Influenza Vaccination: An Underutilized Tool in Combating Health Disparity

Corey Robertson, MD, MPH, FACP
Senior Director, Scientific & Medical Affairs US
Influenza Remains a Serious Public Health Concern

Annually in the United States\(^a\), influenza is estimated to cause:

- **9.2M–35.6M** Cases\(^1\)
- **140K–710K** Influenza-related hospital admissions\(^1\)
- **12K–56K** Influenza-related deaths\(^1\)
- **(together with pneumonia, influenza is 8th leading cause of death)**\(^2\)
- **>$87 Billion** in total economic burden\(^3\)

\(^a\) Since 2010

References

Influenza in Adults 65+: A Vulnerable Population

Older Americans suffer disproportionately from influenza-related morbidity and mortality:\(^1\):

Adults 65+ represent \(~15\%\) of the US population\(^2\), but account for:

- 63\% of hospitalizations\(^3\)
- 90\% of deaths\(^4\)

References
Potential Complications of Influenza

DIRECT effects: Respiratory

- Asthma & COPD exacerbations
- Sinus Infection
- Bronchitis and Pneumonia

INDIRECT effects: Multi-Organ Systems

TRIGGER for:
- acute myocardial infarction, ischemic heart disease, and cerebrovascular disease

EXACERBATION of:
- hypertension, renal disorder and diabetes

References:
Possible Causative Role of Influenza Infection in CVD

Influenza infection may also lead to disruption of homeostasis

Exacerbation of existing CVD

Systemic inflammation leading to disruption of atherosclerotic plaques

Direct effect

Viral myocardial infection leading myocarditis or myopericarditis

Myocardial infarction

Cerebrovascular accident

Chronic heart failure

Reference:
“Minorities have a greater burden of myocardial infarction, heart failure, stroke, and other cardiovascular events; these disparities translate to inequitable cardiovascular morbidity, mortality, and quality of life.”

— Garth Graham, MD, MPH

Reference:
Seasonal Flu Vaccine Effectiveness

Reference:
Changing the Perspective

From the glass being half empty…

…to it being half full…
Benefits of Flu Vaccination 2014-2015

The estimated number of influenza-associated illnesses prevented by flu vaccination during the 2014-2015 season: **1.9 million**

greater than the population of the city of Philadelphia

The estimated number of flu-associated medical visits prevented by vaccination during the 2014-2015 season: **966,000**

as many people as can fit in Manhattan’s Times Square

The estimated number of flu hospitalizations prevented during the 2014-2015 season: **67,000**

as many people as Seattle’s Seahawks stadium can seat

**VE=19%**

Reference:
"Estimates of influenza vaccine efficacy in preventing myocardial infarction are within the range of efficacy estimates associated with accepted routine CVD preventive measures, such as smoking cessation and statin or hypertensive therapy."
Where We Fall Short

Healthy People 2020 goal of 70% for all adults (90% for health care personnel)

Vaccine coverage, 2016-2017 influenza season

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Percent of Persons Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥65</td>
<td>65.3%</td>
</tr>
<tr>
<td>50-64</td>
<td>45.4%</td>
</tr>
<tr>
<td>18-64 High-risk</td>
<td>46.4%</td>
</tr>
<tr>
<td>18-49 High-risk</td>
<td>33.6%</td>
</tr>
<tr>
<td>All adults</td>
<td>43.3%</td>
</tr>
</tbody>
</table>

References
Where We Fall Even Shorter

Vaccine coverage, 2016-2017 influenza season

Healthy People 2020 goal of 70% for all adults

Percent of Persons Vaccinated

- Asian: 47.1%
- non-Hispanic whites: 45.9%
- Multiple races: 41.7%
- AI/ANs: 37.5%
- non-Hispanic blacks: 37.4%
- Hispanics: 36.9%

References
Current Influenza Vaccine Options for Persons with Comorbid Conditions

- Split-Virus
- Adjuvanted
- 3- and 4-valent
- Recombinant
- Higher-Dose
- Subunit
- Cell-Based
Studies of High-Dose Influenza Vaccine\textsuperscript{1-5}

Efficacy of High-Dose versus Standard-Dose Influenza Vaccine in Older Adults


References:

Efficacy of Recombinant Influenza Vaccine in Adults 50 Years of Age or Older

Lisa M. Dunkle, M.D., Ruvim Izikson, M.D., M.P.H., Peter Patriarca, M.D., Karen L. Goldenthal, M.D., Derek Muse, M.D., Janice Callahan, Ph.D., and Manon M.J. Cox, Ph.D., for the PSC12 Study Team*
The Power of a Clinician’s Recommendation for Influenza Vaccine

• A clinician’s recommendation for influenza vaccine is a strong predictive factor for immunizing patients of all ages\textsuperscript{1,2}

• Standards for Adult Immunization from the National Vaccine Advisory Committee call on all providers to\textsuperscript{3,4}:
  • Incorporate immunization needs assessment into every clinical encounter
  • Strongly recommend all immunizations that patients need
  • Either administer vaccines or refer the patient to a provider who can immunize

THANK YOU
BACK-UP
Sanofi Pasteur has partnered with United Healthcare Group, CMS, and NMQF-Sustaining Healthy Communities to:

- Describe the uptake patterns of influenza vaccines (high-dose, cell-cultured, standard-dose)
- Assess the influence of individual, provider, community and health plan/system characteristics associated with increased (or decreased) likelihood of vaccination
- Inform the future design and testing of interventions—ideally, low-effort, low-expense “nudges”—to drive higher uptake of the optimal vaccine for each population
Estimated Number of Averted Influenza-Associated Hospitalizations in Adults ≥65 Years in the US

<table>
<thead>
<tr>
<th>Year</th>
<th>Hospitalizations Averted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>2,383</td>
</tr>
<tr>
<td>2012-2013</td>
<td>4,795</td>
</tr>
<tr>
<td>2013-2014</td>
<td>7,798</td>
</tr>
<tr>
<td>2014-2015</td>
<td>10,879</td>
</tr>
<tr>
<td>2015-2016</td>
<td>14,247</td>
</tr>
<tr>
<td>2016-2017</td>
<td>17,937</td>
</tr>
<tr>
<td>2017-2018</td>
<td>21,987</td>
</tr>
<tr>
<td>2018-2019</td>
<td>27,548</td>
</tr>
<tr>
<td>2019-2020</td>
<td>43,039</td>
</tr>
<tr>
<td>2020-2021</td>
<td>59,835</td>
</tr>
<tr>
<td>2021-2022</td>
<td>78,075</td>
</tr>
<tr>
<td>2022-2023</td>
<td>97,915</td>
</tr>
<tr>
<td>2023-2024</td>
<td>119,532</td>
</tr>
</tbody>
</table>