Informatics assisting influenza antiviral susceptibility monitoring in Europe

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Introduction

Influenza antiviral resistance monitoring is now a required activity for National Influenza Centres (NICs), since the introduction of neuraminidase inhibitors (NAI) in 1999. With the availability and wider use of NAI and the stockpiling of antivirals for use during an influenza pandemic, continuous monitoring of the development of antiviral resistance to both NAI drugs and previously existing adamantane drugs (M2 channel inhibitors) has become increasingly important.

Methods

In Europe, the EU funded EISS and VIRGIL projects aim at influenza antiviral susceptibility monitoring coordinated with existing influenza surveillance activities and transfer of knowledge and expertise to NICs in Europe. To collect the antiviral susceptibility data and linked patient demographic and clinical data in a standardised and comprehensive way, a web-based database with online data analysis facilities was developed using phpMyAdmin.

Emergence of oseltamivir resistance A(H1N1) viruses during the 2007/2008 winter season

Processing of data outside the website:

- Online life tables and graphs (not shown) about proportion oseltamivir resistant A(H1N1) to inform EISS members, ECDC and WHO.
- Map presenting distribution and proportion oseltamivir resistant A(H1N1) across Europe.
- Monthly trend proportion oseltamivir resistant A(H1N1) for Europe.

Conclusion

A web-based facility for collection, analysis and dissemination of influenza antiviral susceptibility data was successfully implemented. Its usefulness has been fully validated by the events of the 2007/2008 winter season when the emergence of high levels of oseltamivir resistant A(H1N1) viruses was first demonstrated in Europe and the database was the key tool used at European and global level for accurate dissemination of data.

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