Commonwealth of Massachusetts

Influenza Pandemic Preparedness Plan

Revised January 2006

This planning document was developed by the Massachusetts Department of Public Health, with valuable assistance from the Massachusetts State/Local Pandemic Planning Committee using the document, *Pandemic Influenza: A Planning Guide for State and Local Officials 2.1* (CDC, U.S. Dept. of Health & Human Services.) The first version of the Influenza Pandemic Planning Document was posted in April 2001.

Massachusetts continues to make substantial progress in preparing to effectively respond to an influenza pandemic. This has been done through activities to enhance the annual influenza program and thereby reduce the annual toll from influenza, and through activities focused more generally on increasing preparedness for bioterrorism and other public health emergencies. The Massachusetts State/Local Pandemic Planning Committee and the Massachusetts Adult Immunization Coalition provide valuable feedback and guidance to MDPH on the influenza program. The Statewide Bioterrorism Preparedness Advisory Committee and the Hospital Preparedness Planning Committee, as well as statewide work groups focusing on laboratory preparedness, epidemiology and surveillance, the Health Alert Network, the strategic national stockpile, education and training, risk communication and hospital surge capacity, provide valuable expertise and assistance to MDPH in carrying out preparedness activities funded through the CDC Bioterrorism Cooperative Agreement.

Version 2 of the Massachusetts Pandemic Preparedness Planning Document represents progress made in pandemic preparedness since 2001 and is based on updated guidance from the CDC Pandemic Influenza: A Planning Guide for State and Local Public Health Officials (Draft June 2004).

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An influenza pandemic will pose two distinct and serious threats to the residents of Massachusetts:

- Devastating health effects and
- Disruption of critical community services due to incapacitation of the"human infrastructure".

Both require contingency planning.

Phases of a Pandemic

The World Health Organization (WHO) has defined phases of a pandemic to assist with planning and response activities. For purposes of consistency, comparability and coordination of the national, state and local response, identification and declaration of the following phases will be done at the national level.

Pandemic Phase	Definition
Interpandemic Period	
Phase 1	No new influenza subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals.
Phase 2	No new influenza virus subtypes have been detected in humans. However, as circulating animal influenza virus subtype poses a substantial risk of human disease.
Pandemic Alert Period	
Phase 3	Human infection(s) with a new subtype but no human-to-human spread or at most rare instances of spread to close contacts.
Phase 4	Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.
Phase 5	Large cluster(s) but human-to-human spread is still localized, suggesting that the virus is becoming increasingly better adapted to humans but may not yet be fully transmissible (substantial pandemic risk)
Pandemic Period	
Phase 6	Pandemic phase: Increased and sustained transmission in the general population.
Postpandemic period	Return to the interpandemic period (Phase 1)

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Section 1

Command, Control and Management Procedures

1. The Department's Center for Emergency Preparedness (CEP) and staff in the Center for Clinical and Laboratory Services (CCLS), Bureau of Communicable Disease Control (BCDC), have been working together to address a variety of concerns associated with planning and preparing for a potential influenza pandemic

   As part of the CEP's overall coordination across MDPH programs, a bi-weekly meeting is held with the leadership of the CEP, the CCLS, and the Center for Environmental Health (CEH). In addition an internal MDPH executive committee w as formed in late 2004 to enhance planning efforts and to facilitate the state of readiness to respond to an influenza pandemic. The internal MDPH Executive Committee for Pandemic Planning includes the following individuals:

   Paul J. Cote, Jr., Commissioner
   Alda Rego-Weathers, Deputy Commissioner
   Alfred DeMaria, Jr., Chief Medical Officer, Director, BCDC, State Epidemiologist
   Suzanne K. Condon, Associate Commissioner, CEH/CEP* (*interim)
   Nancy Ridley, Associate Commissioner, Director, Betsy Lehman Center and Hospital Preparedness Program
   Donna E. Rheaume, Director, Public Affairs Office
   Pejman Talebian, Acting Director, Division of Epidemiology and Immunization
   Donna Lazorik, Adult Immunization Coordinator
   Susan Lett, Medical Director, Immunization Program
   Donna Levin, General Counsel
   Robert Paone, Strategic National Stockpile Coordinator, CEP
   Kathy Atkinson, Assistant Commissioner, Interim Chief of Staff
   Bruce Cohen, Acting Director, Center for Health Statistics, Research & Evaluation
   Cheryl Bushnell, Public Health Nursing Advisor II, Center for Community Health
   Jeff Timperi, Behavioral Health and Special Populations Liaison

The Executive Office for Health and Human Services (EOHHS) has also established a senior executive team focused on the development of Continuity of Operations Plans (COOP) to be used for pandemic influenza and other public health emergencies. Each agency has also identified a lead individual for each of the 15 EOHHS agencies who is responsible for the planning, implementation and evaluation of the COOP. In collaboration with the Governor's office and the Executive Office of Public Safety (EOPS), this COOP is being expanded to all of

Massachusetts state government via agency representatives to the Massachusetts Emergency Management Team (MEMT).

2. Coordination with Partners and Stakeholders involves three key areas:

a. Promoting awareness:
b. Assigning specific responsibilities; and
c. Development of specific components of the plan.

a. Promoting Awareness

In an effort to promote awareness of the potential for an influenza pandemic, the Executive Committee asked MDPH staff in the CEP and the BCDC to work together on the planning and conduct of an initial tabletop exercise to include the Massachusetts Emergency Management Team (MEMT) agencies as well as private industry. The tabletop was held on January 25, 2005, in partnership with the Massachusetts Executive Office of Public Safety (EOPS), Massachusetts Emergency Management Agency (MEMA). The State Emergency Operations Center (SEOC), which serves as MEMA's headquarters, was the location of the training. MEMA takes the lead in responding to all emergencies in the state as part of their Comprehensive Emergency Management Plan (CEMP). The CEMP includes roles and responsibilities of all state essential services functions (ESF) including the private sector (ESF-18). The January 25, 2005, exercise included senior managers from EOPS including MEMA, ESF-8 (i.e., MDPH) and ESF-18 (i.e., members of the private sector).

b. Specific Responsibilities

The MDPH will assume a leadership role in incident command in the event of an influenza pandemic. Initially, the CEP director and the CEP on-call team member will report to MEMA headquarters where the state's emergency operations center (EOC) is located**. The Department's Chief Medical Officer and Director of Communicable Disease Control will remain stationed at the State Laboratory where epidemiology and analytic laboratory staff are located. Through use of a switchboard connect, MEMA, the State Lab and MDPH headquarters (i.e., The Commissioner and other MDPH leadership) will be in continuous communication. The incident commander will coordinate with these individuals to direct surveillance, prophylaxis and maintenance of health/medical services. The MDPH organizational chart is provided as Figure 1.

** The MDPH on-call team is composed of twelve individuals who serve on rotating weekly shifts throughout the year.

In addition to these response efforts, the agency specific COOP leaders will be activated to ensure that critical government operations continue without interruption.

c. Plan Components

The pandemic plan is an annex to the Massachusetts CEMP.

3. Address Major Priorities

The principal elements of this pandemic plan, including a description of the command, control and management structure and functions, are generally outlined in the CEMP. Several documents developed by or in collaboration with CEP staff as part of emergency preparedness planning are also important reference documents including but not limited to:

- The Risk Communication Plan for MDPH
- The Infectious Disease Emergency Planning (IDEP)
- The EDSOTM Plan (Emergency Dispensing Site Operation and Management Plan)
- Surge Capacity Plan

These plans should be reviewed periodically during the inter-pandemic period.

Interpandemic Period:

- Meet with appropriate partners and stakeholders and review major elements of the plan
- Modify the plan as needed on an urgent basis

Pandemic Alert:

- Activate enhanced syndromic and other disease surveillance and the MDPH risk communication plan
- Review vaccine and antiviral medication distribution per the IDEP and EDS
- Brief Massachusetts Governor's office and other administration officials as well as legislators of the need for additional resources (if not already available)

Pandemic Period:

- Ask Governor's office to declare state of emergency?
- Fully activate the plan
- Coordinate activities with local health departments/regional coalitions and neighboring jurisdictions (i.e., interstate)
- Interface with appropriate counterparts at the national level
- Initiate vaccine and antiviral medication distribution per IDEP and EDS

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Section 2

Surveillance

The Influenza Pandemic Surveillance Plan describes the system that will be used in Massachusetts to detect and characterize circulating strains of influenza virus and generate epidemiologic information. This information will be used to guide the actions of public health officials during a pandemic. The pandemic surveillance system will build upon the existing influenza surveillance infrastructure of the Massachusetts Department of Public Health (MDPH).

Currently MDPH takes part in all five activities associated with national surveillance in the United States:

1. The MDPH State Laboratory Institute (SLI) reports the number and type of isolates to CDC on a weekly basis, as well as submitting isolates to the CDC for typing.
2. MDPH epidemiologists gather and report data to the CDC's Activity Level Assessment for the State and Territorial Epidemiologist's report on a weekly basis.
3. Forty-one provider sites report percent influenza-like illness to the CDC weekly and submit specimens to SLI on a regular basis.
4. Nine cities report the percentage of total deaths by influenza and pneumonia each week.
5. MDPH Isolation and Quarantine Requirements require that providers and laboratories report positive influenza laboratory results, including rapid influenza diagnostic tests, as well as outbreaks and other influenza-associated events.

Additionally, pediatric deaths due to influenza are reportable in Massachusetts, and therefore, MDPH follows up on all such cases. Lastly, MPDH is involved with two syndromic surveillance efforts that monitor influenza morbidity.

Interpandemic Period:

1. **MDPH influenza surveillance team:** MDPH has established an Influenza Surveillance Team that is comprised of the Immunization Program medical director, 3 immunization epidemiologists and the MDPH adult immunization coordinator/pandemic planning coordinator. The MDPH Influenza Surveillance Team meets weekly to plan, revise and continually enhance the MDPH influenza surveillance program. Due to continued avian influenza activity in Asia and in an effort to expand and improve surveillance, the team has done the following in the last year:
   - Developed a tool for reporting rapid diagnostic test results via teleform on a weekly basis
   - Updated and reorganized the state influenza website to make it more user friendly for health care providers as well as the general public.
   - Sent sentinel site recruitment letters to approximately 13,000 providers

- Merged several lab databases into one interactive database that can generate reports, graphs, and maps
- Developed advisory for providers and laboratorians, with guidance on identification, diagnosis and reporting of avian influenza in humans.
- Strongly encouraged current sentinel sites to participate in year-round reporting.
- Initiated a weekly email newsletter to all sentinel sites with updated information about current influenza epidemiology in Massachusetts, the United States and worldwide, particularly in Asia.
- Due to CDC request of enhancing influenza surveillance due to avian influenza, the importance of year round reporting was stressed to all sentinel sites via a memo on the subject.

Ongoing duties of the MDPH Influenza Surveillance Team include:

- Evaluate, improve and update the state influenza website.
- Develop and distribute weekly updates on the MDPH influenza website for public and health care professionals.
- Interface with external providers to facilitate syndromic surveillance.
- Distribute on a weekly basis an electronic copy of a summary of flu activity in Massachusetts to sentinel providers.
- Investigate and record outbreaks of influenza-like illness (ILI) in institutions, including long term care facilities, as well as in the community.
- Conduct weekly assessments during flu season of overall flu activity in the state for the Activity Level Assessment for the State and Territorial Epidemiologists report and submit that data to CDC each by noon on Tuesday each week.
- Contribute to state pandemic planning activities.
- Maintain a strong working relationship with the SLI.
- Summarize current flu seasons and compare to previous years in annual report.
- Distribute influenza viral testing kits free of charge to sentinel and non-sentinel sites throughout the year.
- Encourage sentinel providers to submit specimens for influenza virus identification and subtyping to the SLI.
- Monitor sentinel provider data weekly for completeness and errors and follows up on unusual reports.
- Provide weekly feedback via an electronic newsletter to sentinel providers, encouraging reporting.
- Conduct site-visits to sentinel sites to provide continued education as well as to facilitate site's weekly ILI reporting.

- Maintain the following databases:
  - Rapid influenza diagnostic test database from data obtained by teleform reporting by providers around the state.
  - Database program that includes influenza cultures isolated at either SLI or at other facilities. The database can generate maps and graphs. It is used to compare percentage of ILI increases or decreases in each region week to week at sentinel sites. These data are used for the Activity Level Assessment for the weekly State and Territorial Epidemiologists report.

2. Laboratory testing for influenza: The MDPH Virus Isolation Laboratory:

- Performs viral respiratory panels testing (influenza A and B, parainfluenza 1, 2, and 3, adenovirus, respiratory syncytial virus) on specimens submitted by both sentinel and non-sentinel sites, during the *entire* year.
- Conducts testing free of charge for all sentinel sites and non-sentinel sites, including institutions (such as prisons, long term care facilities, etc) and individual providers whose patients present with unusual illness or significant travel history
- Reports testing data on a weekly basis to CDC via the Public Heath Laboratory Reporting System (via the internet).
- Submits a subset of their isolates to the CDC Influenza Branch Strain Surveillance Laboratory at the beginning, during the peak and by the end of influenza season for the detailed antigenic characterization needed for the formulation of the next year flu vaccine.
- Coordinates with the MDPH Molecular Diagnostic Laboratory to perform rapid molecular testing on specimens suspicious for non-conventional influenza viruses.
- Monitors and provides viral transport medium for all sites throughout Massachusetts including preparation and QC of the viral transport medium.
- Provides weekly cumulative reports of submissions for viral isolation to MDPH Division of Epidemiology and Immunization.
- Works closely with MDPH Division of Epidemiology and Immunization, sharing information and providing weekly cumulative reports of submissions for viral isolation and subtyping.
- Maintains databases that contain the following information (and are readily accessible by the Influenza team for analysis):
  - The number of specimens submitted, whether by sentinel or non-sentinel sites; positive cultures and serologies; and virus types and subtypes.
  - Demographic and epidemiologic information on each positive case.

The following hospitals in Massachusetts routinely isolate influenza virus and send isolates to the SLI for subtyping:

Massachusetts General Hospital, Boston

Beth Israel Deaconess Medical Center, Boston
Brigham and Women's Hospital, Boston
Children's Hospital, Boston
New England Medical Center, Boston
Lahey Clinic, Burlington

3. **Laboratory Surge Capacity:** Laboratory surge capacity preparation for the MDPH Virus Isolation and Molecular Diagnostics Laboratories includes specimen intake, processing, isolation, typing, and reporting. For RTD-PCR testing, laboratory surge staff would be utilized from other areas, including arboviral, pertussis, and biothreat testing to perform molecular subtyping and provide results to the MDPH Virus Isolation Laboratory for reporting. Our testing limits for molecular testing are maximally 350 specimens per day, working 12 hr shifts. Cross training of staff from MDPH Virus Isolation and Molecular Diagnostics Laboratories to assist in a pandemic phase would be performed in the pre-pandemic phase.

   In a pandemic surge situation, incoming specimens would be triaged in the tuberculosis BSL-2 laboratory for testing either by the MDPH Virus Isolation or Molecular Diagnostics Laboratories. The tuberculosis laboratory is scheduled to undergo renovation to update it to BSL-3 standards. Algorithms for triaging incoming specimens and determining specimen priority based on surveillance needs would be developed with guidance from the CDC and our MDPH Influenza Surveillance Team. Our experience with the Democratic National Convention was invaluable for determining our laboratory testing capacity and capability.

   Hospital Laboratory testing information collected from the LRN survey in the pre-pandemic phase would be used to determine the role of hospital labs in surge testing capacity.

4. **Sentinel surveillance for influenza:** The MDPH influenza sentinel provider program has 39 sites, or 1/166,000 population, that regularly report their weekly data to CDC via the internet during the influenza season; this exceeds the recommended 1 site /250,000 population by CDC. Continued participation by a select number of sites in the "off-season" (May through September) began in 2000, and as of 2004 all sites were asked to report their data to CDC year round.

   - Recruitment for new sites, particularly from parts of the state or risk groups that are under-represented, continues for the 2005-06 year. Site enrollment strives for a balanced representation of sites that are diverse in age, risk groups, geography and patient populations who travel internationally (particularly Asia).
   - The MDPH influenza team monitors the weekly reporting of data to the CDC and follows up with sites experiencing difficulty reporting.
   - The influenza team provides ongoing feedback to health care providers in the form of weekly email reports, which contain up-to-date information on ILI and influenza in Massachusetts and their region. Additionally, each site receives at least one visit per season from a member of the influenza team.

- MDPH requests that specific travel history and significant poultry exposure is included on any specimen submission from patients according to the CDC SARS/Influenza A (H5N1) screening form.
- Sentinel sites no longer participating are contacted and placed on a reserve list of sites to should MDPH need to rapidly expand surveillance activities.

Characteristics of Influenza Sentinel Surveillance Sites by Region

2004

Region	No. of sites	% of all sites	Health Ctrs.[1]	Hospitals	Private Practices	HMOs
City of Boston	6	15%	1	0	4	1
Metro. Boston	8	20%	3	2	2	2
Northeast	9	23%	1	4	3	1
Central	6	15%	0	2	3	0
Southeast	3	8%	1	1	1	0
West	7	18%	3	0	4	2
Total	39	100%	9	9	17	4

[1]Category includes both community and school- and college-based health centers.

5. **Reporting of influenza:** Beginning in 2003, the Massachusetts Isolation and Quarantine Requirements (105 CMR 300.00) require that all providers and laboratories report to the Massachusetts Department of Public Health (MDPH) positive rapid influenza diagnostic test results and positive culture and PCR results. Providers are required to immediately report the following by telephone to the local board of health and MDPH:
   - Suspect avian flu cases
   - All deaths related to influenza, in children < 18 years of age and pregnant women
   - Unusually severe cases of influenza
   - Any confirmed or suspect cases of influenza with encephalopathy
   - Clusters of influenza-like illness in children, pregnant women or adults
   - All clusters of influenza-like illness in long term care facilities or other high-risk institutional settings

   An epidemiologist is available during business hours, as well as nights and weekends to report and respond to these cases/situations

Reminders to report, as well as advisories regarding novel strain surveillance are periodically sent out health care providers, hospitals, laboratories and local boards of health. In addition, the Health Alert Network is being enhanced so that these kinds of alerts and other guidance can be transmitted electronically to hospitals.

6. **Death notification:**
   - **Current state of notification**

     Under normal conditions, city and town clerks are not required to transmit to the DPH Registry of Vital Records and Statistics (RVRS) death certificates until the 10th day of the month following death (c.46 s.17B, M.G.L.). Because Massachusetts does not currently have an automated system of reporting mortality information, these records are received in a paper format and are reviewed manually prior to ICD-10 coding and data entry. A coded file for search of influenza deaths would not be available under normal conditions until at least 3-4 months after death. Therefore, the normal system of death reporting is not adequate under pandemic conditions.

   - **Authority for reporting**

     Massachusetts Boards of Health (BOH), which have the authority to issue burial permits under M.G.L.Chapter 111, Section 29 have access to the data from death certificates indicating proximal causes of death and related conditions. Collection and reporting of mortality data is also consistent with the role of local BOHs regarding disease information and deaths attributed to influenza will be made reportable.

   - **Early Notification of Death System (ENDS)**

     The following proposal outlines a process for Massachusetts to deploy an **E**arly **N**otification of **D**eath **S**ystem **(ENDS)** for influenza-related mortality collection of mortality data beginning with the "Pandemic Alert" stage of an influenza outbreak through the follow up phases of a pandemic.

     ENDS will be deployed under a phased plan, dependent on the stage of pandemic, and will be region-based to allow for efficient management of the system by DPH Bureau of Communicable Disease Control (BCDC). The plan focuses on the primary option of direct reporting to MDPH by local Boards of Health reinforced regionally by larger BOHs that may have more resources and a network of regional MDPH coordinators. Primary target communities and regions will be established as first reporters based on expected number of deaths and population size.

     ENDS will intercept mortality information from death certificates by gathering data from local boards of health through regional coordinators, who will in turn report to BCDC. MDPH already has five emergency preparedness regions, with two sub-regions, for a total of seven regional offices that are prepared to implement rapid response to urgent public health needs. A reporting system with specific guidelines for cause-of-death identification will be deployed to local boards of health. Each death, prior to burial, cremation, or transport, must cross the desk of the local burial agent for a disposition permit. Although other individuals are involved in the preparation of a death certificate (e.g., physicians and funeral directors), local boards of health in Massachusetts are

subject to MDPH oversight, unchanging in number, and are well qualified to examine death certificates for specific causes of death.

- **Deployment of ENDS:**
  In suspected, early pandemic phase, the DPH regional coordinators will target the burial agents of the 25 cities and towns that comprise 40 percent of Massachusetts resident deaths for pandemic influenza mortality surveillance. Upon notification by the BCDC, the regional coordinators will distribute a FAX form to the designated burial agents with instructions for identifying deaths where influenza was an underlying or contributing cause of death, or mentioned condition. The form, along with photocopies of death certificates will be Faxed to BCDC. In Phase 2, surveillance will be expanded to include the 75 communities expected to yield 67% of all resident deaths. In full pandemic phase, the reporting system will be deployed to all Massachusetts boards of health. MDPH BCDC will be responsible for compiling and evaluating the mortality data from ENDS. RVRS will assist BCDC, if needed, in compiling mortality data for any period prior to the deployment of ENDS and/or expediting the coding and data entry of deaths identified through ENDS for statistical evaluation.

- **122 Cities Weekly Mortality Report:**
  In Massachusetts, nine cities and towns (Boston, Cambridge, Fall River, Lowell, Lynn, New Bedford, Somerville, Springfield and Worcester) report deaths on a weekly basis to the CDC as part of the 122 Cites weekly mortality report. This system, which is already in place, will be a critical piece in the expansion of surveillance for deaths.

7. **Guidelines for Control of Influenza Clusters:** MDPH staff investigates all reported clusters of influenza-like illness. The MDPH publication, *Guide to Surveillance and Reporting*, which is distributed to local public health entities to provide disease-specific guidance for control measures, has been revised to include a chapter on influenza. This resource will include recommendations for control and prevention of influenza in all settings, including healthcare and other institutions, childcare and school settings, and the community. This resource includes:
   - Epidemiology
   - Detailed reporting instructions and laboratory testing services
   - Case investigation guidelines
   - Information on controlling further spread in all settings described above
   - Provides guidance on using isolation and quarantine, social distancing, antivirals and respiratory hygiene

   Other documents for internal use include:
   - Protocol for pneumonia/influenza follow-up within long term care facilities
   - *Facility Respiratory Illness Outbreak Intake Form* that facilitates the collection of institutional, clinical, and laboratory information
   - Facility line-list

- Protocols for joint investigation of respiratory illness due to avian influenza, SARS or an unknown etiology, with the general epidemiology unit within the Division

8. **Preparation for Avian Influenza:** MDPH has the following in place in preparation for avian influenza:
    - An advisory detailing case identification, infection control practices, laboratory testing, and reporting are mailed at the beginning of every flu season and (most recent communication in May 2005) and throughout the year as needed, to approximately 13,000 providers statewide.
    - Guidelines for human avian influenza cases, including specimen collection and testing protocols that were developed with consultation from the State Laboratory and CDC
    - An internal procedure was developed for staff use when dealing with suspect cases of human avian influenza.
    - An MDPH-developed intake screening form was developed for obtaining pertinent case information.
    - If notified of suspect case, will report to CDC using CDC Human Influenza A (H5) Domestic Case Screening Form
    - Established clear and quick communication protocols between epidemiologists and SLI lab personnel regarding suspect cases
    - Protocols are in place for collaboration with the general epidemiology unit within the Division on suspect Avian influenza/SARS cases

9. **Syndromic Surveillance:** Influenza sentinel surveillance activities are supplemented with information collected through 2 syndromic surveillance systems. One system is conducted by Harvard Pilgrim Health Care/Vanguard Medical Associates (HPHC/HVMA). HPHC is a large managed care organization in eastern Massachusetts that collects timely data on all of its members via comprehensive electronic medical records. HPHC/HVMA staff have created an enrollment file containing > 465,000 members who receive care at 14 HVMA centers. All individuals' addresses were geocoded when possible. They have also created and analyzed a 6-year data set (1996-2001) and developed algorithms for rapid identification of illness syndromes and clusters.

    A generalized linear mixed model to analyze encounter data was developed. Using ICD-9 codes, diagnoses suggesting lower respiratory tract illness (LRI), upper respiratory tract illness (URI) and URI with fever of $>100^0$ F were identified. These algorithms were applied to current encounter data on a daily basis to identify any temporal or geographic clustering. Any significant findings are reported to MDPH via automated alerts the day after the patients' medical encounters. In addition, this system has a website on which raw counts of respiratory and ILI by date and zip code of residence can be monitored by MDPH staff. An epidemiologist promptly investigates significant events.

The second system, developed by Children's Hospital Boston (CHB), is based on emergency department (ED) chief complaints, which are available on-line within minutes of a patient's arrival in the ED. The system will detect surges in patients presenting with respiratory syndromes to EDs, relying on patterns in time (day and season of visit) and in space (home address). In additions to CHB, agreements are currently in place with 8 other hospitals in Massachusetts to assess their data systems for potential inclusion in this syndromic surveillance system.

Efforts are being made to integrate the 2 systems to identify clusters of acute health events and to improve the efficiency of reporting to MDPH.

10. **Influenza surveillance website:** The MDPH Influenza Surveillance Team maintains an influenza website (www.mass.gov/dph/flu) with up-to-date information on the status of influenza in Massachusetts and links to the CDC and World Health Organization influenza surveillance websites for national and international data. In 2004, the website was enhanced to provide the general public and providers with organized, accessible influenza information. The site was organized into broad topic areas that link to specific documents, guidelines, or information. This site is maintained and updated throughout the year, with advisories and alerts posted immediately after release and data and graphs updated weekly. Information on avian influenza and SARS is revised as needed and posted on the web site. Additionally, the website contains a section specifically for avian influenza to improve efficiency and ease of finding information on this topic. For the 2005-2006 season, the site will provide maps of lab-confirmed influenza results by town, in addition to the graphs of rapid and culture data that already appear on the website. The website is a valuable and reliable source of information to providers and residents of Massachusetts and elsewhere.

11. **Surveillance for avian influenza in poultry:** The Massachusetts Department of Agricultural Resources (MDAR) and MDPH work in conjunction with United States Department of Agriculture, Animal Plant Health Inspection Service, Veterinary Services (USDA/APHIS/VS) to conduct surveillance for avian influenza in poultry in Massachusetts.

    There are 6 live bird markets in Massachusetts, 3 in Boston, 2 in Fall River/New Bedford area and 1 in Springfield, which are tested quarterly by the USDA/APHIS/VS. Tracheal swab samples from 5 birds per farm or lot that are sent to the market or auction are pooled and tested for AI. The USDA takes the lead on live bird market testing and also samples for AI quarterly at the three Massachusetts animal auctions that handle poultry: Swansea, Littleton, and Fairhaven.

    Additionally, commercial laying operations that ship "spent" hens to live bird markets in New York and New Jersey are tested 10 days prior to shipment. New York requires 10 serology AI negative samples per flock and New Jersey requires 30 AI negative serology samples (or tracheal swabs tested by PCR) per flock.

    Backyard / hobby flocks that show birds at exhibitions or fairs in Massachusetts are tested annually; and breeder flocks (hatching eggs and breeder chicks) are tested annually. All the birds are sampled for *Salmonella pullorum* and ten percent of the samples taken are tested for avian influenza.

When a suspect positive AI flock is identified, additional cloacal (water birds) and tracheal (chickens) swab samples are taken for virus isolation. Samples are sent to the University of Connecticut Veterinary Diagnostic Laboratory, Storrs, Connecticut. Additional testing is done at USDA's National Veterinary Services Laboratory (NVSL) in Ames, Iowa. The MDAR does testing of all other birds and flocks for AI or other diseases if illness is reported.

If low pathogenic avian influenza (LPAI) were identified, MDAR would take the lead and would consult with USDA to determine a course of action. If high pathogenic avian influenza (HPAI) is identified, the USDA takes the lead role. MDAR would immediately issue a quarantine stopping movement of all birds pending further testing and would assist USDA on animal traceback, depopulation and disinfection of the premises if required. Communication with MDPH is through the State Public Health Veterinarian and epidemiologists at the MDPH Division of Epidemiology and Immunization.

12. **Contingency plans for enhancing State virologic and disease-based surveillance systems in the event of a novel virus alert or pandemic alert, including:**
    - Surveillance of severe respiratory illness:

      MDPH is exploring options for reporting of illness by hospitals, providers and infection control practitioners through such technologies as web based reporting systems or the health alert network.
    - Unexplained deaths at local hospitals:

      Surveillance for influenza deaths in Massachusetts currently occurs via two mechanisms. Pediatric deaths due to influenza are reportable in Massachusetts, and . 9 cities and towns in Massachusetts participate in the 122 Cities Weekly Morbidity Report, as described above in number 6 under the Pre-pandemic phase. These two reporting mechanisms will facilitate the enhancement of surveillance for deaths in Massachusetts.

Pandemic Alert:

1. The MDPH Influenza Surveillance Team will ensure that all pre-pandemic phase surveillance activities are being carried regardless of the time of year and that the SLI virology isolation laboratory and sentinel sites are reporting data to CDC each week.

2. The influenza team will continue to monitor bulletins from the CDC and other national and international sources, ensuring that all stakeholders are informed of new guidance and developments.

3. The influenza team will monitor the completeness and timeliness of reports from participating sentinel providers and contact them, if necessary, to improve performance

4. The sentinel sites would be requested to submit 2 specimens a month for the duration of the pandemic. This would result in the laboratory testing a minimum of 78 specimens a month. Evidence of multiple strains circulating might prompt additional testing.

5. When a novel virus alert occurs the following laboratory influenza surveillance activities will be enhanced:
   - The MDPH Molecular Diagnostics Laboratory will screen suspicious avian influenza specimens using real-time detection PCR (RTD-PCR) for influenza A, B, H1, H3, H5, and H7.
   - The MDPH Virus Isolation Laboratory will screen suspicious avian influenza using direct antigen test and shell vials techniques and will culture the virus on cell culture. (The MDPH Virus Isolation Laboratory has been newly renovated as BSL-3 space to allow isolation and subtyping of suspect influenza specimens).
   - The MDPH Virus Isolation Laboratory will subtype all influenza A viruses identified on clinical specimens and report any influenza H5 or H7 and the unsubtypable influenza A virus to CDC immediately, following CDC guidelines for safe handling of potential novel influenza viruses.
   - The SLI virology isolation laboratory will receive reagents from CDC to detect and identify the novel strain.
   - The MDPH Virus Isolation Laboratory will increase capacity for preparing and shipping QC Viral Transport Medium (VTM) for flu kits for hospital laboratories. These items are prepared in-house and additional staff will be identified to assemble and ship flu kits to hospitals.
   - The Public Health Laboratory Director will meet with laboratory heads to assess overall public health laboratory staffing, space, and testing capacity during a pandemic phase.
   - The MDPH LRN Bioterrorism coordinator will coordinate with the MDPH Virus Isolation Laboratory to prepare and disseminate a letter to the hospital laboratories regarding CDC guidelines on collection, handling, and testing specimens from an Influenza pandemic phase. Along with this letter, a survey will be sent to assess current hospital influenza testing capability and capacity.
   - The MDPH Virus Isolation and Molecular Diagnostics Laboratories will meet with the MDPH information technology group to assess influenza testing and reporting within the current LIMS. A plan will be developed to facilitate increases in influenza reporting.

6. MDPH will institute additional surveillance activities as recommended by CDC given the specific circumstances.

7. The MDPH Influenza Surveillance Team will review and implement contingency plans for enhancing influenza surveillance if efficient person-to-person transmission of the novel virus is confirmed. Such activities will attempt to contain introduction as much as possible and may include:

   - Identification of cases and suspect cases meeting the latest case definition developed by CDC and WHO.

- Initiating case management and contact tracing according to the latest criteria for defining exposure to cases/suspect cases.
- Implementation of isolation for cases and quarantine (including monitoring for fever and respiratory symptoms)
  - Home isolation/quarantine may be appropriate for a subset of these individuals.
  - Institutional isolation will be arranges as indicated at hospitals and other designated facilities.
  - Institutional quarantine may be needed in designated facilities.
- Oseltamivir will be prioritized for treatment of cases and initial contacts.
- The amantadanes will be used for prophylaxis of essential personnel.

8. MDPH will recommend other control measures to slow introduction according to the latest recommendations. Such activities may include social distancing activities, such as:
   - Unnecessary public activities
   - Decrease/suspend travel
   - School closures (awaiting national guidelines on whether or not this would be an effective measure)
   - Personal protective measures (respiratory hygiene, cough etiquette). (Please note, it is not known if these measures will be recommended).

9. The MDPH SLI virology isolation laboratory will institute plans for handling substantially more specimens than usual for testing, following CDC guidance for triage of specimens for testing and choosing which isolates to send to CDC.

10. The MDPH Influenza Surveillance team, with assistance from the Division of Epidemiology and Immunization, will continue to investigate outbreaks and increases in ILI.

11. Communications with stakeholders, including sentinel sites, providers, hospitals, and local public health entities, will be enhanced, taking advantage of technologies such as the Health Alert Network.

Pandemic Period:

Individual case investigation and contact tracing activities will no longer be practical. All other activities initiated above will continue.

MDPH will collaborate with CDC and other national groups, per federal guidance, to

1. **Determine age-specific attack rates, morbidity and mortality**.
   Patterns of morbidity and mortality across Massachusetts's communities may provide valuable information to MDPH regarding the spread of the disease and related health complications. This information can be obtained through several different sources and methods.

- **Hospitalizations:** To determine hospitalization rates due to influenza, methods such as those described by Colorado (MMWR 2005 vol. 54:535-537), as well as other tools developed as part of the Emerging Infectious Programs will be employed.
- **Deaths:** In the context of an influenza pandemic, where mortality rates may be high, information from death certificates could inform public health interventions and the distribution of healthcare resources. The ENDS system, described in number 6 of the Pre-pandemic phase above, is an early notification system for deaths, and in the pandemic imminent stage, its expansion would be implemented (see description of phase 2 above).

2. **Describe unusual clinical syndromes (as well as risk factors for those syndromes and appropriate treatment.**

   MDPH will use the syndromic surveillance systems currently in place, as well as hospital-based web reporting for identification.

3. **Institute control measures to minimize impact.**
   MDPH will institute any control measures deemed feasible to limit spread.

4. **Conduct efficacy studies of vaccination or chemoprophylaxis.**

   It has been determined that the CDC will develop a national system to carry out these studies and MDPH will follow its guidance to assist. Such measures may include:
   - Unnecessary public activities
   - Decrease/suspend travel
   - School closures (awaiting national guidelines on whether or not this would be an effective measure)
   - Personal protective measures (respiratory hygiene, cough etiquette). (Please note, it is not known

5. **Monitor ability of hospitals and outpatient clinics to cope with increased patient loads.**

   MDPH has several systems it can use to monitor patient loads and help health care facilities cope with a surge in patients.

   - **The Massachusetts Diversion/Open Hospital Bed Availability Website**

     This website contains the address and phone numbers of each of the hospitals, their diversion status, as well as the open staffed bed availability and the Emergency Department boarder status in the adult and pediatric intensive care units, medical/surgical units, monitored medical/surgical units, and pediatrics and psychiatry units. Additionally, the types of categories of data collected can dynamically change, depending on situation; for instance, it could be used to collect various types of data such as number of ventilators or antiviral or other medications as the information is needed.

   - **Integrated Web Monitoring and Reporting System**

     MDPH is researching the possibility of integrating the MDPH Diversion/Open

Hospital Bed Availability Website with both the Web based Emergency Operations Center (WeEOC), a web-based, real-time emergency information management system used at Massachusetts State Emergency Operations Center, and with MDPH's Health Alert Network, a web-based system that, through continuous, high-speed internet connectivity and broadcast capacity to support emergency communication, provides the national public health system with a network of public health officials and other first-responders who are continuously connected to information vital to emergency and non-emergency public health practice. Integration of these systems will allow messages to be sent in a timely manner to relevant individuals and institutions regarding hospital status on various topics.

- **Syndromic Surveillance**

  Lastly, the syndromic surveillance systems, which are currently in place in several large hospitals and networks in Boston and nearby communities (as described in #8 in the pre-pandemic phase above), will augment this effort by providing real time information about surges in patients presenting with respiratory syndromes.

6. **Assess effectiveness of traditional control measures such as school and business closing**.

   To assess the effectiveness of traditional control measures, such as social distancing and antiviral therapy, MDPH will follow guidelines established by federal entities.

7. **Assess the medical, social and economic impact of the pandemic.**

   To determine the impact of an influenza pandemic, MDPH will follow guidance from CDC and other national groups to achieve this goal.

8. **Document outbreaks of influenza in different population groups.**

   MDPH will utilize the existing reporting and database system to monitor early outbreaks to identify significant trends. As the pandemic progresses, this activity will no longer be feasible.

Massachusetts Influenza Pandemic Preparedness Plan

Section 3

Vaccine Delivery

The Vaccine Delivery Section describes the system that will be used to order, store, distribute, track and administer influenza vaccine during a pandemic. In the event of a pandemic, influenza vaccine in Massachusetts will be distributed using the established vaccine distribution system, with contingency plans for storage, transport and security for vaccines. Vaccine will be administered at the local level to priority groups determined by the Commissioner of Public Health. Local communities/local coalitions have the responsibility to plan and implement Emergency Dispensing Sites (EDS) for administration of influenza vaccine to a large number of people in a short period of time if the situation warrants this.

The amount of vaccine that will have to be managed (ordered, stored, distributed and accounted for) by the Massachusetts Department of Public Health (MDPH) Vaccine Unit will be affected by the manufacturers' ability to produce and distribute vaccine.

Assumptions

This Vaccine Delivery Plan is based on the following assumptions:

A. There will be a minimum of 4 – 6 months between a novel virus alert and the availability of vaccine. When vaccine does become available, it will be distributed in multiple shipments, over time, as it is manufactured. Vaccine shortages are likely to exist, especially early during a pandemic.

B. Based on information that we have received from CDC, Massachusetts can expect 45,000 – 460,000 doses/month for 1- 2 years. The number of doses per month will depend on the potency of the vaccine and the vaccine manufacture ring capacity at the time.

C. Administration of two doses, 30 days apart, may be necessary in some or all target groups for optimal immunologic responses.

D. All publicly purchased influenza vaccine, whether purchased with federal or state funds, will be distributed through MDPH.

E. All influenza vaccine, whether publicly or privately purchased, will be administered by providers, according to the priorities set by the Commissioner of Public Health, pursuant to MGL Chapter 111, Section 5A.

F. Medicare and Medicaid will be billed for reimbursement for state-purchased and privately purchased vaccine, where applicable.

G. The target population for influenza vaccine will initially be prioritized and eventually expanded to the entire population, as vaccine becomes available.

H. The priority groups for vaccine will be based on the priority groups recommended of the U.S. Department of Health and Human Services. This list may change on short notice depending upon the epidemiologic and clinical features of the pandemic disease.

I. In addition to distributing vaccine, MDPH and local health departments will have plans in place to administer vaccine to residents based on the Priority Groups List established by the Pandemic Executive Planning Committee.

J. Administration of vaccine to priority groups and the general public will occur at the local level; the responsibility of the MIP Vaccine Unit is to ensure the efficient distribution of viable vaccine to 160 local vaccine distributors, as described below.

K. Influenza vaccine will be distributed in 10-dose vials.

L. Because there is likely to be a moderate to severe shortage of vaccine, at least in the early phases of the epidemic, security for the vaccine must be addressed.

M. A system for monitoring vaccine coverage will have to be developed.

N. The current Vaccine Adverse Event Reporting System (VAERS) system will be used to monitor vaccine safety.

O. While distribution of all other vaccines will be maintained during the pandemic, inventories of non-influenza vaccine will be reduced at the regional and local distributor sites.

P. Public education will be an important part of the immunization campaign.

Interpandemic Period:

1. Increase Influenza Vaccination Coverage

MDPH will continue to work with the Massachusetts Quality Improvement Organization (MassPRO), the Massachusetts Medical Society, the Massachusetts Association of Health Plans, the Massachusetts Hospital Association and other members of the Massachusetts Adult Immunization Coalition to increase influenza vaccination rates in Massachusetts as follows to reduce the annual toll from influenza, enhance the existing vaccine delivery infrastructure and facilitate access to high-risk populations when the pandemic occurs:

a. 90% of non-institutionalized adults 50 years of age an older and 60% of high-risk adults 18-49 years of age will receive an annual influenza vaccination, as measured by the BRFSS.

b. 90% of institutionalized chronically ill and elderly adults will receive an annual influenza vaccination, as measured by the annual Massachusetts Department of Medical Assistance (DMA) survey of nursing homes.

2. Increase Pneumococcal Vaccination Coverage

MDPH will continue to work with MassPRO, the Massachusetts Medical Society, the Massachusetts Association of Health Plans, the Massachusetts Hospital Association and other members of the Massachusetts Adult Immunization Coalition to increase pneumococcal

vaccination rates in Massachusetts as follows to reduce the incidence and severity of secondary bacterial infections now and during the next pandemic:

a. 90% of non-institutionalized adults 65 years of age an older and 60% of high-risk adults 18-64 years of age will receive a pneumococcal vaccination, as measured by the BRFSS.

b. 90% of institutionalized chronically ill and elderly adults will receive a pneumococcal vaccination, as measured by the annual Massachusetts Department of Medical Assistance (DMA) survey of nursing homes.

3. Priority Groups for Vaccination during the Pandemic

Pursuant to MGL Chapter 111, Section 5A, the commissioner of public health can issue rules and priorities for the distribution and use of vaccine in the Commonwealth. Because vaccine shortages during influenza pandemic are likely, vaccine will be prioritized based on national recommendations and refined to meet the specific needs of Massachusetts. The following prioritized groups are based on recommendations by the U.S. Department of Health and Human Services (USDHHS) and will be reexamined at the time of a pandemic alert when epidemiologic data about the pandemic virus are available. The groups eligible for vaccine will expand over time as more vaccine becomes available.

A. Vaccine Priority Group Recommendations (US DHHS 2005)

The estimated number for each group is based on Massachusetts's proportion of the U.S. population (2.2%) and applied to the U.S. estimates for each group (rounded to the nearest thousand).

Tier	Subtier	Population (est. # in Massachusetts)	Rationale
1	A	• Vaccine and antiviral manufacturers and others essential to manufacturing and critical support (?) • Medical workers and public health workers who are involved in direct patient contact, other support services essential for direct patient care, and vaccinators (176,000 – 198,000)	• Need to assure maximum production of vaccine and antiviral drugs • Healthcare workers are required for quality medical care (studies show outcome is associated with staff-to-patient ratios). There is little surge capacity among healthcare sector personnel to meet increased demand

	B	• Persons ≥ 65 years with 1 or more influenza high-risk conditions, not including essential hypertension (400,000) • Persons 6 months to 64 years with 2 or more influenza high-risk conditions, not including essential hypertension by vaccination (152,000) • Persons 6 months or older with history of hospitalization for pneumonia or influenza or other influenza high-risk condition in the past year (16,000)	• These groups are at high risk of hospitalization and death. Excludes elderly in nursing homes and those who are immunocompromised and would not likely be protected.
	C	• Pregnant women (66,000) • Household contacts of severely immunocompromised persons who would not be vaccinated due to likely poor response to vaccine (43,000 with transplants, AIDS, and incident cancer x 1.4 household contacts per person = 60,000) • Household contacts of children < 6 month olds (110,000)	• In past pandemics and for annual influenza, pregnant women have been at high risk; vaccination will also protect the infant who cannot receive vaccine. • Vaccination of household contacts of immunocompromised and young infants will decrease risk of exposure and infection among those who cannot be directly protected by vaccination
	D	• Public health emergency response workers critical to pandemic response (assumed one-third of estimated public health workforce = 3,000) • Key government leaders (?)	• Critical to implement pandemic response such as providing vaccinations and managing/monitoring response activities • Preserving decision-making capacity also critical for managing and implementing a response
2	A	• Healthy 65 years and older (390,000) • 6 months to 64 years with 1 high-risk condition (788,000) • 6-23 months old, healthy (123,000)	• Groups that are also at increased risk but not as high risk as population in Tier 1B

	B	• Other public health emergency responders (7,000 = remaining two-thirds of public health work force) • Public safety workers including police, fire, 911 dispatchers, and correctional facility staff (66,000) • Utility workers essential for maintenance of power, water, and sewage system functioning (8,000) • Transportation workers transporting fuel, water, food, and medical supplies as well as public ground public transportation (84,000) • Telecommunications/IT for essential network operations and maintenance (24,000)	• Includes critical infrastructure groups that have impact on maintaining health (e.g., public safety or transportation of medical supplies and food); implementing a pandemic response; and on maintaining societal functions
3		• Other key government health decision-makers (estimated number not yet determined) • Funeral directors/embalmers (1,400)	• Other important societal groups for a pandemic response but of lower priority
4		• Healthy persons 2-64 years not included in above categories (3.95 million)	• All persons not included in other groups based on objective to vaccinate all those who want protection

B. Definitions and rationales for priority groups

1. Healthcare workers and essential healthcare support staff

a) Definition

Healthcare workers (HCW) with direct patient contact (including acute-care hospitals, nursing homes, skilled nursing facilities, urgent care centers, physician's offices, clinics, home care, blood collection centers, and EMS) and a proportion of persons working in essential healthcare support services needed to maintain healthcare services (e.g. dietary, housekeeping, admissions, blood collection center staff, etc.). Also included are healthcare workers in public health with direct patient contact, including those who may administer vaccine or distribute influenza antiviral medications, and essential public health support staff for these workers.

b) Rationale

The pandemic is expected to have substantial impact on the healthcare system with large increases in demand for healthcare services placed on top of existing demand. HCW will be treating influenza-infected patients and will be at risk of repeated exposures. Further, surge capacity in this sector is low. To encourage continued work in a high-exposure

setting and to help lessen the risk of healthcare workers transmitting influenza to other patients and HCW family members, this group was highly prioritized. In addition, increases in bed/nurse ratios have been associated with increases in overall patient mortality. Thus, substantial absenteeism may affect overall patient care and outcomes.

2. **Groups at high risk of influenza complications**

a) Definition

Persons 2-64 years with a medical condition for which influenza vaccine is recommended and all persons 6-23 months and 65 years and older. Excludes nursing home residents and severely immunocompromised persons who would not be expected to respond well to vaccination.

b) Rationale

These groups were prioritized based on their risk of influenza-related hospitalization and death and also their likelihood of vaccine response. Information from prior pandemics was used whenever possible, but information from interpandemic years was also considered. Nursing home residents and severely immunocompromised persons would be prioritized for antiviral treatment and/or prophylaxis and vaccination of healthcare workers and household contacts who are most likely to transmit influenza to these high risk groups.

3. **Critical infrastructure**

a) Definitions and rationale

Those critical infrastructure sectors that fulfill one or more of the following criteria: have increased demand placed on them during a pandemic, directly support reduction in deaths and hospitalization; function is critical to support the healthcare sector and other emergency services, and/or supply basic necessities and services critical to support of life and healthcare or emergency services. Groups included in critical infrastructure are needed to respond to a pandemic and to minimize morbidity and mortality, and include the following sectors:

- Persons directly involved with influenza vaccine and antiviral medication manufacturing and distribution and essential support services and suppliers (e.g., growers of pathogen-free eggs for growth of vaccine virus) production activities
- Key government leaders and health decision-makers who will be needed to quickly move policy forward on pandemic prevention and control efforts
- Public safety workers (firefighters, police, and correctional facility staff, including dispatchers) are critical to maintaining social functioning and order and will

contribute to a pandemic response, for example by ensuring order at vaccination clinics and responding to medical emergencies

- Utility service workers (water, power, and sewage management) are prioritized as the services they provide are also essential to the healthcare system as well as to preventing additional illnesses from lack of these services unrelated to a pandemic.
- Transportation workers who maintain critical supplies of food, water, fuel, and medical equipment and who provide public transportation, which is essential for provision of medical care and transportation of healthcare workers to work and transportation of ill persons for care
- Telecommunication and information technology services critical for maintenance and repairs of these systems are also essential as these systems are now critical for accessing and delivering medical care and in support of all other critical infrastructure
- Mortuary services will be substantially impacted due to the increased numbers of deaths from a pandemic and the fact that impact will be high in the elderly, a growing segment of the population

4. **Public health emergency response workers**

a) Definition

This group includes persons who do not have direct patient care duties, but who are essential for surveillance for influenza, assessment of the pandemic impact, allocation of public health resources for the pandemic response, development and implementation of public health policy as part of the response, and development of guidance as the pandemic progresses.

b) Rationale

Persons in this sector have been critical for past influenza vaccine pandemics and influenza vaccine shortages and little surge capacity may be available during a public health emergency such as a pandemic.

5. **Persons in skilled nursing facilities**

a) Definition

Patients residing in skilled nursing facilities. Not included in this group are persons in other residential settings (e.g., assisted living) who are more likely to be mobile, in a setting that is less closed, and have decentralized healthcare.

b) Rationale

This group was not prioritized for vaccine because of the medical literature finding poor response to vaccination and occurrence of outbreaks even in the setting of high vaccination rates. Other studies have suggested that vaccination of healthcare workers may be a more effective strategy to prevent influenza in this group. Further, surveillance

for influenza can be conducted in this group and antiviral medications used widely for prophylaxis and treatment. Ill visitors and staff should also be restricted from visiting nursing home facilities during outbreaks of pandemic influenza. This strategy for pandemic influenza vaccine differs from the interpandemic vaccination strategy of aggressively vaccinating nursing home residents. The rationale considers several factors: 1) these populations are less likely to benefit from vaccine than other groups who are also at high risk; 2) other prevention strategies feasible for this group are not possible among other high-risk groups; 3) the overall morbidity and mortality from pandemic is likely to severely impact other groups of persons who would be expected to have a better response to the vaccine; and 4) a more severe shortage of vaccine is anticipated.

6. **Severely immunocompromised persons**

   a) Definition

   Persons who are undergoing or who have recently undergone bone marrow transplantation and others with severe immunodeficiency (e.g., AIDS patients with CD4 counts <50, children with severe combined immunodeficiency (SCID) syndrome, recent bone marrow transplant patients). The numbers of persons in these categories is likely much smaller than the anticipated number assumed in tiering above, but sources for more specific estimates have not been identified.

   b) Rationale

   These groups have a lower likelihood of responding to influenza vaccination. Thus, strategies to prevent severe influenza illness in this group should include vaccination of healthcare workers and household contacts of severely immunocompromised persons and use of antiviral medications. Consideration should be given to prophylaxis of severely immunocompromised persons with influenza antivirals and early antiviral treatment should they become infected.

7. **Children <6 months of age**

   a) Rationale

   Influenza vaccine is poorly immunogenic in children <6 months and the vaccine is currently not recommended for this group. In addition, influenza antiviral medications are not FDA-approved for use in children <1 year old. Thus, vaccination of household contacts and out-of-home caregivers of children <6 months is recommended to protect this high-risk group.

Note: Education Regarding the Priority Groups List for Receipt of Vaccine

Special attention must be paid to educating the general public about the Priority Groups List for receipt of vaccine, including the rationale for the list, the process by which the decisions were made, and what other control measures people can take until influenza vaccine is available for everyone. Please see Section 6: Communications for specific information regarding the plan to educate the general public about the priority groups.

C. Plan to Provide Influenza Vaccine to Priority Groups Given Moderate to Severe Vaccine Shortages

At least initially, all influenza vaccine will come through MDPH and will be distributed through the existing state vaccine distribution system. All public and private employers of essential personnel (health care workers, public health and public safety workers, and utility, transportation and telecommunications/IT workers) are responsible for developing continuity of operations plan and prioritizing their personnel for vaccination.

Tier 1A. Healthcare workers and essential healthcare support staff

In both moderate and severe vaccine shortages, hospitals are responsible for developing workforce protections plans to administer vaccine to their employees, and to monitor and document the vaccination status of those employees. In order to respond effectively to the changing availability of vaccine, hospital workforce protection plans should include a tiered plan for prioritizing employees for vaccination, based on the amount of contact with patients and the type of patients they care for. Hospitals will pick up vaccine from their local vaccine distributor, which, in most cases, is the local health department. MDPH will work with hospitals and the Massachusetts Hospital Association to determine the feasibility of hospitals administering vaccine to the families of employees as part of their workforce protection plan. The alternative would be for hospitals to coordinate vaccination of employee families with the local health department.

Smaller health care institutions and agencies (long-term care facilities, provider offices, clinics, community health centers, home health agencies, etc.) should coordinate plans to vaccinate their employees with their local health departments (LHD). This may include receiving the vaccine from the LHD, with the institution/agency being responsible for vaccinating it's personnel.

Tiers 1B. and 1C. Persons at Highest Risk and Their Contacts

Persons at highest risk for complication and their contacts will be vaccinated in public clinics and by their providers. Hospitals are responsible for vaccination of hospitalized patients.

Tier 1D. Public Health Emergency Response Workers and Key Government Leaders

Local health departments will be responsible for vaccinating municipal public health workers and government leaders. MDPH will be responsible for vaccinating state public health workers and state government leaders.

Tier 2A. Other High Risk Persons

Persons at risk for complications from influenza will be vaccinated in public clinics and by their providers. Hospitals are responsible for vaccinating hospitalized patients.

Tier 2B. Essential Personnel

- Public Health Workers - Local health departments will be responsible for vaccinating municipal public health workers and government leaders. MDPH will be responsible for vaccinating state public health workers and government leaders.
- Public Safety Workers (police, fire, correction facility personnel, etc.) - Local health departments will be responsible for vaccinating municipal public safety workers. State agencies will be responsible for vaccinating their employees (by their own occupational health staff, or through arrangements with the local health departments, or with visiting nurse associations (VNAs) or private health services agencies).
- Utility workers – Utility companies will be responsible for arranging for vaccination of their employees (by their own occupational health staff, or through arrangements with the local health departments, or with visiting nurse associations (VNAs) or private health services agencies).
- Transportation workers - Employers will be responsible for arranging for vaccination of their employees (by their own occupational health staff, or through arrangements with the local health departments, or with visiting nurse associations (VNAs) or private health services agencies).
- Telecommunications/IT workers - Employers will be responsible for arranging for vaccination of their employees (by their own occupational health staff, or through arrangements with the local health departments, or with visiting nurse associations (VNAs) or private health services agencies).

Tier 3. Funeral Directors/Embalmers

Funeral directors and embalmers should make arrangements to be vaccinated by their local health department. MDPH will be responsible for vaccinating staff of the State Medical Examiners Office.

Tier 4. Healthy People 2 – 64 years of age Not Included in the Above Categories

The general public will be vaccinated in public clinics or by their providers. Local communities or regional coalitions are responsible for planning and implementing Emergency Dispensing Sites to administer vaccine to large numbers of people in a short period of time, as described below.

4. Emergency Dispensing Sites (EDS)

All communities are required to have plans in place to implement emergency dispensing sites for residents in their community. A joint committee of the Strategic National Stockpile Work Group and the Smallpox Work Group has developed an appendix, *Emergency Dispensing Site Management and Operations,* to the *Template for Local Infectious Disease Emergency Planning and Response* (**www.mass.gov/dph/topics/bioterrorism/idep.doc**) to provide guidance to local communities on planning and implementing emergency dispensing sites. Members of the joint committee and Regional Coordinators and Health Educators are working with local communities in using the guidance to develop their plans.

While MDPH will provide vaccine, it is unclear who is responsible for all other clinic supplies, including syringes. It is unlikely that the SNS will provide clinic supplies. It must be determined who is responsible for syringes, sharps containers and other supplies necessary for running vaccination clinics.

A. Volunteers

Local EDS plans include a list of health care workers and institutions, and non-medical volunteers, who will staff their EDS, as well as a call-down system for their volunteers. Local EDS plans include workforce protection plans for vaccination of all volunteers and their families.

MDPH has developed templates for emergency public health orders to quickly rescind licensing and credentialing requirements to meet needs for vaccinators and other health care providers.

Depending upon the extent of the event and the need for vaccinators, volunteers will be called up in a tiered manner, first calling upon licensed health care professionals, and then going down the list, as need dictates:

a. Personnel who are currently licensed to administer vaccine and dispense medication:
   - Physicians
   - Registered nurses
   - Nurse practitioners and other advance practice nurses
   - Licensed practical nurses
   - Physician assistants
   - Pharmacists
   - Dentists

b. Personnel for whom administering vaccine or dispensing medication would constitute an expanded role:
   - Emergency medical technicians and paramedics
   - First responders
   - Veterinarians

c. Personnel who are not licensed or certified to administer vaccines or dispense medications, but who have received some medical training:

- Retired physicians, nurses, pharmacists, etc, who have let their license expire
- Medical assistants, nursing assistants, pharmacy technicians or medical technicians
- Medical, nursing, dental and pharmacy students

d. Lay personnel who have received no or little medical training, but who are capable of being trained to administer vaccine or dispense medication in an emergency situation, following specific protocols.

B. Training for Volunteers

MDPH has provided all local health departments with the videos: *How to Protect Your Vaccine Supply* and *Immunization Techniques*, as well as presenter's notes and skills checklists for pre-event training of volunteer vaccinators and just-in-time training during an event. The *Emergency Dispensing Site Management and Operations* guidance described above includes job action sheets for all volunteer positions to assist with just-in-time training.

C. Emergency Dispensing Site Locations

The *Emergency Dispensing Site Management and Operations* guidance described above includes criteria for communities to use in identifying sites for their EDS. The Massachusetts SNS coordinator maintains a database of the EDS site locations, contact persons, and anticipated clinic throughput for each EDS in every community.

D. Security

MDPH is responsible for security for the vaccine at the State Lab and the regional offices, and during transport between the two.

2 options for security for vaccine during storage and transport include:

- *State police through existing agreements between the State Police and the SNS.*
- *Contracting with a security firm(s).*

Local authorities are responsible for security for vaccine during transport between the regional offices and the local distribution sites, and during vaccine storage and distribution at the local distribution sites, and for safety of the volunteers and vaccinees.

E. Special Populations

Local EDS plans should ensure that these plans include provisions for the vaccination of special populations (e.g., the homebound and homeless, people with disabilities (both physical and cognitive), people who speak limited English or languages other than English, etc.). To assist local health officials in providing for special populations in their emergency preparedness planning efforts, MDPH has developed a *Special Populations Guidance for Local Boards of Health* document (http://www.mass.gov/dph/bioterrorism/advisorygrps/pdfs/spop_guidance_5_05.pdf).

Residential schools: Local plans for vaccination of students and staff at boarding schools, colleges and universities may include providing vaccine to the institution for

vaccination of their populations on sites, or arrangements to bring the residents to the EDS.

Correctional facilities: MDPH is currently working with the Department of Corrections to address the issue of delivering and administering vaccine to persons held in correctional facilities. The goal is to deliver vaccine from the EDS site to the correctional facility, and correctional facility staff will administer vaccine to inmates and facility staff.

Assisted living facilities: In addition, MDPH is working with the Massachusetts Assisted Living Facilities Association to address the issue of delivering and administering vaccine to assisted living centers.

F. Protocols, Forms and Information Sheets

MDPH is responsible for making all protocols, forms and information sheets used in the EDS available on the MDPH influenza web site (www.mass.gov/dph/flu) and on the Health Alert Network (HAN). Local EDS managers are responsible for downloading and copying the forms for use during the EDS. Local EDS planning committees are encouraged to have arrangements with copy businesses for large-scale copying of written materials. A family-based data collection form has been developed for emergency influenza vaccination clinics and is being piloted during emergency clinic exercises.

G. Emergency Dispensing Site (EDS) Exercises

Communities are required to exercise their EDS plans. When available, influenza vaccine purchased through the SNS will be provided to local communities to exercise their EDS plans during influenza season. Bioterrorism cooperative agreement funds for local communities are tied to identifying EDS sites and developing and exercising their EDS plan.

5. Vaccine Distribution

The MDPH Vaccine Unit, in consultation with the SNS, is responsible for management of vaccine, including coordination of distribution, during a pandemic.

Vaccine will be distributed to public, and eventually private, providers from a central site at the Massachusetts State Laboratory Institute (SLI) in Jamaica Plain, through a network of five regional offices and over 160 local vaccine distributors (primarily local health departments).

The MDPH Vaccine Unit at the SLI is responsible for ordering, receipt, storage, handling, packing, shipping, and disposal of all publicly-purchased vaccines in Massachusetts. Vaccines are ordered and stored centrally, and transported by courier to the five regional offices. The 160 local distributors then pick up the vaccines from the regional offices. Health care providers pick up their vaccines from the local distribution sites.

A. Vaccine Ordering

CDC will notify MDPH as to how much vaccine is available for Massachusetts. Once the amount of vaccine available, distribution of vaccine will be determined based on the established priority groups.

The Executive Pandemic Planning Committee will determine the proportion of vaccine to be held at the SLI for administration to essential State personnel (based on the Priority Group List), and how much vaccine will be available to the cities and towns. MDPH will then notify each city and town accordingly.

B. Vaccine Storage and Distribution

a. State Laboratory Institute (SLI)

Influenza vaccine is shipped to the SLI in cardboard boxes, 100 10-dose vials to a case. Standard operating procedures are in place to safeguard vaccine during power outages and other emergencies. MDPH will provide staff from other MDPH programs, if necessary, to assist with processing vaccine at the SLI. A detailed description of emergency procedures is included in the MDPH document *Vaccine Storage and Accessibility Guidelines*. The MDPH Vaccine Management Unit is developing a plan to provide cross-training to ensure that coordination of vaccine management will continue even when Vaccine Unit staff not available.

b. Regional Offices

As soon as the influenza vaccine arrives at the SLI, it will be transported by the State Police, in case quantities from the SLI to the regional offices, which are staffed by MDPH personnel. MDPH will provide staff from other MDPH programs, if necessary, to assist with processing vaccine at the SLI. Regional MIP staff will notify the 160 local distributors that the vaccine is available. Information, including the Vaccine Information Statements (VISs) and Vaccine Usage Forms, which document the age groups of the vaccine recipients, is distributed along with the vaccine.

c. Local Vaccine Distributors

The 160 local vaccine distributors drive to the regional offices to pick up vaccine for providers in their jurisdiction. Security will be the responsibility of the vaccine distributor. They transport the vaccine in an insulated container with cold packs. Local Health Departments and other vaccine distributors maintain a log of all vaccine received from the regional office, including vaccine type, manufacturer, lot number, expiration date, and the quantity of vaccine received.

C. Transportation of Vaccine between SLI and Regional Offices

Vaccines are currently transported between the SLI and the regional offices by a contracted courier service. The courier transports the vaccine in the passenger compartment of the vehicle. Travel time from the SLI to each office is less than one hour, except for the two-hour trip to the western regional office. Up to 75,000 doses can be transported in the passenger compartment of an automobile at one time. Assuming that 12 million doses of vaccine become available, and that 2.8 million doses for the Metro region will remain at the SLI, a total of 9.2 million doses will need to be transported to the other regional offices. The vaccines will be shipped in the cardboard containers in which they are received from the manufacturer.

The table below shows the number of courier trips necessary to transport vaccine to each of the regions, if the vaccine is transported in automobiles.

Number of Courier Trips Necessary to Transport Vaccine To the Regional Offices[1]

Region	Number of Doses	Number of Trips	Cost per Trip[2]	Total Cost
Northeast	2,200,000	30	$ 50	$ 1,500
Southeast	2,440,000	33	$ 54	$ 1,782
Central	1,800,000	24	$ 68	$ 1,632
West	1,600,000	22	$ 134	$ 2,948
Boston	1,150,000	16	$ 20	$ 320
TOTAL	**9,190,000**	**125**		**$ 8,182**

[1] Assumes 2 doses of vaccine will be available for everyone.
[2] Based on 2005 costs for courier services.

MEMA could call upon MAESF 1, *Transportation* to provide transportation of vaccines to supplement the SLI-contracted courier services, if needed.

Unresolved issues:

- *MDPH should get letters of agreement for extended courier services. MEMA will provide assistance with transportation for vaccines only if MDPH is unable to do so.*

D. Vaccine Storage

Vaccine will not be stored in any one place for any length of time. The regional offices currently process and distribute their share of the 745,000 doses within 1 – 3 days of receipt of the vaccine.

Current storage capacity at the SLI and the regional offices could accommodate 3.6 million doses of vaccine, in addition to the usual amount of vaccine stored on regular basis. This capacity may be extended if we decrease inventories of non-influenza vaccine.

Should additional storage be necessary, a refrigerated tractor-trailer truck will be obtained to store additional vaccine. A refrigerated tractor-trailer (45'x 8'x 8') costs approximately $1,000 per month and can be available within a couple of days. The addition of one refrigerated trailer at the SLI would provide adequate storage capacity for the SLI and Metro regions, as well as for vaccine for the central, southeast and western regions until they have room to receive it. Tewksbury Hospital has sufficient capacity to

store all the vaccine that would be needed in the northeast region. The table below shows additional off-site storage that may be available to the regional offices, if necessary.

Current Influenza Vaccine Storage Capacity

Region	Population	Current Capacity[1] Doses	Additional Storage Site(s)	Additional Storage Capacity - Doses
SLI	6,000,000	2,500,000	Refrigerated Trailer	As needed
Metro (includes Boston)	1,975,000 (33%)	150,000	SLI refrigerated trailer	As needed
Northeast	1,100,000 (18%)	200,000	Tewksbury Hospital	1,500,000
Southeast	1,220,000 (20%)	200,000	No additional sites	
Central	900,000 (15%)	200,000	Walk-in refrigerator on site	400,000
West	800,000 (13%)	200,000	UMass – Amherst	200,000
	Total	3,600,000		

[1]Capacity beyond maximum usual amount of vaccine stored.

Unresolved issues:

- *Plan for obtaining a refrigerated trailer. The MIP should have Letter of Agreement for a refrigerated trailer on a 24-hour call basis. Although given current projections of the amount of vaccine we would receive monthly, this will probably not be necessary.*
- *Formal agreement for back-up storage in the central and western regions. Letters of Agreement should be signed and reviewed annually.*
- *Amount of vaccine that will be held back at the SLI for vaccination of essential personnel within state agencies (government, state police, state public health and public hospital personnel, etc.).*

E. Security for Vaccine

Vaccine will likely not be available until sometime into the pandemic, and is likely to be in short supply when it does become available. There may be a large demand for the vaccine and security during vaccine storage, transport and distribution may become an issue. If MDPH is unable to provide adequate security for stored vaccine at the SLI and regional offices, MEMA has the authority to assign that mission to MAESF – 16.

It is likely that vaccine will be received in multiple shipments over a number of months. Security for vaccine will have to be maintained at the SLI and the regional offices, and during transport between those sites. Central storage of vaccine will remain at the SLI.

In order to dispel rumors and decrease panic, it will be important to ensure that the general public has information about the availability of vaccine, how it will be distributed, how decisions were made regarding priority groups for the vaccine, and other measures that can be undertaken to prevent and control influenza. Please see the Communications Section for a full description of how information will be disseminated during a pandemic.

a. Current Security at the SLI and Regional Offices

Currently, all vaccine storage units at the SLI and the regional offices are locked. The central units at the SLI are monitored 24 hours per day, 7 days per week. Security at the regional offices is as follows:

- Metro region: located at the SLI, which is monitored 24 hours/day, 7 days/week.
- Western region: campus security patrols the grounds at UMass Amherst
- Northeast region: security guards patrol the grounds at Tewksbury Hospital
- Southeast region: security guards patrol the grounds at Taunton State Hospital
- Central Office: there are no alarms or security personnel at the central office in West Boylston
- UMass and Tewksbury Hospital have State Campus Police Departments that would be points of contact for security. State Police would augment their services if needed.

b. Enhanced Security at the SLI and Regional Offices

It is the responsibility of MDPH to review the adequacy of the current security measures at the SLI and regional offices and to have a plan in place to enhance security, if needed. Should MDPH become unable to meet the need for security of vaccine, MDPH may request assistance from MEMA.

MEMA has the authority to assign security to *Massachusetts Emergency Support Function (MAESF) 16: Law Enforcement and Security*, of which the State Police are the primary agency. If necessary, the State Police could provide 24-hour details at the SLI for the duration of the time needed. State Police could also provide 24-hour security for stored vaccine, and during distribution of vaccine, at all of the regional offices since they are on state property.

Unresolved issues:

- *Discussion with the MDPH Regional Office Committee on the adequacy of security, jurisdiction for security (especially at the central and southeast offices), and contingency plans for enhanced security, if needed.*

F. Vaccine Accountability

During a pandemic, it will be important to maintain strict accountability for vaccine. At the regional offices and local distributor sites, a special log for influenza vaccine will be maintained to record the manufacturer (assuming multiple manufacturers), lot number, expiration date and quantity of vaccine received and distributed to each site.

At the provider level, a *Vaccine Administration Record* has been developed and is currently in use for mass immunization clinics. The information recorded on the *Vaccine Administration Record* satisfies the requirements for compliance with federal vaccine administration requirements. In order to account for vaccine used the provider tallies the number of doses administered to each of nine age groups, and records the information on the Influenza *Vaccine Usage Form*. These forms are returned through the regional offices to the Vaccine Unit for data entry. Information on doses administered can be totaled and sorted on a daily basis. These forms are being reviewed by the MDPH Vaccine Unit for appropriateness for use in a pandemic situation.

The *Vaccine Administration Record* and the *Vaccine Usage Form* may have to be modified to include information regarding priority group and/or dose (first or second), in addition to the existing age group.

G. Personnel for Vaccine Management

In order to process the additional doses of vaccine and the accompanying paperwork, staffing of the vaccine unit and the regional offices may have to be supplemented. MDPH will provide staff from other MDPH programs, if necessary, to assist with processing vaccine at the SLI. Written protocols for vaccine distribution will be developed to facilitate new or reassigned staff to assist with vaccine distribution functions. During the 4 – 6 months between the pandemic alert and the availability of vaccine, Division and/or reassigned staff will be given specific assignments related to vaccine management, and will be trained by the Vaccine Unit as to their duties.

Additional staffing at the 160 local distributor sites will be the responsibility of the local authorities.

A contract plan is in place to facilitate the hiring of temporary nursing and administrative support staff to assist with answering a hotline, assisting with vaccine distribution, and administering vaccine to state personnel. Using the contract plan, temporary staff can be brought in within 24 – 48 hours. The need for additional staff will depend upon the amount of vaccine that will available for distribution through the public sector. At a minimum, and with no additional resources, the MIP could manage 700,000 doses a month. The MIP, however, should prepare for the possibility of all vaccine being distributed through the public sector. The following four scenarios regarding vaccine availability are used to estimate additional staffing needs during a pandemic.

No. of Doses Processed by the MIP Vaccine Unit	No. of Additional FTEs Needed		
	Central Office	Regional Offices	Total
Up to 700,000 doses	0	0	0
1 million doses/month	1	5 (1/region)	6 FTEs for 12 months
2 million doses/month	2	10 (2/region)	12 FTEs for 6 months

3 million doses /month	3	15 (3/region)	18 FTEs for 4 months

It would be difficult for the regional offices to find space for more than one or two additional staff. Should more staff be necessary, we will have to find additional space at the regional offices for vaccine distribution.

Unresolved issues:

- *Discussions will be held with the MDPH Regional Office Committees to explore alternatives for space for additional staff and vaccine distribution activities.*

H. Access to Emergency Funds

Funds may be needed quickly to pay for vaccines and additional personnel, courier services, and/or space for storage and distribution of vaccines on an emergency basis. A system that enables state agencies to procure emergency commodities or services "…whenever the health, welfare or safety of persons…is threatened" is authorized by 801 CMR 21.00. Departments are required to execute a contract with the entity selected to perform the contract. The appropriate version of the Commonwealth Terms and Conditions and a Standard Contract Form should be executed as soon as possible after the need for the emergency commodity or service arises. (*The Commonwealth of Massachusetts Procurement Policies and Procedures Handbook)*.

Within the SLI, the SLI Administrative Director has the authority to override the $1000.00 limit on incidental spending. Following a request by a program within SLI, the Administrative Director will facilitate emergency access to funds for purchase or lease of goods or services.

According to MEMA, two other mechanisms for accessing emergency funds are:

a. At the state level, a Declaration of a Public Health Emergency may be issued. In this case, scripted letters should be available to facilitate a quick turnaround of a budget request by the Commissioner of Public Health.

b. The Governor could issue an Executive Order identifying the need for quick action by all state agencies, including Administration and Finance to release funds necessary to respond to the pandemic.

7. Legal Authorities to Allow for Implementation of the Plan

A. Declaration of State of Emergency

The statute that authorizes the operations of the Mass. Emergency Management Agency (MEMA) allows the Governor to declare a state of emergency. When this occurs, the Governor may exercise "any and all authority over persons and property, necessary or expedient for meeting said state of emergency." This authority includes but is not limited to "Variance of the terms and conditions of licenses, permits or certificates of registration issued by the commonwealth or any of its agencies or political subdivisions." Chapter 639 of the Acts of 1950, 33 App. § 13-7(o). Like the public health emergency authority

discussed below, this authority is broad and would allow for a Governor's order with respect to administration and dispensing of needed medications.

B. Declaration of a Public Health Emergency

Under M.G.L. c. 17, § 2A, if the Governor declares that an emergency exists that is detrimental to the public health, the Commissioner may "take such action and incur such liabilities as he may deem necessary to assure the maintenance of public health and the prevention of disease." This authority is very broad and would allow the Commissioner to issue an order specifying what categories of people could administer or dispense medications to others; what training would be required, etc.

C. Current Authority: Pharmacists

Under current MDPH regulations, registered pharmacists may administer "influenza vaccine and other immunizations designated by the Department," provided that the administration is done pursuant to MDPH guidelines that include training, record keeping, etc. 105 CMR 700.004(B)(6).

D. Immunity from Liability

M.G.L. c. 112, s. 12C states that "no physician or nurse administering immunization or other protective programs under public health programs shall be liable in a civil suit for damages as a result of any act omission on his part in carrying out his duties."

E. Authority to Establish by Written Order, Rules and Priorities for the Distribution and Use of Drugs

M.G.L. c. 111, § 5A provides that when the Commissioner determines that the inoculation of (or administration of a drug to) the general public is necessary and there is a shortage of a needed product, the department may purchase, produce and distribute appropriate products and may establish by written order, rules and priorities for the distribution and use of these products. This authority was used successfully to establish priorities for administration of flu vaccine during the 2004-05 influenza vaccine shortage.

F. Mandatory Vaccination

Before considering mandatory vaccination, other options should be exhausted. MDPH's current regulations governing isolation and quarantine, 105 CMR 300.200, require the exclusion of non-immunized health care workers from their occupations for certain periods of time, depending on the disease (for example, see varicella). For new diseases or ones not currently on the list of those requiring isolation or quarantine, 105 CMR 300.150 allows the Commissioner to "establish isolation and quarantine requirements, on a time-limited basis, of confirmed and suspect cases of diseases or conditions which are newly recognized or recently identified or suspected as a public health concern." This would allow unvaccinated people to be kept apart from patients and employees in health care facilities during a disease outbreak.

Apparently, there is no case law in Massachusetts that addresses the authority of government officials to forcibly vaccinate a person against his or her will. If there were a

need to vaccinate health care workers against their will in truly dire circumstances of great public health peril, MDPH could apply for a court order to authorize these vaccinations. However, it is not clear whether a court would order forcible administration of vaccinations.

8. Communications Plan

As in mass immunization with any vaccine, it is predictable that two problems will occur:

a. Any symptom or illness that closely follows immunization will be attributed to the vaccine, and

b. Any febrile respiratory illness following immunization will be viewed as a vaccine failure.

Education of the general public will be an important part of the immunization campaign. *(ED Kilbourne. National Immunization for Pandemic Influenza. Hospital Practice 1976:15-21)*

See Section 6: Communications, of the Massachusetts Influenza Pandemic Plan, for details on communication with the public about the following issues:

- Rationale for priority groups
- Contraindications and possible adverse events from influenza vaccine
- Location of vaccination clinics
- Measures other than vaccine to prevent the spread of influenza

9. Websites

A. MDPH Influenza Web Site

MDPH maintains an influenza web page, with a direct link from the MDPH home page. The Influenza Web Site (www.mass.gov/dph/flu) consists of a home page, and separate pages for Influenza Surveillance, Vaccine Availability, and Information for Consumers, Guidelines and Recommendations for Providers, Pandemic Preparedness and Pneumococcal Disease and Vaccine. This web page has links to the CDC, is continually updated and will be a primary source of information for providers and the public during a pandemic.

B. MassPRO Flu Clinic Web Site

The Massachusetts Quality Improvement Organization maintains an influenza clinic website (http://flu.masspro.org), which lists all public influenza vaccination clinics throughout the state. Users can access clinics in their area by zip code or city/town. During a pandemic, this website can be updated very quickly and will be one source of information on the location and times of community vaccination clinics (local communities are expected to have communications plans as part of their EDS plans to notify the people in their jurisdiction about the times, locations and other information about their public clinics). MassPRO is enhancing the website to allow local communities to update their own information on the website, allowing for more flexibility and timeliness in the posting of information.

10. MDPH Hotline

See the Communications Section of the Plan.

11. Contingency Plan for Investigational New Drug (IND) Provisions

Should an IND vaccine be available during a pandemic, MDPH will follow all protocols for inventory control and record keeping, including signed consent. All protocols, forms and information sheets relating to the IND protocol will be provided to all clinics/providers using the IND vaccine, and will be posted on the MDPH influenza Web Site described above.

12. Mechanism for Tracking Second Doses of Vaccine

MDPH is exploring which data management system will be most useful to track second doses during a pandemic. The system being explored is a modified Prophylaxis and Vaccine Management System (PVMS), which is currently being used for pre-event smallpox vaccination, and the Massachusetts Immunization Information System (MIIS). The SNS workgroup is working with local Emergency Dispensing Site planning groups to define the minimum data set that would be required to effectively track a second dose of vaccine. Once a decision is made on the system, local communities will pilot it during their annual flu clinics. The goal is to institutionalize the use of the system during annual flu season so that it can be easily and quickly implemented during a pandemic, with minimal modifications.

Until an electronic data management system is developed, vaccination sites will use a paper-based system. A family-based data collection form, which captures need for a second dose, has been developed for emergency influenza vaccination clinics and is being piloted during emergency clinic exercises.

13. Monitoring Adverse Events

The Vaccine Adverse Event Reporting System (VAERS), which is the national vaccine safety surveillance program co-sponsored by FDA and CDC, will be the primary mechanism for monitoring events occurring after vaccination with investigational vaccines (Source: CDC/GSK IND protocol). VAERS forms, VAERS web reporting and information about how to report vaccine adverse events is available at http://vaers.hhs.gov/.

Pandemic Alert:

- The Executive Pandemic Planning Committee will review the Massachusetts Pandemic Plan, including the Vaccine Section.
- The MDPH Division of Epidemiology and Immunization will modify the plan as needed to account for updates, if any, on recommended target groups and projected vaccine supply.
- MDPH Center for Emergency Preparedness will notify local communities through the Local Emergency Preparedness Coalitions and via the HAN to review their local pandemic and emergency dispensing site plans.

- MDPH, the SNS and local communities will ensure that human resources and logistics are in place to begin vaccination.

Pandemic Period:

- MDPH, the SNS and local communities will fully activate the vaccination program as soon as vaccine is available.

Massachusetts Influenza Pandemic Preparedness Plan

Section 4

Use of Antivirals in the Prophylaxis and Treatment of Influenza During a Pandemic

Goals for the Plan for Use of Antivirals During a Pandemic:

- Initial goals for treatment and prophylaxis will be to attempt to limit spread of influenza after introduction and to attenuate clinical severity.
- Later goals for treatment will be to decrease complications and for prophylaxis to maintain essential personnel and limit spread.
- Identify priority groups for the use of antivirals for prophylaxis and treatment
- Develop a system to obtain funding to purchase and stockpile antivirals

Prophylaxis:

- A primary goal of prophylaxis is the to maintain essential healthcare and public safety services.
- Limitations on the supply of antivirals would limit use of antivirals for prophylaxis of individuals at high risk of complications.
- A course of anitvirals for prophylaxis would last 6- 8 weeks (while the virus was circulating in the community) or until 2 weeks after vaccination.
- The amantadane class of antivirals (amantadine and rimantadine) would be the drug of choice for prophylaxis because of their greater availability and lower cost.
- Use of the neuraminidase inhibitors for prophylaxis would be limited to direct contacts of the initial cases *only* in order to contains introduction as much as possible .

Treatment:

- The goals of antiviral treatment are to decrease the risk of severe complications from influenza, decrease influenza transmission and shorten the time to recovery and return to work.
- Neuraminidase inhibitors are preferred for treatment because:
  - The amantadanes have been associated with the rapid selection and development of resistant viruses when used for treatment. The strains of avian H5N1 influenza viruses that have infected individuals in SE Asia in 2004 were resistant to the amantadanes.
  - The neuraminidase inhibitors reduce lower respiratory tract complications from influenza.

Challenges:

- Unknown how many doses of antivirals medication will be available during a pandemic.
- Antivirals may be available in both the public and private sectors.
- Oseltamivir, the antiviral drug shown to be effective against H5N1 strain of influenza is made by a single manufacturer. Production occurs in a series of steps and takes 12 months for raw material to the finished product.
- For treatment to be effective, it must be started within 48 hours of symptom onset.

Interpandemic Period:

- MDPH is conducting a survey of hospitals to quantify existing inventories of antiviral medications.

Pandemic Alert and Pandemic Period:

- MDPH is waiting for further guidance from CDC, but is likely that antiviral medications will be distributed to states pro rata. With limited antiviral supply, treatment may be the best strategy to prevent adverse health outcomes, especially if delivered early. Prophylaxis in defined settings, i.e., small high-risk groups or critical services groups, or post-exposure prophylaxis in institutional settings may be reasonable.
- If treatment is the main strategy for use of antivirals, then the point of care will likely become the treatment distribution sites.

Unresolved issues

Should we stockpile antivirals?

- *Should we have a system in place for purchasing antivirals during a pandemic? (Will antivirals be available for purchase during a pandemic?)*
- *If we have antivirals available,*
    - *Who should get them?*
    - *For prophylaxis or treatment?*
    - *How would we distribute them?*

Oseltamivir for Prophylaxis and Treatment of Influenza

	Cost/dose[1]	Doses/6 wks prophylaxis[2]	Cost/Course of prophylaxis	Doses/ Course of Tx	Cost/Course of Tx
Oseltamivir (Tamiflu)	$8.60	42 (75 mg/day)	$ 361.00	10 (75 mg BID x 5 days)	$ 86.00

[1] Price as posted on Walgreen website
http://www.walgreens.com/library/finddrug/druginfo1.jhtml?id=15628 (Accessed 1/31/05)

[2] Course of prophylaxis = 4 weeks prevaccination + 2 weeks postvaccination

Massachusetts Influenza Pandemic Preparedness Plan

Section 5

Emergency Response

The Emergency Response section describes the systems that will be used to ensure maintenance of essential medical and other community services in the event of a pandemic.

Assumptions

A. High attack rates will place overwhelming demands on the health care system.

B. Health care providers and emergency response and public safety personnel will be equally or more likely to become infected than the general public.

C. Certain high-risk groups will be less likely to have access to information and services (e.g., people who are homeless, homebound, poor, hearing or visually impaired, undocumented or who do not speak English).

D. Because the pandemic will be widespread, it is unlikely that resources could be diverted from other areas. Every community will have to be prepared to be self-sufficient, while at the same time sharing resources such as hospitals, mortuary services, etc.

Interpandemic Period:

1. Estimate of Need for Health Care Services.
Although there is great uncertainty associated with any estimate of an influenza pandemic's impact, the following estimates of the potential impact of an influenza pandemic on Massachusetts are derived from calculations using the CDC software, FluAid 1.0. These estimates are for one season only and provide estimates for 15%, 25% and 35% attack rates (percentage of clinical influenza illness cases per population). However, no existing data can predict the actual case rates. (For more information on the model used to develop these projections see Meltzer MI, Cox NJ, Fukuda K. The Economic Impact of Pandemic Influenza in the United State: Priorities for Intervention. Emerg Infect Dis 1999;5:659-71.)

The following table shows estimates of the potential impact of a pandemic on Massachusetts. For planning purposes the assumption is that the impact of the pandemic is likely to occur over a 12 – 16 week period, and therefore have a different impact on healthcare services than a sudden or cataclysmic point-in-time Mass Casualty Incident.

Range of Estimates[1] of Potential Impact of an Influenza Pandemic in MA

	Minimum Number	**Most Likely Number**	Maximum Number
Outpatient visits[1]	890,000	**1, 100,000**	1,600,000
Hospitalizations	9,800	**26,000**	33,000
Deaths	3,600	**6,000**	10,000

2. Availability of Hospital and Emergency Medical Services (EMS) Surge Capacity

It is beyond the scope of this plan to address all issues associated with a health care infrastructure that is already overwhelmed by the demand for services during normal influenza seasons. This plan, however, documents what we currently know about the system's healthcare capacity and informs on-going discussions about the need to expand healthcare and EMS capacity.

a) Beds

- Inpatient beds: Based on an MDPH survey (January 2005), there are currently 16,464 licensed and hospital beds in Massachusetts, of which 13,067 are staffed. Hospitals reported 4,445 surge beds (Level 2) could be made available within 12-24 hours. These are beds that are staffed, or for which there is a staffing plan, that could be made available through discharges/transfers of patients, canceling of elective surgery, and utilizing currently closed beds or other beds not normally on the bed count, such as endoscopy beds. An additional 3,568 unstaffed beds (Level 3) are projected to be able to be available within 24-48 hours provided additional personnel is identified, or the standard of care is altered.

  While this number of surge beds is below that projected to be needed in the event of pandemic flu, it exceeds the number of beds HRSA has set as a benchmark for each state (500 beds/million population – in MA this equates to 3,250 beds statewide). Depending on the size and duration of the epidemic, as well as on the epidemic curve, the number of additional alternate care surge sites needed will vary. During epidemic peaks, it is possible that all hospitals will largely function as tertiary care centers, secondary care facilities (rehab centers, nursing homes, community health centers) would serve as "surge" hospitals, and large numbers of patients would be cared for within their own homes by family members and any available visiting nurses, home health care, or other care providers.

Region	# Level 1 Beds (Current Daily Capacity)	# Level 2 Surge Beds (12-24 hours, staffed)	# Level 3 Surge Beds (24-48 hours, unstaffed)
1	1978	319	277
2	1643	677	460
3	2156	1127	788
4AB	2706	384	740
4C	2403	1357	978
5	2175	581	325
TOTAL	13,067	4,445	3,568

- Isolation Capacity: Isolation capacity has been identified in all regions, and supplemental capacity is available through portable units. At this time, we have the capacity to isolate 1,613 patients in current hospital isolation beds, and an additional 5 in portable units. Again, this number exceeds the current HRSA benchmark of each hospital having the ability to surge at least one patient in isolation and having one hospital per region capable of surging 10 isolation patients.

  Seventeen hospitals are planning to purchase portable isolation units in the next year through Homeland Security funding and we are identifying that capacity and will update the plan with that information once it is available. The Statewide Surge Committee will be working to identify additional strategies for isolation, including the capability to cohort large numbers of infected patients. Recommendations for additional isolation capacity will be considered by funding through the NHBPP.

Hospital Region	Isolation Rooms – Total by Region	Number Of Hospitals That Can Isolate At Least 10 Patients
1	87	2
2	99	4
3	82	3
4AB	125	4
4C	233	6
5	127	7
TOTAL	753	26

- ICU Beds: A capacity survey in January 2005 identified 5,071 ICU beds. The Statewide Surge Committee will be identifying additional ICU surge capacity needs, specifically as it relates to pandemic flu, and making recommendations to MDPH. The breakout of ICU beds by region is as follows:

Region	# ICU Beds
1	1026
2	579
3	1286
4 AB	915
4 C	748
5	517
TOTAL	5,071

b) Monitor Hospital Capacity System

The MDPH Hospital Capacity website collects and displays current hospital diversion status as well as daily available staffed bed status. At a minimum, should pandemic flu occur, MDPH will require all Massachusetts hospitals to logon on to the website and report open staffed bed availability between 5 and 6pm daily. MDPH may increase the number of daily bed counts as needed.

MDPH currently requests the following available staffed bed categories on the Hospital Capacity website: Adult and Pediatric ICU, Monitored Med/Surg, Non-Monitored Med/Surg, Regular Pediatric and Psychiatric beds. MDPH also collects the number of patients boarded in the Emergency Department awaiting an Adult ICU, Monitored Med/Surg or Non-Monitored Med/Surg bed. However, MDPH can request and collect Emergency Department boarder data on each and every bed category on the website, if necessary.

During pandemic flu, MDPH may also request that hospitals report counts of "Other Medical Supplies" including, but not limited to: Isolation Rooms, Adult and Pediatric Ventilators, N95 Particulate Respirators, Morgue Capacity and Antiviral Stock including Amantadine, Rimantadine, Zanamivir and Oseltamivir. MDPH is able to add and edit collectable and trackable categories on the system.

There will also be a free form comment text box where hospitals may submit items needed during pandemic flu to MDPH.

Once data is entered on the system, reports and extracts will be run in order to determine hospital capacity, surge and inventory supply and need during pandemic flu.

Definitions that appear on the website are as follows:

Vacant Staffed Beds: Everyday, immediately available staffed and equipped beds.

Emergency Department (ED) Boarder: A patient who remains in the ED for more than two hours after the decision to admit (request to Admitting Department for a bed) or transfer.

ICU Beds: Beds for adult or pediatric patients requiring sophisticated intervention to restore or maintain life processes to their dynamic equilibrium. This involves the requirement to provide immediate and/or continuous attention and monitoring using specialized facilities, equipment and personnel.

Med/Surg Beds: Beds for patients having, or suspected of having, medical illness or disorders, as well as patients having, or suspected of having, diseases or injuries normally treated by surgery, not coming within purview of a more specific medical specialty.

Monitored Med/Surg Beds: Beds in which patients can be placed on bedside and/or telemetry monitors, which go to a centralized monitoring station. These would be used for patients having, or suspected of having, medical or surgical illnesses or disorders who are not sufficiently unstable to warrant intensive care unit monitoring but for whom vital signs monitoring, particularly heart and respiratory status, is deemed clinically warranted.

Regular Pedi Beds: Beds for pediatric patients having, or suspected of having, diseases or injuries requiring the services of pediatric health care providers.

Psych Beds: Beds for patients who require care in a medical treatment facility capable of providing specialized care for psychiatric patients (including Geri-Psych Beds).

ED Saturation: When the boarding or backup of patients in the ED prevents timely evaluation and treatment of high-acuity patients.

Diversion: The decision to redirect incoming ambulance traffic when an emergency department has reached saturation is anticipated to remain saturated, and there is capacity at surrounding facilities.

NDMS Burn Beds: Beds for those with SBN burns - This is not a daily count requirement and will only be requested by the National Disaster Medical System once every 2 months or specifically when needed. SBN burn patients are defined as those having second-degree burns of 25% or more of the total body surface: all patients with third-degree of 10% or more of the total body surface; and all patients with significant burns involving the hands, feet or perineum.

Available Adult and Available Pedi Ventilators - This is not a daily count requirement and will be requested only when needed. Ventilators are defined as all ventilators that are mechanically sound and not currently being used for patient care.

Isolation - Beds for patients who have or are suspected of having infectious disease requiring isolation in a negative pressure, HEPA-filtered, room or facility that can support the initial evaluation and treatment adult and pediatric patients. These beds may also be counted in one of the other categories (may be double counted).

c) Staffing

Pandemic flu presents three major challenges to surge personnel staffing: the overwhelming number of projected patients requiring the care of health professionals, the increased incidence of the illness among direct care workers, and the duration of a pandemic. Unlike many mass casualty incidents with an immediate need for surge that wanes relatively quickly over time, the intensity and duration of the need for surge in a pandemic over months, and perhaps longer, will result in a severely stressed workforce. Standards of care, as well as the settings in which care is provided, will be required to adjust to the epidemic in order to provide the highest possible levels of care to the greatest number of patients. Legal protections and waivers of licensing requirements will be needed to ensure the most robust workforce possible.

The state-based Emergency System for Advance Registration of Volunteer Health Personnel (ESAR-VHP) is currently under development. This system, once operational, will provide for the identification and pre-credentialing of health professionals willing to serve in an emergency. It is expected that this system will be activated to provide an on-going rotation of volunteers. All licensed health professionals will be recruited to join the system, including but not limited to physicians, nurses, physician assistants, respiratory therapists, radiology technicians, and medical, nursing and students enrolled in various health and allied health professions. Additional non-medical support personnel will eventually also be included. Registration will be voluntary, and only those who choose to join will be entered into the database. It is likely that recruitment will escalate once an emergency situation has been identified. Any personnel not in the system, but who choose to join once the impact of the pandemic is underway, will be rapidly integrated and deployed as needed.

Because health care personnel and their families may be affected directly by the illness, we can expect that there will be high absenteeism rates among health care staff, at least until a vaccine becomes available. While retired health care providers and volunteers can be called on to assist in the care of the ill, it is likely that much of the care will be become the responsibility of families, whether the patient is at home or in a hospital. It will be necessary to develop informational materials, and perhaps short courses, on the care of the sick.

d) Equipment and Supplies

Through the National Hospital Bioterrorism Preparedness Program (NHBPP), Massachusetts is addressing the need for additional supplies, equipment and education for a pandemic flu.

- Ventilators: The MDPH survey (January 2005) identified 918 ventilators. The breakout by region is as follows:

Region	# Vents
1	112
2	131
3	97
4 AB	150

4 C	306
5	122
TOTAL	918

- Anti-viral Stockpiles: The development of anti-viral stockpiles in under review at the present time. An inventory of currently available anti-virals in hospital pharmacies was conducted in July 2005. The total number of doses of anti-virals is as follows:

Antivirals/Region	Region 1	Region 2	Region 3	Region 4AB	Region 4C	Region 5	TOTALS
Amantadine	37,043	1,570	1,907	15,149	3,425	3,521	62,665
Rimantadine (Flumadine©)	461	280	0	2,809	329	400	4,279
Zanamivir (Relenza©)	0	0	0	0	0	0	0
Oseltamavir (Tamiflu©)	342	590	161	1,025	1,160	626	3,904
Totals Per Region	37,864	2,440	2,068	18,983	4,964	4,547	**70,848**

e) Pre-Hospital Triage and Transport Capability

Massachusetts has adopted an Ambulance Task Force Mobilization plan as part of its EMS MCI Planning Guide. Under this plan, 58 task forces (five ambulances plus alternates per task force for a total of 348 public, private, and third service ambulances) have been identified that can be requested and dispatched to provide assistance at the scene of an MCI once normal mutual aid has been exhausted. The 58 task forces are capable of providing triage and transportation to 4,176 patients over a three-hour period. This capability, while designed to be activated for a large scale MCI, will provide surge triage and transport capacity during a pandemic.

f) Contingency Planning for Health Care Facilities

The Statewide Surge Committee is being re-convened to assess capacity and capability needs in relation to pandemic flu planning. In addition, regional planning efforts, trainings, and drills are underway to provide an optimal state of preparedness for any large mass casualty event, including pandemic flu. As additional resources are identified, the state plan will be updated.

a. Contingency medical care facilities (from Comprehensive Emergency Medical Plan)
b. Mortuary/burial services
c. Adequacy of social and psychological services for families of victims

It is beyond the scope of this plan to address inadequacies of a health care infrastructure that is already overwhelmed by the demand for services during normal influenza seasons. This plan, however, may highlight some of the gaps and inform on-going discussions about the need to expand hospital capacity.)

2. Behavioral Health

MDPH is working closely with the Massachusetts Department of Mental Health (MDMH) to provide disaster behavioral services. Two ways in which disaster behavioral health services can be provided by MDPH/MDMH to residents are through behavioral health disaster responders (or 'crisis counselors), and MassSupport.

- **Behavioral Health Disaster Responders**

  Behavioral Health Disaster Responders, or 'crisis counselors', provide a short-term intervention with individuals and/or groups experiencing psychological reactions to a major emergency and/or disaster and its aftermath.

  This type of intervention is not therapy in the traditional sense – responders (or 'counselors') link victims to disaster relief associations within the shortest amount of time while assessing victims for their need for counseling services. A typical intervention may include a referral to services, support, or food and shelter. MDPH/MDMH is providing behavioral health disaster responder training courses throughout the Commonwealth to develop a cadre of these volunteer responders who would be deployed by MDMH through ESF8 during a disaster.

- MassSupport offers aid in three distinct ways: (1) a **website** http://www.mass.gov/samh/; (2) a **toll-free 24/7 help line number** - 866.237.8274; and (3) **print materials** that can be downloaded or requested.

  The **website** has links to state and federal government agencies and includes material on *Common Reactions to a Disaster* and *Coping With a Disaster*. In addition, individuals may access a database that contains resources and contact information for various government agencies, relief organizations, inter-faith groups, and behavioral health providers.

  The **toll-free 24/7 help line**, which has interpreter and TTY services available, will connect callers to staff who can provide information on relief and behavioral health services. In the event of a large-scale disaster, the help line will be enhanced by having trained behavioral health disaster responders available to answer telephone calls.

  The available **print materials** include a Family Disaster Plan and Family Emergency Card that can be downloaded or sent to individuals. Being prepared before a disaster strikes is one of the best ways to make your family and home safer.

3. Special Populations

The Massachusetts Department of Public Health's Center for Emergency Preparedness (MDPHCEP), through its Special Populations workgroup, has developed *Special Populations Guidance for Local Boards of Health ,* to assist local communities in the planning process.

This guide is intended to be an evolving document, and will be revised based upon community-specific needs in developing emergency preparedness plans for special populations. The guide can be found at:
http://www.mass.gov/dph/bioterrorism/advisorygrps/pdfs/spop_guidance_5_05.pdf .

4. **Contingency Plans to Meet the Needs of Persons Confined to their Homes.**

Persons may be confined to their homes by choice, out of fear of being exposed and becoming ill or by direction from State or local health officials in order to reduce transmission in the community.

The provision of food, medical and other essential support for persons confined to their homes will be the responsibility of local communities. Local communities are encouraged to make use of civic organizations and other volunteers to meet these needs. For instance, local agencies already engaged in providing services to the homebound (Meals-on-Wheels, etc.) may become the nucleus for voluntary efforts to provide services to people confined to their homes.

In addition, there will likely be situations in which care providers of children or the elderly will become ill and unable to care for their children or elderly parents. Communities will need to have plans in place to identify these situations (e.g., hotlines and or home visiting programs) and contingency plans for caring for these individuals.

Should local communities be unable to meet the needs of the homebound or other residents in need, they can request assistance from the state, according to the following protocol:

> Local elected officials, in coordination with the local Emergency Management Directors, will declare a Local Declaration of Emergency and make a formal request for State assistance. The request for assistance is channeled through MEMA to the Office of the Governor. MEMA may concurrently, or as needed, recommend that a gubernatorial State of Emergency be declared (MCEMP, p. 7).

Following a request for State assistance, MEMA may implement MAESF 15 – Volunteers and Donations, whose purpose it is to expedite the delivery of goods and services in support of disaster relief efforts in the Commonwealth. The primary agency for MAESF 15 is Massachusetts Voluntary Organization Active in Disasters (VOAD).

Local communities are reminded that all areas of the state will be affected during a pandemic and there will be a great demand for assistance from the state. Resources at the state level will have to be allocated according to need and all needs may not be met. Local communities are encouraged to have plans in place that will ensure as much self-sufficiency as possible.

5. **Develop Contingency Plans to Provide Medical Care for People Sick at Home**.

Families will need information about how to take care of sick family members at home, and guidelines regarding when to seek professional medical care. This first-line triage will be essential to eliminating unnecessary calls and decreasing the burden on the health care system.

6. **Develop Contingency Plans to Maintain Other Essential Community Services.**

   Personnel who provide essential community services, including public safety and emergency response, will be as likely to become ill during a pandemic as the general public. It is estimated that up to 35% of the population will become clinically ill. With influenza, febrile illness usually lasts 2 – 5 days, but people may take up to two weeks to recover fully.

   State and local authorities will develop lists of essential personnel based on national guidelines. These lists will be used to develop priority lists for vaccination, should vaccine become available. However, it is unlikely that vaccine will be available during the early stages of the pandemic, and may be in short supply when it does become available. In any case, every state agency and organization will have contingency plans to provide essential services during periods of high absenteeism.

   Each state agency will develop (or review and update existing lists) of essential services and personnel. Contingency plans will be in place to provide back up for any personnel whose absence would pose a threat to public safety or would significantly interfere with the on-going response to the pandemic. Back up personnel could include reassignment of personnel from non-essential programs within the State agencies, retired personnel and /or private-sector personnel with relevant expertise.

7. **Declaration of State of Emergency**.

   Should local communities become unable to provide essential services, assistance from the State may be requested as described above. Depending upon resources available at the state level, MEMA may activate relevant Emergency Support Functions including, but not limited to:

   MAESF 4 - Fire Fighting
   MAESF 8 - Health and Medical
   MAESF 13 - Military Support (includes personnel to support other MAESF's)
   MAESF 15 – Volunteers and Donations
   MAESF 16 - Law Enforcement and Security

   It is important to note that the agencies responsible for implementing the Emergency Support Functions will be as affected by absenteeism due to illness as the communities requesting assistance. Again, each State agency and local community is encouraged to develop plans that will ensure as much self-sufficiency as possible.

   Unresolved issues:

   - *Development of agency-specific contingency plans.*

8. **Training and Assistance to Local Communities and State Agencies for Emergency Planning and Response.**

   - **Addendum to Local Comprehensive Emergency Management Plan Template**

     MDPH has drafted an addendum to the template used by local communities in developing their Emergency Management Plans. This template addresses the issues specific to pandemic planning and response, including the need for contingency plans to

respond to absenteeism among essential community personnel and vaccine distribution and administration.

- **Regional Training on Influenza Pandemic Planning and Response**
  In 2000, MDPH conducted regional workshops across the state on Infectious Disease Emergency Preparedness. These workshops included an influenza pandemic scenario. MDPH and MEMA will continue to sponsor regional training on pandemic preparedness for public health, emergency response, public safety and medical officials.
- **Pandemic Preparedness Exercises**
  MEMA and MDPH will hold a pandemic tabletop exercise for the State Emergency Management Team in November 2000.

Pandemic Alert:

- Ensure that human resources and logistics are in place to begin vaccination.
- Coordinate activities with bordering jurisdictions.

Pandemic Period:

- Fully activate emergency response plans.
- Coordinate activities with bordering jurisdictions.

Massachusetts Influenza Pandemic Preparedness Plan

Section 6

Communications

As outlined in the CDC Bioterrorism Preparedness and Response cooperative agreement, the Massachusetts Risk Communication Work Group is responsible for developing and implementing a plan for connectivity of key stakeholders involved in public health detection and response, including state and local public health officials, the medical community, public safety and other key participants, and the general public. The communication system developed will be used for all public health emergencies. Elements of the plan that are specific to an influenza pandemic are outlined below.

The goal of the Communications Section is to ensure an efficient flow of accurate and consistent information during a pandemic. It is designed to facilitate communication among federal, state and local agencies about influenza activity and circulating strains of influenza virus, and about recommendations for, and availability of, vaccines and antivirals, and other recommended health measures. This plan also describes the system for providing information to the general public through the media and other information outlets.

1. Assumptions

A. Dissemination and sharing of timely and accurate information among state and local public health and government officials, medical care providers, the media and the general public will be one of the most important facets of the pandemic response.

B. Different types of information will have to be communicated, often to different audiences.

C. Basic messages will change over the duration of the pandemic as the disease burden peaks and wanes, and as vaccines, antiviral medication and other treatments become available.

D. There will be widespread circulation of conflicting information, misinformation and rumors. Communication must be coordinated among all relevant agencies to ensure consistent messages to the general public.

E. There will be a great demand for accurate and timely information regarding:

- Circulation of a pandemic strain
- Disease burden
- Disease complications and mortality
- Eligible groups for vaccine
- Where to get influenza vaccine

- Disease control efforts, including availability and use of vaccines, antivirals and other preventive and treatment measures
- "Do's and Don'ts" for the general public
- Maintenance of essential community services.

F. There will be a special need for information for the general public about how and why a Priority Group List for receipt of vaccine was developed. Appropriate risk communications will need to be employed to mitigate any sense of 'special treatment' being afforded to one or more segments of the population over others.

   Public education will be an important part of the immunization campaign.

G. Certain groups will be hard to reach, including people whose primary language is not English, people who are homeless, people who are hearing and visually impaired, etc. The Special Populations as identified in the state Emergency Preparedness Plan will be included in all communications efforts.

H. Demand for information by health care providers will be so great that existing methods for educating health care providers will have to be expanded during the inter-pandemic period.

2. Responsibilities for Communication during a Pandemic

The Massachusetts Department of Public Health MDPH will work closely with its partners to disseminate information quickly and efficiently. These partners include:

- The Massachusetts Adult Immunization Coalition
- The Massachusetts Association of Health Boards (MAHB)
- The Massachusetts Association of Health Plans (MAHP)
- The Massachusetts Association of Public Health Nurses (MAPHN)
- The Massachusetts Chapter of the American Academy of Pediatrics (MCAAP)
- The Massachusetts Health Officers Association (MHOA)
- The Massachusetts Hospital Association (MHA)
- The Massachusetts Infectious Disease Society (MIDS)
- The Massachusetts Medical Society (MMS)
- The Massachusetts Nurses Association (MNA)
- The Massachusetts Quality Improvement Organization (MassPRO)
- The Massachusetts School Nurse Organization (MSNO)
- The Massachusetts State/Local Pandemic Planning Committee

Primary responsibilities for communication activities during a pandemic are outlined below:

a. The MDPH Division of Epidemiology and Immunization is responsible for collecting and interpreting influenza surveillance data, and for disseminating this information to:

   - Other bureaus within the MDPH, especially to the Commissioner's Office and the MDPH Center for Emergency Preparedness (CEP). (Collection of surveillance data

is described in the Surveillance section of the Massachusetts Influenza Pandemic Plan).

- Centers for Disease Control and Prevention (CDC)
- With approval from the Commissioner's Office, the Division of Epidemiology and Immunization also disseminates this information to local boards of health and health departments via the HAN, the MDPH Influenza Surveillance Web page (http://www.mass.gov/dph/cdc/epii/flu/flusur.htm), through the local coalitions and via listserves of relevant associations, including MHOA, MAHB and MAPHN.
- Health care providers via the HAN, the MDPH Influenza Surveillance Web page and relevant associations, including MMS, MNA, MHA, MAHP, MassPRO and the State/Local Pandemic Planning Committee.

b. The MDPH Division of Epidemiology and Immunization is responsible for developing guidelines on the prevention, diagnosis and treatment of influenza and influenza-related illnesses that are consistent with those of the CDC and other national advisory groups.
   - The Division of Epidemiology and the MDPH CEP will work with their partners to disseminate these guidelines and recommendations to health care providers and hospitals (specifically local health departments, hospital administrators, hospital disaster coordinators, emergency department directors, infection control nurses and hospital epidemiologists, infectious disease directors).

c. In order to ensure consistency of all messages for the general public, the MDPH Public Information Office, the MDPH CEP and MEMA will develop a system for communicating with the general public about circulating virus, disease burden and control measures.

d. As described in MAESF 14: *Public Information*, MEMA, with support from the Governor's Public Affairs Office, will provide the general public, through the news media, with information on anticipated and on-going emergency response efforts necessary to maintain essential community services during the pandemic.

Interpandemic Period:

1. Communication Resources

A. Massachusetts Homeland Alert Network (HAN)

B. MDPH Influenza Website

MDPH maintains an influenza website (www.mass.gov/dph/flu), with pages devoted to influenza surveillance, vaccine availability, guidelines and recommendations for providers and information for consumers. The website has links to the CDC flu website and to MassPRO's vaccination clinic website, where information on all public clinics can be accessed by city/town or by zip code.

During the interpandemic period, MDPH will continue to promote and enhance the influenza website to ensure that all providers and the public are of the website as a source for information influenza control measures, including vaccination and antiviral medications, and updated information on influenza disease burden and epidemiology.

C. Hotline

When the call volume to MDPH increase due to real or perceived public health emergencies (flu vaccine shortage, anthrax), a conference room is set up with telephones and laptops to facilitate staffing a hotline. Primarily staffed with personnel from the division of Epidemiology and Immunization, personnel from other program and divisions are brought in and trained to staff the hotline as needed. Calls can also be routed to MassSupport, which staffs a hotline 24/7.

D. Facilities to Receive Satellite Broadcasts

Sites used on a regular basis to receive satellite broadcasts from the CDC include the State Laboratory Institute in Boston, Tewksbury State Hospital and community colleges across the state. In addition, the Boston Public Health Commission and a number of hospitals and universities in the state have the capacity to receive satellite broadcasts. MDPH is expanding this capacity to MDPH regional offices in Northampton, West Boylston and Canton.

E. Educational Materials

MDPH maintains an extensive library of educational materials for providers and the public, including printed materials and videos/CDs. These materials provide information on influenza epidemiology, surveillance and reporting, vaccine, antiviral medications and other control measures. These materials are updated annually and can be quickly adapted for a pandemic situation. They are available from MDPH in hard copy and on the MDPH influenza website. Electronic versions of these materials can be disseminated quickly to local health departments, health care providers and other service providers via the HAN and association listserves. In addition, the MDPH influenza website links directly to the CDC flu website for access to their educational materials.

F. Information for Non-English-Speaking Communities

Since 2002, the MDPH Division of Epidemiology and Immunizations has contracted with the Communications Group, an advertising agency specializing in marketing and outreach to Latinos, immigrants and low-income groups, to promote provide information on influenza and influenza vaccine in immigrant communities. The Communications Group has established relationships with 16 key publications with a readership of 558,000 in the Commonwealth's immigrant communities and uses these relationships to place health alerts and articles on influenza and where to get influenza vaccine in these publications every flu season.

The Communications Group has developed fact sheets on how to prevent the flu and has translated them into 6 languages in addition to English (Spanish, Portuguese, Haitian Creole, Chinese, Vietnamese and Khmer). These fact sheets will be updated and

expanded to additional languages every flu season and will be ready for use during a pandemic.

MDPH will work with it's programs, including WIC, Primary Care, Office of Refugee and Immigrant Health and the Bureau of Substance Abuse, as well other state agencies and community groups to ensure that information gets to all communities in the Commonwealth.

F. Information for Special Needs Populations

The DPH Special Populations Advisory Group is working towards developing a plan to ensure that all communities in the Commonwealth have access to the information they need during any public health emergency. Components of this plan include developing an ethnic media contact list and working with MEMA on dissemination of emergency communications to individuals who are sensory-disabled. Risk communications training for special populations intermediaries was conducted during the past year and a revised course combining elements of risk communication and self-care has been proposed.

G. Mechanism for Distributing Information

MDPH collaborates with its partners to ensure that all public and private providers have access to relevant information. In addition to mass mailing, information is disseminated via list serves and through postings on the HAN and on the MDPH websites and the websites of its partners. MDPH also does fax broadcasts to all local health departments. MDPH's partners, including trade and professional associations forward the information on to their constituents. Redundancy is built into the system so that providers may receive information several different sources.

H. Collaboration with the Media

MDPH regularly issues press releases and holds regular press conferences regarding influenza and the availability of influenza vaccine. MDPH CEP and the Boston Public Health Commission collaborated on a day-long educational session for the media outlets in Massachusetts. This briefing included a panel discussion on flu pandemic planning currently underway in the state, as well as educating the media about the role they will play in appropriately communicating important health information about pandemic flu, and chemical, biological and radiological health threats.

MDPH, MassPRO and the Massachusetts Adult Immunization Coalition provide guidance on influenza campaigns, including model press releases and tips on working with the media to local health departments.

I. Conference Calls

MDPH holds conference calls with its partners, including local health departments and hospitals when it is necessary to get timely input into policy decisions and/or provide urgent information.

Pandemic Alert:

1. The Executive Planning Committee will implement contingency plans to obtain critical hardware, software or personnel to operate the pandemic communications system.

2. The Executive Planning Committee will test the communications system.

3. The MDPH CEP will:
   - Notify the Governor's Office and other state agencies of the pandemic alert
   - Notify local health departments of the pandemic alert through the 15 Emergency Preparedness coalitions and sub-coalitions.
   - Notify and meet with the MDPH Public Information Office and MEMA to review the Communication Plan.
   - Notify and meet with the Pandemic Executive Planning Committee to review the entire Massachusetts Influenza Pandemic Plan, and modify as needed.

4. The MDPH Division of Epidemiology and Immunization will:
   - Notify the providers in the Influenza Sentinel Surveillance System and reinforce influenza surveillance guidelines.
   - Review and update the influenza website on an ongoing basis.
   - Provide regular updates to the State/Local Pandemic Planning Committee via the committee listserve.
   - Prepare advisories, alerts and press releases for review by the Commissioner's Office.
   - Update and disseminate guidelines on the prevention, diagnosis, and treatment of influenza and influenza-related illness, using guidelines from the CDC, the Advisory Committee on Immunization Practices and other national advisory groups.

     Note: CDC is in the process of developing prototype communication materials for use during the pandemic. These materials include fact sheets/web-based information/video and audio clips, etc., on influenza, influenza vaccine, antiviral agents, etc., in various languages, as well as information/guidelines for health care providers.
   - Disseminate approved advisories, alerts and guidelines to providers and other stakeholders via listserves, the flu website and the HAN.
   - Implement a hotline staffed by MDPH staff.

3. MDPH (Commissioner's Office, Division of Epidemiology and Immunization, CEP) will hold weekly conference calls with local public health to provide updates and assess readiness.

4. MDPH (Commissioner's Office, Division of Epidemiology and Immunization, CEP) will hold weekly conference calls with hospitals to provide updates and assess readiness.

5. MDPH (Commissioner's Office, Division of Epidemiology and Immunization, CEP) will hold weekly conference calls with other health care providers (health plans, MMS, MCAAP, MIDS, etc.) to provide updates and assess readiness.

Pandemic Period:

1. If necessary, MEMA, with MDPH Public Information Office, CEP and the Governor's Public Affairs Office will set up a Joint Information Center to efficiently provide and disseminate accurate and consistent information to the general public. (See MAESF 14*, Public Information*, for a complete description of public information activities during a major disaster.) Note: CDC is developing prototype press kits, bulletins, newsletters, etc.

2. If necessary, MEMA and support staff will operate a 24-hour public information telephone line to deal with citizen's inquiries. MassSupport operated by the Department of Mental Health will be activated. This may be augmented by the Secretary of State's Consumer Hotline. MAESF 14 support agencies will provide supplemental staffing as needed. All MAESFs, MAESF 8, *Health and Medical Service*s (MDPH) will routinely brief MAESF 14 staff concerning on-going response actions.

3. If necessary, MAESF14, *Public Information*, and MAESF 15*, Volunteers and Donations*, will work together to release information concerning what volunteer goods and services are needed, and where volunteers and donors may go to deliver such goods or potential services. (See Emergency Response section).

4. MDPH will continue weekly conference calls with local public health, hospitals and other health care providers.

5. MDPH will use the HAN to provide information to local health departments and other health care facilities on disease impact and recommendations on prevention and control.

6. Education Regarding an Immunization Campaign

Massachusetts Health and Homeland Alert Network (HHAN)

As a secure application interfaced with a wide range of devices (e.g. pager, fax, phone, email, wireless), the HHAN will establish the infrastructure necessary for continuous, secure, bi-directional communication and information sharing in support of aspects of bio-terrorism preparedness including, but not limited to, response planning, educational services, disease surveillance, laboratory reporting and epidemiologic investigation. The core functionality of the Alert Network will provide a secure means to utilize the following:

- a role based user directory containing the contact information of all appropriate Commonwealth personnel]
- user specific, rapid communication distribution for emergency situations (can alert phones, fax, email and pager)

- online news postings for low priority information dissemination
- online discussion forums to provide a means for easy user collaboration and communication
- online training documentation and schedules to ease administrative burden associated with any existing and/or future educational services
- online document collaboration and library to facilitate all document editing, approval and then distribution processes.

As of July 2005, the Alert Network has around 4,000 users representing numerous agencies and organizations that have worked in concert toward establishing the proper channels of communication. These agencies and organizations include: Massachusetts Emergency Management Agency, Massachusetts Water Resources Authority, Massachusetts Information Technology Division, Executive Office of Public Safety, Anti-Terrorism Advisory Counsel, Department of Food and Agriculture, Department of Public Health, Fire Services, Hospitals, Local Boards of Health, Mass League of Community Health, Mass Medical Society, DEP, US General Services Administration, US HHS and CDC.
Alert.Network@state.ma.us

Section 7

Pandemic Planning Resources

Planning Guidance:

Emergency Dispensing Site Management and Operations (MDPH 3/05)
http://www.mass.gov/dph/bioterrorism/advisorygrps/word_files/emergency_dispensing_site_3_05.doc

Special Populations Guidance for Local Public Health (MDPH 5/05)
http://www.mass.gov/dph/bioterrorism/advisorygrps/pdfs/spop_guidance_5_05.pdf

Template for Local Infectious Disease Emergency Planning and Response (MDPH 12/03)
http://www.mass.gov/dph/topics/bioterrorism/idep.doc

Risk Communication Plan Template for Massachusetts Local Boards of Health (MDPH 9/04) http://www.mass.gov/dph/bioterrorism/advisorygrps/risk_comm_plan.htm

Websites:

Centers for Disease Control and Prevention (CDC) Flu Web Page www.cdc.gov/flu

CDC Avian Flu Web Page www.cdc.gov/flu/avian

MassSupport http://www.mass.gov/samh/

MDPH Flu Web Page www.mass.gov/dph/flu

U.S. DHHS Pandemic Influenza Website - www.pandemicflu.gov