De Ethica (2023) 7.2:28–43
https://doi.org/10.3384/de-ethica.2001-8819.237228

Reciprocity as an Argument for Prioritizing Healthcare Workers for the COVID-19 Vaccine

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During the recent debates on whether to prioritize healthcare workers for COVID-19 vaccines, two lines of argument were prevalent, namely arguments centered on maximizing health, either with or without a special emphasis on the worse off, and arguments centered on reciprocity. In this article, we scrutinize the arguments of reciprocity. The notions of fittingness and proportionality are fundamental for the act of reciprocating, and we consider the importance of these notions for various arguments from reciprocity, showing that the arguments are problematic. If there is a plausible argument for reciprocity during the COVID-19 pandemic, this is most likely one that centers on the risk that healthcare workers take on as part of their jobs. Furthermore, we argue that the scope of this argument should not be extended only to healthcare workers, other essential workers at risk are in a position to make the same arguments. We also consider whether reciprocating with vaccines, rather than by other means, is necessary. Allocating vaccines based on reciprocity will arguably conflict with utility-maximizing, concerns for the worse off, and equity concerns. Given the weak state of the reciprocity arguments, we conclude that overriding these concerns seem unreasonable.

Introduction

During the recent debates on whether healthcare workers should be given priority for COVID-19 vaccines, two lines of arguments were prevalent, namely arguments for maximizing utility[1], either with or without a special concern for the worse off, and arguments from reciprocity[2]. For instance, the WHO SAGE guidelines explicitly

[1] As will become clear, while we will talk of "maximizing utility" in the paper, we do not mean to imply that arguments from utility are necessarily strictly utilitarian. Those arguing from utility might endorse more complex consequentialist theories such as prioritarianism.

[2] A third line of argument centers on the importance of fair chances, essentially following the argument against distributing based on numbers made by John Taurek (1977). According to Taurek, giving people equal chances is important. See, for instance, Peterson, M. (2008) for an argument for giving everyone a (weighted) chance for a vaccine. If working in the healthcare sector involves a higher risk of being exposed to the virus, this would mean prioritizing healthcare workers in some way (perhaps by giving them more tickets in a vaccine lottery). There are two reasons why we do not consider this line of argument in the article. The first reason is that this argument does not seem to have been prevalent during the pandemic. The second reason is that our concern in this paper is with arguments from reciprocity, and arguments from utility seem sufficient as a contrary line of argument.

recommend *reciprocity* as a crucial value for distributing vaccines[3]. Arguments from utility and reciprocity are often conflated when framed by healthcare workers themselves. While an argument for reciprocity may have an intuitive appeal – especially during a pandemic – it remains unclear precisely how it should operate. Furthermore, the ethical roots of utility maximization and reciprocity are different; while utility maximization can be explained on purely consequentialist grounds, an argument for reciprocity needs support from non-consequentialist theories.

This article explores the potential strengths and weaknesses of arguments for reciprocity regarding prioritizing healthcare workers for the COVID-19 vaccine and explores the twin issues of how and whom to reciprocate. We begin by summarizing how reciprocity has been used and defined in central policy documents for vaccine priority-setting. We then proceed to explore the philosophical grounds for reciprocity. This stage-setting allows us to explore how reciprocity may relate to the priority-setting of COVID-19 vaccines for healthcare workers. We then consider whether arguments from reciprocity suggest prioritizing healthcare workers solely or whether other essential workers at risk have a similar claim. Finally, we conclude that arguments from reciprocity do not necessarily suggest singling out healthcare workers for priority for COVID-19 vaccines. While our normative arguments have a broad scope of relevance, we largely make use of the Norwegian setting as a case study.

Reciprocity in pandemic policy

Precisely how has *reciprocity* been argued for during the COVID-19 pandemic? One of the most prominent examples is to be found in the WHO SAGE recommendations. The WHO SAGE states four central values – well-being, equal respect, equity, and reciprocity – and recommends that reciprocity could be considered towards groups that have been placed at a *disproportionate* risk while attempting to mitigate the adverse effects of the pandemic. Reciprocity is further explained as an attempt "to protect those who bear significant additional risks and burdens of COVID-19 to safeguard the welfare of others, including health and other essential services." (p.11). The WHO SAGE selects frontline healthcare workers as one such group and further recommends reciprocating healthcare workers with a high to very high risk of infection and transmission of SARS-CoV-2 because they play essential roles, work under intense conditions, and put themselves and their households at higher risk for the sake of others.[4]

By contrast, the Norwegian expert panel for the priority-setting of COVID-19 vaccines deliberately decided *not* to include reciprocity as a value affecting the priority order of vaccines.[5] They furthermore recommended two main groups for receiving priority for COVID-19 vaccines in the initial scarcity phase – the at-risk group[6] and healthcare workers. The Norwegian expert panel argued that the at-risk group should be ranked first

[3] World Health Organization, 'WHO SAGE Roadmap For Prioritizing Uses Of COVID-19 Vaccines In The Context Of Limited Supply'.
[4] World Health Organization, 'WHO SAGE Roadmap For Prioritizing Uses Of COVID-19 Vaccines In The Context Of Limited Supply'.
[5] Eli Feiring and others, 'Advice on Priority Groups for Coronavirus Vaccination in Norway', 27.
[6] With the term "at-risk group", we refer to those who are more likely to become severely ill as a result of COVID-19-infection, such as the elderly and those with pre-existing conditions. Prioritizing this group can be understood both as maximizing utility and as a concern for the worse off.

while transmission rates remained low and that health workers should rank first during periods of higher transmission rates. This ranking was argued to be necessary to preserve the integrity of the healthcare system and was thus clearly an argument from utility. In the discussions that followed in Norway, critical voices emerged. Groups of Norwegian practicing physicians, and particularly a group of prominent anesthesiologists, argued that healthcare workers should get first priority for COVID-19 vaccines under any circumstance. In these discussions, a reciprocity-like argument seemed to play a role. For instance, the anesthesiologists highlighted that healthcare workers have a right to protection when asked to do work that may imply a risk for their own life and health, which along with utility arguments led them to conclude that healthcare workers should receive first priority to pandemic vaccines under any circumstance.[7]

The Nordic countries are particularly relevant comparisons for the Norwegian setting. Reciprocity also comes into play in a review from these countries of arguments for prioritizing COVID-19 vaccines for healthcare workers. The authors state that "healthcare workers deserve reciprocity for putting their lives on the line for the lives of others" (p. 6). They also argued that a social contract needs to include reciprocity because this will raise trust among healthcare workers who take the risk.[8]

The Danish Council on Ethics did not mention the value of reciprocity directly. However, in a July 2020 report they discuss reciprocity-relevant concerns. To elaborate, the Council illuminates that healthcare workers have been at risk of harm due to their work. This potential harm may include direct morbidity because of SARS-CoV-2 infection as well the risk of transmitting the disease to others and to vulnerable patients (with potentially lethal consequences), potential transmission to family members and friends, and the necessity of frequent quarantine and isolation for the healthcare workers themselves. One could also add that daily work with personal protective equipment (PPE) and extra work because of sick colleagues and colleagues in quarantine may add to the totality of individual risk. On this basis, the Danish Council argues that the state may have a special duty towards its healthcare workers during a pandemic like COVID-19.[9] It is also important to note that a set of central articles and policy documents concerned with the priority setting of COVID-19 do not mention reciprocity directly nor include indirect reciprocity-like discussions.[10, 11]

To sum up, there are predominantly two trends concerning reciprocity for healthcare workers in the current COVID-19 pandemic. The first is that one is mainly concerned with risk (rather than harms and benefits), and the second is that it seems to be taken for granted that priority for COVID-19 vaccines is the best way to reciprocate healthcare workers at risk. Clearly, an under-theorized concept of reciprocity has emerged

[7] Jon Henrik Laake and others, 'Etikkeksperter på villspor', Tidsskrift for Den norske legeforening, 2020.
[8] Bjorg Thorsteinsdottir and Bo Enemark Madsen, 'Prioritizing Health Care Workers and First Responders for Access to the COVID19 Vaccine Is Not Unethical, but Both Fair and Effective – an Ethical Analysis', Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 29.1 (2021), 77.
[9] Det Etiske Råd, 'Etiske Hensyn Ved Visitation Og Prioritering Af Patienter På "Den Røde Kurve"'.
[10] Joint Committee on Vaccination and Immunisation, 'Joint Committee on Vaccination and Immunisation: Advice on Priority Groups for COVID-19 Vaccination, 30 December 2020', GOV.UK.
[11] A Hogan and others, Report 33: Modelling the Allocation and Impact of a COVID-19 Vaccine (Imperial College London, 25 September 2020).

in the literature on the priority-setting of COVID-19 vaccines. Given the emergent nature of the COVID-19 pandemic, this lack of theory is understandable. Pragmatism is crucial when coping with a pandemic. However, in the aftermath it will be valuable to consider more thoroughly the philosophical discourse of reciprocity and how conceptualizations of reciprocity may or may not relate to reciprocity as a value for prioritizing healthcare workers for the COVID-19 vaccine.

What is reciprocity?

Reciprocity is a ubiquitous part of everyday morality and social norms. We reciprocate in close relationships, in business dealings, and with strangers. Moreover, reciprocity is closely connected to gratitude.[12] Arguments from reciprocity are featured in ethical theory that envisages ethics either as an expression of desert-based claims[13], a social contract[14], a cooperative endeavor[15], or as a virtue[16]. Furthermore, reciprocity is extensively studied in game theory[17,18], psychology[19], biology[20], and other related fields and can be studied as grounds for a theory of justice.

In this article, we restrict ourselves to studying reciprocity as a reason-giving factor in the fair distribution of benefits (such as a vaccine). According to Thomas Becker, "reciprocity is a matter of making a fitting and proportional return for the good or ill we receive."[21] Concern for such fittingness and proportionality is fundamental to the notion of reciprocity that we will be exploring in this article. Our primary focus will be on the reciprocity warranted when there is *significant harm or benefit*. This focus also seems to align with other lines of inquiry into the nature of reciprocity, for instance, Armin and Fischbacher's theory focuses on the relationship between kindness, unkindness, and reciprocal action.[22]

Reciprocity is often a prerequisite for cooperation, which again relates to bargaining. If *A* wants to secure the cooperation of *B*, then *B*'s acceptance might be conditional on the relationship being reciprocally useful for them. If *B* has something to offer that is of great value, they are better positioned to dictate terms for the cooperative relationship. Whether a bargaining position can be a genuinely moral argument – or simply a reflection of power dynamics – depends on how one envisages morality. We will briefly

[12] Tony Manela, 'Gratitude', in The Stanford Encyclopedia of Philosophy, ed. by Edward N. Zalta, Fall 2019.
[13] Govind Persad, Alan Wertheimer, and Ezekiel J Emanuel, 'Principles for Allocation of Scarce Medical Interventions', The Lancet, 373.9661 (2009), 423–31 https://doi.org/10.1016/S0140-6736(09)60137-9.
[14] John Rawls, A Theory of Justice: Revised Edition (Cambridge, Massachusets: The Belknap Press of Harvard University, 1999).
[15] David Gauthier, Morals by Agreement (Clarendon Press, 1986).
[16] Lawrence C. Becker, Reciprocity (London: Routledge, 2014) https://doi.org/10.4324/9781315780719.
[17] Armin Falk and Urs Fischbacher, 'A Theory of Reciprocity', Games and Economic Behavior, 54.2 (2006), 293–315.
[18] Cristina Bicchieri and Giacomo Sillari, 'Game Theory and Decision Theory', 2016, 23.
[19] Linda D. Molm, 'The Structure of Reciprocity', Social Psychology Quarterly, 73.2 (2010), 119–31.
[20] Robert L. Trivers, 'The Evolution of Reciprocal Altruism', The Quarterly Review of Biology, 46.1 (1971), 35–57.
[21] Lawrence C. Becker, 'Reciprocity, Justice, and Disability', Ethics, 116.1 (2005), 9–39.
[22] Falk and Fischbacher.

consider whether this notion of bargaining position is relevant when discussing reciprocity as an argument in the priority-setting of vaccines.

An argument from reciprocity can also be understood deontologically. We here follow Shelly Kagan in defining a deontological argument as one that, in some sense, *limits* our duty to promote the good.[23] If person *A* requires reciprocation for a benefit to person *B*, this request is not meaningfully understood as an assertion that reciprocation will promote the general good, but rather that something is *owed* to person *A* or that person *B* has a duty to reciprocate. Such reciprocation can be understood as following from a special obligation, a right, a duty, or a virtue. Reciprocity, in this sense, can conflict with promoting the good. Person *C* might derive a greater *benefit* from whatever person *A* requires from person *B*. Maximizing utility will then, all else equal, require that person *C* gets this resource rather than *B*. The norm of reciprocity dictates otherwise. In setting priorities for COVID-19 vaccines, such a conflict between utility and reciprocity is apparent. Maximizing utility might dictate giving the vaccines to those who will gain the most health benefit from them or to those who will be most instrumentally helpful, while reciprocity dictates giving it to those who have provided a significant benefit or who have experienced significant harm or risk. We posit that a genuine argument from reciprocity in some sense limits our endeavors to promote the good. To be precise, any argument that holds, for instance, that healthcare workers should be prioritized to maximize health (or well-being) is thus not a genuine argument for reciprocity.

The issue of reciprocity is part of a larger debate on limitations on utilitarian strategies in healthcare priority-setting. In this sense, arguments from reciprocity are like arguments from need or illness severity as well as arguments on the merits of sufficientarian, egalitarian, and prioritarian theories of justice for healthcare priority-setting.[24, 25, 26, 27] In an extension of this, it is also the case that giving weight to concerns for reciprocity will potentially conflict with the concerns of these various distributive theories. Promoting reciprocal concerns can conflict with concerns for total or average utility, concerns for the worse off, or equity concerns. Prioritizing healthcare workers as a reciprocal action might, for example, mean prioritizing those likely to become severely ill (the worse off) to a lesser degree. An important difference between the above-mentioned theories of distribution and concerns for reciprocity is that these theories all focus on the beneficiaries of resources. Concerns for reciprocity are centered on providers rather than on beneficiaries, and concerns for reciprocity are, in this sense, similar to concerns for desert.

It might be possible to account for reciprocity purely within the realms of consequentialism, analogous to how some have argued for desert-sensitive consequentialist theories.[28] Reciprocation would then be understood as a specific good to be promoted in line with other goods, such as health or well-being. This possibility will not

[23] Shelly Kagan, The Limits of Morality (Oxford University Press, 1989).
[24] Erik Gustavsson and Niklas Juth, 'Principles of Need and the Aggregation Thesis', Health Care Analysis, 27.2 (2019), 77–92.
[25] Mathias Barra and others, 'Severity as a Priority Setting Criterion: Setting a Challenging Research Agenda', Health Care Analysis, 28.1 (2020), 25–44.
[26] Derek Parfit, Equality or Priority (University of Kansas, Department of Philosophy, 1991).
[27] Greg Bognar and Iwao Hirose, The Ethics of Health Care Rationing: An Introduction (London: Routledge, 2014).
[28] See, e.g., Shelly Kagan, The Geometry of Desert (Oxford University Press, 2014).

be explored in this article. In either case, the structure of reciprocation needs to be made explicit and its application explored in the context of priority-setting for COVID-19 vaccines.

How to reciprocate

Assuming that reciprocation is called for, the question of how exactly one should reciprocate remains. Following Becker, we consider two issues particularly salient, namely *proportionality* and *fittingness*.[29]

First, what does it mean for an instance of reciprocity to be proportional? If *A* buys *B* dinner at a moderately fancy restaurant, and *B*, in return, buys *A* a chocolate croissant from the university cafeteria, this return is hardly a case of a *proportional benefit*. A proportional benefit would entail that *B* gives as much as they receive. However, it might be a case of a *proportional sacrifice*, where *B* sacrifices as much as *A* sacrificed. Perhaps *A* is very wealthy, whereas *B* has recently come into massive debt and therefore does not have the money to be buying anything fancier than a croissant. It might even be the case that *B*'s sacrifice is greater than *A*'s sacrifice.[30] Regarding proportionality, at least two factors seem to be in play, namely the nature of the *relationship* (most prominently whether the relationship is symmetrical or asymmetrical) and the *resources* available to the partners in the reciprocal exchange.

Whether to reciprocate based on benefit or sacrifice is an important question because power dynamics are likely to be substantially different depending on what is chosen. Reciprocity based on a benefit is likely to be advantageous to the rich, talented, and powerful, whereas reciprocity based on sacrifice is likely to be an equalizing force.[31] A critical point is that an argument from reciprocity is primarily built on a retrospective judgment. Whether to reciprocate is not a question of whether it is useful to continue receiving the benefits offered but whether something is owed to the person from whom one has already benefited (or made to suffer harm).[32] The normative status of reciprocating for a benefit, or harm, is thus not dependent on whether one can expect to receive the benefits again. If the notion of a bargaining position is relevant when considering how to reciprocate, we can potentially be led to the converse conclusion. If person *A* is more important to a cooperative relationship than person *B*, then it might be the case that person *B* has to offer more to make the relationship worth it to person *A*. In the case of healthcare workers during a pandemic, we need their services desperately. Perhaps this asymmetry should be acknowledged by reciprocating with a larger benefit or sacrifice. This seems to be Aristotle's position.[33] Given that we do not wish to exacerbate existing disparities in power, wealth, and influence, asymmetrical reciprocal relationships should be based on sacrifice.

[29] Becker. Reciprocity, Justice, and Disability.
[30] A similar asymmetry is also illustrated in the parable of the Widows Offering, where Jesus focuses on the great sacrifice of the poor rather than the great benefits from the rich. Mark 12:41-44.
[31] Se Becker (2005) for an illustration of how different forms of reciprocity will generate different power dynamics.
[32] Becker. Reciprocity.
[33] Aristotle, Aristotle's Nicomachean Ethics, trans. by Robert C. Bartlett and Susan D. Collins, Reprint edition (Chicago: University of Chicago Press, 2012).

The issue of fittingness concerns what types of reciprocation are suitable in response to a given benefit or harm. How should *A* reciprocate if *B*, a dear friend, gives *A* a rare book *A* have wanted for a long time? Giving *B* the exact same book in return, which seems maximally equal, would be inappropriate and strange. In such situations, we have a wide range of options for reciprocating, which do not seem to require similarity. As the above example shows, some forms of similarity might even be inappropriate. The situation is seemingly more complicated when it comes to reciprocating for harm. If *A* incurs serious harm because of *B*'s actions, options for reciprocity are more restricted. *B* giving *A* an expensive gift might be fitting, but it might also be considered inappropriate depending on their relationship and *A*'s interpretation of *B*'s actions. Perhaps only a similar sacrifice or harm will restore this relationship to what it was before the harm. Becker argues that fittingness for harm is aimed at restoring reciprocal relationships.[34] In this case, perhaps the standard of fittingness in the situation is an action or sacrifice that shows *A* that the relationship really is a reciprocal one; that *B* would be willing to do the same for *A* as *A* was willing to do for *B*. It thus seems that reciprocating for harm is more complex than reciprocating for benefits. The former potentially demands a higher or stricter standard of fittingness. This standard might have to do with harms often being reciprocated with benefits, making commensurability difficult. Risk of harm, which we consider as a subspecies of harm, might, however, be commensurable with specific benefits that mitigate this risk, making the question of fittingness less difficult.[35] Alternatively, perhaps the deontological connotations of harms make it a more complex issue than benefits, the latter of which often have consequentialist connotations. No matter what the explanation is, the standard of fittingness when reciprocating for harms seems more demanding than when reciprocating for benefits.

To summarize, there seems to be a set of relevant questions and criteria that should be thought through regarding reciprocity for healthcare workers. Reciprocation can be based on benefits, harms, risks, or all of these. Also, reciprocation implies that something is owed to a specific person or group of individuals, which again may conflict with concerns for maximizing utility, prioritizing the worse off, or with equity concerns. Moreover, some proportionality and fittingness between the benefits, harms, and risks, and the reciprocation in return, should be expected – which again depends on the relationship between the two parties.

Reciprocity and priority-setting of COVID-19 vaccines

To date, the most frequent argument for reciprocating COVID-19 vaccines for healthcare workers seems to be that healthcare workers are at increased *risk* for COVID-19 and, therefore, should be reciprocated for this risk.[36] Here, we understand *risk* as situations that involve exposure to potential harm. We will, in this article, consider risk of harm as a subspecies of harm, in the sense that a person can be harmed by being put at considerable risk. The risk of harm from exposure to SARS-CoV-2 is thus here understood as the harm

[34] Becker. Reciprocity.

[35] A higher risk of contracting COVID-19 – i.e., suffering a harm – while performing a vital service, could, for example, be mitigated by being prioritized for a vaccine.

[36] See, e.g., Kirk R Daffner, 'Point: Healthcare Providers Should Receive Treatment Priority During a Pandemic', Journal of Hospital Medicine, 16.3 (2021).

that needs to be reciprocated. Considering the risk of harm as a species of harm is important given the retrospective nature of reciprocity. This consideration will be explored later in the article. Following Becker[37], one could argue that reciprocity for risk is necessary to maintain or mend the reciprocal relationship between healthcare workers and the rest of society. What the "rest of society" means will be considered below.

An interesting argument can be made regarding the relationship between healthcare workers' duty to treat and societies' duty to provide safe working conditions for healthcare workers. Some have argued that the duty to treat is conditional on satisfactory PPE measures such as masks.[38] Perhaps a similar argument can be made regarding the priority setting of scarce vaccine doses. This would be a case of complementary duties and obligations such that the strength of a duty to treat would be conditional on the strength of societies' efforts to provide safe working conditions for healthcare workers.

Alternatively, one could understand the argument from reciprocity as positing that society receives a substantial *benefit* from healthcare workers during a pandemic and that this benefit needs to be reciprocated. In a sense, we owe the healthcare workers something for their contribution. Given that healthcare workers are already compensated for the benefits they provide, this contribution would probably need to be larger than what can be expected under normal circumstances for the argument to be persuasive. The benefit obtained from healthcare workers is clearly substantial during a pandemic. However, this benefit is not obviously different from the benefits provided during non-pandemic times during which healthcare workers – like all professional workers – are compensated monetarily for their provided benefits. It is therefore not evident that reciprocating with vaccines is fitting or proportional.

Are healthcare workers more at risk than other workers?

Have healthcare workers been more at risk of SARS-CoV-2 infection than others? This question of risk is empirical, and the risk profile naturally differs between countries. When this article was written (December 2021), the WHO estimated that between 80,000 and 180,000 healthcare workers had lost their lives due to COVID-19 globally.[39] These numbers indicate that globally healthcare workers have been at a significantly higher risk than the general population. We will, nevertheless, primarily consider empirical data from the Norwegian setting because this gives us a reasonably clear setting for our arguments. Even though the empirical setting is country-specific, we believe that our normative discussion will be of generic value. Compared with these international numbers, the morbidity and mortality rates among Norwegian healthcare workers have been fairly low. Different occupational groups within the Norwegian healthcare sector were surveyed between early and mid-2020, and this large-scale study found that the people at the most significant risk of SARS-CoV-2 infection were not frontline physicians or nurses – as many would expect

[37] Becker. Reciprocity.
[38] Espen Gamlund and others, 'Heroes in White?', Tidsskrift for Den Norske Legeforening, 2020.
[39] World Health Organization, 'Health and Care Worker Deaths during COVID-19' https://www.who.int/news/item/20-10-2021-health-and-care-worker-deaths-during-covid-19 [accessed 14 December 2021].

– but rather sanitation workers and emergency medical technicians.[40] Some Norwegian healthcare workers, specifically clinical psychologists and physiotherapists, were even less likely to be infected with SARS-CoV-2 than the general population. Data from infection rates among different professions in Norway have shown that workers in other industries, such as bus and taxi drivers, bartenders, and waiters, are at a similar risk of SARS-CoV-2 infection as healthcare workers.[41] Thus, it seems that Norwegian healthcare workers, in general, are more at risk than the general public, but this needs to be qualified in two ways – not all healthcare workers are at risk, and some non-healthcare workers are at a similar risk as healthcare workers. Note that we have only argued that this is the case in the Norwegian setting. If data from other countries show a clear tendency for healthcare workers to be at a significantly higher risk than the general population, then the argument for some form of reciprocity is plausibly stronger in these countries.

Who is the reciprocating partner?

The examples used so far to illustrate aspects of reciprocity have primarily involved personal relations where it is obvious who is responsible for reciprocating. However, it is not as clear *who* the reciprocating partner is when it comes to reciprocating with vaccines. At least four candidate views present themselves –the hospitals or the healthcare system, the state, society in general, or the individual patient. Patients seem relatively easy to rule out because it is not only those patients who are treated by healthcare workers for COVID-19 who receive a benefit. Having a functioning healthcare system is necessary to avoid complete lockdowns and other restrictions that negatively affect most citizens' quality of life and economy. Thus, patients might have a duty to reciprocate, but if reciprocation is called for, it is not solely the patients who are responsible. It also seems plausible to argue that patients reciprocate indirectly via the state or by complying with infection-control regulations and recommendations.

Whether or not hospitals or the healthcare system in general are responsible for reciprocation will likely depend on how the healthcare system is organized. It seems plausible to argue that employers (i.e., hospitals) are responsible for reciprocation when healthcare workers are working in the private sector. When the state is responsible for the healthcare sector and for the priority-setting of vaccines, such as in most European countries, the state is probably a more suitable partner in the reciprocal relationship for pragmatic reasons. Thus, the state and society in general remain potential reciprocators. Society seems to have some responsibility, and concerns for this responsibility have been part of the general discourse during the pandemic, highlighting the sacrifices of the healthcare workers and the responsibility of the general public to follow infection-control regulations. An example of highlighting sacrifices was the widespread cheering by the public of healthcare workers from balconies during the early stages of the pandemic. When

[40] Mari Molvik* and others, 'SARS-CoV-2 blant ansatte i helse- og omsorgstjenesten', Tidsskrift for Den norske legeforening, 2021.

[41] Karin Magnusson and others, 'Occupational Risk of COVID-19 in the First versus Second Epidemic Wave in Norway, 2020', Eurosurveillance, 26.40 (2021). Folkehelseinstituttet, 'Mer covid-19 i noen yrkesgrupper', Folkehelseinstituttet https://www.fhi.no/nyheter/2020/mer-covid-19-i-noen-yrkesgrupper/ [accessed 10 November 2021]. Folkehelseinstituttet, 'Mer covid-19 i noen yrkesgrupper enn i andre', Folkehelseinstituttet https://www.fhi.no/nyheter/2021/mer-covid-19-i-noen-yrkesgrupper-enn-i-andre/ [accessed 15 December 2021].

it comes to more direct reciprocity, either in the form of monetary compensation or vaccines, the most plausible way for society to reciprocate is via the state. This is particularly clear in countries like Norway, Denmark, Sweden, and the Netherlands, where the state is the principal organizer of the healthcare systems (in a broad sense, including regions and local authorities). In countries with a large public health sector, where most healthcare workers are effectively government employees, it thus seems that the state is the most suitable candidate for being responsible for direct reciprocity. Such state responsibility does not rule out the possibility that society in general, the healthcare sector, or patients have a duty to reciprocate in some manner (probably by compliance with regulations), but rather highlights that the state, in addition to being a suitable reciprocator, is also the most effective way of reciprocating on behalf of others.

Whom and how to reciprocate

Building on our discussion of the structure of reciprocity, we now see that several questions are salient when prioritizing healthcare workers. (1) Should one reciprocate for harm, benefits, or both? (2) What constitutes a fitting instance of reciprocity? These questions are intertwined in that fittingness plausibly depends on whether we are reciprocating for a benefit or a harm. How we answer these questions influences two further practical questions regarding priority-setting (3) Are healthcare workers special? (4) Does reciprocity require harm-mitigation, or are other forms of reciprocity fitting? Lastly, there is also the issue of proportionality: (5) If we are to reciprocate healthcare workers, should this reciprocation be proportional to their sacrifice or to the benefits they provide?

Let us first consider the issue from the perspective of benefits. Healthcare workers confer an enormous benefit during a pandemic. It seems plausible to argue that the benefits received from healthcare workers during a pandemic are special in some way, in the sense that they confer a benefit that is more important than the benefits provided by other workers that take on similar risks. If this argument is sound, it might make sense to single out healthcare workers for reciprocity. Prioritizing healthcare workers can then be argued to be proportional reciprocity for the benefits we receive as a society. However, there are two problems with this argument. First and foremost, it is not clear that the benefits provided by healthcare workers during a pandemic are qualitatively different from benefits provided during normal times. Compensating in similar ways as during non-pandemic times thus seems appropriate, most likely by providing an economic incentive. Second, reciprocity for benefits is typically not required to be very similar to the benefits received. Thus, while focusing on benefits makes singling out healthcare workers somewhat plausible, it also makes it plausible that reciprocating by other means than a priority for a vaccine is fitting.

What then of reciprocating for harm? Healthcare workers take on a substantial risk while working. Following our discussion of fittingness when reciprocating for harms, and risk in particular, it might seem plausible to require reciprocation that may causally reduce the risk in question whenever possible. Thus, the argument for reciprocating with vaccines is potentially stronger if we focus on the risk of harm. However, the difficulty then becomes that other workers take on similar risks during pandemic times. Non-healthcare workers in hospitals, such as janitors and cleaning staff, as well as bus drivers, cashiers, teachers,

and many workers in service industries, face a similar risk. The argument from harm thus makes it more plausible to prioritize certain workers for vaccines but does not single out healthcare workers in a meaningful way. This argument can thus perhaps rather be seen as singling out all at-risk essential workers.

One could argue that we should consider *both* harms and benefits and that healthcare workers are special because they provide an essential benefit during a pandemic – different from benefits provided by other essential workers – and at considerable personal risk. Combining concerns for both harms and benefits could constitute an argument for singling out healthcare workers who provide pandemic-essential benefits while taking on a substantial risk of infection. Framing the argument this way seems to strengthen the argument but limits the scope. Many healthcare workers would not be in a position to argue for reciprocity in this manner. Additionally, this argument relies on the contribution of healthcare workers being more essential than the contribution of other essential workers. This pattern is not in any way obvious. Even being very restrictive, bus drivers are needed to transport healthcare workers, daycare workers are needed to take care of the children of healthcare workers, and so forth. The argument probably limits the scope of relevant reciprocity to all workers necessary to maintain a functional healthcare system while taking on considerable risk. This essential group is likely to be large. A different argument that might lead to the same conclusion is based on the duty of hypothetical patients to reciprocate. Consider person *A,* who lives in a society where COVID-19 is widespread. If person *A* needs treatment due to COVID-19, several people cannot help without interacting with *A*, and, thus, *A* is going to bring professional helpers in close contact with the virus. This necessity of physical contact obviously includes healthcare workers and staff who transport patients to the hospital. One could make the case that person *A*, anticipating being in the position of exposing these people to risk, should be willing to step back in line to allow these people to move forward.[42] One could make the case that this would be a case of the (hypothetical) patient reciprocating essential workers in the healthcare sector for their supplied benefits, and this would be a case of (hypothetical) patients being the reciprocating partner. Still, managing this in any other matter than via the state seems hopelessly tricky. The state could then shift its allocation of vaccine doses to reflect the duty of its individual citizens. The main problem with this argument is that it seems to conflict heavily with utility-maximizing and concern for the worse off. By the logic of the argument, patients who are likely to need treatment have a stronger duty to step back in line than less vulnerable patients. Shifting vaccines from vulnerable patients to healthcare workers rather than from less vulnerable patients departs from the goal of minimizing the damages of the pandemic and, inversely, maximizing the benefits of the vaccine. The fact that it is vulnerable patients who are singled out by this argument clearly illustrates how concerns for reciprocity might, in addition to conflicting with maximizing utility, conflict with concerns for the worse off or with equity concerns.[43] Allocating vaccines away from vulnerable patients involves de-emphasizing the concerns of those who are likely to become severely ill, thus prioritizing the worse off to a lesser extent.

[42] We would like to thank Mathias Barra for suggesting this argument.

[43] We would like to thank an anonymous reviewer for pointing out that reciprocity here also conflicts with concerns for the worse off.

Healthcare workers might be in a stronger bargaining position than other essential workers, and they are thus in a stronger position to dictate terms in the cooperative relationship. The question is whether this is an ethical argument in the relevant sense. However, a bargaining position argument might be made more palatable by focusing on restoring reciprocal relationships. Recall that Becker claims that reciprocity for harm should aim at restoring reciprocal relationships.[44] Given this aim, the status of this question of reciprocity depends on the attitudes and bargaining position of healthcare workers. Further, whether fittingness demands reciprocity of vaccines will depend on whether the public can be said to harm the reciprocal relationship. Recall that reciprocation for harms is different from reciprocation for benefits. If the public does not comply with infection-control regulations or recommendations, thus increasing the risk to healthcare workers, perhaps the relationship is strained to a level that demands reciprocation aimed at the harm inflicted. In other words, perhaps there is a threshold above which harms need to be mitigated if possible and not just reciprocated by other means. Some form of argument like this, if it is acknowledged as a relevant moral argument, could support reciprocating in any manner that is required to secure the cooperation of healthcare workers. We believe that this is not considered a moral argument by most. Thus, it seems more plausible to restrict the notion of reciprocity to the proportional and fitting reciprocation for benefits and harms. Let us consider a further argument along the same lines. Recapping, if we conceptualize reciprocity retrospectively, arguments from a bargaining position are clearly not arguments from reciprocity. An alternative is to argue that bargaining becomes relevant when reciprocal relations are non-existent or have broken down.[45] Consider, for instance, the case where the general population is not complying with infection-control regulations and recommendations, thereby increasing the strain on the healthcare system and putting healthcare workers at risk. One could argue that this is a case where the public neglects its responsibility in a reciprocal relationship with healthcare workers. In this new situation, where the reciprocal relationship has broken down, what is to stop the healthcare workers from leveraging their bargaining position? Considered like this, an argument from a bargaining position is relevant when reciprocal relationships break down or are otherwise non-existent.

Regarding proportionality, the relationship between the state and healthcare workers is likely to be asymmetrical, meaning that reciprocation proportional to sacrifice is less likely to magnify existing imbalances. Public debates on vaccine priority-setting seem to focus on how much healthcare workers are giving up or enduring in fighting the pandemic. If we decide to reciprocate, it thus seems most plausible to argue that reciprocation should be for sacrifice. When it comes to reciprocating with vaccines or other forms of compensation, proportionality does not seem to have much to say, except that prioritization for a vaccine, given that it at a point in time was a scarce resource, was a valuable form of compensation. Therefore, a sacrifice would have to be proportional to the value of this scarce resource for vaccine prioritization to be a suitable form of reciprocity.

To sum up, the argument for reciprocating with vaccines seems most plausible when viewing it as reciprocation for harms rather than benefits. However, singling out healthcare workers seems more straightforward when viewing reciprocity as following from benefit. Therefore, it is not a simple task to construct an argument from reciprocity

[44] Becker. Reciprocity.

[45] We would like to thank Mathias Barra for suggesting this argument.

that both singles out healthcare workers and requires reciprocity in the form of vaccines without drawing on the notion of bargaining position. Given that bargaining position is not plausibly a moral factor, constructing an argument from reciprocity that singles out healthcare workers for a vaccine seems difficult. Alternatively, one could argue that bargaining position becomes relevant when reciprocal relations break down. Lastly, one could argue that hypothetical patients have a duty to step back in line to reciprocate healthcare workers for putting them in harm's way. This argument suffers from singling out vulnerable people as reciprocating partners, thus conflicting radically with utility-maximizing efforts, concerns for the worse off, and equity concerns.

Conclusion

If the goal is to argue for the prioritization of COVID-19 vaccines based on reciprocity, the most persuasive argument is that harms (or risks of harm) should be reciprocated. However, as we have seen, the risk of SARS-CoV-2 infection and the harms thereof are not limited to healthcare workers. Other workers in non-healthcare lines of industry would have the same claim to reciprocity based on harm. Furthermore, even if we argue from a combined harm and benefit perspective, the scope of the argument should reasonably include all who take on a substantial risk while helping to maintain a functioning healthcare system (or even a functioning society at large). It is not clear that this entails either limiting the scope to healthcare workers or prioritizing all workers who supply the healthcare system. A possibility is to argue that the bargaining position of healthcare workers is relatively stronger, but this is likely to strike many as a non-moral argument. If we decide that people supplying an essential service at considerable risk are entitled to reciprocity, it is not a given that this should be in the form of a vaccine. If reciprocity is to play a significant role in the priority setting of pandemic vaccines, this will arguably be at the expense of total utility, the worse off, or concerns for equity. Given that the arguments from reciprocity seem to be anything but straightforward, it is not clear that this sacrifice is reasonable.

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BJ and CTS made a disposition together. BJ then wrote the first draft of the article, which CTS then revised. BJ and CTS made several revisions. BJ had the main responsibility for the article as the first author, while CTS made revisions and overall comments as the last author. Both authors approved the final manuscript.

Financing

The work of BJ is supported by NRF grant no. 303724. The work of CTS is supported by the Norwegian Health Directorate and partially also supported by the NRF grant no. 303724.

Declaration of interests

CTS was a member of the secretariat for the expert panel that made the first overall ranking of priority groups for COVID-19 vaccines in Norway. BJ declares no competing interests.

Acknowledgments

We would like to thank Mathias Barra and Mille Sofie Stenmarck for constructive comments on a former version of this manuscript. We would also like to thank two anonymous reviewers for valuable comments.

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