Monitoring Influenza Pandemic Morbidity and Mortality in Massachusetts

9. Massachusetts was the first state to suffer huge numbers of civilian deaths. This is a hospital in Lawrence.

(John Barry. The Great Influenza.)

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Goals

Virologic Surveillance

- Rapidly detect the introduction of novel strains
- Track the virus' introduction into local areas
- Monitor changes in pandemic virus, including antiviral resistance

Disease Surveillance

- Early warning to detect increases in ILI
- Monitor health impact
  - Morbidity
  - mortality
- Track trends in influenza disease activity and identify populations that are severely affected

Components of MA Influenza Surveillance Program

1. Virologic Surveillance

- MA State Laboratory Institute (SLI)
  - Reference for state for isolation and subytyping
  - Molecular diagnostics
    - Typing for flu A and B
    - Subtyping for A H1, H3, H5 and H7
  - Testing for other respiratory pathogens (flu, paraflu, adeno, RSV)
- 6 other sites also routinely do viral isolation and send to SLI for confirmation subtyping

Components of MA Influenza Surveillance Program, cont.

2. Sentinel Provider Network

- 39 sites or 1/166,000 population
- Now asked to report year-round

3. Reporting (105 CMR 300.00)

a) Laboratory

- All positive diagnostic tests (Rapid, culture, PCR)
- Via teleform (age, type, hospitalized, died)
- Electronic laboratory reporting (n=20)

b) Other

- Suspect avian flu
- Deaths < 18 years of age
- Unusually severe
- Encephalopathy
- Clusters ILI in pregnant women, children, adults
- Clusters LTC facilities and other institutional settings
- Cases of antiviral treatment failure
- Antiviral prophylaxis failures

Components of MA Influenza Surveillance Program, cont.

4. Syndromic Surveillance

- City of Boston Early Aberration Reporting System (n=11)
- Harvard Pilgrim Harvard Vanguard Syndromic Surveillance System (n=14)
- Children's Hospital Automated Epidemiologic Geotemporal Integrated Surveillance System (AEGIS) (n=8)

5. Mortality Surveillance

- Provider reporting (as described earlier)
- 122 cities
  - 9 in MA (Boston, Cambridge, Fall River, Lowell, Lynn, New Bedford, Somerville, Springfield, Worcester)
- Exploring ways to expand on this model

Components of MA Influenza Surveillance Program, cont.

6. Veterinary Surveillance

- Work with MA Dept. of Agricultural Resources (MDAR) and US Dept of Agriculture (USDA)
- Monitor live bird markets (6) and live bird auctions (3) quarterly
- Testing at commercial laying operations (per regs of other states) and backyard/hobby flocks (annually)
- Low path AI protocols (MDAR takes lead)
- High path AI protocols (USDA takes lead)
- Drill planned for June 6, 2006

Components of MA Influenza Surveillance Program, cont.

7. Communication and Planning

- Website / Advisories
- Sentinel site weekly communication
- Sentinel site teleconferences
- Adult Immunization Coalition
  - Quarterly meetings
  - Annual conference
- Pandemic Surge Committee and its subcommittees
- Surveillance – lab working groups

Surveillance Activities Pandemic Alert

- Virologic Surveillance
  - MA SLI will increase number of provider sites and number of specimens submitted (surge capacity 300 specimens per day)
    - Drill planned for later in June
  - Molecular testing will be done as triaged by epidemiologists

Surveillance Activities Pandemic Alert, cont

- **Disease Surveillance**
- Health and Homeland Alert Network (HHAN) to notify providers about status of pandemic and enhanced surveillance efforts
- Recruit and expand sentinel sites
- Hospitalization monitoring
  - Flu teleform and other lab reporting
  - Diversion/Bed Reporting Website
  - HHAN enhancement (if ready)
- Syndromic Surveillance enhancements
  - Refine or add additional chief complaint or ICV9 codes, link to laboratory testing and ILI data
  - Enhance ability to identify geographic and temporal clusters
- Mortality Surveillance
  - Using 122 city methodology, expand to include the 40 communities that will include up to 60% of resident deaths (or more)
- Veterinary Surveillance
  - Enhanced activities according to latest federal guidelines
  - Clusters reported via HHAN

Surveillance Activities Pandemic Alert, cont.

- Communication
  - HHAN
  - Weekly teleconferences
  - Website
  - Advisories

Surveillance Activities
Pandemic Alert, cont.

- Early Identification and Containment
  - Home isolation, institutional isolation
  - Contact tracing
  - Treatment and prophylaxis of early cases and contacts, per CDC protocols for use of antiviral agents
  - Limiting non-essential travel
  - Exit screening
  - Other social distancing measures

Surveillance Activities Pandemic Period

- **Virologic Surveillance**
  - Identify criteria for:
    - prioritization of testing
    - when to scale back to non-pandemic testing protocols
- **Disease Surveillance**
  - Ensure weekly reporting on ILI and cases from sentinel sites and hospitals
  - Ensure weekly reporting of deaths
  - Maintain syndromic surveillance
- **Communication**
  - Use HHAN for communication
  - Other modalities as able

Challenges

- No funding for FTEs to work on planning
  - Restrictions on how new federal funding can be used
- Competing priorities for stakeholders
  - Many feel focus will be on infection control, containment (early) healthcare/surge, COOP, antivirals, vaccines, etc. -- not surveillance
- Hospital based reporting in MA not really in place
- Death reporting may be seen as very low priority by some
  - Is there a way to expand 122 cities nationally?
- Electronic reporting systems will facilitate surveillance
  - Will we have it on time?

Challenges, cont..

- How to integrate disease surveillance into the other reporting systems being developed (e.g., hospital surge capacity)
- What will be the triggers for scaling up and scaling down
- How to design tabletops to best test our plans
- Looking forward to this conference to get ideas !!!!!!!