# Table of Contents

Cover

Table of Contents

Executive Summary 1

Introduction 4

- The National Planning Landscape 4
- Federal Legal Authorities for Pandemic Influenza Mitigation 14
- The State of Michigan’s Planning Landscape 18
- State and Local Authority for Pandemic Influenza Mitigation 33
- Summary 37
- MDCH Pandemic Planning Assumptions 39

Michigan Pre-Pandemic Actions 40

- Command and Management 40
- Crisis Communication 40
- Surveillance 41
- Laboratory Guidelines 42
- Community Containment 43
- Infection Control 43
- Medical Management 43
- Data Management 44
- International Issues 45
- Recovery 45

Michigan Pandemic Actions 46

- Command and Management 46
- Crisis Communication 46
- Surveillance 47
- Laboratory Guidelines 48
- Community Containment 49
- Infection Control 50
- Medical Management 50
- Data Management 51
- International Issues 51
- Recovery 52
Michigan Post-Pandemic Actions

Command and Management 53
Crisis Communication 53
Surveillance 54
Laboratory Guidelines 54
Community Containment 54
Infection Control 55
Medical Management 55
Data Management 55
International Issues 56
Recovery 56

Attachments 57

Attachment 1: CHECC 57
- Emergency Operations Communications Pathway
- CHECC Organizational Chart
- CHECC Manual Reference

Attachment 2: Surveillance/Reporting 61
- MDSS Background Information
- MDSS Influenza Reporting Forms
Attachment 3: Physician/Clinician Guidance

- 2010 Novel Influenza A Virus Infections Case Definition
- MDCH Clinician Update – June 16, 2009
- Update for Clinicians on the Reporting of Influenza-Associated Hospitalizations and Deaths for the 2009–2010 Influenza Season – September 18, 2009
- MDCH FAQ for Clinicians Regarding 2009 Novel Influenza A (H1N1) – November 9, 2009
- MDCH H1N1 Rapid Influenza Testing Information for Healthcare Providers – August 14, 2009
- CDC 2009-2010 Influenza Season Triage Algorithm for Adults (>18 Years) With Influenza-Like Illness – October 27, 2009
- CDC 2009-2010 Influenza Season Triage Algorithm for Children (<18 Years) With Influenza-Like Illness – October 16, 2009
- CDC Interim Recommendations for Clinical Use of Influenza Diagnostic Tests during the 2009-10 Influenza Season – September 29, 2009
- CDC Interim Guidance for the Detection of Novel Influenza A Virus Using Rapid Influenza Diagnostic Tests – August 10, 2009
- MDCH Quick Guide for Making Influenza Specimen Collection Kits – August 26, 2009
- MDCH Quick Guide for Packaging and Shipping Influenza Specimens to MDCH Bureau of Laboratories (BOL) – September 14, 2009
- MDCH Instructions for Submission of Specimens for Virus Isolation and Viral PCR – October 1, 2009
- CDC Interim Guidance for Follow-up of Contacts of Persons with Suspected Infection with HPAI H5N1 Virus in the United States – February 20, 2009
- MDCH Avian Influenza H5N1 Case Criteria and Testing Guidelines – November 25, 2008
- MDCH Reporting and Laboratory Guidelines for Avian Influenza H5N1 – December 1, 2008
Attachment 4: Laboratory Guidance/Planning

- MDCH Influenza Testing Algorithm for Cases and Outbreaks, Fall 2009 – September 18, 2009
- MDCH 2009 Novel H1N1 Results Interpretation – October 13, 2009
- MDCH Novel Influenza A (H1N1) Preparation List for Clinical Laboratories – August 26, 2009
- CDC Guidelines for the Submission of Tissue Specimens for the Pathologic Evaluation of Influenza Virus Infections – May 23, 2009
- CDC Interim Guidance on Specimen Collection, Processing, and Testing for Patients with Suspected Novel Influenza A (H1N1) Virus Infection – May 13, 2009
- CDC Interim Biosafety Guidance for All Individuals handling Clinical Specimens or Isolates containing 2009-H1N1 Influenza A Virus (Novel H1N1), including Vaccine Strains
- MDCH Biosafety Guidelines for Laboratories Handling and Processing Influenza Specimens
- MDCH Novel/Avian Influenza Algorithm Instructions for Clinical Labs – August 5, 2006
- MDCH Influenza H5 PCR Assay
- CDC Updated Interim Guidance for Laboratory Testing of Persons with Suspected Infection with HPAI H5N1 Virus in the United States – February 20, 2009
- MDCH Reporting and Laboratory Guidelines for Avian Influenza H5N1 – December 1, 2008

Attachment 5: Communications

- Michigan CERC Plan – June 25, 2009
- CHECC Tactical Communications Plan – September 6, 2007
- CHECC Hotlines Procedures – March 2009
- Outreach Channels to Diverse Populations – September 2009

Attachment 6: Outreach

- List of Michigan Pandemic Influenza Outreach Activities
- Examples of Outreach Materials
- Pandemic Influenza Safe Work Practices
- Pandemic Influenza: Information for the Public
- Controlling Pandemic Influenza: Fact Sheet for the Public
- Michigan 9-1-1 Guidelines for Pandemic Influenza
- Michigan EMS Guidelines for Pandemic Influenza
Attachment 7: Community Mitigation

- Community Mitigation Measures in Michigan
- Recommendations for Michigan Schools: Pandemic Influenza Community Mitigation – Response Levels
- Interim MDCH Guidance for Camp Programs in Response to Human Infection with the Novel Influenza A H1N1 Virus – June 3, 2009
- CDC Guidance for State and Local Public Health Officials and School Administrators for School (K-12) Responses to Influenza during the 2009-2010 School Year – October 21, 2009
- CDC Guidance for Responses to Influenza for Institutions of Higher Education during the 2009-2010 Academic Year – October 21, 2009
- CDC Guidance on Helping Child Care and Early Childhood Programs Respond to Influenza during the 2009–2010 Influenza Season – September 4, 2009
- Communicability, Isolation, and Quarantine: Non-pharmaceutical Management of Influenza Cases (MDCH) – October 2009
- Evaluation Guidelines for Home/Facility Isolation and Quarantine (MDCH)
- Interim CDC Guidance for Public Gatherings in Response to Human Infections with Novel Influenza A (H1N1) – September 23, 2009
- Interim Recommendations for Facemask and Respirator Use to Reduce 2009 Influenza A (H1N1) Virus Transmission – September 24, 2009
- Questions and Answers Regarding Respiratory Protection For Preventing 2009 H1N1 Influenza Among Healthcare Personnel – December 5, 2009

Attachment 8: Vaccines and Antivirals

- CDC 2009 H1N1 Influenza Inactivated Vaccine What You Need to Know
- CDC 2009 H1N1 Influenza Live, Attenuated Vaccine What You Need to Know
- ACIP Recommendations for the use of Influenza A (H1N1) 2009 Monovalent Vaccine
- CDC 2009 H1N1 Influenza Vaccine Questions & Answers – December 22, 2009
- CDC General Questions and Answers on 2009 H1N1 Influenza Vaccine Safety – December 15, 2009
- CDC Allocation and Distribution Q & A – November 3, 2009
- CDC 2009 H1N1 and Seasonal Flu: What You Should Know about Flu Antiviral Drugs – October 8, 2009
- Questions & Answers: Antiviral Drugs, 2009-2010 Flu Season – November 17, 2009
- Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season – December 7, 2009
- Recommendations for Use of Antiviral Medications for the Management of Influenza in Children and Adolescent for the 2009-2010 Season - Pediatric Supplement for Healthcare Providers – December 24, 2009
- MDCH Countermeasure Distribution Strategy
- MDCH Mass Vaccination Plan
- Excerpts of Michigan Strategic National Stockpile Plan
Attachment 9: International/Border Travel

- Severe Influenza Pandemic Aviation Entry Screening Annex Template (Risk-Based Border Strategy) – September 30, 2009
Executive Summary

Influenza viruses have threatened the health of animal and human populations for centuries. Their diversity and propensity for mutation have thwarted our efforts to develop both a universal vaccine and highly effective antiviral drugs.

The word “pandemic” is derived from the Greek *pan*, meaning all, and *demos*, meaning people. A pandemic occurs when a novel strain of influenza virus emerges that has the ability to infect and be passed efficiently between humans. Because humans have little immunity to the new virus, a worldwide epidemic, or pandemic, can ensue. Once a pandemic begins, it cannot be stopped easily. However, it can be slowed, giving the United States time to prepare and/or time to develop and distribute antiviral drugs, vaccines and other countermeasures to mitigate the effects.

The pandemic threat we now face is from new influenza strains, the Influenza A (H5N1) and A (H1N1). H5N1 is currently spreading throughout bird populations across Asia, Africa, and Europe, infecting domesticated birds and long-range migratory birds. Since late 2003 this virus has infected over 340 people in the Eastern Hemisphere with a mortality rate of over 62 per cent. Thus far, human-to-human transmission has been limited. The 2009 Influenza A (H1N1) strain, declared a pandemic strain in June 2009, – a triple re-assortment of human, swine, and avian origins – began in Mexico and the United States in April 2009, and spread to at least sixty-four countries within the first six weeks of its emergence.

The Michigan Department of Community Health’s (MDCH) *Pandemic Plan* (the Plan) is a functional annex to the MDCH Michigan Emergency Operations Plan. The Plan outlines how MDCH will prepare for, respond to, and recover from a pandemic event in Michigan. This Plan is applicable for any novel strain that reaches pandemic levels.

The Plan describes systems and infrastructure that are currently in place to effectively respond to a pandemic event in Michigan. The Plan will provide detailed information on what actions need to be taken. The more practical element of “how” these actions will be carried out during an event will be determined by MDCH management. The Plan is broken into three response stages: pre-pandemic, pandemic, and post-pandemic. The Plan will discuss the following ten planning/response elements for each response stage:

- Command and Management
- Crisis Communication
- Surveillance
- Laboratory Guidelines
- Community Containment
- Infection Control
- Medical Management
- Data Management
- International Issues
- Recovery

January 2010
The Current Situation

Avian viruses were involved in three of the last four pandemics. The 1918 pandemic [A (H1N1)] killed 20-50 million people, more than the death toll caused by World War I. The 1957 pandemic [A (H2N2)] caused approximately 70,000 deaths in the United States. The 1968 pandemic [A (H3N2)] killed approximately 34,000 people in the United States.

The 2009 Influenza A (H1N1) strain – a triple re-assortment of human, swine, and avian origins – spread rapidly in the United States in the spring of 2009. By fall 2009, over 99% of the subtyped cases of influenza in the U.S. were identified as the pandemic strain. Although this pandemic strain does not appear to produce illness as severe as the previous 20th Century pandemics, it still has the potential to mutate rapidly.

Using the previous century’s pandemics as a guide, it is possible to extrapolate potential illness rates for a future pandemic. See Table 1. Assuming a moderate pandemic, similar to those experienced in 1957 or 1968, the United States could expect approximately 90 million individuals to become ill with an estimated 209,000 deaths. In Michigan, that would translate to 3.4 million ill with 5,000 fatalities. See Table 2.

Table 1. Projection of illness, healthcare utilization, and deaths associated with moderate or severe future pandemic influenza scenarios in the United States.¹

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Moderate (1957- or 1968-like)</th>
<th>Severe (1918-like)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness</td>
<td>90 million</td>
<td>90 million</td>
</tr>
<tr>
<td>Outpatient Medical Care</td>
<td>45 million</td>
<td>45 million</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>865,000</td>
<td>9,900,000</td>
</tr>
<tr>
<td>Deaths</td>
<td>209,000</td>
<td>1,903,000</td>
</tr>
</tbody>
</table>

Table 2. Minimum and maximum impact estimates, by health outcome, from two possible future scenarios of pandemic influenza in Michigan.²

<table>
<thead>
<tr>
<th>Health Outcome</th>
<th>Gross Attack Rate 35%</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Moderate (1957- or 1968-like)</td>
<td></td>
<td></td>
<td>Severe (1918-like)</td>
<td></td>
</tr>
<tr>
<td>Illness</td>
<td>Minimum 3.4 million</td>
<td>Maximum 3.4 million</td>
<td>Minimum 3.4 million</td>
<td>Maximum 3.4 million</td>
<td></td>
</tr>
<tr>
<td>Outpatient medical care</td>
<td>1.4 million</td>
<td>2.6 million</td>
<td>1.3 million</td>
<td>2.2 million</td>
<td></td>
</tr>
<tr>
<td>Hospitalization</td>
<td>14,000</td>
<td>51,000</td>
<td>120,000</td>
<td>420,000</td>
<td></td>
</tr>
<tr>
<td>Death</td>
<td>5,000</td>
<td>15,000</td>
<td>43,000</td>
<td>126,000</td>
<td></td>
</tr>
</tbody>
</table>

In addition to illness and loss of life, it is estimated that a future pandemic could cause the United States to experience economic losses ranging from $71 billion to $166 billion, depending on the attack rate and disease severity.

We live in an increasingly interconnected world. The availability of relatively easy world travel has made the possibility of world-wide spread of infectious diseases a significant possibility. It is therefore incumbent upon all of us to plan and prepare for pandemic conditions. In this process, we should strive to avoid the two extremes of apathy and panic. Rather, we should exercise prudence which requires a realistic assessment of the situation and undertaking reasonable preparations. It is this measured approach that characterizes this document.

² Centers for Disease Control and Prevention, Flu-Aid 2.0 software. http://www.cdc.gov/flu/tools/fluaid/index.htm. Historical data suggests that, although the percentage of the population that became ill in 1918 and 1968 was roughly the same, there was a much higher case fatality rate in 1918 than in 1968. Hence, the same gross clinical attack rate combined with the higher case fatality rate resulted in more of the severe final outcomes (hospitalizations and deaths) and fewer of the moderate final outcomes (outpatients) in the severe (1918-like) scenario calculations.
The National Planning Landscape

Although most are aware of numerous pandemics throughout history, concerted effort in the United States to plan for, and mitigate the effect of, a pandemic is only a recent phenomenon. This section will provide details on some of the key milestones in our nation’s progress toward pandemic preparedness.

Federal Guidance and Legislation: A Chronology

The U.S. Department of Homeland Security released the National Response Plan\(^3\) in January 2005. The plan presented a unified and standardized approach within the United States for protecting citizens and managing homeland security incidents by integrating existing and formerly disparate processes. The plan was intended for use by agencies that might be required to assist or support during a national incident, whether from threats or acts of terrorism, major natural disasters, or man-made emergencies.

The National Strategy for Pandemic Influenza,\(^4\) issued in November 2005, outlined the nation’s preparedness and response to an influenza pandemic, with the intent of (1) stopping, slowing or otherwise limiting the spread of a pandemic to the United States; (2) limiting the domestic spread of a pandemic, and mitigating disease, suffering and death; and (3) sustaining infrastructure and mitigating impact to the economy and the functioning of society. The Strategy charged the U.S. Department of Health & Human Services (DHHS) with leading the federal pandemic preparedness efforts and being the lead agency for Emergency Support Function 8\(^5\). The Centers for Disease Control and Prevention is designated to be the lead agency for public health issues in the United States. DHHS and the CDC support to states includes:

- Providing technical information.
- Conducting research to support the scientific foundations of public health actions.
- Mobilizing and deploying personnel, when necessary, to assist state and local officials with epidemiological investigations.
- Advising states on specimen collection and transport.
- Monitor adverse events.
- Stockpile and distribute medications (e.g. chemical antidotes, Strategic National Stockpile).
- Coordinate public and media communications with state/local authorities.

---


\(^5\) http://www.fema.gov/pdf/emergency/nrf/nrf-esf-08.pdf
Also in November 2005, the U.S. Department of Health and Human Services (DHHS) released their *Pandemic Influenza Plan*. This document served as a blueprint for all DHHS pandemic influenza preparedness and response planning. Part 1, the Strategic Plan, described a coordinated public health and medical care strategy to prepare for, and begin responding to, an influenza pandemic. Part 2, Public Health Guidance for State and Local Partners, provided guidance on specific aspects of pandemic influenza planning and response for the development and response actions to specific HHS agencies and offices.

In November 2005, the World Health Organization (WHO) updated their *Global Influenza Preparedness Plan*. This new plan addressed the possibility of a prolonged existence of an influenza virus of pandemic potential, such as the H5N1 influenza virus subtype in poultry flocks in Asia, which persisted from 2003 onwards. The WHO characterized a potential pandemic in terms of phases. Their new plan redefined the increasing public health risk associated with the emergence of a new influenza virus subtype, recommended actions for national authorities, and outlined measures to be taken by WHO during each phase of the pandemic.

The U.S. Congress passed the *Pandemic and All-Hazards Preparedness Act* (PAHPA) in January 2006 which has broad implications for DHHS’s preparedness and response activities. Among other things, the Act amended the Public Health Service Act to established within the Department a new Assistant Secretary for Preparedness and Response (ASPR); provided new authorities for a number of programs, including the advanced development and acquisitions of medical countermeasures; and called for the establishment of a quadrennial National Health Security Strategy. Perhaps most importantly, the PAHPA required states and funded entities to:

(i) measure progress toward achieving the outcome goals; and (ii) at least annually, test, exercise, and rigorously evaluate the public health and medical emergency preparedness and response capabilities of the entity, and report to the Secretary on such measured and tested capabilities and measured and tested progress toward achieving outcome goals, based on criteria established by the Secretary. §201(g)(1)(E)

The *National Strategy for Pandemic Influenza – Implementation Plan*, released in May 2006 by the White House, outlined more than 300 actions for federal departments and agencies. This document introduced the concept of U.S. Government Stages of response to a pandemic, and compared these to the phases outlined by the World Health Organization. Clear expectations for state and local governments and other non-federal entities were outlined.

---


In February 2007, the Centers for Disease Control and Prevention (CDC) released their *Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States.* This guidance document outlined using non-pharmaceutical interventions as one component of a comprehensive community mitigation strategy, and presented the concept of pandemic severity. See Figure 1. The overall goal of the community mitigation strategies outlined in this plan was to 1) delay the peak outbreak period, 2) decrease the burden on hospitals and infrastructure, and 3) diminish the overall cases and health impacts.

![Case Fatality Ratio vs. Projected Number of Deaths](chart)

**Figure 1.** As outlined in the CDC’s *Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States,* it is possible to characterize pandemic severity based on case fatality ratio and projected number of death in the U.S. population.

---

The U.S. Department of Homeland Security released the *National Response Framework*\(^{10}\) in January 2008. This document provided a guide to how the nation conducts all-hazards response. It is built to be scalable, flexible, and adaptable in coordinating structures to align key roles and responsibilities across the nation. The *Framework* describes specific authorities and best practices for managing incidents that range from the serious but purely local, to large-scale terrorist attacks or catastrophic natural disasters.

In March 2008, the federal government released their *Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans*. This document outlined the ASPR guidelines, as directed under the PAHPA legislation, for states’ pandemic preparedness. There were three strategic goals as an overarching framework for the various functions of state government during a pandemic: ensure continuity of operations of state agencies and continuity of state government, protect citizens, and sustain/support critical infrastructure and key resource sectors. For each strategic goal, the guidance listed numerous, more specific, operating objectives. See Table 3.

In July 2008, the U.S. Department of Health and Human Services issued *Guidance on Allocating and Targeting Pandemic Influenza Vaccine*.\(^{11}\) This guidance document placed each person in the United States into at least one vaccination target group. Occupationally defined vaccination target groups included only individuals who were critical for providing essential services during a pandemic, not the entire workforce.

The federal government released their *Assessment of States’ Operating Plans to Combat Pandemic Influenza* in January 2009. This report summarized the status of states’ operating plans with respect to preparedness for, response to, and recovery from an influenza pandemic. This assessment fulfilled a requirement established by the *National Strategy for Pandemic Influenza – Implementation Plan*. The report found that, in the aggregate, states made important progress toward preparing for their unique roles in combating an influenza pandemic, but have much more to do. Preparedness was most advanced, albeit not in every state, with respect to responsibilities specifically under the purview of state public health agencies. Michigan’s particular performance in this evaluation will be discussed in the “State of Michigan’s Planning Landscape” section of this document.

In March 2009, the federal government outlined their expectations for the states’ 2009 submission of their pandemic influenza state operational plans, as required by the PAHPA. States and funded entities will be required to submit responses to seven key pandemic preparedness evaluation areas:

---


- ensuring public health continuity of operations
- ensuring surveillance and laboratory capabilities
- strategies for controls at ports of entry
- implementation of communication mitigation interventions
- acquiring and distributing medical countermeasures
- ensuring mass vaccination capabilities
- ensuring communication capabilities

Table 3. As outlined in the *Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans*, this table shows the three overarching strategic goals and the more specific operating objectives falling within each goal.

<table>
<thead>
<tr>
<th>Overarching Goals</th>
<th>Operating Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A2 Public Health COOP</td>
</tr>
<tr>
<td></td>
<td>A3 Continuity of Food Supply</td>
</tr>
<tr>
<td></td>
<td>A4 Agricultural Emergency Response</td>
</tr>
<tr>
<td></td>
<td>A5 Integration of Uniformed Military</td>
</tr>
<tr>
<td></td>
<td>A6 Sustain Transportation Systems</td>
</tr>
<tr>
<td>B. Protect Citizens</td>
<td>B1 Surveillance and Laboratory Capability</td>
</tr>
<tr>
<td></td>
<td>B2 Controls at U.S. Ports of Entry</td>
</tr>
<tr>
<td></td>
<td>B3 Community Mitigation Interventions</td>
</tr>
<tr>
<td></td>
<td>B4 Community Mitigation: Schools</td>
</tr>
<tr>
<td></td>
<td>B5 Medical Countermeasures</td>
</tr>
<tr>
<td></td>
<td>B6 Mass Vaccination</td>
</tr>
<tr>
<td></td>
<td>B7 Provide Healthcare</td>
</tr>
<tr>
<td></td>
<td>B8 Mass Casualties</td>
</tr>
<tr>
<td></td>
<td>B9 Communications Capabilities</td>
</tr>
<tr>
<td></td>
<td>B10 Impact on Workers in the State</td>
</tr>
<tr>
<td></td>
<td>B11 Diplomatic Missions</td>
</tr>
<tr>
<td></td>
<td>B12 EMS and 9-1-1</td>
</tr>
<tr>
<td></td>
<td>B13 Public Safety Answering Points (PSAPs)</td>
</tr>
<tr>
<td></td>
<td>B15 Public Safety and Law Enforcement</td>
</tr>
<tr>
<td>C. Sustain and Support Seventeen Critical Infrastructure Sectors and Key Assets</td>
<td>C1 Critical Infrastructure &amp; Key Resources</td>
</tr>
<tr>
<td></td>
<td>C2 Public-Private Partnerships</td>
</tr>
<tr>
<td></td>
<td>C3 Risk Management Framework</td>
</tr>
<tr>
<td></td>
<td>C4 Information Sharing</td>
</tr>
<tr>
<td></td>
<td>C5 Leverage Activities for CIKR Protection</td>
</tr>
<tr>
<td></td>
<td>C6 Integration of Government &amp; Private</td>
</tr>
<tr>
<td></td>
<td>C7 Prioritization/Allocation of Scarce Resources</td>
</tr>
</tbody>
</table>
National Infrastructure: Laboratories and Surveillance

Laboratory Response Network. In 1999, the Centers for Disease Control and Prevention (CDC) established the Laboratory Response Network (LRN). The LRN's purpose is to run a network of labs that can respond to biological and chemical terrorism, and other public health emergencies. The LRN now includes state and local public health, veterinary, military, and international labs. Reference laboratories are responsible for investigation and/or referral of specimens. They are made up of more than 100 state and local public health, military, international, veterinary, agriculture, food, and water testing laboratories. In addition to laboratories located in the United States, facilities located in Australia, Canada, and the United Kingdom serve as reference laboratories abroad. Sentinel laboratories play a key role in the early detection of biological agents. Sentinel laboratories provide routine diagnostic services, rule-out, and referral steps in the identification process. While these laboratories may not be equipped to perform the same tests as LRN reference laboratories\textsuperscript{12}, they can test samples.

Five Categories of Influenza Surveillance

1. Viral Surveillance — About 80 U.S. World Health Organization (WHO) Collaborating Laboratories and 70 National Respiratory and Enteric Virus Surveillance System (NREVSS), located throughout the United States participate in virologic surveillance for influenza. All state public health laboratories participate as WHO collaborating laboratories along with some county public health laboratories and some large tertiary care or academic medical centers. Most NREVSS laboratories participating in influenza surveillance are hospital laboratories. The WHO and NREVSS collaborating laboratories report the total number of respiratory specimens tested and the number positive for influenza types A and B each week to CDC. Most of the U.S. WHO collaborating laboratories also report the influenza A subtype (H1 or H3) of the viruses they have isolated and the ages of the persons from whom the specimens were collected. The majority of NREVSS laboratories do not report the influenza A subtype. Reports from both sources are combined and the weekly total number of positive influenza tests, by virus type/subtype, and the percent of specimens testing positive for influenza are presented in the weekly influenza update, FluView. Some of the influenza viruses collected by U.S. WHO collaborating laboratories are sent to CDC for further characterization, including gene sequencing, antiviral resistance testing and antigenic determination.

Surveillance for Novel Influenza A Viruses- In 2007, human infection with a novel influenza A virus became a nationally notifiable condition. Novel influenza A virus infections include all human infections with influenza A viruses that are different from currently circulating human influenza H1 and H3 viruses. These viruses include those that are subtyped as nonhuman in origin and those that are unsubtypeable with standard methods and reagents. Rapid reporting of human

\textsuperscript{12} \url{http://www.bt.cdc.gov/lrn/}
infections with novel influenza A viruses will facilitate prompt detection and characterization of influenza A viruses and accelerate the implementation of effective public health responses.

2. Outpatient Illness Surveillance — Information on patient visits to health care providers for influenza-like illness is collected through the US Outpatient Influenza-like Illness Surveillance Network (ILINet).

The Outpatient Influenza-like Illness Surveillance Network (ILINet) consists of about 2,400 healthcare providers in 50 states reporting approximately 16 million patient visits each year. Each week, approximately 1,300 outpatient care sites around the country report data to CDC on the total number of patients seen and the number of those patients with influenza-like illness (ILI) by age group. For this system, ILI is defined as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat in the absence of a KNOWN cause other than influenza. Sites with electronic records use an equivalent definition as determined by the state public health authorities. The percentage of patient visits to healthcare providers for ILI reported each week is weighted on the basis of state population. This percentage is compared each week with the national baseline.

3. Mortality Surveillance — Rapid tracking of influenza-associated deaths is done through two systems:
   - 122 Cities Mortality Reporting System — Each week, the vital statistics offices of 122 cities report the total number of death certificates received and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group. The percentage of all deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.
   - Surveillance for Influenza-associated Pediatric Mortality — Influenza-associated deaths in children (persons less than 18 years) was added as nationally notifiable condition in 2004. Laboratory-confirmed influenza-associated deaths in children are reported through the Nationally Notifiable Disease Surveillance System.

4. Hospitalization Surveillance — Two systems monitor hospitalizations with laboratory confirmed influenza infections.
   - Emerging Infections Program (EIP) — The EIP Influenza Project conducts surveillance for laboratory-confirmed influenza related hospitalizations in children (persons less than 18 years) and adults in 60 counties covering 12 metropolitan areas of 10 states (San Francisco CA, Denver CO, New Haven CT, Atlanta GA, Baltimore MD, Minneapolis/St. Paul MN, Albuquerque NM, Las Cruces, NM, Albany NY, Rochester NY, Portland OR,
and Nashville TN). Cases are identified by reviewing hospital laboratory and admission databases and infection control logs for children and adults with a documented positive influenza test (viral culture, direct/indirect fluorescent antibody assay (DFA/IFA), reverse transcription-polymerase chain reaction (RT-PCR), or a commercial rapid antigen test) conducted as a part of routine patient care. EIP estimated hospitalization rates are reported every two weeks during the influenza season.

5. Summary of the Geographic Spread of Influenza — State health departments report the estimated level of spread of influenza activity in their states each week through the State and Territorial Epidemiologists Reports. States report influenza activity as no activity, sporadic, local, regional, or widespread.

**National Electronic Disease Surveillance System (NEDSS).** NEDSS is an initiative that promotes the use of data and information system standards to advance the development of efficient, integrated, and interoperable surveillance systems at federal, state and local levels. This initiative is designed to detect outbreaks rapidly and to monitor the health of the nation, facilitate the electronic transfer of appropriate information from clinical information systems in the health care system to public health departments, reduce provider burden in the provision of information, and enhance both the timeliness and quality of information provided. State health department surveillance systems collect and monitor data for disease trends and/or outbreaks so that public health personnel can protect the nation's health.

**Vaccine Adverse Event Reporting System (VAERS).** The VAERS is a cooperative program for vaccine safety of the Centers for Disease Control and Prevention and the U.S. Food and Drug Administration. VAERS is a post-marketing safety surveillance program, collecting information about adverse events (possible side effects) that occur after the administration of U.S. licensed vaccines.

**Adverse Event Reporting System (AERS).** The Adverse Event Reporting System (AERS) is a computerized information database designed to support the U.S. Food and Drug Administration's (FDA) post-marketing safety surveillance program for all approved drug and therapeutic biologic products. The FDA uses AERS to monitor for new adverse events and medication errors that might occur with these marketed products. Reporting of adverse events from the point of care is voluntary in the United States. FDA receives some adverse event and medication error reports directly from health care professionals (such as physicians, pharmacists, nurses and others) and consumers (such as patients, family members, lawyers and others). Healthcare professionals and consumers may also report these events to the products' manufacturers. If a manufacturer receives an adverse event report, it is required to send the report to FDA as specified by regulations.

---

13 http://vaers.hhs.gov/
14 http://www.fda.gov/cder/aers/default.htm
National Infrastructure: Transportation Authorities

General Transportation Security Authorities. The Transportation Security Administration (TSA) has the authority to keep an airline flight destined for the United States from landing in the United States if it is determined that a flight may be transporting persons with a quarantinable disease.\(^\text{15}\) These TSA authorities are also sufficiently broad to allow TSA to direct an air carrier to temporarily avoid disembarking its passengers until the U.S. Department of Health and Human Services or other medical authorities can screen the passengers. Finally, the Federal Air Marshal Service of TSA has the authority to exercise law enforcement powers in the transportation domain.\(^\text{16}\)

Emergency Transportation Security Authorities. In the case of a national emergency, the Aviation and Transportation Security Act provides the U.S. Department of Homeland Security with four emergency responsibilities: 1) coordinate domestic transportation, including aviation, rail, and other surface transportation; 2) coordinate and oversee the transportation-related responsibilities of other departments and agencies of the federal government; 3) coordinate and provide notice to other departments and agencies about threats to transportation; and 4) carry out such other duties, and exercise such other powers, related to transportation during a national emergency as the Secretary shall subscribe. During a declared national emergency, the U.S. Department of Transportation, through the Maritime Administration, can enhance U.S. sealift capacity by taking control of vessels, containers, and chassis through requisitioning.\(^\text{17}\)

Aviation. Any movement in the navigable airspace of the United States can be stopped, redirected, or excluded by the Federal Aviation Administration (FAA), regardless of the commodity involved.\(^\text{18}\) Additionally, the FAA can order U.S.-flag air carriers not to enter designated airspace of a foreign country. The Chicago Convention, a multilateral treaty establishing the framework for the operation of international civil aviation, provides authority to deny entry to flights that do not comply with U.S. laws and regulations, including those relating to entry, clearance, customs, and quarantine.\(^\text{19}\)

Rail. The Federal Railroad Administration (FRA) may issue an emergency order imposing any restrictions or prohibitions necessary to abate what the FRA determines is an emergency situation involving a hazard of death or personal injury caused by unsafe conditions or practices.\(^\text{20}\)

Mass Transit. In general, the U.S. Department of Transportation is forbidden from regulating the operation, routes, schedules, rates, fares, tolls, rentals, or other charges of public transportation system grantees of the Federal Transit Administration.

\(^\text{16}\) 49 U.S.C. § 114(q).
\(^\text{19}\) http://www.icao.int/icaonet/dcs/7300.html
However, an amendment to the “Safe, Accountable, Flexible, Efficient Transportation Equity Act” created an express exception for national defense or in the event of a national or regional emergency.

**Highways.** States, local governments, and other federal agencies own, control, and operate the nation’s roads and bridges.

**Pipelines.** The operation of any pipeline facility used to transport gas or hazardous liquid can be stopped by the Pipeline and Hazardous Materials Safety Administration if continued operations of the facility is, or would become, hazardous.\(^{21}\)

**Hazardous Materials.** Any aspect of hazardous materials transportation that presents an ‘imminent hazard’ may be halted by court order.\(^{22}\)

**General Border Authorities.** The U.S. Department of Homeland Security has broad authority to protect U.S. borders, including specific statutory provisions designating the U.S. Coast Guard and the U.S. customs and Border Protection to assist in the enforcement of state health laws and federal quarantine regulations.\(^{23}\)

\(^{21}\) 49 U.S.C. § 60112.  
\(^{22}\) 49 U.S.C. § 5122(b).  
\(^{23}\) 42 U.S.C. §§ 97, 268
Federal Legal Authorities for Pandemic Influenza Mitigation

Various statutes, administrative rules, and executive orders authorize or otherwise enable Michigan's state-level departments and agencies to engage in actions to support the three pillars of the National Strategy for Pandemic Influenza: preparedness and communication, surveillance and detection, and response and containment. This section will provide a comprehensive framework for contextualizing pandemic response and recovery.

Federal Authorities

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, 88 Stat. 143 [1974] as amended)\textsuperscript{24} established programs and processes for the federal government to provide disaster and emergency assistance to states, local governments, tribal nations, qualified private nonprofit organizations, individuals, and certain businesses.

The National Emergencies Act of 1976 (Public Law 94-42 as amended)\textsuperscript{25} established procedures for presidential declaration of a national emergency and the termination of national emergencies by the president or Congress. The presidential declaration of a national emergency, under this act, is a prerequisite to exercising any special or extraordinary emergency powers authorized by statute.

The Public Health Service Act\textsuperscript{26} (PHSA) provided authorities to direct federal preparedness for, and response to, public health emergencies. Three laws provided the core of these authorities:

- The Public Health Threats and Emergencies Act of 2000 (Title I of the Public Health Improvement Act; Public Law 106-505) established a number of new programs and authorities, including grants to states to build public health preparedness.

- The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188), passed in the aftermath of the 2001 terror attacks, reauthorized several existing programs and established new ones, including grants to states to build hospital and health system preparedness. It authorized: The National Disaster Medical System (NDMS) to mobilize and address public health emergencies; grant programs for the education and training of public health professionals; the streamlining and clarification of communicable disease quarantine provisions; enhanced controls on dangerous

biological agents and toxins; and it added new provisions to protect the safety and security of food and drug supplies.

- The Project BioShield Act of 2004 (Public Law 108-276) established authorities to encourage the development of specific countermeasures (such as vaccines for bioterrorism agents) that would not otherwise have a commercial market.

The PHSA authorizes the core activities of the U.S. Department of Health and Human Services (DHHS) that will be needed to plan and implement a response to pandemic influenza, including:

- **Declaration of a Public Health Emergency.** Section 319(a) of the PHSA (42 U.S.C. 247d) authorizes the Secretary of DHHS to declare a public health emergency and take such action as may be appropriate to respond to that emergency consistent with existing authorities. Appropriate action may include making grants, providing awards for expenses, entering into contracts, and conducting and supporting investigation into the cause, treatment, or prevention of the disease or disorder that presents the emergency.

The Secretary's declaration is the first step in authorizing emergency use of unapproved products or approved products for unapproved uses under section 564 of the Food, Drug, and Cosmetic Act (21 U.S.C. 360bbb-3), or waiving certain regulatory requirements of the department, such as select agents requirements, or — when the President also declares an emergency — waiving certain Medicare, Medicaid, and State Children's Health Insurance Program (SCHIP) provisions.

- **Vaccine Development and Immunization Programs.** DHHS has broad authority to coordinate vaccine development, distribution, and use activities under section 2102 of the PHSA, describing the functions of the National Vaccine Program. Section 317 of the PHSA provides for preventive health services such as immunization programs and vaccine purchase assistance.

- **The Strategic National Stockpile (SNS).** Section 319F-2 of the PHSA authorizes the Secretary, in coordination with the Secretary of Homeland Security, to maintain the SNS to provide for the emergency health security of the United States.

- **Control of Communicable Diseases.** Section 361 of the PHSA (42 U.S.C. § 264) authorizes the Secretary of DHHS to make and enforce regulations necessary to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the United States, or from one state or possession into any other state or possession. The Centers for Disease Control and Prevention (CDC)
administers these regulations as they relate to quarantine of humans. Implementing regulations are found at 42 C.F.R. Parts 70 and 71.

Under section 362 (42 U.S.C. § 265) the Secretary may prohibit, in whole or in part, the introduction of persons and property from such countries or places as he/she shall designate for the purpose of averting a serious danger of the introduction of a communicable disease into the United States.

- **Quarantine.** Diseases for which individuals may be quarantined under federal law are specified by executive order. The list of quarantinable communicable diseases includes:

  1. cholera
  2. diphtheria
  3. infectious tuberculosis
  4. plague
  5. smallpox
  6. yellow fever
  7. viral hemorrhagic fevers (Lassa, Marburg, Ebola, Crimean-Congo, South American, and others not yet isolated or named)
  8. Severe Acute Respiratory Syndrome (SARS), which is a disease associated with fever and signs and symptoms of pneumonia or other respiratory illness, is transmitted from person to person predominantly by the aerosolized or droplet route, and, if spread in the population, would have severe public health consequences.
  9. Influenza caused by novel or re-emergent influenza viruses that are causing, or have the potential to cause, a pandemic.

Other provisions in Title III of the PHSA permit DHHS to establish quarantine stations, provide care and treatment for persons under quarantine, and provide for quarantine enforcement. There is a CDC Quarantine Station at Detroit Metro Airport with a CDC medical officer in charge. The 24-hour access number is (734) 955-6197.

Section 311 of the PHSA provides for federal-state cooperative activities to enforce quarantine and plan and carry out public health activities. Section 311 authorizes the Secretary to make available the resources of the Public Health Service to help control epidemics and deal with other public health emergencies. Furthermore, the Secretary of DHHS may request that Customs, Coast Guard, and military officers aid in the execution of quarantines imposed by states (42 U.S.C. 97).

---

27 Executive Order 13375 was issued on April 1, 2005. It amended Executive Order 13295 of April 4, 2003.
The violation of federal quarantine regulations is a crime punishable by a fine of not more than $1,000 or by imprisonment for not more than 1 year, or both (42 U.S.C. § 271). Additionally, individuals may be fined up to $250,000 if a violation of the regulation results in death, or up to $100,000 if a violation of the regulation does not result in death (18 U.S.C. §§ 3559, 3571 (c)).

The Pandemic and All-Hazards Preparedness Act (PAHPA)\(^\text{28}\) reauthorized a number of expiring preparedness and response programs in the PHSA and established some new authorities, including the creation of a Biomedical Advanced Research and Development Authority (BARDA), a new office in DHHS to support, coordinate, and provide oversight of advanced development of vaccines and biodefense countermeasures.

Section 302 of this act is of special importance to hospitals because it amended the waiver of Emergency Medical Treatment and Active Labor Act (EMTALA) requirements during a public health emergency. It amended Section 1135(b) of the Social Security Act.\(^\text{29}\) The new law stipulated: If the public health emergency declared pursuant to Section 319 of the PHSA involves a pandemic infectious disease: (1) the Secretary's waiver or modification of EMTALA requirements regarding direction of individuals to alternate locations for medical screening shall be pursuant to the appropriate state emergency preparedness or pandemic plan; and (2) if a hospital within such a declared emergency area implements its disaster protocol as a consequence of the emergency, the hospital may be exempt, for 60 days or until the termination of the Secretary's declaration, whichever is sooner, from the prohibitions against the transfer of an individual who has not been stabilized and the direction of individuals to an alternate location for medical screening.

**Applicable Homeland Security Presidential Directives (HSPD)**

- HSPD-5, issued on February 28, 2003, directed the Secretary of the Department of Homeland Security to develop and administer a National Incident Management System.

- HSPD-21, issued on October 18, 2007, established the National Strategy for Public Health and Medical Preparedness.

---


\(^{29}\) 42 U.S.C. §1320b-5(b).
The State of Michigan’s Planning Landscape

The State of Michigan’s administration is comprised of numerous state-level departments. To effectively prepare for, respond to, and mitigate the impacts of a pandemic, extensive coordination between and among state agencies is essential. Michigan has instituted several key pandemic preparedness initiatives and infrastructure to assure coordinated and efficient protection of Michigan’s citizens.

Michigan Emergency Management Plan

The *Michigan Hazard Analysis*\(^{30}\) identified and analyzed the potential for twenty-eight different natural, technological, and human-related hazards in Michigan that could cause widespread or severe damage, injury, loss of life or property, or other adverse impacts. The Michigan Emergency Management Plan (MEMP), required under the Michigan Emergency Management Act\(^{31}\), addresses these identified hazards.

The MDCH Emergency Operations Plan

The MDCH Emergency Operations Plan (EOP) describes how the department will protect citizens, property, and the environment in a public health disaster or emergency. It describes actions to be taken by the department in response to all hazards. It delineates the department’s roles, responsibilities, and emergency response structure. The EOP addresses the four critical components of public health and medical preparedness: biosurveillance, countermeasure distribution, mass casualty care, and community resilience.

The State Emergency Operations Center

Under the MEMP, the Michigan State Police Emergency Management and Homeland Security Division (MSP-EMHSD) operate and equip the State Emergency Operation Center (SEOC). Located in Lansing, the SEOC keeps the governor informed of emergency response and recovery activities.

The director of each department of state government (or his/her designee), and those agencies of state government required by the MEMP to provide an annex to that plan, serve as the emergency management coordinator for their respective departments or agencies. Each emergency management coordinator acts as the primarily liaison


between his or her department or agency and the SEOC in all matters of emergency management.\textsuperscript{32}

Within the SEOC, emergency managers monitor and assess incidents through ETeam software. This application allows those involved in responding to an emergency with the ability to collaborate and manage their efforts, across multiple organizations, from a single common view and coordination point.

**The Michigan Pandemic Coordinator**

The Michigan Department of Community Health has designated a Pandemic Plan Coordinator. Located in the Bureau of Epidemiology, this individual assists in developing and implementing the Michigan Pandemic Influenza State Operational Plan and coordinating plans across all state agencies and jurisdictions. S/He updates stakeholders and disseminates information. S/He can be reached at (517) 335-8165.

**The Pandemic Influenza Coordinating Committee**

In the fall of 2006, the governor directed the formation of a state-level Pandemic Influenza Coordinating Committee (PICC), whose membership includes all state-level agencies, local representatives, and tribal delegates. The PICC has various subcommittees to tackle the challenges of statewide pandemic planning: human health, legal/public safety, transportation and borders, community, school-public health, and animal health. The mission of the PICC is to:

- assist the state in articulating strategic priorities and overseeing the development and execution of the Michigan Pandemic Influenza State Operating Plan
- assure the Michigan Pandemic Influenza State Operating Plan is progressive, integrated, and coordinated
- ensure that planning occurs across all state-level departments and private sectors including (but not limited to): schools, businesses, faith-based organization, community organizations, refugees, healthcare, etc.\textsuperscript{33}
- assure that Michigan has an effective Continuity of Government/Operations Plan

\textsuperscript{32} 1976 Act 390, Michigan Emergency Management Act, §30.408.

\textsuperscript{33} For example, the Michigan Schools/Public Health Pandemic Issues Workgroup developed a draft template of guidance to schools regarding alert, standby and activate modes of pandemic response. See Attachment 7. The Health Insurers Pandemic Preparedness Workgroup to address coordination of reimbursements to providers, including healthcare provided in alternate care and/or surge centers during medical emergencies.
Interagency Coordination

Under the MEMP, the Michigan State Police (MSP) Emergency Management and Homeland Security Division operate and equip the SESC. MDCH and MSP work closely together to develop aligned protocols and procedures for pandemic influenza. In 2009, the MEMP was revised and all MDCH responsibilities were updated, and these responsibilities included specific language relevant to a pandemic scenario.

The Avian Influenza Interagency Working Group (AIWG) is comprised of members from the Michigan Departments of Agriculture, Natural Resources, Community Health, and State Police as well as the Michigan governor’s office, the U.S. Department of Agriculture, and Michigan State University Extension. Under the direction of the State Veterinarian – Michigan Department of Agriculture, (517) 373-1077 – the AIWG provides subject matter expertise regarding avian influenza risks.

MDCH has enjoyed a particularly close working relationship with the Michigan Department of Education (MDE) which has greatly advanced pandemic planning initiatives. For example, in 2007, MDE drafted their Pandemic Influenza Operational Plan that thoroughly documents the policy and process for school closures, phased communications protocols, and relevant authorities. In addition, MDCH and MDE partnered to produce the Pandemic Influenza Toolkit for Educators34, which was launched statewide in 2007.

The Michigan Department of Agriculture’s (MDA) Business Continuity Plan establishes a comprehensive structure to respond to numerous agriculture emergencies, including a pandemic, and still provide critical services. MDA has been instrumental in providing the framework to assure continued provision of federal and state-assisted nutritional assistance to schools during a pandemic.

The Michigan National Guard (MING) has provided infallible pandemic planning support to the state. As a standing member of the PICC, the MING is incorporated into all state-level pandemic planning. The MING has briefed the state’s Pandemic Influenza Coordinator, and other key public health officials, on the capabilities the MING can offer during a pandemic. Similarly, public health officials have described their pandemic roles and responsibilities to the MING.

The Michigan Department of Transportation (MDOT) developed emergency action guidelines for pandemic influenza as part of their Emergency Response Plan. These guidelines provide for phased command and management, human resource management, communications, employee health and well-being, and response operations (where appropriate). In addition, MDOT has been particularly active with their employee outreach materials; see Attachment 6.

34 http://mdch.train.org/panflu/education/
Michigan has several major ports of entry: the Detroit-Windsor tunnel, the Ambassador Bridge in Detroit, the Blue Water Bridge in Port Huron, and the International Bridge in Sault Ste. Marie. In addition, Detroit’s Metropolitan Airport (DTW) serves as the primary international gateway for Northwest Airlines. Together with 15 additional passenger airlines – including six foreign flag carriers – Detroit’s airlines and their regional partners offer service to more than 160 non-stop destinations around the globe. MDCH has extensively partnered with the CDC’s Detroit Quarantine Station to assist in the development of DTW’s Communicable Disease Emergency Response Plan which details triggers for implementation, the incident command structure, protocols for issuance of public health orders, logistics for isolation and quarantine, security and law enforcement, partnerships with local hospitals, and communications procedures.

Partnering with the Michigan Department of Energy, Labor, and Economic Growth (MDELEG) has allowed MDCH to provide pandemic preparedness information to businesses across the state. MDELEG has also developed emergency action guidelines that outlines (by pandemic phase) command and management, communication, and response and operations.

Recently, there have been productive partnerships forged between MDCH and Michigan 9-1-1 and Michigan 2-1-1. MDCH provided pandemic planning guidance documents to these organizations, participating in their respective workgroups to promote planning and integration, and delivered presentations at their annual meetings.

The Community Health Emergency Coordination Center (CHECC)

During a state of declared disaster or emergency, the primary function of the CHECC is to support the SEOC, as defined in the Michigan Emergency Management Plan (MEMP), with focus on public health and medical emergency management.

The secondary missions of the CHECC are to:
- coordinate the overall public health and healthcare response to an incident with regional and local partners
- provide updated information from all sources (local health departments, healthcare agencies, regional partners, MDCH bureaus and divisions, etc.) to the MDCH Executive Group
- provide technical assistance and consultation to public health, medical, and other healthcare professionals during an incident
- coordinate federal support and assistance with the CDC Emergency Operations Center (EOC) and other Department of Health and Human Services (DHHS)

36 See the CHECC Manual, published on the Michigan Health Alert Network (https://michiganhan.org), for a full discussion of technological assets, activation, staffing, operation, and deactivation of the CHECC.
37 See the MDCH Intranet for the most current departmental organization chart.
agencies

- disseminate public health and healthcare information to partners as appropriate

In the event of a public health emergency that has not reached the level of an officially declared disaster or emergency, the CHECC may function as a unified command emergency coordination center. The CHECC operates under the Incident Command System in compliance with the National Incident Management System. For this reason, it is imperative that communications follow prescribed pathways. See Attachment 1. When the SEOC is activated, CHECC staff members monitor incidents and enter data via ETeam software.

**Continuity of Operations (COOP)**

The Michigan Department of Management and Budget (DMB) is the gubernatorial-designated lead agency for state-level COOP planning. DMB implemented a Michigan Continuity of Government Planning website which is hosted on the Michigan.gov portal in a secure and password-protected environment. The website provides individual Michigan agencies the opportunity to develop and maintain detailed Business Continuity Plans for their agency-critical functions.

As a key response partner in a pandemic scenario, MDCH’s bureaus, offices, and divisions have each contributed data to the website repository. In addition, and as required by the Michigan Emergency Management Plan, MDCH regularly updates its *Continuity of Operations Plan*\(^{38}\).

Other state agencies have also begun to embed pandemic-specific COOP planning provisions, as well. Using the FluWorkLoss software\(^{39}\), many Michigan agencies have assessed potential employee absences and determined the likely impacts of a pandemic on the agency’s workforce. DMB, through their MI-DEAL program, has instituted purchasing contract clauses to assure priority service and delivery during a pandemic scenario. The Office of the State Employer (OSE) has reviewed their collective bargaining agreements and civil service rules to prepare for, respond to, and mitigate the effects of a pandemic on state employees. Particularly noteworthy is OSE’s *State of Michigan Model Pandemic Influenza Safe Work Practice*.

**MDCH Office of Public Health Preparedness (OPHP)**

The Office of Public Health Preparedness was established in 2002, and it is charged with protecting the health of Michigan citizens against chemical, biological and

---


\(^{39}\) http://www.cdc.gov/flu/tools/fluworkloss/
radiological threats. The OPHP is the focal point for MDCH's comprehensive public health emergency management program. It is responsible for assuring the department's emergency management capabilities, including (but not limited to): planning, training, exercising, and managing operational capabilities.

OPHP maintains and directs the operations of the CHECC, which supports the SEOC. The Director of OPHP (or his/her designee) functions as the Incident Response Coordinator in the CHECC. All OPHP staff members serve on either first or second shift during a CHECC activation.

MDCH Bureau of Laboratories (BOL)

The Bureau of Laboratories was established under the provisions of the revised Public Health Code\(^{40}\). The MDCH BOL is dedicated to continuing leadership in providing quality laboratory science for healthier people and communities through partnerships, communication, and technical innovation. Laboratory staff are on-call and available for 24/7 coverage for testing of specimens as required. The BOL maintains redundant notification systems to notify staff members to report to work after normal business hours or to assess the availability of testing personnel.

For the purposes of the MDCH Pandemic Plan, it is instructive to understand the specimen processing procedures on a routine day in the BOL. All incoming specimens are received by the Bureau of Laboratories' Data Acquisition and Specimen Handling (DASH) Unit. The DASH Unit organizes incoming specimens, logs them in StarLIMS (the laboratory information system), and delivers them to the laboratory. Laboratory personnel perform quality control checks and print worksheets to use at the laboratory bench. Batch worksheets are used for testing larger numbers of specimens that require little worksheet entry and have rapid turn-around time, like *Bordetella* DNA testing or *Chlamydia*/*Neisseria* RNA testing. Single specimen worksheets are used for specimens or cultures that would take multiple days to process and require extensive documentation of testing performed, like culture identification. When the laboratory work is done, the microbiologist enters the final report into StarLIMS. A second microbiologist reviews the worksheet, the computer entry, and releases the final report. This information is uploaded into the Michigan Disease Surveillance System (MDSS), which is immediately viewable by state and local health departments. StarLIMS electronically places the report(s) on the print queue. Several times a day, StarLIMS takes all reports from the print queue and sends them to be printed in hard copy (to be mailed), faxed, and e-mailed via an HL7 message in MDSS. StarLIMS has been configured to identify reportable conditions so the reports will go to the submitter, the local health agency, Bureau of Epidemiology, and MDSS in the same print run.

\(^{40}\) Act 368 of 1978, Part 96 (3333.9601)
Each week, the BOL, Bureau of Epidemiology, and Office of Public Health Preparedness participate in a joint conference call. During these calls, a general statewide status of communicable diseases and conditions are reported and discussed.

**Michigan Regional Laboratory System**

The mission of the Michigan Regional Laboratory System is to provide for the delivery of analytical data which is accurate, timely, relevant to public health, and serves clinical and/or epidemiological program needs. The Michigan Regional Laboratory system continuously strives to improve testing quality and service delivery, and strengthen public health programs throughout the state. For example, these labs maintain proficiency for LightCycler usage by routinely performing other testing of public health importance (e.g., Norovirus) on this equipment. In addition, the regional labs have received instrumentation and training in Norovirus Polymerase Chain Reaction (PCR), which would be a similar platform to that used during a pandemic. An up-to-date listing of Michigan’s regional laboratories and proficiency testing information can be viewed on the MDCH website website.41

**MDCH Bureau of Epidemiology (BOE)**

The Bureau of Epidemiology advances and promotes the health and quality of life of Michigan residents by:

- Responding to infectious disease outbreaks and chemical exposures.
- Collecting, analyzing, and reporting statistics on a wide variety of health topics including immunizations, injuries, cancer, diabetes, communicable diseases and HIV/AIDS.
- Improving access to and quality of public health services by evaluating state programs and related healthcare systems.
- Guiding health policy by presenting state and local public health agencies, community-based organizations, healthcare providers, and others with data on the health and well-being of state residents.

For the purposes of the MDCH *Pandemic Plan*, it is helpful to have a general understanding of influenza surveillance within the BOE. Each day, under the direction of a full-time influenza surveillance epidemiologist, staff members monitor the following surveillance indicators for trends in influenza activity.

*Michigan Disease Surveillance System (MDSS)*: The MDSS is a web-based communicable disease reporting system developed for the State of Michigan. MDSS was created to facilitate coordination among local, state, and federal public health agencies; provide for the secure transfer, maintenance and analysis of communicable

---

41 [http://www.michigan.gov/mdch/0,1607,7-132-2945_5103_7168-14758--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2945_5103_7168-14758--,00.html)
disease surveillance information; promote participation from a variety of stakeholders including public health, health care providers and medical laboratories; and to address needs in many areas of traditional disease surveillance, emergent infectious diseases and biological terrorism. The advent of the MDSS allowed immediate communication among disease reporting authorities, local health departments, and the Michigan Department of Community Health (MDCH) regarding investigations into possible cases of communicable disease. Information on these possible cases is available in MDSS regardless of whether they are suspected, probable, or confirmed cases of disease. The MDSS is a dynamic, continually active system: counts of disease are constantly changing as cases are investigated, confirmed as cases, or ruled out as not meeting the case definition.

**Emergency Department Syndromic Surveillance.** This project is designed and implemented to facilitate public health rapid detecting and response to unusual outbreaks of illness that may be the result of bioterrorism, outbreaks of infectious disease, or other public health threats and emergencies. Real time detection of a notable increase in patients presenting for care with similar symptoms could allow early and appropriate public health intervention and minimize negative impact. The system provides tools that include automatic data collection, automatic aberration detection algorithms, and tools that support temporal and spatial data analysis and visualization.

**Michigan Component of the CDC U.S. ILINet:** MDCH participates in the U.S. Outpatient Influenza-Like Illness Surveillance Network⁴², a collaborative effort between the Centers for Disease control and Prevention (CDC), state and local health departments, and volunteer sentinel physicians as part of our influenza surveillance. These physicians report the total number of patient visits to their facilities each week, as well as the number of patient visits for influenza-like illness (ILI) within four age categories (0-4 years, 5-24 years, 25-64 years, and 65+ years). In addition, they collect respiratory specimens from a sample of patients with ILI for virus culture at no charge by the MDCH Laboratory. Medical providers of any specialty (e.g., family medicine, internal medicine, pediatrics, infectious disease) in nearly any setting (e.g., private practice, public health clinic, urgent care center, emergency room, university student health center) who are likely to see patients with influenza-like illness can be sentinels. The only exception is for those providers who primarily care for institutionalized populations (e.g., nursing homes, prisons).

**Real-time Outbreak and Disease Surveillance (RODS) and National Retail Data Monitoring System (NRDM):** Real-time Outbreak and Disease Surveillance is free software for public health surveillance. RODS collects and analyzes disease surveillance data in real time. The software examines aggregate and de-identified data routinely collected by clinical and other information systems automatically and in real time for trends and anomalies suggestive of disease outbreaks. It is used by health

---

⁴² [http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779-122498--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779-122498--,00.html)
departments or urban regions to monitor clinical data, sales of over-the-counter medications, and other types of data.

The National Retail Data Monitor is a public health surveillance tool that collects and analyzes daily sales data for over-the-counter (OTC) health-care products. NRDM collects sales data for selected OTC health-care products in near real time from >15,000 retail stores. This data is then available to public health officials. NRDM is one of the first examples of a national data utility for public health surveillance that collects, redistributes, and analyzes daily sales-volume data of selected health-care products, thereby reducing the effort for both data providers and health departments.

*Michigan Care Improvement Registry (MCIR):* MCIR is a secure web-based system designed as an electronic immunization registry, and it has been modified to collect individual countermeasure information such as vaccines and antivirals. It is accessible to the majority of preparedness partners and healthcare providers throughout the state. An all-hazards public health emergency response component exists in the system. During a public health emergency, the Incident Response Coordinator of the CHECC may recommend that the department activate the MCIR All-Hazards Component. MCIR All-Hazards Component is being enhanced to include additional functionality to track, monitor and report pharmaceuticals allocated and doses administered in the event of pandemic influenza. This will include enhancing existing reminder/recall functionality to specifically generate letters to ensure vaccinated persons return for additional doses. The vaccine inventory component will be modified to allow for the tracking and distribution of Michigan’s Strategic National Stockpile (SNS) pharmaceutical allocation. The online VAERS reporting form will be enhanced to pre-populate with patient demographics, the dose administered, the lot number and manufacturer.

**MDCH Vital Records**

While a primary purpose for collection of vital records is to record information on vital events for legal purposes, vital records files also serve as an important source for statistical information. Vital statistics data developed from these records can be accessed through the links on the Vital Records website. Basic counts for the number of events, rates, and detailed cross tabulations are provided. Statistcal information for Michigan with national comparisons is included along with extensive data at the county- and community-level. In 2008, MDCH Vital Records received a competitive pandemic influenza grant to support development of a web-based death certificate processing and secure tracking.

---

43 [http://www.michigan.gov/mdch/0,1607,7-132-2944_4669---,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2944_4669---,00.html)
Licensed Provider Emergency Notification

MDCH policy 11.2 establishes a communication mechanism for notifying licensed health professionals of urgent clinical information during the time of a public health emergency in support of Emergency Support Function (ESF) 8 of the National Response Framework. The MDCH Bureau of Health Professions is responsible for tracking health professionals’ licensure in the State of Michigan, and they are in the best position to provide information to that sector. A copy of MDCH Policy 11.2 is included in Attachment 5 of this document.

The MI-Volunteer Registry

The Michigan Volunteer Registry\(^{44}\) is utilized to identify and mobilize appropriate volunteers during an emergency. Administrators of the Registry can rapidly query healthcare personnel including physicians, nurses, behavioral health professionals, and others to fill critical support function roles during any public health event. The MI-Volunteer Registry is compliant with the national Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP).

The Michigan Health Alert Network

The Michigan Health Alert Network (MIHAN)\(^{45}\) is a secure, internet-based, emergency notification system. The MIHAN contains over 4,000 participants from each of the local health departments, hospitals, clinics and many other critical first responders across the state. See Table 4. The system uses an innovative, role-based directory for selection of those to be notified. This directory is geographically based on Michigan’s eight emergency preparedness regions and the counties. The role structure consists of public health, healthcare and many additional groups such as emergency managers and life support roles.

\(^{44}\) http://www.michigan.gov/mdch/0,1607,7-132-2945_21919_38882-131617--,00.html

\(^{45}\) http://www.michigan.gov/mdch/0,1607,7-132-2945_21919_25536-72730--,00.html
Table 4. Contact lists available through MIHAN (as of July 2009).
- American Red Cross, Mid-Michigan chapter
- Health Care Association of Michigan
- Michigan Academy of Family Physicians
- Michigan Association of Local Public Health
- Michigan Association of Health Plans
- Michigan Association of Occupational and Environment Physicians
- Michigan Association of Occupational Health Nurses
- Michigan Association of Osteopathic Family Physicians
- Michigan Association of School Nurses
- Michigan Center for Assisted Living
- Michigan Center for Rural Health
- American College of Cardiology, Michigan chapter
- Michigan County Medical Care Facilities Council
- Michigan Hospital Association
- Michigan Nurses Association
- Michigan Osteopathic Association
- Michigan Otolaryngological Society
- Michigan Pharmacists Association
- Michigan Primary Care Association
- Michigan Public Health Institute
- Michigan Society for Adolescent Medicine
- Michigan Society of Infection Control

OPHP Contacts Database

OPHP maintains a secure Access database with over 4000 Michigan contacts. This database allows immediate access (from OPHP or the CHECC) to phone numbers, mailing addresses, email addresses, etc. See Table 5.

Table 5. Contact lists available through OPHP (as of April 2009).
- acute care centers
- communicable disease contacts
- CHEMPACK
- community mental health
- critical access hospitals
- dialysis centers
- district emergency managers
- medical control authorities
- OPHP newsletter recipients
- hospital contacts (CEO, PIO, etc.)
- LHD emergency prep. coordinators
- LHD health officers
- LHD medical directors
- LHD PIOs
- local emergency managers
- long-term care facilities
- MI Care Improvement Registry
- MDCH Executive Group
- MEDDRUN
- medical Coordination Centers
- medical examiners
- NEHCs
- pharmacists
- primary care clinics
- regional BT coordinators
- regional epidemiologists
- regional immunization coor.
- regional medical directors
- rural health clinics
- special populations
- state EMGs and PIOs
- volunteer defense force
Michigan Mortuary Response Team (MI-MORT)

The mission of MI-MORT is to provide dignified and respectful fatality management services during disaster response. This team can assist and support county medical examiners and law enforcement officials with the identification of the dead, preservation of evidence, and return of remains to families.

MI-MORT is organized under the auspices of MDCH in cooperation with the Michigan Funeral Directors Association. The team is comprised of volunteers from various professions, including: site recovery experts, forensic pathologists, dentists, anthropologists, funeral directors, x-ray technicians, DNA specialists, fingerprint specialist, photographers, data entry personnel, and others.

MI-MORT does not have the capability to decontaminate deceased victims. Therefore, incidents involving weapons of mass destruction would require additional support, such as the federal Disaster Mortuary Response Team (DMORT).

Michigan’s Preparedness Website

In the September 2006, the State of Michigan launched its comprehensive emergency preparedness website: www.michigan.gov/prepare. This website was specifically designed to provide proactive emergency planning information for individuals, families, and businesses, marking a critical point in the state’s effort to educate the public on what to do during a potential crisis. The website is continuously updated, and offers citizens the latest available information on family preparedness, chemical, biological, and radiological emergencies, natural disasters, and severe weather. The site features state resources, as well as links to other federal assets that are considered the last word for family emergency preparedness.

Michigan’s Influenza Website

Administered by MDCH, the influenza website – www.michigan.gov/flu – provides citizens with up-to-date information regarding seasonal, avian, pandemic H1N1, pandemic influenza planning. The seasonal influenza webpages outline important vaccination and infection control protocols. Two of MDCH’s premier publications, MIFluFocus and FluBytes, are available on the influenza website. These publications monitor and provide details of influenza activity in Michigan, the nation, and the world. The influenza website’s avian influenza pages provide citizens with fact sheets, frequently asked questions, and links to global surveillance tools. Finally, the influenza websites’ pandemic pages provide information on the causes of pandemics, control of pandemics, and information for particular groups (healthcare professionals, schools, local health departments, etc.).
During an outbreak of novel influenza strain, the state may decide to create an incident-specific website. As all Michigan websites conform to E-Michigan standards, it is highly likely that any new site would incorporate the elements of workflow and be subject to a temporary "holding period" before becoming live. Only certain individuals within each department have the ability to perform an immediate cache clear to force a page to become live. In addition, during an activation of the state's Joint Information Center, it may become necessary to separate media information from partner guidance.

Employee Service Program (ESP)

The mission of the Employee Service Program\(^{46}\) is to provide the highest quality professional and confidential assistance to state employees and their family members. The goals of the mission are to promote wellness and to prevent or resolve personal and organizational issues that may interfere with work productivity, home life, or behavioral health. ESP accomplishes this by providing confidential, no-cost services to classified state employees who may be experiencing work-related problems, or personal problems that affect their work. Master's level counselors provide professional assistance in the identification and resolution of both work and personal issues. Employees may request administrative, annual, or medical leave for the initial meeting with an Employee Service Program counselor. The Employee Service Program provides assistance for a wide range of issues, including emotional difficulties, substance abuse, job performance problems, workplace conflicts, family problems and financial difficulties.

Local Health Departments

Through Centers for Disease Control and Prevention's Public Health Emergency Preparedness cooperative agreement, Michigan's forty-five local health departments receive earmarked funding for emergency preparedness. Since 2002, local jurisdictions have established and refined their all-hazards response plans. Since 2005 enhancements to the local plans have included a pandemic influenza component. The local emergency preparedness coordinators are required to show continued enhancements to the operational and functional nature of their pandemic influenza preparedness activities. In addition, the state developed a *Pandemic Influenza: Local Health Department Considerations* document to assist in their pandemic planning efforts.

\(^{46}\) http://www.michigan.gov/ose/0,1607,7-143-6097_29351---,00.html
Local Healthcare Facilities

There are eight regional medical biodefense networks in Michigan. These were established in 2002 as required by the Hospital Preparedness Program, which is a federal-state cooperative agreement authorized by section 319C-2 of the Public Health Service Act, as amended by the Pandemic and All-Hazards Preparedness Act. Each regional is staffed with a bioterrorism coordinator and medical director. These individuals coordinate emergency preparedness and response activities with all of the healthcare partners within the region, focusing on medical surge. They work directly with OPHP.

Each region has a number of capacities and technologies positioning them for pandemic preparedness success.

- Each region is responsible for the operation of a regional Medical Coordination Center whose purpose is to support the healthcare system and local emergency operations centers within the region. They assist with the provision of a flexible, coordinated, uninterrupted health response, and they ensure optimum and efficient use of medical resources.

- Michigan Transportable Emergency Surge Assistance (MI-TESA). Coordinated by MDCH, these two interoperable mobile medical facilities can augment a local hospital’s capacity. One unit contains 100 beds and the other contains 40 beds. The units are stored in two regionally disparate and secure locations. Through mutual aid agreements, health professionals and support personnel can be called on to support operations.

- Since 2004, all Michigan hospitals have utilized EMResource to monitor and track healthcare facilities’ bed utilization. This is an internet-based system that has been adopted within healthcare statewide. It allows real-time status of hospital bed capacity including the ability to meet the requirements of the DHHS SOC to provide hospital bed capacity within two hours of a request. Ventilator availability within hospitals is also collected via this system. Users on the system are tested at least monthly in all regions and the system has been successfully used in real Michigan events. This is an important tool used by each Regions Medical Coordination Center (MCC). This system is being modified to include pandemic influenza patient submission and tracking.

Community Mental Health Services Programs

Most mental health services are provided by the private sector in outpatient settings. Publicly-funded mental health services are delivered through Community mental Health

47 http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:s3678enr.txt.pdf
48 http://corp2.emsystem.com/info/emresource.html
Services Programs (CMHSPs) that have been established by county government. Michigan’s 83 counties are served by 46 single of multi-county CMHSPs. A CMHSP may be an official county agency or it may be a public governmental entity separate from the county or counties that established it.

The purpose of a CMHSP is to provide a comprehensive array of mental health services appropriate for conditions of individuals who are located within its geographic service area, regardless of an individual’s ability to pay. Among their required array of services, CMHSPs provide crisis stabilization and response including a 24-hour/7-day per week crisis emergency service that is prepared to respond to persons experiencing acute emotional, behavioral, or social dysfunctions, and the provision of inpatient or other protective environment for treatment.

In general, CMHSPs are integrated within the local emergency management programs of their jurisdictions. The availability of disaster mental health services vary, but most CMHSPs can provide or arrange for: Critical Incident Stress Management (CISM), grief/bereavement counseling, Post-Traumatic Stress Disorder (PTSD) counseling, and crisis intervention.

The Preliminary Assessment Team

The Preliminary Assessment Team (PAT) meets quarterly to monitor the global influenza trends to determine whether a public health response is necessary and/or if the CHECC should be activated. The PAT provides the following information to the MDCH Executive Group and/or to the CHECC:

- a summary of reporting results
- enumeration of human health consequences
- conclusions about etiology
- estimates of the size of population thought to be at risk
- communication and consultation with local health departments and healthcare providers on medical and epidemiologic issues
- communication and consultation with the CDC as needed, including requests for assistance
State and Local Authority for Pandemic Influenza Mitigation

A comprehensive pandemic mitigation strategy includes both pharmaceutical and non-pharmaceutical measures. However, at the beginning of an influenza pandemic, the most effective mitigation tool (i.e., a well-matched pandemic strain vaccine) will probably not be available. Therefore, the state must be prepared to face the first wave of the pandemic without vaccine and, possibly, without sufficient quantities of influenza antiviral medications.

The pandemic mitigation framework is based upon an early, targeted, layered application of multiple, partially effective, non-pharmaceutical measures. These mitigation strategies include: isolation, home quarantine, school dismissal, and social distancing. These interventions can and should be undertaken voluntarily. However, state and local authorities shall compel action if necessary to protect public health. Most of the state and local authorities regarding public health emergencies, such as pandemic influenza, are contained in the Emergency Management Act\(^{49}\) and the Public Health Code.\(^{50}\)

- *Emergency Management Act.* When the first human cases of pandemic influenza is confirmed in the State of Michigan, the governor may declare a State of Disaster pursuant to the Emergency Management Act. Upon making that declaration, the governor has broad power to issue such executive orders, proclamations, and directives, having the force and effect of law, which are necessary and appropriate under the circumstances. The governor also has the power to suspend regulatory laws that impede response (e.g., suspension of health facility and health professional licensing requirements and state Medicaid policies), seek and accept federal assistance, and take control of private property.

These broad powers enable the governor to direct the implementation of a comprehensive pandemic mitigation strategy that includes, but are not limited to, the following measures:

1. Isolation and quarantine.
2. Restriction of traveler movement.
4. Suspension of public gatherings.
5. Curfews.
6. Related social distancing.
7. School closing/school dismissal.


\(^{50}\) Public Health Code, 1978 Act 368 as amended, MCL 333.1101 et seq.
8. Dispensation of antiviral drugs.
9. Administration of mass vaccination without the completion of standard medical examinations.\textsuperscript{51}

- \textit{Public Health Code.} The Public Health Code is expansive in its public health powers. It includes explicit legislative intent that it be liberally construed to protect the health, safety, and welfare of the people of this state. The structure of the Code provides parallel authority to the state health department and to the forty-five local health departments. This partnership, and the authorities conferred separately on both levels of government, is essential for the protection of public health.

\textbf{Local Governments}

Many state statutes apply to local governments. For example, Part 24 of the Public Health Code includes the authority for local health officers to issue imminent danger orders and emergency orders to control an epidemic. Various sections of the Emergency Management Act authorize local emergency and disaster declarations and emergency management programs. Furthermore, some counties and municipalities have adopted local ordinances and resolutions pertaining to emergency management and communicable disease control.

In addition, counties, municipalities, townships and various other political subdivisions of the State of Michigan may become party to the Michigan Emergency Management Assistance Compact (MEMAC).\textsuperscript{52} This intrastate mutual assistance compact is administered by the Michigan State Police, Emergency Management and Homeland Security Division.

\textbf{Tribal Government}

There are twelve federally recognized Indian tribes in the State of Michigan.\textsuperscript{53} Each sovereign tribe has an independent relationship with each other and with the state. The State of Michigan and tribal governments share a responsibility to provide for and protect the health, safety and welfare of our common constituents.

Federally recognized Indian tribes are sovereign governmental entities with police power authority to enact their own disease control rules and regulations. However, the Secretary of DHHS has the authority to implement disease control measures in Indian

\textsuperscript{51} Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans. 2006. p. 11.
\textsuperscript{52} http://michigan.gov/mep/0,1607,7-123-1593_3507-9460--,.00.html
\textsuperscript{53} 25 U.S.C. 479a “Federally Recognized Indian Tribe List Act of 1994,”
country, if necessary. In addition, there is significant authority for federal law enforcement action. Furthermore, states have limited authority to enter upon Indian tribal lands, reservations, or allotments for the purpose of making inspection of health and enforcing sanitation and quarantine regulations.


Legal Resources

- **Public Health Law Bench Book for Michigan Courts.** This bench book was created as a significant part of the public health emergency legal preparedness initiative at the Public Health Law Program of the CDC. It is a legal reference for Michigan judges to use in the courtroom, providing, for example, procedural frameworks, statutory texts, summaries of relevant case law, and model orders. It is focused on four topics: (1) searches, seizures, and other such government actions to ensure the public health; (2) judicial proceedings centered on permissibility of limiting certain individual liberties in order to protect the public health; (3) operation of the courts amid public health threats; and (4) the role of the courts during a state of emergency triggered by public health concerns. This bench book is not only an excellent reference tool for judges, it is an essential tool for public health officials, including local health officers and emergency preparedness coordinators.

- **Social Distancing Law Project, Michigan Department of Community Health, Assessment of Legal Authorities.** This report is included in the Public Health Law Bench Book for Michigan Courts (in Section VII Selected Memoranda of Law). It is also available as a stand-alone document published on the Michigan Health Alert Network. This report was prepared as part of the CDC Social Distancing Law Project. It provides an assessment of Michigan’s legal readiness to address pandemic influenza, including the legal authority for pharmaceutical and non-pharmaceutical (social distancing) measures. This report focuses on the ability of Michigan to implement social distancing measures to prevent and

---

55 42 U.S.C. 2001 Indian hospitals and health facilities transferred to Public Health Service.
56 18 U.S.C. 1151 Indian country defined.
57 18 USC 1152 “Indian Country Crimes Act.”
59 25 U.S.C. 231 “Enforcement of state laws affecting health and education; entry of State employees on Indian lands”.
control the spread of pandemic influenza, both when an emergency has been declared pursuant to the Emergency Management Act (1976 Act 390) and in the absence of such a declaration. It cites the legal authority for the following public health measures: restrictions on the movement of persons (isolation and quarantine), curfew, inter-jurisdictional cooperation and restricting movement of persons, closure of public places, and mass prophylaxis readiness.

• Public Health Round Table on Legal Authorities for Isolation and Quarantine, Consensus Report.64 The CDC cooperative agreement for public health emergency preparedness requires state and local health departments to complete a series of critical tasks in support of the National Preparedness Goal. One of the critical tasks is to assure legal authority to isolate and/or quarantine individuals, groups, facilities, animals, and food products. This document was prepared to fulfill that critical task.

This report identifies the legal authority for isolation and quarantine and discusses the application of these powers. The report includes examples of imminent danger orders that have been issued by the State Health Director pursuant to section 2251 of the Public Health Code (MCL 333.2251). (Note: Local health officers have the same authority pursuant to MCL 333.2451). It also discusses the use of emergency orders to control an epidemic pursuant to section 2253 (state) and 2453 (local) of the Public Health Code (MCL 333.2253 and MCL 333.2453).

• Communicable Diseases Public Health Authorities and Information Sharing.65 This is a compendium of information for local health departments. It identifies the legal authorities for disease control and includes several memoranda from the MDCH Director regarding: The Disclosure of Protected Health Information for Disease Prevention and Control Under the Michigan Public Health Code and the Federal Privacy Rule; and, The Legal Authority of MDCH to Respond to a SARS Outbreak (which is applicable to communicable disease control in general).

MI Volunteer Registry, Frequently Asked Questions – Legal Issues. This information is available on the MI Volunteer Registry website.66 This document addresses various legal issues pertaining to emergency volunteer health practitioners, including: licensure, liability protection, and workers compensation.

66 http://www.michigan.gov/ophp
Summary

Michigan has a range of capacities and well-established partnerships to effectively prepare for, and respond to, a pandemic. The Michigan Department of Community Health has integrated comprehensive surveillance activities into the fabric of the institution, and remains poised to respond to any public health emergency.

Although substantial progress toward pandemic preparedness has been made in Michigan, much work remains. Michigan continues to strategically enhance its all-hazards preparedness and response capacity. The *Michigan Pandemic Plan* outlines Michigan's key operational actions and activities for the pre-pandemic, pandemic, and post-pandemic phases.

- **Michigan Pre-Pandemic Actions:** A novel virus, somewhere in the world, has been detected in humans and the human population is not immune. The novel strain has been found in a small number of people or demonstrates sustained person-to-person transmission causing multiple cases in the same geographic area. This phase may last from days to years.

- **Michigan Pandemic Actions:** The novel virus causes unusually high rates of morbidity or mortality; multiple continents are affected; the World Health Organization (WHO) and CDC declare an influenza pandemic is underway. This phase may last several months to over a year.

- **Michigan Post-Pandemic Actions:** The number of deaths from and cases of influenza returns to normal. The WHO and CDC declare the pandemic to be over.

In order to synthesize the various categorization schemes in existence, it is helpful to compare them side-by-side. See Figure 2.
Comparison of MDCH Actions to World Health Organization (WHO) Phases, U.S. Government Stages (USG), and Centers for Disease Control and Prevention (CDC) Intervals

<table>
<thead>
<tr>
<th>Michigan Actions</th>
<th>Pre-Pandemic</th>
<th>Pandemic</th>
<th>Post-Pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO Phase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Pandemic</td>
<td>1: No new influenza virus subtypes detected in humans. An influenza subtype that has caused human infection may be present in animals. If present in animals, the risk of human disease is considered to be low.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Pandemic</td>
<td>2: No new influenza virus subtypes detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Pandemic</td>
<td>3: Human infection(s) with a new subtype, but no human-to-human transmission, and spread is highly localized, suggesting that the virus is not well adapted to humans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Pandemic</td>
<td>4: Small cluster(s) with limited human-to-human transmission, but spread is highly localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Pandemic</td>
<td>5: Larger cluster(s) but human-to-human spread still localized, suggesting that the virus has a limited human-to-human transmissibility, but may not yet be fully transmissible (substantial pandemic risk).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Pandemic</td>
<td>6: Pandemic Phase: Increased and sustained transmission in the general population.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

USG Stage

<table>
<thead>
<tr>
<th>USG Stage</th>
<th>Pre-Pandemic</th>
<th>Pandemic</th>
<th>Post-Pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>0: New domestic animal outbreak in at-risk country.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1: Suspected human outbreak overseas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Confirmed human outbreak overseas.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CDC Interval

<table>
<thead>
<tr>
<th>CDC Interval</th>
<th>Pre-Pandemic</th>
<th>Pandemic</th>
<th>Post-Pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2. This chart overlays Michigan actions, World Health Organization (WHO) phases, U.S. government (USG) stages, and Centers for Disease Control and Prevention (CDC) intervals.
MDCH Pandemic Planning Assumptions

1. In a novel influenza outbreak, the CHECC will be activated at the discretion of the Preliminary Assessment Team, the OPHP Director, and/or the MDCH Executive Group.

2. The lead state agency in a pandemic event will be determined based on how the novel strain presents in Michigan (domestic animals, wildlife, humans, etc.).

3. Operational procedures for response roles have been provided by the respective agency, bureau, division, office, etc.

4. Under certain scenarios, the usual functions and activities within MDCH will be significantly reduced to allow MDCH to wage an efficient pandemic response.

5. During a pandemic, most parts of the state will be simultaneously affected, and diverting resources from other locations will not be possible.

6. A pandemic may increase the likelihood of sudden and potentially significant gaps in public services and safety, particularly healthcare capacities in Michigan.

7. Local public health and healthcare partners will use the reporting and tracking mechanisms provided by the state.

8. Local public health and healthcare partners will provide treatment and care within their jurisdictions in a fair and equitable manner.

9. In the initial stages of a pandemic, vaccine is unlikely to be available and community mitigation strategies will be the most effective measures available.
Michigan Pre-Pandemic Actions
(Investigation/Recognition Intervals)

Command and Management

The state's Pandemic Influenza Coordinating Committee meets quarterly to progress preparedness initiatives across departments and private-sector agencies. A summary of the PICC's activities is maintained by the Michigan Pandemic Coordinator\(^6\). The Preliminary Assessment Team meets monthly, or as needed, via conference call to assess global trends in influenza activity, and determine if any further action is necessary. A summary of the PAT's activities is maintained by the Michigan Pandemic Coordinator\(^6\) and the OPHP Evidentiary Library.

The CHECC is exercised regularly to assure streamlined activation, operation, and deactivation processes. A summary of the CHECC exercise and training schedule is maintained by the OPHP Exercise and Technical Support Coordinator\(^6\).

Crisis Communication

The *Michigan Emergency Management Plan* outlines communication systems and protocols available through the SEOC. The *CHECC Manual* outlines tactical and risk communication capacities available through the CHECC.

OPHP risk communicators have developed pre-pandemic fact sheets, frequently asked questions (FAQs), press releases templates, and talking points. These materials have been widely distributed to stakeholders throughout the state, and are also available on Michigan's influenza website. General preparedness information is publicly available on Michigan's preparedness website. Some of MDCH's pre-pandemic outreach activities are provided in Attachment 6.

In Michigan's pre-pandemic phase, MDCH maintains regular communication with partners and stakeholders. Michigan's influenza activity is publicly reported, on at least a weekly basis, in *MiFluFocus*.\(^7\) The Michigan Health Alert Network is utilized for frequent communications between MDCH, local health departments, long-term care facilities, hospitals, and other partners.

---

\(^6\) Michigan Pandemic Coordinator – (517) 335-9085
\(^6\) ibid
\(^6\) OPHP Exercise and Technical Support Coordinator – (517) 335-8277
\(^7\) http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-143382--,00.html
During the CDC’s Recognition Interval, the MDCH Executive Group will make recommendations, through the SEOC (if activated), for the development and distribution of any additional public information materials.

**Surveillance**

The Bureaus of Laboratories and Epidemiology operate 24/7 coverage for issues regarding the notification of communicable disease, public health emergencies, or the shipping, testing, or handling of clinical specimens. In addition, this information is publicly available via the BOL website.\(^{71}\)

Throughout any given year, BOE monitors and tracks influenza-like illness activity through aggregate school-based, sentinel-based, and syndromic surveillance systems. During the CDC’s Recognition Interval, MDCH will enhance its surveillance of seasonal and novel influenza activity. The goals of these surveillance initiatives are to detect early cases/clusters in Michigan.

**Diagnosis-based Surveillance.** Michigan routinely monitors various systems to gather an accurate picture of influenza activity in Michigan. Michigan’s Communicable Disease Reporting rules outline the required influenza reporting timeframes.\(^{72}\) Diagnosis-based surveillance systems include (but are not limited to):

- Sentinel Provider Surveillance Network (SPSN) will be used for reporting influenza-like illness. BOE staff will ensure that the SPSN has at least one regularly reporting provider per 250,000 citizens, review participation status of enrolled sites, and recruit new sites as necessary.

- BOE will monitor clinically consistent clusters of illness compatible with equine, avian, and swine influenza. This function is conducted through partnerships with the Michigan Department of Agriculture (including VetNet), U.S. Department of Agriculture, Michigan State University, the University of Michigan Influenza Research and Surveillance Program, veterinarians, and poultry researchers, all who have representation of the Avian Influenza Interagency Working Group, which is represented in the PICC.

- BOE will track influenza-related mortality by enhancing communications with the MDCH Office of Vital Records to ensure timely and accurate counting of deaths attributable to influenza and pneumonia, and enhancing communications with medical examiners to obtain information on influenza-, pneumonia- or other respiratory infection-related deaths.\(^{73}\) MDCH investigations all pediatric influenza-associated deaths.

---

\(^{71}\) [http://www.michigan.gov/mdch/0,1607,7-132-2945_5103----,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2945_5103----,00.html)

\(^{72}\) [http://www.michigan.gov/mdch/0,1607,7-132-2945_5104-12538--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2945_5104-12538--,00.html)

\(^{73}\) A list of Michigan’s medical examiners is maintained by OPHP through their Contacts Database. See "The State of Michigan’s Planning Landscape" section of this document for further information on the Contacts Database.
• Michigan's Disease Surveillance System (MDSS).\textsuperscript{74} MDCH has developed the trigger to switch from individual to aggregate case reporting in MDSS, but will update the trigger in the Recognition Phase based upon disease activity and strain severity. This will be communicated to partners through standard communication pathways available in the CHECC.

**Syndromic-based Surveillance.** In addition to diagnosis-based surveillance, Michigan also utilizes syndromic-based surveillance to gather an accurate assessment of influenza activity.

• Michigan's primary methods of syndromic surveillance are the Real-time Outbreak Disease Surveillance (RODS) National Retail Data Monitor (NRDM), which tracks day-old pharmaceutical purchasing at retail establishments, and the monitoring of emergency department chief complaints throughout the state.

• The state has developed case definitions for presumptive/definitive diagnosis of novel and pandemic influenza cases, and has distributed these to local public health and healthcare providers. See Attachment 3.

• The Michigan Care Improvement Registry (MCIR) will be used for tracking adult and child pharmaceutical administration.\textsuperscript{75}

• Vaccine and Drug Safety Surveillance. If vaccine is available, the MDCH Safety Coordinator\textsuperscript{76} and VAERS Coordinator\textsuperscript{77} will participate in national and state planning and surveillance meeting to address potential VAERS/AERS events.

**Laboratory Guidelines**

The BOL maintains year-round seasonal influenza testing of SPSN specimens. BOL's Virology Section isolates, types, and subtypes influenza A and B. BOL will provide respiratory virus testing for outbreak and cluster investigations.

BOL maintains updated guidance for notification, clinical specimen selection, and submission during seasonal, novel virus, or pandemic scenarios. This information is publicly available on the BOL website.\textsuperscript{78} BOL periodically sends representative virus isolates to the Centers for Disease Control and Prevention (CDC) for further antigenic characterization. Any unusual virus isolates are immediately sent to CDC for further investigation.

\textsuperscript{74} http://www.michigan.gov/mdch/0,1607,7-132-2945_5104_31274-96821--,00.html
\textsuperscript{75} See "The State of Michigan's Planning Landscape" section of this document for further information on MCIR capabilities.
\textsuperscript{76} The MDCH Vaccine Safety Coordinator is located within the Bureau of Epidemiology, Division of Immunizations – (517) 335-8159.
\textsuperscript{77} The MDCH VAERS is located within the Bureau of Epidemiology, Division of Immunizations – (517) 335-8159.
\textsuperscript{78} http://www.michigan.gov/mdch/0,1607,7-132-2945_5103--,00.html
BOL has developed algorithms to identify routine, novel, and pandemic influenza; see Attachment 4. During the CDC’s Recognition Interval, BOL will increase testing capacity for influenza viruses, including pandemic strains; specimens will be obtained from affected areas and other targeted surveillance populations.

**Community Containment**

A comprehensive pandemic mitigation strategy includes both pharmaceutical and non-pharmaceutical measures. However, at the beginning of an influenza pandemic, the most effective mitigation tool (i.e., a well-matched pandemic strain vaccine) will probably not be available. Therefore, the state must be prepared to face the first wave of the pandemic without vaccine and, possibly, without sufficient quantities of influenza antiviral medications.

The pandemic mitigation framework is based upon an early, targeted, layered application of multiple, partially effective, non-pharmaceutical measures. These mitigation strategies include: isolation and treatment, voluntary home quarantine, dismissal of students from school, and use of social distancing measures. See Michigan Pandemic Actions for further information.

The MDCH Executive Group at the CHECC will make recommendations, through the SEOC (if activated), for the implementation of any community containment measures. See Attachment 7 for implementation triggers.

**Infection Control**

Health practitioners, hospitals, and medical facilities within the state are expected to follow their respective agency’s infection control protocols and procedures. The Association of Professionals in Infection Control and Epidemiology offer many helpful infection control documents on their website. During the CDC’s Recognition Interval, MDCH may provide additional infection control recommendations.

**Medical Management**

Local health departments will document, investigate, and monitor novel strain influenza cases within their jurisdiction as per their respective policies and procedures. The CHECC will solicit and collate regional and local information. The MDCH Executive
Group will make recommendations, through the SEOC (if activated), for the implementation of any statewide medical management measures.80

The MDCH Public Health Emergency Countermeasure Distribution Strategy (the Strategy) outlines the responsibilities and procedures for distributing public health emergency countermeasures before or during a public health emergency.81 The Strategy defines the distribution and administration of countermeasures held within the state, or assets available from other sources under pre-event emergency response agreements. The MDCH Strategic National Stockpile Plan addresses all elements of distribution and administration logistics for countermeasures outlined in the Strategy.

Data Management

During Michigan's Pre-Pandemic Actions, the following surveillance and reporting tools82 will be utilized:

- Sentinel Provider Surveillance Network
- Michigan Disease Surveillance System
- Laboratory Specimen Tracking: StarLIMS
- Michigan Care Improvement Registry
- Hospital Emergency Department Syndromic Surveillance

In addition, MDCH maintains several additional redundant data tracking systems. The MDCH Virology Section Manager maintains an Excel spreadsheet that contains the results of all specimens from sentinel providers and all positive respiratory cultures from non-sentinel sites. The MDCH Communicable Disease Division maintains reports and data regarding suspect or confirmed influenza outbreaks. MDCH's Immunization section maintains sentinel reporting data, updated weekly, in Excel spreadsheets which are saved on a secure network drive at MDCH. MDCH maintains paper records for three years; these files are kept in a secure location within MDCH's Communicable Disease Division.

During SEOC and/or CHECC activation, emergency management and situations reports are entered and monitored via the ETeam emergency management application.

---

80 Community mental health services are a local responsibility pursuant to 1974 Act 258, Mental Health Code (MCL 330.1001 et seq). Mental health services for state employees are available through the Employee Service Program (www.michigan.gov/ose) and Traumatic Incident Stress Management (TISM) program.

81 Note that two versions of the Countermeasure Distribution Strategy exist. The full version is intended only for MDCH staff use and is kept confidential. The public version of the plan is redacted.

82 See "The State of Michigan's Planning Landscape" section of this document for more information on available surveillance and reporting tools.
International Issues

At any point in time, an influenza pandemic may be present in some areas of the world, but not in others. Travel restrictions and other factors to prevent the spread of disease will depend on multiple factors including the location of outbreak(s), transmissibility of the novel virus, probable effectiveness of control measure(s), and available resources.

Each of Michigan's major ports of entry – the Detroit/Windsor Tunnel, the Sault Ste. Marie Bridge, and Detroit Metropolitan Airport – has developed a communicable disease and/or pandemic plan. Each plan describes relevant authorities, characterizes its port, provides a response overview, and assigns responsibilities to achieve that response. MDCH will provide a supportive role, within its capacity at the time, to any port requesting assistance.

The MDCH Executive Group will make recommendations, through the SEOC (if activated), for the implementation of any travel restrictions or other containment strategies.\(^3\)

Recovery

Recovery strategies are discussed in the MDCH Emergency Operation Plan.

---

\(^3\) General and Honorary Consuls have diplomatic immunities which may impact the implementation of community mitigation measures by public health authorities. See Attachment 9.
Michigan Pandemic Actions  
(Initiation, Acceleration, Peak, Deceleration Intervals)

Command and Management

As per the MDCH Planning Assumptions, at the CDC’s Initiation Interval, the SEOC and CHECC will both be activated. In compliance with the National Response Framework, activation can be partial or full, as indicated by the level of response required or requested. See Table 8 for a description of the various CHECC response modes. A full description of CHECC functionality and capacity can be reviewed in the CHECC Manual.

Table 8. Likely Community Health Emergency Coordination Center (CHECC) activation status by CDC Interval, World Health Organization (WHO) phase, and U.S. Government (USG) stage.

<table>
<thead>
<tr>
<th>PSI</th>
<th>CDC Investigation WHO 3 USG 0-1</th>
<th>CDC Recognition WHO 4 USG 2</th>
<th>CDC Recognition WHO 5 USG 2</th>
<th>CDC Initiation WHO 6 USG 3</th>
<th>CDC Initiation WHO 6 USG 5</th>
<th>CDC Accel, Peak, Decel WHO 6 USG 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Standby</td>
<td>Standby</td>
<td>Standby</td>
<td>Partial</td>
<td>Partial</td>
<td>Full</td>
</tr>
<tr>
<td>2-3</td>
<td>Standby</td>
<td>Standby</td>
<td>Standby</td>
<td>Partial</td>
<td>Partial</td>
<td>Full</td>
</tr>
<tr>
<td>4-5</td>
<td>Standby</td>
<td>Partial</td>
<td>Partial</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
</tr>
</tbody>
</table>

Crisis Communication

The Michigan Emergency Management Plan outlines communication systems and protocols available through the SEOC. Excerpt of communications capabilities available through the CHECC are provided at Attachment 5. Subject matter experts will be drawn from within MDCH and other state agencies to support decision-making of the MDCH Executive Group.

From the CHECC, the risk communication staff will maintain regular communication with partners and stakeholders through MIHAN, email distribution lists, and public websites. Distributed information will likely include (but not limited to):

84 A full description of communication capacities available through the CHECC is available in the CHECC Manual which is published on the Michigan Health Alert Network.
- case definitions
- clinical epidemiologic and treatment criteria
- community mitigation strategies and procedures
- infection control procedures
- public press releases
- health alerts
- medicinal distribution locations

The SEOC may activate a Joint Information Center (JIC) to release coordinated public messages and be the focal point for media enquiries. When a JIC is activated at the state level, the MSP-EMHSD Public Information Officer serves as the lead. S/He has the responsibility to invite individuals from affected jurisdictions and state agencies to participate in the JIC. During a pandemic, the MDCH PIO, supported by his/her risk communication staff in the CHECC, will be key contributing member of the JIC as well as a member of the MDCH Executive Group. The MDCH Executive Group will direct the development and distribution of any public information materials. If a JIC is activated, all public information produced from the CHECC will be formally announced from the JIC.

Surveillance

In addition to surveillance activities (See Michigan Pre-Pandemic Actions), MDCH epidemiologists will participate in special studies (as requested) by the CDC to enhance surveillance. Pertinent health-related information will be channeled through the CHECC. This data will be monitored by the CHECC Epi Desk (under Operations):
- morbidity and mortality trends
- geographic outbreak maps
- transmissibility factors
- populations at increased risk for severe disease, hospitalization complications, or death
- vaccine failure
- antiviral resistance
- antibiotic susceptibility
- unusual pathologic features associated with fatal cases
- VAERS, AERS reports from the Vaccine Safety Coordinator or VAERS Coordinator

The MDCH Director (or designee), as state health officer, may implement a change in reporting requirements at any time in order to protect the citizens of Michigan. If/When the MDCH Executive Group recommends that MDSS data input switches to aggregate reporting, that change in reporting methodology will be disseminated to partners via the standard communication capabilities available through the CHECC. MDSS will be the primary tool to collect morbidity and mortality data. The Michigan
Care Improvement Registry will be used to collect information regarding inventory, distribution, administration, and adverse events. Throughout the pandemic, there will be a concerted effort to increase sentinel physician enrollment and reporting.\textsuperscript{85}

During a pandemic, the MDCH Bureaus of Laboratories and Epidemiology will maintain 24/7 coverage at (517) 335-9030 to answer questions regarding the notification of communicable disease, public health disasters, and shipping/testing/handling of clinical specimens. In addition, this information is publicly available on the BOL website.\textsuperscript{86}

**Laboratory Guidelines**

The MDCH Bureau of Laboratories, in consultation with the Bureau of Epidemiology, will determine appropriate diagnostic testing for each received sample. BOL has developed algorithms to identify routine, novel, and pandemic influenza; see Attachment 4. BOL will determine surge capacity, align staff, and procure supplies accordingly, via their standard operational procedures. The BOL will send selected isolates to the CDC for strain characterization and/or antiviral resistance testing. The BOL will collaborate with clinicians and clinical laboratories to obtain information and/or samples of secondary bacterial infection isolates. Working with the BOE, pathologists, and medical examiners, the BOL will facilitate transport of select case or post-mortem specimens to BOL for testing and/or forwarding to the CDC.

All BOL testing is tracked and reported via StarLIMS. The Virology Section manager maintains an Excel spreadsheet containing the results of all specimens from sentinel physicians and all positive respiratory cultures from non-sentinel sites.

During a pandemic, BOL and BOE will maintain 24/7 coverage at (517) 335-9030 to answer questions regarding the notification of communicable disease; public health disasters; and shipping, testing, and handling of clinical specimens. All testing requests for novel influenza must be approved by BOE before BOL can process.

In an event where the BOL exceeded its surge capacity, the Michigan Regional Laboratory System would be asked for assistance. See Attachment 4 for a listing of regional LRN reference laboratories. The regional reference laboratories have personnel on-call 24/7 for emergency or surge capacity testing. In addition, they maintain emergency notification protocols for testing their personnel. Secondarily, the federal Laboratory Response Network may be called upon for assistance, if available. Finally, BOL will utilize clinical laboratories identified with advanced molecular testing capabilities.

\textsuperscript{85} Additional surveillance tools which may be utilized during a pandemic are discussed in "The State of Michigan's Planning Landscape" section of this document.

\textsuperscript{86} http://www.michigan.gov/mdch/0,1607,7-132-2945_5103--,00.html
Community Containment

A comprehensive pandemic mitigation strategy includes both pharmaceutical and non-pharmaceutical measures. However, at the beginning of an influenza pandemic, the most effective mitigation tool (i.e., a well-matched pandemic strain vaccine) will probably not be available. Therefore, the state must be prepared to face the first wave of the pandemic without vaccine and, possibly, without sufficient quantities of influenza antiviral medications.

The pandemic mitigation framework is based upon an early, targeted, layered application of multiple, partially effective, non-pharmaceutical measures. These mitigation strategies include:

1. Isolation and treatment (as appropriate) with influenza antiviral medications of all persons with confirmed or probable pandemic influenza. Isolation may occur in the home or healthcare setting, depending on the severity of an individual’s illness and/or the current capacity of the healthcare infrastructure.

2. Voluntary home quarantine of members of households with confirmed or probable influenza case(s) and consideration of combining this intervention with the prophylactic use of antiviral medications, providing sufficient quantities of effective medications exist and that a feasible means of distributing them is in place.

3. Dismissal of students from school (including public and private schools as well as colleges and universities), cancellation of school-based activities, and closure of childcare programs, coupled with protecting children and teenagers through social distancing in the community to achieve reductions of out-of-school social contacts and community mixing.

4. Use of social distancing measures to reduce contact between adults in the community and workplace, including, for example, cancellation of large public gatherings and alteration of workplace environments and schedules to decrease social density and preserve a healthy workplace to the greatest extent possible without disrupting essential services. Enable the institution of workplace leave policies that align incentives and facilitate adherence with the non-pharmaceutical interventions outlined above.

These interventions can and should be undertaken voluntarily. However, state and local authorities shall compel action if necessary to protect public health. Most of the state and local authorities regarding public health emergencies, such as pandemic influenza, are contained in the Emergency Management Act and the Public Health Code.87

---

Pharmaceutical interventions available for containment strategies are described in the MDCH Countermeasure Distribution Strategy, the Michigan Strategic National Stockpile Plan, and the MDCH Mass Vaccination Plan.

The MDCH Executive Group will make all recommendations through the CHECC for the implementation of any community containment measures, and these recommendations will vary depending on the severity of the pandemic. See Attachment 7 for implementation triggers.

If/When the MDCH Executive Group recommends voluntary quarantine, local health departments' roles become much more significant. The CHECC will distribute information to partners as detailed in the Crisis Communication section. However, tracking, monitoring, follow-up, and basic necessities will be handled by local public health and local emergency operations centers. As such, MDCH has embedded outreach requirements in the local health departments' work plans since 2006.

**Infection Control**

Infection control guidelines for a pandemic influenza strain may differ from that of seasonal or avian influenza. Updated guidelines during a pandemic will be distributed as described in the Crisis Communication section of this document.

**Medical Management**

Pharmaceutical interventions available for containment strategies are described in the Michigan Countermeasure Distribution Strategy, the Strategic National Stockpile Plan, and the Mass Vaccination Plan.

Community mental health services are a local responsibility pursuant to 1974 Act 258, Mental Health Code. Mental health services for state employees are available through the Employee Service Program and Traumatic Incident Stress Management program.

Redundant patient tracking systems such as EMTrack, UPS-PTS, HAVED, Raytheon's EPTS will be utilized by regional Medical Coordination Centers (MCC), and forwarded to the CHECC, to gauge and monitor pandemic surge. The CHECC will serve as the ultimate collection point for information regarding number of new cases, their locations, newly quarantined persons, and hospital bed status.

---

89 Any social distancing orders will include colleges, universities, and daycare centers. In addition, General and Honorary Consuls have diplomatic immunities which may impact the implementation of community mitigation measures by public health authorities.

90 MCL 330.1001 et seq
Surge capacity for healthcare partners will be achieved by utilizing a Modular Emergency Medical System (MEMS) coordinated through regional MCCs. The MEMS concept calls for the rapid organization of two types of expandable patient care modules, the Neighborhood Emergency Help Centers (NEHC) and the Acute Care Center (ACC). The mission of the NEHC is to direct casualties, especially non-critical and asymptomatic, potentially exposed patients, away from the emergency departments, allowing hospitals to continue to remain open in some capacity. In addition, the NEHC will render basic medical evaluation and triage while also providing limited treatment including the stabilization and distribution of prophylaxis, medication, self-help information, and instruction. The ACC is designed to treat patients who need in-patient treatment but do not require mechanical ventilation.

Data Management

During Michigan’s Pre-Pandemic Actions, the following surveillance and reporting tools\(^{91}\) will be utilized:

- Sentinel Provider Surveillance Network
- Michigan Disease Surveillance System
- Laboratory Specimen Tracking: StarLIMS
- Michigan Care Improvement Registry
- Hospital Emergency Department Syndromic Surveillance
- HAV-a-BED

During SEOC and/or CHECC activation, emergency management and situation reports are entered and monitored via the ETeam emergency management application.

International Issues

Michigan has several major ports of entry: the Ambassador Bridge in Detroit, the Windsor Tunnel in Detroit, the Blue Water Bridge in Port Huron, and the International Bridge in Sault Ste. Marie. In addition, the Detroit Metropolitan Wayne County Airport is the largest hub and primary U.S. international gateway for Northwest Airlines. Each of these ports of entry has developed their own communicable disease and/or pandemic plans. To the extent practicable during a pandemic, the Michigan Department of Community Health will support local officials’ execution of their local port of entry response plans.\(^{92}\)

\(^{91}\) See "The State of Michigan's Planning Landscape" section of this document for more information on available surveillance and reporting tools.

\(^{92}\) General and Honorary Consuls have diplomatic immunities which may impact the implementation of community mitigation measures by public health authorities. See Attachment 9.
MDCH maintains communications with Michigan’s Chief of Protocol (see Attachment 9) to address international traveler issues as well as to address any other concerns that arise during the pandemic event.

Recovery

Recovery strategies are discussed in the MDCH Emergency Operation Plan.
Michigan Post-Pandemic Actions
(Resolution Interval)

Command and Management

At some point, it is expected that the first wave of the pandemic will subside. This occurrence will be noted and announced by both the World Health Organization and the Centers for Disease Control and Prevention (CDC). The MDCH Executive Group will report the subsidence of the first pandemic wave in Michigan and terminate emergency orders and/or community containment measures.

All divisions involved with the pandemic public health response will generate a list of successes and challenges related to their area of the response. These reports will be forwarded to the MDCH EMC for compilation and analysis. The MDCH EMC and the OPHP Director will use this information to generate a comprehensive After Action Report (AAR) and Corrective Action Plan (CAP). The MDCH Emergency Operations Plan and the MDCH Pandemic Plan will be revised based on the AAR and CAP.

Depending on the MDCH Executive Group’s assessment of need, the CHECC may scale back its activation status.

Crisis Communication

As directed by the MDCH Executive Group and/or the MDCH PIO, CHECC risk communicators will distribute information to the JIC, and to partners utilizing standard communication channels available through the CHECC. Likely items being distributed will include (but are not limited to):

- termination of emergency orders, including travel restrictions (if any)
- termination of community containment orders
- summary of adverse events related to antivirals and/or vaccines
- characterizations of the pandemic wave(s)
- updated infection control guidelines
- reminders that subsequent pandemic waves are likely

Each chief of the main CHECC areas (Finance, Logistics, Operations, and Planning) will provide summary response information to the CHECC Incident Commander for inclusion in the AAR/CAP. Any crisis communication related information included in the AAR and/or CAP will be heeded prior to response to the next pandemic wave.

---

93 After Action Report = addresses the successes, failures, and remedial actions taken by the department in response to the pandemic. For more information, visit the HSEEP 101 document at https://hseep.dhs.gov/support/HSEEP_101.pdf
94 Corrective Action Plan = addresses issues identified as requiring change and needing correction before the next pandemic wave. For more information, visit the HSEEP 101 document at https://hseep.dhs.gov/support/HSEEP_101.pdf
Surveillance

The Vaccine Safety Coordinator and/or VAERS Coordinator will continue to monitor vaccine and/or antiviral adverse events in MCIR, report these events to the MDCH Executive Group and the CHECC Incident Response Coordinator, and upload the information to VAERS or AERS. BOE staff will continue to monitor MDSS for detection of the next pandemic wave. The Vaccine Safety Coordinator and/or the VAERS Coordinator will continue additional surveillance at the direction of the CDC.

Each chief of the main CHECC areas (Finance, Logistics, Operations, and Planning) will provide summary response information to the CHECC Incident Commander for inclusion in the AAR/CAP. Any surveillance-related information included in the AAR and/or CAP will be heeded prior to response to the next pandemic wave.

Laboratory Guidelines

The BOL Virology Section will maintain year-round laboratory testing of specimens submitted by sentinel influenza sites. This system will be augmented with other activities according to CDC recommendations.

Each chief of the main CHECC areas (Finance, Logistics, Operations, and Planning) will provide summary response information to the CHECC Incident Commander for inclusion in the AAR/CAP. Any laboratory-related information included in the AAR and/or CAP will be heeded prior to response to the next pandemic wave.

Community Containment

BOE will assess, in consultation with local partners, the impact of any recommended community containment measures. This assessment will include secondary, tertiary, and unintended consequences. The MDCH Executive Group will note the subsidence of the first pandemic wave in Michigan and terminate emergency orders and/or community containment measures. This information will be distributed by CHECC risk communications staff to the JIC and partners through standard communications channels available in the CHECC.

Each chief of the main CHECC areas (Finance, Logistics, Operations, and Planning) will provide summary response information to the CHECC Incident Commander for inclusion in the AAR/CAP. Any community containment related information included in the AAR and/or CAP will be heeded prior to response to the next pandemic wave.
Infection Control

Health practitioners, hospitals, and medical facilities within the state are expected to follow their respective agency's infection control protocols and procedures. The Association of Professionals in Infection Control and Epidemiology offer many helpful infection control documents on their website. Any additional guidelines for infection control related to a pandemic influenza strain will be distributed to the JIC and partners via standard communication channels available in the CHECC.

Each chief of the main CHECC areas (Finance, Logistics, Operations, and Planning) will provide summary response information to the CHECC Incident Commander for inclusion in the AAR/CAP. Any infection control related information included in the AAR and/or CAP will be heeded prior to response to the next pandemic wave.

Medical Management

CHECC staff will continue to monitor vaccine and/or antiviral adverse events in MCIR. This information will also be uploaded to VAERS or AERS, respectively. The MDCH Executive Group will determine when to discontinue data entry into the adverse events reporting systems.

Community mental health services are a local responsibility pursuant to 1974 Act 258, Mental Health Code. Mental health services for state employees are available through the Employee Service Program and Traumatic Incident Stress Management program.

Each chief of the main CHECC areas (Finance, Logistics, Operations, and Planning) will provide summary response information to the CHECC Incident Commander for inclusion in the AAR/CAP. Any medical management related information included in the AAR and/or CAP will be heeded prior to response to the next pandemic wave.

Data Management

CHECC data will be provided to the MDCH Executive Group for decision on further dissemination to partners.

Each chief of the main CHECC areas (Finance, Logistics, Operations, and Planning) will provide summary response information to the CHECC Incident Commander for inclusion in the AAR/CAP. Any data related information included in the AAR and/or CAP will be heeded prior to response to the next pandemic wave.

95 http://www.apic.org//AM/Template.cfm?Section=Home1
96 MCL 330.1001 et seq
International Issues

BOE will assess, in consultation with local partners, the impact of any recommended border travel restrictions. This assessment will include secondary, tertiary, and unintended consequences.97

MDCH maintains communications with Michigan’s Chief of Protocol (See Attachment 5) to address international traveler issues as well as to address any other concerns that arise during the pandemic event.

Recovery

At the conclusion of the first pandemic wave in Michigan, MDCH will host a debriefing session for select staff and managers. The status of departmental assets will be assessed as provided in the department Continuity of Operations Plan. All divisions involved with the pandemic public health response will generate a list of successes and challenges related to their area of the response. These reports will be forwarded to the MDCH EMC for compilation and analysis. The MDCH EMC and the OPHP Director will use this information to generate a comprehensive After Action Report (AAR)98 and Corrective Action Plan (CAP)99. The MDCH Emergency Operations Plan and the MDCH Pandemic Plan will be revised based on the AAR and CAP.

Further recovery activities are detailed within the MDCH Emergency Operations Plan.

---

97 General and Honorary Consuls have diplomatic immunities which may impact the implementation of community mitigation measures by public health authorities. See Attachment 9.
98 After Action Report = addresses the successes, failures, and remedial actions taken by the department in response to the pandemic. For more information, visit the HSEP 101 document at https://hseeppdhs.gov/support/HSEEPP_101.pdf
99 Corrective Action Plan = addresses issues identified as requiring change and needing correction before the next pandemic wave. For more information, visit the HSEP 101 document at https://hseeppdhs.gov/support/HSEEPP_101.pdf
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1 (Least Severe)</td>
<td>Alert</td>
<td>Standby</td>
<td>Activate</td>
</tr>
</tbody>
</table>
| | | | Recommend...  
| | | | • voluntary isolation of sick at home  
| | | | • antiviral treatment (if available) |
| Category 2-3 (Moderately Severe) | Alert | Standby | Activate |
| | | | Recommend...  
| | | | • voluntary isolation of sick at home  
| | | | • antiviral treatment (if available) |
| | | | Consider...  
| | | | • voluntarily quarantine  
| | | | • dismiss students / child care programs (≤ 4wks)  
| | | | • cancel activities / gatherings (≤ 4wks)  
| | | | • modify work schedules/practices |
| Category 4-5 (Most Severe) | Standby | Standby / Activate | Activate |
| | | | Recommend...  
| | | | • voluntary isolation of sick at home  
| | | | • antiviral treatment (if available) |
| | | | Consider / Recommend...  
| | | | • voluntarily quarantine  
| | | | • dismiss students / child care programs (≤ 12wks)  
| | | | • cancel activities / gatherings (≤ 12wks)  
| | | | • modify work schedules / practices  
| | | | Recommend...  
| | | | • voluntary isolation of sick at home  
| | | | • antiviral treatment (if available)  
| | | | • voluntarily quarantine  
| | | | • dismiss students / child care programs (≤ 12wks)  
| | | | • cancel activities / gatherings (≤ 12wks)  
| | | | • modify work schedules / practices |
Alert activities may need to be addressed in WHO Phases 3 through 5.

- Continue daily functions, including school-based surveillance.
- Finalize plans.
- Continue educating on hand hygiene and cough etiquette.
- Tell students and parents you're in the "Alert" status, and notify them of possible future actions (dismissal, closure, etc.)
- Prepare staff, update and review Continuity of Operations Plan (COOP)
- Receive updates from the Michigan Department of Education (MDE) and local and state public health agencies.
- Superintendents regularly communicate with the Health Officer(s).
- Assess volunteer/reserve team/team clinic staff for surge capacity.
- Continue school-based disease reporting to local health department.
- Educate parents and students with pre-developed materials regarding family preparedness and pandemic response actions.
- Assess needs for stockpiling infection control items (soap, sanitizers, gloves, etc.)

Standby

- Continue daily functions.
- Continue and increase communications with students, parents, and staff.
- Receive updates from the Michigan Department of Education (MDE) and local and state public health agencies.
- Superintendents regularly communicate with the Health Officer(s).
- Consider continuing education.
- Prepare staff, review your Continuity of Operations Plan (COOP).
- Review school calendar for potential impacted events.
- State Departments of Education (MDE) and Community Health (MDCH) will review legislative/policy issues needing governmental emergency orders.
- Advise students and staff that all sick individuals should stay home.
- Inventory infection control items.
- Enhance school-based surveillance.

Activate

Health Officer(s) may execute public health order(s) for the community, including but not limited to:

- cancel extracurricular activities
- dismiss students
- close school
- close public gatherings
- infection control
- isolation
- quarantine
Interim MDCH Guidance for Camp Programs in Response to Human Infection with the Novel Influenza A H1N1 Virus
June 3, 2009

Background

This document provides interim guidelines regarding the prevention of the spread of influenza, including novel influenza A (H1N1) virus at institutions hosting day and overnight camps for children, adolescents, or adults.

Novel influenza A (H1N1) virus (previously referred to as “swine flu”) is a new influenza virus causing illness in people. This new virus was first detected in people in the United States during April 2009. Michigan detected its first case of the novel flu on April 29, 2009. The virus has since been detected in over half of Michigan’s counties.

The symptoms of this new H1N1 flu virus are similar to the symptoms of seasonal flu and include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills and fatigue. A significant number of people who have been infected with this virus have also reported diarrhea and vomiting in addition to the typical influenza symptoms. Also, like seasonal flu, severe illnesses and deaths have occurred as a result of illness associated with this virus. As of May 29, 2009, we have identified that most of the flu viruses in Michigan are the novel influenza A H1N1 virus.

Currently, the CDC believes that this virus has the same properties in terms of spread as seasonal flu viruses. Flu viruses are spread mainly from person to person through coughing or sneezing by people with influenza. Sometimes people may become infected by touching something (other than a sick person) such as a contaminated surface with flu viruses on it and then touching their mouth or nose. With seasonal flu, studies have shown that people may be contagious from one day before they develop symptoms to up to 7 days after they get sick. Children, especially younger children, might potentially be contagious for longer periods. Information can be found under “seasonal influenza” at www.michigan.gov/flu CDC is studying this new flu virus and its capabilities to try to learn more and will provide more information as it becomes available.

Recommendations

• The Michigan Department of Community Health (MDCH) is currently recommending that institutions do not cancel or dismiss camps and large gatherings unless there is a magnitude of staff or camper absenteeism that interferes with the camp’s ability to function.

• If a case of seasonal or novel influenza, as diagnosed by a health care provider, occur among campers or staff, camp officials should consult with their local and/or state health officials regarding an appropriate response. See www.cdc.gov/h1n1flu/screening.htm

• If 2 or more cases of influenza like illness (ILI) (i.e. fever with temperature of 100F or greater, with either cough or sore throat in the absence of a KNOWN cause other than influenza) occur among campers or staff, camp officials should consult with their local and/or state health officials regarding an appropriate
response. Also see www.cdc.gov/h1n1flu/screening.htm

- If influenza, including novel influenza A (H1N1), is circulating within the community where the camp is located, or in the community of residence of the campers and staff, camp officials should consult with their local and/or state health officials regarding an appropriate response, and to determine the significance of current virus activity and potential risk for campers.

- Campers and staff who appear to have an influenza-like illness at arrival or become ill during the day should be promptly isolated in a room separated from others and sent home as soon as feasible. Individuals with ILI should be provided tissues to cover cough or sneezes and wear a surgical mask, particularly in transit on the way home. See updated guidelines for the use of masks in the community setting http://www.cdc.gov/h1n1flu/masks.htm and at www.pandemicflu.gov

- Persons who are sent home, or campers or staff who live either on or off campus and who have ILI should self-isolate (i.e., stay away from others) at home for 7 days after the onset of illness or at least 24 hours after symptoms have resolved, whichever is longer.

- Regular meetings between camp directors, medical staff and other appropriate professionals should occur to assess the status of camper and staff health. Camp officials should set deadlines for determination of closure decisions if camps offer different sessions during the summer.

- Review camp insurance policy to determine if there is an illness declaration of coverage for campers and staff.

- Aspirin or aspirin-containing products (e.g. bismuth subsalicylate-Pepto Bismol) should not be administered for influenza or ILI to any person aged 18 years old and younger due to the risk of Reye syndrome. Refer to pediatric medical management for guidance regarding use of any medications, especially those containing aspirin. Camp officials should be aware of the many over-the-counter (OTC) products that may contain aspirin, and review any medicine prior to administration to a camper. (http://www.cdc.gov/h1n1flu/clinicians/)

- Persons who are at high risk of complications from influenza, including novel influenza A (H1N1) infection (see list below) should consider their risk of exposure to influenza if they attend camp. Factors to consider include influenza activity in the home communities of campers and staff, is the camp closed (segregated) to the local community and if not, what is the influenza activity in the community where the camp is located?

- In communities with several reported cases of novel influenza A (H1N1) virus infection, persons who are at risk of complications from influenza should consider staying away from public gatherings, including camps which may involve large numbers of participants in close settings.

- Camps can help serve as a focus for educational activities aimed at promoting ways to reduce the spread of influenza, including hand hygiene and cough etiquette. Consider adding this information to the new camper orientation program.

-------------------------------------------------------------

Persons at High Risk of Complications from Influenza

- Children younger than 5 years old.

- Persons aged 65 years or older.

- Children and adolescents (younger than 18 years) who are receiving long-term aspirin therapy and who might be at risk for experiencing Reye syndrome after influenza virus infection.

- Pregnant women.
• Adults and children who have chronic pulmonary, cardiovascular, hepatic, hematological, neurologic, neuromuscular, or metabolic disorders.

• Adults and children who have immunosuppression (including immunosuppression caused by medications or by HIV).

---

**Tips for Prevention of Disease Transmission**

• Camp orientation and check-in should be used to educate campers, parents, guardians, and staff members about hand hygiene, cough etiquette and the basic signs and symptoms of influenza. The following messages should be emphasized:

• Cover nose and mouth with a tissue when coughing or sneezing. Cough or sneeze into a sleeve or elbow if tissues are unavailable.

• Throw the tissue in the trash after single use.

• Wash hands often with soap and water, especially after coughing or sneezing. Alcohol-based hand cleaners are also effective.

• Supply campers and staff with individual alcohol-based hand cleaners and tissues or ensure availability at all activity sites and housing units.

• Avoid touching eyes, nose or mouth. Germs spread this way.

• Surface areas, especially frequently touched areas such as push plates and door knobs should be cleaned and disinfected frequently. Disinfectants effective against seasonal influenza virus are also effective for the novel influenza virus.

• Avoid close contact (being within 6 feet) with sick people. Symptomatic persons should promptly be removed from activities and contact with other persons. Medical evaluation should occur prior to return to activities.

• If influenza-like illness symptoms develop, inform the camp medical staff. Vomiting and/or diarrhea is not an influenza-like illness (ILI), but may be another communicable disease. Contact the local health department if two or more persons report vomiting and/or diarrhea, or if any other communicable disease is of concern.

• Use surgical masks for patients with ILI or influenza who are in public places (such as waiting for medical evaluation) or unavoidable contact with others (such as in a vehicle). Consider surgical masks for individuals at risk for complications from influenza who are unable to avoid crowded settings where influenza or ILI is present. Staff should wear an N-95 respirator when evaluating or caring for a person with ILI or influenza. See updated guidelines for the use of masks in the community setting. [http://www.cdc.gov/h1n1flu/masks.htm](http://www.cdc.gov/h1n1flu/masks.htm) and at [www.pandemicflu.gov](http://www.pandemicflu.gov)

• Medically-trained staff that routinely do medical screening for campers or camp staff should understand the use of N-95 respirators and consider being fit tested for the N95 respirator in advance of clinical care duties (see [http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm](http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm))

• Encourage all children between 6 months-18 years of age to get the seasonal flu vaccine in the fall

• Encourage all camp staff members to receive the flu vaccine
Surveillance for Ill Campers
Early detection and active surveillance for persons exhibiting influenza-like illness is a critical step in disease prevention. The following actions when implemented can be helpful with recognizing disease and preventing transmission to campers and staff.

- Establish a relationship and obtain contact information (including emergency numbers) for local and state health departments.
- Camp health centers should develop and implement a system to track and report (to the local health department) influenza-like illness (an illness with at least fever and sore throat or cough) among campers and staff.
- Consider holding an “Opening Day” screening process that evaluates camper and staff health status.
- Include instruction on proper hand hygiene as part of the opening day screening process.
- Develop contingency plans for how to reduce exposure of non-ill campers and staff to ill campers and staff if symptomatic persons are detected.
- Plan to assist symptomatic campers and staff with provisions for meals, with safe isolation in a room separate from others, medications, and other care in the event that a person with ILI is identified.
- Evaluate the camp’s supply of personal protective equipment (e.g. gloves, surgical facial masks, respirators, gowns, eye goggles). See updated guidelines for the use of masks in the community setting http://www.cdc.gov/h1n1flu/masks.htm.

________________________________________

Communications with Parents and Guardians
It is important to keep parents and guardians informed of the camp’s decisions and status. The camp’s commitment to safety should be emphasized. Parents and guardians should be instructed to teach and practice with their children proper hand hygiene and cough etiquette. Disease surveillance activities, as well as steps that will be taken to assess an ill child should be explained to parents and guardians prior to, or upon, arrival at the camp. Lastly, it should be made known that children who are too ill to stay at camp will be expected to be promptly isolated and arrangements made for them to be treated and/or sent home.

________________________________________

Additional Information:
- The Centers for Disease Control and Prevention: http://ww.cdc.gov/h1n1flu
- The Michigan Department of Community Health: http://www.michigan.gov/flu
- Your Local Health Department: http://www.malphp.org/page.cfm/18/

Michigan Department of Community Health
Jennifer M. Granholm, Governor
Janet Olszewski, Director

*These recommendations are based on current information and are subject to change based on ongoing surveillance risk assessments.
CDC Guidance for State and Local Public Health Officials and School Administrators for School (K-12) Responses to Influenza during the 2009-2010 School Year

December 30, 2009, 12:30 PM ET

This document provides guidance to help decrease the spread of flu among students and school staff during the 2009-2010 school year. This document expands upon earlier school guidance documents by providing a menu of tools that school and health officials can choose from based on conditions in their area. It recommends actions to take this school year and suggests strategies to use if CDC finds that the flu starts causing more severe disease. The guidance also provides a checklist for making decisions at the local level. Detailed information on the reasons for these strategies and suggestions on how to use them is included in the Technical Report. Based on the severity of 2009 H1N1 flu-related illness thus far, this guidance also recommends that students and staff with influenza-like illness remain home until 24 hours after resolution of fever without the use of fever-reducing medications.

For the purpose of this guidance, “schools” will refer to both public and private institutions providing grades K-12 education to children and adolescents in group settings. The guidance applies to such schools in their entirety, even if they provide services for younger or older students. Guidance for child care settings and institutions of higher education will be addressed in separate documents.

The guidance is designed to decrease exposure to regular seasonal flu and 2009 H1N1 flu while limiting the disruption of day-to-day activities and the vital learning that goes on in schools. CDC will continue to monitor the situation and update the current guidance as more information is obtained on 2009 H1N1.

About 55 million students and 7 million staff attend the more than 130,000 public and private schools in the United States each day. By implementing these recommendations, schools and health officials can help protect one-fifth of the country’s population from flu. Collaboration is essential: CDC, the U.S. Department of Education, state and local public health and education agencies, schools, students, staff, families, businesses, and communities all have active roles to play.

The decision to dismiss students should be made locally and should balance the goal of reducing the number of people who become seriously ill or die from influenza with the goal of minimizing social disruption and safety risks to children sometimes associated with school dismissal. Based on the experience and knowledge gained in jurisdictions that had large outbreaks in spring 2009, the potential benefits of preemptively dismissing students from school are often outweighed by negative consequences, including students being left home alone, health workers missing shifts.
when they must stay home with their children, students missing meals, and interruption of students’ education. Still, although the situation in fall 2009 is unpredictable, more communities may be affected, reflecting wider transmission. The overall impact of 2009 H1N1 should be greater than in the spring, and school dismissals may be warranted, depending on the disease burden and other conditions. (See the Technical Report for discussion of the kinds of circumstances that might warrant preemptive school dismissals.)

Recommended school responses for the 2009-2010 school year

Under conditions with similar severity as in spring 2009

- **Stay home when sick:**
  Those with flu-like illness should stay home for at least 24 hours after they no longer have a fever, or signs of a fever, without the use of fever-reducing medicines. They should stay home even if they are using antiviral drugs. (For more information, see CDC Recommendations for the Amount of Time Persons with Influenza-Like Illness Should be Away from Others.)
  See the Technical Report for more details about staying home when sick

- **Separate ill students and staff:**
  Students and staff who appear to have flu-like illness should be sent to a room separate from others until they can be sent home. CDC recommends that they wear a surgical mask, if possible, and that those who care for ill students and staff wear protective gear such as a mask. See the Technical Report for more details about separating ill students and staff

- **Hand hygiene and respiratory etiquette:**
  The new recommendations emphasize the importance of the basic foundations of influenza prevention: stay home when sick, wash hands frequently with soap and water when possible, and cover noses and mouths with a tissue when coughing or sneezing (or a shirt sleeve or elbow if no tissue is available). See the Technical Report for more details about hand hygiene and respiratory etiquette

- **Routine cleaning:**
  School staff should routinely clean areas that students and staff touch often with the cleaners they typically use. CDC does not believe any additional disinfection of environmental surfaces beyond the recommended routine cleaning is required. See the Technical Report for more details about routine cleaning

- **Early treatment of high-risk students and staff:**
  People at high risk for influenza complications who become ill with influenza-like illness should speak with their health care provider as soon as possible. Early treatment with antiviral medications is very important for people at high risk because it can prevent hospitalizations and deaths. People at high risk include those who are pregnant, have asthma or diabetes, have compromised immune systems, or have neuromuscular diseases. See the Technical Report for more details about early treatment

- **Consideration of selective school dismissal:**
  Although there are not many schools where all or most students are at high risk (for
example, schools for medically fragile children or for pregnant students) a community might decide to dismiss such a school to better protect these high-risk students. See the Technical Report for more details about selective school dismissal.

Under conditions of increased severity compared with spring 2009

CDC may recommend additional measures to help protect students and staff if global and national assessments indicate that influenza is causing more severe disease. In addition, local health and education officials may elect to implement some of these additional measures. Except for school dismissals, these strategies have not been scientifically tested. But CDC wants communities to have tools to use that may be the right measures for their community and circumstances.

- **Active screening:**
  Schools should check students and staff for fever and other symptoms of flu when they get to school in the morning, separate those who are ill, and send them home as soon as possible. Throughout the day, staff should be vigilant in identifying students and other staff who appear ill. See the Technical Report for more details about active screening.

- **High-risk students and staff members stay home:**
  People at high-risk of flu complications should talk to their doctor about staying home from school when a lot of flu is circulating in the community. Schools should plan now for ways to continue educating students who stay home through instructional phone calls, homework packets, internet lessons, and other approaches. See the Technical Report for more details about high-risk students and staff members staying home.

- **Students with ill household members stay home:**
  Students who have an ill household member should stay home for five days from the day the first household member got sick. This is the time period they are most likely to get sick themselves. See the Technical Report for more details about students with ill household members staying home.

- **Increase distance between people at schools:**
  CDC encourages schools to try innovative ways of separating students. These can be as simple as moving desks farther apart or canceling classes that bring together children from different classrooms. See the Technical Report for more details about increasing distance between people at schools.

- **Extend the period for ill persons to stay home:**
  If influenza severity increases, people with flu-like illness should stay home for at least 7 days, even if they have no more symptoms. If people are still sick, they should stay home until 24 hours after they have no symptoms. See the Technical Report for more details about extending the period for ill persons to stay home.

- **School dismissals:**
  School and health officials should work closely to balance the risks of flu in their community with the disruption dismissals will cause in both education and the wider community. The length of time schools should be dismissed will vary depending on the
type of dismissal as well as the severity and extent of illness. Schools that dismiss students should do so for five to seven calendar days and should reassess whether or not to resume classes after that period. Schools that dismiss students should remain open to teachers and staff so they can continue to provide instruction through other means. See the Technical Report for more details about school dismissals.

**Reactive** dismissals might be appropriate when schools are not able to maintain normal functioning for example, when a significant number and proportion of students have documented fever while at school despite recommendations to keep ill children home.

**Preemptive** dismissals can be used proactively to decrease the spread of flu. CDC may recommend preemptive school dismissals if the flu starts to cause severe disease in a significantly larger proportion of those affected.

---

### Deciding on a course of action

CDC and its partners will continuously look for changes in the severity of influenza-like illness and will share what is learned with state and local agencies. However, states and local communities can expect to see a lot of differences in disease burden across the country.

Every state and community has to balance a variety of objectives to determine their best course of action to help decrease the spread of influenza. Decision-makers should explicitly identify and communicate their objectives which might be one or more of the following: (a) protecting overall public health by reducing community transmission; (b) reducing transmission in students and school staff; and (c) protecting people with high-risk conditions.

Some strategies can have negative consequences in addition to their potential benefits. In the particular case of school dismissals, decision-makers also must consider and balance additional factors: (a) how to ensure students continue to learn; (2) how to provide an emotionally and physically safe place for students; and (3) how to reduce demands on local health care services. The following questions can help begin discussions and lead to decisions at the state and local levels.

### Decision-Makers and Stakeholders

**Are all of the right decision-makers and stakeholders involved?**

- State and/or local health officials
- State and/or local education officials
- State and/or local homeland security officials
- State and/or local governing officials (e.g., governors, mayors)
- Parent and student representatives
• Representatives of local businesses, the faith community, school-employee unions, and community organizations
• Teachers
• Health care providers and hospitals
• School nurses
• School food service directors
• Vendors that supply schools

Information Collection and Sharing

Can local or state health officials determine and share information about the following?

• Outpatient visits for influenza-like illness
• Hospitalizations for influenza-like illness
• Trends in the numbers of hospitalizations or deaths
• Percent hospitalized patients who require admission to intensive care units (ICU)
• Deaths from influenza
• Groups being disproportionately affected
• Ability of local health care providers and emergency departments to meet increased demand
• Availability of hospital bed, ICU space, and ventilators for influenza patients
• Availability of hospital staff
• Availability of antiviral medications

Can local education agencies or schools determine and share information about the following?

• School absenteeism rates
• Number of visits to school health offices daily
• Number of students with influenza-like illness sent home during the school day

Feasibility

Do you have the resources to implement the strategies being considered?

• Funds
• Personnel
• Equipment
• Space
• Time
• Legal authority or policy requirements

Acceptability
Have you determined how to address the following challenges to implementing the strategies?

- Public concern about influenza
- Lack of public support for the intervention
- People who do not feel empowered to protect themselves
- Secondary effects of strategies (for example, dismissing schools could impact child nutrition, job security, financial support, health service access, and educational progress)

Preparing for the Flu: A Communication Toolkit for Schools (Grades K-12)
CDC Guidance for Responses to Influenza for Institutions of Higher Education during the 2009-2010 Academic Year

October 21, 2009 5:00 PM ET

This document provides guidance to help decrease the spread of flu among students, faculty, and staff of institutions of higher education (IHE) and post-secondary educational institutions during the 2009-2010 academic year. The guidance expands upon earlier guidance for these settings by providing a menu of tools that IHE and health officials can choose from based on conditions in their area. It recommends actions to take now (during this academic year), suggests strategies to consider if the flu starts causing more severe disease than during the spring/summer 2009 H1N1 outbreak, and provides a checklist for making decisions. Detailed information on the reasons for these strategies and suggestions on how to use them is included in the Technical Report. Based on the severity of 2009 H1N1 flu-related illness thus far, this guidance also recommends that students, faculty, and staff with flu-like illness remain home until 24 hours after resolution of fever without the use of fever-reducing medications. For the purpose of this guidance, IHE will refer to public and private, residential and nonresidential, degree-granting and non-degree-granting institutions providing post-secondary education in group settings regardless of the age of their students. Portions of this guidance pertaining to dormitories and residence halls may serve as a useful supplement to residential (boarding) schools providing primary and secondary education, with adaptations as needed for their younger population. This guidance represents the CDC’s current thinking on this topic. It does not create or confer any rights for or on any person or operate to bind the public.

IHEs should tailor the guidance to account for the size, diversity, and mobility of their students, faculty, and staff; their location and physical facilities; programs; and student and employee health services. Decisions about strategies should balance the goal of reducing the number of people who become seriously ill or die from flu with the goal of minimizing educational and social disruption.

Although the severity of flu outbreaks during the fall and winter of 2009-10 is unpredictable, more communities may be affected than were affected in spring/summer 2009, reflecting wider transmission and possibly greater impact. CDC is working with state and local health departments to continually monitor the spread of flu, the severity of the illness it is causing, and changes to the virus. If this information indicates that flu is causing more severe disease than during the spring/summer 2009 H1N1 outbreak, or if other developments require more aggressive mitigation measures, CDC may recommend additional strategies. Since severity may vary from community to community, IHEs should also look to their state and local health officials for information and guidance specific to their location.
The recommendations below are divided into two groups: 1) recommendations to use now, during this academic year, assuming a similar severity to the spring/summer H1N1 flu outbreak, and 2) recommendations to consider adding if the flu begins to cause more severe disease.

Preparing for the Flu: A Communication Toolkit for Institutions of Higher Education

Recommended Responses To Influenza For The 2009 – 2010 Academic Year

Recommended strategies under current flu conditions (similar severity as in Spring/Summer 2009)

Facilitate self-isolation of residential students with flu-like illness

- Those with flu-like illness should stay away from classes and limit interactions with other people (called “self-isolation”), except to seek medical care, for at least 24 hours after they no longer have a fever, or signs of a fever, without the use of fever-reducing medicines. They should stay away from others during this time period even if they are taking antiviral drugs for treatment of the flu. (For more information, visit CDC Recommendations for the Amount of Time Persons with Influenza-Like Illness Should be Away from Others)
- Review and revise, as needed, policies, such as student absenteeism policies and sick leave policies for faculty and staff, that make it difficult for students, faculty, and staff to stay home when they are ill or to care for an ill family member. Do not require a doctor’s note to confirm illness or recovery. Doctor’s offices may be very busy and may not be able to provide such documentation in a timely way.
- If possible, residential students with flu-like illness who live relatively close to the campus should return to their home to keep from making others sick. These students should be instructed to do so in a way that limits contact with others as much as possible. For example, travel by private car or taxi would be preferable over use of public transportation.
- Students with a private room should remain in their room and receive care and meals from a single person. Students can establish a “flu buddy scheme” in which students pair up to care for each other if one or the other becomes ill. Additionally, staff can make daily contact by e-mail, text messaging, phone calls, or other methods with each student who is in self-isolation.
- If close contact with others cannot be avoided, the ill student should be asked to wear a surgical mask during the period of contact. Close contact includes things like caring for or living with the ill person.
- For those who cannot leave campus, and who do not have a private room, IHEs may consider providing temporary, alternate housing for ill students until 24 hours after they are free of fever.
- Instruct students with flu-like illness to promptly seek medical attention if they have a medical condition that puts them at increased risk of severe illness from flu, are
concerned about their illness, or develop severe symptoms such as increased fever, shortness of breath, chest pain or pressure, or rapid breathing.

Promote self-isolation at home by non-resident students, faculty, and staff

- Non-residential students, faculty, and staff with flu-like illness should be asked to self-isolate at home or at a friend’s or family member’s home until at least 24 hours after they are free of fever, or signs of a fever, without the use of fever-reducing medicines.
- Review, and revise if needed, sick leave policies to remove barriers to faculty and staff staying home when they are ill or caring for an ill family member. For students, consider altering policies on missed classes and examinations and late assignments so that students’ academic concerns do not prevent them from staying home when ill or prompt them to return to class or take examinations while still symptomatic and potentially infectious.
- Do not require a doctor’s note for students, faculty, or staff to validate their illness or to return to work, as doctor’s offices and medical facilities may be extremely busy and may not be able to provide such documentation in a timely way.
- Distance learning or web-based learning may help students maintain self-isolation.
- Visit CDC Recommendations for the Amount of Time Persons with influenza-Like Illness Should be Away from Others for more information on staying home while sick.

Considerations for high-risk students and staff

- People at high risk for flu complications who become ill with flu-like illness should speak with their health care provider as soon as possible. Early treatment with antiviral medications often can prevent hospitalizations and deaths. Groups that are at higher risk of complications from flu if they get sick include: children younger than age 5; people age 65 or older; children and adolescents (younger than age 18) who are receiving long-term aspirin therapy and who might be at risk for experiencing Reye’s syndrome after flu virus infection; pregnant women; adults and children who have asthma, other chronic pulmonary, cardiovascular, hepatic, hematological, neurologic, neuromuscular, or metabolic disorders such as diabetes; and adults and children with immunosuppression (including immunosuppression caused by medications or by HIV). People age 65 and older, however, appear to be at lower risk of 2009 H1N1 infection compared to younger people. But, if older adults do get sick from flu, they are at increased risk of having a severe illness.

- One of the best ways to protect against the flu is to get vaccinated against the flu. People under age 25 are one of the key groups recommended by CDC’s Advisory Committee on Immunization Practices (ACIP) to be among the first to receive the 2009 H1N1 flu vaccine. For more information, visit 2009 H1N1 Flu Vaccine.
- Communicate with local health officials to determine where vaccine will be administered and to discuss the possibility of a vaccination clinic at the IHE.
Discourage attendance at campus events by ill persons: Events such as football games or concerts that bring large groups together may pose a high risk of exposure and transmission of flu. Use a variety of communication methods such as e-mail, posters, flyers, and media coverage to discourage people with flu-like illness from attending these events until they have been free of fever for at least 24 hours and to encourage hand hygiene and respiratory etiquette. Explore ways to modify events to reduce close contact and increase distances between participants. IHEs may need to consider canceling some events if modification is not possible and there is a high level of influenza activity in the community.

Encourage hand hygiene and respiratory etiquette of both people who are well and those that have any symptoms of flu: Emphasize the importance of the basic foundations of flu prevention: stay home when sick, wash hands frequently with soap and water when possible, and cover noses and mouths with a tissue when coughing or sneezing (or a shirt sleeve or elbow if no tissue is available).

Routine cleaning

- Establish regular schedules for frequent cleaning of high-touch surfaces (for example, bathrooms, doorknobs, elevator buttons, and tables).
- Provide disposable wipes so that commonly used surfaces (for example, doorknobs, keyboards, remote controls, desks) can be wiped down by students before each use.
- Encourage students to frequently clean their living quarters, including high-touch surfaces.

Considerations for specific student populations

- Review policies for study abroad programs, including accessing health services abroad and reporting illness to the IHE.
- Communicate plans, policies, and strategies to partner K-12 schools regarding “early/middle college” students, prospective student tours, and other K-12 students regularly on campus.
- Determine if special communication strategies are needed to meet the needs of students with disabilities.
- Review policies for sports teams, bands, and other large groups of students who spend a lot of time together in close quarters. IHE may need to consider canceling travel to off-campus activities.
- Remind health-care profession students to follow infection control guidance for health-care workers. Visit H1N1 Information for Health Care Providers for guidance for health care settings.

Under Conditions with Increased Severity Compared To Spring/Summer 2009

CDC may recommend additional strategies to help protect IHE students, faculty, and staff if global, national, or regional assessments indicate that flu is causing more severe disease. In
addition, local health or IHE officials may choose to use additional strategies. Although the following strategies have not been scientifically tested in the IHE setting, they are grounded on basic principles of infection control. Implementing these strategies is likely to be more difficult and to have more disruptive effects than the previously described strategies. These strategies should be considered if influenza severity increases and are meant for use in addition to the strategies outlined above.

**Permit High-Risk Students, Faculty, And Staff To Stay Home When Flu Is Spreading In The Community**

- If flu severity increases, people at high risk of flu complications may consider staying home while a lot of flu is circulating in their community. Such people should make this decision after consulting with their doctor.
- IHEs should plan now for ways to continue educating students who stay home through distance learning methods. IHEs should also examine policy accommodations that might be necessary such as allowing high-risk students to withdraw for the semester, tailoring sick leave policies to address the needs of faculty and staff, or modifying work responsibilities and locations.

**Increase social distances:** Explore innovative ways to increase the distances between students (for example, moving desks apart or using distance learning methods). Ideally, there should be at least 6 feet between people at most times.

**Campus events:** Consider whether to suspend or modify public events such as films, sporting events, or commencement ceremonies.

**Extend the self-isolation period:** If flu severity increases, people with flu-like illness should stay home for at least 7 days after the onset of their symptoms, even if they have no more symptoms. If people are still sick after 7 days, they should stay home until 24 hours after they have no symptoms. See information above for self-isolation in different types of housing.

**Consider Suspending Classes**

- IHE and health officials should work closely to balance the risks of flu in their community with the disruption that suspending classes will cause in both education and the wider community.
- Use multiple channels to communicate a clear message about the reasons for suspending classes and the implications for students, faculty, staff, and the community.
- **Reactive class suspension** might be needed when IHEs cannot maintain normal functioning.
- To decrease the spread of flu, CDC may recommend **preemptive class suspension** if the flu starts to cause severe disease in a significantly larger proportion of those affected than occurred during the spring/summer 2009 outbreak.
- If classes are suspended preemptively, large gatherings (for example, sporting events, dances, commencement ceremonies) should be cancelled or postponed.
IHEs with only nonresidential students should consider whether they can allow faculty and staff to continue use of their facilities while classes are not being held. This may allow faculty to develop lessons and materials and engage in other essential activities.

IHEs with residential students should plan for ways to continue essential services such as meals, custodial services, security, and other basic operations for students who remain on campus. When possible, dismiss students who can get home – or to the home of a relative, friend of the family, or host family – by private car or taxi. International students and others without easy access to alternative housing should stay on campus, but increase the distance between people as much as possible.

The length of time classes should be suspended will vary depending on the goal of class suspension as well as the severity and extent of illness. IHEs that suspend classes should do so for at least five to seven calendar days. Before the end of this period, the IHE, in collaboration with public health officials, should reassess the epidemiology of the disease and the benefits and consequences of continuing the suspension or resuming classes.

Deciding On A Course Of Action

CDC recommends a combination of strategies applied early and simultaneously. Strategies should be selected a) based on trends in the severity of disease, virus characteristics, feasibility, and acceptability and b) through collaborative decision-making with public health agencies, IHE faculty and staff, students, students’ families, and the wider community. CDC and its partners will continuously look for changes in the severity of flu-like illness and will share what is learned with state and local agencies. However, states and local communities can expect to see a lot of differences in disease patterns from community to community.

Every IHE has to balance a variety of objectives to determine the best course of action to help decrease the spread of flu. Decision-makers should identify and communicate their objectives, which might be one or more of the following: (a) protecting overall public health by reducing community transmission; (b) reducing transmission in students, faculty, and staff; and (c) protecting people with high-risk conditions. Some strategies can have negative consequences in addition to their potential benefits. The following questions can help begin discussions and lead to decisions.

Decision-Makers and Stakeholders

Are all of the right decision-makers and stakeholders involved?

- Local and state health, education, and homeland security agencies
- Campus health services and mental health services
- Campus emergency managers and security staff
- Student affairs and residential life staff
- Communications staff
- Physical plant staff
- Food services staff
- Students


- Faculty
- Community representatives
- Students’ families

**Information Collection and Sharing**

**Can local or state health officials determine and share information about the following?**

- Numbers of and trends in outpatient visits, hospitalizations, and deaths for flu-like illness
- Percent of hospitalized patients requiring admission to intensive care units (ICUs)
- Groups being disproportionately affected
- Ability of local health care providers and emergency departments to meet increased demand
- Availability of antiviral drugs, hospital beds, staff, ICU space, and ventilators for flu patients

**What does the IHE know about the following?**

- Student, faculty, and staff absenteeism rates
- Number of visits to the campus health service
- Bed availability for student self-isolation
- Severity of illness among affected staff and/or students

**Feasibility**

**Do you have the resources to implement the strategies being considered?**

- Funds
- Personnel
- Equipment
- Space
- Time
- Legal authority or policy requirements
- Communication channels

**Acceptability**

**Have you determined how to address the following challenges to implementing the strategies?**

- Public concern about flu
- People who do not feel empowered to protect themselves
- Lack of public support for the strategy
• Secondary effects of strategies (for example, job security, financial support, health service access, and educational progress)
CDC Guidance on Helping Child Care and Early Childhood Programs Respond to Influenza during the 2009–2010 Influenza Season

September 4, 2009, 9:00 AM ET

This document provides guidance to help decrease the spread of influenza (flu) among children in early childhood programs and among early childhood providers during the 2009–2010 flu season. The guidance expands upon earlier guidance documents by providing a menu of tools that health officials, Head Start, and other early childhood and child care providers can choose from based on conditions in their area. It recommends actions to take now, during the 2009–2010 flu season, suggests strategies to consider if CDC determines that the flu is becoming more severe, and provides a checklist for decision-making at the local level. Explanations for the recommended strategies and suggestions on how to use them are included in the Technical Report. Based on the severity of 2009 H1N1 flu-related illness thus far, this guidance recommends that children and early childhood providers with flu-like illness remain home until 24 hours after resolution of fever without the use of fever-reducing medications. For the purpose of this document, “early childhood programs” will refer to center-based and home-based child care programs, Head Start programs, and other early childhood programs providing care for children in group settings. The guidance applies to all early childhood programs, even if they provide services for older children.

Children less than 5 years of age are at increased risk of complications from influenza (flu); the risk is greater among children less than 2 years old. Importantly, infants less than 6 months of age represent a particularly vulnerable group because they are too young to receive the seasonal or 2009 H1N1 influenza vaccine; as a result, individuals responsible for caring for these children constitute a high-priority group for early vaccination. Influenza vaccination is the primary means of preventing flu. Additionally, infection control measures are recommended to reduce the spread of flu. However, early childhood settings present unique challenges for infection control due to the highly vulnerable population, close interpersonal contact, shared toys and other objects, and limited ability of young children to understand or practice good respiratory etiquette and hand hygiene. Thus, parents, early childhood providers, and public health officials should be aware that, even under the best of circumstances, transmission of infectious diseases such as flu cannot be completely prevented in early childhood or other settings. No policy can keep everyone who is potentially infectious out of these settings.

The purpose of this document is to provide updated guidance for reducing the spread of influenza in early childhood settings. We provide recommendations assuming that severity of illness is similar to what was seen during the spring and summer of 2009 through the 2009–2010 flu season, as well as recommendations that could be added if the severity of illness worsens. However, influenza is unpredictable, and CDC will provide periodic updates of these assessments and may recommend additional strategies if they are needed. Also, because conditions may vary from community to community, early childhood providers should also look to their state and local health officials for information and guidance specific to their location.

Recommendations for early childhood programs for the 2009–2010 influenza season

Early childhood providers should examine and revise, as necessary, their current crisis or pandemic plans and procedures; develop contingency plans to cover key positions when staff are absent from work; update contact information for families and staff; and share their plans with families, staff, and the community. Early childhood providers should review and revise, if necessary, their sick leave policies.
remove barriers to staff staying home while ill or to care for an ill family member. A doctor’s note should not be required for children or staff to validate their illness or to return to the early childhood setting.

Early childhood providers should frequently remind children, their families, and staff about the importance of staying home when ill; early treatment for people at higher risk for flu complications; hand hygiene; and respiratory etiquette. Educational materials (for example, posters) to enhance compliance with recommendations should be visible in the child care setting. Examples of these materials are available.

The recommendations that follow are divided into two groups: 1) recommendations to use now, during the 2009–2010 flu season, assuming that the severity of influenza in the fall and winter will be of similar severity to that seen during spring and summer 2009, and 2) recommendations to consider adding if a more severe flu season occurs

Recommended strategies to use now, for flu conditions with severity similar to spring/summer 2009

- **Get vaccinated against the flu**: The best way to protect against the flu – seasonal or 2009 H1N1 – is to get vaccinated. A vaccine will be available this year, as it is each year, to protect against seasonal influenza. Vaccine to protect against the 2009 H1N1 flu virus is currently in production, and initial doses are expected to become available later in the fall. The five primary target groups for vaccination against 2009 H1N1 flu include pregnant women, people who live with or care for children younger than 6 months of age, healthcare and emergency medical services personnel, people age 6 months through 24 years, and people age 25 through 64 years who have underlying medical conditions that put them at higher risk of complications from influenza. All children and many staff in early childhood settings will fall within these groups and should be among the first to receive the 2009 H1N1 flu vaccine. Visit [http://www.cdc.gov/h1n1flu/vaccination](http://www.cdc.gov/h1n1flu/vaccination) for more information.

- **Stay home when sick**: Children and caregivers with flu-like illness should remain at home and away from others until at least 24 hours after they are free of fever (100°F [37.8°C] or greater when measured orally), or signs of a fever, without the use of fever-reducing medications. Symptoms of 2009 H1N1 flu virus can include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills, and fatigue, and sometimes diarrhea and vomiting. To the extent possible, sick individuals should stay at home and avoid contact with others until they have been without fever for 24 hours, except when necessary to seek medical care. Epidemiologic data collected during spring 2009 found that most people with 2009 H1N1 flu who were not hospitalized had a fever that lasted 2 to 4 days; this would result in an exclusion period of 3 to 5 days after onset of symptoms in most cases. CDC recommends this exclusion period whether or not antiviral medications are used. Early childhood programs, parents, or state and local health officials may elect to require longer periods of exclusion. Parental or community concerns and preferences also should be considered – and local health departments should be consulted – when evaluating if a more stringent exclusion policy is appropriate.

- **Conduct daily health checks**: Early childhood providers conducting daily health checks should observe all children and staff and talk with each child’s parent or guardian and each child. He or she should look for changes in the child’s behavior, a report of illness or recent visit to a health care provider, and any signs or symptoms of illness. During the day, staff also should identify children and other staff who may be ill. Ill children and staff should be further screened by taking their temperature and inquiring about symptoms. View an example of how to perform daily health checks. An early childhood program’s health consultant may provide additional assistance. Visit [http://nrckids.org](http://nrckids.org) for more information on health consultants or contact your State Child Care
CDC Guidance on Helping Child Care and Early Childhood Programs Respond to Influenza during the 2009–2010 Influenza Season

(continued from previous page)

Administrator or local child care resource and referral agency to find out if there are early childhood health consultants in your state or local area.

- **Separate ill children and staff:** Children and staff who develop symptoms of flu-like illness while at the early childhood program should promptly be separated from others until they can be sent home. While this may be challenging for some home-based providers, they should provide a space where the child can be comfortable and supervised at all times. Staff members who develop illness while at work should wear a surgical mask when near other persons when possible and if they can tolerate it. Early childhood providers who care for persons with known, probable, or suspected influenza or flu-like illness should use appropriate personal protective equipment. Visit http://www.cdc.gov/h1n1flu/masks.htm for information on personal protective equipment and how to recommend it to employees.

- **Encourage hand hygiene and respiratory etiquette of both people who are well and those who have any symptoms of flu:** Wash hands frequently with soap and water when possible; keep hands away from your nose, mouth, and eyes; and cover noses and mouths with a tissue when coughing or sneezing (or a shirt sleeve or elbow if no tissue is available). For children with emerging self-care skills, parents and caregivers should closely monitor their respiratory etiquette and hand hygiene and remind children not to share cups or eating utensils. Visit: www.cdc.gov/cleanhands for more information on hand hygiene and http://www.cdc.gov/flu/protect/covercough.htm for more information on respiratory etiquette.

- **Perform routine environmental cleaning:** Areas and items that are visibly soiled should be cleaned immediately, and all areas should be regularly cleaned — with a particular focus on items that are more likely to have frequent contact with the hands, mouths, and bodily fluids of young children (for example, toys and play areas). CDC does not believe any additional disinfection of environmental surfaces beyond routine cleaning is required. Visit http://nrckids.org for more information on cleaning in early childhood settings.

- **Encourage early treatment for children and staff at high risk for flu complications:** Parents and staff should be encouraged to talk with their health care provider to determine if they or a member of their family are at high risk for flu complications. Staff at high risk for flu complications and parents of children under age 5 who become ill with flu-like illness should call their health care provider as soon as possible to determine if they need antiviral treatment. Early treatment (within 48 hours of the onset of illness) with antiviral medications can decrease the risk of severe illness from influenza.

- **Consider selective early childhood program closures:** If flu transmission is high, some communities or early childhood programs may consider temporary closures with the goal of decreasing the spread of flu among children less than 5 years of age. The decision to selectively close should be made locally in partnership with public health officials and should balance the risks of keeping the children in early childhood programs with the social and economic disruption that can result from closing these programs.

**Recommended strategies to add in the event of increased influenza severity compared to spring/summer 2009**

CDC may recommend additional strategies to help decrease the spread of flu if global, national, or regional assessments indicate that flu is causing more severe disease. In addition, state and local health officials may choose to use additional strategies. Although the following strategies have not been scientifically tested in early childhood settings, they are grounded on basic principles of infection control. Implementation of these strategies is likely to be more difficult and to have more disruptive effects than the previously described strategies. These strategies should be considered if influenza severity increases and are meant for use in addition to the strategies outlined above.
Permit high-risk staff to stay home: If flu severity increases, people at high risk of flu complications may consider staying home from work or school while a lot of flu is circulating in their community. Such people should make this decision after consulting with their doctor. Early childhood providers should review their leave policies to remove barriers to staff staying home if necessary.

Increase social distances between children: Explore innovative ways to increase the distances between people or to separate children into small groups for example, groups with 6 or fewer children (without allowing the children to mix between groups). This is not a simple or easy strategy for many early childhood facilities and would require considerable flexibility.

Encourage children with ill household members to stay home: If flu severity increases, children who live with people with flu-like illness should remain home for 5 days from the day the first household member gets sick.

Extend the time that ill people stay home: If flu severity increases, people with flu-like illness should stay home for at least 7 days after the onset of their symptoms, even if they have no more symptoms. If people are still sick after 7 days, they should stay home until at least 24 hours after they have no symptoms.

Early childhood program closures: Early childhood and health officials should work closely to balance the risks of flu in their community with the disruption that closing early childhood programs would cause and should clearly state the reason for closing early childhood programs.

- Reactive closures might be needed when early childhood programs cannot maintain normal functioning, for example, due to high staff absenteeism.
- CDC may recommend preemptive closures (before severe illness occurs in the community) to decrease the spread of flu.
- The length of time early childhood programs should be closed will vary depending on the reason for closing as well as the severity and extent of illness. Early childhood programs that close should do so for at least 5 to 7 calendar days. Before the end of this period, the community should reassess the epidemiology of the disease and the benefits and consequences of keeping children home.
- A vaccine for 2009 H1N1 flu should become available in fall 2009. Protective immunity will likely require 2 doses of vaccine, separated by at least 3 weeks and requiring 2 weeks after the second dose for the immune response to develop (that is, a minimum of approximately 5 weeks after the first vaccination for full protection to develop). If transmission in the community occurs before vaccine-induced immunity is anticipated, communities whose goal is to substantially reduce influenza transmission among children in early childhood may consider temporarily closing early childhood programs. Infant rooms may need to close longer, as infants under age 6 months cannot receive flu vaccine.
- CDC does not believe any additional disinfection of environmental surfaces beyond routine cleaning is required while an early childhood program is closed.
- Parents should be encouraged to develop alternate child care plans in case the early childhood program or school closes (for example, individual or small group care by relatives or neighbors or changes to work schedules or locations).
- Communities should plan to address possible secondary effects of early childhood program closure. Closing early childhood programs could affect: critical infrastructure; parents’ job security and income; income and sustainability of early childhood programs; program quality; child nutrition; and child safety.
CDC Guidance on Helping Child Care and Early Childhood Programs Respond to Influenza during the 2009–2010 Influenza Season

(continued from previous page)

Determining community approaches to protecting children and staff in early childhood programs

CDC recommends a combination of strategies applied early and simultaneously. Communities and states should select strategies a) based on trends in the severity of disease, virus characteristics, feasibility, and acceptability, and b) through collaborative decision-making involving public health agencies, early childhood and education agencies, and representatives of early childhood programs, families, and the wider community. CDC and its partners will continuously look for changes in the severity of flu-like illness and will share what is learned with state and local agencies. States and local communities can expect to see a lot of differences in disease patterns from community to community.

Every community has to balance a variety of objectives to determine their best course of action. State and local community decision-makers should identify and communicate their objectives, which might be one or more of the following: a) protecting overall public health by reducing community transmission; b) reducing transmission within early childhood settings; and c) protecting people with high-risk conditions. Some strategies can have negative consequences in addition to their potential benefits. The following questions can help begin discussions and lead to decisions at the state and local level.

Decision-Makers and Stakeholders

Are all of the right decision-makers and stakeholders involved?

- State and/or local health officials
- State and/or local education officials
- State and/or local homeland security officials
- State and/or local early childhood licensing agencies, Child Care Administrators, and Head Start Collaboration Directors.
- State and/or local governing officials (for example, governors, mayors)
- Family representatives
- Representatives of local businesses, the faith community, and community organizations
- Corporate early childhood program officers, center-based and home-based program owners and operators, early childhood staff
- Health care providers, including mental and behavioral health care providers, and hospitals
- Local resource and referral agencies

Information Collection and Sharing

Can local or state health officials determine and share information with other decision-makers about the following?

- Outpatient visits for influenza-like illness
- Hospitalizations for influenza-like illness
- Trends in the numbers of hospitalizations or deaths
- Percent hospitalized patients who require admission to intensive care units (ICU)
- Deaths from influenza
- Groups becoming ill disproportionately
- Ability of local health care providers and emergency departments to meet increased demand
- Availability of hospital bed, ICU space, and ventilators for influenza patients
- Availability of hospital staff
- Availability of antiviral medications
CDC Guidance on Helping Child Care and Early Childhood Programs Respond to Influenza during the 2009–2010 Influenza Season
(continued from previous page)

Can early childhood programs determine and share information with state or local decision-makers about the following?
Child and staff absenteeism rates
Number of children with flu-like illness sent home from the program

Feasibility

Does the state or community have the resources to implement the strategies being considered?
Funds
Personnel
Equipment
Space
Time
Legal authority or policy requirements

Acceptability

Has the state or community determined how to address the following challenges to implementing the strategies?
Public concern about influenza
Lack of public support for the intervention
People who do not feel empowered to protect themselves
Secondary effects of strategies (for example, closing early childhood programs could affect child nutrition, job security, and financial support)

For more information, visit www.flu.gov or www.cdc.gov/h1n1flu, or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

September 4, 2009
## Communicability, Isolation, and Quarantine: Non-pharmaceutical Management of Influenza Cases

**Michigan Department of Community Health**  
October 2009

<table>
<thead>
<tr>
<th>Influenza Type</th>
<th>Incubation</th>
<th>Communicable Phase</th>
<th>Containment Measures for Individuals</th>
<th>Management of Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal</td>
<td>1 to 4 days average of 2 days</td>
<td>1 day prior to symptom onset; 3 to 5 days post-symptom onset; children = up to 10 days</td>
<td>standard, droplet 5 days; consider longer for children</td>
<td></td>
</tr>
<tr>
<td>Avian H5N1 (Novel Strain)</td>
<td>1-10 days$^1$</td>
<td>approximately 14 days</td>
<td>full barrier$^2$ for 7 days after fever resolution; for children 14-21$^3$ day after symptom onset</td>
<td>Monitor for 7 to 10 days after last exposure.$^4$</td>
</tr>
<tr>
<td>Novel H1N1$^5$</td>
<td>1-4 days</td>
<td>Unknown. 1 day prior to symptom onset; 7 days following illness onset; children = up to 10 days</td>
<td>for non-healthcare personnel, remain home until fever free for 24 hours without fever-reducing medications</td>
<td>monitor health; stay home if symptoms develop</td>
</tr>
</tbody>
</table>

---

http://www.hhs.gov/pandemicflu/plan/

$^2$ Full barrier = airborne, standard precautions, contact, droplet, plus face/eye protection

$^3$ The U.S. *National Strategy for Pandemic Influenza – Implementation Plan* and Centers for Infection Disease and Research Policy (CIDRAP) recommend 14 days. The WHO recommends 21 days.

$^4$ World Health Organization *Global Influenza Preparedness Plan* (2005) recommends 7 days. DHHS *Pandemic Influenza Plan* (2005) recommends monitoring contacts for a minimum of at least one incubation period, which varies with novel strain. By the DHHS recommendations, monitoring contacts for H5N1 could require 10 days.

$^5$ http://www.cdc.gov/h1n1flu
Evaluation Guidelines for Home/Facility Isolation and Quarantine
Michigan Department of Community Health

Home Isolation
Persons who are symptomatic and do not require hospitalization may be isolated in their home. Homes that will be used to isolate cases should be evaluated for their suitability by the local health department, case's physician, or other designated case manager. The CDC recommends the following items for evaluation:

1. Infrastructure
   - functioning telephone
   - electricity
   - heat source
   - potable water
   - bathroom with commode and sink
   - waste and sewage disposal (septic tank, community sewage line)

2. Accommodations
   - ability to provide a separate bedroom for the patient
   - accessible bathroom in the residence; if multiple bathrooms are available, one bathroom designated for use by the patient

3. Resources for patient care and support
   - primary caregiver who will remain in the residence and who is not at high risk for complications from disease
   - meal preparation
   - laundry
   - banking
   - essential shopping
   - social diversion (e.g., television, radio, internet access, reading materials)
   - masks, tissues, hand hygiene products

Community-Based Facility Isolation
Persons who are symptomatic and do not require hospitalization but cannot be accommodated in their homes should be isolated in a community-based facility. Use of existing and temporary facilities should be considered. Options may include nursing homes, apartments, schools, dormitories, hotels, trailers, barracks, tents, and "bubble systems". The CDC recommends the following items for evaluation:

1. Basic infrastructure requirements
   - meets all local code requirements for a public facility
   - functioning telephone system
   - electricity
• heating, ventilating, and air conditioning (HVAC)
• potable water
• bathroom with commode and sink
• waste and sewage disposal (septic tank, community sewage line)
• multiple rooms for housing ill patients

2. Ventilation capacity
• preferably, rooms with individual ventilation systems (e.g., room or window fan coil units that do not recirculate to other parts of the building)
• alternatively, facility with a non-recirculating ventilation system that permits redirection of the air flow from corridors and staff areas into patient rooms.

3. Access considerations
• proximity to hospital
• parking space
• ease of access for delivery of food and medical and other supplies
• handicap accessibility

4. Space requirements
• administrative offices
• offices/areas for clinical staff
• holding area for contaminated waste and laundry
• laundry facilities (on- or off-site)
• meal preparation (on- or off-site)

5. Social support resources
• television and radio
• reading materials

6. Priorities to consider when choosing a facility:
• separate rooms for patients or areas amenable to isolation of patients with minimal construction
• single pass (non-recirculating) ventilation for each room or isolation area
• feasibility of modifying existing infrastructure as needed to meet air quality standards
• feasibility of controlling access to the facility and to each room
• availability of potable water, bathroom, and shower facilities
• facilities for patient evaluation, treatment, and monitoring
• capacity for providing basic needs to patients
• rooms and corridors that are amenable to disinfection
• facilities for accommodating staff
• facilities for collecting, disinfecting, and disposing of infectious waste
• facilities for collecting and laundering infectious linens and clothing
• ease of access for delivery of patients and supplies
• legal/property considerations
7. Additional considerations
   - staffing and administrative support
   - training
   - ventilation and other engineering controls
   - ability to support appropriate infection control measures
   - availability of food services and supplies
   - ability to provide an environment that supports the social and psychological well-being of patients
   - security and access control
   - ability to support appropriate medical care, including emergency procedures
   - access to communication systems that allow for dependable communication within and outside the facility
   - ability to adequately monitor the health status of facility staff

Home Quarantine
Persons who are asymptomatic but may have had contact with infected cases should be placed into quarantine during the maximum incubation period of the disease. As with home isolation, the local health department, physician, or contact manager should perform proper inspection of the environment. The CDC recommends the following items for evaluation:
   - availability of/access to educational materials about quarantine
   - basic utilities (water, electricity, garbage collection, and heating or air-conditioning as appropriate)
   - basic supplies (clothing, food, hand-hygiene supplies, laundry services)
   - mechanism for addressing special needs (e.g., filling prescriptions)
   - mechanism for communication, including telephone (for monitoring by health staff, reporting of symptoms, gaining access to support services, and communicating with family)
   - accessibility to healthcare workers or ambulance personnel
   - access to food and food preparation
   - access to supplies such as thermometers, fever logs, phone numbers for reporting symptoms or accessing services, and emergency numbers (these can be supplied by health authorities if necessary)
   - access to mental health and other psychological support services

Community-Based Facility Quarantine
Persons who should be placed into quarantine but are unable or unwilling to be detained at home should be direct to a community-based facility. A public health official or designee should perform evaluations of community-based facilities. The CDC recommends the following items for evaluation:
- separate rooms and bathrooms for each contact, if possible
- delivery systems for food and other needs
- staff to monitor contacts at least daily for fever and respiratory symptoms
- transportation for medical evaluation for person who develop symptoms
- mechanisms for communication, including telephone (for monitoring by health staff, reporting of symptoms, gaining access to support services, and communicating with family)
- services for removal of waste (Note: No special precautions for removal of waste are required as long as persons remain asymptomatic)
Interim CDC Guidance for Public Gatherings in Response to Human Infections with Novel Influenza A (H1N1)

September 23, 2009 2:00 PM EST

These recommendations are based on current information and are subject to change based on ongoing surveillance and risk assessment.

Background

This document provides interim guidance for state, local, territorial, and tribal officials to use in developing recommendations for large public gatherings in their communities.

As used in this document, a large public gathering refers to an assembly or grouping of many people in one place. Such gatherings can include college and university commencement exercises, church services, sporting events, concerts, social and cultural celebrations, weddings, conferences, and other similar activities attended by relatively large groups of people. This interim guidance does not attempt to define such events in terms of numbers of people in attendance; rather, the focus is on community situations in which crowding is likely to occur. In addition, these recommendations do not distinguish between public gatherings held indoors and those held outdoors, because differences in 2009 H1N1 flu transmission patterns in these two settings are not known.

In crowded settings, social distancing (that is, measures that increase the physical space between people and reduce their frequency of close contact) is difficult to maintain. Moreover, at public gathering events that are celebratory in nature (such as weddings, graduation ceremonies), participants frequently have social personal contact (like handshaking and hugging). As a result, there may be increased risk for spread of 2009 H1N1 flu virus among attendees of such events and subsequent spread of illness in the community or in communities to where attendees return. The recommendations below are intended to reduce the spread of influenza infection in communities.

Interim Recommendations

Decisions regarding large public gatherings in the context of this 2009 H1N1 flu outbreak should be made based on local influenza activity, evolving information about severity of illness from this virus, and identification of high risk groups, and other local considerations. However, given the current information on disease severity and spread, CDC recommends that:

1. Persons with influenza-like illness (ILI) (i.e., fever with either cough or sore throat) should be advised to stay home until at least 24 hours after they are free of fever (100° F
[37.8°C]), or signs of a fever without the use of fever-reducing medications. This recommendation applies to camps, schools, businesses, mass gatherings, and other community settings where the majority of people are not at increased risk for influenza complications. This guidance does not apply to health care settings where the exclusion period should be continued for 7 days from symptom onset or until the resolution of symptoms, whichever is longer. See additional guidance for persons with ILI.

2. Persons who are at high risk of complications from 2009 H1N1 flu infection (for example, persons with certain chronic medical conditions, children less than 5 years, persons 65 or older, and pregnant women) should consider their risk of exposure to novel influenza if they attend public gatherings in communities where novel influenza A virus is circulating. In communities with several reported cases of 2009 H1N1 flu virus infection, persons who are at risk of complications from influenza should consider staying away from public gatherings.

3. All persons should be reminded to use appropriate respiratory and hand hygiene precautions.

4. Based on currently available information, for non-healthcare settings where frequent exposures to persons with 2009 H1N1 flu are unlikely, masks and respirators are not recommended.

Large public gatherings offer a good opportunity for public health officials and event organizers to deliver key educational messages about measures attendees can take to help reduce the spread of 2009 H1N1 flu infection. Event organizers should consider communicating to attendees about the need to remain home if ill and to use good hygiene practices while at the event. Such information may be communicated through a variety of means such as letters, newspaper notices, public service announcements, Web site postings, and text messages. More information is available.

**Additional Measures**

Other measures can be used by event organizers to help reduce the risk for 2009 H1N1 flu infection. The feasibility of their use may vary depending on the type and setting of the event.

- Make widely available at the event hand washing facilities with soap and running water, hand sanitizer, and tissues.
- Provide on-site medical assessment and care for persons with ILI.
- Provide alternative options and venues for participation (e.g., remote Web-based viewing sites) and simultaneously reduce crowding.

These recommendations are subject to change as more information about 2009 H1N1 flu becomes available.

- Links to non-federal organizations are provided solely as a service to our users. These links do not constitute an endorsement of these organizations or their programs by CDC or the federal government, and none should be inferred. CDC is not responsible for the content of the individual organization Web pages found at these links.
Interim Recommendations for Facemask and Respirator Use to Reduce 2009 Influenza A (H1N1) Virus Transmission

September 24, 2009 10:00 AM ET

This document has been updated in accordance with the CDC Recommendations for the Amount of Time Persons with Influenza-Like Illness Should be Away from Others. This document provides interim guidance and will be updated as needed.

This document provides updated interim guidance on the use of facemasks and respirators for decreasing the exposure to 2009 influenza A (H1N1) virus. This guidance replaces other CDC guidance on mask and/or respirator use that may be included in other CDC documents in regards to the outbreak of 2009 H1N1 virus. No change has been made to guidance on the use of facemasks and respirators for health care settings. This document includes guidance on facemask and respirator use for a wider range of settings than was included in previous documents and includes recommendations for those who are at increased risk of severe illness from infection with the 2009 H1N1 virus compared with those who are at lower risk of severe illness from influenza infection. For more information about human infection with 2009 influenza A (H1N1) virus, visit the CDC H1N1 Flu website. Other CDC 2009 H1N1 guidance will be updated with the information contained in this document as soon as possible.

Detailed background information and recommendations regarding the use of facemasks and respirators in non-occupational community settings can be found on PandemicFlu.gov in the document Interim Public Health Guidance for the Use of Facemasks and Respirators in Non-Occupational Community Settings during an Influenza Pandemic. Information on the use of facemasks and respirators in health care settings can be found at http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm.

Information on the effectiveness of facemasks and respirators for decreasing the risk of influenza infection in community settings is extremely limited. Thus, it is difficult to assess their potential effectiveness in decreasing the risk of 2009 influenza A (H1N1) virus transmission in these settings. In the absence of clear scientific data, the interim recommendations below have been developed on the basis of public health judgment, the historical use of facemasks and respirators in other settings for preventing transmission of influenza and other respiratory viruses, and on current information on the spread and severity of the 2009 influenza A (H1N1) virus.

In areas with confirmed human cases of 2009 influenza A (H1N1) virus infection, the risk for infection can be reduced through a combination of actions. No single action will provide
complete protection, but an approach combining the following steps can help decrease the likelihood of transmission. These recommended actions are:

- Wash hands frequently with soap and water. If soap and water are not available, use an alcohol-based hand rub.*
- Cover your mouth and nose with a tissue when coughing or sneezing.
- Avoid touching your eyes, nose and mouth
- People who are sick with an influenza-like illness (ILI) (fever plus at least cough or sore throat and possibly other symptoms like runny nose, body aches, headaches, chills, fatigue, vomiting and diarrhea) should stay home and keep away from others as much as possible, including avoiding travel, for at least 24 hours after fever is gone except to get medical care or for other necessities. (Fever should be gone without the use of fever-reducing medicine).
- Avoid close contact (i.e. being within about 6 feet) with persons with ILI.

In addition, influenza antiviral medications are an important tool for the treatment and prevention of influenza, including 2009 H1N1. Also see Guidance on the use of antiviral medications.

Facemasks and Respirators

Recommendations for the uses of facemasks and/or respirators are listed in Table 1 below for different settings where a person may be exposed to 2009 H1N1 virus. These recommendations also differ based on whether the person exposed to 2009 H1N1 is in a group at increased risk for severe illness from influenza infection. More information on preventing influenza transmission in health care settings can be found in the Interim Guidance for Infection Control for Care of Patients with Confirmed or Suspected 2009 Influenza A (H1N1) Virus Infection in a Healthcare Setting.

In community and home settings, the use of facemasks and respirators generally are not recommended. However, for certain circumstances as described in Table 1, a facemask or respirator may be considered, specifically for persons at increased risk of severe illness from influenza.

Use of N95 respirators or facemasks generally is not recommended for workers in non-healthcare occupational settings for general work activities. For specific work activities that involve contact with people who have ILI, such as escorting a person with ILI, interviewing a person with ILI, providing assistance to an individual with ILI, the following are recommended:

- workers should try to maintain a distance of 6 feet or more from the person with ILI;
- workers should keep their interactions with ill persons as brief as possible;
- the ill person should be asked to follow good cough etiquette and hand hygiene and to wear a facemask, if able, and one is available;
- workers at increased risk of severe illness from influenza infection (see footnote 3 of table 1) should avoid people with ILI (possibly by temporary reassignment); and,
- where workers cannot avoid close contact with persons with ILI, some workers may choose to wear a facemask or N95 respirator on a voluntary basis.
In the occupational healthcare setting, respiratory protection is recommended. Because infection control precautions, including respiratory protection, are imperfect, workers who are at increased risk of severe illness from influenza, and who are caring for a patient with known, probable, or suspected 2009 H1N1 or ILI, may consider temporary reassignment to avoid exposure.

Additional recommendations for use of facemasks by people who have ILI that may be due to 2009 H1N1 infection are included in Table 2.

There are important differences between facemasks and respirators. Facemasks do not seal tightly to the face and are used to block large droplets from coming into contact with the wearer’s mouth or nose. Most respirators (e.g. N95) are designed to seal tightly to the wearer’s face and filter out very small particles that can be breathed in by the user. For both facemasks and respirators, however, limited data is available on their effectiveness in preventing transmission of H1N1 (or seasonal influenza) in various settings. However, the use of a facemask or respirator is likely to be of most benefit if used as early as possible when exposed to an ill person and when the facemask or respirator is used consistently. (Ref. 1. MacIntyre CR, et al. EID 2009;15:233-41. 2. Cowling BJ, et al. Non-pharmaceutical interventions to prevent household transmission of influenza. The 8th Asia Pacific Congress of Medical Virology, Hong Kong, 26-28 February 2009.)

Facemasks: Unless otherwise specified, the term “facemasks” refers to disposable facemasks cleared by the U.S. Food and Drug Administration (FDA) for use as medical devices. This includes facemasks labeled as surgical, dental, medical procedure, isolation, or laser masks. Such facemasks have several designs. One type is affixed to the head with two ties, conforms to the face with the aid of a flexible adjustment for the nose bridge, and may be flat/pleated or duck-billed in shape. Another type of facemask is pre-molded, adheres to the head with a single elastic band, and has a flexible adjustment for the nose bridge. A third type is flat/pleated and affixes to the head with ear loops. Facemasks cleared by the FDA for use as medical devices have been determined to have specific levels of protection from penetration of blood and body fluids. Facemasks help stop droplets from being spread by the person wearing them. They also keep splashes or sprays from reaching the mouth and nose of the person wearing the facemask. They are not designed to protect against breathing in very small particle aerosols that may contain viruses. Facemasks should be used once and then thrown away in the trash.

Respirators: Unless otherwise specified, "respirator" refers to an N95 or higher filtering face piece respirator certified by the CDC/National Institute for Occupational Safety and Health (NIOSH). A respirator is designed to protect the person wearing the respirator against breathing in very small particle aerosols that may contain viruses. A respirator that fits snugly on the face can filter out virus-containing small particle aerosols that can be generated by an infected person, but compared with a facemask it is harder to breathe through a respirator for long periods of time. Respirators are not recommended for children or people who have facial hair.

Where respirators are used in a non-occupational setting, fit testing, medical evaluation and training are recommended for optimal effectiveness.
When respiratory protection is required in an occupational setting, respirators must be used in the context of a comprehensive respiratory protection program as required under OSHA’s Respiratory Protection standard (29 CFR 1910.134). This includes fit testing, medical evaluation and training of the worker. When required in the occupational setting, tight-fitting respirators cannot be used by people with facial hair that interferes with the face seal.

When respirators are used on a voluntary basis in an occupational setting, requirements for voluntary use of respirators in work sites can be found on the OSHA website.

Employers should continue to evaluate workplace hazards related to the 2009 H1N1 situation in accordance with CDC and OSHA guidance. Mandatory use of respiratory protection may be required when work activities in occupational settings confer risk that is task/function based, and risk analyses conducted by the employer could identify hazardous work activities. For example, performing activities which generate large amounts of aerosols require respiratory protection regardless of the setting in which it is performed (i.e. in a hospital, an outpatient setting, a prison).

For additional information on facemasks and respirators, see the CDC/NIOSH website, the Food and Drug Administration website, and the Occupational Safety and Health Administration website.

Groups at Higher Risk for Severe Illness from 2009 Influenza A (H1N1) Infection

Groups of people at higher risk for severe illness from 2009 influenza A (H1N1) infection are thought to be the same as those people at higher risk for severe illness from seasonal influenza. These groups include:

- Children younger than 5 years old
- Persons aged 65 years or older
- Children and adolescents (younger than 18 years) who are receiving long-term aspirin therapy and who might be at risk for experiencing Reye syndrome after influenza virus infection
- Pregnant women
- Adults and children who have asthma, chronic pulmonary, cardiovascular, hepatic, hematological, neurologic, neuromuscular, or metabolic disorders such as diabetes;
- Adults and children who have immunosuppression (including immunosuppression caused by medications or by HIV)
- Residents of nursing homes and other chronic-care facilities.

Table 1. CDC Interim Recommendations for Facemask and Respirator Use for Home, Community, and Occupational Settings for Non-Ill Persons to Prevent Infection with 2009 H1N1

354
<table>
<thead>
<tr>
<th>Setting</th>
<th>Persons not at increased risk of severe illness from influenza (Non-high risk persons)</th>
<th>Persons at increased risk of severe illness from influenza (High-Risk Persons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No 2009 H1N1 in community</td>
<td>Facemask/respirator not recommended</td>
<td>Facemask/respirator not recommended</td>
</tr>
<tr>
<td>2009 H1N1 in community: not crowded setting</td>
<td>Facemask/respirator not recommended</td>
<td>Facemask/respirator not recommended</td>
</tr>
<tr>
<td>2009 H1N1 in community: crowded setting</td>
<td>Facemask/respirator not recommended</td>
<td>Avoid setting. If unavoidable, consider facemask or respirator ( ^4 ) ( ^5 )</td>
</tr>
<tr>
<td></td>
<td>Action 1</td>
<td>Action 2</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Home</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caregiver to person with influenza-like illness</td>
<td>Facemask/respirator not recommended</td>
<td>Avoid being caregiver. If unavoidable, use facemask or respirator 4 2</td>
</tr>
<tr>
<td>Other household members in home</td>
<td>Facemask/respirator not recommended</td>
<td>Facemask/respirator not recommended</td>
</tr>
<tr>
<td><strong>Occupational (non-health care)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No 2009 H1N1 in community</td>
<td>Facemask/respirator not recommended</td>
<td>Facemask/respirator not recommended</td>
</tr>
<tr>
<td>2009 H1N1 in community</td>
<td>Facemask/respirator not recommended but could be considered under certain</td>
<td>Facemask/respirator not recommended but could be considered under certain</td>
</tr>
<tr>
<td>Caring for persons with known, probable or suspected 2009 H1N1 or influenza-like illness</td>
<td>Respirator</td>
<td>Consider temporary reassignment: Respirator</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

1 The effectiveness of respirators and facemasks in preventing transmission of 2009 H1N1 (or seasonal influenza) in various settings is not known. Use of a facemask or respirator is likely to be of most benefit if used correctly and consistently when exposed to an ill person. (Ref. a) MacIntyre CR, et al. EID 2009;15:233-41. b) Cowling BJ, et al. Non-pharmaceutical interventions to prevent household transmission of influenza. The 8th Asia Pacific Congress of Medical Virology, Hong Kong, 26-28 February 2009.)

2 For the purpose of this document, respirator refers to N95 or any other NIOSH-certified filtering face piece respirator.

3 Persons at increased risk of severe illness from influenza (i.e. high-risk persons) include those groups at higher risk for severe illness from seasonal influenza, including: children younger than 5 years old; persons aged 65 years or older; children and adolescents (younger than 18 years) who are receiving long-term aspirin therapy and who might be at risk for experiencing Reye syndrome after influenza virus infection; pregnant women; adults and children who have pulmonary, including asthma, cardiovascular, hepatic, hematological, neurologic, neuromuscular, or metabolic disorders, such as diabetes; adults and children who have immunosuppression (including immunosuppression caused by medications or by HIV); and, residents of nursing homes and other chronic-care facilities.

4 The optimal use of respirators requires fit testing, training and medical clearance. Proper use is recommended to maximize effectiveness. The use of facemasks may be considered as an alternative to respirators, although they are not as effective as respirators in preventing inhalation of small particles, which is one potential route of influenza transmission. There is limited evidence available to suggest that use of a respirator without fit-testing may still provide better
protection than a facemask against inhalation of small particles. Respirators are not recommended for children or persons who have facial hair (see FDA website).

5 Use of N95 respirators or facemasks generally is not recommended for workers in non-healthcare occupational settings for general work activities. For specific work activities that involve contact with people who have influenza-like illness (ILI) (fever plus at least either cough or sore throat and possibly other symptoms like runny nose, body aches, headaches, chills, fatigue, vomiting and diarrhea), such as escorting a person with ILI, interviewing a person with ILI, providing assistance to an individual with ILI, the following are recommended: a) workers should try to maintain a distance of 6 feet or more from the person with ILI; b) workers should keep their interactions with the ill person as brief as possible; c) the ill person should be asked to follow good cough etiquette and hand hygiene and to wear a facemask, if able, and one is available; d) workers at increased risk of severe illness from influenza infection (see footnote 3) should avoid people with ILI (possibly by temporary reassignment); and, e) where workers cannot avoid close contact with persons with ILI, some workers may choose to wear a facemask or N95 respirator on a voluntary basis (See footnote 1). When respirators are used on a voluntary basis in an occupational work setting, requirements for voluntary use of respirators in work sites can be found on the OSHA website.

6 See case definitions of confirmed, probable, and suspected 2009 influenza A (H1N1). Also see infection control in the health care setting. When respiratory protection is required in an occupational setting, respirators must be used in the context of a comprehensive respiratory protection program as required under OSHA’s Respiratory Protection standard (29 CFR 1910.134). This includes fit testing, medical evaluation and training of the worker.

7 “Caring” includes all activities that bring a worker into proximity to a patient with known, probable, or suspected 2009 H1N1 or ILI, including both providing direct medical care and support activities like delivering a meal tray or cleaning a patient’s room.

Table 2. CDC Interim Recommendations For Facemask Use For Persons Ill With Confirmed, Probable, Or Suspected 2009 Influenza A (H1N1) To Prevent Transmission Of 2009 H1N1

<table>
<thead>
<tr>
<th>Setting</th>
<th>Recommendation</th>
</tr>
</thead>
</table>

...
<table>
<thead>
<tr>
<th>Location</th>
<th>Protective Gear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home (when sharing common spaces with other household members)</td>
<td>Facemask preferred, if available and tolerable, or tissue to cover cough/sneeze</td>
</tr>
<tr>
<td>Health care settings (when outside of patient room)</td>
<td>Facemask, if tolerable</td>
</tr>
<tr>
<td>Non-health care setting</td>
<td>Facemask preferred, if available and tolerable, or tissue to cover cough/sneeze</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>Facemask preferred, if available and tolerable, or tissue to cover cough/sneeze</td>
</tr>
</tbody>
</table>

1 See definitions for confirmed, probable, and suspect 2009 influenza A (H1N1) infection. Also see information on infection control in health care settings.

2 Ill persons should be placed in well ventilated areas when possible and placed in areas where at least 6 feet distance can be maintained between the ill person and other well and ill persons.

Questions and Answers Regarding Respiratory Protection For Preventing 2009 H1N1 Influenza Among Healthcare Personnel

December 9, 2009 2:00 PM ET

CDC has released updated interim guidance on infection control measures to help prevent transmission of 2009 H1N1 influenza in healthcare facilities. As a supplement to that guidance document, these questions and answers provide additional information intended to assist healthcare facilities in optimizing implementation of recommended respiratory protection practices in the context of shortages of respiratory protection equipment. The information contained in this document applies uniquely to the special circumstances of the current 2009 H1N1 pandemic during the fall and winter of 2009-2010, and will be updated as new information becomes available during the course of this influenza season.

What steps can healthcare facilities take to minimize risk of exposure to 2009 H1N1 influenza and conserve supplies of disposable N95 respirators?

Healthcare facilities should take a multi-layered approach when designing a strategy to reduce exposure of healthcare personnel and patients to influenza and prevent influenza transmission within healthcare settings. The approach to conserving supplies of N95 respirators can be organized into these broad categories:

- Minimize the number of individuals who need to use respiratory protection through the use of engineering and administrative controls;
- Use alternatives to disposable N95 respirators where feasible;
- Extend the use, and consider reuse of disposable N95 respirators; and
- Prioritize the use of N95 respirators for those personnel at highest risk of exposure.

What can healthcare facilities do to minimize the need for disposable N95 respirators?

In order to reduce the need for respiratory protection, healthcare facilities should consider implementation of measures to eliminate or reduce exposure to 2009 H1N1 influenza. Such measures can be organized according to infection control principles and a “hierarchy of controls”, which prioritizes protective measures based on their likelihood of reducing the risk of exposure. Top priorities in this hierarchy are those measures which can effectively eliminate the source of potential exposure such as measures that prevent visits by ill individuals to healthcare facilities where those can be postponed. Where exposures cannot be eliminated, engineering
controls should be considered as the primary means for reducing exposure. Engineering controls physically separate, shield or protect healthcare personnel from the sources of exposure. Examples include the use of partitions and barriers to separate potentially ill patients from well providers or use of closed suctioning systems for airways suction that prevent generation of aerosols. Engineering controls are particularly effective because they can be implemented without placing responsibility on individual employees for implementation. Administrative controls are work practices and policies which are designed to reduce or eliminate hazards, though their effectiveness is dependent on management implementation and personnel adherence. Examples of this include the placing of facemasks on ill individuals for source-control, vaccination of healthcare personnel, and the use of appropriate triage and isolation procedures. Although administrative controls are given lower priority in the classic hierarchy of controls, vaccination of healthcare personnel is particularly effective in that it protects against infections resulting from work, household, and community exposures. The use of personal protective equipment (PPE) is for protection from exposures that cannot otherwise be eliminated or controlled. PPE must be used and maintained properly to be effective. The prioritization of protective measures for healthcare personnel according to the hierarchy of controls is a concept that needs to be tailored to the needs, capabilities, and circumstances of each healthcare facility.

Further detailed recommendations for minimizing risk of 2009 H1N1 influenza in healthcare facilities can be found in Table 1 of the Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel.

What options are available to facilities if disposable N95 respirator supplies are insufficient for routine use according to current interim guidance?

Facilities should eliminate potential exposures, and use engineering and administrative controls to minimize risk of exposure to the 2009 H1N1 virus. This will also reduce the number of personnel using respiratory protection.

Healthcare facilities can consider steps to extend the existing supply of disposable N95 respirators by either training personnel to wear them during serial patient encounters ("extended use," i.e. without removing or re-donning between encounters) or to re-use them ("re-use," i.e. removing and re-donning between patient encounters). Although these practices have the potential benefit of providing respiratory protection with limited supplies of respirators, there is the risk of respirator contamination and contact transmission. Either extended use or reuse of disposable N95 respirators could entail a risk of contact transmission by touching a contaminated surface of the respirator and subsequently touching the mucous membranes of the face or a hypothetical risk of re-aerosolization of virus from a used respirator. The precise balance between risk of contact transmission and benefit of extended use or re-use associated with this strategy is unknown, although the risk will be minimized if HCWs perform hand hygiene every time before and after touching the respirator. In general, if either of those options is chosen, wearing an N95 respirator over multiple encounters (while minimizing touching, removing, or re-donning between encounters) would be favored over re-use, as this strategy is expected to involve less touching of the respirator and therefore less risk of contact transmission. (See
questions on extended use and re-use). Disposable N95 respirators worn during aerosol-generating procedures should be discarded after the procedure.

Another option to consider is use of respirators other than disposable N95 respirators.

When a shortage of respirators exists despite reasonable efforts to obtain or extend a supply for anticipated needs, facilities should consider shifting to prioritized respirator use mode. In this mode, respirator use is prioritized to protect healthcare personnel at greatest risk of 2009 H1N1 influenza exposure or who care for patients with other diseases such as tuberculosis that require respiratory protection. Prioritization should be adapted to local conditions. In making decisions about prioritization, facilities should consider needs for performing aerosol-generating procedures and for managing patients with diseases other than influenza that require respiratory protection. To assure that respirators are likely to be available for the most important uses, facilities should maintain a reserve sufficient to meet the estimated needs for performing aerosol-generating procedures and for managing patients with diseases other than influenza that require respiratory protection until supplies are expected to be replenished.

At a minimum, any individuals attending aerosol-generating procedures should use respiratory protection at least as protective as fit-tested N95 respirators. When a shortage of respirators exists, respirator use can be temporarily discontinued for employees providing routine patient care who are not at high risk of complicated infection. Prioritization should consider intensity and duration of exposure, individual worker health risk factors for complications of infection, and vaccination status. An example of prioritization for personnel not attending aerosol-generating procedures is shown in Table 2 in "Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel".

When respirator use for personnel who are not at high risk of complicated infection is temporarily discontinued during prioritized respirator use mode, those personnel should be provided with facemasks. Although facemasks do not filter particles from the air and allow air leakage around the edges, they are an effective barrier to splashes, droplet sprays, and autoinoculation of influenza virus from the hands to the nose and mouth. Thus, they should be chosen over no protection. Detailed information on prioritized respirator use can be found in Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel.

Routine chemoprophylaxis is not indicated for personnel wearing facemasks during the care of patients with suspected or confirmed 2009 H1N1 influenza.

**What other respirators can be used to reduce dependence on disposable N95 respirators?**

Other classes of disposable respirators (e.g., N99s, N100s), which are similar in design and shape to N95s, can be considered. Alternatives to disposable respirators, such as powered air purifying respirators (PAPRs), or elastomeric half-mask and full facepiece respirators, can also be considered, especially in settings such as procedure rooms (e.g. bronchoscopy suites) where higher-risk activities such as aerosol-generating procedures are intermittently performed, and in
facilities that have prior experience with these respirators (see questions below on PAPRs and elastomers, provide link). More information on respirators is available at: "NIOSH Safety and Health Topic: Respirators".

Is extended use over multiple patient encounters an appropriate strategy for extending supplies of respiratory protection?

Extended use refers to wearing disposable N95 respirators for serial patient encounters, where the respirator has not been removed and re-donned between encounters. This practice may result in a risk of contact transmission by touching a contaminated surface of the respirator and subsequently touching the mucous membranes of the face. The precise balance between risk of contact transmission and benefit of extended use associated with this strategy is unknown, although the risk will be minimized if HCWs perform hand hygiene every time before and after touching the respirator. Extended use would be favored over re-use, because it is expected to involve less touching of the respirator and face. (See questions on extended use and re-use)

Consultation with the facility's infection control experts should be sought in making decisions regarding the most appropriate and feasible personal protective equipment to protect workers from influenza if required by respirator shortages. If extended use practices are implemented as a means to extend respirator supplies, measures should be taken to reduce contact transmission, including:

- Discarding disposable N95 respirators following use during aerosol generating procedures.
- Discarding disposable N95 respirators if contaminated with blood, respiratory secretions, or other bodily fluids from patients.
- Considering use of a face shield over the disposable N95 respirator to prevent surface contamination.
- Performing hand hygiene before and after touching the respirator.

Extended use may be most practical in selected practice settings where serial contact with multiple suspected or confirmed 2009 H1N1 patients might fit naturally into the workflow (e.g. such as triaging multiple patients in admissions and on dedicated wards for 2009 H1N1 patients). Additional training of personnel will be needed if this alternative is considered for implementation.

Can respirators be re-used to help extend the existing supply?

Re-use of disposable N95 respirators, where the respirator is removed and re-donned between patient encounters, can result in a risk of contact transmission by touching a contaminated surface of the respirator and subsequently touching the mucous membranes of the face. The precise balance between risk of contact transmission and benefit of re-use associated with this strategy is unknown, although the risk will be minimized if HCWs perform hand hygiene every time before and after touching the respirator. However, in general, extended use (i.e. wearing over multiple encounters while minimizing touching, removing, or re-donning between encounters) would be favored over re-use because it is expected to involve less touching of the respirator and face. (See questions on extended use). Consultation with the facility's infection
control experts should be sought in making decisions regarding the most appropriate and feasible personal protective equipment to protect workers from influenza if required by respirator shortages. If re-use is chosen as a strategy to increase availability of respiratory protection, the following should be considered to minimize risk of transmission:

- Discard disposable N95 respirators following aerosol-generating procedures.
- Discard disposable N95 respirators contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.
- Disposable respirators must only be used and re-used by a single wearer.
- Do not re-use a disposable respirator that is obviously contaminated, damaged or hard to breathe through.
- Consider use of a face shield over a disposable N95 respirator to prevent surface contamination.
- Store the respirator in a clean, breathable container such as a paper bag between uses.
- Avoid touching the inside of the respirator.
- Wearer should perform hand hygiene with soap and water or an alcohol-based hand sanitizer before and after touching a used respirator.

Consultation with the facility’s infection control experts and training of healthcare personnel will be needed if this alternative is being considered for implementation.

**What should be recommended for facilities that can only obtain models of disposable N95 respirators for which their personnel have not been fit-tested?**

In settings where sufficient supplies of disposable N95 respirators are available, they must be used in accordance with a comprehensive respiratory protection program, which includes fit testing, training, and medical clearance (see OSHA standard 29 CFR 1910.134). Healthcare personnel conducting the highest exposure risk activities (i.e., aerosol-generating procedures) should only wear fit-tested N-95 respirators. Using disposable N95 respirators that have not been fit tested does not provide the same assurance of respiratory protection as ones that are fit-tested because some individuals may have poor fit. Normally, a requirement for use of any NIOSH approved respirator, including disposable N95 respirators, is that the respirator be selected, fitted, used, and maintained in accordance with OSHA and other applicable regulations. However, in the context of supply limitations during the current pandemic, non-fit-tested disposable N95 respirators can be considered for personnel at lower risk of exposure or lower risk of complications from influenza until fit testing can be completed. This use will provide protection from droplets and splatter, as would facemasks, but also will provide some additional protection against small particle aerosols. Personnel using the replacement, non-fit-tested disposable N95 respirators should receive training on use of the model being used. Facilities should fit-test workers with the new model of disposable N95 respirator as soon as possible, beginning with those staff who are assigned to duties that involve higher-risk exposure. (refer to Table 2 in main guidance for relative risks of different activities)
In what settings could powered air-purifying respirators (PAPRs) be considered as an alternative to disposable N95 respirators?

One alternative for respiratory protection of healthcare personnel in settings when disposable N95 respirators are unavailable or in short supply is the powered air-purifying respirator (PAPR). Some healthcare facilities and personnel have accumulated experience with these devices, most commonly in settings such as procedure rooms (e.g. bronchoscopy suites) and in certain laboratory settings. PAPRs have the advantages of being more protective than N-95 respirators and the hooded designs can be worn with facial hair and do not require fit testing. PAPRs can also be cleaned and disinfected for reuse as indicated by manufacturers’ instructions. Cleaning and disinfection procedures must be compatible with clinical use.

PAPRs can interfere with important patient care activities such as using a stethoscope to listen to patients’ heart or lungs. Thus, PAPRs are not a practical option for use in many patient care settings. However, their use in even limited situations, such as aerosol-generating procedures, would increase the supply of disposable N95 respirators for other uses.

In what settings could elastomeric respirators be considered an alternative to disposable N95 respirators?

Elastomeric half-mask and full facepiece respirators with N95 or higher particulate filters can be considered as options for respiratory protection of healthcare personnel in certain settings where N95 respirators are not available. While there is little accumulated experience with their use in patient care settings, they do offer some advantages over disposable N95 respirators, including greater durability and their ability to be cleaned and re-used by the same user or by multiple users. In addition, full facepiece respirators offer a greater level of respiratory protection, as well as eye protection. Disadvantages in healthcare settings include the lack of healthcare personnel experienced in their use; the need for devices to be routinely inspected, cleaned, and disinfected; interference with communication with patients and coworkers and the presence of exhalation valves precluding their use in sterile fields. Effective communication with patients and other personnel is also generally limited when wearing these devices. Although elastomeric respirators may not be a practical option for use in many patient care settings, their use even in limited situations, such as aerosol-generating procedures and in clinical laboratory settings would increase the supply of disposable N95 respirators for other uses.

Where can I find more information on the various types of respirators?

Information on all types of respirators is available at: "NIOSH Safety and Health Topic: Respirators". A listing of all NIOSH-approved disposable respirators is available at "NIOSH-Approved Particulate Filtering Facepiece Respirators".
Can "industrial N95 respirators" be used when splashes or sprays of potentially infectious body fluids are anticipated?

NIOSH-certified "industrial N95 respirators" for protection against particulate aerosols (liquids as well as solids) fall into two groups: disposable N95 respirators and reusable elastomeric respirators (either half face or full face). These respirators have not been cleared as medical devices by FDA. They should not be used as "surgical respirators" in situations where a sterile field is required (e.g. during an invasive procedure in an operating or procedure room).

Depending on if they are disposable N95 respirators or reusable elastomeric respirators, different approaches should be taken to using these two types of "industrial N95 respirators" as personal protective equipment in settings where splashes or sprays of potentially infectious body fluids are anticipated.

Disposable N95 respirators not cleared as medical devices by FDA have not generally been evaluated against the test standard recommended for fluid resistance determination for medical masks. Healthcare personnel who use these respirators in settings where splashes or sprays of body fluids are expected should wear a face shield over the disposable N95 respirator to assure protection against fluid penetration. The face shield will also provide the eye protection that is required in this situation.

The facepieces of reusable elastomeric respirators are constructed of natural or synthetic rubber, materials that are far more fluid resistant than the filter materials used in making disposable N95 respirators or medical masks. Half facepiece reusable elastomeric respirators do not provide eye protection. Therefore, healthcare personnel using them in situations where fluid splashes or sprays are expected should also wear eye protection (such as goggles or a face shield). Full facepiece reusable elastomeric respirators provide both respiratory and eye protection. Thus, when they are used, additional eye protection is not necessary.