Travel: Diseases and Prevention
Work-Related Travel

• In Colorado...
  – 21% of manufacturing jobs rely on exports
  – Biggest export is computers/electronics
  – Increasing trend to Indonesia, India, Mexico, Argentina, China
  – Not to mention research...

• In 2000, 35 % of international travel by U.S. residents was work-related

New Diseases Arriving Annually

• Over 30 newly-recognized infectious diseases have been identified in the last three decades

• Old diseases have re-emerged on an unprecedented scale – TB, Mumps

• International concerns – Avian Flu, SARS
Domestic Travel Concerns

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Exposure to Mumps During Air Travel — United States, April 2006

The state of Iowa has been experiencing a large mumps outbreak that began in December 2005 (1). As of April 10, 2006, a total of 158 possible mumps cases have been reported to the Iowa Department of Public Health (IDPH), including 103 cases definitively diagnosed. The outbreak has spread across Iowa, and several activities associated with the outbreak have been identified, including family reunions, sporting events, and other social gatherings. The outbreak has also spread to neighboring states, including Kansas, Missouri, and Nebraska. The reasons for the outbreak are under investigation.

Mumps is an acute viral infection characterized by a non-specific prodrome including fever, malaise, headache, lymphadenopathy, and rash. It is caused by the paramyxovirus and is transmitted through respiratory droplets or direct contact. The illness is often accompanied by parotitis, which is a swelling of the salivary glands near the ears. Treatment is primarily supportive, and vaccination remains the best prevention.

Traveler’s Health Resources

- www.cdc.gov/travel
- Up-to-date info regarding travel notices
- Search by destination
Disease Control

Factors that Define Control

- Epidemiology
  - Person
  - Place
  - Time

- Transmission
  - Agent
  - Host
  - Environment

The Epidemiologic Triad

HOST Factors

AGENT Factors

ENVIRONMENT Factors
Modes of Transmission Vary

- **Direct**
  - Direct contact (Mono, ringworm)
  - Droplet contact (Influenza, SARS)

- **Indirect**
  - Airborne (TB)
  - Vehicle borne (Norovirus, giardia)
  - Vector borne (West Nile)

Where are Control Measures Applied?

- Wide range of targets for Interventions
  - Individual
  - Family
  - Special Populations
  - Healthcare
  - Population-Based
Examples of Individual Precautions

• Wash your hands frequently
• Avoid touching your eyes, nose and mouth
• Distance yourself from someone coughing
• Cover mouth when coughing or sneezing
• Stay home when you’re sick

• Family planning

Population-Based Precautions

• Vaccination programs if possible
• Communication/Marketing (Informed Decisions)
• Isolate patients
• Quarantine individuals exposed
• Widespread cancellations
  – Social Distancing
Isolation & Quarantine NOT Interchangeable

<table>
<thead>
<tr>
<th>Isolation</th>
<th>Quarantine</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Symptomatic</td>
<td>• Exposed, no symptoms</td>
</tr>
<tr>
<td>• In hospital</td>
<td>• At home</td>
</tr>
<tr>
<td>• Negative air</td>
<td>• Closely monitored</td>
</tr>
<tr>
<td>• Respiratory</td>
<td>• Good tool if used well</td>
</tr>
<tr>
<td>precautions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Very difficult on larger level</td>
</tr>
</tbody>
</table>

New Term For Control

Social Distancing

Decrease the opportunities for transmission when current illness or previous exposure is unknown

• School closures
• Event cancellations
• Avoid crowds and gatherings
Pandemic Influenza

What is Pandemic Influenza?

A Pandemic:
• Must be a new virus strain to which the population does not have immunity
• The virus strain must cause illness in humans
• The virus must be able to spread efficiently, person to person
Influenza Pandemics Deadly

- Spanish Flu – 1918/1919
  - Estimated 50 - 100 million deaths worldwide
  - Estimated 500,000 deaths in US
- Asian Flu – 1957
  - Estimated 4 million deaths worldwide
- Hong Kong Flu – 1968
  - Estimated 4 million deaths worldwide

Impact is Impossible to Predict…But…

<table>
<thead>
<tr>
<th>Boulder County Specific</th>
<th>Moderate (1958/68-like)</th>
<th>Severe (1918-like)</th>
<th>Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness</td>
<td>87,150</td>
<td>87,150</td>
<td>30%</td>
</tr>
<tr>
<td>Clinic Visits</td>
<td>43,575</td>
<td>43,575</td>
<td>50%</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>870</td>
<td>9,590</td>
<td>1-11%</td>
</tr>
<tr>
<td>ICU Care</td>
<td>90</td>
<td>1,400</td>
<td>0.1-1.6%</td>
</tr>
<tr>
<td>Ventilators</td>
<td>61</td>
<td>700</td>
<td>0.07-0.8%</td>
</tr>
<tr>
<td>Deaths</td>
<td>175</td>
<td>1,830</td>
<td>0.2-2.1%</td>
</tr>
</tbody>
</table>
Potential Challenges…

• Social disruption
• Difficult to work
• School closures
• Disruption to transportation
• A need for good information that is pertinent and timely

Pandemic Flu & Avian Flu NOT Interchangeable

Pan Flu is…
• Global outbreak among humans
• Easily spread between people
• Serious health threat to humans
• Creates social disruption

Avian Flu is…
• Disease of birds (wild migratory birds and poultry)
• May infect humans
• Not easily spread between people
• Primarily is an economic concern
Avian Flu (H5N1)

What’s all the Concern About?

Avian Flu (H5N1) Timeline

- 1997 – H5N1 is transmitted from bird to human (Hong Kong, China)
- 1/2004 – Human avian flu cases confirmed in Viet Nam and Thailand
- 2004 – Probable human to human transmission
- 6/2005 – Human cases in Indonesia
- 1/2006 – Human cases in Turkey and Iraq
- 2/2006 – Avian cases in Europe
Avian Flu Outbreaks in Birds

State expects bird flu will arrive in fall

-Boulder County Public Health Department and Environment, 4/13/2006

System for Reporting Sick, Dead Birds in Colorado

-Colorado Department of Public Health and Environment, 4/13/2006
Avian Flu in Humans

Vaccines
- Clinical trials currently underway for 2 H5N1 vaccines
- No guarantee that the vaccine will be effective if shift in the virus

Medications
- Only one effective antiviral
- Antivirals in very short supply
Planning for a Pandemic
Control vs. Manage

Partnership is Imperative

- Hospitals
- Law Enforcement
- Fire
- EMS
- Schools
- Medical Facilities
- Emergency Managers

- Medical Examiner
- State Health Department
- CDC
- RETAC
- DOT
- Mental Health
- Volunteer Organizations
- Local Leadership
Public Health is Planning and Exercising for Response

• Locally
  – All hazards, mass prophylaxis

• Regionally (10 counties)
  – Boulder, Denver, Jefferson, Tri-County, Elbert, Clear Creek, Gilpin, Broomfield

• State-wide
  – Colorado Department of Public Health and Environment, Colorado Division of Emergency Management

• Federally
  – Centers for Disease Control, Department of Homeland Security

Multi-Focused Planning

• Local/State public health
• Individuals/Families
• Business Continuity
• Schools
• Healthcare
• Community

www.PandemicFlu.gov
Pandemic Planning Ongoing

Public Health is Assessing:
• Pharmaceutical availability
• Personal protection needs
• Risk – epidemiological developments
• Surge capacity needs
• IT Infrastructure
• Continuity of services
• Necessary agreements needed

Continuity: Plan for the Impact on…

• Our services to the public
  – Essential Services
  – Continuity
  – Consider a 40% absenteeism rate

  – Review the Business Planning Checklist
Continuity: Plan for the Impact on...

- The safety of our employees/clients
  - Reduce face-to-face contact
  - Provide infection control supplies
  - Communicate, communicate, communicate
  - Review Personal Preparedness Checklist

When to Implement Plans

- Develop and discuss *triggers*
- Necessary at many different levels
- Necessary for many organizations
- Helps establish consistency
- Also need a *stand-down trigger* to resume normal operations
Communication: Most Important Component

Communication: Who and When

Prior to event:
• Communicate with providers/public
• Communicate with ALL partnering agencies
• Communicate with influential leaders

During event (in addition to above):
• Timely public communication necessary
• Communicate influence, NOT authority
• Consistent messages are imperative
How Important is Communication?

- Imperative for planning and response (schools, businesses, first responders, public officials, etc.)
- Establish or bolster credibility and trust
- Decrease fear and/or anxiety
- Empowering - *Informed Decisions*

- Intense media interest – be prepared

Communication (not Authority) is Key to Quarantine & Isolation

- Legal force may cause:
  - Fear & anger
  - Need for additional resources (law enforcement)
  - Non-compliance to public health recommendations
- Communication leads to empowerment when:
  - Instructions are clear and timely
  - Risks are clearly defined
  - Messages come from a trusted source
Moving Forward

*Keep Informed. Be Prepared*

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Keep Informed

Timely Information
- Outbreak
- Planning
- Healthcare
- Business
- Individual
- Community

[www.BoulderCountyHealth.org](http://www.BoulderCountyHealth.org)
Be Prepared

- Understand disease prevention methods
- Make a simple ready kit
- Discuss with family
- Identify a credible source for timely info