Infection Prevention & Control (IPC)
Coronavirus infections among health care workers: what we know about COVID-19

Dr. April Baller - on behalf of the IPC team
WHO Health Emergencies
IPC Pillar Lead
12 May 2020
Topics to cover

1. Epidemiology, burden of disease
2. Risk factors
3. Psychological impact
4. Available tools
### APRIL 21st Global Surveillance Case Reporting – Epi Data

<table>
<thead>
<tr>
<th>Region</th>
<th>HCW Count</th>
<th>Average Age</th>
<th>Total Count in List (HCW + Non HCW + Unknown)*</th>
<th>% Healthcare worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR</td>
<td>18900</td>
<td>45.3</td>
<td>380074</td>
<td>5%</td>
</tr>
<tr>
<td>PAH</td>
<td>8461</td>
<td>39.4</td>
<td>637216</td>
<td>1%</td>
</tr>
<tr>
<td>EMR</td>
<td>378</td>
<td>35.5</td>
<td>7047</td>
<td>5%</td>
</tr>
<tr>
<td>SEAR</td>
<td>4</td>
<td>43</td>
<td>11468</td>
<td>2%</td>
</tr>
<tr>
<td>WPR</td>
<td>30</td>
<td>44.2</td>
<td>13465</td>
<td>5%</td>
</tr>
<tr>
<td>AFR</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27,773</td>
<td>42.55</td>
<td>1,049,270</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

* Unknown are cases where it is not specified in case report if HCW or non-HCW

**Situation Report 82 on HCW infections:**
Lack of HCW infection surveillance data – no systematic reporting of HCW COVID-19 infections to WHO

**Update as of 30-Apr-2020**
N= 39,885 HW cases reported

Includes probable and suspected cases
## HWs infection: demographics

### APRIL 21st Global Surveillance Case Reporting – Epi Data

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>HCW</th>
<th>TOTAL CASES</th>
<th>% HCW (n=27,773)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8328</td>
<td>64717</td>
<td>30%</td>
</tr>
<tr>
<td>Female</td>
<td>19370</td>
<td>60355</td>
<td>70%</td>
</tr>
<tr>
<td><strong>With known comorbidity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3290</td>
<td>16851</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Severity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admitted to hospital</td>
<td>1968</td>
<td>21327</td>
<td>7%</td>
</tr>
<tr>
<td>Required ICU care</td>
<td>237</td>
<td>3953</td>
<td>1%</td>
</tr>
<tr>
<td>Required ventilator support</td>
<td>72</td>
<td>1266</td>
<td>0%</td>
</tr>
<tr>
<td>Required ECMO</td>
<td>0</td>
<td>23</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Death</td>
<td>137</td>
<td>10687</td>
<td>0%</td>
</tr>
<tr>
<td>Recovered</td>
<td>996</td>
<td>4574</td>
<td>4%</td>
</tr>
</tbody>
</table>
WHO: Distribution of HCW by age and sex (N= 81)

Source= EMFLU
WHO: Health Care Workers

In the EMFLU database, 87 cases (5.5%) are HCWs from the following countries: Afghanistan (1); Egypt (70); Iraq (8); Lebanon (7); Kuwait: 1

According to information collected from WCO Iran:
On 18/03, 2,548 cases among HCWs (15% of cases) including 52 (2%) deaths
49 were working in hospital and 3 in community clinics
Breakdown of the 52 health care workers that died is as follows:
- Physician: 24 (46%)
- Nurse: 8 (15%)
- Pharmacist: 1 (2%)
- Midwife: 2 (4%)
- Anesthesia Technician: 1 (2%)
- Medical Record Technician: 1 (2%)
- Laboratory technician: 1 (2%)
- Clerks: 11 (21%)
- Community Health Workers: 3 (6%)
CHARACTERISTICS OF HEALTH CARE PERSONNEL WITH COVID-19 — UNITED STATES, FEBRUARY 12–APRIL 9, 2020

CDC COVID-19 Response Team

• US study of 315,531 cases, only 16% had occupation information,
  – 19% of which were HW (9,282)
  – median age 42 years
  – 73% female
  – 38% which had at least one underlying medical condition

• Contact with COVID-19 patient – setting:
  – 55% reported in the health care setting
  – 27% reported household contact
  – 13% reported community contact only

• Potential for exposure in multiple settings especially as community transmission increases

• Screening all HW for fever and respiratory symptoms at the beginning of their shifts, prioritizing HCP for testing, and ensuring options to discourage working while ill — are all measures that may reduce the risk for infected HW transmitting the virus to others

TABLE 1. Demographic characteristics, exposures, symptoms, and underlying health conditions among health care personnel with COVID-19 (N = 9,282) — United States, February 12–April 9, 2020

<table>
<thead>
<tr>
<th>Characteristic (no. with available information)</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group (yrs) (8,945)</td>
<td></td>
</tr>
<tr>
<td>16–44</td>
<td>4,898 (55)</td>
</tr>
<tr>
<td>45–54</td>
<td>1,919 (21)</td>
</tr>
<tr>
<td>55–64</td>
<td>1,620 (18)</td>
</tr>
<tr>
<td>≥65</td>
<td>508 (6)</td>
</tr>
<tr>
<td>Sex (9,067)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>6,603 (73)</td>
</tr>
<tr>
<td>Male</td>
<td>2,464 (27)</td>
</tr>
<tr>
<td>Race (3,801)</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>199 (5)</td>
</tr>
<tr>
<td>Black</td>
<td>801 (21)</td>
</tr>
<tr>
<td>White</td>
<td>2,743 (72)</td>
</tr>
<tr>
<td>Other*</td>
<td>58 (2)</td>
</tr>
<tr>
<td>Ethnicity (3,624)</td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>372 (10)</td>
</tr>
<tr>
<td>Non-Hispanic/Latino</td>
<td>3,252 (90)</td>
</tr>
<tr>
<td>Exposures†,‡ (1,423)</td>
<td></td>
</tr>
<tr>
<td>Only health care exposure</td>
<td>780 (55)</td>
</tr>
<tr>
<td>Only household exposure</td>
<td>384 (27)</td>
</tr>
<tr>
<td>Only community exposure</td>
<td>187 (13)</td>
</tr>
<tr>
<td>Multiple exposure settings†</td>
<td>72 (5)</td>
</tr>
<tr>
<td>Symptoms reported†** (4,707)</td>
<td></td>
</tr>
<tr>
<td>Fever, cough, or shortness of breath†</td>
<td>4,336 (92)</td>
</tr>
<tr>
<td>Cough</td>
<td>3,694 (78)</td>
</tr>
<tr>
<td>Fever†</td>
<td>3,196 (68)</td>
</tr>
<tr>
<td>Muscle aches</td>
<td>3,122 (66)</td>
</tr>
<tr>
<td>Headache</td>
<td>3,048 (65)</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>1,930 (41)</td>
</tr>
<tr>
<td>Sore throat</td>
<td>1,790 (38)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>1,507 (32)</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>923 (20)</td>
</tr>
<tr>
<td>Loss of smell or taste†</td>
<td>750 (16)</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>612 (13)</td>
</tr>
<tr>
<td>Runny nose</td>
<td>583 (12)</td>
</tr>
<tr>
<td>Any underlying health condition†** (4,733)</td>
<td>1,779 (38)</td>
</tr>
</tbody>
</table>
HW infections: burden of SARS-CoV-2

Mental health:
- 14% - 15% depression
- 12% - 24% anxiety
- 30% - 39% psychological distress
- 8% - 60% sleep issues

HWs experience significant burdens from coronavirus infections, including SARS-CoV-2

Burden of disease on HWs:
- Netherlands: 6.4%
- China: 3.8%, 5.1%
- Females > Males
HW infections: risk & protective factors

Associated risk factors:
- Working in a high risk vs general department
- Suboptimal handwashing before/after patient contact
- Increased work hours
- Improper PPE use
- Having a diagnosed family member was associated with increased risk (suggesting community exposure)

Protective factors:
- Appropriate PPE use
- IPC training
Barriers and facilitators to healthcare workers’ adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases: a rapid qualitative evidence synthesis

**Barriers to healthcare workers’ adherence to IPC guidelines for respiratory infectious diseases:**
- When local guidelines long and ambiguous or did not reflect national or international guidelines.
- Local guidelines were constantly changing.
- Increased workloads and fatigue, for instance because they had to use PPE and take on additional cleaning.
- Level of support received from their management team.
- Clear communication about IPC guidelines was seen as vital.
- Lack of training about the infection itself and about how to use PPE (not mandatory).
- Sufficient space to isolate patients: isolation rooms, anterooms and shower facilities was a problem. Other important practical measures described by healthcare workers included minimising overcrowding, fast-tracking infected patients, restricting visitors, and providing easy access to handwashing facilities.
- Lack of PPE, and equipment that was of poor quality, was a serious concern for healthcare workers and managers.
- Made patients feel isolated, frightened or stigmatised.

**Facilitators to healthcare workers’ adherence to IPC guidelines for respiratory infectious diseases:**
- Minimising overcrowding, fast-tracking infected patients, restricting visitors, providing access to handwashing facilities.
- Fear of infecting themselves or their families, or because they felt responsible for their patients.
- When all staff, including cleaning staff, porters, kitchen staff and other support staff implement IPC guidelines.
Psychological impact

Compared with lower risk controls, staff in contact with affected patients had greater levels of both acute or post-traumatic stress (OR 1.71) and psychological distress (1.74)

Risk factors for psychological distress included:
- being younger
- more junior
- parents of dependent children
- longer quarantine
- having an infected family member
- lack of practical support
- stigma

Service and societal factors included inadequate staff training, organizational support, and compensation as well as stigma against health care workers
Psychological impact

Recommendations to deal with psychological problems

- Individual factors
- Service factors
  - Communication & training
  - Infection control
  - Workload
  - Support
  - access to adequate personal protection,
- Societal factors
- Can develop strategies to minimize psychological distress of HWs
What tools we have for HW

Risk assessment and management of exposure of health care workers in the context of COVID-19

Interim guidance
19 March 2020

A case-control study to assess potential risk factors for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection among health personnel

Surveillance protocol for epidemiological investigation of health workers with SARS-CoV-2 infections
Infection prevention and control during health care when COVID-19 is suspected

Interim guidance
19 March 2020

Rational use of personal protective equipment for coronavirus disease (COVID-19) and considerations during severe shortages

Interim guidance
6 April 2020

Advice on the use of masks in the context of COVID-19

Interim guidance
6 April 2020

What to wear?
By whom?
When?
How?


How to put on and remove personal protective equipment (PPE)
Self-paced English
This is a guide for healthcare workers involved in patient care activities in a healthcare setting. It aims to show the type of personal protective equipment or PPE needed to correctly protect oneself. Based on the current available evidence, the WHO recommended PPE for the care of COVID patients are CONTACT and DROPLET precautions, with the exception of aerosol producing procedures, which require CONTACT and AIRBORNE (hence, a respirator mask such as N95, FFP2, FFP3). Keeping in mind, PPE is part of a larger infection prevention and control bundle of measures and should be implemented as part of a multimodal strategy of management of COVID-19 patients. Only clinical staff who are trained and competent in the use of PPE should be allowed to enter the patient’s room.

Show course details Enroll me for this course

Infection Prevention and Control (IPC) for Novel Coronavirus (COVID-19)
Self-paced English
This course provides information on what facilities should be doing to be prepared to respond to a case of an emerging respiratory virus such as the novel coronavirus, how to identify a case once it occurs, and how to properly implement IPC measures to ensure there is no further transmission to HCW or to other patients and others in the healthcare facility. This training is intended for healthcare workers and public health professionals, as it is focused on infection prevention and control.

Show course details Enroll me for this course
Thank you!
Acknowledgements

• Alice Simniceanu
• Madison Moon
• Maria Van Kerkhove