the following regions: Alsace (3), Aquitaine (1), Auvergne (1), Ile-de-France (9) and Languedoc-Roussillon (2). No case has been identified in the French departments of America (French Guiana, Martinique, Guadeloupe) or in Reunion Island located in the Indian ocean.

The cases were reported to InVS by the Centre 15 (10 cases), a hospital (four cases), an individual (one case) and a virological laboratory (one case).

Of the 16 confirmed cases, 10 are male and six are female. Ages range from 18 months to 65 years (mean: 32 years, median: 29 years). The age distribution by age group is as follows: [0-9 years]: one case, [10-19 years]: two cases, [20-29 years]: five cases, [30-39 years]: four cases, [40-49 years]: two cases, [50-59 years]: one case, [60-69 years]: one case.

The clinical features of cases show common symptoms for influenza disease (Table).

No complications have been reported and no death occurred. Underlying conditions were reported for four cases: asthma (two cases), physical and mental impairment (one case) and heart disease with dislipemia (one case).

All cases received antiviral curative treatment once diagnosed; 15 patients took oseltamivir alone and one was administered zanamivir and oseltamivir. Fifteen cases were admitted to hospital and the duration of hospitalisation ranged from three to seven days (median: 5 days).

## Discussion

France, as other European countries, has identified laboratory-confirmed cases of the new influenza A(H1N1) virus infection through an active surveillance set up as a response to the international situation as soon as the alert was given. As reported in other countries, symptoms in laboratory-confirmed cases resemble those of seasonal influenza. To date no secondary case has been identified among close contacts of the confirmed cases. Systematic hospitalisation of cases with strict implementation of control measures may have contributed to this result. Sporadic cases or self limited chains of transmission may have occurred, though, and gone unnoticed despite the measures taken to detect them. This may happen if a sick traveller prefers not to report to a health professional or when the infection passes to close contacts from an asymptomatic traveller. In order to improve the sensitivity of the surveillance system, a complementary modality of surveillance has been implemented. Health professionals have to notify to public health authorities about clusters of at least three cases of respiratory tract infection occurring within one week in a small community (such as a hospital ward, a nursing home, a classroom or a family) without other aetiology identified as well as to report an unexpected increase of such cases among their patients. Virological investigations are required in these cases in order to exclude a possible infection due to the new influenza A(H1N1)swl virus. So far, all such notified events have been discarded as being due to A(H1N1)swl.

To date, no increase in seasonal influenza activity (based on data from general practitioners sentinel networks, on data on

consultations for influenza like illness in a network of hospital emergency units and on mortality data surveillance) has been reported.

\*The investigating team is composed of more than 90 members of staff of the Institut de Veille Sanitaire and its regional units (Cellules Interrégionales d'Epidémiologie [CIRE]), and it was constituted to manage the response to the epidemic, to assess suspected cases imported from affected areas and to regularly update international information. We are thankful to laboratories, Centre 15, clinicians, public health authorities, UMR707 INSERM - Université Pierre et Marie Curie, for collecting and kindly providing additional clinical data. The corresponding author is S Vaux, INVS (s.vaux@invs.sante.fr).

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This article was published on 28 May 2009.

Citation style for this article: New influenza A(H1N1) investigation teams\*. New influenza A(H1N1) virus infections in France, April - May 2009. Euro Surveill. 2009;14(21);pii=19221. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19221>