

Current major events

Oseltamivir Resistance found in influenza viruses

On 25 January 2008, Norway notified WHO about a high rate of resistance in seasonal influenza A (H1N1) virus to an antiviral drug, Oseltamivir (Tamiflu®). This drug is widely used as the primary recommended antiviral treatment for seasonal influenza as well as for clinical management of avian influenza in humans. Apart from Norway some other countries across Europe (Denmark, France and United Kingdom) also reported resistance to oseltamivir. Approximately 13% of around 150 isolates of H1N1 influenza virus across Europe has shown resistance. Norway showed the highest proportion of resistant isolates (over 70%). Relatively lower rate (5%) of resistance was found in other countries in Europe. In the USA, on the

Editorial note

Oseltamivir resistance in H1N1 viruses is geographically variable but not limited to Europe only. Resistance to oseltamivir in influenza viruses has been found before but at much lower levels. The recent information on high percentage of resistance to oseltamivir among influenza viruses is new. Past surveillance studies have found rates typically ranging from 0% to <0.5% only.

The reason why a high percentage of these viruses are resistant is currently unknown. Influenza viruses are continuously changing and it is possible that a resistant strain has emerged spontaneously. The current evidence indicates that these oseltamivir-resistant H1N1 viruses are transmissible from one person to another but there is no evidence that the resistant H1N1 viruses are more transmissible between people than non-resistant viruses.

Although, oseltamivir resistance has been documented in the past in three patients with Avian Influenza A /H5N1 infection, it is too early to say what potential there might be for a similar increase in resistance for H5N1 viruses.

Use of Antiviral drugs in Influenza

- Mainly two types:
Neuraminidase inhibitors (Oseltamivir and Zanamivir)
M2 Inhibitors (Amantadine and Rimantadine)
- All four antiviral drugs are active against influenza A and influenza B viruses
- All four antiviral drugs are effective for treatment and prophylaxis of susceptible viruses
Decrease uncomplicated infection by ~ 1- 2 days
Prophylaxis is 70% - 90% effective
- Neuraminidase inhibitors are preferred for rapid containment
Oseltamivir and zanamivir: more tolerable; resistance less frequent
Amantadine and rimantadine: frequent resistance
Amantadine: neurotropic adverse effects

other hand, the prevalence of resistance of H1N1 influenza virus to oseltamivir was found to be only 5%. The preliminary data shows that no isolate of H1N1 influenza virus tested in Asia was oseltamivir resistant last year as well as during the current influenza season.

The implication of this new finding will depend on getting further information in order to define the scope of the problem. More data on the epidemiological profile of the patients including detailed laboratory characterization of circulating H1N1 viruses will help answer this question. WHO is working closely with its partners to better understand and assess the current situation.

Facts on Seasonal Influenza

- 3-5 million cases of severe illness, including 250,000-500 000 deaths occur worldwide each year
- Human seasonal H1N1 viruses including those with a resistance mutation do not have the potential to cause a pandemic
- Seasonal influenza vaccination is the primary means of influenza prevention;
- Basic hygiene measures, particularly covering coughs and sneezes and hand washing, can reduce spread of influenza.

Update on outbreaks

in the Eastern Mediterranean Region

Thallium poisoning in Iraq; **meningococcal meningitis**, Eastern Equatoria State, Sudan

Current public health emergencies of international concern

[cumulative N° of cases/deaths, CFR %]

Avian influenza

Egypt	[43/19, 44.2%]
Indonesia	[124/102, 83.3%]
Viet Nam	[102/48, 47.1%]

Cholera

D.R. Congo	[200/11, 5.5%]
Nigeria	[36/12, 33.3%]*
Laos	[365/3, 0.8%]
Iraq	[4,697/ 24, 0.5%]

Ebola

Uganda	[149/37, 24.8%]
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Meningitis

Uganda	[380/17, 4.5%]
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Rift Valley Hemorrhagic Fever

Sudan	[698/222, 31.8%]
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Yellow Fever

Brazil	[18/9, 50%]
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(* = Unofficial figures)
CFR = Case-Fatality Rate