Protection of Health Care and other Essential Workers During COVID19 Response

Chip Hughes, Director
Worker Training Program
National Institute of Environmental Health Sciences
NIEHS WTP: Exposure prevention for COVID19 essential workers

- Introduction by Chip Hughes, Director, NIEHS Worker Training Program (WTP)

- Presenters (10 minutes for each speaker):
  - Lisa Brosseau, Sc.D., (retired professor, University of Illinois at Chicago)
    - Topic: science and evidence on transmission of short-range aerosols SARS CoV-2
  - Shawn Gibbs, Ph.D., Indiana University Bloomington
    - Topic: Pandemic Extended Use and Reuse of N95 Filtering Facepiece Respirators
  - Amber Mitchell, D.Ph., International Safety Center / NIEHS WTP
    - Topic: Review of the importance of preventing occupational mucocutaneous exposures including PPE and eye protection
  - Robert Harrison, M.D., University of California, San Francisco
    - Topic: Summary of Issues
Protecting Yourself from COVID-19 in the Workplace

Safety and Health Awareness for Responders to the Coronavirus
Goal: To increase health and safety awareness for responders and workers who face potential exposure to COVID-19

Training Initiative Objectives:

- Identify key evidence-based methods to prevent and respond to COVID-19 in workplaces providing essential services
- Create a virtual training platform for frontline healthcare, responders, law enforcement, environmental and critical service workers
- Build a cadre of virtual safety trainers/advisors to deliver remote training via advanced training technology to frontline workers
COVID-19 Training Tool

• Increase health and safety awareness for frontline workers

• Objectives:
  – Provide basic facts about COVID-19 (transmission, symptoms)
  – Assess risk of workplace exposure
  – Define key steps in worker protection and infection control
  – Identify methods to prevent and respond to COVID-19 in the workplace

Published on March 23 with NIEHS press release, “COVID-19 Workers Get Training to Protect Their Own Health”

How many health care workers are at risk of being sacrificed to COVID-19 in the US?

Total Health Care Workforce by Job Task and Profession (2018)

<table>
<thead>
<tr>
<th>Health Care Setting (col)</th>
<th>General Medical &amp; Surgical Hospitals</th>
<th>Outpatient Care Centers</th>
<th>Offices of Physicians</th>
<th>Skilled Nursing Facilities</th>
<th>Home Health care Services</th>
<th>Continuing Care Retirement Community &amp; Assisted Living Facilities</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>171,260</td>
<td>27,410</td>
<td>377,430</td>
<td>530</td>
<td>1,470</td>
<td>40</td>
<td>578,140</td>
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<tr>
<td>Respiratory Therapists</td>
<td>98,960</td>
<td>1,260</td>
<td>2,890</td>
<td>6,070</td>
<td>2,390</td>
<td>-</td>
<td>111,570</td>
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<tr>
<td>Physician Assistants</td>
<td>28,050</td>
<td>8,910</td>
<td>64,540</td>
<td>110</td>
<td>80</td>
<td>-</td>
<td>101,690</td>
</tr>
<tr>
<td>Medical Assistants</td>
<td>97,600</td>
<td>57,240</td>
<td>391,160</td>
<td>-</td>
<td>-</td>
<td>13,050</td>
<td>557,050</td>
</tr>
<tr>
<td>Nurse Practitioners</td>
<td>44,160</td>
<td>17,270</td>
<td>84,720</td>
<td>1,180</td>
<td>4,700</td>
<td>-</td>
<td>152,030</td>
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<tr>
<td>Registered Nurses</td>
<td>1,698,700</td>
<td>141,830</td>
<td>197,790</td>
<td>153,120</td>
<td>181,180</td>
<td>34,640</td>
<td>2,407,260</td>
</tr>
<tr>
<td>Licensed Practical &amp; Vocational Nurses</td>
<td>89,760</td>
<td>27,240</td>
<td>90,830</td>
<td>210,850</td>
<td>89,530</td>
<td>51,370</td>
<td>559,580</td>
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<tr>
<td>Nursing Assistants</td>
<td>372,320</td>
<td>13,940</td>
<td>21,080</td>
<td>581,140</td>
<td>80,150</td>
<td>163,950</td>
<td>1,232,580</td>
</tr>
<tr>
<td>Home Health Aides</td>
<td>8,300</td>
<td>1,580</td>
<td>2,970</td>
<td>19,930</td>
<td>440,550</td>
<td>68,870</td>
<td>542,200</td>
</tr>
<tr>
<td>Personal Care Aides</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>348,000</td>
<td>172,720</td>
</tr>
<tr>
<td>Emergency Medical Technicians &amp; Paramedics</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>257,210</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>262,410</td>
<td></td>
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<td>Column Total</td>
<td>2,609,110</td>
<td>296,680</td>
<td>1,231,410</td>
<td>972,930</td>
<td>1,148,050</td>
<td>504,640</td>
<td>6,762,820</td>
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<tr>
<td>Total (All Occupations)</td>
<td>5,546,980</td>
<td>922,090</td>
<td>2,590,770</td>
<td>1,610,650</td>
<td>1,449,540</td>
<td>930,050</td>
<td>13,050,080</td>
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</tbody>
</table>

- Indicates either no data or too few to be reported


Total COVID-19 Cases by Health Care Occupation and by Scenario Models

Figure 3: Number of Positive COVID-19 Cases by Health Care Occupation Under Different Scenarios Based on 3/30/20 Rates

- Italy Rates, as of 3/20 (19.8%)
  - Physicians: 114,672
  - Respiratory Therapists: 22,329
  - Physician Assistants: 20,170
  - Medical Assistants: 110,489
  - Nurse Practitioners: 30,150
  - Registered Nurses: 477,470
  - Licensed Practical & Vocational Nurses: 119,990
  - Nursing Assistants: 244,077
  - Home Health Aides: 107,543
  - Personal Care Aides: 103,283
  - Emergency Medical Technicians & Paramedics: 52,017
  - Pharmacists: 52,048

- High NY Rates (34.5%)
  - Physicians: 199,622
  - Respiratory Therapists: 38,523
  - Physician Assistants: 35,112
  - Medical Assistants: 192,340
  - Nurse Practitioners: 52,493
  - Registered Nurses: 831,186
  - Licensed Practical & Vocational Nurses: 193,214
  - Nursing Assistants: 425,589
  - Home Health Aides: 187,213
  - Personal Care Aides: 179,796
  - Emergency Medical Technicians & Paramedics: 88,810
  - Pharmacists: 90,606

- Low WA Rates (7.5%)
  - Physicians: 43,240
  - Respiratory Therapists: 8,544
  - Physician Assistants: 7,606
  - Medical Assistants: 41,563
  - Nurse Practitioners: 11,571
  - Registered Nurses: 280,043
  - Licensed Practical & Vocational Nurses: 41,852
  - Nursing Assistants: 92,186
  - Home Health Aides: 40,352
  - Personal Care Aides: 58,945
  - Emergency Medical Technicians & Paramedics: 19,257
  - Pharmacists: 19,926

- US Rates (16.6%)
  - Physicians: 55,812
  - Respiratory Therapists: 18,480
  - Physician Assistants: 16,852
  - Medical Assistants: 52,316
  - Nurse Practitioners: 25,195
  - Registered Nurses: 396,840
  - Licensed Practical & Vocational Nurses: 92,735
  - Nursing Assistants: 204,268
  - Home Health Aides: 89,855
  - Personal Care Aides: 86,256
  - Emergency Medical Technicians & Paramedics: 42,626
  - Pharmacists: 43,488

Figure 4a: Number of COVID-19 Deaths by Health Care Occupation Under Different Scenarios Based on 3/30/20 Rates

Figure 4b: Number of COVID-19 Deaths by Health Care Occupation Under Different Scenarios Based on 3/30/20 Rates

<table>
<thead>
<tr>
<th>Occupation</th>
<th>CDC (1.7%)</th>
<th>JHU (4.8%)</th>
<th>Italy as of 3/20 (8.6%)</th>
<th>Italy as of 3/30 (11.4%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed Practical &amp; Vocational Nurse</td>
<td>3,298</td>
<td>9,263</td>
<td>7,264</td>
<td>20,403</td>
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<tr>
<td>Nursing Assistants</td>
<td>4,191</td>
<td>6,975</td>
<td>3,195</td>
<td>8,069</td>
</tr>
<tr>
<td>Home Health Aides</td>
<td>1,573</td>
<td>1,887</td>
<td>692</td>
<td>1,394</td>
</tr>
<tr>
<td>Personal Care Aides</td>
<td>5,087</td>
<td>8,856</td>
<td>20,964</td>
<td>27,833</td>
</tr>
<tr>
<td>Emergency Medical Technicians &amp; Paramedics</td>
<td>1,516</td>
<td>4,258</td>
<td>1,516</td>
<td>4,258</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>315</td>
<td>941</td>
<td>315</td>
<td>941</td>
</tr>
</tbody>
</table>

High: NY Positive Test Rates (30.5%)
Low: WA Positive Test Rates (6.9%)
US Positive Test Rates (15.2%)
Italy Positive Test Rates (19.8%)

COVID19 Cases by occupation and Setting

Figure 5: Combined Number of Positive COVID-19 Cases by Health Care Setting/Occupations Under Different Scenarios Based on 3/30/20 Rates

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Total Six Health Care Settings</th>
<th>Total Twelve Health Care Occupations</th>
<th>Total Combined Health Care Settings/Occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy Rates, as of 3/20 (19.8%)</td>
<td>2,588,431</td>
<td>2,444,442</td>
<td>2,691,495</td>
</tr>
<tr>
<td>High N,Y Rates (34.2%)</td>
<td>4,505,972</td>
<td>2,534,504</td>
<td>4,685,588</td>
</tr>
<tr>
<td>Low V,A Rates (7.5%)</td>
<td>576,035</td>
<td>544,644</td>
<td>1,014,888</td>
</tr>
<tr>
<td>US Rates (16.6%)</td>
<td>2,162,708</td>
<td>2,208,873</td>
<td>2,248,821</td>
</tr>
</tbody>
</table>

Figure 6: Combined Number of COVID-19 Deaths by Health Care Occupation/Setting Under Different Scenarios Based on 3/30/20 Rates

<table>
<thead>
<tr>
<th></th>
<th>CDC (1.5%)</th>
<th>JHU (4.6%)</th>
<th>Italy as of 3/17 (7.9%)</th>
<th>Italy as of 3/27 (10.6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High: NY Positive Test Rates (50.5%)</td>
<td>58,128</td>
<td>182,934</td>
<td>52,498</td>
<td>101,861</td>
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<tr>
<td>Low: WA Positive Test Rates (6.9%)</td>
<td>13,172</td>
<td>41,354</td>
<td>7,351</td>
<td>23,083</td>
</tr>
<tr>
<td>US Positive Test Rates (15.2%)</td>
<td>28,659</td>
<td>91,035</td>
<td>16,178</td>
<td>50,801</td>
</tr>
<tr>
<td>Italy Positive Test Rates (19.8%)</td>
<td>316,352</td>
<td>420,492</td>
<td>114,754</td>
<td>152,530</td>
</tr>
</tbody>
</table>

Thank You for Listening!

Any Questions?