



# Preparing workers for Avian Influenza

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**National Institute for Occupational Safety and Health**

**Avian Influenza Conference: Protecting Avian Influenza Responders**

**September 18, 2007**

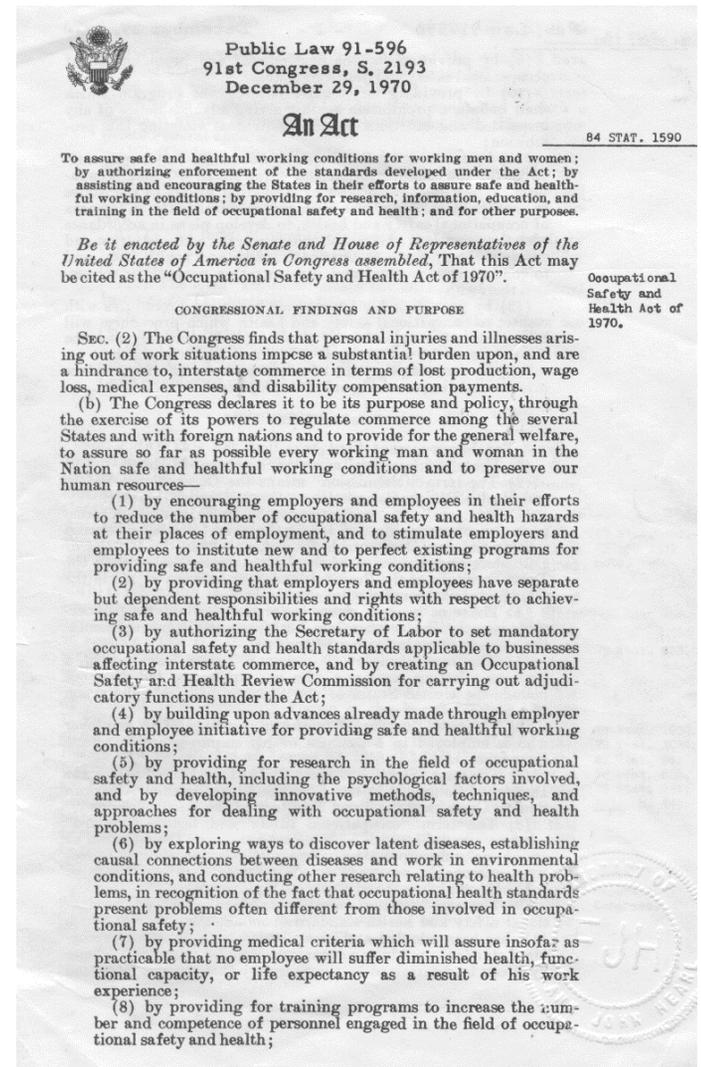
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# Agenda

- NIOSH
- Risk, Avian Influenza and Protecting Workers
- Resources for Avian Influenza
- Advancing the Science

# Occupational Safety and Health Act of 1970

- To assure safe and healthful working conditions for working men and women.



# Occupational Safety and Health

**Regulation/Enforcement**

**Department of Labor  
(DOL)**

**Mine Safety  
and Health  
Administration  
(MSHA)**

**Occupational  
Safety and Health  
Administration  
(OSHA)**

**Research, Training, and  
Prevention Recommendations**

**Department of  
Health and Human Services  
(HHS)**

**Centers for Disease  
Control and Prevention  
(CDC)**

**National Institute for  
Occupational Safety  
and Health (NIOSH)**

# NIOSH Mission

To provide leadership in research to prevent work-related illness, injury, disability, and death.



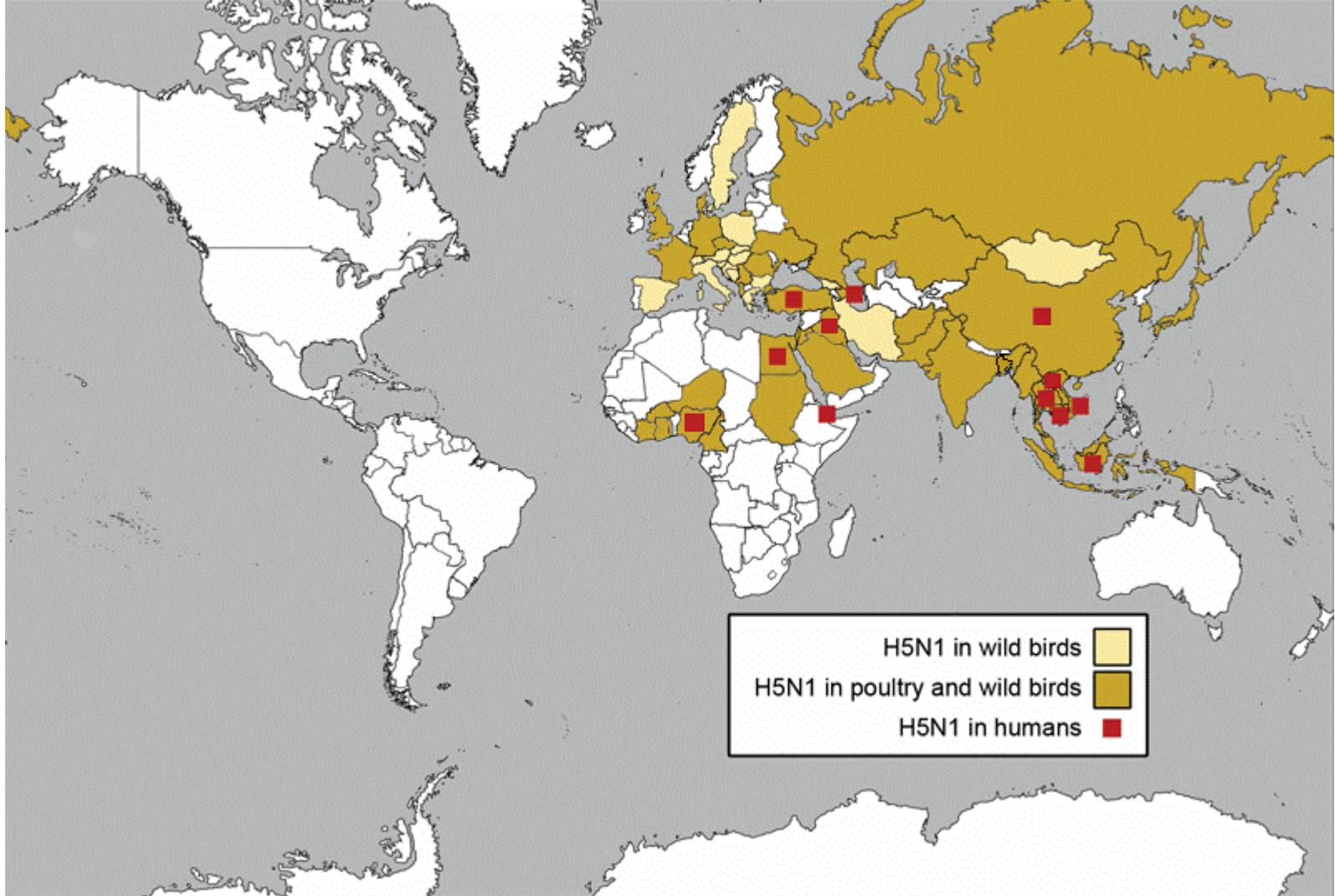
# Strategic Goals

- Conduct research to reduce work-related illnesses and injuries.
- Promote safe and healthy workplaces through interventions, recommendations and capacity building.
- Enhance global workplace safety and health through international collaborations

# H5N1 Avian Influenza Virus – A Current Snapshot

- In 1997, influenza A viruses of H5N1 subtype first isolated from a patient in Hong Kong
- Spread to wild bird populations across Europe and Africa
- Human spread has been limited
- WHO reports 328 confirmed human cases (09/09/2007)
- 200 deaths for a 61% case fatality rate

## Countries Reporting Confirmed A/H5N1 Infections Since September, 2007



# Avian Influenza – Perspectives on Risk and Impact on Worker Protection

## □ Consider

- Current H5N1 apparently not well “fitted” to replication in humans
- The specific receptor for H5N1 is found deep in the respiratory tract of humans.
- Perhaps only a minority of people have receptors for avian influenza viruses in their upper respiratory tract (Webster, NEJM, 2006).
- Reassortment research has not identified a highly virulent, transmissible strain

# Close or Direct Contact with Chickens Infected with H5N1





# Occupations Potentially at Risk

## Multiple Sectors Affected/Diverse Workforce

- Agriculture
- Health Care
- Laboratory
- Responder
- Other (airline flight crew, wildlife biologist, etc.)

# Dichotomy in Worker Protection Guidance

Recommendations for those environmentally exposed in a poultry or laboratory setting are profoundly different than infection control recommendations for a health care worker exposed to an infected patient

**See: Avian Influenza, Including Influenza A (H5N1), in Humans: WHO Interim Infection Control Guideline for Health Care Facilities**

Ammended: 10 May 2007

# Risk as a Product of Probability and Consequence

- Probability (currently Low )
  - Transmission
  
- Consequence (High)
  - >60% mortality
  - No cure or vaccine
  - Opportunity for reassortment event with every infection
  - Potential for adaptation to more transmissible strain with every case

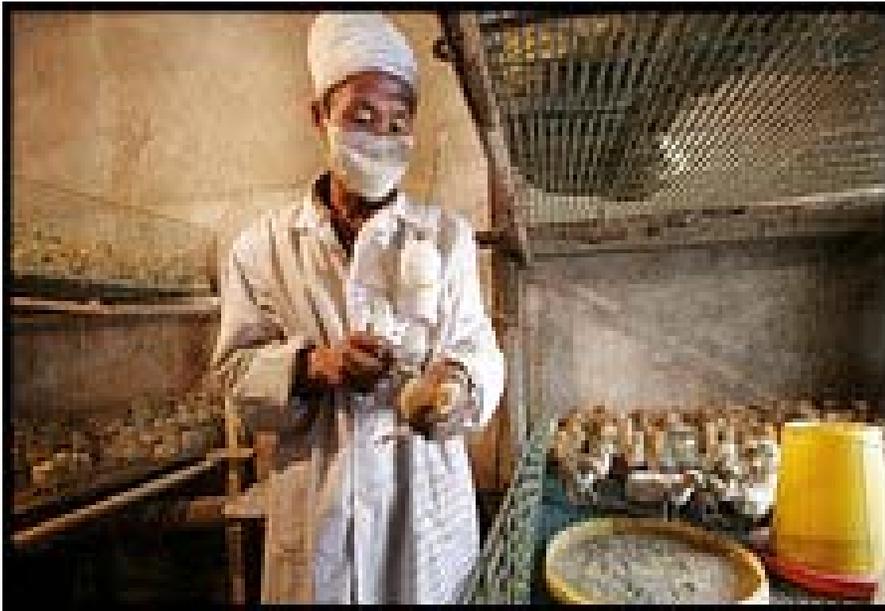
# Investigating Person-to-Person Spread



# Bird Cullers



# Veterinarians



# Bird Handlers at Markets



# Other Occupations Interfacing with Avian Influenza Patients

- Medical Care Support Staff
- Laboratory Workers
- Airline Flight Crews





## NIOSH Safety and Health Topic: Avian Influenza: Protecting Workers from Exposure

Esta página en Español



Photos courtesy of U. S. Department of Agriculture

### Overview

Avian influenza (or bird flu) is a poultry disease caused by viruses that normally infect birds. This disease is caused by a number of type A influenza viruses.

Domestic poultry may be infected with one of two types of avian influenza viruses:

- The highly pathogenic viruses spread quickly and may kill nearly an entire poultry flock within 48 hours.
- The low pathogenic viruses cause only mild symptoms in chickens (such as ruffled feathers or a drop in egg production).

These avian influenza viruses usually do not infect humans. However, cases have occurred in humans outside the United States. The disease can be transmitted to poultry workers or others who contact infected poultry or contaminated surfaces. Examples of workers at risk include the following:

- Poultry growers and their workers
- Service technicians of poultry processing companies

### Avian Influenza



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- [International Resources](#)
- [NIOSH Publications Presentations](#)
- [Related NIOSH Safety and Health Topics](#)

# Guidance Documents

- CDC Responder Recommendations: *Interim Guidance for Protection of Persons Involved in US Avian Influenza Outbreak Disease Control and Eradication Activities*
- OSHA: *Avian Influenza: Protecting Poultry Workers at Risk* (2004)
- OSHA: OSHA Guidance Update on Protecting Employees from Avian Influenza Viruses (2006)
- *CDC Interim Recommendations for Infection Control in Health-Care Facilities Caring for Patients with Known or Suspected Avian Influenza* \*\*\*Currently under revision

# *Avian Influenza*

## *Protecting Poultry Workers at Risk*

- Joint NIOSH and OSHA collaboration
- Intended audience: Poultry workers who could be at risk of prolonged exposure to infected poultry or avian influenza virus
- Posted on OSHA website
  - <http://www.osha.gov/dts/shib/shib121304.html>
- Provides table listing advantages and disadvantages of various respirators

# A Few Research Needs

- Seroprevalence surveys in poultry workers
  - task analysis
  - environmental evaluations
  - PPE evaluations
  - Low path AI outbreaks
  
- PPE efficacy and utilization during various activities (Response, Eradication)
  
- Environmental evaluations (air, surface, and bulk) during known outbreaks
  - Determine/characterize extent of contamination,
  - persistence
  - refine sampling methodologies
  - assess adequacy of controls

# Thank you for your Attention!

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