NIOSH Guidance: Avian and Pandemic Influenza Planning and Preparedness

AIHce Roundtable 221

Judith Eisenberg, MD, MS
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Hazard Evaluations and Technical Assistance Branch
National Institute for Occupational Safety and Health
Overview

• Why are the Highly Pathogenic Avian Influenza (HPAI) H5N1 viruses of pandemic concern?
• Current protection guidelines for poultry workers
• Worker protection guidelines during a pandemic
Pandemic: Essential Conditions

1. A new pathogen emerges for which humans have little or no immunity
2. The new pathogen causes disease in humans
3. Efficient and sustained transmission from human to human

These three conditions rarely converge, and they are impossible to predict
So What’s the Problem?

• Influenza A viruses are notoriously quick to change by genetic mutation and reassortment
• Viral strains arising from an animal or avian reservoir may change enough to be easily transmissible among humans
• Potential to trigger a pandemic as the human population would not have any pre-existing immunity to this new strain
“Influenza pandemics are rare but recurring events. They have typically occurred every 10-50 years throughout recorded history.”

World Health Organization (WHO) Press Kit document
## 20th Century Flu Pandemics

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Influenza A subtype</th>
<th>Case Fatality Rate</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish Flu</td>
<td>1918-1919</td>
<td>H1N1</td>
<td>~2.5%</td>
<td>Up to 50 million</td>
</tr>
<tr>
<td>Asian Flu</td>
<td>1957-1958</td>
<td>H2N2</td>
<td>~0.5%</td>
<td>~2 million</td>
</tr>
<tr>
<td>Hong Kong Flu</td>
<td>1968-1969</td>
<td>H3N2</td>
<td>~0.5%</td>
<td>~1 million</td>
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</tbody>
</table>
Current Most Likely Pandemic Candidate: H5N1

- As of May 2007 WHO confirms 306 cases of human AI with 185 deaths → case: fatality ratio of 60%
- Potential for a serious influenza pandemic!

Purple discoloration of the comb (right) can mark avian influenza. Photo: USDA
So What Do We Know?

- Another pandemic is inevitable
- HPAI H5N1 will likely persist/recur in Asia, Europe, and Africa and may spread to other parts of the world
- HPAI H5N1
  - is a “new” virus to humans
  - has caused severe disease in humans
  - limited person-to-person spread
- HPAI H5N1 has become the leading suspect from which the next human influenza pandemic will arise
- There is no way to know if this will be the case until the influenza pandemic actually occurs
Starting Points

• Influenza viruses may undergo rapid mutation allowing them to “jump” species
  – already happened with H5N1 but virus has not gained the ability to be readily passed from human to human
• Dual infection with a seasonal human influenza A virus and an HPAI H5N1 virus increases the chances of a reassortment event occurring
  – possible mechanism new pandemic virus gains ability for easy human to human transmission
Pre-pandemic Prevention

- Preventing spread of bird flu to humans from birds will decrease chances of dual infection.
- Poultry workers need to minimize their risk of bird flu exposure to decrease risk of infection.
- Prevention of seasonal human influenza in poultry workers will decrease potential for dual infection.
Prevention of Human Seasonal Influenza

• Get a flu shot!!
  – Best received in October-December
  – Especially important for those at high risk of complications from influenza and for those who would be in close contact with these high risk patients

• Alternative Nasal Spray flu vaccine
  – Indicated for use in ages 5-59 years
  – Not for use during pregnancy

CDC Influenza Key Facts website: www.cdc.gov/flu/keyfacts.htm
Who Should Not Get the Flu Shot

- People who have a severe allergy to chicken eggs
- People who have had a severe reaction to an influenza vaccination in the past
- People who developed Guillain-Barre Syndrome (GBS) within 6 weeks of getting an influenza vaccine previously
- Children less than 6 months of age
- People who have a moderate or severe illness with a fever should wait to get vaccinated until their symptoms lessen
Seasonal Influenza Prevention Tips

- Minimize exposure to co-workers
  - Infectious one day before symptoms start and up to 5 days after they resolve
  - Stay home when sick!
- Practice good hygiene
  - Cover mouth/nose with arms, sleeve, or tissue when sneezing/coughing
  - Hand washing
  - Avoid touching eyes, nose or mouth

CDC Good Health Habits for Preventing the Flu: [www.cdc.gov/flu/protect/habits.htm](http://www.cdc.gov/flu/protect/habits.htm)
Cover Coughs and Sneezes. Clean Hands.

Be a germ stopper at school — and home. Cover your mouth and nose when you cough or sneeze. Use a tissue and throw it away.

Clean your hands a lot:
- After you sneeze or cough
- After using the bathroom
- Before you eat
- Before you touch your eyes, mouth or nose

Washing hands with soap and water is best. Wash long enough to sing the "Happy Birthday" song twice. Or, use gels or wipes with alcohol in them. This alcohol kills germs!

Stop germs. And stop colds and flu.

http://www.cdc.gov/germstopper/materials.htm
Modes of Transmission
Avian Influenza

• Majority through **direct contact** with infected poultry or surfaces infected with feces or respiratory secretions

• Virus may also be aerosolized and land on the mouth, nose, or eyes or be inhaled
Protection of Poultry Workers during an Avian Influenza Pandemic

- Basic Infection Control Measures
- Personal Protective Equipment
- Antiviral Prophylaxis
- Medical Monitoring of Employees
- Disinfection of AI Contaminated Areas
Basic Infection Control Measures

• Good hand hygiene → washing 15-20 seconds with soap and water OR use of alcohol-based hand rub after:
  – Contact with infected or exposed birds
  – Contact with surfaces that could be contaminated with bird excreta, respiratory secretions, etc.
  – Removing any type of PPE (respirator, gloves, coveralls, shoe covers, etc.)

CDC Hand Hygiene Fact Sheet http://www.cdc.gov/od/oc/media/pressrel/fs021025.htm
Safer Healthier Home

An Ounce of Prevention Keeps the Germs Away

Follow these easy and low-cost steps to stop many infectious diseases.

Clean Your Hands Often
Keeping your hands clean is one of the best ways to keep from getting sick and spreading illnesses.

Use Antibiotics Appropriately
Antibiotics don't work against viruses such as colds and flu. Unnecessary antibiotics can be harmful. Antibiotics should be taken exactly as prescribed by your doctor.

Routinely Clean and Disinfect Surfaces
Cleaning with soap, water, and scrubbing removes dirt and most germs. However, using a disinfectant cleaner with germ-killing power gives even better protection.

Be Careful with Pets
Pets should be routinely cared for by a vet. Rabies and children under age 5 should be watched carefully around pets and animals. Always wash hands after touching animals or animal waste.

Handle and Prepare Food Safely
- Clean hands and surfaces often.
- Separaate – don't cross-contaminate one food with another.
- Cook foods to proper temperatures.
- Chill: refrigerate foods promptly.

Avoid Contact with Wild Animals
Wild animals can carry deadly diseases and pass them to you and your pets. Keep your home free of wild animals by not leaving any food around. Keep garbage area sealed.

Get Immunized
Getting immunizations is easy, low-cost, and saves lives. Make sure you and your kids get the shots suggested by your doctor.

For information about ordering brochures and posters, please visit: www.cdc.gov/ounceofprevention

CDC

SAFER - HEALTHIER - PEOPLE™
THE MESSAGE IS THE SAME IN ANY LANGUAGE!

WASH your HANDS

Una
Sandwich
Esta mano
Ma la mano
La mano
Cristiano

Use SOAP and WARM WATER

SCRUB your hands VERY WELL

WASH

Between Fingers
Wrists
Under Fingernails
Backs of Hands

CDC

NIOSH
More Infection Control Measures

• Train employees to recognize signs and symptoms of avian influenza infection in humans
  – Seasonal flu symptoms (fever, cough, sore throat, vomiting, diarrhea, muscle aches, etc)
  – Conjunctivitis

• Be aware of employer pandemic sick leave policy which should include
  – Encouragement for ill employees to stay home until 24 hours after fever has resolved
  – Written policy of non-reprisal or job termination when remaining home during suspected influenza illness
Personal Protective Equipment

- Respiratory Protection
- Hand Protection
- Eye Protection
- Full Body Protection
- Foot Protection
Respiratory Protection

• OSHA requires that ANY respirator use be done within the context of a complete Respiratory Protection Program as defined in 29 CFR 1910.134. This includes:
  – Medical Clearance
  – Annual Fit Testing
  – Employee training on how to put on and take off the respirator, how to check for an adequate seal and how to properly clean and store the respirator

Respiratory Protection

- N-95 or greater
- Must use R or P series respirators on farms that use oils as a dust suppressant
- Employees who can’t wear N-95 due to fit problems or facial hair may use a PAPR (powered air purifying respirator) fitted with a HEPA filter
Hand Protection

- Disposable gloves
  - Nitrile or vinyl
  - If use latex gloves, use powder free and low protein to reduce risk of latex sensitization
- Reusable gloves
  - Heavy duty rubber gloves can be disinfected
  - Consider use of cotton underglove to reduce risk of dermatitis due to perspiration
Glove Use

- Change gloves immediately if they sustain punctures or tears
- Do not touch face or eyes while wearing gloves
- Remove gloves promptly after finishing task(s) for which they were needed
- Wash hands after removing gloves
Eye Protection

- **Good fit**
  - Make sure goggles do not interfere with respirator seal

- **Anti-fog coating**

- **Indirectly vented**
  - They are not airtight so alone will not be 100% effective in preventing exposures to airborne virus
Full Body Protection

• Disposable outer garments
  – These materials may place worker at risk for heat stress
  – Shorten work shifts when using these garments
• Disposable head/hair covers
• Shoe covers
  – Disposable
  – Rubber or polyurethane boots (can be disinfected and reused)
Antiviral Prophylaxis

- Daily for the duration of the time employees have direct contact with infected poultry or contaminated surfaces
- Continue treatment for 5 days after leaving contaminated area
- Oseltamivir (Tamiflu)
Medical Monitoring of Employees

• Employees who get sick after possible AI exposure should:
  – Inform the occupational health care provider and infection control personnel at their facility
  – Stay home until 24 hours after fever resolves
    • Practice hand and respiratory hygiene
  – If medical care is sought, inform provider of possible AI exposure before going to medical facility or healthcare provider
Control of Contaminated Areas

- Strict control of employee access to areas that could be contaminated
- Training of employees how to dispose of contaminated PPE upon leaving dirty areas
- Disinfection of contaminated areas using:
  - Chemical methods: disinfectants, detergents
    - List of EPA registered disinfectants labeled for use against AI can be found at [www.epa.gov/pesticides/factsheets/avian_flu_products.htm](http://www.epa.gov/pesticides/factsheets/avian_flu_products.htm)
  - Physical methods: heating, drying
Practical Considerations

• Employers should NOT rely solely on the stockpile as these resources will be limited during a pandemic.
• Employers may contact the National Stockpile for:
  – Tamiflu
  – Respirators
• National stockpile resources are handled through contacts at the state and local health departments.
• Contact information for state public health, agriculture and wildlife departments are listed at: www.pandemicflu.gov/plan/states/statecontacts.html
Strategic National Stockpile - Purchased Assets

- Pending delivery:
  - Surgical Masks (FDA)
    - Total = 51,560,100
  - Respirators
    - Surgical N95 FFR (FDA/NIOSH)
    - N95 FFR (NIOSH)
    - Total = 103,997,380
Employee Preparedness Checklist

At Home:
• My family and I have a preparedness plan
• We have discussed the possibility of a pandemic
• My family and I have an emergency communication plan and list of emergency contacts
• My family and I have emergency supplies, food, water, and medications needed in the event of a pandemic

At Work:
• I have read my agency’s pandemic preparedness plan
• I have taken part in my agency’s pandemic preparedness training
• I participated in my agency’s preparedness drills
• I understand what my responsibilities will be in the event of a pandemic
• I have a personal emergency kit at work
Reference Materials

- Quick cards and guidance documents can be found on OSHA website: www.osha.gov
- Pandemic planning checklists, links to CDC documents, etc. can be found at www.pandemicflu.gov
- Current summary of known science of AI found on Center for Infectious Disease Research and Policy website: http://www.cidrap.umn.edu/cidrap/content/influenza/avianflu/biofacts/avflu_human.html#_Summary_of_Avian_Influenza_in_Human
Protect Yourself
Avian Flu
Poultry Employees

Avian flu is a viral disease and it can be very contagious and even deadly in poultry (e.g., chickens). Of great concern are the highly pathogenic avian influenza (HPAI) H5N1 viruses that have killed millions of birds and have infected humans in other countries. If these viruses are found in the U.S., take appropriate precautions if you are involved in poultry destruction.

Signs of Avian Flu Illness in Birds
Sudden death, lack of energy, appetite, and coordination, purple discoloration and/or swelling of various body parts, diarrhea, nasal discharge, coughing, sneezing, and reduced egg production and/or soft-shelled or misshapen eggs.

Avian Flu Symptoms in Humans
Range from fever, cough, sore throat and muscle aches; to diarrhea, eye infections, pneumonia and severe respiratory diseases. The symptoms may depend on which virus caused the infection but are often similar to those of human seasonal influenza.

When Engaged in Eradication Activities
• Clean your hands often and thoroughly, preferably using soap and water for 15-20 seconds (or a waterless, alcohol-based hand rub when soap is not available), especially if you are handling poultry or poultry products.
• Wear lightweight, disposable gloves or heavy-duty rubber work gloves that can be disinfected. Avoid touching your face with gloved hands.
• Wear disposable outer garments, coveralls or surgical gowns with long, cuffed sleeves and with a sealed apron.
• Wear disposable shoe covers or boots that can be cleaned and disinfected.
• Wear safety goggles and disposable head or hair cover.
• Wear at least the minimum level of respiratory protection, N95 or higher respirator.
• Avoid eating, drinking, smoking and bathroom use while wearing personal protective equipment.

Additional Guidance
• Get the seasonal flu vaccine.
• Have your health care provider prescribe an adequate supply of antivirals during poultry destruction activities and for 5 days after it ends.
• If you develop flu-like symptoms, stay at home except to get medical attention.

For more complete information:
OSHA Occupational Safety and Health Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA

OSHA DATOS RÁPIDOS

Protéjase
La Gripe Aviar
Empleados de Granjas Avícolas

La gripe aviar, es una enfermedad viral y puede ser muy contagiosa y hasta causar la muerte en aves (ej., pollitos). De gran preocupación son los virus altamente patógenicos de gripe aviar, (HPAI) H5N1, los cuales han causado la muerte a millones de aves y han infectado a humanos en otros países. Si estos virus se encontraran en los Estados Unidos, tome las precauciones apropiadas si usted collabora en la eliminación de aves de corral.

Las Señales de la Enfermedad de Gripe Aviar en Aves
Muerte repentina, falta de energía, apetito y coordinación, decoloración de color morado y/o inflamación de varias partes del cuerpo, diarrea, descarga nasal, tosi, estornudo, y producción reducida huevos anormales.

Los Síntomas de la Gripe Aviar en Humanos
Varían desde fiebre, tos, dolor de garganta y dolores musculares, a diarrea, infecciones oculares, neumonía, y enfermedades respiratorias serias. Los síntomas de la gripe aviar pueden variar según el virus que haya causado la infección, pero son con frecuencia similares a los que están asociados con la gripe de temporada en humanos.

Cuando se Trabaja en Actividades de Erradicación
• Lavese las manos, completamente y con frecuencia, preferiblemente con agua y jabón por 15-20 segundos o cuando no tenga jabón a su disposición, use un líquido para lavar manos a base de alcohol) especialmente si está tratando con aves de corral o productos de aves de corral.
• Use guantes ligeros desechables o guantes gruesos para trabajos pesados que luego pueda desinfectar. Evite tocar la cara con los guantes puestos.
• Use ropa exterior desechable, guardapolvos, o botas quirúrgicas de manga larga con puno que tengan sobre ellas un delantal sellado.
• Use cubiertes desechables para zapatos o botas que puedan ser limpiados y desinfectados.
• Use gafas protectoras y una cubierta desechable para la cabeza o el pelo.
• Use por lo menos el nivel mínimo de protección respiratoria, respirador N95 o mayor.
• Evite comer, beber, fumar y usar el baño mientras tenga puesto el equipo de protección personal.

Guía adicional
• Pongase la vacuna contra la gripe de temporada.
• Pida a su doctor que le prescriba un suministro adecuado de antivirales durante actividades de eliminación de aves de corral y 5 días después de quitarlas.
• Si a usted se le desarrollan síntomas similares a los de la gripe, permanezca en su casa, excepto para recibir atención médica.

Para obtener información más completa:
OSHA Administración de Seguridad y Salud Ocupacional
Departamento del Trabajo de EE.UU.
www.osha.gov (800) 321-OSHA

Niosh
National Strategy for Pandemic Influenza

- Preparedness and Communication
- Surveillance and Detection
- Response and Containment

http://www.whitehouse.gov/homeland/nspi_IMPLEMENTATION.pdf
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Thank You

Judith Eisenberg, MD, MS
Medical Officer
National Institute for
Occupational Safety
and Health (NIOSH)

Email: JEisenberg@cdc.gov

For more information on pandemic flu:
www.pandemicflu.gov

NIOSH Toll Free Number:
1-800-35-NIOSH