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COVID-19 pandemic - ethical and legal aspects of inadequate quantity and quality of personal protective equipment for resuscitation.

Short title: COVID-19: inadequate PPE for resuscitation

Patrick Wong¹, Wan Yen Lim², Huei Leng Chee³, Rehana Iqbal⁴

1. MBBS, FRCA
   Senior Consultant, Department of Anesthesia and Pain Medicine, Waikato District Health Board, New Zealand

2. MBBS, Master of Medicine (Anesthesia, Singapore)
   Associate Consultant, Department of Anesthesiology, Singapore General Hospital, Singapore

3. MBBS, Master of Medicine (Anesthesia, Singapore)
   Adjunct Assistant Professor (Duke-NUS Medical School)
   Clinical Senior Lecturer, Yong Loo Lin School of Medicine (National University of Singapore)
   Senior Consultant, Department of Anesthesiology, Singapore General Hospital, Singapore

4. MBBS, BSc, FRCA, PgDip
   Consultant, Department of Anesthesiology, City Mediclinic Hospital, United Arab Emirates
*Corresponding author after publication
Email: patrick.wong@waikatodhb.health.nz
Department of Anesthesia and Pain Medicine
Waikato District Health Board
Pembroke Street, Private Bag 3200, Hamilton 3240, New Zealand

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RI: Conception of work, drafting manuscript and revisions
COVID-19 pandemic - ethical and legal aspects of inadequate quantity and quality of personal protective equipment for resuscitation.

Letter to the Editor

The coronavirus disease 2019 (COVID-19) pandemic has implications for cardiopulmonary resuscitation (CPR). Chest compression is an aerosol generating procedure (AGP) and is associated with an increased risk of disease transmission to HCWs.[1] Before commencing CPR, guidelines include a minimum respiratory personal protective equipment (PPE) of “a FFP3 mask (FFP2 or N95 if FFP3 not available)”. [1]

Adherence to guidelines may be impaired in two scenarios: First, an ‘inadequate quantity’ (supply) of N95 masks has occurred during this pandemic. This renders the HCW unable to physically adhere to the guidelines. Second, guidelines may or be perceived as of ‘inadequate quality’ for several reasons: [1] The N95 mask has a lower filtration performance than the first choice FFP3 mask i.e. 95% vs 99%, respectively,[1] although the clinical significance of this is unknown. Counterfeit and poor quality N95 masks are being sold. Chest compression involves vigorous movement, leading to: [2] poor mask seal, decreased protection rates and mask failure including strap slipping. Finally, N95 masks undergoing extended use and reuse are associated with disease transmission and decreased functionality.[3]

Ethical dilemmas and confusion arise from both scenarios. In the ‘inadequate quality’ scenario, the HCW is expected to perform a duty (CPR) within guidelines (wearing a N95 mask). Hence, should the HCW proceed with an actual or perceived ‘inadequate’ PPE? Existing PPE guidelines are not specific
to CPR, and some guidelines recommend PAPRs during CPR in COVID-19 patients. As the risk of disease transmission during CPR is uncertain, should we aim for the “maximum” level protection, or be satisfied with ‘adequate’? However, refusal to treat may result in disciplinary or legal action against the HCW.

Various statements on a doctor’s duty to treat (or not) are shown in Table 1. The duty to treat is guided by the ethical principles of beneficence, non-maleficence, autonomy and justice. As these principles apply to the patient, HCWs and society, conflicting priorities may arise. HCW has an obligation to prevent self-infection and onward transmission to other patients, their colleagues and relatives, and the wider community. Justice includes the right not to be killed by another human being [with a serious infectious disease]. Fairness also requires that hospitals provide adequate PPE.

There are also the doctrines of: expressed consent, implied consent, special training, reciprocity, and professional oaths and codes. Expressed consent includes signing of a contract, on the basis that adequate PPE would be provided. Arguments against implied consent include: the duty does not specifically involve potentially deadly infectious diseases; and the HCW was not fully informed of the risks (related to a new or evolving disease e.g. COVID-19). Specialized training does not entail that the HCW should incur more than minimal risk. Reciprocity - doctors may have benefited from their profession but does not necessitate risking one’s life to aid another. In return, employers must provide: support; a safe working environment; adequate PPE; and information on acceptable risks to HCWs Finally, oaths and codes. Oaths are more symbolic and not all HCWs share them. A medical code may not explicitly state the risk of harm, or the scope is open to interpretation.
If HCWs refuse to perform CPR due to ‘inadequate quantity and quality’ of PPE, available options include powered air-purifying respirators. Although this may cause a brief delay in commencing CPR, “safety of staff is paramount”.[1] Since alternatives are not always available, an early, proactive system level approach should be adopted. This avoids the ‘inadequate quantity and quality’ scenarios, decreases the risk to HCW, and minimizes ethical dilemmas. Measures should include:[7] assessing the adequacy of PPE; recording and escalating safety concerns; and, requesting the organization to take action.[7]

Legal requirements and guidance of PPE provision are shown in Table 1. The legal duty to ensure that “safety is reasonably practicable”[8] is open to interpretation. If employers breach their duty to provide adequate PPE (quantity and quality), they may be liable to prosecution.

There is also the potential for a disclosure dilemma if the N95 mask is considered as offering inadequate protection. On the one hand, most HCWs would not be physically harmed since the risk of disease transmission is low. Hence, they may not benefit from the disclosure and this may cause more harm (e.g. anxiety) than the event itself. Furthermore, negative publicity and legal risk may ensue.[9] On the other hand, disadvantages of non-disclosure include: inability to conduct investigations and provide treatment (e.g. counselling and isolation); risk of further transmission; and, potential harm (e.g. COVID-19).[9] On balance, “disclosure should be the norm, even when the probability of harm is extremely low”.[9]

‘Inadequate’ PPE causes many ethical dilemmas for the HCW. Global supplies of quality controlled PPE must be robust to cope with the surge demands of a pandemic. Further studies are needed to
confirm the risk of disease transmission and the clinical significance between the various levels of PPE protection. If protection is inadequate, then corresponding guidelines must evolve to better protect HCWs.
References

1. European Resuscitation Council guidelines. Available from: https://erc.eu/sites/5714e77d5e615861f00f7d18/content_entry5ea884fa4c84867335e4d1ff/5ea8860e4c84867421e4d1e0/files/ERC_covid19_pages_section1.pdf?1588257319 Accessed 15 May 2020


is-inadequate (accessed May 12, 2020).


Table 1. Legal aspects and guidance of PPE provision

<table>
<thead>
<tr>
<th>Healthcare worker’s rights</th>
<th></th>
<th>Employer’s duty</th>
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<tbody>
<tr>
<td>World Health Organization, Interim guidance (2020)(^i)</td>
<td>Allow health workers the right to remove themselves from a work situation that they have reasonable justification to believe presents an imminent and serious danger to their lives or health</td>
<td>Ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks. Provide adequate infection control and prevention and PPE supplies (masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity to those caring for suspected or confirmed COVID-19 patients.</td>
</tr>
<tr>
<td>European Resuscitation Council “COVID-19 Guidelines” (2020)(^ii)</td>
<td>Resuscitation should not be started or continued in cases where the safety of the provider cannot be sufficiently assured.</td>
<td></td>
</tr>
<tr>
<td>General Medical Council (UK) “COVID 19 Questions and Answers” (2020)(^iii)</td>
<td>If a patient poses a risk to your health or safety, you should take all available steps to minimize the risk before providing treatment or making other suitable alternative arrangements for providing treatment.</td>
<td></td>
</tr>
<tr>
<td>The Personal Protective Equipment at Work Regulations 1992(^iv)</td>
<td>Every employer shall ensure that suitable PPE is provided to his employees who may be exposed to a risk to their health or safety while at work except where and to the extent that such risk has been adequately controlled by other means which are equally or more effective</td>
<td></td>
</tr>
</tbody>
</table>

COVID-19: Coronavirus Disease 2019; PPE: Personal protective equipment

\(^i\) Organization WH, Others. Coronavirus disease (COVID-19) outbreak: rights, roles and
responsibilities of health workers, including key considerations for occupational safety and health. World Health Organization, Interim Guidance 2020;19.

ii. European Resuscitation Council guidelines. Available from: https://erc.edu/sites/5714e77d5e615861f00f7d18/content_entry5ea884fa4c84867335e4d1ff75ea8860e4c84867421e4d1e0/files/ERC_covid19_pages_section1.pdf?1588257319 Accessed 15 May 2020
