NUS National University of Singapore
Centre for Biomedical Ethics
Yong Loo Lin School of Medicine

CBmE PANDEMIC ETHICS SERIES

Allocation of Personal Protective Equipment between Sectors or within Non-Healthcare Settings, and Issues Concerning Re-use

Working Paper 4

This working paper is part of a series written by the Centre for Biomedical Ethics, Yong Loo Lin School of Medicine, National University of Singapore, and is intended to provide information for healthcare professionals and decision-makers on ethical issues arising from the COVID-19 pandemic. The views expressed do not, in themselves, reflect official government policy on these matters. Contributors to the series are listed on the last page.

REFERENCES

1. Centers for Disease Control & Prevention. Strategies for Optimizing the Supply of N95 Respirators. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html.

To cite : Centre for Biomedical Ethics, Yong Loo Lin School of Medicine, National University of Singapore. (2020) Pandemic Ethics Series Working Paper 4. Retrieved from: https://medicine.nus.edu.sg/cbme/pandemicseries/workingpaper4.

CBmE PANDEMIC ETHICS SERIES

Allocation of Personal Protective Equipment (PPE) between Sectors or Within Non-Healthcare Settings, and Issues Concerning Re-Use

Key Ethical Principles[1]

1	Harm Minimization	PPE should be distributed so as to minimize harm. This includes minimizing infection rates in order to reduce mortality and morbidity from COVID-19 (and other diseases) across the population, but also may encompass other harms (for example those relating to well-being or dignity, or due to an individual's inability to assist in a critical sector due to COVID-19 status).
2	Equity	Equity is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically.
3	Solidarity	PPE should be distributed to reflect the commitment among persons to sharing costs and benefits for the good of a group, community, or nation.

[1] The explanation of meaning of these principles differs somewhat from that in the preceding PPE guidance document (Working Paper 3), to account for the specific considerations that arise in the wider contexts considered here.

1. This document will primarily examine three distribution scenarios not addressed in our preceding PPE guidance document (with the title Allocation of Personal Protective Equipment among Healthcare Staff):

   A. Distribution of PPE *between* healthcare and other sectors, in the case of a critical shortage

   B. Distribution of PPE *within* non-healthcare settings such as community care facilities

   C. Conservation of PPE via re-use or extended use

2. As within a healthcare setting, *allocation of PPE during an epidemic should be based primarily on the value of harm minimization*.

   A. Distribution of PPE should minimize infection rates of SARS-Cov-2 in order to reduce mortality and morbidity from COVID-19 across the population. As such, PPE should be distributed to those estimated to be most at risk. Risk assessment should be driven by the available epidemiological and clinical evidence and allocation protocols must be responsive to new or emerging evidence.

   B. Potential for harm should be assessed in terms of: (1) the risk of contracting SARS-COV-2; (2) the risk of infection resulting in severe COVID-19 causing morbidity or mortality for the individual; (3) the risk of the individual further spreading the virus (i.e. how much contact do they have with the public, and/or specifically vulnerable groups); and (4) the extent to which an individual's treatment and isolation due to COVID-19 would inhibit the ability of a critical sector to carry out its functions due to that individual's absence from work.

   C. Care must be taken in evaluating the fourth component of risk assessment. It is crucial to emphasise that all individuals are of equal intrinsic moral worth. This component assesses the impact of an individual's absence from work, and is not an evaluation of a person's value. In addition, because of the substantial difficulty in precisely comparing the relative impact of absence of workers in different sectors, this component of risk assessment should only be used to differentiate sectors where there is broad consensus and a large difference in the impact of absence from different sectors.

3. *A secondary value in PPE allocation is equity*, which requires that resources be allocated in a manner that reduces health (or other) inequities between groups. This is because vulnerable or marginalized groups may require relatively more resources to achieve the same health status or outcome. For example, a person living with disability, who requires a carer to accompany them to run errands (such as a medical appointment), will require two masks, whereas a non-disabled person in the same circumstances would only require one.

A. Equity considerations will often align with harm minimization because vulnerable groups will typically be at high risk from COVID-19. However, there may be cases where prioritizing harm minimization and population health conflicts with addressing the needs of specific vulnerable groups. This could give rise to a clash between equity and harm minimization.

B. While population level harm minimization is the primary goal of PPE distribution, in some cases it would be ethically justifiable to accept a small increase in overall population risk in order to minimize or reduce inequities between groups by giving special priority to the vulnerable. For example, extra PPE may be allocated to mitigate risk for vulnerable groups such as migrant workers in dormitories or people living in residential care facilities.

4. Allocation of PPE should be determined centrally across and within different sectors, such that sectors with greater exposure in terms of likelihood of encountering an individual with COVID-19 (and thereby greater risk of their workers contracting COVID-19) receive greater allotments. Individual sectors should not be competing to source PPE or left to distribute PPE without guidance.

A. This promotes harm minimization by more efficiently allocating PPE across the system.

B. Organisations should not require individuals to pay for PPE required for safely conducting activities in the relevant sector.

C. This reflects the value of solidarity – we are, as a nation, all in this together, and different sectors must be mutually supportive of one another.

D. There should be clear lines of communication between central coordinating bodies and front-line staff concerning distributional needs and prioritization, with the capacity to review and reallocate PPE quickly where necessary.

E. The same ethical principles and allocation policies should be used consistently across different levels of distribution (macro-, meso- and micro- allocation).

5. Wherever possible, and especially if PPE supplies are anticipated to be insufficient to meet foreseeable demand, alternatives for the PPE that provide equivalent protection should be considered. In addition, the use of engineering and administrative controls that would effectively reduce reliance on PPE by lowering risk of exposure of individuals in that situation should be instituted without delay.

6. Where this is not possible, conservation of PPE through extended use or limited re-use may reduce harm by reducing consumption of PPE, freeing up PPE supply for uses by more individuals who are at risk and thus limiting further spread. However, it comes with some degree of uncertain risk that the protection afforded is inadequate and this form of conservation instead facilitates COVID-19 spread.

   A. Because extended use/limited re-use of PPE involves increased uncertain risks, other conservation efforts that do not increase transmission risk should be attempted first (see above).

   B. Given the importance to containing COVID-19 of maintaining adequate PPE supply and avoiding a shortage, it can be acceptable to engage in PPE extended use and limited re-use even when the risks are uncertain.

   C. Extended use and limited re-use of PPE should be documented, monitored and evaluated to generate evidence regarding risk of transmission to inform future decision-making. This evaluation does not necessarily need to be implemented as research; but rather it is auditing innovative health care delivery practices as part of quality improvement. This data should be shared as a matter of transparency and solidarity between sectors in order that practice can be informed by the best available evidence and adapted accordingly.

   D. If feasible, data should be collected for research purposes in order to generate generalizable knowledge concerning PPE re-use.

7. In addition to distributing and conserving PPE itself, there may be a need to distribute and conserve resources required to ensure adequate preparation of PPE – such as N95 mask fitting, which requires manpower and equipment. In making allocation and conservation judgments regarding "resources for preparation", the same principles of harm minimization and equity discussed above would apply in a similar manner.

ACKNOWLEDGEMENTS

This series of ethical commentaries was produced by the Centre for Biomedical Ethics, Yong Loo Lin School of Medicine, National University of Singapore between February and June 2020. Contributors to one or more papers in the series are listed below.

AUTHORS (ALPHABETICAL ORDER)

Angela Ballantyne | Tracy Dunbrook | Vikki Entwistle | Roy Joseph | Tamra Lysaght | Sumytra Menon | Serene Ong | G Owen Schaefer | Mathavi Senguttuvan | Adeline Seow | Voo Teck Chuan | Vicki Xafis

REVIEWERS (ALPHABETICAL ORDER)

Devanand Anantham | Hospital Services Division (MOH) | Kwek Tong Kiat | Markus Labude | Lim Poh Lian | Low Yik Hin | Ow Chee Chung | Paul Tambyah | Tan Boon Yeow | Tan Hon Liang | Shawn Vasoo | Jason Yap

Thanks to Izzati Lim and Rosnizah Mohd Ali for their editorial assistance in this series.

Centre for Biomedical Ethics
Yong Loo Lin School of Medicine

MAILING ADDRESS

Centre for Biomedical Ethics,
Blk MD 11, 10 Medical Drive
#02-03 Singapore 117597

(65) 6516 7201

cbme@nus.edu.sg

https://twitter.com/NUS_CBmE