Health workers exposure risk assessment and management in the context of COVID-19 virus

Coronavirus disease (COVID-19) was first detected in Wuhan city, China in December 2019. On 30 January 2020, the WHO Director General declared that the current outbreak constituted a Public Health Emergency of International Concern.

Current available evidence is that the COVID-19 virus is transmitted between people through close contact and droplets. People most at risk of infection are those who are in contact with a COVID-19 patient and/or who care for COVID-19 patients. This inevitably places health workers at a high risk of infection.

Target audience:
This tool is to be used by health care facilities that have either cared for or admitted COVID-19 patients. This form is to be completed for all health workers who have been exposed to a confirmed COVID-19 patient in a health care facility. It is intended to be an operational tool used by health care facilities once a COVID-19 patient has been identified within the facility. This tool will help determine the risk of COVID-19 virus infection of all HCWs who have been exposed to a COVID-19 patient and then provides recommendations for appropriate management of these HCWs, according to their infection risk.

Objectives:
1. To determine the risk categorization of each HCW after exposure to a COVID-19 patient (see below Part 1: COVID-19 virus exposure risk assessment form for HCWs);
2. To inform the management of the exposed HCWs based on risk (see below Part 2: Management of health worker exposed to COVID-19 virus).

Protecting HCWs is of paramount importance to WHO. Understanding HCW exposure to COVID-19 virus and how this translates into risk of infection is critical for informing infection prevention and control (IPC) recommendations. The data that will be captured using this data collection form and risk assessment tool can be used to identify IPC breaches and define policy to mitigate health worker and nosocomial infection. As such, health care facilities using the following risk assessment are encouraged to share deidentified data with WHO to inform discussions about WHO guidance related to IPC. That is, any data shared with WHO should not include any personably identifiable information (Questions 2A, 2B and 2G).

1. Interviewer information
   A. Interviewer name:
   B. Interviewer date (DD/MM/YYYY): ___/___/______
   C. Interviewer phone number:
   D. Does the health worker have a history of staying in the same household or classroom environment with a confirmed COVID-19 patient? □ Yes □ No
   E. Does the HCW have history of traveling together in close proximity (within 1 meter) with a confirmed COVID-19 patient in any kind of conveyance? □ Yes □ No

If the HCW answers yes for questions 1 D – 1E it is considered a community exposure to COVID-19 virus and health workers should be managed as such. The management recommendations in Part 2: Management of health workers exposed to COVID-19 virus apply only to health care-related exposure.

2. Health worker information
   A. Last name:
   B. First name:
   C. Age
   D. Sex: □ Male □ Female □ Prefer not to answer
   E. City:
   F. Country:
   G. Contact details:
   H. Type of health care personnel: □ Medical doctor □ Physician assistant □ Registered nurse (or equivalent) □ Assistant nurse, nurse technician (or equivalent) □ Radiology /x-ray technician □ Phlebotomist □ Ophthalmologist □ Physical therapist □ Respiratory therapist □ Nutritionist/dietitian □ Midwife □ Pharmacist □ Pharmacy technician or dispenser
| I. Health care facility unit type in which the health worker works? | □ Laboratory personnel  
□ Admission/reception clerk  
□ Patient transporter  
□ Catering staff  
□ Cleaner  
□ Other (specify): |
|---|---|

| 3. Health worker interactions with COVID-19 patient information |
|---|---|
| A. Date of health worker first exposure to confirmed COVID-19 patient: | Date (DD/MM/YYYY): ___/___/______  
□ Not known |
| B. Name of health care facility where case received care: | |
| C. Type of health care setting: | □ Hospital  
□ Outpatient clinic  
□ Primary health centre  
□ Home care for mild cases  
□ Other: |
| D. City: | |
| E. Country: | |
| F. Multiple COVID-19 patients in health care facility | □ Yes  
□ No  
□ Unknown  
Number of patients (approximate if exact number not known): |

| 4. Health worker activities performed on COVID-19 patient |
|---|---|
| A. Did you provide direct care to a confirmed COVID-19 patient? | □ Yes  
□ No  
□ Unknown |
| B. Did you have face-to-face contact (within 1 meter) with a confirmed COVID-19 patient in a health care facility? | □ Yes  
□ No  
□ Unknown |
| C. Were you present when any aerosol generating procedures (AGP) was performed on the patient? See below for examples | □ Yes  
□ No  
□ Unknown |
| - If yes, what type of AGP procedure? | □ Tracheal intubation  
□ Nebulizer treatment  
□ Open airway suctioning  
□ Collection of sputum  
□ Tracheostomy  
□ Bronchoscopy  
□ Cardiopulmonary resuscitation (CPR)  
□ Other, specify: |
Exposure of health workers to COVID-19 virus

If the health worker responds ‘Yes’ to any of the Questions 4A – 4C, the health worker should be considered as being **exposed to COVID-19 virus**

### 5. **Adherence to infection prevention and control (IPC) during health care interactions**

For the following questions, please quantify the frequency you wore PPE, as recommended: ‘Always, as recommended’ should be considered wearing the PPE when indicated more than 95% of the time; ‘Most of the time’ should be considered 50% or more but not 100%; ‘occasionally’ should be considered 20% to under 50% and ‘Rarely’ should be considered less than 20%.

<table>
<thead>
<tr>
<th>A. During the period of a health care interaction with a COVID-19 patient, did you wear personal protective equipment (PPE)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>- If yes, for each item of PPE below, indicate how often you used it:</td>
</tr>
<tr>
<td>- 1. Single gloves</td>
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<td>- 2. Medical mask</td>
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<td>- 3. Face shield or goggles/protective glasses</td>
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<td>- 4. Disposable gown</td>
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</tbody>
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<thead>
<tr>
<th>B. During the period of health care interaction with the COVID-19 patient, did you remove and replace your PPE according to protocol (e.g. when medical mask became wet, disposed the wet PPE in the waste bin, performed hand hygiene, etc)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Always, as recommended</td>
</tr>
<tr>
<td>□ Most of the time</td>
</tr>
<tr>
<td>□ Occasionally</td>
</tr>
<tr>
<td>□ Rarely</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>C. During the period of health care interaction with the COVID-19 case, did you perform hand hygiene before and after touching the COVID-19 patient? NB: Irrespective of wearing gloves</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Always, as recommended</td>
</tr>
<tr>
<td>□ Most of the time</td>
</tr>
<tr>
<td>□ Occasionally</td>
</tr>
<tr>
<td>□ Rarely</td>
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<tr>
<th>D. During the period of health care interaction with the COVID-19 case, did you perform hand hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Always, as recommended</td>
</tr>
<tr>
<td>□ Most of the time</td>
</tr>
</tbody>
</table>
before and after any clean or aseptic procedure was performed (e.g. inserting: peripheric vascular catheter, urinary catheter, intubation, etc.)? □ Occasionally □ Rarely

E. During the period of health care interaction with the COVID-19 case, did you perform hand hygiene after exposure to body fluid? □ Always, as recommended □ Most of the time □ Occasionally □ Rarely

F. During the period of health care interaction with the COVID-19 case, did you perform hand hygiene after touching the COVID-19 patient’s surroundings (bed, door handle, etc)? Note: this is irrespective of wearing gloves □ Always, as recommended □ Most of the time □ Occasionally □ Rarely

G. During the period of health care interaction with the COVID-19 case, were high touch surfaces decontaminated frequently (at least three times daily)? □ Always, as recommended □ Most of the time □ Occasionally □ Rarely

6. Adherence to infection prevention and control (IPC) when performing aerosol generating procedures (e.g. Tracheal intubation, nebulizer treatment, open airway suctioning, collection of sputum, tracheostomy, bronchoscopy, cardiopulmonary resuscitation (CPR) etc.)

For the following questions, please quantify the frequency you wore PPE, as recommended: ‘Always, as recommended’ should be considered wearing the PPE when indicated more than 95% of the time; ‘Most of the time’ should be considered 50% or more but not 100%; ‘occasionally’ should be considered 20% to under 50% and ‘Rarely’ should be considered less than 20%.

A. During aerosol generating procedures on a COVID-19 patient, did you wear personal protective equipment (PPE)? □ Yes □ No

- If yes, for each item of PPE below, indicate how often you used it:

  - 1. Single gloves □ Always, as recommended □ Most of the time □ Occasionally □ Rarely

  - 2. N95 mask (or equivalent respirator) □ Always, as recommended □ Most of the time □ Occasionally □ Rarely

  - 3. Face shield or goggles/protective glasses □ Always, as recommended □ Most of the time □ Occasionally □ Rarely

  - 4. Disposable gown □ Always, as recommended □ Most of the time □ Occasionally □ Rarely

  - 5. Waterproof apron □ Always, as recommended □ Most of the time □ Occasionally □ Rarely
B. During aerosol generating procedures on the COVID-19 patient, did you remove and replace your PPE according to protocol (e.g. when medical mask became wet, disposed the wet PPE in the waste bin, performed hand hygiene, etc)?

- □ Always, as recommended
- □ Most of the time
- □ Occasionally
- □ Rarely

C. During aerosol generating procedures on the COVID-19 case, did you perform hand hygiene before and after touching the COVID-19 patient? NB: Irrespective of wearing gloves

- □ Always, as recommended
- □ Most of the time
- □ Occasionally
- □ Rarely

D. During aerosol generating procedures on the COVID-19 case, did you perform hand hygiene before and after any clean or aseptic procedure was performed (e.g. inserting: peripheric vascular catheter, urinary catheter, intubation, etc.)?

- □ Always, as recommended
- □ Most of the time
- □ Occasionally
- □ Rarely

E. During aerosol generating procedures on the COVID-19 case, did you perform hand hygiene after touching the COVID-19 patient’s surroundings (bed, door handle, etc)? Note: This is irrespective of wearing gloves

- □ Always, as recommended
- □ Most of the time
- □ Occasionally
- □ Rarely

F. During aerosol generating procedures on the COVID-19 case, were high touch surfaces decontaminated frequently (at least three times daily)?

- □ Always, as recommended
- □ Most of the time
- □ Occasionally
- □ Rarely

### 7. Accidents with biological material

A. During the period of a health care interaction with a COVID-19 infected patient, did you have any episode of accident with biological fluid/respiratory secretions? See below for examples

- □ Yes □ No

- If yes, which type of accident?

- □ Splash of biological fluid/respiratory secretions in the mucous membrane of eyes
- □ Splash of biological fluid/respiratory secretions in the mucous membrane of mouth/nose
- □ Splash of biological fluid/respiratory secretions on non-intact skin
- □ Puncture/sharp accident with any material contaminated with biological fluid/respiratory secretions
Risk categorization of health workers exposed to COVID-19 virus

**High risk for COVID-19 infection**
The health worker did not respond ‘Always, as recommended’ to Questions:
- 5A1 – 5G, 6A – 6F
- AND/OR responded ‘Yes’ to 7A.

All other health workers should be considered **low risk for COVID-19 virus infection.**

**Part 2: Management of health workers exposed to COVID-19 virus**

The management of health workers exposed to COVID-19 virus will vary according to the Risk categorization of health workers exposed to COVID-19 virus, as determined in Part 1.

**Recommendations for health workers with high risk for infection:**
- Stop all health care interaction with patients for a period of 14 days after the last day of exposure to a confirmed COVID-19 patient;
- Be tested for COVID-19 virus infection;
- Quarantine for 14 days in a designated setting.¹

Health care facilities should:
- Provide psychosocial support to HCW during quarantine, or duration of illness if HCW becomes a confirmed COVID-19 case;
- Provide compensation for the period of quarantine and for the duration of illness (if not on a monthly salary) or contract extension for duration of quarantine/illness;
- Refresher infection prevention and control training for the health care facility staff, including HCWs at high risk for infection once he/she returns to work at the end of the 14-day period.

**Recommendations for health workers with low risk for COVID-19 infection:**
- Self-monitor temperature and respiratory symptoms daily for 14 days after the last day of exposure to a COVID-19 patient. HCWs should be advised to call health care facility if he/she develop any symptoms suggestive of COVID-19;
- Reinforce contact and droplet precautions when caring for all patients with acute respiratory illness² and standard precautions to take care of all patients;
- Reinforce airborne precautions for aerosol generating procedures on all suspect and confirmed COVID-19 patients;

- Reinforce the rational, correct and consistent use of personal protective equipment when exposed to confirmed COVID-19 patients;³
- Apply WHO’s “My 5 Moments for Hand Hygiene” before touching a patient, before any clean or aseptic procedure, after exposure to body fluid, after touching a patient, and after touching patient’s surroundings;⁴
- Practice respiratory etiquette at all times.