



**World Health
Organization**

Influenza A(H1N1) virus resistance to oseltamivir - Last quarter 2007 to 4 April 2008

The detection of an increased number of A(H1N1) viruses with resistance to oseltamivir was initially reported to WHO from Norway on 25th January (see WHO website: http://www.who.int/csr/disease/influenza/oseltamivir_faqs/en/index.html). Before recent detection of a high prevalence of oseltamivir resistance in influenza A (H1N1) viruses with a specific neuraminidase mutation (H274Y) in Norway, such resistance was rarely observed in community isolates. During the previous northern hemisphere winter season (2006/07), surveillance through GISN laboratories found no oseltamivir - resistant H1N1 viruses in isolates from Japan and Europe, and less than 1% prevalence in H1N1 isolates from the USA.

In addition to Norway, several other countries in Europe and North America have found an elevated prevalence of oseltamivir-resistant viruses this season (Table). However, insufficient data are available at present to determine the full geographic scope, origins, or patterns of transmission of these oseltamivir resistant H1N1 viruses.

WHO is collecting global data about this phenomenon from multiple laboratories participating in GISN. Data for European countries participating in EISS were provided by the EISS and VirGil project. WHO would like to thank all countries, virologists, clinicians and others for contributing data.

This summary table will be updated regularly as new data and reports become available.

Oseltamivir resistance results were obtained with using phenotypic and/or genotypic analysis.

WHO region	Country, area or territory	No. of H1N1 isolates tested	No.(%) of isolates resistant to oseltamivir
AFRO	Algeria	2	0
	Madagascar	59	0
	Senegal	16	0
AFRO Total		77	0
AMRO	Canada	407	74 (18%)
	El Salvador	1	0
	Honduras	2	0
	Mexico	14	0
	United States of America	797	73 (9%)
AMRO Total		1221	147 (12%)
EMRO	Egypt	3	0
	Morocco	1	0
	Qatar	3	0

EMRO Total		7	0
EURO	Austria	92	9 (10%)
	Belgium	5	1 (20%)
	Bulgaria	9	0
	Croatia	6	0
	Czech Republic	22	0
	Denmark	46	2 (4%)
	Finland	11	3 (27%)
	France	401	170 (42%)
	Germany	425	53 (12%)
	Greece	46	4 (9%)
	Hungary	11	0
	Ireland	46	5 (11%)
	Italy	109	1 (1%)
	Latvia	15	0
	Luxembourg	154	39 (25%)
	Netherlands	119	33 (28%)
	Norway	234	155 (66%)
	Portugal	15	3 (20%)
	Romania	9	0
	Russian Federation	22	9 (41%)
	Slovakia	5	0
	Slovenia	28	1 (4%)
	Spain	58	1 (2%)
	Sweden	17	2 (12%)
	Switzerland	44	6 (14%)
	United Kingdom	319	30 (9%)
	Ukraine	25	9 (36%)
EURO Total		2293	536 (23%)
SEARO	Thailand	12	0
SEARO Total		12	0
WPRO	Australia	67	3 (4%)
	China	1	0
	China, Hong Kong SAR	568	62 (11%)
	Guam	14	0
	Japan	1155	10 (1%)
	Malaysia	12	0
	Mongolia	4	0
	New Zealand	88	0
	Philippines	37	0
	Republic of Korea	89	0
	Singapore	5	0
WPRO Total		2040	75 (4%)
Grand Total		5650	758 (13%)

Abbreviations: EISS - European Influenza Surveillance Scheme; GISN - Global Influenza Surveillance Network. VirGil - a European Network of Excellence aimed at combating viral resistance to treatments