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Seniors’ Health: Adding Life To Years

Age

60  70  80  90

1980’s

1990’s

2000’s

60  70  80  90

Age

COACHNet

RésSPAPSA
Non-Communicable Diseases

major risk factors for disability and death

- Leading cause of death worldwide (36M of the 57M deaths in 2008) (cardiovascular and respiratory diseases, diabetes, cancers)
- 80% of deaths from NCDs are in low- and middle-income countries (29% in the under 60 population vs. 13% in developed countries)
- NCDs will cost over $30 trillion during the next 20 years, and push millions of people into poverty
- NCDs are major risk factors for complications of influenza that lead to hospitalization, disability and death
- Annual influenza cost estimates: €5.9 billion and €27.7 billion

The unavoidable reality is that ten-millions of people would be at risk of dying in a severe global pandemic.

Unless the fundamental gap between global need and global capacity is closed, we invite future catastrophe.

The review committee urges countries to immunize their populations yearly against seasonal influenza:
- reduce burden of disease
- support increased global capacity for vaccine production
- experience with comprehensive seasonal flu vaccine programs provides valuable preparation in advance of a pandemic.
Influenza prevention programs are institutionalized in many countries, in many others not yet.
Case Scenario

75 yo woman previously active and independent in the community

- On Superbowl Sunday developed sudden onset of muscle aches, feverishness and cough - 24 hours later intubated in the ICU
- Lifelong non-smoker who had been independent in her home. She has hypertension stable on medications and stable heart disease.
- 10-day hospitalization including 3 days in ICU - discharged to rehab facility with diagnosis of exacerbation of COPD.
- On admission to geriatric rehabilitation, required assistance for transfers and difficulty walking.
- Three days later, non-productive cough and malaise worsens
- *Her question:* Will I ever be able to go back to my home?
Chronic diseases that increase risk for influenza and complications of infection are very common in older adults.
Risks Associated with Hospitalization:
United States 1993-1997

65+ population are hospitalized 3X more often than younger adults; 37% of discharges, 50% of inpatient days, and 60% of expenditures.

65+ population – 80% have one chronic disease; 50% have two.

At discharge, 33% are more disabled and one half never recover.

5% die in hospital, 20-30% die in the year after hospitalization.

Elixhauser A et al; AHRQ Pub. No. 00-0031, HCUP Fact Book No. 1, 2000
The Effect of Immunosenescence

Incidence of serious outcomes of influenza ↑
- 90% of influenza deaths occur in older people
- For every influenza death, there are 3–4 influenza hospitalizations

Response to vaccination ↓
CURRENT INFLUENZA VACCINE
- Efficacy is 70–90% in preventing respiratory illness in healthy adults and only 30–40% in older people
- BUT are cost-saving - indicates a clear margin for improvement
### Influenza and Pneumonia: Predictors of Hospitalization and Death

#### Hospitalization due to influenza and pneumonia, and death to any cause

<table>
<thead>
<tr>
<th>Age, years</th>
<th>Score</th>
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<tbody>
<tr>
<td>&lt;70</td>
<td>0</td>
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<tr>
<td>70-74</td>
<td>14</td>
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<tr>
<td>75-79</td>
<td>28</td>
</tr>
<tr>
<td>80-89</td>
<td>42</td>
</tr>
<tr>
<td>≥90</td>
<td>56</td>
</tr>
<tr>
<td>Male</td>
<td>9</td>
</tr>
<tr>
<td>Outpatient visits in previous year</td>
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</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-6</td>
<td>11</td>
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<tr>
<td>7-12</td>
<td>22</td>
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<tr>
<td>≥13</td>
<td>33</td>
</tr>
<tr>
<td>Previous hospitalization for pneumonia or influenza</td>
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</tr>
<tr>
<td>63</td>
<td></td>
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<tr>
<td>Comorbidity</td>
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<tr>
<td>Pulmonary disease</td>
<td>18</td>
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<tr>
<td>Heart disease</td>
<td>6</td>
</tr>
<tr>
<td>Renal disease/transplant</td>
<td>12</td>
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<tr>
<td>Dementia or stroke</td>
<td>22</td>
</tr>
<tr>
<td>Nonhematological and hematological cancer</td>
<td>48</td>
</tr>
</tbody>
</table>

Hak et al. JID 189:450, 2004
Influenza: Predictor of Excess Mortality

**Vaccine Preventable Disability**

**Catastrophic disability**
- Defined as a loss of independence in ≥ 3 ADL
- 72% who experience catastrophic disability have been hospitalized
- Leading causes of catastrophic disability
  1. Strokes
  2. CHF
  3. Pneumonia and influenza
  4. Ischemic heart disease
  5. Cancer
  6. Hip fracture

Ferrucci et al. JAMA 277:728, 1997
Clinical Frailty Scale:

1. **Very fit** – robust, active, energetic, well motivated and fit; exercise regularly, are in the most fit group for their age

2. **Well** – without active disease, less fit than people in category 1

3. **Well, with treated chronic disease** – symptoms are well controlled compared to those in category 4

4. **Apparently vulnerable** – not frankly dependent, but commonly complain of being “slowed up” or have disease symptoms

5. **Mildly frail** – limited dependence on others for instrumental activities of daily living

6. **Moderately frail** – help is needed with both instrumental and basic activities of daily living (e.g. climbing stairs and bathing)

7. **Severely frail** – mostly dependent on others for the activities of daily living

8. **Very severely frail** – completely dependent on others for the activities of daily living

9. **Terminally ill**

Rockwood et al; CMAJ; 173:489-495, 2005
Vitality and Independence
Vaccines: Promoting Independence Preventing Disability

Cardiovascular Disease
Diabetes
Osteoporosis
Chronic Lung Disease
Cognitive Impairment

Usual Aging

Dynamic Frailty

IADL Frailty

ADL Frailty
Summary: Meeting the challenges of chronic diseases in an aging population

- The determinants of health – how does vaccination impact on our ability to remain active through late life?

- Exercise, healthy diets, and vaccination remain the key strategies to successful aging – how do public health strategies impact on vitality and quality of life?

- ‘Dynamic frailty’ should be recognized and goals of care established to return to previous level of independence – how does vaccination contribute to a sustainable healthcare system in an aging population?