Using Antiviral Prescription Data to Enhance Influenza Surveillance

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OBJECTIVE

- To determine the strengths and limitations of influenza antiviral prescription data compared to traditional data sources for monitoring influenza activity

BACKGROUND

- The goals of influenza surveillance are to:
  - Monitor when and where influenza activity is occurring
  - Track influenza-related illness
- The U.S. Influenza Sentinel Provider Surveillance Network tracks influenza-like illness (%ILI) in all 50 states
- CDC now receives real time anti-infective prescription data from 20,000 - 30,000 retail pharmacies in all 50 states, DC, Virgin Islands, Puerto Rico, and Guam

**Reporting Pharmacies 2003-2008 (n=44,148)**

FIGURE 1

METHODS

- Study period: October 2003 – April 2008
- Influenza antivirals:
  - Amantadine, rimantadine, oseltamivir (Tamiflu), and zanamivir (Relenza)

- Antiviral % = $\dfrac{\text{\# antiviral drug prescriptions}}{\text{\# all anti-infective prescriptions}}$

- Correlation coefficients calculated
- Gold standard: sentinel provider %ILI
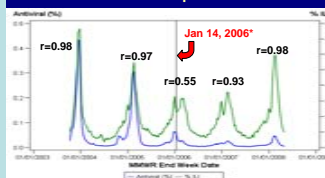- %ILI and Antiviral % are weighted by state population

FIGURE 2

Amandine (%) vs. % ILI
October 2003 - April 2008: U.S.
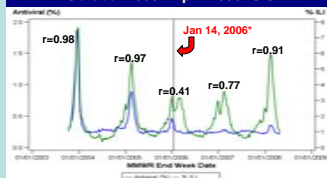
*On January 14, 2006 CDC recommended against use of amantadine and rimantadine for treatment of influenza

FIGURE 3

Rimantadine (%) vs. % ILI
October 2003 - April 2008: U.S.

*On January 14, 2006 CDC recommended against use of amantadine and rimantadine for treatment of influenza
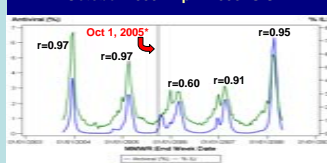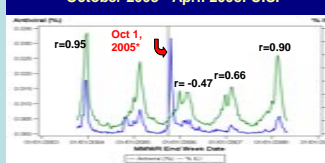
FIGURE 4

Oseltamivir (%) vs. % ILI
October 2003 - April 2008: U.S.

*During the fall of 2005, individuals began stockpiling oseltamivir and zanamivir following extensive media coverage of the threat of avian and pandemic influenza

FIGURE 5

Zanamivir (%) vs. % ILI
October 2003 - April 2008: U.S.

*During the fall of 2005, individuals began stockpiling oseltamivir and zanamivir following extensive media coverage of the threat of avian and pandemic influenza

RESULTS

Strengths of Using Antiviral Rx for influenza surveillance:

- Influenza antiviral use is highly correlated with sentinel provider %ILI, (See figures 2,3,4 and 5)
- Increases and decreases in antiviral % and %ILI are concurrent
- Antiviral Rx data are available earlier than traditional influenza data sources
- Number of pharmacies providing data cover a larger geographic area then traditional data sources

Limitations of Using Antiviral Rx for influenza surveillance:

- Antiviral use can be highly influenced by patient and provider behavior, (See figures 2,3,4 and 5)
- No population-based denominator

CONCLUSION

- Influenza antiviral prescription data may be used to:
  - Supplement traditional surveillance of influenza activity
  - Monitor influenza antiviral prescribing patterns

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