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Pandemic Influenza Guidance for Corporations

ACOEM Emergency Preparedness Task Force

Purpose

The purpose of this guidance document is to assist members of the American College of Occupational and Environmental Medicine (ACOEM), and the organizations for which they work, in managing the impact of a pandemic of influenza or other contagious respiratory disease on patients, employees, and business. This guidance document outlines actions to take before and during an influenza pandemic based on two main strategies: 1) reducing the spread of the virus within facilities; and 2) providing medical care and medical surveillance to client/patient populations.

Facilities in which ACOEM members serve include government agencies and the military, universities, and corporations, which generally have multiple locations/sites and their own medical staff, with members responsible for medical care and disease control. This guidance is for organizations with outpatient occupational medicine services, to be used as appropriate. Medical centers should also use guidance that addresses additional employee and external patient care needs.^{1,2,3} ACOEM fully supports implementation of occupational influenza programs that conforms with guidance from the Centers for Disease Control and Prevention (CDC), with other guidance from the U.S. Department of Health and Human Services (DHHS), and Occupational Safety and Health Administration (OSHA) regulations and guidance.

Background and Rationale

The impact of pandemic influenza on workplaces and business functions could be devastating, as up to 15 to 35% of the population – including workers and patients – could be affected, with significant mortality depending upon severity.⁴ In pandemics, a vaccine for a novel virus strain might not be available until up to 6 months after the pandemic is recognized.^{1,3} In any location, the peak pandemic-related emergency might be prolonged, 4 to 8 weeks or more. To reduce disruption to workplace function, planning for the next influenza pandemic is imperative.

This ACOEM Pandemic Influenza Guidance incorporates and expands upon aspects of plans and checklists for business available from federal and state agencies and from corporate plans offered by ACOEM members.^{1,3,5-7} As stated in ACOEM's *Guidance Statement for Seasonal Influenza Prevention in Healthcare Workers*, influenza prevention programs must use a comprehensive approach that includes immunization, education, and proper infection control practices.⁸ Also, these programs must include standard principles of hazard control in occupational health, using engineering controls, administrative controls, proper work practices, and personal protective equipment. Principles of immunization, education and program evaluation as outlined in the ACOEM seasonal influenza guidance also apply to pandemic influenza.

Some of the rationale behind recommended measures is based on the characteristics of influenza viruses. First, the sudden appearance and severity of a novel virus and the expected delay in vaccine availability require policy setting, planning, and stockpiling of supplies, all in advance. Second, because of the viral shedding prior to the onset of symptoms, rapid spread and short incubation period of influenza, individual containment measures such as isolation and quarantine are less likely to be effective for disease control than are community-based containment measures. For all influenza outbreaks, multiple measures are needed to protect employees and maintain business continuity. CDC

terms it a "layered approach" – these include vaccines and emphasizing individual actions to reduce risk of infection (e.g., hand hygiene and respiratory etiquette). Outbreaks with severe disease have high hospitalization rates and case fatality ratios (CFRs); for such outbreaks, additional non-pharmaceutical measures might include social distancing (e.g., closing facilities and restricting public gatherings).⁷ The recommended medical measures herein include those found in the ACOEM seasonal influenza guidance, and also include monitoring for levels of disease that might affect the capacity of the organization and the medical department. These measures include standard influenza prevention and treatment with vaccine and antivirals; and special measures for pandemics including screening for influenza-like-illness (ILI), syndromic surveillance, triage, and administrative efforts.^{1,2,5-7}

The CDC Pandemic Severity Index (PSI) allows interventions to be made based on pandemic severity, using CFR as the index of severity.⁹ CDC guidance for employers for the 2009-10 H1N1 pandemic suggested planning and response measures both for the severity of that outbreak, and for more severe scenarios.⁷ Because past pandemics have varied in severity, from a CFR of <0.1% in 2009-10, to >2% in the 1918 Spanish flu, this guidance recommends actions for three severity levels. Employers and ACOEM members should adopt plans that allow a flexible response, both according to disease severity as well as local conditions. The following spreadsheet lists these measures in detail, by PSI category, which members can use to design or improve their institution's pandemic influenza plans. Except for pre-pandemic planning, actions apply to World Health Organization (WHO) Pandemic Alert Phase 6.

Pandemic Severity Index (CDC) Category	1	2 + 3	4 + 5	
	Usual influenza severity, CFR < 0.1%	Severe disease, CFR 0.1 to <1.0%	Very severe disease, CFR ≥1.0%	Post-pandemic/recovery phase
ACTIONS TO TAKE				
I. Planning, Policy + Training (begin pre-pandemic)				
Write, monitor, modify plan as pandemic and business requirements evolve	x	x	x	x
Form planning team; appoint workplace pandemic flu coordinator	x			
Plan addresses: sick leave, tele-work, employee compensation; designates essential personnel for vaccine/PPE	x			
Plan to geographically separate critical employees	x			
Identify employees who will telecommute, work-at-home, work staggered shifts	x			
Employee training on pandemics, hygiene	x	x	x	
Communications plans: internal + external	x	x	x	x
Prepare pandemic vaccine/antivirals program	x	x	x	x
Implement sick leave policy including for quarantined and isolated employees and family members		L	x	x
II. Supply				
Identify critical suppliers and supply alternatives; stockpile critical medical/ business supplies, antivirals, and (as available) vaccine	x	x	x	

Stock additional food, water (separated locations)			x	
Issue thermometers (for medical screening, monitoring)			x	
III. Social Distancing				
Restrict and/or stop travel, recall non-critical overseas employees	L	L	x	
Implement work-from-home/tele-work, staggered shifts, related IT/ communication actions	L	L	x	
Geographically separate teams within buildings		L	x	
Cancel non-essential training, meetings, mass gatherings, vanpool		L	x	
Close childcare center, fitness center			x	
Close cafeteria/buffet-style eating; eat meals at employee desks			x	
IV. Hygiene				
Provide hand sanitizer	x	x	x	
Increased workplace cleaning and disinfection schedule	L	x	x	
Restrict access to employee-only areas/restrooms		L	x	
Increased air filtration/exchange (if available)			x	
V. Medical/ epidemiological				
Issue N-95 masks to medical/EMS personnel	L	x	x	
Deploy antivirals/vaccine (coordinate with public health authorities)	x	x	x	x
Track rates of training, vaccine compliance	x	x	x	x
Implement increased medical services, triage		L	x	
Implement active screening for symptoms and fever for patients, employees, and/or visitors		L	x	
Provide surgical masks to patients with fevers		x	x	
Implement EAP/Mental Health Services		L	x	x
Surveillance: track and report number and rates of ill/recovered employees to management and public health agency		x	x	x
Decedent Affairs			x	x

L = Implement if outbreak appears locally with local spread or severe disease

CFR = Case fatality ratio
 PSI Categories: Category 1 = CFR <0.1%; Category 2 = CFR 0.1% to <0.5%; Category 3 = CFR 0.5% to <1.0%; Category 4 = CFR 1.0% to <2.0%; Category 5 = \geq 2.0% (DHHS 2007)

Discussion

I. Planning, Developing Policy, and Training

1. Sources of information for pandemic plans and education are numerous and include the websites of federal (e.g., CDC) and state agencies and of the military, universities and corporations, which have downloadable documents and links to other specific information. For employee training and patient education, these sources can be used freely to create corporate/medical center documents and make sustainable web links. The pandemic plan can be incorporated into the emergency operations plan or all-hazards plan, or such plans can be written using this document's format and content.
2. Plans should address at least the following^{2,5,10}:
 - a. *Planning team* – include management, occupational medicine, occupational health, legal, training office, security, safety and emergency management, human resources, communications, purchasing, supply. Workplace pandemic coordinator – appoint in advance, will coordinate all pandemic-related issues including contact with local and state health departments. Seek input from employee and labor organizations.
 - b. *Predicted schedule changes/absences* – establish policies for sick leave, employee compensation, travel, special needs populations (employees, customers and patients). For pandemics with severe disease (e.g., high hospitalization and death rates), establish leave policies for isolated/quarantined employees and family members, and policies for geographic separation of key personnel, distant work ("telecommuting/ tele-work") and "staggered" shift-work (without which there will be more absences during a pandemic). These policies should be communicated well, be non-punitive and flexible, and should address personal illness, family illness, community quarantines and closures of schools, business and public transportation.
 - c. *Business continuity* – coordinate this plan with general business continuity plans (e.g., plans for natural disasters), including how to maintain or reduce operations with supply-chain disruptions and reduced staff. Include overseas operations.
 - d. *Essential employees, and medical and emergency response personnel* – identify and designate these personnel for immunizations, anti-viral medication, personal protective equipment (PPE) and other appropriate requirements and equipment.
 - e. *Communications plan(s)* – internal and external plans, to include key points-of-contact (inside facility, at both institutional/outside health care facilities, at public health agencies, business contacts), chain of communications (including suppliers), and processes for tracking and communicating employee and corporate/medical center status internally and to the public and public health agencies. Specify additional needed communication and information technology (IT) infrastructure. In all communications, clearly define medical or technical terms in understandable and unambiguous language.
 - f. *Health care, mental health, and social services* – evaluate employee and patient access and their availability; arrange contingencies as necessary. Plan for surge capacity, both outpatient and inpatient. Include plans to distribute antiviral medications and administer mass immunization.
 - g. *Collaboration with other organizations* – corporations/health care facilities/health plans/state and local public health and emergency response agencies (EMA); include sharing plans, mutual aid agreements and your potential contributions to communities. Incorporate relevant actions from state/local health department plans. Attend meetings of local, regional, and/or state emergency planning groups.

- h. *Forecast numbers/costs* – calculate expected numbers and costs for each category within this section.
 - i. *Exercises/drills* – perform periodic exercises/drills to test the plan and revise the plan accordingly. Practice with the institution's emergency operations center (EOC).
 - j. *Multiple business locations* – give local managers authority to implement actions appropriately based on local conditions.
3. **Employee training and education** – address at least the following^{2,5,7-10}:
- a. **Pandemic facts** – use bulletins and web site information from CDC and DHHS (e.g., www.flu.gov), as well as from state and local public health departments and EMAs. Topics should include details of the institution's plan, facts about influenza and influenza-like-illness (signs and symptoms, how the virus is transmitted; when to stay home/return to work), vaccine facts, reducing workplace spread (see sections on Social Distancing and Hygiene), and preparing home and family (including storing food and medical supplies, and at-home care of ill employees/family members).
 - b. **Reducing workplace spread** – training should address good infection control practice to be used regardless of immunization status, including standard precautions, CDC hand washing guidance, respiratory etiquette (i.e., cough into a tissue or upper sleeve), and social distancing (> 6 feet). Place posters (for both employees and patients) that describe these actions.
 - c. **Cross training** – with increased absences during a pandemic, cross-training will be necessary within the institution/medical center. Consider training of ancillary workers (e.g., contractors, retirees).
 - d. **Multiple offering** – provide training at multiple times, formats, languages and venues, e.g., both at meetings and via web-based training.
 - e. **Tracking, reporting, and enforcement of required training** – assign education coordinator and set organizational goals.
4. **Coordinate (in advance) with local public health agencies** – regarding vaccine availability, professional information for occupational health practitioners, and when to trigger pandemic plan actions.

II. Supplies^{6,7}

- 1. **Advance-purchase antivirals and vaccine (if possible)** – determine numbers required, including high-priority staff and patients; give estimate for vaccine to the supplying health agency; obtain when available. Sensitivity to the impact on external high-risk populations should be part of the advance purchase considerations.
- 2. **Ample supplies of the following are needed for a minimum duration of several weeks:**
 - a. *Hygiene-related supplies* – hand sanitizer, soap, hospital disinfectant, disposable towels, tissues, no-touch trash cans, and PPE such as disposable gowns and gloves.
 - b. *Medical-related supplies* – N-95 respirators, surgical masks and protective eye wear to prevent airborne spread of virus, thermometers (mercury-free advised), and treatment-related supplies.
 - c. *Pandemics with severe disease* – food and water as necessary and located as required for confined personnel (employees, medical staff, and patients).
- 3. **Stockpiling** – since the same supplies are useful against seasonal influenza and other respiratory pathogens, stockpiling of supplies need not be considered as a "wasted" or an undue expenditure, and most can be routinely rotated on a "first-in-first-out" basis.

III. Social Distancing

1. **Definition** – CDC defines social distancing as "measures to increase the physical space between people and reduce frequency of contact." It includes canceling events such as large gatherings, and closing/restricting access to buildings, and applies to groups, not just individuals.¹¹
2. **Visiting** – discourage visits to medical departments and hospital emergency departments by the "worried well" and by those with symptoms of uncomplicated ILI, as such visits encourage spread of influenza virus. (However, those having **signs of severe disease, per CDC guidance, should seek prompt medical attention.**)
3. **Exclude/segregate persons with influenza-like illness (ILI):**
 - a. ILI symptoms: feverishness/chills, sore throat, cough, gastrointestinal (GI) symptoms; fever – temperature >100oF (37.8°C)
 - b. Urge employees with ILI to stay home; promptly exclude from work people with ILI; separate sick employees while on-site (designate rooms to do so). Put patients with ILI into respiratory isolation.
4. **Training and education** – should address these social distancing policies and measures, so that employees are familiar with them.
5. **For pandemics with severe disease** – aim to reduce frequency and types of face-to-face contact between employees, customers and patients. Consider implementation at WHO Pandemic Levels 5 and 6. Measures might include canceling non-essential meetings, avoiding hand-shaking, closing venues such as child-care centers and cafeterias, and changes in office layout, use of shared equipment and seating during meetings. Plan the use of remote communication (e.g., telephone/web-based meetings and business functions) and needed IT infrastructure; deploy these as needed; give priority to workers at high medical risk for influenza complications (i.e., those with chronic medical conditions or who are pregnant). Observe travel restrictions and advice to travelers from public health authorities; recall traveling/overseas personnel as feasible.

IV. Hygiene^{1,3,6}

1. **During training** – emphasize CDC recommendations for respiratory hygiene (e.g., cover coughs and sneezes) and hand hygiene (hand wash, hand sanitizers), applicable at all times in health care settings. Monitor and enforce standard infection control practices as critical elements of job performance.
2. **Deploy supplies as noted above** – including in clinical areas for patient use; use them according to DHHS and OSHA guidance. Hand sanitizer can be used with both seasonal and pandemic influenza.
3. **Increase workplace cleaning** – both with increased frequency and increased number of locations such as common surfaces (e.g., shared work stations, telephones and doorknobs). In patient care areas, use standard methods including EPA-registered hospital disinfectants, and manage laundry, medical waste and eating utensils according to seasonal influenza methods.
4. **For pandemics with severe disease** (i.e., high hospitalization rates and CFR >1.0%):

- a. *Restrict access by visitors/patients* – to places such as employee work areas, designated rest rooms and eating places. Involve facility security; implement access control (e.g., close some entrances; screen all who enter the facility).
- b. *Engineering controls* – consider deploying methods such as drive-through windows and sneeze guards between customers, patients, and employees, and use of rooms with negative pressure and/or filtered ventilation.

V. Medical

1. **Vaccine priorities** – CDC recommends that the following groups at high-risk of complications from influenza should receive all influenza vaccines^{12,13,14}:
 - a. Pregnant women;
 - b. Persons of any age with underlying medical conditions that increase their risk for complications from influenza (e.g., heart and lung disease, immunodeficiencies);
 - c. Health care workers and emergency medical services personnel;
 - d. Children between the ages of 6 months and 18 years of age; and
 - e. Household contacts of high-risk persons.

Members of the above groups except children are abundant in the workplace. For the 2009 novel-H1N1 influenza virus and during other past pandemics, an additional high-risk group was children and young people between the ages of 6 months and 24 years of age. In future pandemics, persons in this age range might also be at high-risk.¹²

2. **Distribution of vaccine and antiviral medications** – public health agencies will announce the availability and best use of vaccine (when available) and antivirals. Medical centers and institutional medical departments should implement mass immunization programs. Priority groups for vaccine receipt and recommendations for which antiviral to use might change during the pandemic, as they have during seasonal outbreaks. Organizational programs might resemble programs used for seasonal influenza, but a severe pandemic might require other distribution systems such as points-of-distribution (PODs) managed by public health agencies.
3. **Access to medical services** – increased demand for medical services will occur in most organizations/ corporations, particularly medical centers.
 - a. *Increased outpatient services (needing more clinical staff)* – might include acute care and sick call.
 - b. *Pandemics with severe disease* – make medical consultation available on a 24-hour/7-day basis. Increased services might include mental health, employee assistance programs (EAPs), and decedent affairs. Expect inpatient facilities to use their surge capacity beds, including the intensive care unit. Develop phone triage protocols.
4. **Syndromic surveillance**³:
 - a. *Pre-pandemic* – report unusual cases of ILI (e.g., summer cases or other unexpected patterns) to public health agencies. Implement tracking and reporting of training and vaccine compliance for seasonal influenza.
 - b. *During pandemic* – collect and report to management and health agencies the following: data on vaccine compliance, workplace screening, known cases of ILI in employees/patients, and among medical personnel (the latter affects treatment capacity), and their recovery/return-to-work. Medical facilities can enroll in the National Healthcare Safety Network on line at www.cdc.gov/nhsn, for tools to track employee immunization and health status. Within the facility, track daily which employees have contact with ILI patients, and their work status and health status.

5. **Pandemics with severe disease** – consider the following other aspects of clinical care^{1,3}:
 - a. *Implementation* – implement active workplace screening for ILI; consider screening all employees, visitors, and patients.
 - b. *Scheduling* – reschedule routine/non-essential office visits or designate times for care of ILI and non-ILI patients.
 - c. *Triage* – assign staff; consider phone and e-mail triage, having separate triage, waiting areas, and examination/treatment rooms for patients with ILI symptoms. Consider screening of employees and visitors for fever during pandemics with high mortality and prevalence, and consider legal and human resources aspects of screening.
 - d. *Reassignment* – protect staff at high medical risk for influenza complications (listed above): assign them to lower-risk duties (e.g., administrative work, non-ILI patient care). Conversely, clinical staff members who have recovered from pandemic influenza, and now are presumed immune, may be well-suited for care of patients with acute disease.
 - e. *Personal protective equipment (PPE) and droplet precautions* – For health care workers and emergency responders who use respirators, a comprehensive respiratory protection program that complies with OSHA standards (29 CFR 1910.134) is required.¹⁵ Perform pre-pandemic fit-testing. Issue N-95 respirators to medical and EMS personnel who care for ILI patients; keep a supply of PAPRs (powered-air-purifying respirators) available. Place surgical masks on persons with ILI in the facility, to reduce virus spread. Droplet precautions (private room, gowns, respiratory protection and eye protection, e.g., face shields) are indicated during direct care (within 3 feet) of ILI patients.³

VI. Other Organizational Needs

1. **Inpatient facilities** – guidance is available for the detailed plans required, such as the CDC Hospital Pandemic Influenza Planning Checklist,¹⁶ and the OSHA Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers.³ The latter contains a sample detailed, generic medical center preparedness plan for epidemic respiratory infections.
2. **Organizations with overseas facilities** – can use guidance such as *CDC's Pandemic Preparedness Planning for U.S. Businesses with Overseas Operations*.¹⁷
3. **Post-pandemic** – continue related services as needed, e.g., surveillance, training, vaccine compliance, EAP, decedent affairs. Resupply, calculate pandemic costs, hold debriefings, and revise plans accordingly.

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