

# **Personal Protective Equipment for Public Health Workers During Pandemic Influenza**

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# During Pandemic Influenza Public Health Workers Will Have Various Roles

## Common public health activities:

- Interview known or suspect case-patients in hospitals or in the field;
- Conduct contact investigations
- Conduct nosocomial respiratory outbreak investigations
- Conduct home visits
- Collect, handle or manage specimens;
- Examine, test or vaccinate individuals.
- OCME conducts autopsies

# During Pandemic Influenza Public Health Workers Will Have Various Roles

Newer public health activities:

- Investigation and inspection of live poultry markets
- Investigate and test clusters of dead birds, poultry, water fowl
- Conduct regulatory activities;
- Send epidemiologic teams into hospitals to conduct case-finding
- Oversee distribution and oversight of anti-virals if in short supply, and vaccines, if available

*“Public health workers will need to conduct a hazard analysis for specific work environments”*

Adapted from “Guidance for Workplaces for an Influenza Pandemic,” US Department of Labor, Occupational Safety and Health Administration, OSHA 3327-02N, 2007

# Type of Public Health Activities Determines Exposure Risk (\*from Guidance on Preparing Workplaces for Influenza Pandemic, OSHA, 2007)

<u>Public Health Activity</u>		<u>Exposure Risk*</u>
▪ Interview patients in hospitals or in the field;	→	Medium – High
▪ Conduct regulatory activities;	→	Medium - High
▪ Investigate poultry markets	→	High
▪ Conduct home visits		
▪ Examine, test or vaccinate individuals	→	High
▪ Collect, handle or manage specimens,	→	High
conduct autopsies	→	High – Very High

# Exposure Risk Determines Type of Infection Control Precautions

- **Medium Exposure Risk**: Standard, droplet and contact precautions (? N95 particulate respirators)
- **High Exposure Risk**: All of above + N95 particulate respirators

# Key Challenges

- Public health workers often operate in less-controlled unmonitored field situations
- Unclear exposure risk to exposed, asymptomatic persons
- As conditions change, staff will need to develop solutions on the spot
- Incorrect donning and removing PPE, and waste disposal is risk for contamination – yet may be difficult to observe, document and correct in the field
- Effectiveness of just-in-time infection control training and hand-hygiene practicums will be difficult to qualify

# Just-in-Time Infection Control Training for Public Health Personnel

New York City Department of Health and Mental Hygiene

Your Instructor Is:



## Communicable Disease Emergency Training

- This is your emergency infection and exposure control training session
- You will be trained to safely manage exposure risks specific to this emergency by learning:
  - How the agent/organism is transmitted
  - Exposure risks related to your specific task(s)
  - Specific infection control precautions

**Welcome and thank you for responding!**

## Apply Precautions Using This Approach

- How can I interrupt transmission at the source?
- What work practices, procedures and policies will reduce exposure?
- Are there engineering controls I can use?
- What type of personal protective equipment (PPE) is appropriate?
- What is respiratory hygiene/cough etiquette?

# Donning and Removing Personal Protective Equipment Practicum

**Which PPE do we use?**



**How well did we do?**



# Summary

- Public health workers conduct various activities that will require risk exposure assessment and infection control precautions
- Field activities are less-controlled and unmonitored
- PPE recommendations will be depend on the environment and potential exposure risks
- Unclear effectiveness of just-in-time training

# Research Needed

- Studies needed about degree of infectivity of persons in incubation period (viral shedding)
- Studies for transmission patterns during incubation period and periods of communicativity
- Infection control precaution recommendations for personnel who might need to interview exposed, asymptomatic individuals
- Further define and prioritize scenarios that will require N-95 particulate respirators
- Define strategies to promote infection control adherence

***Thank you!***



## What Constitutes Exposure? (1)

- Rea et al. from Toronto looked at level of exposure by distance & time vs. attack rates among community contacts of probable SARS cases
  - Exposure for  $\geq 30$  minutes
  - Distance at  $\leq$  one meter
  - Risk factors: age, gender, duration of source-case illness at time of exposure

## What Constitutes Exposure? (2)

- Results: 8662 community contacts linked to single source case (61 case-patients) Multivariate analysis:
  - Significant risk factors for developing SARS: exposure for  $\geq 30$  minutes, distance at  $\leq$  one meter
  - Duration of illness in the source case at time of exposure was greatest for illness duration of 7 – 10 days

*Exposure may be more complicated than we realize*