

# OSELTAMIVIR RESISTANCE IN HUMAN SEASONAL INFLUENZA VIRUSES (A/H1N1) IN EU AND EFTA COUNTRIES: AN UPDATE

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Following the publications in *Eurosurveillance* on 31 January [1,2], the European Centre for Disease Prevention and Control (ECDC), the European Influenza Surveillance Scheme (EISS), the World Health Organization (WHO) and their partners have agreed to update the data on the occurrence of resistance of influenza A/H1N1 viruses to oseltamivir appearing on the ECDC and EISS websites on a weekly basis (every Thursday afternoon). Data on the ECDC website are for European Union (EU) and European Free Trade Association (EFTA) countries. The WHO has also published a global table, which it will also refresh weekly. All these data are available through an HTML page on the ECDC web-site [3]. The European data made available through EISS and the EU DG Research-funded European Surveillance Network for Vigilance Against Viral Resistance (VIRGIL) are based on the data that have been uploaded to the EISS antiviral resistance data-base by a fixed time on a Wednesday for publication on a Thursday.

Comparing this week's data with last week's, there are some obvious changes. As more samples have been tested in France the proportion of H1N1 samples with resistant strains doubled (17% to 39%), while in Norway it slightly decreased from over 70% to 64%, although Norway still has the highest proportion of resistant H1N1 strains in the EU/EFTA. However, these changes probably mostly reflect vigorous testing undertaken both by national influenza centres and the VIRGIL laboratories in the United Kingdom's Health Protection Agency with the WHO Collaborating Centre in London. Hence, week on week changes need to be interpreted cautiously, as they are more a reflection of having more testing than any changes in the under-lying epidemiology. For example, virologists in France and Germany have worked especially hard in the last week to test many more specimens. As a result, there are quite substantial changes in the overall prevalence of the resistant viruses in European countries. However, since data are available for many countries and the observed prevalence ranges from zero to over 60%, a 'European average' should probably not be considered a useful statistic.

At present, specimens are being gathered opportunistically and are relatively unselected (they can come from both sentinel groups and hospital patients). Clinicians looking at these data and considering whether patients presenting with presumed influenza have a resistant virus need to bear these facts in mind. They should also appreciate that the stated proportion of resistant isolates applies only to A/H1N1 viruses. These are the predominant strain this winter, as observed in the EISS collaborators' laboratories. However, while the A/H3 strains are few this season, around one third of specimens tested are influenza B viruses. As noted in the

ECDC's interim risk assessment [4], the appearance of resistant viruses does not seem to be related to the use of oseltamivir in any simple way. It should also be emphasised that the current seasonal influenza vaccine is expected to be as effective against these new resistant viruses as they are against sensitive A/H1N1 viruses, since the match between the circulating viruses and the vaccine selection is good this year.

The EISS antiviral database has been modified to capture more information that will allow the partners engaged in this work to undertake descriptive analyses, notably on time trends. This emphasises the importance of the work of laboratories and by those who contribute clinical and epidemiological data in both gathering and forwarding those data, even retrospectively. At the same time, the partners are designing more focused studies, which will answer questions requiring comparisons of features in persons with the resistant viruses and those infected with sensitive viruses.

The WHO data (outside of Europe) are interesting, but still very preliminary. Resistant viruses have been detected in North America, China (Hong Kong) and Australia, although not yet in Japan, which is thought to have higher levels of use of oseltamivir than any other country.

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### References

1. Nicoll A, Ciancio B, Kramarz P. Observed oseltamivir resistance in seasonal influenza viruses in Europe interpretation and potential implications. *Euro Surveill* 2008;13(5). Available from: [http://www.eurosurveillance.org/edition/v13n05/080131\\_1.asp](http://www.eurosurveillance.org/edition/v13n05/080131_1.asp)
2. Lackenby A, Hungnes O, Dudman SG, Meijer A, Paget WJ, Hay AJ, Zambon MC. Emergence of resistance to oseltamivir among influenza A(H1N1) viruses in Europe. *Euro Surveill* 2008;13(5). Available from: [http://www.eurosurveillance.org/edition/v13n05/080131\\_2.asp](http://www.eurosurveillance.org/edition/v13n05/080131_2.asp)
3. Oseltamivir resistance in human seasonal influenza type A/H1N1 isolates in Europe (EU, EEA, EFTA countries). Table. Available from: [http://ecdc.europa.eu/Health\\_topics/influenza/antivirals.html](http://ecdc.europa.eu/Health_topics/influenza/antivirals.html)
4. Interim ECDC Risk Assessment. Emergence of seasonal influenza viruses type A/H1N1 with oseltamivir resistance in some European countries at the start of the 2007-8 influenza season. 27 January 2008. Available from: [http://www.ecdc.europa.eu/pdf/080127\\_os.pdf](http://www.ecdc.europa.eu/pdf/080127_os.pdf)

This article was published on 7 February 2008.

Citation style for this article: Influenza Project Team . Oseltamivir resistance in human seasonal influenza viruses (A/H1N1) in EU and EFTA countries: an update. *Euro Surveill*. 2008;13(6);pii=8032. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=8032>