Clinical Planning & Assessment Tool: A Healthcare Guide for Pandemic Flu Planning

Planning Today For A Pandemic Tomorrow Publication Series

Prepared by the New Jersey Hospital Association

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INTRODUCTION

Through the use of a detailed assessment and planning tool, hospitals can review existing policies and procedures, identify gaps, adopt new policies and procedures and generate a pandemic influenza plan that will facilitate a more effective response during a crisis. This tool will assist hospitals in developing and adopting new policies that will be required to protect employees, patients and the hospital itself. The planning and assessment tool identifies critical elements within each module related to hospital operations during an emergency situation. In addition, the tool provides a variety of sample policies and procedures that facilities may elect to use in their planning process.

Critical areas to address when planning for a pandemic include:

Clinical Care	Leadership
Communication	Legal/Regulatory
Ethics	Operations
Finance	Psycho-Social
Human Resources	Supplies/Logistics/Support Services

How to Use This Module

Hospitals should form multi-disciplinary work teams to develop policies and procedures relating to each of the critical areas identified above. Diverse perspectives will help ensure that all issues or concerns that may be raised during a pandemic can be brought to the table while in the planning process.

The modules are to be used as a guide to facilitate discussion and to ensure that key points related to a topic such as human resources are identified and addressed in the planning process. Sample policies and/or procedures are provided; these policies and procedures are by no means all inclusive, and hospitals should not interpret the sample policies as what *must* be adopted. Sample policies are provided to assist a hospital in developing a policy that is consistent with the culture and values of the organization. Hospitals are not required to adopt any of the sample policies and procedures; they are intended simply to serve as a resource and guide in the planning process. *They are not reflective of a standard of care.*

Upon completion of the 10 modules reflected in *Planning Today for a Pandemic Tomorrow,* a "cross-walk" will be developed. This cross-walk will provide guidance for other module areas that should be referenced when developing policies and procedures. For example, when examining a Human Resources policy, the Legal and Regulatory module may need to be reviewed.

And finally, the information reflected in the planning and assessment tool modules is intended to be used as a fluid and flexible resource in dealing with the problems associated with a pandemic influenza outbreak. It is based on existing information, therefore hospitals should routinely review their plan to ensure new information is incorporated into policies and procedures as necessary.

CLINICAL MODULE

In the sections that follow, a series of planning/policy tasks are broken down by clinical expertise areas. They are discretionary and are representative of the issues that *should* be considered. These tasks include:

A. Augmenting Patient Care Capacity
B. Increasing Patient Density
C. Suspending Clinical Service Lines
D. Environment Practice Changes
E. Augmenting Patient Care Capability
F. Clinical Systems Issues
G. Ensuring Adequate Documentation
H. Altered Standards of Care
I. Medical/Surgical Supplies
J. Admission Criteria
K. Discharge Criteria
L. Admission and Discharge Process Changes
M. Using Family Members to Augment Patient Care
N. Referring Patients to Alternate Care Sites
O. Modified Infection Control Practices
P. Antiviral Prophylaxis and Treatment
Q. Vaccine Deployment
R. Morgue Operations

Associated with each section are appendices and/or suggestions to refer to other toolkit modules that offer additional details, tips and/or further explanation of important considerations for each task. Careful planning in these areas will assure that clinical operations run smoothly under the extreme conditions of a pandemic.

A

A. AUGMENTING PATIENT CARE CAPACITY

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Identify inpatient and outpatient supplemental patient care areas (areas for "patient surge").					
2	Test identified supplemental areas by placing actual equipment, beds, monitors, etc. in the area. Ensure safe access and egress.					
3	Identify bathrooms and shower areas for patients, staff and family members.					
4	Identify places in each supplemental area that can serve the roles of: ✓ Central nursing area (with IT access) ✓ Medication access control room (or cart) ✓ Pantry ✓ Clean/dirty utility area					
5	Develop procedures for providing medical gasses and suction to supplemental patient care areas.					
6	Identify staffing for supplemental areas.					
7	Ensure communication with local non-acute care providers (such as home care agencies, hospice agencies, etc.) to obtain information about their scope of services and agency surge.					

B

B. INCREASING PATIENT DENSITY

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Examine the possibility of safely increasing the number of patients per patient room throughout the facility (e.g, safely doubling up patients in single rooms, or tripling up patients in double rooms).					
2	Identify an adequate number of beds and equipment to house an increased number of patients, or develop plans to obtain additional beds and equipment when needed (Note: This should be done in advance. If the facility waits until WHO pandemic phase five or six, there is a high probability no additional equipment will be available.).					
3	Develop policies to address cohorting patients with similar infectious diagnoses to safely increase patient density.					

C

C. SUSPENDING CLINICAL SERVICE LINES

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Identify what clinical service lines will be suspended during a pandemic to reassign space to inpatient care and consider how suspension of services will affect: ✓ Community ✓ Staff and physicians ✓ Vulnerable populations ✓ Financial viability ✓ Legal liability, such as medical malpractice					

D

D. ENVIRONMENT PRACTICE CHANGES

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Identify what level of housekeeping services will be provided to patients, taking into account pandemic staffing shortages. Ensure changes are discussed with infection control professional.					
2	Identify what cleaning can be accomplished by non-environmental service staff and/or patients' family members.					
3	Develop policies and procedures outlining how medical waste will be handled during a staffing shortage. This includes red bags, sharps and any other waste requiring special handling (e.g., radioactive waste).					
4	Develop plans to ensure building maintenance continues to monitor critical areas.					
5	To the greatest extent possible, examine all environment critical functions to see that they are maintained during the pandemic, including: ✓ Safety management ✓ Security management ✓ Hazardous materials and waste management ✓ Fire safety ✓ Medical equipment management ✓ Utilities management ✓ Construction					

E

E. AUGMENTING PATIENT CARE CAPABILITY

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Identify strategies to staff supplemental patient care areas ("patient surge areas"). Consider minimum number of staff to care for anticipated types of patients.					
2	Identify non-clinical or management level staff that can be reassigned to clinical areas. (See HR module).					
3	Address training issues related to re-assigned staff, either through pre-event cross training or predesigned, just-in-time training.					
4	Develop policies and procedures to utilize volunteers or members of government-sponsored programs during a pandemic: ✓ Medical Reserve Corps (MRCs) ✓ Emergency System for Advanced Registration of Voluntary Healthcare Personal (ESAR-VHP) ✓ Community Emergency Response Teams (CERT Teams)					
5	Develop procedure to verify volunteers' credentials. Develop policies outlining what credentials will be accepted and primary source verification.					
6	Develop procedure to define scope of practice or delineation of privileges of volunteers. (See Legal module.)					

E. AUGMENTING PATIENT CARE CAPABILITY CONTINUED

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
7	Develop process to communicate scope of practice or privileges of volunteers to other staff (e.g., develop ID badge that lists competencies or privileges).					
8	Develop basic palliative care training for all direct care staff while being cognizant of the potential impact to their mental health. (See Psycho-Social Module)					

F

F. CLINICAL SYSTEMS ISSUES

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Determine process to grant access to supplemental staff (reassigned or volunteer) to critical clinical IT systems (e.g., computer charting systems, lab results, PACS, etc.). Ensure training is included.					
2	Develop process to provide just-in-time training to critical clinical systems that would be used by supplemental staff.					
3	Assess if access will be granted to supplemental staff for equipment storage units (e.g., Pyxis, locked medication carts, medication rooms, etc.), and if so, how that will be accomplished. If not, how will this affect patient care?					
4	Identify supplemental patient care areas for clinical IT systems so that patients in these areas can be tracked and orders or test results can be entered and transmitted. Facilities should test these systems periodically to ensure that rarely used supplemental patient care areas are recognized in the clinical, lab, dietary, radiology, admission, and other critical systems.					

G

G. ENSURING ADEQUATE DOCUMENTATION

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Develop charting system for patients cared for in supplemental patient care areas.					
2	Consider development of pre-printed forms for flu patients to simplify documentation.					
3	If paper-based charts are used, stockpile sufficient quantity of patient charts to cover expected number of patients in the supplemental area.					
4	If computer-based charts are used, ensure there are adequate IT resources available.					
5	Test the charting system in the supplemental patient care areas.					

H

H. ALTERED STANDARDS OF CARE

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Develop policies (including stages and triggers) related to changes in patient care practices during a pandemic. (See Legal Module) These may include: ✓ Patient-to-staff ratios ✓ Documentation expectations ✓ Housekeeping expectations ✓ Who can deliver treatment ✓ Medication administration practices ✓ Nursing practices See Appendix A					
2	Develop policy concerning palliative care during a pandemic. This should include: ✓ Stages and triggers ✓ Patient criteria ✓ Conditions for which palliative care would be considered It is important to include both influenza and non-influenza conditions in this policy as a severe staffing shortage plus patient surge would affect all patient care.					
3	Discuss changes in patient care practices with legal and regulatory experts, as well as ethics professionals. (See Legal and Ethics Modules)					
4	Consider collective bargaining implications of these changes (if applicable).					

H. ALTERED STANDARDS OF CARE CONTINUED

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
5	Develop process to quickly and efficiently communicate any changes in acceptable patient care practices to all staff.					
6	Develop process to facilitate feedback to leadership on new patient care practices as they are developed and implemented.					
7	Develop advance or just-in-time training for staff on new skills they will need due to new/reassigned job responsibilities.					
8	Review all anticipated changes that will be needed during a pandemic, and identify applicable regulations that govern each change.					
9	With appropriate authorities, discuss waiving or relaxing regulations that would be in conflict with modified patient care practices.					
10	Identify who has the authority to request regulations be waived or relaxed and triggers for such a request.					
11	Maintain list of 24-hour contact numbers for regulatory entities so that requests can be communicated as needed.					
12	Develop procedure to document, in all patient records, changes in patient care as a result of supply shortages, equipment shortages, staff shortages, etc. (e.g., language that addresses unavoidable supply, equipment, medication and personnel shortages).					

I

I. MEDICAL/SURGICAL SUPPLIES (SEE SUPPLIES, LOGISTICS AND SUPPORT SERVICES MODULE)

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Identify type and quantity of additional equipment needed to stand up supplemental patient care areas.					
2	Stockpile supplemental equipment.					
3	Investigate and develop processes for the re-use of "single use only" items.					
4	Develop policies and procedures concerning use of home supplies and equipment brought to the facility. Some restrictions on the use of home equipment may need to be lifted; however, a safe environment must be maintained.					
5	Develop process to utilize unfamiliar supplies and equipment that have been loaned or given to the facility during a public health crisis, including just-in-time training for clinical and maintenance staff, and approval/tracking of equipment use. These items may come from a government stockpile or other sources. If this new equipment requires tubing or other associated supplies, this must be communicated to the department that purchases such supplies.					

J

J. ADMISSION CRITERIA

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Develop process to adjust admission criteria during a pandemic, including trigger points. This process must include: ✓ Input from medical staff and administrative leadership ✓ Input from ethics and legal/regulatory representatives It is important to achieve facility uniformity and not allow individual practitioners to create their own admission criteria. This process should consider criteria for both flu- and non-flu-related conditions.					
2	Develop process to communicate changes in admission criteria to both facility and community practitioners. This should include: ✓ Long term acute-care hospitals ✓ Long term care facilities ✓ Skilled nursing facilities ✓ Home health agencies ✓ Assisted living facilities ✓ Hospice agencies ✓ Any other referring facilities ✓ Community practitioners If community plans include the establishment of alternate care sites, then these facilities must be included in communication as well.					

J. ADMISSION CRITERIA CONTINUED

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
3	Collaborate with referring entities to ensure that modified admission criteria will be adhered to during a pandemic.					
4	Develop plan to educate surrounding community on when to bring sick individuals to the facility. This communications plan should be coordinated with public health officials and be integrated into the community's pandemic plan.					

K

K. DISCHARGE CRITERIA

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Develop process to adjust discharge criteria during a pandemic, including trigger points. This process must include: ✓ Input from leadership ✓ Input from ethics and legal/regulatory representatives This process should consider discharge criteria for both flu- and non-flu-related conditions.					
2	Develop process to communicate changes in discharge criteria to both facility and community practitioners. This should include: ✓ Long term care facilities ✓ Long term acute-care hospitals ✓ Skilled nursing facilities ✓ Home health agencies ✓ Assisted living facilities ✓ Hospice agencies ✓ Other facilities ✓ Community practitioners					
3	Ensure processes are in place to facilitate appropriate patient follow-up.					

L

L. ADMISSION AND DISCHARGE PROCESS CHANGES

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Identify changes in admission and discharge processes that must occur during a period of greatly increased patient volume.					
2	Create policies and procedures that would be implemented to facilitate the identified changes. Impacted community entities should be included in the design process (e.g., if the discharge process to nursing facilities is to be changed, those facilities should be part of the design process).					
3	Ensure legal/regulatory and ethics staff are included in the design of these policies and procedures.					
4	Ensure the new policies and procedures are tested.					
5	Identify what supplies and equipment would be needed to implement the modified admission or discharge processes.					

M

M. USING FAMILY MEMBERS TO AUGMENT PATIENT CARE

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Develop family visitation policies for use during a pandemic. Consider how you will keep staff and family members safe from catching the influenza in the facility. Consider if you would allow children to visit.					
2	With input from ethics and legal/regulatory departments, develop policies on utilizing family members to augment patient care during a staffing shortage, including what tasks family members will be allowed to perform (e.g., simple tasks such as bathing or hygiene; complex tasks such as ventilating a family member with an AMBU bag if there were no ventilators available and insufficient staff available to perform that task).					

N

N. REFERRING PATIENTS TO ALTERNATE CARE FACILITIES

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Identify EMTALA issues that should be addressed when referring patients to alternate care facilities prior to the completion of a medical screening exam.					
2	Collaborate with community planners to integrate facility and community plans.					
3	Develop process to identify and facilitate movement of patients to and from alternate care sites.					
4	Develop policies and procedures to identify who would be a candidate for an alternate care site, how they would be transferred, and how their medical records would accompany them. Consideration should include legal/regulatory issues, and ensure adequate continuity of care for transferred patients.					
5	Develop policies and procedures to identify who should be transferred from the alternate care site to the facility. This should include medical information transfer, and must ensure continuity of care for transferred patients.					

N. REFERRING PATIENTS TO ALTERNATE CARE FACILITIES CONTINUED

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
6	If facility is involved in or responsible for implementation or staffing of an alternate care site, create plans that address: ✓ Physical space setup, staffing, equipment and supplies ✓ Environment (e.g., safety, security) ✓ Infection control ✓ Communications ✓ How to bill for service rendered ✓ IT systems ✓ Flow of laboratory/radiology results to site ✓ How family members will be informed of transfers to/from site See Appendix B					

O

O. MODIFIED INFECTION CONTROL PRACTICES

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Create procedures and guidelines to help staff safely cohort patients to increase patient density.					
2	Evaluate the minimum safe amount of separation between patients that will be allowed (three to six feet is recommended) and identify procedures to be implemented to separate people without adequate personal protective equipment; 3 to 6 feet is recommended.					
3	Develop policies addressing allowable personal and business travel for staff during different pandemic phases.					
4	Evaluate possibility and process of screening staff for illness prior to entry into facility. This policy should include: ✓ Acceptable normal temperature range ✓ How to handle elevated temperature in someone who feels well and is showing no other signs or symptoms ✓ How to handle normal temperature reading in someone who appears ill and/or is showing other signs of illness This planning process should include your employee health department.					

O. MODIFIED INFECTION CONTROL PRACTICES CONTINUED

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
5	Develop policy to protect people during face-to-face meetings during a pandemic, including severely limiting all non-essential face-to-face meetings. For those interactions where people will be in close proximity, adequate personal protective equipment must be supplied.					
6	Ensure procedures are in place to educate staff, patients and visitors on proper hand washing, sneeze/cough etiquette, and basics of flu prevention. See Appendix C					
7	Develop and implement policies regarding use of waterless hand sanitizers and determine the viability of stockpiling a supply. Facilities may wish to implement this policy now to reduce facility-acquired infections and rotate this stock through the facility. Hand sanitizer and dispensers should be included in the plans for non-traditional patient care areas.					
8	Ensure the engineering department has a process in place to modify the schedule of changing HVAC air filters based on updated infection control recommendations.					
9	Create plans and procedures for changes in housekeeping practices due to a staffing shortage during a pandemic. (See Section D)					
10	Develop process to manage respiratory isolation patients once all isolation rooms are filled.					

O. MODIFIED INFECTION CONTROL PRACTICES CONTINUED

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
11	Develop process to continually monitor and evaluate infection control recommendations from government authorities.					
12	Develop process to quickly update staff on accepted changes in infection control recommendations from government authorities.					
13	Develop process to quickly implement approved changes and ensure compliance throughout facility.					
14	Perform analysis of PPE (e.g., type and quantity of masks, gowns and gloves) that will be necessary to protect staff during a pandemic and develop process to ensure that adequate supplies are in place. Some facilities may wish to consider stockpiling PPE and rotating it through the normal facility supply chain. During a pandemic, these supplies will be in very short supply and may be unavailable.					

P

P. ANTIVIRAL PROPHYLAXIS AND TREATMENT

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Evaluate whether to stockpile antiviral medications for internal use. This evaluation should include: ✓ Availability of stockpiled antiviral medication for facility use ✓ Number of essential employees that would require antiviral prophylaxis ✓ Number of additional employees who might require antiviral treatment ✓ Medication for family members or essential contractors/vendors ✓ Medication for patients ✓ Current availability of other pharmaceutical protective measures, such as vaccines. This decision is complex in that, while these medications show good efficacy currently with very limited resistance in the current H5N1 virus, efficacy during a pandemic will not be known until the pandemic begins. Also, there may not be an adequate supply of antiviral medication for purchase once a pandemic begins as world supplies may be purchased or commandeered by government entities.					

P. ANTIVIRAL PROPHYLAXIS AND TREATMENT CONTINUED

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
2	If an antiviral program is established, ensure the facility has: ✓ A screening program in place to check for contraindications ✓ An educational program to educate employees on antiviral medication use and side effects ✓ A process to maintain security around the medications Stages and triggers for medication release					
3	If an antiviral medication program is in place, evaluate whether to pre-distribute medication to recipients, or store it centrally until a specific trigger occurs.					
4	Determine antiviral stockpile availability with the state health department.					
5	Ensure local public health is included in antiviral medication program development.					
6	Communicate with state and local health agencies to establish principles and agreement regarding unlikely seizure of privately-held antiviral caches by governmental agencies.					

Q

Q. VACCINE DEPLOYMENT

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Develop policy regarding use of any new pandemic vaccines (e.g., facility will not consider the use of any new vaccine unless it is endorsed by the CDC).					
2	Develop process to safely and efficiently administer vaccine to staff and others in accordance with public health guidelines.					
3	Develop process to track which employees have received vaccine to facilitate reassignment of patient care responsibilities. (See HR Module)					
4	Develop process to monitor vaccination side effects or complications in those that receive vaccine.					

R

R. MORGUE OPERATIONS

In your plan, consider the following:

	ASSIGNMENT	COMPLETED	IN PROGRESS	NOT STARTED	DATE TO BE COMPLETED	LEAD STAFF MEMBER
1	Develop policies and procedures to handle excess bodies once the morgue has exceeded capacity.					
2	Identify other areas that could be used to store the deceased under conditions of adequate temperature, humidity, infection control and insect/rodent control.					
3	Ensure adequate supply of body bags and identification tags are available to meet anticipated surge. (See Supplies, Logistics and Support Services module.)					
4	Collaborate with appropriate government agencies to determine what regulations might be waived during a mass fatality crisis.					
5	Ensure coroner's office and local mortuary service providers are included in mass fatality planning process.					
6	Determine minimum documentation the coroner's office will require during a mass fatality crisis.					
7	Design infection control procedures into any mass fatality plan or process to keep your staff, patients and community safe.					

APPENDIX A

Altered Standards of Care in Mass Casualty Events

Bioterrorism and Other Public Health Emergencies

Altered Standards of Care in Mass Casualty Events

Prepared for:
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Executive Summary

Background and Purpose

The events of September 11, 2001 and subsequent anthrax attacks underscored the need for U.S. health care organizations and public health agencies to be prepared to respond to acts of bioterrorism and other public health emergencies. Much has been accomplished in the past several years to improve health system preparedness. Many States and health care organizations and systems have developed preparedness plans that include enhancing surge capacity to respond to such events.

Many of these plans assume that even in large-scale emergencies, health care will be delivered according to established standards of care and that health systems will have the resources and facilities needed to support the delivery of medical care at the required level. However, it is possible that a mass casualty event—defined, for the purpose of this paper, as an act of bioterrorism or other public health or medical emergency involving thousands, or even tens of thousands, of victims—could compromise, at least in the short term, the ability of local or regional health systems to deliver services consistent with established standards of care. Therefore, it is critically important to identify, plan, and prepare for making the necessary adjustments in current health and medical care standards to ensure that the care provided in response to a mass casualty event results in as many lives being saved as possible.

To address this extremely important issue, in August 2004, a meeting of a number of the foremost experts in the fields of bioethics, emergency medicine, emergency management, health administration, health law and policy, and public health was convened by the Agency for Healthcare Research and Quality (AHRQ) and the Office of the Assistant Secretary for Public Health Emergency Preparedness (OASPHEP) within the U.S. Department of Health and Human Services (DHHS). These experts were joined by highly knowledgeable representatives from key Federal agencies and professional and other health organizations (see Appendix A for a complete list of participants). The purposes of this meeting were to:

- Examine how current standards of care might need to be altered in response to a mass casualty event in order to save as many lives as possible.

- Identify what planning, guidance, and tools are needed and what related issues need to be addressed to ensure an effective health and medical care response to a mass casualty event.

- Recommend specific action that will begin to address the needs of Federal, State, regional, community, and health systems planners on this critically important subject.

Consistent with these purposes, the panel of experts was asked to address the following questions:

- What do planners need to know to develop plans that provide an effective health and medical care response to a mass casualty event?
- What key principles should guide the planning for a health and medical response to a mass casualty event?
- What important issues must be considered and addressed in planning for the provision of health and medical care in a mass casualty event?
- What information, tools, models, and other resources are available to address the needs of planners?
- What other steps might be undertaken to move toward effective planning for such an event?

This paper summarizes the deliberations and recommendations of the expert panel.

Key Findings

The key findings that emerged from the experts' discussion of the provision of health and medical care in a mass casualty event are summarized below. These findings are discussed in greater detail in Chapters 2 and 3.

- The goal of an organized and coordinated response to a mass casualty event should be to maximize the number of lives saved.
- Changes in the usual standards of health and medical care in the affected locality or region will be required to achieve the goal of saving the most lives in a mass casualty event. Rather than doing everything possible to save every life, it will be necessary to allocate scarce resources in a different manner to save as many lives as possible.
- Many health system preparedness efforts do not provide sufficient planning and guidance concerning the altered standards of care that would be required to respond to a mass casualty event.
- The basis for allocating health and medical resources in a mass casualty event must be fair and clinically sound. The process for making these decisions should be transparent and judged by the public to be fair.
- Protocols for triage (i.e., the sorting of victims into groups according to their need and resources available) need to be flexible enough to change as the size of a mass casualty event grows and will depend on both the nature of the event and the speed with which it occurs.

- An effective plan for delivering health and medical care in a mass casualty event should take into account factors common to all hazards (e.g., the need to have an adequate supply of qualified providers available), as well as factors that are hazard-specific (e.g., guidelines for making isolation and quarantine decisions to contain an infectious disease).

- Plans should ensure an adequate supply of qualified providers who are trained specifically for a mass casualty event. This includes providing protection to providers and their families (e.g., personal protective equipment, prophylaxis, staff rotation to prevent burnout, and stress management programs).

- A number of important nonmedical issues that affect the delivery of health and medical care need to be addressed to ensure an effective response to a mass casualty event. They include:

  - The authority to activate or sanction the use of altered standards of care under certain conditions.

  - Legal issues related to liability, licensing, and intergovernmental or regional mutual aid agreements.

  - Financial issues related to reimbursement and other ways of covering medical care costs.

  - Issues related to effective communication with the public.

  - Issues related to populations with special needs.

  - Issues related to transportation of patients.

- Guidelines and companion tools related to the development of altered standards of care in a mass casualty event are needed by, and would be extremely useful to, preparedness planners at the Federal, State, regional, community, and health systems levels.

Recommended Action

The expert panel offered recommendations for action that could be undertaken to support planning an effective response to a mass casualty event. The list of recommendations is not meant to be comprehensive, but it provides a starting point for further discussion. These ideas suggest that a collaborative approach should be taken when developing next steps. Both government and private organizations have unique roles and important contributions to make in moving forward. The panel's recommendations include:

- Develop general and event-specific guidance for allocating scarce health and medical care resources during a mass casualty event.

- Develop and implement a process to address nonmedical (i.e., finance, communication, etc.) issues related to the delivery of health and medical care during a mass casualty event.

- Develop a comprehensive strategy for risk communication with the public before, during, and after a mass casualty event.

- Identify, analyze, and consider modification of Federal, State, and local laws and regulations that affect the delivery of health and medical care during a mass casualty event.

- Develop practical tools, such as searchable databases, for verifying credentials of medical and other health personnel prior to and onsite during a mass casualty event.

- Create strategies to ensure health and medical leadership and coordination for the health and medical aspects of system response during a mass casualty event.

- Continue and expand efforts to train providers and others to respond effectively in a mass casualty event.

- Develop and support a research agenda specific to health and medical care standards for a mass casualty event.

- Develop a *Community-Based Planning Guide for Mass Casualty Care* to assist preparedness planners in their efforts.

- Identify and support States, health systems, communities, and regions to develop mass casualty health and medical care response plans based on the *Planning Guide;* share their results widely.

Chapter 1. Introduction

Overview

The events of September 11, 2001 and subsequent anthrax attacks underscored the need for U.S. health care organizations and public health agencies to be prepared to respond to acts of bioterrorism and other public health emergencies. Much has been accomplished in the past several years to improve health system preparedness. Many States and health care organizations and systems have developed preparedness plans that include enhancing surge capacity to respond to such events.

Most of these plans assume that even in large-scale emergencies, health care will be delivered according to established standards of care and that health systems will have the resources and facilities needed to support the delivery of medical care at the required level. However, it is possible that a mass casualty event—defined, for the purpose of this paper, as an act of bioterrorism or other public health or medical emergency involving thousands, or even tens of thousands, of victims—could compromise, at least in the short term, the ability of local or regional health systems to deliver services consistent with established standards of care. Therefore, it is critically important to identify, plan, and prepare for making the necessary adjustments in current health and medical care standards to ensure that the care provided in response to a mass casualty event results in as many lives being saved as possible.

To address this extremely important issue, in August 2004, a meeting of a number of the foremost experts in the fields of bioethics, emergency medicine, emergency management, health administration, health law and policy, and public health was convened by the Agency for Healthcare Research and Quality (AHRQ) and the Office of the Assistant Secretary for Public Health Emergency Preparedness (OASPHEP) within the U.S. Department of Health and Human Services (DHHS). These experts were joined by highly knowledgeable representatives from key Federal agencies and professional and other health organizations (see Appendix A for a complete list of participants). The purposes of this meeting were to:

- Examine how current standards of care might need to be altered in response to a mass casualty event in order to save as many lives as possible.

- Identify what planning, guidance, and tools are needed and what related issues need to be addressed to ensure an effective health and medical care response to a mass casualty event.

- Recommend specific action that will begin to address the needs of Federal, State, regional, community, and health systems planners on this critically important subject.

Consistent with these purposes, participants were asked to address the following questions:

- What do planners need to know to develop plans that provide an effective health and medical care response to a mass casualty event?
- What key principles should guide the planning for a health and medical response to a mass casualty event?
- What important issues must be considered and addressed in planning for the provision of health and medical care in a mass casualty event?
- What information, tools, models, and other resources are available to address the needs of planners?
- What other steps might be undertaken to move toward effective planning for such an event?

This White Paper summarizes the deliberations and recommendations of this group of experts. Chapter 2 provides these experts' assessment of the need to develop and plan for the possible implementation of altered standards of care in response to a mass casualty event. Chapter 3 then outlines a framework and set of principles that can guide the development of strategies for adjusting the manner in which health and medical care is delivered in a mass casualty event to maximize the number of lives saved. Chapter 4 identifies an important set of related issues that must be addressed if these strategies are to be as effective as possible in achieving their goal. And, finally, Chapter 5 presents the experts' recommendations concerning the action steps to be taken to help States, communities, health systems, and providers to be prepared to respond to a mass casualty event in ways that save as many lives as possible.

Chapter 2. Health and Medical Care Delivery in a Mass Casualty Event

Health and Medical Care Standards in the Context of a Mass Casualty Event

Substantial work has already been done and continues to be undertaken throughout the country to improve the ability of health systems to respond to acts of terrorism or other public health emergencies. Much of the planning in this area focuses on increasing the surge capacity of affected delivery systems through the rapid mobilization and deployment of additional resources from the community, State, regional, or national levels to the affected area. However, few of these plans specifically address a situation in which the delivery system is unable to respond (even if only temporarily) according to established standards of care due to the scope and magnitude of a mass casualty event.

A key issue upon which the experts agreed is that the goal of the health and medical response to a mass casualty event is to save as many lives as possible. There is consensus that, to achieve this goal, health and medical care will have to be delivered in a manner that differs from the standards of care that apply under normal circumstances. This issue is not addressed in a comprehensive manner in many preparedness plans.[1] Finally, the experts also agreed that for health and medical care delivered under these altered standards to be as effective as possible in saving lives, it is critically important that current preparedness planning be expanded to explicitly address this issue and to provide guidance, education, and training concerning these altered care standards.

Standards of health and medical care, broadly defined, address not only what care is given, but to whom, when, by whom, and under what circumstances or in what places. A comprehensive set of standards for health and medical care specifies the following:

What—what types of interventions, clinical protocols, standing orders, and other specifications should be used in providing health and medical care?

To whom—which individuals should receive health and medical care according to their condition or likelihood of response?

When—with what urgency should health and medical care be provided?

By whom—which individuals are certified and/or licensed to provide care within a defined scope of practice and other regulations?

[1] In preparation for the expert meeting, information and a sample of existing triage protocols and preparedness models were collected and reviewed. A brief summary of that review is provided in Appendix B.

Where—what facility and system standards (pre-hospital, hospital, alternate care site, etc.) should be in place for the provision of health and medical care?

Under normal conditions, current standards of care might be interpreted as calling for the allocation of all appropriate health and medical resources to improve the health status and/or save the life of each individual patient. However, should a mass casualty event occur, the demand for care provided in accordance with current standards would exceed system resources. In a small rural hospital, 10 victims from a local manufacturing accident might be considered a mass casualty event. In a metropolitan area, several hundred victims would be manageable within system resources. In an event involving thousands of victims, preserving a functioning health care system will require a move to altered standards of care. It may also be necessary to create both pre-hospital operations and alternate care sites to supplement hospital care.

The term "altered standards" has not been defined, but generally is assumed to mean a shift to providing care and allocating scarce equipment, supplies, and personnel in a way that saves the largest number of lives in contrast to the traditional focus on saving individuals. For example, it could mean applying principles of field triage[2] to determine who gets what kind of care. It could mean changing infection control standards to permit group isolation rather than single person isolation units. It could mean limiting the use of ventilators to surgical situations. It could mean creating alternate care sites from facilities never designed to provide medical care, such as schools, churches, or hotels. It could also mean changing who provides various kinds of care or changing privacy and confidentially protections temporarily.

Hypothetical Scenarios Illustrating Changes in the Delivery of Care in Response to a Mass Casualty Event

Two hypothetical mass casualty scenarios were developed by the panel of experts to help illustrate specific ways in which care standards would have to change in response to a mass casualty event (see Exhibit 1). The first scenario involves the simultaneous explosion of multiple dirty bombs in a metropolitan area. The second scenario involves the release of a biological agent. The use of these two scenarios facilitates the examination of the impacts and implications of two serious events that differ in nature and occur at different velocities. For example, the explosive scenario would produce a large number of casualties upon detonation and place an immediate demand on all aspects of the health care system. The biological scenario would develop more slowly, with its peak impact occurring at the end of an unknown incubation period.

The examination of these scenarios revealed that the explosive and biological terrorism mass casualty scenarios are likely to share common elements, but also raise issues that are specific to the nature of each event and the speed with which the event places demands on the health care system. The following discussion highlights these common elements. Event-specific issues for each scenario appear in Exhibits 2 and 3 and are organized by setting (scene [or pre-hospital], hospital, and alternate care sites).

[2] The term triage refers to the process of sorting victims according to their need for treatment and the resources available.

Changes in Care Delivery Common to Two Scenarios

At their peaks, both the explosive and biological mass casualty scenarios are likely to involve the following:

Exhibit 1. Two Mass Casualty Scenarios Used to Identify Anticipated Changes to Care Delivery

Two mass casualty scenarios were developed by the panel of experts to help identify how care delivered at the event scene or pre-hospital setting, hospital, and alternate care sites would vary from care provided under normal circumstances.

Scenario 1. Multiple, simultaneous explosions
A series of multiple dirty bombs have been set off simultaneously throughout a large metropolitan subway system. The city's hospitals also have been targeted and approximately 40 percent of the hospitals are no longer operational. There are an estimated 10,000 victims.

Scenario 2. Biological agent release
A highly lethal communicable biological agent with a set but initially unknown incubation period has been released in a heavily populated area. Diagnosis is dependent on laboratory tests. Medical staffs are required to use personal protection equipment. Treatment requirements include patient isolation and the use of ventilators; however, the impact and effectiveness of treatment is unknown.

- *Triage efforts that will need to focus on maximizing the number of lives saved.* Instead of treating the sickest or the most injured first, triage would focus on identifying and reserving immediate treatment for individuals who have a critical need for treatment and are likely to survive. The goal would be to allocate resources in order to maximize the number of lives saved. Complicating conditions, such as underlying chronic disease, may have an impact on an individual's ability to survive.

- *Triage decisions that will affect the allocation of all available resources across the spectrum of care*: from the scene to hospitals to alternate care sites. For example, emergency department access may be reserved for immediate-need patients; ambulatory patients may be diverted to alternate care sites (including nonmedical space, such as cafeterias within hospitals, or other nonmedical facilities) where "lower level" hospital ward care or quarantine can be provided. Intensive or critical care units may become surgical suites and regular medical care wards may become isolation or other specialized response units.

- *Needs of current patients, such as those recovering from surgery or in critical or intensive care units; the resources they use will become part of overall resource allocation.* Elective procedures may have to be cancelled, and current inpatients may

have to be discharged early or transferred to another setting. In addition, certain lifesaving efforts may have to be discontinued.

- *Usual scope of practice standards that will not apply.* Nurses may function as physicians, and physicians may function outside their specialties. Credentialing of providers may be granted on an emergency or temporary basis.

- *Equipment and supplies that will be rationed and used in ways consistent with achieving the ultimate goal of saving the most lives* (e.g., disposable supplies may be reused).

- *Not enough trained staff.* Staff will be scared to leave home and/or may find it difficult to travel to work. Burnout from stress and long hours will occur, and replacement staff will be needed. Some scarce and valuable equipment, such as ventilators, may not be used without staff available who are trained to operate them.

- *Delays in hospital care due to backlogs of patients.* Patients will be waiting for scarce resources, such as operating rooms, radiological suites, and laboratories.

- *Providers that may need to make treatment decisions based on clinical judgment.* For example, if laboratory resources for testing or radiology resources for x-rays are exhausted, treatment based on physical exam, history, and clinical judgment will occur.

- *The psychological impact of the event on providers.* Short- and long-term stress management measures (e.g., Critical Incident Stress Management programs) are essential for providers and their families.

- *Current documentation standards that will be impossible to maintain.* Providers may not have time to obtain informed consent or have access to the usual support systems to fully document the care provided, especially if the health care setting is damaged by the event.

- *Backlog in processing fatalities.* It may not be possible to accommodate cultural sensitivities and attitudes toward death and handling bodies. Numbers of fatalities may make it difficult to find and notify next of kin quickly. Burial and cremation services may be overwhelmed. Standards for completeness and timeliness of death certificates may need to be lifted temporarily.

Exhibit 2. Changes Specific to Care Delivery in a Multiple Explosion (Scenario 1)

Scenario 1: *A series of multiple dirty bombs have been set off simultaneously throughout a large metropolitan subway system. The city's hospitals also have been targeted and approximately 40 percent of the hospitals are no longer operational. There are an estimated 10,000 victims.*

In addition to the changes common to both scenarios described in this report, the following additional changes in medical care delivery may occur under this scenario.

Pre-hospital

- Physicians most likely will not be at the scene. Emergency medical services and other first responders will perform triage.
- Anyone at the scene who can help may need to act as "medical staff."
- Triage protocols currently used (e.g., START, JumpSTART) may not apply, given magnitude of the event.
- Buses and other forms of nonmedical transportation may have to be used to supplement emergency transport systems.
- With an insufficient number of usual pre-hospital treatments and supplies, such as spineboards and immobilization equipment or the need to respond quickly, ambulatory victims may have to walk or self-transport to the nearest facility or hospital.

Hospital

- Even if a hospital is among those still functioning, it may experience water, heating and cooling, electricity shortages, and communication problems.
- Reserved medical supplies and equipment may not arrive quickly enough from national and regional resources, such as the Strategic National Stockpile, given the velocity of the event.
- The provider-patient relationship may be interrupted. Providers may have service-specific assignments rather than patient group assignments (e.g., they would perform all intravenous infusions rather than provide all aspects of care for a group of patients).
- The hospital may need to exercise strict control of access to and from the hospital and diversion of ambulatory victims to alternate care sites. The emergency department should be protected in order to care for more critically injured victims (i.e., those who cannot walk to the hospital) who will arrive later.
- Decontamination practices will change, so that only gross decontamination (e.g., removal of clothes) is performed.
- Only lifesaving surgeries will be performed, and initial surgical care will aim to stabilize the patient. When more resources become available, additional surgery to fully treat injuries can occur.
- The practice of ordering only the supplies needed for immediate use means that limited supplies will run out quickly. This situation will be compounded by same vendor/resource dependence. It will also be compounded by an event requiring large amounts of specialized supplies or care. Examples include mass casualty events involving mostly children (substantial pediatric supplies needed) or demand for burn beds and related care.

Alternate Care Sites

- Ambulatory patients will be redirected to alternate care sites within or outside of the hospital, such as the hospital cafeteria or a nearby school, to be re-triaged and receive care for minor injuries.

Exhibit 3. Changes Specific to Care Delivery in a Biological Event (Scenario 2)

Scenario 2: *A highly lethal communicable biological agent with a set but initially unknown incubation period has been released in a heavily populated area. Diagnosis is dependent on laboratory tests. Medical staff are required to use personal protection equipment. Treatment requirements include patient isolation and the use of ventilators; however, the impact and effectiveness of treatment is unknown.*

In addition to the changes common to both scenarios described in this report, the following additional changes in medical care delivery may occur under this scenario.

Pre-hospital

- There will be no initial "scene" in a biological event. Pre-hospital activity related to triage, diagnosis, and case identification, will be done at physicians' offices, community health centers, emergency departments, and even pharmacies.
- Communication among providers will be important in order to develop a coordinated understanding of the symptoms and a systematic approach to treatment that is consistent with coordinated planning.
- Public health/epidemiological surveillance, including data mining from disparate sources (such as over-the-counter medication purchases, work/school absenteeism, etc.) may be useful in outbreak analysis and epidemiological projection.
- Emergency medical services may be used to transport victims to specific quarantine or isolation locations and other alternate care sites.

Hospital

- The emphasis will be on prevention and contagion control, as well as treatment, depending on staff and resources available. Victims who are conclusively diagnosed as infected will be isolated. Group isolation may be necessary.
- "Suspected" exposure patients will be quarantined. If laboratory tests and other diagnostic tools are not available, these patients may be treated based on histories reported and physician clinical judgment.
- Staff shortages are likely at all hospitals due to concerns about exposure to the infection. A recent survey suggests that as many as 50 percent of hospital workers may not show up for work during a bioterrorism event.
- Protection of all staff and their families, such as prophylaxis, will be needed to help ensure adequate staffing (including nonmedical staff such as housekeeping and dietary staff).
- "Early treaters/responders" will have to be quarantined and treated as if they have been exposed to the biological agent. Their quarantine will have a negative impact on provider supply.
- Demand for pharmaceuticals is likely to outstrip the supply. Both experimental and expired drugs may have to be used.
- Initially, standards of care initially may improve for the first wave of patients, but as the number of victims increases, standards could degrade.

Alternate Care Sites

- Alternate care sites will be used for triage and distribution of vaccines or other prophylactic measures, as well as for quarantine, minimum care, and hospice care.

Based on a review of the health and medical care issues presented by these two scenarios, the panel of experts identified a need for more guidelines to ensure a systematic approach to decisionmaking in mass casualty events. Guidelines should take into account and be scaleable to the size, nature, and speed of the event, so that they can guide the following decisions:

- How to ensure and protect an adequate supply of trained providers and support staff.
- How to triage patients into groups by the nature of their condition, probability of success of interventions/treatment, and consideration of resources available.
- How to maintain infection control and a safe care environment.
- How to use and reuse common supplies and equipment, such as gloves, gowns, and masks.
- How to allocate scarce clinical resources of a general nature, such as beds, surgery capability, and laboratory and other diagnostic services.
- How to allocate scarce and highly specialized clinical resources, such as decontamination units, isolation units, ventilators, burn beds, and intensive and critical care units.
- How to treat specific conditions, including how to make best use of available pharmaceuticals.
- How to protect health care providers and support staff and their families.
- How to modify documentation standards to ensure enough information to support care and obtain reimbursement without posing an undue administrative burden.
- How to manage excessive fatalities.

As illustrated in these scenarios, the occurrence of a mass casualty event will require significant changes in the way in which health and medical care is delivered under extraordinary circumstances. The panel of experts was quite clear in its view that if the health care system is to be successful in saving as many lives as possible, planning, education, and training efforts should be focused on the development and implementation of appropriate altered standards of care in response to a mass casualty event. A framework and set of principles to guide work in this area were developed by the panel and are presented in the next chapter.

Chapter 3. Framework and Guiding Principles When Planning for Health and Medical Care in a Mass Casualty Event

Framework

The expert panel suggested that a framework for planning should take into account the ways in which response to a mass casualty event is both similar to and different from responses to current surge capacity issues in health care facilities. The goal is to devise a framework that is applicable to both ordinary ("daily routine") and extraordinary situations. To this end, they recommended that plans for a medical care response to a mass casualty event should:

- Be compatible with or capable of being integrated with day-to-day operations.
- Be applicable to a broad spectrum of event types and severities.
- Be flexible, to permit graded responses based on changing circumstances.
- Be tested, to determine where gaps in the framework exist.

A model reflecting the concept of a graded response that is sensitive to changing circumstances was shared with the panel and is depicted in Exhibit 4. This matrix illustrates how the release of a biological agent resulting in mass casualties would require that health and medical care standards be altered over time as the disease progresses within the population and demands on the health system grow. The disease progresses from a pre-release state (upper left) through death, at each stage placing greater demands on the system, and thus requiring increasing alterations in standards. This staged model approach allows for the development of care guidelines for each stage that are consistent with the overall goal of maximizing the number of lives saved.

Although Exhibit 4 is based on a disease model, this graded response could be adapted easily to other types of mass casualty events (e.g., chemical releases or explosions) by compressing the stages according to the magnitude and velocity of the event. High magnitude, high velocity events will require the system to adopt altered standards more quickly than smaller or slower-developing events. However, it is also important to recognize that as the impact of the event wanes and resources become more available, it may be possible to return to established standards of care used in normal situations.

Exhibit 4. How Health and Medical Care Standards May Have to Be Modified in a Mass Casualty Event by Stage of Disease in the Population

Level of Standards ➔ / Stage of Disease in the Population	Normal Medical Care Standards	Near Normal Medical Care Standards	Focus on Key Lifesaving Care	Total System/ Standards Alteration
		(alternate sites of care, use of atypical devices, expanded scope of practice)	(cannot offer everyone highest level of care but can offer key lifesaving care)	(questions asked about who gets access to what resources)
Pre-release of agent	✓			
Release responses	✓	✓		
Symptomatic		✓	✓	
Illness			✓	✓
Death			✓	✓

Source: Dr. Michael Allswede, University of Pittsburgh, UPMC Health System

Guiding Principles for Developing Altered Standards of Care to Respond to a Mass Casualty Event

In addition to offering suggestions for a framework for the development of plans to respond to a mass casualty event, the expert panel also articulated five principles that should steer the development of such guidelines. Incorporating these five principles will ensure that standards of care are altered sufficiently to respond to issues arising from a mass casualty event.

Principle 1: In planning for a mass casualty event, the aim should be to keep the health care system functioning and to deliver acceptable quality of care to preserve as many lives as possible.

Adhering to this principle will involve:

- Allocating scarce resources in order to save the most lives.

- Developing a basis for the allocation of resources that is fair, open, transparent, accountable, and well understood by both professionals and the public.

- Ensuring, to the possible extent, a safe environment for the provision of care, and placing a high priority on infection control measures, and other containment processes.

Principle 2: Planning a health and medical response to a mass casualty event must be comprehensive, community-based, and coordinated at the regional level.

Effective planning should:

- Be done at the facility level. However, facility-level planning alone is not sufficient.

- Integrate facility-level planning into a regional systems approach.

- Involve a broad array of public and private community stakeholders.[3]

- Begin with the agreement on shared responsibility among all partners in the planning process. It is not adequate for individual institutions and systems to have emergency response plans unless those plans are coordinated into a single unified response system.

- Be consistent. Planning also should be integrated with Federal, State and local emergency plans.

Principle 3: There must be an adequate legal framework for providing health and medical care in a mass casualty event.

An adequate legal framework for providing health and medical care in a mass casualty event would do the following:

- Include a designation of the authority to declare an emergency and implement temporary alterations in standards of care.

- Define the conditions for temporary modification of laws and regulations that govern medical care under normal conditions.

- Be simple, clear, and easy to communicate to providers and the public.

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[3] These stakeholders include: emergency management agencies, police and fire departments, emergency medical services, ambulance and other transport providers, health departments and community health centers, hospitals, ambulatory care centers, private physician offices, medical examiners, nursing homes, health centers, mental health services, morticians, and others. They also may include schools, churches, hotels, businesses, and other organizations that can provide space for alternate care facilities and cooperate in the preplanning required to activate such sites.

- Be flexible enough to accommodate the demands of events that vary in size and velocity, such as an explosive or biological event.

Principle 4: The rights of individuals must be protected to the extent possible and reasonable under the circumstances.

The rights of individuals must be protected to the extent possible and reasonable:

- In establishing and operationalizing an adequate legal framework for the delivery of care.
- In determining the basis on which scarce resources will be allocated.
- When considering limiting personal freedom through quarantine or isolation as well as the conditions for release.
- When privacy and confidentiality may have to be breached.

Principle 5: Clear communication with the public is essential before, during, and after a mass casualty event.

To manage expectations and educate the public about the impact of an event, whom to call for information, where to go for care, and what to expect, the following points should be kept in mind:

- The public should be brought into the discussion during the early stages of planning so that citizens develop a clear understanding of concepts such as rationing of resources.
- Public understanding and acceptance of plans are essential to success.
- Messages should be consistent and timely at all stages.
- Official health and medical care messages should be delivered through public media by a local physician whom the public perceives to have knowledge of the event and the area, a representative of the Centers for Disease Control and Prevention (CDC), or the Surgeon General, depending on the level of communication necessary.
- Spokespersons at all levels—local, State, regional, and Federal—should coordinate their messages.
- It may be necessary to vary the modes of communication according to the type of information to be communicated, the target audience for which it is intended, and the operating condition of media outlets, which may be directly affected. Variations that illustrate this point but that do not reflect expert discussion include the need to use languages other than English and the need to use alternatives to usual media outlets in the affected area. Also, national audience messages would be less detailed and specific than messages to the affected area.

Chapter 4. The Larger Context: Important Related Issues

The expert panel emphasized that, for health systems and providers to respond effectively to a mass casualty event, a number of important legal, policy, and ethical issues related to altered standards of care must be addressed before such an event occurs. These issues are discussed below.

The Authority to Activate the Use of Altered Standards of Health and Medical Care

It is important to establish clear authority to activate the use of altered standards of health and medical care. The following questions pertain:

- What circumstances will trigger a call for altered standards of care?
- Who is authorized to make that call, and at what level (site, community, region, State, or Federal) should the call be made?
- Under what legal statutory authority, should the call be made?
- Once the call is made, who assumes responsibility for directing emergency actions?
- What is the relationship of otherwise autonomous institutions to the incident management system?

Generally, when a decision exceeds the authority of a particular organization or region, responsibility for the decision moves to the next level of decisionmaking and authority. Nonetheless, it is advisable that State and local jurisdictions empower local decisionmakers to act before Federal or other outside assistance arrives. Some decisions may emanate from public officials at higher levels of authority, such as the mayor, governor, or president, whereas clinical decisions will need to come from health and medical professionals closer to the event.

While decisions made by those closer to the event may trigger a move to altered standards of care, policies that support the move to altered standards must be put in place by the highest levels of authority necessary. For example, during a mass casualty event, a hospital may decide that the demand for medical care has exceeded the hospital's ability to provide care under normal standards. This decision will require a move to expanded functions for staff (e.g., nurses may perform some physician duties). In this case the decision to move to altered standards of care emanates from the clinical level. However, it is important that the appropriate higher level of authority has put in place the policies, such as provisions allowing the modification of State

scope of practice laws that support the decision and empower the hospital's nurses or other health care staff to provide an expanded level of care.

Examples of existing resources that offer starting points for addressing questions of authority are described in the accompanying exhibits. One is a draft checklist developed by the American Bar Association for State and local government attorneys to prepare for possible disasters (Exhibit 5). Another is the Model State Emergency Health Powers Act (Exhibit 6). A third is draft executive orders developed in Colorado that create a legal framework for an emergency and address a variety of legal issues (Exhibit 7).

Exhibit 5. Draft Checklist for State and Local Government Attorneys to Prepare for Possible Disasters

Questions of authority are addressed by the "Draft Checklist for State and Local Government Attorneys To Prepare for Possible Disasters" prepared by the Task Force on Emergency Management and Homeland Security of the State and Local Government Law Section, American Bar Association (March 2003).

The checklist includes lists of questions pertaining to authority in general, authority for surveillance, and intergovernmental joint powers agreements. It also addresses public information, administrative and fiscal issues, contracting, personnel, and liability.

For more information, see http://www.abanet.org/statelocal/disaster.pdf

Exhibit 6. Model State Emergency Health Powers Act

The Model State Emergency Health Powers Act (Model Act) grants specific emergency powers to State governors and public health authorities in the event of a large public health emergency. The Model Act was developed for the Centers for Disease Control by The Center for Law and the Public's Health at Georgetown and Johns Hopkins Universities to ensure an effective response to large-scale emergency health threats while protecting the rights of individuals. It provides a broad set of powers for an entity called the Public Health Authority.

As it may relate to altered standards of care, the Model Act provides that a declaration of an emergency activates the disaster response and recovery aspects of State, local, and interjurisdictional disaster emergency plans. There is no mention of local-level involvement. The Public Health Authority is empowered to take control over facilities (health care and other) and "materials," such as food, fuel, clothing and other commodities, and roads. It may control health care supplies by rationing resources; establishing priority distribution to health care providers, disaster response personnel and mortuary staff; and establishing a general distribution to all others. It may establish and enforce quarantine and other infection control measures.

The following provisions of the Model Act have provoked considerable discussion among public health scholars and practitioners:

- *Quarantine*. "Special Powers" of the Public Health Authority apply to: performing physical examinations, necessary tests, and/or vaccination. Any person refusing examination, tests, or vaccination may be isolated or quarantined. These sections (601, 603) have been subject to media and public scrutiny. States have designed widely differing solutions. However, the Model act has helped to modernize State laws on quarantine and encourages greater consistency among State laws regarding quarantine provisions.
- *Liability*. Health care providers are not held liable for any civil damages, except in cases where they are found to be negligent in treating or in failing to provide treatment. This includes out-of-State health care providers for whom relevant permits to practice have been waived by the Public Health Authority. The Model Act also explicitly states that except in cases of gross negligence or willful misconduct, the State (and the State and local officials specified in the act) is not liable for any property damage, death, or injury incurred as a result of complying with the Act (§804(a)).
- *Compelling Provider Participation*. The Model Act states (§608 (a)) that the Public Health Authority can compel in-State health care providers to assist in vaccination, testing, treatment, or examination of an individual as a licensure condition.
- *Other Provisions*. Other provisions of the Model Act include the use of otherwise protected private medical information, public information obligations, access to mental health services and personnel, compensation for private property (calculated according to nonemergency eminent domain procedures) and reimbursement for health care supplies.

For more information, see http://www.publichealthlaw.net/Resources/Modellaws.htm

Exhibit 7. Colorado's Approach to Planning for Disaster Emergencies—Executive Orders

Colorado has chosen to plan for disaster emergencies by using draft executive orders to create a legal framework for an emergency and address a variety of legal issues. These orders are summarized in this exhibit.

- *Executive Order 0.0 Declaring a State of Disaster Emergency Due to Criminal Acts of Biological Terrorism.* This executive order declares a disaster emergency of an epidemic type. The Governor's Expert Emergency Epidemic Response Committee would meet and advise the governor that an emergency exists. The governor would then issue this order, which is good for 30 days and sets the stage for other orders directing specific actions to meet the emergency.
- *Executive Order 1.1 Ordering Hospitals to Transfer or Cease the Admission of Patients to Respond to the Current Disaster Emergency.* In directly authorizing hospitals to cease admissions and transfer patients, this order permits hospitals to determine on their own without central guidance whether they have reached their capacity to examine and treat patients. It further grants immunity from civil or criminal liability to those hospitals, physicians, and emergency service providers who act in good faith to comply with the executive order. The order takes the position that the Emergency Medical Treatment and Labor Act (EMTALA) requirements do not preempt this order.
- *Executive Order 2.0 Concerning the Procurement and Taking of Certain Medicines and Vaccines Required to Respond to the Current Disaster Emergency.* This order authorizes the seizure of certain named drugs from public and private outlets listed in the State's pharmacy statutes, and embargoes the supply of those drugs. At the same time, it exempts from seizure those supplies that certain facilities are required to keep on hand for the chemoprophylaxis of their employees. It provides for keeping records of drugs embargoed and for compensating the outlets at the cessation of the emergency.
- *Executive Order 3.0 Concerning the Suspension of Certain Statutes and Regulations to Provide for the Rapid Distribution of Medication in Response to the Current Disaster Emergency.* This order implements Colorado's Strategic National Stockpile Plan and suspends certain pharmacy statutes to facilitate the rapid distribution of medicines and vaccines in response to an emergency epidemic. The order further authorizes named officials to direct listed health care providers to participate in this effort and explicitly permits the limited participation in that effort by nonmedical personnel. The order is not intended for application in response to a chemical event.
- *Executive Order 4.0 Concerning the Suspension of Physician and Nurse Licensure Statutes to Respond to the Current Disaster Emergency.* This order permits physicians and nurses who hold a license in good standing in another State, or who hold an unrestricted but inactive Colorado license, to practice under the supervision of a Colorado-licensed physician during the emergency, provided they do so without charge to the State or any individual patient or victim. This order would permit more physicians and nurses to be available to treat infected persons during the emergency.
- *Executive Order 5.0 Concerning the Suspension of Certain Licensure Statutes to Enable More Colorado Licensed Physician Assistants and Emergency Medical Technicians to Assist in Responding to the Current Disaster Emergency.* Under normal conditions, physician assistants (PAs) and emergency medical technicians (EMTs) licensed in Colorado can practice only in association with or under the supervision of physicians by prior agreement. This order permits PAs and EMTs to practice under the supervision of any licensed physicians in order to afford treatment to the greatest number of infected individuals. The PAs, EMTs, and physicians involved are granted immunity from civil or criminal liability if they act in good faith to meet the terms of the order.
- *Executive Order 6.0 Concerning the Isolation and Quarantining of Individuals and Property in Response to the Current Disaster Emergency Epidemic.* This order empowers the Colorado Department of Public Health and Environment to establish, maintain, and enforce isolation (of infected individuals) and quarantine of (exposed individuals) as needed to protect the public health in an epidemic situation. It further grants similar powers to local boards of health to combat infectious disease epidemics.
- *Executive Order 7.0 Ordering Facilities to Transfer or Receive Patients with Mental Illness and Suspending Certain Statutory Provisions to Respond to the Current Disaster Emergency.* This order permits the transfer of mentally ill persons from a designated facility to some other facility as necessary to treat them for the infectious disease causing the epidemic. It further specifies requirements related to required services and use of identifying personal information, and provides for immunity from civil or criminal liability for any facility acting in good faith under the order.
- *Executive Order 8.0 Concerning Suspension of Certain Statutes Pertaining to Death Certificates and Burial Practices in Response to the Current Disaster Emergency.* This order suspends the statutory timing requirements for filing death certificates and authorizes the executive director of the Colorado Department of Public Health and Environment to direct the disposition of dead bodies in a manner that will protect the public health.

Legal and Regulatory Issues

The organization and delivery of health care is highly regulated. In a mass casualty event, it is likely that some provisions for temporary modification of regulatory requirements at all levels of government will be necessary. At the present time, uncertainty about legal issues, particularly liability, may be creating a reluctance to anticipate and plan for a mass casualty event that would require altered health and medical care standards. As mentioned earlier, it is important to establish clear authority to activate altered standards of medical care. Alternatives may include enhancing or modifying a number of laws and regulations pertaining to the delivery of health and medical care in normal conditions. The level of authority necessary to modify laws and regulations during a mass casualty event will correspond with whether they are Federal, State, regional, or local laws. However, in all cases, it is important to make all providers and institutions aware of the established legal framework and authority to modify laws and regulations, so that responders to a mass casualty event will know which laws do and do not apply in a given situation.

To the extent possible, existing laws and other mechanisms should be used to the fullest and should not impede the process of planning for a mass casualty event. It is therefore important to examine existing State public health laws, licensing/certification laws, interstate emergency management compacts and mutual aid agreements, and other legal and regulatory arrangements to determine the extent to which they meet potential new threats. Any waivers granted are likely to be targeted to the affected area for a temporary and specified period of time. In the case of a mass casualty event involving a communicable agent that moves from region to region, it will be important to have flexibility to extend or expand such waivers.

Some of the Federal, State, and local laws and regulations that govern the delivery of health and medical care under normal conditions may need to be modified or enhanced in the case of a mass casualty event. These include laws to: ensure access to emergency medical care; protect patient privacy and confidentiality of medical information; shield medical providers and other rescuers from lawsuits; govern the development and use of health and medical facilities; and regulate the number of hours health and medical providers can work as well as the conditions in which they work. Relevant laws include but are not limited to the following:

- Emergency Medical Treatment and Active Labor Act (EMTALA).
- Health Insurance Portability and Accountability Act (HIPAA).
- Federal Volunteer Protection Act.
- Good Samaritan Law.

Additional types of laws and regulations that relate to the delivery of health and medical care include:

- 80-hour work week rule for medical residents.
- Occupational Safety and Health Administration and other workplace regulations.

- Building codes and other facility standards.

- Publicly funded health insurance laws (including Medicare, Medicaid, and the State Children's Health Insurance Program).

- Laws pertaining to human subject research.

- Laws and regulations governing the use and licensure of drugs and devices.

In developing a comprehensive plan for the delivery of health and medical care during a mass casualty event, it is important to consider mechanisms to allow for legal, regulatory, or accreditation adjustments in the following areas:

- *Liability of providers and institutions for care provided under stress with less than a full complement of resources*. The plan may have to provide for "hold harmless" agreements or grant immunity from civil or criminal liability under certain conditions.

- *Certification and licensing.* Although it is important to ensure that providers are qualified, it is also important to have flexibility in granting temporary certification or licenses for physicians, nurses, and others who are inactive, retired, or certified or licensed in other States.

- *Scope of practice.* It may be necessary to grant permission to certain professionals on a temporary and emergency basis to function outside their legal scope of practice or above their level of training.

- *Institutional autonomy.* If organizations and institutions cede their authority in order to participate in a unified incident management system in a crisis, the plan may have to address the legal implications for those organizations.

- *Facility standards.* Standards of care that pertain to space, equipment, and physical facilities may have to be altered in both traditional medical care facilities and alternate care sites that are created in response to the event.

- *Patient privacy and confidentiality.* Provisions of HIPAA and other laws and regulations that require signed releases and other measures to ensure privacy and confidentiality of a patient's medical information may have to be altered.

- *Documentation of care*. Minimally accepted levels of documentation of care provided to an individual may have to be established, both for purposes of patient care quality and as the basis for reimbursement from third-party payers.

- *Property seizures.* Provisions may have to be made to take over property, including facilities, supplies, and equipment, for the delivery of care or to destroy property deemed unsafe.

- *Provisions for quarantine or mass immunization.* In anticipation of a biological event, the plan will have to address the establishment and enforcement of isolation, quarantine, and mass immunization and provisions for release or exception.

Financial Issues

Preparing for and providing health and medical care during a mass casualty event could result in large financial losses for all involved organizations, if issues surrounding the financing of such preparation and care are not addressed. Concern about financial resources and reimbursement for health and medical care provided during a mass casualty event applies to all providers, organizations, and sites, including governmental and nongovernmental, not for profit and for profit. It includes concern about costs of the following:

- Providing care in traditional medical settings, alternate care sites and pre-hospital care settings.
- Creating alternate care sites in settings such as schools, neighborhood centers, or hotels.
- Training providers.
- Staging drills.
- Repairing physical plant damage.

One potential source of disaster relief is the Stafford Act (Public Law 93-288). However, financing from the Federal government must be supplemented by funds from other public as well as private organizations. In preparing a comprehensive plan, it may be very valuable for planners to include financial management experts from the participating organizations, such as hospital systems. In addition formal mutual aid agreements or other contracts should be developed in advance to document relationships, expectations, and requirements related to obtaining emergency reimbursements. On the patient side, issues of financial access, such as requiring proof of insurance, apply. This concern is closely related to legal issues of documentation for reimbursement. It is not likely that providers will be able to maintain documentation practices beyond what is considered minimally adequate to support treatment; altered standards of documentation for reimbursement purposes may have to be defined.

Communicating with the Public

Comprehensive plans for responding to a mass casualty event include strategies for communicating with the public before, during, and after an event, as follows:

- Prior to the occurrence of a mass casualty event, the goal should be to educate the public about:
    - Signs and symptoms of chemical, biological, radiological, and other exposures.
    - Appropriate self-care responses.
    - Appropriate use of health and medical care.
    - What to expect from the health care system in the event of a mass casualty incident.
- During a mass casualty incident, the goal should be to:
    - Provide information to the public about the status of the response.
    - Give consistent messages about when and where to seek care.
    - Manage expectations regarding the delivery of health and medical care.
    - Provide guidance on how to obtain information about the status of missing persons.
- Following a mass casualty incident, the goal should be to provide ongoing information to the public about:
    - Signs and symptoms of sequelae of exposure to toxic agents and post-traumatic stress.
    - Who to call for information.
    - Where to go for help.

Clear communication with the public is an essential part of a health and medical response to a mass casualty event. In order to deliver clear and appropriate messages before, during, and after a mass casualty event, it is important to consider a number of issues:

- Providing consistent and regular messaging, preferably through a single spokesperson with professional (medical) credibility, is highly desirable.
- Conveying clinical information requires particular care to assure that a lay audience can understand it.
- Distinguishing between political and professional messages is essential.
- Making provisions for communication in languages other than English may be necessary.

Strategies for public communication can be built from effective models of risk communication in use today for natural disasters, such as hurricanes and earthquakes. They should reflect and be tied to our long history of civil defense and other preparedness efforts dating as far back as World War II and the Cold War.

Ensuring an Adequate Supply of Health Care Providers

One of the key components of an effective health and medical care response is ensuring adequate supplies of a broad array of qualified responders and providers who are available and willing to serve in a mass casualty event. This is likely to involve the following:

- Recruiting from retired or currently unemployed but qualified volunteer providers within the community and State.
- Making use of reserve military medical and nursing providers and other responders, as well as an expanded group of providers, such as veterinarians, dentists and dental auxiliary providers, pharmacists, and health professional students.
- Modifying State certification and licensing requirements to allow out-of-State providers to practice on a temporary basis.
- Modifying State regulations on a temporary basis to broaden scope of practice standards among various trained providers.
- Reallocating providers from nonemergency care and nonemergency sites to emergency response assignments and from unaffected regions to affected regions (this will involve identifying skill sets of each practitioner group [e.g., paramedics, nurse midwives, etc.], so as to optimize reassignment potential).
- Creating and training a pool of nonmedical responders to support health and medical care operations.
- Making adequate provisions to protect providers (and their families) who serve in mass casualty event situations to ensure their willingness to respond.
- Developing systems for the advance registration and credentialing of clinicians to augment health care personnel needs during a mass casualty event.

Provider Training and Education Programs

Adopting altered standards of care, even temporarily, will have a significant impact on health care delivery operations and therefore on the needs of providers for training and education to

serve in those circumstances. Planners should not assume that individual providers will know how to deliver appropriate care in a mass casualty event, but rather should develop or identify training programs to ensure a knowledgeable and systematic, coordinated response effort.

A wide array of preparedness training has been designed and is being delivered throughout the country. Some of the training has been evaluated for effectiveness. In the absence of a national clearinghouse for training for all providers and conditions, it is not possible to provide a complete picture of what is available and effective. General principles that might guide the development and identification of effective training include the following:

- Training should be competency based.
- Training should be ongoing.
- Training should be provided to all responders, including nonmedical personnel and potential community volunteer responders, as well as primary care providers in office and clinic settings.
- Training should be based on the doctrine of daily routine, which assumes that providers will do best what they do most often, but anticipate extension and expansion of provider roles.
- Training should be provided on a just-in-time basis only where appropriate, especially if it differs from daily routine.
- Training should be specific to the role a person is likely to play in a mass casualty event (e.g., clinic nurses and nurse aides may need training in burn care).
- Training should be specific to the conditions of performance (type of hazard, type of site) and involve opportunities to practice new skills through simulation and other mechanisms.
- Training should be effective, as demonstrated by evaluations and trainee performance.
- Training should be made available to all potential traditional and non-traditional providers, including veterinarians, dentists and dental auxiliary providers, pharmacists and health professional students.

A beginning list of the types of training needed by all responders and providers in pre-hospital, hospital, and alternate care sites includes but is not limited to the following:

- General disaster response, including an introduction to altered standards of care and how the move to such standards may affect triage and treatment decisions as well as facility conditions.
- Legal and ethical basis for allocating scarce resources in a mass casualty event.

- Orientation on how an incident management system would work in a mass casualty event.

- How to treat populations with special needs (e.g., children and elderly persons).

- How to recognize the signs and symptoms of specific hazards and a trend of similar types of signs and symptoms.

- How to treat specific conditions.

- How to recognize and manage of the effects of stress on themselves and their patients.

Finally, as components of preparedness training are defined, they should be incorporated into the original training for each provider group. For example, if paramedics are expected to participate in mass immunizations or assist in emergency departments, it would be desirable that they get basics on immunization and sterile technique in their original training.

Protection of Health Care Providers and Facilities

It is important for planners to consider the following to ensure the protection of health care providers:

- Personal protective equipment, prophylaxis, and other protections that enable them to work safely.

- Training specific to provider responsibilities and to the nature of the event.

- Adequate rotation of staff to prevent burnout and errors due to fatigue.

- Freedom from threats of malpractice (see earlier discussion of legal issues).

- Mental health support during and following stressful situations (e.g., Critical Incident Stress Management).

- Care and support for health care providers' families.

A related concern is to protect the integrity and safety of existing health care facilities (e.g., hospitals, the providers who work there, and the patients who are already under care) at the time a mass casualty event occurs. The protection of alternate care sites created in response to a mass casualty event would also be important. A plan to protect health care facilities might include steps to ensure the following:

- Current patients and facility staff do not become secondary victims.

- Contaminated victims are not permitted to enter "clean" treatment areas.
- Facilities may utilize temporary security procedures, such as lockdowns, to enforce safety.
- Decontamination processes in all care settings are adequate.
- Noncritically ill patients are safely relocated to other facilities, if needed.

Caring for Populations with Special Needs

It is essential that plans for the delivery of health and medical care in a mass casualty event address how the special needs of several groups within the general population can be met. These needs may vary from providing for alternate means of decontamination for babies and other nonambulatory persons, to having translators available at intake centers, to providing mental health assessment resources within the health care setting. Involving organizations and services designed to serve groups with special needs under normal conditions may be a successful approach. As mentioned earlier, a victim's underlying medical condition may affect their survivability, and therefore may be considered negatively in triage. In some cases resources may be diverted away from adults to children because of their greater life expectancy.

Populations recognized as having special needs in a mass casualty event include but may not be limited to the following:

- *Children.* The unique physiology and wide variation in physical and cognitive development by age within childhood requires that triage personnel be trained in pediatric triage standards and other pediatric assessment protocols (e.g., JumpSTART); family care and adult care be available in pediatric settings; appropriately-sized supplies, equipment, and medication doses be available; and safe use of decontamination procedures be ensured. Provisions for treating children whose parents are not present and for treating parents who will not leave their children are important considerations.
- *Persons with physical or cognitive disabilities.* As under normal standards of care, provisions to accommodate the special disability-related needs of some persons are important aspects of the organization of care. These are likely to include issues of physical access to and within care sites, alternative and safe decontamination procedures, enhanced communication, and issues involving informed consent.
- *Persons with preexisting mental health and/or substance abuse problems.* Preexisting mental health and substance abuse conditions are known to exacerbate an individual's ability to cope with physical and emotional trauma. Provisions should be made for screening and direction to appropriate services as part of triage or other assessment protocols.

- *Frail or immunocompromised adults and children.* Individuals in these groups who are victims may require adjustments in treatment regimens and special monitoring, but these adjustments will be made within the context of any overriding goal to maximize lives saved.

- *Non-English speakers.* Local and regional planning may have to take into account the need for communication tools in languages other than English. Although printed materials of a general nature may be prepared in advance, printed materials and signs will not be an adequate response for those who cannot read any language. An additional challenge may be present if undocumented individuals fear discovery and reprisal if they come forward for health care in a mass casualty event. Involvement of formal and informal networks, organizations, and media outlets that serve non-English speaking groups is essential.

Transportation of Patients

Addressing issues related to the transportation of patients during a mass casualty event is also important. Roads may be blocked and the emergency transport system will not be adequate to meet the need. Issues to consider include the following:

- Who will accompany patients, since health and medical personnel may be needed elsewhere?

- How should all available public and private transport, including public and school buses, taxis, and limousines, be mobilized?

- What kind of prior agreements can be established to ensure this mobilization can occur?

Chapter 5. Recommended Action Steps

Several recommendations for action related to planning a health and medical care response to a mass casualty event are identified below. The list of recommendations is not meant to be comprehensive, but it provides a starting point for discussion. These ideas suggest that a collaborative approach should be taken when developing next steps; both government and private organizations have unique roles and important contributions to make in moving forward.

Step 1: Develop general and event-specific guidance for allocating scarce health and medical care resources during a mass casualty event.

Public and private organizations, including professional societies, should develop guidance in specific areas related to allocating scarce clinical resources. Examples include but are not limited to the following:

- Triage guidelines and measures for specific types of events.
- Allocation guidelines for scarce resources, such as ventilators, burn beds, or surgical suites.
- Guidance for the triaging and treatment of children, specifically the ways in which altered standards of care might differ for a pediatric population.

Step 2: Develop and implement a process to address nonclinical issues related to the delivery of health and medical care during a mass casualty event.

Examples of nonclinical issues include but are not limited to the following:

- Alternative ways to establish authority to move to altered standards of health and medical care in a mass casualty situation.
- Alternative ways to ensure an adequate legal framework, including liability, certification and licensing, and mutual aid agreements for the provision of health and medical care in a mass casualty event.
- Alternative ways to resolve issues of finance and reimbursement issues related to the provision of health and medical care in a mass casualty event.

Step 3: Develop a comprehensive strategy for risk communication with the public before, during, and after a mass casualty event.

Experts agreed that a unified strategy and tools for public communication around mass casualty risk and health and medical care response are indicated. Part of the challenge is to craft credible messages that the public will perceive as immediately relevant and important to their daily lives without causing undue alarm. Such a strategy should take the form of anticipatory guidance. Messages should be developed collaboratively with various stakeholders (such as the American Hospital Association, the Joint Commission on the Accreditation of Health Care Organizations, and others), that should also participate in their dissemination.

Specific ideas and suggestions made regarding public communication include but are not limited to the following:

- Continue and expand CDC training of journalists to cover health events as a means to partner effectively with the media in reaching the public.
- Find effective ways to communicate clinical information to lay audiences.
- Utilize primary care providers and local public health departments, especially nurses, in getting out agreed-upon messages in local communities on a one to one basis.
- Provide a communications capability at the level of the individual facility as well as through joint information centers.
- Include communications internal to health care facilities and among system components, such as hospitals and alternate care sites, in communications strategies.
- Build on the HANS (Health Alert Network System), part of CDC's emergency alert system, to develop an overall communication strategy.

Step 4: Identify, analyze, and consider modification of Federal, State, and local laws and regulations that may affect the delivery of health and medical care during a mass casualty event.

As part of an effort to develop a legal framework for providing health and medical care in a mass casualty situation, an effort should be made to create a compendium of laws and regulations at the Federal, State and local levels that affect the delivery of health and medical care. This compendium of laws and regulations would facilitate the creation of an adequate legal framework for moving to altered standards of care when necessary. It would identify the following:

- The responsible parties for each law or regulation (local, State or Federal government).

- Circumstances when each law or regulation can be modified.

- Specific ways each law or regulation could be modified on a temporary basis.

Step 5: Develop means for verifying credentials of medical and other health personnel prior to and on-site during a mass casualty event.

In disaster situations, individuals who claim to be qualified providers and who want to volunteer their services typically approach health care facilities. In order to be able to make use of such resources, facility and incident managers need to have tools and methods, such as searchable databases, for verifying credentials. Efforts are underway at both the State and Federal levels to address this need. Emergency Systems for Advance Registration of Volunteer Health Care Personnel (ESAR-VHP), as outlined in the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188), as well as the Medical Reserve Corps credentialing efforts, and other State-developed systems are examples of tools that could be useful in this regard.

Step 6: Create strategies to ensure health and medical leadership and coordination for the health and medical aspects of system response during a mass casualty event.

Experience in developing preparedness strategies suggests there is a need to assure high-level health and medical leadership at the system and regional levels. For some systems and regions, this may involve creating a designated Medical Disaster Specialist or a role with comparable responsibilities to coordinate the health and medical aspects of system response. The expertise required ensuring appropriate health and medical leadership in a mass casualty event includes the following:

- Knowledge about how and when to initiate altered standards of care.

- Knowledge and skill to facilitate communication and provide the link between the medical care system and overall incident response.

- Knowledge and skill to provide disaster-related medical leadership in a system of community or region, including all aspects of medical preparedness and response.

- Knowledge and skill to provide leadership for training.

- Knowledge of and the ability to match hospital and system-specific resources to interventions in a crisis.

- Knowledge of surge plans, resources, and techniques for that particular region/city.

- Knowledge and skill in developing resource-sharing agreements, such as regional travel teams and memoranda of understanding, with adjacent areas.

Step 7: Continue and expand efforts to train providers and others to respond effectively in a mass casualty event.

A wide range of provider training is needed to ensure an effective health and medical response to a mass casualty event. Training needs include, but are not limited to:

- General disaster response, including an introduction to altered standards of care and how the move to such standards may affect triage and treatment decisions as well as facility conditions.
- Legal and ethical basis for allocating scarce resources in a mass casualty event.
- Orientation to how an incident management system would work in a mass casualty event.
- How to treat children and other groups who may need special equipment or modified approaches to care.
- How to recognize the signs and symptoms of specific hazards.
- How to treat specific conditions.
- How to recognize and manage of the effects of stress on themselves and their patients.

General principles to guide the design of effective training programs are included in Chapter 4.

Step 8: Develop and support a research agenda specific to health and medical care standards for mass casualty events.

Ideas for research related to health and medical care standards for mass casualty events are listed below. The focus of these suggested studies should be on practical application, testing, and sharing of promising practices.

- Examine how different combinations of resources, signs/symptoms, and response to treatment may affect the numbers of lives that can be saved. A better understanding of survivability is especially important in developing criteria for the allocation of scarce treatment resources.
- Analyze or develop models to predict how much injury or illness can be prevented under different kinds of mass casualty scenarios. A better understanding of achievable reductions in injury and illness is important to setting goals for a system under stress.

- Examine international models and other real-world experiences of health and medical care delivery for evidence of what happens when "usual" rules are suspended or impossible to maintain. Other models and experiences may include specific disaster experiences (e.g., the Madrid train bombing and suicide bombings in Israel), as well as countries whose health systems operate daily with mildly, moderately, or severely constrained resources compared with the U.S. health care system. The focus of the research might be on methods for and outcomes of rationing scarce resources under different conditions.

- Evaluate all aspects of demonstrations and mock mass casualty events, such as "TOPOFF 3" and other drills, to find and address weak points in the system.

- Conduct research on effective risk communication with the public.

- Identify ways to share promising and tested practices in resource sharing (e.g., mutual aid agreements in St. Louis, Louisiana, New York City, and New Jersey).

Step 9: Develop a Community-Based Planning Guide for Mass Casualty Care.

Experts agree that local and regional planners need a resource to assist them in enhancing surge capacity plans so that they include situations involving mass casualty events. A *Community-Based Planning Guide for Mass Casualty Care* could be developed that includes guidelines, principles, templates, and examples of promising or tested practices for addressing the many and varied aspects of this task, whether the focus is site-specific, local, regional, or statewide. Although some tools and resources exist that could be incorporated into a *Planning Guide*, others—including guidelines for the allocation of scarce resources during a mass casualty event—have yet to be fully developed or evaluated. It is important that the *Planning Guide* not be prescriptive, but rather offer suggestions and identify tools and resources that may be useful in guiding triage and the allocation of scarce resources.

Step 10: Identify and support States, health systems, and regions to develop mass casualty and health and medical care response plans based on the Planning Guide and to share their results widely.

A number of practice-oriented "centers of excellence" could be supported in their efforts to build on surge capacity planning to prepare for a health and medical response to mass casualty events. The goal would be to move beyond specific elements of a plan limited to facilities, such as hospitals, to create a health and medical care response plan that is coordinated among its participants and with the overall emergency response system for the system or region. A central expectation of this approach is that the supported centers would develop and implement plans based on the *Planning Guide* and serve as demonstrations whose results would be widely shared with peers around the country.

Appendixes

Final Participant List: Expert Meeting on Mass Casualty Medical Care, August 3-4, 2004, The Hotel George, Washington, DC

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Preliminary Review of Selected Emergency Response Protocols and Models

A preliminary review of a number of triage protocols and preparedness models was conducted prior to the expert meeting to assess the extent to which these documents provided explicit guidance on the issue of altered standards of care in the context of a mass casualty event. Brief summaries of the review of several field triage protocols and the Modular Emergency Medical System (MEMS) are presented below.

Field Triage Protocols

One category of altered standards of care focuses on specific methods for field triage. In a mass casualty situation of any magnitude, methods of triage, or sorting victims according to their condition and resources available, are used to identify and, if possible, move to immediate treatment those who are most likely to survive or can benefit the most from treatment. Thus, triage standards address who receives care and when care is provided or the urgency with which it is provided. Triage is performed most often by first responders.

Triage begins in the field if there is a fixed event site; however, it also occurs within care settings, such as hospitals and alternate care sites, where individual victims may present themselves for care independent of organized responses. Secondary triage also may be necessary within a facility, such as a hospital, as demands on the system grow.

Several well-established standards for triage are currently in use.[1-5] Triage systems include START; JumpSTART (a pediatric modification to START); START, then SAVE; MASS; and others. Each system seeks to establish a small number of categories among victims that indicate the urgency with which they should be treated. Colors are often used to represent the categories—for example, red (immediate care); yellow (delayed); green (ambulatory and minor injuries); and black (dead and/or "expectant).

The adequacy of the triage system used depends on the nature of the event and the population affected. For example, systems such as START and JumpSTART are trauma-oriented and may be effective in an explosive event. Traditional epidemic approaches to triage, considered more appropriate for biological events, sort infected patients into three categories: susceptible individuals, infected individuals, and removed individuals (by successful immunization, recovery, or death).

These standards have the impact of allocating resources for patient care. The standards are relevant to pre-hospital, hospital, and alternate care sites and to a situation where resources are constrained and demand is so great that rationing is required. While most systems offer detailed clinical measurements of status for triage purposes, they do not, by definition, provide actual clinical protocols for the treatment that would follow.

Modular Emergency Medical System

Another type of standard that is pertinent to this discussion is one that addresses the organization of care and provides a context in which triage and medical care guidelines would be used. The Modular Emergency Medical System (MEMS) offers a comprehensive plan of operations and standards for responding to a mass casualty event of such size that alternate care delivery sites would be required.

MEMS emerged in response to Title IV of The Defense against Weapons of Mass Destruction Act of 1996 (Public Law 104-201). The law required that the Secretary of Defense develop and carry out a program to improve the responses of Federal, State, and local agencies to emergencies involving biological and chemical weapons. In response, the U.S. Department of Defense (DOD) created the Biological Warfare Improved Response Program. DOD then invited the Departments of Health and Human Services (DHHS), Energy (DOE), and Agriculture (USDA), and the Federal Emergency Management Agency (FEMA), the Federal Bureau of Investigation (FBI) and the Environmental Protection Agency (EPA), as well as emergency responders and managers from multiple States and local communities, to participate.

MEMS offers detailed standards for a system of care that can be expanded and contracted in modular units as the need arises. It provides a framework for the organization of care, particularly for setting up predetermined, special-use alternate care sites. Thus, MEMS answers the questions of what general kinds of care are provided and where (alternate site standards). In specifying the staffing required for alternate care sites, MEMS also addresses who will provide care. One of the underlying assumptions in MEMS is that resources will be brought in or created within the area most affected by the mass casualty event. Exhibit B-1 on the following page graphically depicts the operation of MEMS.

Appendix B References

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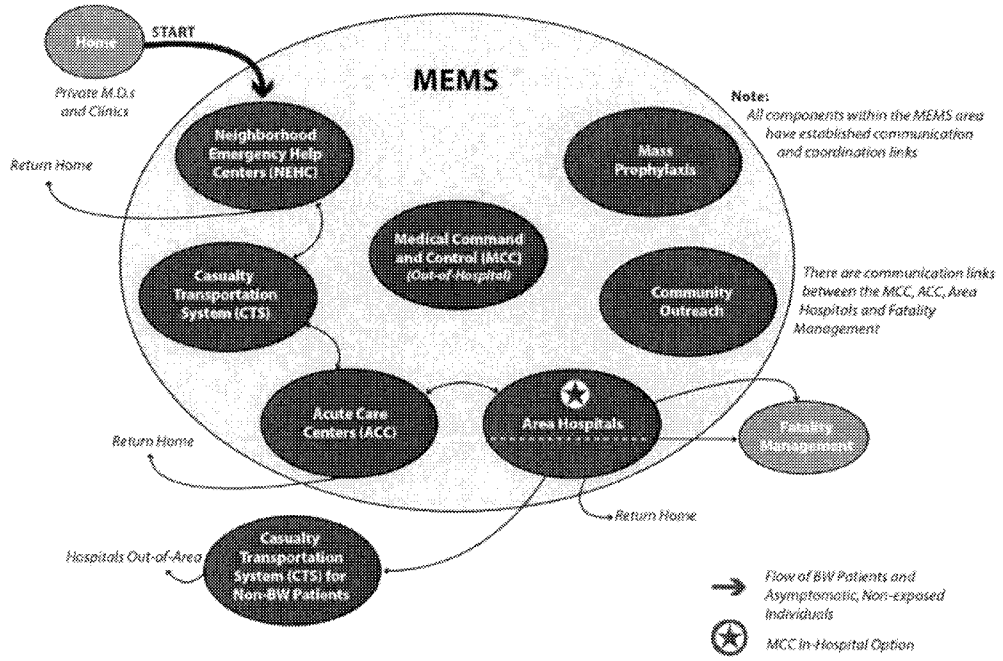
Appendix B. Preliminary Review of Selected Emergency Response Protocols and Models (continued)

Exhibit B1. Operation of the Modular Emergency Medical System (MEMS)



SOURCE: U.S. Army Soldier and Biological Chemical Command. Modular Emergency Medical System: Expanding Local Healthcare Structure in a Mass Casualty Incident. June 2002. Retrieved Aug. 17, 2004, from http://accem.org/pdf/mems_copper_book.pdf

APPENDIX B

Excerpt From Supplement 3 of HHS' Pandemic Influenza plan

B. Planning for provision of care in non-hospital settings

Planning and effective delivery of care in outpatient settings is critical. Appropriate management of outpatient influenza cases will reduce progression to severe disease and thereby reduce demand for inpatient care. A system of effective outpatient management will have several components. To decrease the burden on providers and to lessen exposure of the "worried well" to persons with influenza, telephone hotlines should be established to provide advice on whether to stay home or to seek care. Most persons who seek care can be managed appropriately by outpatient providers. Health care networks may designate specific providers, offices, or clinics for patients with influenza-like illness. Nevertheless, some persons with influenza will likely present to all medical offices and clinics so that planning and preparedness is important at every outpatient care site. In underserved areas, health departments may establish influenza clinics to facilitate access. Hospitals should develop a strategy for triage of potential influenza patients, which may include establishing a site outside of the Emergency Department where persons can be seen initially and identified as needing emergency care or may be referred to an outpatient care site for diagnosis and management. Finally, home health care providers and organizations can provide follow-up for those managed at home, decreasing potential exposure of the public to persons who are ill and may transmit infection

Effective management of outpatient care in communities will require that health departments, health care organizations, and providers communicate and plan together. Issues to address include:

- Plan to establish and staff telephone hotlines.
- Develop training modules, protocols and algorithms for hotline staff.
- Within health care networks, develop plans on the organization of care for influenza patients and develop materials and strategies to inform patients on care-seeking during a pandemic
- For clinics and offices, develop plans that include education, staffing, triage, infection control in waiting rooms and other areas, and communication with healthcare partners and public health authorities.

1. Non-hospital healthcare facilities

The hospital planning recommendations (see S3-III.A) can serve as a model for planning in other healthcare settings, including nursing homes and other residential care facilities, and primary care health centers. All healthcare facilities should do the following:

- Create a planning team and develop a written plan.
- Establish a decision-making and coordinating structure that can be tested during the Interpandemic Period and will be activated during an influenza pandemic.
- Determine how to conduct surveillance for pandemic influenza in healthcare personnel and, for residential facilities, in the population served.
- Develop policies and procedures for managing pandemic influenza in patients and staff.
- Educate and train healthcare personnel on pandemic influenza and the healthcare facility's response plan.
- Determine how the facility will communicate and coordinate with healthcare partners and public health authorities during a pandemic.
- Determine how the facility will communicate with patients and help educate the public regarding prevention and control measures.
- Develop a plan for procuring the supplies (e.g., personal protective equipment [PPE]) needed to manage influenza patients.
- Determine how the facility will participate in the community plan for distributing either vaccine or antiviral drugs, including possibly serving as a point of distribution and providing staff for alternative community points of distribution.

Emergency medical services, private homecare services, FQHCs, and rural health clinics may adapt their planning activities from this model. In some parts of the country, FQHCs and rural health clinics may need to rely on volunteers to provide and administer pandemic influenza vaccines.

C. **Alternative care sites**

If an influenza pandemic causes severe illness in large numbers of people, hospital capacity might be overwhelmed. In that case, communities will need to provide care in alternative sites (e.g., school gymnasiums, armories, convention centers). (Also see http://www.ahrq.gov/research/altsites.htm.) The selection of alternative care sites for pandemic influenza should specifically address the following infection control and patient care needs:

- Bed capacity and spatial separation of patients
- Facilities and supplies for hand hygiene
- Lavatory and shower capacity for large numbers of patients
- Food services (refrigeration, food handling, and preparation)
- Medical services
- Staffing for patient care and support services
- PPE supplies
- Cleaning/disinfection supplies
- Environmental services (linen, laundry, waste)
- Safety and Security

APPENDIX C

CDC's Interim Recommendations for Infection Control in Healthcare Facilities

Interim Recommendations for Infection Control in Health-Care Facilities Caring for Patients with Known or Suspected Avian Influenza

Objective

This document provides interim guidance for protection of health-care workers involved in the care of patients in the United States with known or suspected avian influenza. Depending upon where avian influenza is active in the world, such patients may be recently returning travelers entering U.S. health-care facilities or individuals who have had close contact with domestic poultry infected with avian influenza in the United States. For information regarding the clinical and epidemiologic criteria to be used in screening patients for possible avian influenza, see the "Update on Influenza A(H5N1) and SARS: Interim Recommendations for Enhanced U.S. Surveillance, Testing, and Infection Control" (www.cdc.gov/flu/han020302.htm) and "Interim Recommendations for Persons with Possible Exposure to Avian Influenza During Outbreaks Among Poultry in the United States" (www.cdc.gov/flu/han022404.htm).

Background

Influenza viruses that infect primarily birds are called "avian influenza viruses" (www.cdc.gov/flu/avian/facts.htm). These type A influenza viruses are genetically distinguishable from influenza viruses that usually infect people. There are many subtypes of avian influenza A viruses, including H7 and H5. Avian influenza viruses can be distinguished as "low pathogenic" and "highly pathogenic" forms based on genetic features of the virus and the severity of the illness they cause in poultry.

Avian influenza viruses do not usually infect humans; however, several instances of human infections and outbreaks of avian influenza have been reported since 1997 (for more information, see "Basic Information About Avian Influenza" at www.cdc.gov/flu/avian/facts.htm). In 2003, influenza A (H7N7) infections occurred in the Netherlands among persons who handled infected poultry and among their families during an outbreak of avian flu among poultry. More than 80 cases of H7N7 illness were confirmed by testing (the symptoms were mostly confined to eye infections, with some respiratory symptoms), and one patient died (a veterinarian who had visited an H7N7 influenza-affected farm). Although there was evidence of limited person-to-person spread of infection, sustained human-to-human transmission did not occur in this or other outbreaks of avian influenza. It is believed that most cases of avian influenza infection in humans have resulted from contact with infected poultry or contaminated surfaces. However, other means of transmission are also possible, such as the virus becoming aerosolized and landing on exposed surfaces of the mouth, nose, or eyes, or being inhaled into the lungs.

Infection and disease in people caused by highly pathogenic avian influenza H5N1 infection have been identified recently in Vietnam and Thailand. On February 1, 2004, the World Health Organization (WHO) reported that laboratory test results had confirmed two fatal cases of human H5N1 infection in Vietnam in which human-to-human transmission may have occurred. The cases occurred in two sisters who were part of a cluster of four cases of severe respiratory illness in a single family. According to WHO, a detailed investigation of this cluster concluded that limited human-to-human transmission was one possible explanation, but direct poultry-to-human transmission could not be ruled out.

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The following interim recommendations are based on what are deemed optimal precautions for protecting individuals involved in the care of patients with highly pathogenic avian influenza from illness and for reducing the risk of viral reassortment (i.e., mixing of genes from human and avian viruses). The ability of low pathogenic avian influenza viruses to cause infection and serious disease is less well established, but appears to be lower than that of highly pathogenic viruses based on available information. Nonetheless, it is considered prudent to take all possible precautions to the extent feasible when caring for patients with known or possible avian influenza.

Rationale for Enhanced Precautions

Human influenza is thought to transmit primarily via large respiratory droplets. Standard Precautions plus Droplet Precautions are recommended for the care of patients infected with human influenza. However, given the uncertainty about the exact modes by which avian influenza may first transmit between humans additional precautions for healthcare workers involved in the care of patients with documented or suspected avian influenza may be prudent. The rationale for the use of additional precautions for avian influenza as compared with human influenza include the following:

- The risk of serious disease and increased mortality from highly pathogenic avian influenza may be significantly higher than from infection by human influenza viruses.
- Each human infection represents an important opportunity for avian influenza to further adapt to humans and gain the ability to transmit more easily among people.
- Although rare, human-to-human transmission of avian influenza may be associated with the possible emergence of a pandemic strain.

Recommendations for Avian Influenza

All patients who present to a health-care setting with fever and respiratory symptoms should be managed according to recommendations for respiratory hygiene and cough etiquette (www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm) and questioned regarding their recent travel history.
Patients with a history of travel within 10 days to a country with avian influenza activity and are hospitalized with a severe febrile respiratory illness, or are otherwise under evaluation for avian influenza, should be managed using isolation precautions identical to those recommended for patients with known Severe Acute Respiratory Syndrome (SARS). These include:

- Standard Precautions
  - Pay careful attention to hand hygiene before and after all patient contact or contact with items potentially contaminated with respiratory secretions.

- Contact Precautions
  - Use gloves and gown for all patient contact.
  - Use dedicated equipment such as stethoscopes, disposable blood pressure cuffs, disposable thermometers, etc.

- Eye protection (i.e., goggles or face shields)
  - Wear when within 3 feet of the patient.

- Airborne Precautions
  - Place the patient in an airborne isolation room (AIR). Such rooms should have monitored negative air pressure in relation to corridor, with 6 to 12 air changes per hour (ACH), and exhaust air directly outside or have recirculated air filtered by a high efficiency particulate air (HEPA) filter. If an AIR is unavailable, contact the health-care facility engineer to assist or use portable HEPA filters (see "Environmental Infection Control Guidelines" at www.cdc.gov/ncidod/dhqp/gl_environinfection.html) to augment the number of ACH.
  - Use a fit-tested respirator, at least as protective as a National Institute of Occupational Safety and Health (NIOSH)-approved N-95 filtering facepiece (i.e., disposable) respirator, when entering the room.[1]

For additional information regarding these and other health-care isolation precautions, see the "Guidelines for Isolation Precautions in Hospitals" (www.cdc.gov/ncidod/dhqp/gl_isolation.html). These precautions should be continued for 14 days after onset of symptoms or until either an alternative diagnosis is established or diagnostic test results indicate that the patient is not infected with influenza A virus. Patients managed as outpatients or hospitalized patients discharged before 14 days with suspected avian influenza should be isolated in the home setting on the basis of principles outlined for the home isolation of SARS patients (see www.cdc.gov/ncidod/sars/guidance/i/pdf/i.pdf).

Vaccination of Healthcare Workers against Human Influenza

Health-care workers involved in the care of patients with documented or suspected avian influenza should be vaccinated with the most recent seasonal human influenza vaccine. In addition to providing protection against the predominant circulating influenza strain, this measure is intended to reduce the likelihood of a healthcare worker's being co-infected with human and avian strains, where genetic rearrangement could take place, leading to the emergence of potential pandemic strain.

Surveillance and Monitoring of Healthcare Workers

Instruct healthcare workers to be vigilant for the development of fever, respiratory symptoms, and/or conjunctivitis (i.e., eye infections) for 1 week after last exposure to avian influenza-infected patients. Healthcare workers who become ill should seek medical care and, prior to arrival, notify their healthcare provider that they may have been exposed to avian influenza. In addition, employees should notify occupational health and infection control personnel at their facility.

With the exception of visiting a health-care provider, health-care workers who become ill should be advised to stay home until 24 hours after resolution of fever, unless an alternative diagnosis is established or diagnostic tests are negative for influenza A virus. While at home, ill persons should practice good respiratory hygiene and cough etiquette (www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm) to lower the risk of transmission of virus to others.

[1] Respirators should be used in the context of a complete respiratory protection program as required by the Occupational Safety and Health Administration (OSHA). This includes training, fit-testing, and fit-checking to ensure appropriate respirator selection and use. To be effective, respirators must provide a proper sealing surface on the wearer's face. Detailed information on a respiratory protection program is provided at this OSHA web page: www.osha.gov/SLTC/etools/respiratory.