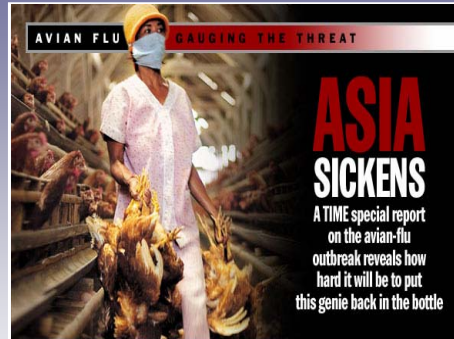


Public Health & Preparedness



Heath M. Harmon, MPH
Communicable Disease Epidemiologist

Presentation to UCAR
April 24, 2006

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Travel: Diseases and Prevention

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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

MMWR Dispatch
Vol. 55 / April 11, 2006

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 515 possible mumps cases have been reported to the Iowa Department of Public Health (IDPH) during 2006 (2). This outbreak has spread across Iowa, and mumps activity, possibly linked to the Iowa outbreak, is under investigation in six neighboring states, including Illinois (n = four), Kansas (n = 33), Minnesota (n = one), Missouri (n = four), Nebraska (n = 43), and Wisconsin (n = four) (CDC, unpublished data, April 10, 2006). The reasons for this outbreak are under investigation.

Mumps is an acute viral infection characterized by a non-specific prodrome, including myalgia, anorexia, malaise, headache, and fever, followed by acute onset of unilateral or bilateral tender swelling of parotid or other salivary glands (2). An estimated 60%–70% of mumps infections produce oral lesions.

- March 29 NWA #1705 from Washington, DC–Reagan National to Minneapolis, Minnesota
- March 29 NWA (Mesaba) #3026 from Minneapolis, Minnesota, to Waterloo, Iowa

American Airline (AA) flights:

- April 2 AA #1216 from Tucson, Arizona, to Dallas, Texas (DFW)
- April 2 AA #3617 from DFW to Lafayette, Arkansas (Northwest Arkansas Regional [NAR])
- April 2 AA #5399 from NAR to St. Louis, Missouri
- April 2 AA #5498 from St. Louis, Missouri, to Cedar Rapids, Iowa

Persons on these flights who have symptoms consistent with mumps within 21 days of travel should be evaluated for mumps by a health-care provider. Health-care providers should re-

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Traveler's Health Resources

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

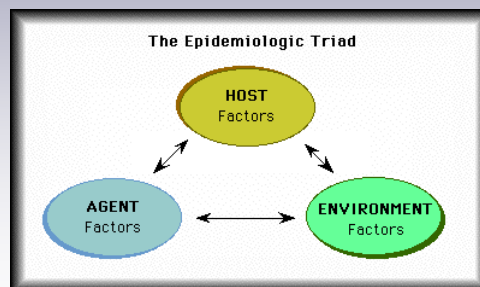
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Disease Control

Factors that Define Control

- Epidemiology
 - Person
 - Place
 - Time
- Transmission
 - Agent
 - Host
 - Environment



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

Isolation

- Symptomatic
- In hospital
- Negative air
- Respiratory precautions

Quarantine

- Exposed, no symptoms
- At home
- Closely monitored
- Good tool if used well

- Very difficult on larger level

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...

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

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?

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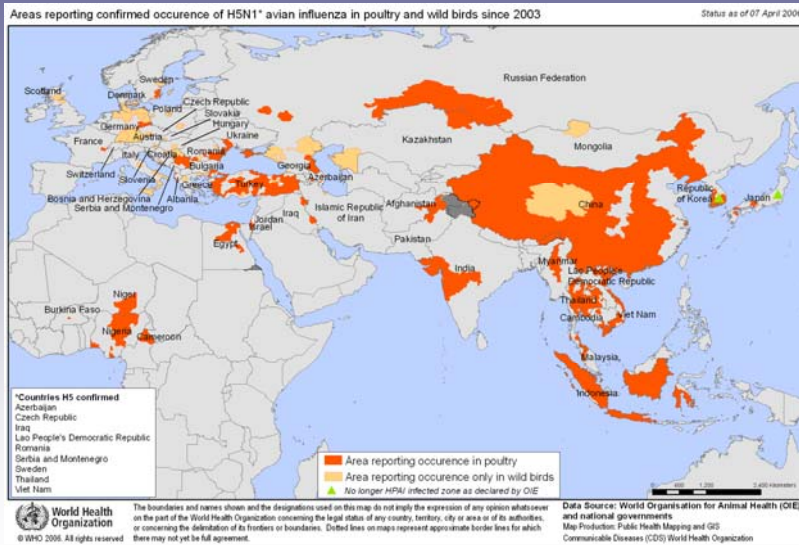
Avian Flu (H5N1) Timeline

- 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

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Avian Flu Outbreaks in Birds



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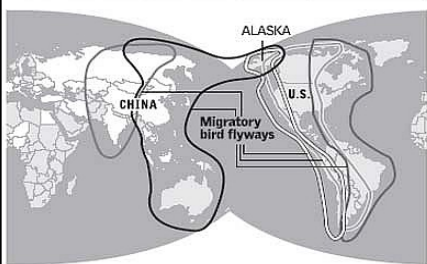
State expects bird flu will arrive in fall

- Denver Post, 4/11/2006

Bird migration patterns

Birds that winter in Asia commingle with birds from North and South America in Alaska in the summertime. Wildlife experts predict that avian flu could be in Colorado by this fall as birds make their way down from Alaska.

Countries where H5N1 virus has been found in birds (not shown: Scotland)



SYSTEM FOR REPORTING SICK, DEAD BIRDS ESTABLISHED IN COLORADO

DENVER - A new, comprehensive system has been established in Colorado for reporting sick, dying or dead birds that might be carriers either of avian flu or West Nile virus.

Although no avian flu has been identified in any birds in the United States or in Colorado, the system has been established as a precautionary measure in case such birds do reach this continent through world migratory paths.

Persons who find dead birds or would like to report sick or dying birds in their bird flocks in the state should call the Colorado Health Emergency Line for the Public (CoHELP) at 1-877-462-2911. The emergency line staff is available to respond to hotline calls from 7 a.m.-11 p.m. on Mondays through Fridays and from 9:30 a.m.-8 p.m. on Saturdays and Sundays.

Dr. Keith Roehr, the acting state veterinarian from the Colorado Department of Agriculture and a member of the Colorado Avian Surveillance Program, said, "We do not intend to frighten residents of this state. But, we do want to work with them to receive and appropriately relay and coordinate any information they have about unhealthy or dead birds and to answer their questions and concerns."

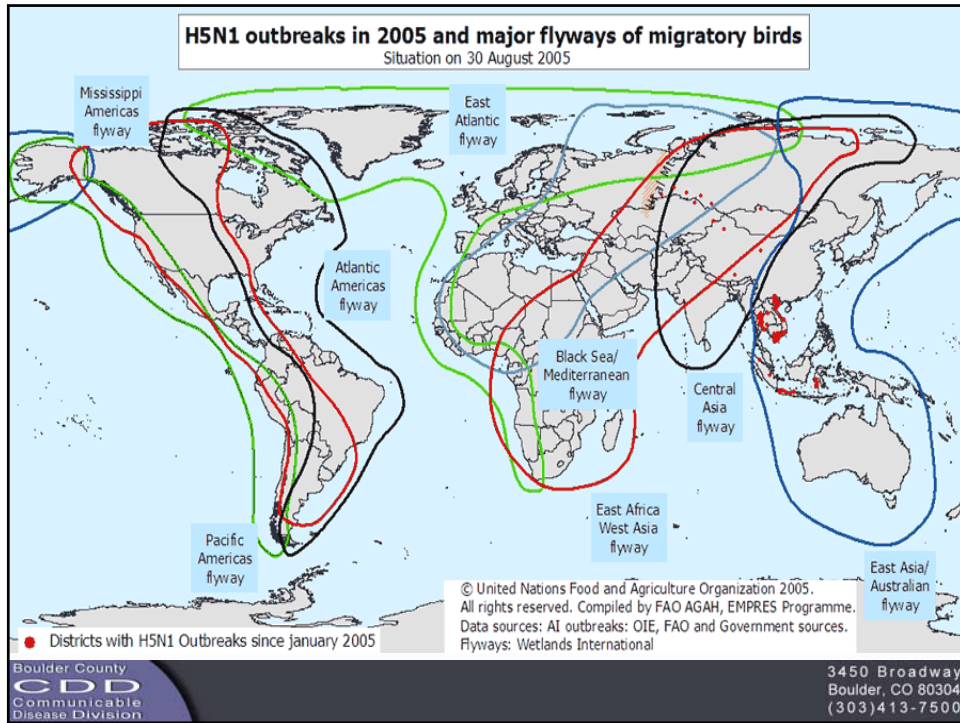
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System for Reporting Sick, Dead Birds in Colorado

- Colorado Department of Public Health and Environment, 4/13/2006

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Avian Flu Case Count

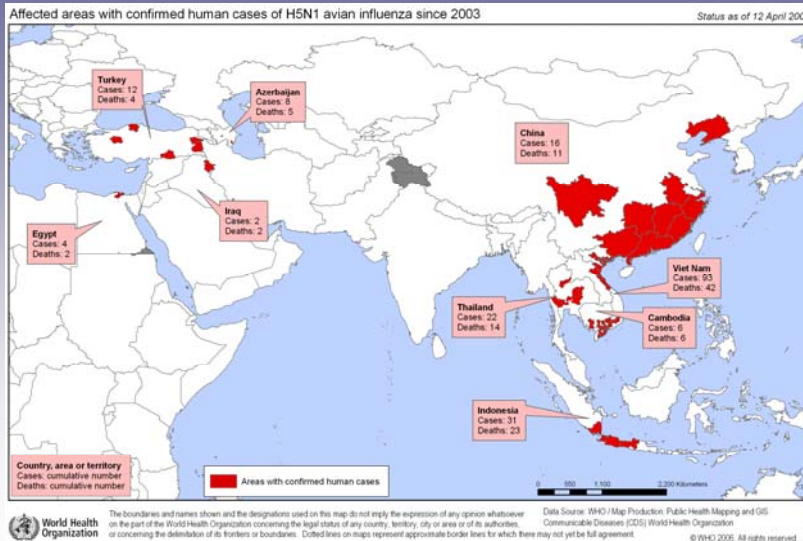
In Humans, 12/03/2003 – 4/21/2006

Country	Cases	Deaths
Azerbaijan	8	5
Cambodia	6	6
China	17	11
Egypt	4	2
Indonesia	32	24
Iraq	2	2
Thailand	22	14
Turkey	12	4
Vietnam	93	42
Total	196	110

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Avian Flu in Humans



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H5N1: Modern Controls Unavailable

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



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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

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Be Prepared

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