Massachusetts Healthcare Personnel Influenza Vaccination in Long Term Facilities

October 31, 2017

Helen Magliozzi, RN, BSN, Director of Regulatory Affairs Massachusetts Senior Care

Alfred DeMaria, Jr., M.D. Medical Director, State Epidemiologist, MDPH

Joyce Cohen, MPH, Epidemiologist, MDPH Influenza Coordinator

Eileen McHale, RN, BSN, MDPH Healthcare Associated Infection Coordinator

Valerie Lawrence, LPN
Welcome from Helen Magliozzi from Massachusetts Senior Care Association
Learning Objectives

• Provide facts about influenza

• Review the basics of influenza prevention strategies in long term care settings

• Provide background and regulatory context for the Massachusetts Department of Public Health (DPH) healthcare personnel (HCP) influenza vaccination reporting requirement

• Review state and national performance goals

• Provide results: 2016-2017 Long Term Care Facility HCP Influenza Vaccination

• Review best practices to promote HCP influenza vaccination
Influenza Facts
• Range of 3,349-48,614 (average 23,607) influenza-related deaths
  – 2.7 times higher when H3N2 prominent
  – ~90% among 65 and older
  – ~2,400 deaths annually among 19-64 year olds

• Annual average of 220,000 hospitalizations
  – ~50% in 65 and older

• 17-50 million people infected each year
• 70 million missed work days
• 38 million missed school days
• $3-15 billion in direct and indirect costs

MMWR 2010;59:1057-62
Vaccines Are Highly Cost Effective

For every $1 spent* on vaccine:

- DTaP saves.........................$27.00
- MMR saves..........................$26.00
- Perinatal Hep B saves............$14.70
- Influenza saves....................$13.66
- Varicella saves.....................$5.40
- Inactivated polio (IPV) saves.....$5.45

* Direct and indirect saving (including work loss, death and disability)

(Updated from a presentation by S. Cochi, CDC, Washington DC, 7/27/05)
Why a Yearly Influenza Vaccination?

- Surface antigens change

- Antibody wanes over a year
  - Little evidence that protection wanes during the influenza season that the vaccine was received
  - One dose recommended per season (except some children)
A/Michigan/45/2015 (H1N1)pdm09-like [NEW]

A/Hong Kong/4801/2014 (H3N2)–like

B/Brisbane/60/2008–like (Victoria lineage)

B/Phuket/3073/2013–like (Yamagata lineage)
Influenza Vaccine Formulations

- Inactivated influenza vaccine, trivalent (IIV3s) and quadrivalent (IIV4s) standard dose
- Cell culture-based inactivated influenza vaccine, quadrivalent (ccIIV4)
- Recombinant influenza vaccine, trivalent (RIV3) and quadrivalent (RIV4)
- Live attenuated influenza vaccine, quadrivalent (LAIV4)
- Inactivated high dose, trivalent (IIV3)
- Inactivated adjuvanted, trivalent (aIIV3)
- Intradermal, quadrivalent (IIV4)
Groups at Increased Risk for Influenza Infection or Complications

- Adults 50 years of age or older
- Children
- Persons with chronic illness
  - Asthma or chronic pulmonary disease, including cystic fibrosis
  - Hemodynamically significant cardiac disease
  - Immunosuppressive disorders or therapy
  - HIV infection
  - Sickle cell anemia and other hemoglobinopathies
  - Persons 6 months to 18 years receiving chronic aspirin therapy
  - Chronic metabolic diseases, including DM
  - Any condition (e.g. cognitive dysfunction, spinal cord injuries, seizure disorder, neuromuscular disease) that can compromise respiratory function, handling of secretions or increase the risk of aspiration
- Residents of long-term care facilities
- Persons 6 months to 18 years receiving chronic aspirin therapy
- Morbidly obese (BMI 40 or more)
- Pregnant women
Dispelling Myths

• A flu shot can cause flu
  – It can’t

• The flu shot made me sick.
  – Rare, more often coincidence

• I never get sick
  – Anyone can get flu, no special immunity

• I am healthy, I don’t have to worry about influenza
  – Anyone can have a rare complication and anyone can spread influenza to someone who is high risk)

• Flu shots have many side effects
  – Adverse events occur less often than with common OTC and prescribed drugs)
Benefits of Vaccinating Healthy Workers

- Randomized, blinded controlled trial
- 424 received vaccine, 425 placebo
- Clinical impact
  - URI down 25%
  - Sick days due to URI down 43%
  - Physician visits down 44%
  - Days of URI illness down 20%
  - Days of total sick leave down 36%
- Economic benefit
  - $4.68 saved for every dollar spent on vaccination
    - Direct costs (vaccine and medical care) $0.60 saved per dollar spent
    - Indirect costs (work and work time) $4.08 saved per dollar spent
### Side Effects of Inactivated Flu Vaccine


<table>
<thead>
<tr>
<th></th>
<th>Vaccine</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Systemic complaint</strong>*</td>
<td>34.1%</td>
<td>35.2%</td>
</tr>
<tr>
<td><strong>Arm soreness</strong></td>
<td>63.8%</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

*Fever, tiredness, “under the weather”, muscle aches and headaches (all no difference)*
Why Influenza Vaccination for Healthcare Personnel (HCP)?

1. High risk of exposure
2. Prevents illness
3. Keeps HCP and colleagues at work
4. Keeps patients healthier
5. Keeps HCP family healthier
6. Saves costs for HCP and the health care system
7. Provides a good example
Percentage of health-care personnel (HCP) who received influenza vaccination, by occupational setting

Internet panel survey, United States
Percentage of health-care personnel (HCP) who received influenza vaccination, by occupation type

Internet panel survey, United States
Influenza Control and Reporting
### Control of Influenza and Pneumococcal Disease in Long-Term Care Facilities (LTCFs) 2017 – 2018

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Recommendations</td>
<td>1</td>
<td>Teleform for Reporting ILI Clusters</td>
<td>7</td>
</tr>
<tr>
<td>Prevention and Control Strategies</td>
<td>2</td>
<td>Infection Control</td>
<td>7</td>
</tr>
<tr>
<td>Vaccine Composition</td>
<td>2</td>
<td>Antiviral Treatment</td>
<td>7</td>
</tr>
<tr>
<td>Timing of Flu Vaccination</td>
<td>2</td>
<td>Antiviral Prophylaxis</td>
<td>8</td>
</tr>
<tr>
<td>Vaccinate Residents and Staff</td>
<td>3</td>
<td>Flu Testing</td>
<td>9</td>
</tr>
<tr>
<td>Healthcare Worker Vaccination Rates</td>
<td>3</td>
<td>Specimen Collection and Shipping</td>
<td>9</td>
</tr>
<tr>
<td>LAIV Not Recommended 2017-2018</td>
<td>5</td>
<td>Pneumococcal Vaccine Recommendations</td>
<td>10</td>
</tr>
<tr>
<td>Egg Allergy</td>
<td>5</td>
<td>Insurance Coverage and Pneumococcal Vaccine</td>
<td>11</td>
</tr>
<tr>
<td>Tdap Vaccine</td>
<td>6</td>
<td>Regulations, Requirements, Reimbursement</td>
<td>11</td>
</tr>
<tr>
<td>Neurologic Conditions/ Congregate Housing</td>
<td>6</td>
<td>Vaccine Ordering and Locating Clinics</td>
<td>12</td>
</tr>
<tr>
<td>Surveillance and Reporting</td>
<td>7</td>
<td>Guidance and Resources for Large Clinics</td>
<td>12</td>
</tr>
<tr>
<td>Immediately Reportable Conditions/Cases</td>
<td>7</td>
<td>References and Resources</td>
<td>13</td>
</tr>
</tbody>
</table>

### Key Recommendations

**Everyone** aged 6 months and older should receive flu vaccine every year. The Advisory Committee on Immunization Practices (ACIP) recommends vaccination with either the inactivated influenza vaccine (IIV) or recombinant influenza vaccine (RIV). Vaccination should not be delayed to procure a specific vaccine formulation. Begin offering flu vaccine as soon as it is available. There is no preferential recommendation for any one age-appropriate inactivated flu formulation over another. Choice of which influenza vaccine formulation to use should primarily be driven by the age indication, contraindications and precautions. There is no current preference for quadrivalent vs. trivalent or high-dose vs. adjuvanted vs. standard dose.

**Vaccinate staff:** In Massachusetts during 2016-2017, 75% of healthcare workers in LTCFs and Rest Homes received influenza vaccine. Only 60% of healthcare workers in Adult Day Health programs received influenza vaccine. In contrast, 82% of acute care facilities in Massachusetts achieved vaccine coverage of 90% or greater among healthcare workers. MDPH encourages facilities to review current healthcare personnel influenza policies implement processes to maximize vaccination coverage. All healthcare facilities should strive to reach the goal of having 90% of healthcare personnel vaccinated annually against influenza in order to best protect patients, family members, and staff from influenza illness.

**Influenza-like illness in your facility?** See page seven for guidance on reporting clusters of influenza-like illness, prophylaxis of those exposed, and other control measures.

### What’s New for the 2017-2018 Season?

- **Afluria.** Afluria (Trivalent) and Afluria Quadrivalent inactivated influenza vaccines by (Seqirus) can both be used in persons 5 years of age and older.
- **Flublok.** Flublok Quadrivalent, a recombinant influenza vaccine (RIV4) by Protein Sciences, was
- **IV IIV.** Intranasally administered inactivated influenza vaccine (IIV) was introduced by Vi-IV (ViraPharma).
If you suspect Influenza-like Illness (ILI) in your facility

• Call 617-983-6800 to request a respiratory teleform

• Report your ILI clusters via faxed teleform!

• Test promptly, treat promptly and empirically.

• Isolate/cohort ill patients.
If you suspect Influenza-like Illness (ILI) in your facility

• Use standard precautions & droplet precautions when caring for patients suspected of having influenza

• Encourage/remind/educate residents and visitors on respiratory hygiene/cough etiquette

• Watch for new cases (conduct daily active surveillance)

• Use antiviral chemoprophylaxis (CDC recommends using antiviral chemoprophylaxis for all non-ill residents for outbreak control when you have a laboratory–confirmed case of flu or when 3 or more residents have ILI)
If you suspect Influenza-like Illness (ILI) in your facility

- Continue to offer vaccine to unvaccinated staff and patients
  - Revisit vaccination with your staff throughout influenza season
    - Flu season can sometimes last into April and even into May!
  - When Influenza is circulating in your facility
    - Unvaccinated staff should be offered antiviral chemoprophylaxis as well as patients
    - Unvaccinated staff can wear masks to help protect your patients
    - Symptomatic staff should be excluded from work until at least 24 hours after they no longer have a fever without taking any fever reducing medication
Thursday, November 2, 2017, 12:00-1:00 p.m.
2017-2018 Influenza Season Update; MDPH Vaccine Update
Susan Lett, MD, MPH, Medical Director, MDPH Immunization Program

Learning Objectives
At the conclusion of the program, the participant should be able to:
• Review the Advisory Committee on Immunization Practices (ACIP) recommendations for the 2017-2018 influenza season;
• Describe the latest MDPH information about vaccine supply and availability, as well as programmatic updates.

For more information and to register, visit:
www.mcaap.org/immunization-cme/#webinars
Resources

Pneumococcal Vaccination Recommendations:

Since 2014, the ACP recommends that PCV13 and PPSV23 should be administered routinely at all
immunocompetent adults aged ≥65 years. PCV13 should be administered once for all at the
recommended interval between PCV13 and PPSV23 vaccines were updated in 2019 and public
M/WAW.

Specific recommendations are based on a person’s previous pneumococcal vaccination history:

- **Persons who are pneumococcal vaccine-naive:** Adults aged ≥65 years who have not previously received pneumococcal vaccine or whose previous vaccination history is unknown should be given PCV13 first, followed by a dose of PPSV23. The dose of PPSV23 should be given ≥5
  years after PCV13.
- **Persons previously vaccinated with PCV13:** Adults aged ≥65 years who have previously received doses of PCV13 and also should receive a single dose of PCV13 if they have not yet received a
  dose of PCV13 or ≥5 years after the most recent dose of PPSV23.
- **Persons previously vaccinated with PPSV23:** Adults aged ≥65 years who have previously
  received doses of PPSV23 and also should receive a single dose of PCV13 if they have not yet received a dose of PCV13 or ≥5 years after the most recent dose of PPSV23.

- **The two vaccines should not be co-administered.** If doses of PPSV23 and PCV13 are given
  on the same day or earlier than the recommended interval, these doses do not need to be re-

- **Adults ≥65 years and older at increased risk for pneumococcal disease who have already
  received one or more doses of PCV13 at 64 years or younger should not receive another dose
  of PCV13 at 65 years or older if they meet any of these criteria:

- **Five adults ≥65 years with immunocompromising conditions, functional or anatomic
  asplenia, or cochlear implants, the recommended interval between a dose of PCV13 and
  PPSV23 ≥5 years. This interval maximizes the risk window for invasive pneumococcal disease
  and serotypes unique to PCV13 in these highly vulnerable groups.

For more details about the sequential schedule and intervals, please see the algorithm below.

Sequential Administration and Recommended Intervals for PCV13 and PPSV23 for Immunocompetent Adults Aged ≥65 Years

**Pneumococcal vaccine naïve persons aged ≥65 years:**

- PCV13 at age ≥65 years
- PPSV23 at age ≥65 years

**Persons who previously received PCV13 at age ≥65 years:**

- PCV13 at age ≥65 years
- PPSV23 at age ≥65 years

**Persons who previously received PCV13 before age ≥65 years who have not received ≥5 years after PCV13:**

- PCV13 at age ≥65 years
- PPSV23 at age ≥65 years

**Notes:**

1. If ≥5 doses of PCV13 and PPSV23 are inadvertently given on the same day or earlier than the
   recommended interval, these doses do not need to be repeated.

2. For adults in this age group with immunocompromising conditions, functional or anatomic
   asplenia, or cochlear implants, the recommended interval is ≥20 years.

Control of Influenza and Pneumococcal Disease is LTF.

2017-2018

Pneumococcal vaccination

Finding clinics, ordering vaccine, and holding large vaccination clinics

CDC references
Regulatory Requirement

Performance Goals

2016-2017 Results

Best Practices to Promote HCP influenza Vaccination
Health care personnel (HCP) are at high risk for influenza exposure and illness, and may be a source of influenza virus transmission in health care settings.

Annual immunization is the best method of preventing influenza and potentially serious complications.*

Influenza vaccination of HCP in long-term-care settings significantly lowers rates of influenza like illness, hospitalization and mortality of elderly residents.**

Influenza vaccination of HCP results in reductions in staff illness and illness-related staff absenteeism.

The Massachusetts Department of Public Health (DPH) considers the prevention of influenza by promoting vaccination an organizational priority that should be part of the overall institutional commitment to improvement for licensed healthcare facilities.

*https://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm
**https://www.shea-online.org/images/position-statements/IDSA_SHEA_PIDS-Policy-on-Mandatory-Immunization-of-HCP.pdf
As a condition of licensure, DPH regulations require health care facilities, including nursing homes and rest homes to:

- Offer free-of-charge, annual influenza vaccine to all personnel (full and part-time employees, contracted employees, volunteers, house staff and students);
- Document receipt of influenza vaccine administered within and outside the facility or document the declination of immunization for HCP; and
- Report information to DPH documenting compliance with the vaccination requirement, in accordance with reporting and data collection guidelines of the Commissioner (105 CMR.)

105 CMR 150.002(D)(8)
Performance Goal

To protect the lives and welfare of patients, employees, and communities, as well as to improve quality and reduce healthcare costs, DPH has established an overall minimum influenza vaccination rate of 90% or greater for eligible HCP at all licensed healthcare facilities.

This performance goal is intended to advance patient and HCP health and safety by ensuring optimal HCP influenza vaccination coverage, and is in alignment with the National Healthy People 2020 target of 90% influenza coverage of HCP.

https://www.healthypeople.gov/node/4668/data_details
Mean Percent of Nursing Home HCP Vaccinated Against Influenza During the 2016-2017 Season

<table>
<thead>
<tr>
<th></th>
<th>Mean % Vaccinated</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Vaccinated</strong></td>
<td>75%</td>
<td>(15-100%)</td>
</tr>
<tr>
<td><strong>Total Exceptions</strong>*</td>
<td>23%</td>
<td>(0-78%)</td>
</tr>
</tbody>
</table>

**Location Vaccinated**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>At Place of Employment</td>
<td>54%</td>
<td>(0-100%)</td>
</tr>
<tr>
<td>Outside Place of Employment</td>
<td>21%</td>
<td>(0-83%)</td>
</tr>
</tbody>
</table>

N=358 Facilities Submitted Data  
*Total exceptions may include declination, medical contraindication or religious exemption.
## 2016-2017 Results: Rest Homes

### Mean Percent of Rest Home HCP Vaccinated Against Influenza During the 2016-2017 Season

<table>
<thead>
<tr>
<th></th>
<th>Mean % Vaccinated</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Vaccinated</td>
<td>75%</td>
<td>(47-100%)</td>
</tr>
<tr>
<td>Total Exceptions*</td>
<td>30%</td>
<td>(0-70%)</td>
</tr>
</tbody>
</table>

**Location Vaccinated**

<table>
<thead>
<tr>
<th>Location</th>
<th>Mean % Vaccinated</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Place of Employment</td>
<td>35%</td>
<td>(0-76%)</td>
</tr>
<tr>
<td>Outside Place of Employment</td>
<td>40%</td>
<td>(6-87%)</td>
</tr>
</tbody>
</table>

N=20 Facilities Submitted Data

*Total exceptions may include declination, medical contraindication or religious exemption.*
### Mean Percent of HCP Influenza Vaccinations and Declinations as Reported by Massachusetts Clinics, Nursing Homes, Rest Homes and Adult Day Health Programs: 2012-2017 Seasons

<table>
<thead>
<tr>
<th>Year</th>
<th>Clinic Vaccinated</th>
<th>Clinic Declined</th>
<th>Nursing Home Vaccinated</th>
<th>Nursing Home Declined</th>
<th>Rest Home Vaccinated</th>
<th>Rest Home Declined</th>
<th>Adult Day Health Vaccinated</th>
<th>Adult Day Health Declined</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>80%</td>
<td>20%</td>
<td>90%</td>
<td>10%</td>
<td>60%</td>
<td>40%</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>2013-14</td>
<td>85%</td>
<td>15%</td>
<td>85%</td>
<td>15%</td>
<td>70%</td>
<td>30%</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>2014-15</td>
<td>90%</td>
<td>10%</td>
<td>90%</td>
<td>10%</td>
<td>80%</td>
<td>20%</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>2015-16</td>
<td>95%</td>
<td>5%</td>
<td>95%</td>
<td>5%</td>
<td>90%</td>
<td>10%</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>2016-17</td>
<td>90%</td>
<td>10%</td>
<td>90%</td>
<td>10%</td>
<td>80%</td>
<td>20%</td>
<td>95%</td>
<td>5%</td>
</tr>
</tbody>
</table>

* 2015-2016 Season was the first year Adult Day Health Programs were required to report.
Evidence Based Approaches to Maximize Healthcare Personnel Influenza Vaccination

- Education and Campaigns
- Access to Vaccination
- Measurement and Feedback
- Leadership Commitment
Leadership is responsible for:

- Establishing expectation that influenza vaccination is a patient safety issue
- Ensuring institutional commitment
- Reducing or eliminating barriers
- Serving as a role model
- Providing adequate resources
Leadership Role

• Organizational commitment should be clearly stated and communicated from the top leadership to employees at all levels.

• Establish performance goals that represent a shared responsibility among all employees each of whom has a stake in the organization's success.

• Empower employees with the tools, resources and decision making authority to ensure performance goals are met or exceeded.

• Establish accountability for performance

• Conduct ongoing review of performance data to determine whether strategic goal is being met throughout the flu season.

• Transform data into actionable information
Available Tools for Increasing Influenza Vaccination among Health Care Personnel in Long-term Settings

There are ways to improve health care personnel (HCP) influenza vaccination rates. Helpful resources are organized into the following categories:

- Campaign Materials
- Toolkits for Establishing and Improving an Influenza Vaccination Program
- Cultural and Language Resources
- Guidance for Promoting Influenza Vaccination in Your Facility

https://www.cdc.gov/flu/toolkit/long-term-care/resources.htm
Additional Resources

2017–2018 Advisory Committee on Immunization Practices (ACIP)
https://www.cdc.gov/mmwr/indrr_2017.html

CDC Safe Vaccine Administration Practices https://www.cdc.gov/vaccines/hcp/admin/admin-protocols.html

CDC influenza vaccine information for providers and patients: http://www.cdc.gov/flu
Summary

- HCP influenza vaccination is a critical component of flu prevention efforts.

- The best way to prevent influenza and its complications in long term care facilities is annual vaccination among HCP and residents.

- Evidence based strategies to promote influenza vaccination among HCP are available.

- DPH will disseminate a circular letter to all long term care facilities communicating specific instructions for reporting HCP influenza data for the 2017-2018 influenza season.
Reporting HCP Influenza data
  – Eileen McHale: eileen.mchale@state.ma.us or 617-753-7324

MDPH Influenza Coordinator
  – Joyce Cohen: Joyce.cohen@state.ma.us or 617 983-6800

CDC Image