COVID19 in the Nursing Home: Healthcare Worker Safety

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Disclosures

- I have no disclosures to report.
Follow up from 5/4


**COVID-19 Rapid Response Network for Nursing Homes**

**Initiatives**

**Tackling High-Priority COVID-19 Challenges for Nursing Homes**

The Institute for Healthcare Improvement, with support from The John A. Hartford Foundation, is launching the COVID-19 Rapid Response Network for Nursing Homes to support nursing home leadership, staff, residents, families, and communities impacted by the COVID-19 pandemic.

**National Huddles Provide Pragmatic Solutions and Support**

The Rapid Response Network features a daily 20-minute National Nursing Home Huddle to provide real-time, pragmatic solutions that can be implemented in nursing homes today to solve many of the key problems brought about or exacerbated by COVID-19.

Call topics will reflect the most pressing issues identified by those providing care for nursing home residents, including access to personal protective equipment (PPE), lack of supplies, and other critical needs.
Follow up from 5/4

- Clinical Practice Guideline for the Evaluation of Fever and Infection in Older Adult Residents of Long-Term Care Facilities: 2008 Update by the Infectious Disease Society of America

- Infection should be suspected in LTCF residents with:
  - Decline in functional status, defined as new or increasing confusion, incontinence, falling, deteriorating mobility, reduced food intake, or failure to cooperate with staff
  - Fever, defined as
    - A single oral temperature > 100F OR
    - 2 repeated oral temperatures > 99F OR
    - An increase in temperature of >2F over baseline

Overview

- Statistics on HCW infections
- Screening of healthcare workers
- Theory of viral load
- Appropriate mask use
- Minimizing unnecessary HCW contact with patients
- Limiting HCW travel between facilities
- Mental Health Support for HCWs
On April 14, 2020, this report was posted as an MMWR Early Release on the MMWR website (https://www.cdc.gov/mmwr).

As of April 9, 2020, the coronavirus disease 2019 (COVID-19) pandemic had resulted in 1,521,252 cases and 92,798 deaths worldwide, including 459,165 cases and 16,570 deaths in the United States (1,2). Health care personnel (HCP) are essential workers defined as paid and unpaid persons serving in health care settings who have the potential for direct or indirect exposure to patients or infectious materials (3). During February 12–April 9, among 315,531 COVID-19 cases reported to CDC using a standardized form, 49,370 (16%) included data on whether the patient was a health care worker in the United States; including 9,282 (19%) who were identified as HCP. Among HCP patients with data available, the median age was 42 years (interquartile range [IQR] = 32–54 years), 6,603 (73%) were female, and 1,779 (38%) reported at least one underlying health condition. Among HCP patients with data on health care, household, and community exposures, 780 (55%) reported contact with a COVID-19 patient only in health care settings. Although 4,336 (92%) HCP patients reported having at least one symptom among fever, cough, or hospitalization, intensive care unit (ICU) admission, and death. HCP patient health outcomes, overall and stratified by age, were classified as hospitalized, hospitalized with ICU admission, and deaths. The lower bound of these percentages was estimated by including all cases within each age group in the denominators. Upper bounds were estimated by including only those cases with known information on each outcome as denominators. Data reported to CDC are preliminary and can be updated by health departments over time. The upper quartile of the lag between onset date and reporting to CDC was 10 days. Because submitted forms might have missing or unknown information at the time of report, all analyses are descriptive, and no statistical comparisons were performed. Stata (version 15.1; StataCorp) and SAS (version 9.4; SAS Institute) were used to conduct all analyses.

Among 315,531 U.S. COVID-19 cases reported to CDC during February 12–April 9, data on HCP occupational status were available for 49,370 (16%), among whom 9,282 (19%) were identified as HCP (Figure). Data completeness for HCP status varied by reporting jurisdiction; among 12 states that included HCP status on >80% of all reported cases and
Statistics on HCW infections

- Feb 12-April 9 315,531 COVID 19 cases reported to CDC using a standardized form
- Only 16% of these cases (49,370) included data on whether the patient was a HCW in the US
- Out of this 16%, 9282 (19%) were identified as HCW
  - Median age 42 years (interquartile range 32-54 years)
  - 73% female
  - 38% reported at least one underlying health condition
  - Severe outcomes, including 27 deaths, occurred across all age groups, most frequently in HCW aged >/= 65 years
  - Highlights that it is necessary to protect the health and safety of this essential national work force
**TABLE 2. Hospitalizations,* intensive care unit (ICU) admissions,† and deaths,§ by age group among health care personnel with COVID-19 — United States, February 12–April 9, 2020**

<table>
<thead>
<tr>
<th>Age group (yrs) (no. of cases)</th>
<th>Hospitalization‡‡</th>
<th>ICU admission</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>16–44 (4,898)</td>
<td>260 (5.3–6.4)</td>
<td>44 (0.9–2.2)</td>
<td>6 (0.1–0.3)</td>
</tr>
<tr>
<td>45–54 (1,919)</td>
<td>178 (9.3–11.1)</td>
<td>51 (2.7–6.3)</td>
<td>3 (0.2–0.3)</td>
</tr>
<tr>
<td>55–64 (1,620)</td>
<td>188 (11.6–13.8)</td>
<td>54 (3.3–7.5)</td>
<td>8 (0.5–1.0)</td>
</tr>
<tr>
<td>≥65 (508)</td>
<td>97 (19.1–22.3)</td>
<td>35 (6.9–16.0)</td>
<td>10 (2.0–4.2)</td>
</tr>
<tr>
<td>Total (8,945)</td>
<td>723 (8.1–9.7)</td>
<td>184 (2.1–4.9)</td>
<td>27 (0.3–0.6)</td>
</tr>
</tbody>
</table>

* Hospitalization status known for 7,483 (84%) patients.
† ICU status known for 3,739 (42%) patients.
§ Death outcomes known for 4,407 (49%) patients.
¶ Age status known for 8,945 (96%) patients.

** Lower bound of range = number of persons hospitalized, admitted to ICU, or who died among total in age group; upper bound of range = number of persons hospitalized, admitted to ICU, or who died among total in age group with known hospitalization status, ICU admission status, or death.

‡‡ Hospitalization status includes hospitalization with or without ICU admission.
5 limitations of this report

1. 84% of patients were missing data on HCW status
   • The number of HCW reported infections must be considered a lower bound

2. Missing data
   • Varied across demographic groups, exposures, symptoms, underlying conditions, health outcomes
   • Additional data needed to confirm disparities in race/ethnicity or underlying health conditions

3. Additional time needed for full ascertainment of outcomes, such as hospitalization or death

4. Details of occupational and health care setting exposure not collected

5. Nature of contact in health care setting and detail of occupational exposure (eg PPE, AGP etc) unknown

Source: CDC, NIOSH
Things to keep an eye on- theory of viral load

• The initial dose of virus and the amount of virus an individual has at any one time might worsen the severity of COVID-19 disease

• Viral load= measure of the number of viral particles present in an individual

• Studies have found a strong association between disease severity and amount of virus present in the nose; the evidence suggests an association with viral dose and the severity of disease
  • However evidence of relationship is limited by poor quality of many of the studies, retrospective nature, small sample size, potential problem with selection bias

Source: CDC, NIOSH
Things to keep an eye on- theory of viral load

- Mean viral load of severe cases was around 60 times higher than that of mild cases, suggesting that higher viral loads might be associated with severe clinical outcomes (Lancet study)
- Similar to SARS in 2002-2003, patients with severe COVID-19 tend to have a high viral load and a long virus-shedding period, suggesting that viral load might be a useful marker for assessing disease severity and prognosis
- If the infectious dose does not correlate with severity of disease symptoms, this would mark COVID-19 as different from influenza, MERS, and SARS
A few viral load articles


HCWs Should NOT Report to Work if Ill

- HCW must report symptoms to supervisor & occupational health at facility
- HCWs who develop fever or respiratory symptoms while at work should:
  - immediately put on a facemask
  - inform their supervisor
  - leave the workplace
- Sick leave policies should be non-punitive, flexible, & consistent with public health recommendations
- HCWs are strongly encouraged to receive annual seasonal flu vaccine
Screening of Healthcare Workers

Symptomatic healthcare facility workers are priority 1
Asymptomatic healthcare facility workers are priority 3
(However as testing increases this will change and the importance of testing asymptomatic HCWs to prevent spread is being recognized)
Appropriate Mask Use

- Standard is to use a new N95 mask for each patient encounter, & discard it after the patient encounter.
  - If quantity of N95 masks is insufficient:
    - Guidelines for extended use (one single continuous use)
    - Guidelines for reuse (donning & doffing the same mask multiple times)
  - All staff without patient contact should at the minimum wear a cloth mask
  - As PPE supply improves/normalizes, we should return to prior standards for PPE use

Note: Extended use is preferred to reuse

https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html

Source: CDC, NIOSH
Extended Use of N95 Mask

• Definition: wearing same N95 respirator for repeated close contact encounters with several patients, without removing respirator between patient encounters.

• Extended use may be implemented when multiple patients are infected with the same respiratory pathogen & patients are placed together in dedicated rooms or wards.

• Extended use has been recommended as an option for conserving respirators during previous respiratory pathogen outbreaks & pandemics.

Source: CDC, NIOSH
Extended Use Recommendations

• N95 mask must maintain fit over extended use. Test for fit should be conducted regularly during extended use.

• Extended use may last up to a max of 8 hours, but must be discarded sooner in the event of:
  • Contamination with blood, respiratory/nasal secretions, bodily fluids from patients
  • Break for food, water, or restroom
  • Close contact with, or exit from, the care area of any patient co-infected with an infectious disease requiring contact precautions
  • Following use during aerosol generating procedures

• Consider use of a cleanable face shield (preferred) over an N95 respirator &/or other steps (e.g., masking patients, use of engineering controls) to reduce surface contamination.

• Perform hand hygiene with soap & water or alcohol-based hand sanitizer before & after touching or adjusting the respirator (if necessary for comfort or to maintain fit).

Source: CDC, NIOSH
Reuse of N95 Mask – Least Preferred Option

• Discard in event of:
  • following use during aerosol generating procedures.
  • contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.
  • following close contact with any patient co-infected with an infectious disease requiring contact precautions.

• Hang used respirators in a designated storage area or keep them in a clean, breathable container such as a paper bag between uses.

• To minimize potential cross-contamination, store respirators so that they do not touch each other and the person using the respirator is clearly identified.

• Storage containers should be disposed of or cleaned regularly.

Source: CDC, NIOSH
Reuse of N95 Mask – Least Preferred Option, cont’d.

• Clean hands with soap and water or an alcohol-based hand sanitizer before & after touching or adjusting the respirator (if necessary for comfort or to maintain fit).

• Avoid touching the inside of the respirator. If inadvertent contact is made with the inside of the respirator, discard the respirator & perform hand hygiene as described above.

• Use a pair of clean (non-sterile) gloves when donning a used N95 respirator & performing a user seal check. Discard gloves after N95 respirator is donned & any adjustments made.

• Follow the manufacturer’s user instructions, including conducting a user seal check.

• Follow the employer’s maximum number of donnings (or up to five if the manufacturer does not provide a recommendation) and recommended inspection procedures.

• Discard any respirator that is obviously damaged or becomes hard to breathe through.

• Pack or store respirators between uses so that they do not become damaged or deformed.

Source: CDC, NIOSH
Risks of Extended Use and Reuse of N95 Respirators

- The most significant risk is of contact transmission from touching the surface of the contaminated respirator.
  - Respiratory pathogens on the respirator surface can potentially be transferred by touch to the wearer’s hands and thus risk causing infection through subsequent touching of the mucous membranes of the face (ie self inoculation)
  - Studies have shown that some respiratory pathogens remain infectious on respirator surfaces for extended periods of time, in microbial transfer and in re-aerosolization studies more than ~99.8% have remained trapped on the respirator after handling or following simulated cough or sneeze.
- Respirators might also become contaminated with other pathogens
- Risk of contact transmission can be affected by the types of medical procedures being performed, which affects how much a respiratory becomes contaminated
- While contact transmission is the primary hazard, there are also other concerns, such as a reduction in the respirator’s ability to protect the wearer

Source: CDC, NIOSH
Recent NIH Study

- Decontamination methods tested included vaporized hydrogen peroxide (VHP), 70-degree Celsius dry heat, ultraviolet light, and 70% ethanol spray.
- The scientists found that ethanol spray damaged the integrity of the respirator’s fit and seal after two decontamination sessions and therefore do not recommend it for decontaminating N95 respirators.
- UV and heat-treated respirators began showing fit and seal problems after three decontaminations — suggesting these respirators potentially could be re-used twice.
- The VHP-treated masks experienced no failures, suggesting they potentially could be re-used three times.
- The authors concluded that VHP was the most effective decontamination method, because no virus could be detected after only a 10-minute treatment. UV and dry heat were acceptable decontamination procedures as long as the methods are applied for at least 60 minutes.
Minimize Unnecessary HCW Contact with patients

- Restrict all visitation except for certain compassionate care situations, such as end of life situations
- Restrict all volunteers and non-essential healthcare personnel (HCP)
- Cancel all group activities & communal dining
- Implement active screening of residents & HCP for fever & respiratory symptoms
Minimize Unnecessary HCW contact with patients

- Implement telemedicine as quickly as possible
- As of 4/1/2020, CMS has NOT reduced the requirement for regulatory visits in nursing homes (neither the frequency or the content of the visit), favoring medically necessary visits only
- However, though regulatory visits have not been suspended, if they are performed via telehealth, they are compliant – addressed at future ECHO session
Minimize Unnecessary HCW contact with patients

- The other alternative to telemedicine is to perform “doorway” visits for stable residents (i.e., stand away from the resident and do not perform a physical exam; since subsequent NH visits require only 2/3 components, a history and medical decision making are sufficient to submit the claim)
Minimize Unnecessary HCW contact with patients

- Trim down medication lists and reduce total daily doses (to decrease time it takes to do med passes or number of med passes)
  - Delete or postpone administration of non-essential medications by at least one month
  - Vitamins, supplements, statin, Alzheimer meds, etc
Limiting HCW travel between facilities
Limiting HCW Travel Between Facilities-
CDC Report on Washington SNF Outbreak

Summary
What is already known about this topic?
Coronavirus disease (COVID-19) can cause severe illness and death, particularly among older adults with chronic health conditions.

What is added by this report?
Introduction of COVID-19 into a long-term residential care facility in Washington resulted in cases among 81 residents, 34 staff members, and 14 visitors; 23 persons died. Limitations in effective infection control and prevention and staff members working in multiple facilities contributed to intra- and interfacility spread.

What are the implications for public health practice?
Long-term care facilities should take proactive steps to protect the health of residents and preserve the health care workforce by identifying and excluding potentially infected staff members, restricting visitation except in compassionate care situations, ensuring early recognition of potentially infected patients, and implementing appropriate infection control measures.

..........staff members working in multiple facilities contributed to intra-and interfacility spread
Mental Health Support for HCWs

- Guidelines from the American Medical Association (AMA):
  - Take care of your staff
    - Leadership should strive to maintain critical infrastructure and have other support in place for staff during this time, knowing that this may require modifications to existing strategies, tactics and/or roles. Practices will want to protect, to the degree possible, staff from chronic stress and poor mental health, so that they are able to support patients and because it’s the right thing to do.

Mental Health Support for HCWs

- Adjust staffing procedures and schedules (where possible)
  - When able and within applicable legal limits, rotate workers from higher-stress to lower-stress functions. Partner inexperienced workers with more experienced colleagues, who can provide support, monitor stress and reinforce safety practices. Implement flexible schedules for workers who are directly impacted or have a family member impacted by the outbreak.

- Offer access to psychosocial support
  - Provide staff responding to the outbreak with access to sources of psychosocial support, making this as much of a priority as ensuring their physical safety.

Mental Health Support for HCWs

• Monitor and review staff member well-being
  • Regularly and supportively monitor wellbeing and psychosocial status of staff to identify risks, emerging issues and adaptively respond to their needs.

• Create an environment of open communication
  • Encourage staff to speak openly about their concerns. Provide brief, regular forums to update staff on the status of the practice and how management is addressing challenges. Provide mechanisms for staff to express their concerns, ask questions and encourage peer-support amongst colleagues. For individual concerns related to one’s mental health and well-being, encourage communication with trusted colleagues in addition to accessing your employee assistance program.
Questions?
Thank you!

For any questions, contact us at echo@bsd.uchicago.edu

Resources & recording of the session
https://www.echo-chicago.org/resources/covid19/