

ECDC DAILY UPDATE

2009 influenza A (H1N1) pandemic

18 December 2009
9.00 CEST

Main developments in the past 24 hours

- Weekly Influenza Surveillance Overview to be published today;
- Eurosurveillance update: Risk of pandemic influenza in pregnancy and indigenous people
- WHO pandemic modelling group: more serosurveys needed
- ECDC quotes a selection of recent scientific publications
- A total of 1 570 fatal cases in Europe and EFTA countries and 10 307 in the rest of the world have been reported up to date.

This report is based on official information provided by national public health websites or through other official communication channels.

Reported number of confirmed Pandemic (H1N1) 2009 influenza cases admitted to hospitals and intensive care, by country, as of 18 December 2009, 9.00 CEST in EU and EFTA countries are in Table 1. An update on the number of confirmed fatal cases for the world and Europe is presented in Table 2.

Epidemiologic update

All 27 EU and 4 EFTA countries are reporting cases of pandemic (H1N1) 2009 influenza. A total of 1 570 deaths have been reported since April 2009 (Table 2). Since week 41 the numbers of deaths each has shown a steady increase almost doubling every fortnight over the last six weeks. While the most deaths have to date been in Western Europe there are increasing numbers of deaths being reported from Central and Eastern Europe. The reported cumulative fatal pandemic (H1N1) cases in the world have now passed 10 000 cases (Table 2). However, because of lack of laboratory confirmation and underreporting among other factors, this is likely to be a gross underestimation of the true number of fatalities associated with the pandemic. Available updates on hospital admissions, per Member State, can be found in Table 1.

Weekly Influenza Surveillance Overview

The ECDC Weekly Influenza Surveillance Overview will be published this afternoon and will be available at: http://www.ecdc.europa.eu/en/activities/surveillance/EISN/Pages/EISN_Bulletin.aspx

Eurosurveillance update

In this week's issue Eurosurveillance publishes a Rapid communication by H Kelly, GN Mercer and AC Cheng, entitled Quantifying the risk of pandemic influenza in pregnancy and Indigenous people in Australia in 2009.

Abstract: An increased relative risk of infection with the 2009 pandemic H1N1 influenza virus associated with pregnancy and Indigenous status has been a common finding in many countries. Using publicly available data from May to October 2009 in Australia, we estimated the relative risk of hospitalisation, admission to intensive care unit and death as 5.2, 6.5 and 1.4 respectively for pregnant women, and as 6.6, 6.2 and 5.2, respectively for Indigenous Australians. Pregnancy and Indigenous status were associated with severe influenza. More complete analyses of risks in these groups are required to understand and prevent influenza morbidity and mortality.

The full paper is available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19441>

WHO pandemic modelling group calls for more serological studies

A World Health Organization working group of mathematical modellers has presented a list of research needs to help inform policy choices related to the H1N1 pandemic. Key among missing data are serologic surveys to assess what proportion of the population remains susceptible to the virus. French authorities show an example of how presenting information on serosurveys may help to address the question in the "Bulletin grippe A(H1N1) 2009" which contains a section on regular monitoring of antibodies among pregnant women (SeroGrippeHebdo survey).

More information available at:

<http://knol.google.com/k/maria-van-kerkhove/studies-needed-to-address-public-health/agr0htar1u6r/18>

and http://www.invs.sante.fr/surveillance/grippe_dossier/points_h1n1/grippe_A_h1n1_151209/Bulletin_grippe_15_12_09.pdf#page=2

Selected Scientific Publications (11-17 December 2009)

1) Deaths Related to 2009 Pandemic Influenza A (H1N1) Among American Indian/Alaska Natives - 12 States, 2009

Centers for Disease Control and Prevention (CDC)
Morbidity and Mortality Weekly Report, 11 December 2009

Available from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5848a1.htm>

A study indicating that American Indians and Alaska Natives had an H1N1-related mortality rate four times higher than persons in all other racial/ethnic populations combined. Reasons for this disparity were unclear however, the authors suggest higher rates of underlying chronic illnesses (e.g. asthma and diabetes) poverty and delayed accessing of health care.

2) Immune response after a single vaccination against 2009 influenza A H1N1 in USA: a preliminary report of two randomised controlled phase 2 trials

Plennevaux E, Sheldon E, Blatter M, Reeves-Hoche, Denis M. The Lancet, Published Online December 16, 2009

This USA study of two randomised controlled phase 2 trials found that after vaccination between 45% (7.5 µg dose) and 50% (15 µg) infants aged 6–35 months reached serological protection. In the other age groups adequate levels ranged from 69% (7.5 µg) to 75% (15 µg) of 3–9-year-old children; 95% (7.5 µg) to 100% (30 µg) of 18–64-year-old adults; and 93% (15 µg) to 95% (30 µg) of adults 65 years and older. No vaccine-related serious adverse events occurred among the 1100-1200 subjects. Injection-site and systemic reactions were reported by up to about 50% of every age and vaccine group, with no noticeable differences between vaccine and placebo groups.

3) Safety and immunogenicity of 2009 pandemic influenza A H1N1 vaccines in China: a multicentre, double-blind, randomised, placebo-controlled trial

Xiao-Feng Liang, Hua-Qing Wang, Jun-Zhi Wang et. Al. The Lancet, Published Online December 16, 2009

This large double-blind, randomised placebo controlled trial (12-13,000 participants) was conducted in China and found that a 7.5 µg, non-adjuvanted vaccine offered substantial seroprotection—with 87% across all age groups protected (vs 10% for placebo). In the age groups 7.5 µg formulation induced serological protection in 77% of children aged 3–12 years; 97% of adolescents aged 12–18 years; 90% of adults aged 18–60 years; and 80% of adults aged over 60 years. In children aged 3–12 years, a second dose of this same 7.5 µg formulation increased seroprotection rates to

98%. Adverse reactions were mostly mild or moderate, and self-limited. More severe adverse reactions (mostly fever) occurred in 69 (0.6%, 0.5–0.8) recipients of vaccine compared with one recipient (0.1%, 0–0.2) of placebo.

4) Safety and immunogenicity of a 2009 pandemic influenza A H1N1 vaccine when administered alone or simultaneously with the seasonal influenza vaccine for the 2009–10 influenza season: a multicentre, randomised controlled trial

Zoltan Vajo, Ferenc Tamas, Laszlo Sinka, Istvan Jankovics. *The Lancet*, Published Online December 16, 2009

The randomised controlled study undertaken in Hungary examined co-administration of a pandemic H1N1 vaccine and seasonal vaccine; the patients were divided into two groups: group 1 were assigned to 0.5 mL of the pandemic vaccine (Fluval P, a monovalent vaccine with 6 µg haemagglutinin per 0.5 mL and an aluminium phosphate gel adjuvant); group 2 were assigned to 0.5 mL of the same pandemic vaccine and 0.5 mL of the regular trivalent seasonal influenza vaccine. In group 1 seroconversion for adults was 74.3%, and for elderly 61.3%; in group 2: 76.8% and 81.8% respectively. All adverse events were rare, mild, and transient; the most frequent reactions were pain at injection site (eight cases in group 1 vs 18 in group 2) and fatigue for 1–2 days after vaccination (three vs five cases).

5) Effectiveness and cost-effectiveness of vaccination against pandemic influenza (H1N1) 2009

Nayer Khazeni, David W. Hutton, Alan M. Garber

Annals of Internal Medicine, December 15, 2009. Available at:

<http://www.annals.org/content/151/12/829.abstract?etoc>

This theoretical study was based on a compartmental epidemic model of residents of a major U.S. metropolitan city as targeted population. The results showed that early vaccination against pandemic (H1N1) 2009 would prevent many deaths and be cost-saving. Complete population coverage was not necessary to reduce the viral reproductive rate sufficiently to help shorten the pandemic.

6) Th1 and Th17 hypercytokinemia as early host response signature in severe pandemic influenza

Jesus F Bermejo-Martin, Raul Ortiz de Lejarazu, Tomas Pumarola et al. *Critical Care*. December 11, 2009

Available at: <http://ccforum.com/content/pdf/cc8208.pdf>

One of the unusual features of this pandemic is that a few infected people suffer very severe disease, far more than is seen with seasonal influenza. This study looked at possible mechanism and analyzed different levels of regulating molecules for 20 hospitalized patients, 15 outpatients and 15 control subjects in 10 Spanish hospitals. The authors reported high levels of Th1 and Th17 in the blood of patient with severe H1N1 disease but low levels in patients with the mild form of the disease.

Table 1. Reported number of confirmed 2009 pandemic influenza A(H1N1) cases admitted to hospitals and intensive care, by country, as of 18 December 2009, 9.00 CEST in EU and EFTA countries.

Country (date of report)	Number of cases currently hospitalised	Cumulative number of cases admitted in hospitals	Number of cases currently in intensive care	Cumulative number of cases admitted to intensive care
Austria (17.12.)	172	-	-	-
Belgium (17.12.)	-	-	-	-
Bulgaria (13.12)	-	-	-	-
Cyprus(23.11)	-	-	-	6
Czech Republic (16.12.)	-	-	-	-
Denmark (16.12.)	-	-	-	-
Estonia (16.12.)	-	-	-	-
Finland (16.12.)	13	-	8	-
France (15.12.)	-	-	237	804
Germany (11.12.)	-	-	-	-
Greece (16.12.)	-	-	-	-
Hungary (13.12.)	-	-	-	-
Iceland (10.12.)	3	180	1	20
Ireland (16.12.)	152	1015	9	84
Italy (17.12.)	-	811	-	439
Latvia (17.12.)	-	-	-	-
Liechtenstein (17.12.)	-	-	-	-
Lithuania (30.11.)	-	-	-	-
Luxembourg (16.11.)	-	-	0	0
Malta (04.09.)	-	46	-	1
Netherlands (11.12.)	104	2068	9	196
Norway (14.12.)	14	1298	5	170
Poland (07.12.)	-	-	-	-
Portugal (13.12.)	133	-	25	-
Romania (17.12.)	-	-	-	-
Slovakia (02.12.)	38	81	8	31
Slovenia (17.12.)	76	-	-	-
Spain (17.12.)	-	-	-	-
Sweden (17.12.)	18	1169	-	-
Switzerland (17.12.)	23	345	-	66
United Kingdom* (17.12.)	523	-	113	-

Note: Data for the EU and EFTA countries correspond to the Ministry of Health or surveillance centre websites. New updates with changes in figures are highlighted in gray. (-) denotes no information readily available in official sources.

* Data includes information for England only. Other cumulative hospitalisations are: Scotland (1423), Wales (433) and Northern Ireland (573).

Table 2. Reported number of new and cumulative confirmed fatal 2009 pandemic influenza A(H1N1) cases in EU and EFTA countries, as 18 December 2009, 9.00 CEST, and in the rest of the world by country, as of 17 December 2009, 16.00 CEST.

Country	Number of new fatal cases since previous national update	Cumulative number of fatal cases
EU and EFTA countries		
Austria	-	3
Belgium	3	17
Bulgaria	30	35
Cyprus	1	3
Czech Republic	-	38
Denmark	-	21
Estonia	-	7
Finland	-	36
France	1	182 [†]
Germany	-	119
Greece	15	51
Hungary	-	36
Iceland	-	2
Ireland	2	22
Italy	-	149
Latvia	-	17
Lithuania	1	13
Luxembourg	-	2
Malta	-	3
Netherlands	-	50
Norway	-	29
Poland	-	67
Portugal	1	46
Romania	2	29
Slovakia	-	21
Slovenia	5	13
Spain	24	232
Sweden	-	20
Switzerland	1	9
United Kingdom	14	298
Total	100	1570
Other European countries and central Asia		
Albania	-	3
Armenia	-	2
Belarus	-	20
Bosnia and Herzegovina	-	7
Croatia	-	22
Former Yugoslav Republic of Macedonia	-	14
Georgia	1	5
Kosovo	-	10
Moldova	1	16
Montenegro	-	2
Russia	-	19
Serbia	3	37
Ukraine	-	202
Total	5	359
Mediterranean and Middle-East		
Algeria	-	24
Bahrain	-	7
Egypt	4	68
Iran	-	147
Iraq	-	34
Israel	2	69
Jordan	2	16
Kuwait	-	27

Country	Number of new fatal cases since previous national update	Cumulative number of fatal cases
Lebanon	-	3
Libya	-	1
Morocco	1	24
Occupied Palestinian Territory	-	17
Oman	-	30
Qatar	-	8
Saudi Arabia	-	97
Syria	-	103
Tunisia	-	6
Turkey	-	415
United Arab Emirates	-	6
Yemen	3	25
Total	12	1127
Africa		
Ghana	-	1
Madagascar	-	3
Mauritius	-	8
Mozambique	-	2
Namibia	-	1
Sao Tome & Principe	-	2
South Africa	-	92
Sudan	-	1
Tanzania	-	1
Total	-	111
North America		
Canada	-	390
Mexico	-	770
USA	-	2038
Total	-	3198
Central America and Caribbean		
Bahamas	-	4
Barbados	-	3
Cayman Islands	-	1
Costa Rica	-	41
Cuba	-	32
Dominican Republic	-	23
El Salvador	-	31
Guatemala	-	18
Honduras	-	16
Jamaica	-	6
Nicaragua	-	11
Panama	-	11
Saint Kitts and Nevis	-	2
Saint Lucia	-	1
Suriname	-	2
Trinidad-Tobago	-	5
Total	-	207
South America		
Argentina	-	616
Bolivia	-	58
Brazil	-	1632
Chile	-	150
Colombia	-	190
Ecuador	-	96
Paraguay	-	52
Peru	-	203
Uruguay	-	33
Venezuela	-	116
Total	-	3146
North-East and South Asia		

Country	Number of new fatal cases since previous national update	Cumulative number of fatal cases
Afghanistan	-	17
Bangladesh	-	6
China (Mainland)	-	442
Hong Kong SAR China	-	45
India	11	759
Japan	-	73
Macao SAR China	-	2
Maldives	-	1
Mongolia	-	26
Pakistan	-	1
South Korea	-	132
Sri Lanka	-	23
Taiwan	-	35
Total	11	1562
South-East Asia		
Brunei Darussalam	-	1
Cambodia	-	5
Indonesia	-	10
Laos Peoples Democratic Republic	-	1
Malaysia	-	77
Philippines	-	30
Singapore	-	19
Thailand	-	190
Vietnam	-	47
Total	-	380
Australia and Pacific		
Australia	-	191
Cook Islands	-	1
Marshall Islands	-	1
New Zealand	-	20
Samoa	-	2
Solomon Islands	-	1
Tonga	-	1
Total	-	217
TOTAL	128	11877

* Deaths reported from France include 1 in Guyana, 9 in New Caledonia, 7 in the French Polynesia, 7 in La Réunion, 1 in Martinique, 2 in Mayotte, 5 in Guadeloupe and 150 in mainland France.

Figure 1. Number of confirmed deaths among 2009 pandemic influenza A(H1N1) cases by week of notification in EU and EFTA countries

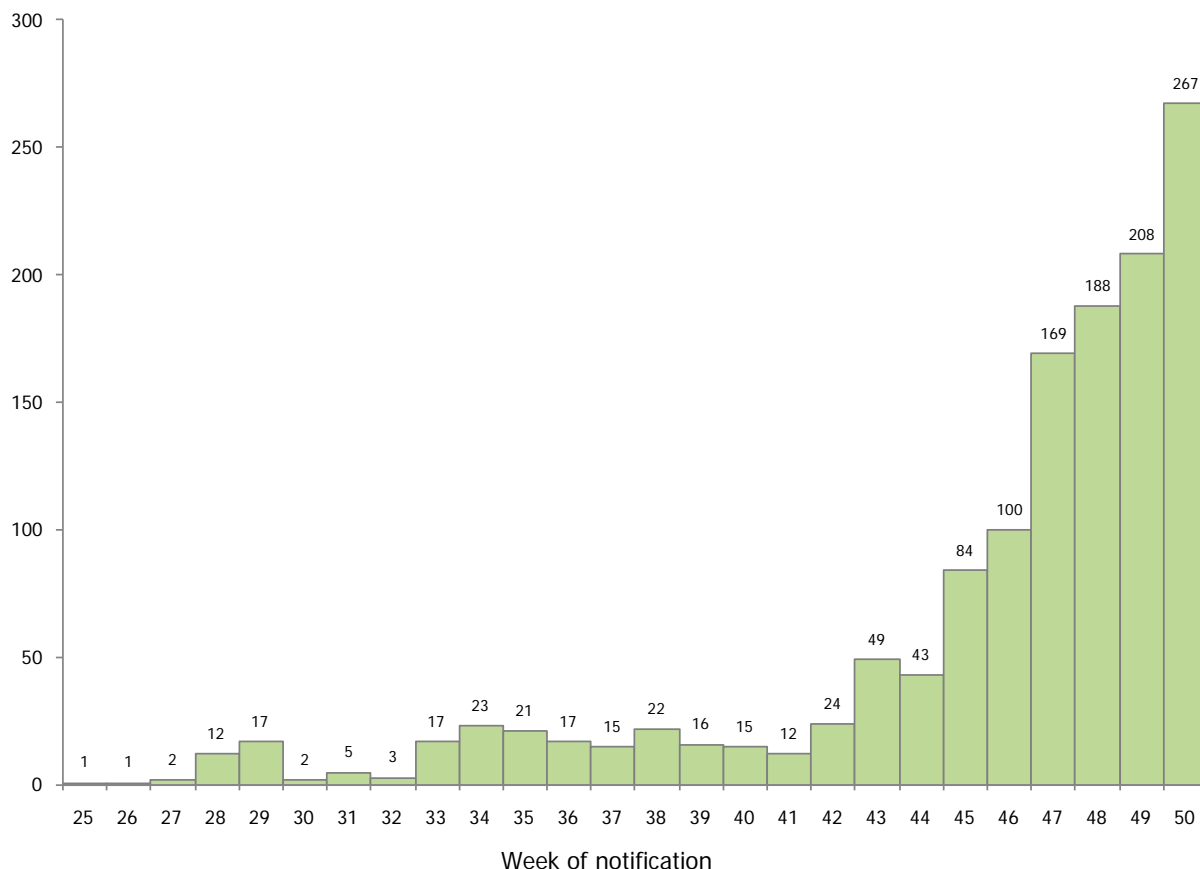
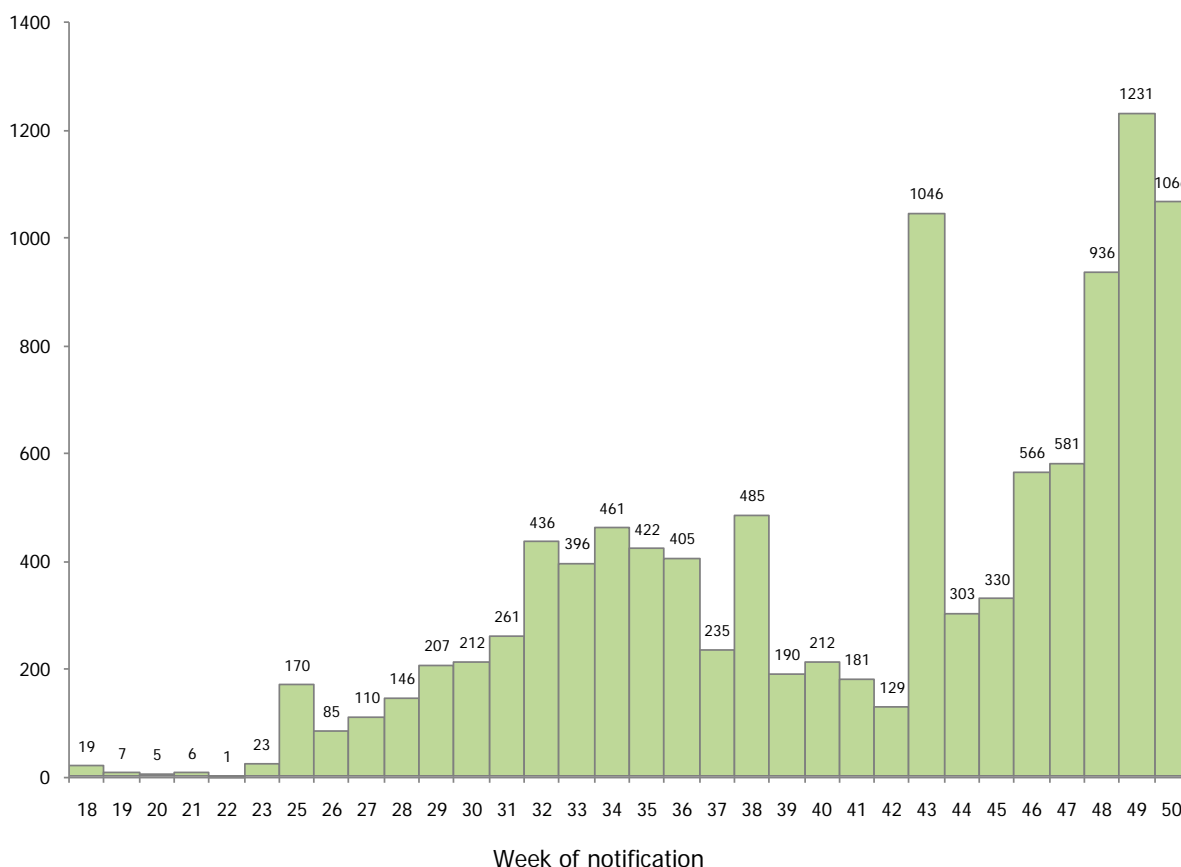


Figure 2. Number of confirmed deaths among 2009 pandemic influenza A(H1N1) 2009 influenza cases by week of notification in the rest of the world*.



* The apparent increase in the number of deaths in week 43 is due to the aggregate reporting of fatal cases from Brazil from weeks 37 to 40 and to our batch report of US fatal cases since 1 August 2009.

Figure 3. Reported cumulative number of confirmed fatal cases of 2009 pandemic influenza A(H1N1) in EU and EFTA countries, as of 18 December 2009, 9.00 CEST, 9.00 CEST

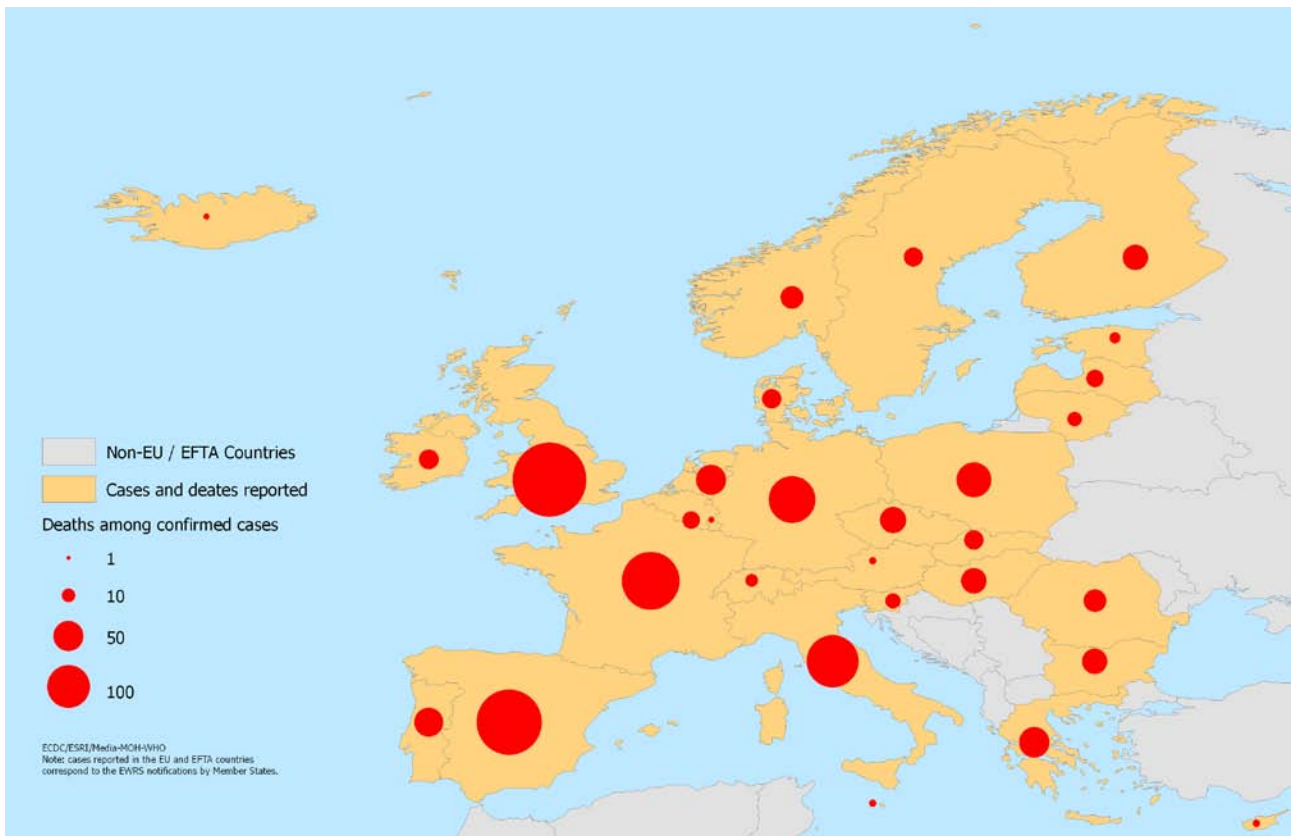


Figure 4. Reported cumulative number of confirmed fatal cases of 2009 pandemic influenza A(H1N1) and country status, by country, as of 17 December 2009, 9.00 CEST, 16.00 CEST

