

Section 6 - EMS Workforce Protection

Guideline 6.1 – Protection of EMS and 9-1-1 Workforce and Families

State, local, tribal, and territorial EMS pandemic influenza plans should identify strategies to protect the EMS and 9-1-1 workforce and their families during an influenza pandemic.

Rationale

As a component of the Nation's critical infrastructure, emergency medical services will play a vital role in responding to requests for assistance, triaging patients, and providing emergency treatment to patients during a pandemic. Strategies to protect the EMS and 9-1-1 workforce and their families are essential to maintaining an EMS systems' ability to satisfy demand for services.

Considerations

- EMS and 9-1-1 agencies should promote educational and operational strategies for infectious disease control and prevention that contribute to personnel health and safety.
- EMS and 9-1-1 pandemic influenza planners should work with public health officials and occupational health personnel to establish internal surveillance protocols and tracking systems to monitor the health of workers and to determine whether ongoing strategies of ensuring workplace safety and operational continuity are successful or need to be altered as a pandemic evolves.
- EMS planners should consider the impact of an influenza pandemic on workers and their families and include labor and non-labor representatives whenever possible in planning efforts intended to protect the workforce.
- EMS planners should consider mechanisms that could be sustained throughout a pandemic period to maintain physical and mental capabilities of providers.
- EMS pandemic influenza plans should consider opportunities for off-duty EMS personnel to have alternative housing arrangements during a pandemic, thereby protecting providers from transmitting disease to family members or visa versa.
- EMS planners should consider methods to offer prophylaxis/treatment to EMS providers.⁶⁶

⁶⁶ US Department of Health and Human Services. ONLINE. 2005. HHS Pandemic Influenza Plan Appendix D: NVAC/ACIP Recommendations for Prioritization of Pandemic Influenza Vaccine and NVAC Recommendations on Pandemic Antiviral Drug Use. Department of Health and Human Services. Available: <http://www.hhs.gov/pandemicflu/plan/appendixd.html> [20 March 2007].

- Contingent upon the availability of countermeasures, EMS planners should also consider methods to offer medications to family members of personnel.
- EMS agencies should ensure ongoing availability of and encourage proper use of infection control measures and personal protective equipment to reduce risk of exposure (e.g., eye protection, personal respirators such as N95s for providers and masks for patients as appropriate, gowns for responders, gloves, hand disinfectant, disposable tissues, and effective containment of contaminated materials that may require disposal into biohazardous waste containers.)

Background

An influenza pandemic is expected to have substantial impact on the healthcare system with large increases in demand for healthcare services. EMS will be treating influenza-infected patients and will be at risk of repeated exposures. To support continued work in a high-exposure setting and to help lessen the risk of EMS workers transmitting influenza to other patients and EMS family members, their protection must be given high priority^{67,68,69}

The prospect of absenteeism due to illness, quarantine, fear, or death reinforces the need to develop plans to proactively protect and support the workforce and their families before and during an influenza pandemic. The vulnerability of the healthcare workforce was apparent when both Hong Kong and Toronto dealt with SARS. Transmission of SARS appeared to result primarily from direct patient contact or contact with large respiratory droplets in the close vicinity of an infected person. Despite apparent limited modes of transmission, SARS has been known to spread extensively among HCWs [health care workers] in various settings. For example, among 138 cases of secondary and tertiary spread in Hong Kong, 85 (62%) occurred among HCWs; among 144 cases in Toronto, 73 (51%) were HCWs. SARS infection of HCWs might be related to increased contact with respiratory secretions, contact with patients during a more contagious phase of critical illness, contact with particular patients at increased likelihood of spreading SARS (i.e., super spreaders), or exposure to aerosol-generating patient-care procedures.⁷⁰

⁶⁷ US Department of Health and Human Services. ONLINE. 2006. *Emergency Medical Services and Non-Emergent (Medical) Transport Organizations Pandemic Influenza Planning Checklist*. Department of Health and Human Services. Available: <http://www.pandemicflu.gov/plan/healthcare/emgncymedical.html> [18 March 2007].

⁶⁸ . US Department of Health and Human Services. ONLINE. 2005. *HHS Pandemic Influenza Plan Appendix D: NVAC/ACIP Recommendations for Prioritization of Pandemic Influenza Vaccine and NVAC Recommendations on Pandemic Antiviral Drug Use*. Department of Health and Human Services. Available: <http://www.hhs.gov/pandemicflu/plan/appendixd.html> [20 March 2007].

For the most current information about vaccines and antivirals, including the latest prioritization strategies, see <http://www.pandemicflu.gov/vaccine/index.html>

⁶⁹ Occupational Safety and Health Administration. *Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers*. Unpublished.

⁷⁰ Centers for Disease Control and Prevention. ONLINE. 2003. *Cluster of Severe Acute Respiratory Syndrome Cases Among Protected Health-Care Workers --- Toronto, Canada, April 2003*

EMS agencies and personnel should practice infection control procedures. In the *Morbidity and Mortality Weekly Report Cluster of Severe Acute Respiratory Syndrome Cases Among Protected Health-Care Workers --- Toronto, Canada, April 2003*, the CDC reports that although infections among health care workers were a common feature of severe acute respiratory syndrome (SARS), the majority of these infections occurred in locations where infection-control precautions either had not been instituted or had been instituted but were not followed. In addition, Health Canada and the CDC are aware of several unpublished reports of SARS clusters among unprotected healthcare workers involved with intubation, both in Canada and outside North America. The cluster described in this report might be unique, as healthcare workers appear to have followed infection-control precautions recommended by Health Canada. The Health Canada recommendations, although similar to those of CDC, differ from CDC guidelines with respect to respiratory protection. CDC guidelines specify use of respirators certified the National Institute for Occupational Safety and Health (NIOSH) and rated at an N95 level of protection or greater. Health Canada recommends use of "N95 equivalent" respirators. The respirators used by one hospital, although compliant with Canadian public health recommendations, were not NIOSH-certified. In addition, at the time these exposures occurred, fit testing was not recommended by Canadian public health authorities; such testing has been mandated in the United States since 1972.^{71 72}

MMWR. May 16, 2003 / 52(19);433-436. CDC. Available:
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5219a1.htm> [3 April 2007]

⁷¹ OSHA Respiratory Protection Standard, 29 CFR 1910.134

⁷² Occupational Safety and Health Administration. *Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers*. For complete document go to www.osha.gov

Guideline 6.2 – Infection Control and Decontamination

EMS agencies should consistently practice basic infection control procedures including vehicle/equipment decontamination, hand hygiene, cough and respiratory hygiene, and proper use of FDA cleared or authorized medical personal protective equipment (PPE) regardless of the likelihood of an influenza pandemic.

Rationale

The consistent practice of basic infection control and decontamination measures is essential to protect EMS providers and their patients by reducing transmission of infectious diseases and other pathogens.

Considerations

- EMS agencies should adopt day-to-day infection control and decontamination procedures consistent with the most recent CDC and OSHA guidance. (Appendices K, L, and Q)
- EMS agencies should define mechanisms of rapidly modifying infection control and decontamination procedures based on the most recent research and scientific information, including Federal, State and local pandemic influenza guidelines.
- When a pandemic influenza symptom set is available from the CDC, EMS and 9-1-1 agencies should consider a screening algorithm to identify potentially infected patients and ensure proper use of PPE and infection control practices.
- EMS agencies should ensure ongoing availability of and encourage proper use of infection control measures and personal protective equipment to reduce risk of exposure (e.g., eye protection, personal respirators such as N95s for providers and masks for patients as appropriate, gowns for responders, gloves, hand disinfectant, disposable tissues, and effective containment of contaminated materials that may require disposal into biohazardous waste containers.)
- For office staff, consideration should be given to having in place social distancing measures (e.g., spacing people farther apart in the workplace, teleworking when feasible, substituting teleconferences for meetings.)

Background

Potential Contamination from Direct Patient Contact⁷³

The ability to limit transmission of pandemic influenza in healthcare settings will rely heavily on the appropriate and thorough application of infection control measures.

The CDC *EMS and Non-Emergent (Medical) Transport Organization Pandemic Influenza Planning Checklist*⁷⁴ identifies infection control elements for EMS. CDC makes numerous additional recommendations regarding infection control in the healthcare setting in Supplement 4 of the *Department of Health and Human Services Pandemic Influenza Plan*⁷⁵.

The Supplement states:

While it is commonly accepted that influenza transmission requires close contact—via exposure to large droplets (droplet transmission), direct contact (contact transmission), or near-range exposure to aerosols (airborne transmission)—the relative clinical importance of each of these modes of transmission is not known... Given some uncertainty about the characteristics of a new pandemic strain, all aspects of preparedness planning for pandemic influenza must allow for flexibility and real-time decision-making that take new information into account as the situation unfolds. The specific characteristics of a new pandemic virus—virulence, transmissibility, initial geographic distribution, clinical manifestation, risk to different age groups and subpopulations, and drug susceptibility—will remain unknown until the pandemic gets underway. If the new virus is unusual in any of these respects, HHS and its partners will provide updated infection control guidance.

These recommendations, edited to include only those recommendations that are relevant to EMS are provided in Appendix K.

A CDC guideline^{76,77} that addresses isolation precautions in hospitals can also be useful in developing EMS and 9-1-1 policies and procedures for infection control.

⁷³ Occupational Safety and Health Administration. *Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers*. For complete document, go to www.osha.gov

⁷⁴ US Department of Health and Human Services. ONLINE. 2006. *Emergency Medical Services and Non-Emergent (Medical) Transport Organizations Pandemic Influenza Planning Checklist*. Department of Health and Human Services. Available: <http://www.pandemicflu.gov/plan/healthcare/emgncymedical.html> [18 March 2007].

⁷⁵ US Department of Health and Human Services. 2005. *HHS Pandemic Influenza Plan Supplement 4 Infection Control* Department of Health and Human Services. Available: <http://www.hhs.gov/pandemicflu/plan/sup4.html> [20 March 2007].

⁷⁶ US Department of Health and Human Services. ONLINE. 1996. *Guideline for isolation precautions in hospitals*. CDC. Available: http://www.cdc.gov/ncidod/dhqp/gl_isolation.html [18 March 2007].

This guideline is particularly informative with regard to standard precautions⁷⁸ and droplet precautions⁷⁹.

Potential Contamination from Environmental Contact

“Some microbes are infectious at very low doses and can survive for hours to weeks on nonporous surfaces, such as countertops and telephone headpieces. A number of viruses, including influenza A virus... can be found in oral secretions of those infected and survive 2-24 hours on hard surfaces.”⁸⁰ A University of Arizona⁸¹ study using an invisible fluorescent tracer showed that artificial contamination from outside surfaces (e.g. such as doorknobs, telephones, faucets, and copier buttons) was transferred to 86% of 35 exposed individual’s hands. In addition, 82% of the 35 participants subsequently tracked the contaminant to their home or personal belongings. The study identified phones, desktops, and keyboards among the top five “dirtiest” work surfaces. Viruses detected using such a tracer method may no longer be viable (able to infect a human with disease), however, the study illustrates the potential transfer rates of human pathogens.

⁷⁷ Centers for Disease Control and Prevention. ONLINE. 2007. *Guidelines and Recommendations Infection Control Guidance for the Prevention and Control of Influenza in Acute-Care Facilities*. CDC. Available: <http://www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm> [3 April 2007]

⁷⁸ Excerpted from US Department of Health and Human Services. ONLINE. 1996. *Guideline for isolation precautions in hospitals*. CDC. Available: http://www.cdc.gov/ncidod/dhqp/gl_isolation.html [18 March 2007]. Standard precautions available: http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html [20 March 2007]

⁷⁹ Excerpted from US Department of Health and Human Services. ONLINE. 1996. *Guideline for isolation precautions in hospitals*. CDC. Droplet precautions available: http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html [20 March 2007]

⁸⁰ Reynolds KA, Watt PM, Boone SA, Gerba CP. 2005. *Occurrence of bacteria and biochemical markers on public surfaces*. Int J Environ Health Res. Jun;15(3):225-34

⁸¹ Reynolds KA, Watt PM, Boone SA, Gerba CP. 2005. *Occurrence of bacteria and biochemical markers on public surfaces*. Int J Environ Health Res. Jun;15(3):225-34

Guideline 6.3 – Vaccines and Anti-Virals for EMS Personnel

State, local, tribal, and territorial EMS pandemic influenza plans should define system-wide processes for providing vaccines and anti-viral medication to EMS personnel.

Rationale

Assuring the viability of the EMS workforce is essential to supporting their role in mitigating and responding to an influenza pandemic. As a component of the Nation's critical infrastructure, EMS will play a vital role in responding to requests for assistance, triaging patients, and providing emergency treatment to patients during a pandemic. Strategies to provide pharmaceutical countermeasures to protect the EMS workforce are essential to maintaining an EMS systems' ability to satisfy demand for services.

Considerations

- EMS pandemic flu planners should maintain familiarity with Federal guidance on prioritization of vaccinations and administration of anti-viral medications⁸². (See Appendix J)
- EMS agencies should be engaged with State and local pandemic influenza planners in allocation decisions regarding pharmaceutical and non-pharmaceutical countermeasures and ensure EMS and 9-1-1 personnel are included in the allocation plans.
- There should be an EMS agency-specific plan for the acquisition, distribution and administration of pharmaceutical and non-pharmaceutical countermeasures to EMS and 9-1-1 personnel. EMS pandemic influenza planners can establish this process through collaboration and planning with State and local public health agencies.

Background

Federal priorities for vaccine and antiviral drug use will vary based on pandemic severity as well as the vaccine and drug supply. Federal vaccination guidelines are subject to change as the Federal Government refines its guidelines to assist State, local, tribal, and territorial governments and the private sector in defining groups that should receive priority access to medical countermeasures. Priority recommendations will reflect the pandemic response goals of limiting mortality

⁸² US Department of Health and Human Services. ONLINE. 2005. *HHS Pandemic Influenza Plan Appendix D: NVAC/ACIP Recommendations for Prioritization of Pandemic Influenza Vaccine and NVAC Recommendations on Pandemic Antiviral Drug Use*. Department of Health and Human Services. Available: <http://www.hhs.gov/pandemicflu/plan/appendixd.html> [20 March 2007].

and severe morbidity; maintaining critical infrastructure and societal function; diminishing economic impacts; and maintaining national security. Currently, the EMS workforce is considered a high priority group for vaccination. EMS agencies are encouraged to monitor revised guidance at <http://www.pandemicflu.gov/vaccine/index.html>. The Federal guidance (Appendix J) relating to vaccine and antiviral prioritization has been undergoing extensive review and will be updated in the near future. Readers should consult www.pandemicflu.gov for the latest information.

Guideline 6.4 – Isolation and Quarantine Considerations

State, local, tribal, and territorial EMS agencies, in coordination with public health authorities, should identify a mechanism to address issues associated with isolation and quarantine of EMS personnel.

Rationale

As one element of a community mitigation strategy, isolation and quarantine may prevent transmission of disease by separating ill and exposed persons from those who have not yet been exposed. EMS and 9-1-1 agencies should anticipate the potential need to isolate and quarantine staff who have been exposed to pandemic influenza or become ill.

Considerations

- EMS agencies should establish policies for employees who have been exposed to pandemic influenza or are suspected to be ill.
- EMS agencies should establish a clear expectation that staff do not come into work when ill with a febrile respiratory illness and support this expectation with appropriate attendance policies.
- EMS and 9-1-1 agencies should collaborate with occupational health and public health officials to establish policies on when a previously ill person is no longer infectious and can return to work after illness.
- EMS pandemic influenza plans should consider opportunities for off-duty EMS personnel to have alternative housing arrangements during a pandemic. Alternative housing arrangement may be used to protect the provider from infecting family members or vice versa.

Background

According to the *National Strategy for Pandemic Influenza: Implementation Plan*⁸³, the response to an influenza pandemic could require, if necessary and appropriate, measures such as isolation or quarantine. Isolation is a standard public health practice applied to persons who have a communicable disease. Isolation of pandemic influenza patients may prevent transmission of the disease by separating ill persons from those who have not yet been exposed. Quarantine is a contact management strategy that separates individuals who have been exposed to infection but are not yet ill from others who have not been exposed to the transmissible infection; quarantine may be voluntary or mandatory.

⁸³ Homeland Security Council. ONLINE. 2006. *National Strategy for Pandemic Influenza: Implementation Plan*. The White House. Available: <http://www.pandemicflu.gov/plan/federal/index.html> [20 March 2007].

Persons who become ill may shed virus and can transmit infection for one-half to one day before the onset of illness. Viral shedding and the risk for transmission will be greatest during the first two days of illness⁸⁴.

⁸⁴ US Department of Health and Human Services. ONLINE. 2007. *Community Strategy for Pandemic Influenza Mitigation*. Department of Health and Human Services. Available: <http://www.pandemicflu.gov/plan/community/commmitigation.html> [21 March 2007]

Guideline 6.5 – Support for EMS Personnel and Their Families

State, local, tribal, and territorial EMS pandemic influenza plans should define a process for offering support services, including mental health services, to EMS personnel and their families during an influenza pandemic.

Rationale

Assuring the viability of the EMS workforce and their families through social support services is essential to supporting the workforce's role in mitigating and responding to an influenza pandemic.

Considerations

- EMS planners should collaborate with psychosocial or mental health professionals to assist in formulating messages and communications strategies that will minimize negative impacts on emergency workers by managing expectations and helping achieve desired behaviors and outcomes.
- Planning should involve identifying and providing additional support services, including mental health services, which EMS providers and their families may need during an influenza pandemic.
- EMS planners should identify and coordinate with community resources to support workers and their families at the onset, during, and following a pandemic. (e.g., Community Emergency Response Teams⁸⁵ (CERT), the American Red Cross, faith-based organizations, and other family assistance groups).

Background

It is important that planning efforts consider the impact of pandemic influenza on EMS personnel and their families. The *National Strategy for Pandemic Influenza: Implementation Plan*⁸⁶ recognizes that during a pandemic, psychosocial issues may “significantly contribute to, or hinder, the effectiveness of the response.” Public anxiety and subjective perception of risk during the initial phases will impact the degree of medical surge; overall compliance with quarantine, office closures, and other control procedures; and participation of the workforce, including healthcare workers, in response efforts.

⁸⁵ For additional information regarding the CERT program, see <https://www.citizencorps.gov/cert/>

⁸⁶ Homeland Security Council. ONLINE. 2006. *National Strategy for Pandemic Influenza: Implementation Plan*. The White House. Available: <http://www.pandemicflu.gov/plan/federal/index.html> [20 March 2007].

During the 1918-1919 Spanish influenza, for example, people experienced significant distress due to loss of family members and anxiety about work, food, transportation, and basic infrastructure.⁸⁷

During a modern-day pandemic, EMS and 9-1-1 workers will likely be called upon to implement policies and protocols that evoke a range of responses, including decisions of a moral and ethical nature. They may witness human pain and suffering on the job and may experience illness and death in their personal lives. The SARS outbreak in 2003 led to psychological distress for healthcare workers and the general public because of social isolation, stigmatization of groups perceived to be high risk, and general fears about safety and health.⁸⁸

Research on social behavior following disasters by the National Science Foundation suggests that “Recovery processes are significantly influenced by differential societal and group vulnerability; by variations in the range of recovery aid and support that is available; and by the quality and effectiveness of the help that is provided. The available ‘mix’ of recovery activities and post-disaster coping strategies varies across groups, societies, and different types of disasters.”⁸⁹

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SEE RELATED APPENDICES

- 1. Appendix K—Infection Control: Excerpts from Federal Documents**
- 2. Appendix J—Excerpts from the HHS Pandemic Influenza Plan, Appendix O**
- 3. Appendix M— Pandemic Influenza Resources**
- 4. Appendix Q—OSHA Guidance**

⁸⁷ Homeland Security Council. ONLINE. 2006. *National Strategy for Pandemic Influenza: Implementation Plan*. The White House. Available: <http://www.pandemicflu.gov/plan/federal/index.html> [20 March 2007].

⁸⁸ Homeland Security Council. ONLINE. 2006. *National Strategy for Pandemic Influenza: Implementation Plan*. The White House. Available: <http://www.pandemicflu.gov/plan/federal/index.html> [20 March 2007].

⁸⁹ Institute of Medicine. ONLINE. 2006. *Committee on Disaster Research in the Social Sciences: Future Challenges and Opportunities, National Research Council. Facing Hazards and Disasters: Understanding Human Dimensions*. National Academies Press. Available: www.nap.edu