Covid-19 and age discrimination: Benefit maximization, fairness, and justified age-based rationing

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Abstract

Age-based rationing remains highly controversial. This question has been paramount during the Covid-19 pandemic. Analyzing the practices, proposals, and guidelines applied or put forward during the current pandemic, three kinds of age-based rationing are identified: an age-based cut-off, age as a tiebreaker, and indirect age rationing, where age matters to the extent that it affects prognosis. Where age is allowed to play a role in terms of who gets treated, it is justified either because this is believed to maximize benefits from scarce resources or because it is believed to be in accordance with the value of fairness understood as (a) fair innings, where less priority is given to those who have lived a full life or (b) an egalitarian concern for the worse off. By critically assessing prominent frameworks and practices for pandemic rationing, this article considers the balance the three kinds of age-based rationing strike between maximizing benefits and fairness. It evaluates whether elements in the proposals are, in fact, contrary to the justifications of these measures. Such shortcomings are highlighted, and it is proposed to adjust prominent proposals to care for the worse off more appropriately and better consider whether the acquired benefits befalls the young or the old.

Introduction

As the Covid-19 pandemic illustrates, healthcare systems sometimes face extreme shortages. How we decide to balance patients' competing interests may effectively determine the length of their lives.[1] Therefore, we must give serious thought to which policy to pursue. This article addresses the rationing of ventilators under the Covid-19 pandemic with specific attention to the role of age in rationing decisions.

The allocation of ventilators is discussed because it is a scarce resource of immense importance to those hit hardest by the disease. A Covid-19 infection can diminish the lungs' capacity to provide sufficient oxygen to vital organs. In such situations, patients need to admission to an ICU. Here a ventilator can support breathing while the body fights

[1] As an anonymous reviewer pointed out, the discussion shares many features of the broader discussion of ethical theory in disaster situations. For this literature, see: (Mallia 2015; Wagner and Dahnke 2015; Zack 2010)

off the infection. But this is only possible if there is a ventilator available. As ventilators are a scarce resource, questions regarding their distribution quickly became a topic for discussion as the number of seriously infected rose across countries.

One particular aspect of this discussion pertains to the role of age in rationing decisions. The relevance of this is underscored by the fact that age is a significant predictor of mortality among those infected by Covid-19 (Jordan, Adab, and Cheng 2020; Zhou et al. 2020; J. T. Wu et al. 2020; Z. Wu and McGoogan 2020). Age-based rationing is also important in broader debates about ethics and healthcare rationing (Bognar 2016). Empirical studies show that many people support some age-based rationing (Busschbach, Hessing, and De Charro 1993; Johannesson and Johansson 1997; Rodríguez and Pinto 2000; Tsuchiya 1999) – also, in a Covid-19 context (Wilkinson et al. 2020). However, in the philosophical debate over healthcare rationing, many consider age-based criteria problematic and/or discriminatory (Daniels 2008; Giordano 2005; Farrelly 2008; Kilner 1989; Rivlin 1995). Others allow that age could, for various reasons and to different degrees, play a role, directly or indirectly, when allocating healthcare resources (Bognar 2008; Shaw 1994; Williams 1997b). In the specific debate over age-based rationing under the Covid-19 pandemic, we can also identify both sides of this debate. Recent contributions have questioned age-based rationing (Cesari and Proietti 2020; Farrell, Francis, et al. 2020; Farrell, Ferrante, et al. 2020; Jecker 2022), while others have considered them more permissible – at least in the dire circumstances of a global pandemic (Nielsen 2020; Lippert-Rasmussen 2020). Also, in this debate, whether age-based rationing is a form of problematic discrimination is a recurrent theme (den Exter 2020; Popescu and Marcoci 2020).[2]

This article adds to our understanding of the role of age in priority decisions under extreme scarcity. Specifically, it asks whether the justifications offered for the different age-based rationing policies are in accordance with the proposed policies. The proposals for rationing are identified in the contemporary literature on Covid-19 and rationing, with particular attention paid to how age-based rationing is justified. The article takes its starting point in situations where we have to choose between two persons when assigning a ventilator. It is assumed that the persons are in equal need in the sense that

[2] For a discussion of age based discrimination and ageism in the broader societal response to the pandemic, see (Fraser et al. 2020)

treating them would not be futile and that they are unlikely to live without access to a ventilator. It is further assumed that we have already done what we could to increase ICU capacity in terms of ventilators and that the persons under consideration do not differ in their exercises of responsibility for becoming ill in the first place.[3] The final assumption is that both persons want the treatment and have not issued directives against receiving the treatment in the past. These assumptions aim to isolate age and discuss it alongside clinical factors such as prognosis.

Proposals, guidelines, and practices: Age rationing and Covid-19

This section briefly presents the role assigned to age in rationing in a selected set of proposals, guidelines, and practices.

In Italy, a country hit so hard by Covid-19 in the spring of 2020 that it served as an influential tale of caution for many European countries, age quickly became part of the public discussion. In March, the Italian College of Anesthesia, Analgesia, Resuscitation, and Intensive Care (SIIARTI) suggested that "An age limit for the admission to the ICU may ultimately need to be set" (Vergano et al. 2020, 471). Interviews with Italian doctors suggest that they employed an age-based cut-off point as a rationing criterion (Rosenbaum 2020).[4] The SIIARTI guidelines were the subject of heated debate and drew severe criticism due to the age-based rationing (Craxì et al. 2020).

An influential review of issued guidelines for Covid-19 rationing conducted by Joebges and Biller-Andorno demonstrates that these approach age-based rationing quite differently.[5] Some guidelines issued do not mention age. This is the case with the guidelines issued by NICE in the UK. Similarly, the guidelines from the Austrian Society for Anesthesiology, Reanimation and Intensive Care (OEGARI) were also silent on this (Joebges and Biller-Andorno 2020). Elsewhere, guidelines were specifically against age-based

[3]This assumption is made to avoid responsibility-sensitive intuitions such as those expressed in the application of luck egalitarianism to healthcare rationing (Segall 2010; 2013; Albertsen 2020; Albertsen and Knight 2015; Albertsen 2015).

[4] Furthermore, a retrospective study of all ICU admissions in Lombardia in Northern Italy found, that as pressure on ICU capacity increased, the likelihood of being admitted to the ICU for people above 70 years of age dropped significantly compared to the decrease experienced by other groups (Trentini et al. 2022).

[5] A similar comparison of more countries deems age-based rationing to be a contested issue (Jöbges et al. 2020)

rationing. This was the case with the guidelines issued by the Belgian Society of Intensive Care Medicine, and those issued by several German intensive care professional associations and the German Academy for Ethics in Medicine (AEM) (Joebges and Biller-Andorno 2020). Finally, as mentioned, SIIARTI in Italy and guidelines issued by the Swiss Academy of Medical Sciences leave the door open for age-based rationing (Joebges and Biller-Andorno 2020). The role of age in guidelines issued by the Swiss Academy of Medical Science developed in a noteworthy way. In the first and second versions, both issued in March 2020 age above 85, is listed as an exclusion criterion (i.e. excluded from ICU access) under the direst resource scarcity (Swiss Academy of Medical Sciences 2020a; 2020b).[6] This cut-off approach was altered in the third version of the guidelines issued in November 2020. In these age is not directly employed as a rationing criterion, but is so indirectly because people above the age of 85 are excluded if their so-called frailty score[7] is too high (Swiss Academy of Medical Sciences 2020c).[8] The reasoning behind this is that age affects prognosis.

Age also plays a significant role in two of the most prominent ethical frameworks for rationing under Covid-19, developed during the pandemic by ethicists. One of these, the Multiprinciple Allocation Framework, was adopted at a number of US hospitals (White and Lo 2020a). In this proposal, everyone in need of critical resources is deemed eligible. The proposal does not include a *categorical exclusion*; however, those in need receive a priority score based on their likelihood of surviving with treatment and their life

[6] The so-called Stage B was defined as: 'No ICU beds available - Resource management through decisions on discontinuation of treatment' (Swiss Academy of Medical Sciences 2020a, 4). This contrasts with stage A where ': ICU beds available, but capacity limited' (Swiss Academy of Medical Sciences 2020a, 4). Stage A was from the third version of the guidelines redefined as: 'ICU beds available, but national capacity limited, with a risk of ICU beds becoming unavailable in the next few days'(Swiss Academy of Medical Sciences 2020c, 6)

[7] The employed frailty score is the so-called clinical frailty score (Swiss Academy of Medical Sciences 2020c, 5).

[8] The required score differs with age in the third version of the guidelines from November 2020, this is described as follows: Stage A (cf. footnote 6) people above the age of 65 is excluded if they have a frailty score of 7 or above. People older than 85 is excluded if their frailty score is equal or above 6. As scarcity increases (i.e. scenario B) the restrictions become tighter. Here those older than 65 are excluded if they have a frailty score equal to or above 6 (Swiss Academy of Medical Sciences 2020c, 7). These remain in place in the newest version of the guidelines issued in November 2021 (Swiss Academy of Medical Sciences 2021)

expectancy after discharge. This is translated into a score from 1 to 8, with 1 being eligible for the highest priority. Age enters the picture as a tiebreaker. Priority is given to those who have gone through the fewest of life's cycles (White and Lo 2020a). In a longer document, the following age groups are recommended for this: ages 12-40, ages 41-60; age 61-75; and older than age 75(White 2020). Thus, in that proposal, age, or rather age groups, functions as a tiebreaker if we must choose between people with similar prognoses.[9]

The final framework to be presented here is the one developed by Emanuel et al. (Emanuel et al. 2020). This framework identifies six values: "maximizing benefits, treating equally, promoting and rewarding instrumental value, and giving priority to the worst off" (Emanuel et al. 2020, 2051). Following from these, several recommendations are developed.[10] The framework provides an indirect role for age rationing because age affects prognosis – which is relevant when benefits are maximized – and sees this as further justified by a concern for the worst off. There is a limit, however, in terms of the scope of the benefits taken into account. Emanuel et al. write:

> Limited time and information in a Covid-19 pandemic make it justifiable to give priority to maximizing the number of patients that survive treatment with a reasonable life expectancy and to regard maximizing improvements in length of life as a subordinate aim. The latter becomes relevant only in comparing patients whose likelihood of survival is similar. (Emanuel et al. 2020, 2052)

In this framework, age is not a tiebreaker. My interpretation is that we should first look at the likelihood that we will save that person's life (short-term prognosis), then, if equal, the length of this life (long-term prognosis) matters, and finally, if still equal, lots are to be

[9]In different presentations of the proposal, it is not entirely clear whether age is the first or the second tiebreaker(White 2020). The other suggested tiebreaker is to give priority to those who are vital to the healthcare system's response to the pandemic. For the discussion about what society owe this particular group, see (Albertsen and Thaysen 2017; Sokol 2006; Reid 2005).

[10] These are: : "maximize benefits; prioritize health workers; do not allocate on a first-come, first-served basis; be responsive to evidence; recognize research participation; and apply the same principles to all Covid-19 and non–Covid-19 patients" (Emanuel et al. 2020, 2051).

drawn (Emanuel et al. 2020, 2053).[11] This leaves an indirect role for age, as age affects both long- and short-term prognosis.

Based on the brief presentation above of prominent practices and recommendations, we can say that those who allow for age-based rationing provide three distinct roles for age:

- Age-based cut-off: Here, treatment is not offered to those over a certain age. This was seemingly the practice employed in some places in Italy, part of the SIIARTI guidelines and the early guidelines provided by the Swiss Academy of Medical Sciences.
- Age as a tiebreaker: Here, age is evoked as a tiebreaker between those deemed to have a similar prognosis. This is the main role of age in the framework from White and Lo.[12]
- Indirect age rationing: Here, age is indirectly relevant because of its interaction with prognosis and life expectancy. This is the key role afforded to age by Emanuel et al., but it is also part of the framework from White and Lo and later guidelines issued by the Swiss Academy of Medical Sciences.

The next section takes a closer look at the justifications for these different roles given to age in rationing.

Justifying age-based rationing

Analyzing the presented policies and frameworks, we can see that different justifications for age-based rationing are offered. This section presents these justifications in the frameworks and guidelines allowing for such rationing.

The first justification prominently linked to age-based rationing is *benefit maximization*. While the age limit in the proposal received a lot of attention, it is important to understand that it was proposed alongside other concerns, specifically prognosis (Cesari and Proietti 2020), and that it was motivated by the utilitarian concern of maximizing the number of lives and life years saved (Vergano et al. 2020; Craxì et al.

[11]Do note that they argue for priority to be given to those who participate in research and to frontline healthcare workers. The latter seem, in fact, to be eligible for absolute priority.

[12] According to Bognar and Hirose the tie-breaker approach was also recommended by The Critical Care Society of Southern Africa, The Canadian Medical Association and The Australian and New Zealand Intensive Care Society (Bognar and Hirose 2022, 102–3).

2020). In the SIAARTI guidelines, the age limit is proposed with a utilitarian justification. "The underlying principle would be to save limited resources which may become extremely scarce for those who have a much greater probability of survival and life expectancy, in order to maximize the benefits for the largest number of people" (Vergano et al. 2020, 471). This suggests that maximizing benefits provides a reason for age-based rationing. The theme is also clearly present in the framework presented by Emanuel et al. Here "maximizing the benefits produced by scarce resources" is described as something which may lead to priority for the youngest (Emanuel et al. 2020, 2051).[13] The prominence of maximizing benefits is unsurprising, but it conflicts and interacts with age-based rationing in several ways, which will be presented shortly. Some of these are highly relevant to what we might call the scope of the idea of maximizing benefits (i.e., which benefits to count).

The second justification for age-based rationing is fairness. Fairness is fleshed out in two different ways. One is an egalitarian concern for the worst off, and the other is a kind of fair innings approach. In White and Lo's framework, the reference to life phases suggests a fair innings reasoning for employing age as a tiebreaker. The idea of fair innings has a long pedigree in the philosophical debates over healthcare rationing (Williams 1997a; Bognar 2008; 2015; Harris 1985). It refers to the sentiment that when people have had their fair share of life, their claim to assistance weakens. As Harris puts it:

> 'The fair innings argument requires that everyone be given an equal chance to have a fair innings, to reach the appropriate threshold but, having reached it, they have received their entitlement. The rest of their life is the sort of bonus which may be canceled when this is necessary to help others reach the threshold.' (Harris 1985, 91)

In one prominent interpretation, this means that beyond a specific cut-off point (i.e. when the threshold is reached), a person no longer has the same claim for treatment as those below this cut-off have.[14] In what follows, this kind of fairness concern is deemed *fair innings*

[13] The importance of maximizing benefits is also found in the multiprinciple framework. There, it is, however, not tied to age (White and Lo 2020a).

[14] Such a cut-off point version of the fair innings approach, is arguably the canonical formulation of the fair innings argument. For this reason it is also often the starting point for discussions of fair innings (Bognar and Hirose 2014; Dunlop 2002; Farrant 2009; Harris 1985; Nielsen 2020; Rivlin 2000). But, as an anonymous reviewer points out, this is not the only interpretation of the fair innings argument. A point also raised by Bognar (Bognar 2016). The fair innings idea could be interpreted to mean that people's claim for

fairness.

The worst-off interpretation of fairness is tied to age in the above arguments. This is clearest in the framework from Emanuel et al. Here, the worst-off condition refers, in particular, to the unfairness of some having lived shorter lives than others.[15] In this framework, age is considered relevant as part of the worst-off condition (even if it is mostly connected to maximizing benefits).[16] In their specification of maximizing benefits, the authors underscore that this will (often) also correspond to what is required by a concern for the worst off "in the sense of being at risk of dying young and not having a full life" (Emanuel et al. 2020).

But plausibly, we must suggest that having lived fewer years is only one instance of being worse off – just as benefitting the younger is only one instance of maximizing benefits. It cannot be the full meaning of the concern for the worse off. Following this, the use of worse off in what follows will also consider broader egalitarian concerns.[17] In what follows, this kind of fairness concern is deemed *egalitarian fairness*. These specifications of the justifications make it clearer that two distinct readings of fairness are used here. Note that, at least in principle, they do not imply the same age-based rationing. All else being

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assistance weakens as they grow older (i.e., comes closer to having had a fair inning). This is the version Bognar defends based on a prioritarian weighting of life-years, where later life-years have less weight (Bognar 2015) (se also, (Adler et al. 2021; Dunlop 2002)). This is different from having a cut-off point, and, according to Bognar, avoids some of the associated difficulties. Harris seemingly prefers the cut-off version, even if he allows for the fact that deciding the cut-off is difficult (Harris 1985, 94). However, he is clearly aware that the reasoning behind it could be used to reach the conclusion drawn by Bognar. In the above the cut-off version will be discussed. Both because of its prominence but also because it is most clearly distinct from one interpretation of the worse-off value employed by the framework (where the youngest is all else equal the worse off). For an illuminating discussion of Bognar's view, see (Davies 2016). For further developments of the fair innings approach, see also (Nord 2005). While some of the verdicts reached by what is termed fair innings fairness below, would not have been reached on other specifications, the discussion of each of these is not possible here – any many of the judgement would be similar.

[15] Though they mention that another interpretation could be to aid those who are most sick.

[16] According to the authors, the youngest should be provided resources first if this produces a reduced infection rate. But the example they provide where this might be the case is vaccines (Emanuel et al. 2020).

[17] Something that later work by White and Lo also calls for (White and Lo 2020b).

equal egalitarian fairness requires us to treat the youngest (all else being equal), while fair innings fairness only does if one person in the comparison is above a certain threshold.

Maximizing benefits, fairness, and the three proposals

This section assesses the policies outlined earlier to determine whether they are in accordance with fairness and maximizing benefits. The purpose of this discussion is not an assumption that it is likely that a policy will achieve both, as they are likely to conflict. The purpose is rather to understand the relationship between the justifications and the extent to which the various policies end up prioritizing one over the other due to the role they provide age in rationing decisions. When we consider to what degree a specific policy reflects the justifications described above, there are several things that should be stressed in advance. While age affects prognosis, it is far from perfect in predicting it. As proponents of the so-called frailty score would submit, numerous other factors affect this (Lewis et al. 2021). The same is true for the benefit acquired from the expected lifespan after discharge. Again, age provides some guidance for how long a person might live after discharge – but an imperfect one, nonetheless. Think of those who face a distinct, shortened lifespan because of co-existing conditions. This includes those with co-existing diseases such as hypertension, diabetes, cardiovascular disease, or chronic lung disease (Jordan, Adab, and Cheng 2020). These circumstances affect and complicate the assessment of both Covid-19 patients and policies.

Age-based cut-off

Consider first the age-based cut-off policy identified in the SIIARTI guidelines. This policy introduces the principle that whenever we must choose between two patients where only one is above a certain age, we must treat the younger one. Thus, the policy does not always amount to choosing the youngest, but it does so when one of the persons in question is above the threshold and one is below.

How does this policy fare in terms of maximizing benefits and achieving fairness? One element in the policy speaks in favor of this in terms of benefit, namely the life expectancy of those whose lives it saves. As those who are allowed treatment under this policy are younger than those for whom treatment is denied, the former group surely has a longer life expectancy, all else being equal. There are two other ways this policy might maximize benefits: if those treated are more likely to benefit and if those offered treatment

are more likely to be cured after a shorter time span. The latter is important because it would mean that the ventilator could benefit another once one person's treatment has ended.

Despite this, all is not well from the perspective of maximizing benefits. As clarified above, co-existing diseases affect prognosis. For this reason, an age-based cut-off may not maximize benefits. A person with a failed kidney might be younger and below the threshold, yet still have a shorter expected lifespan and a worse prognosis than someone above the cut-off. This becomes even more likely when we compare people where one is slightly above the cut-off, and one is slightly below. This should provide us with at least enough to reconsider whether the age-based cut-off is the best way of maximizing benefits during the pandemic. It bears mentioning that an age-based cut-off is also silent on several comparisons. It does not allow us to choose between two people below the threshold. Here, maximizing benefits might not be silent due to co-existing diseases.

The next thing to assess is how the age-based cut-off fares in terms of the two kinds of fairness. From the perspective of fair innings fairness, there is much to be said for a cut-off policy – at least if the cut-off is set at a point that reasonably reflects a full lifespan. Of the policies under consideration here, a cut-off policy seems to be the purest fair innings policy because it involves a cut-off and is silent about the scenarios that do not involve two people on either side of the cut-off. This policy is, therefore, strongly recommended by the fair innings approach.

Consider, then, egalitarian fairness. Here, a wide range of concerns can be taken into the discussion. While the policy in question may not adequately capture some of these, it does seem to capture some important aspects of fairness. It prioritizes those who have lived the shortest lives. This seems to express a relevant kind of fairness; as long as we compare people who are otherwise equal, it is reasonable to suggest that those who have lived the shortest lives are the worst off.

However, these justice-based assessments become much more complicated once we allow for the plausible fact that there may be justice-relevant differences between those of a similar age. One such difference springs from the previously mentioned co-existing diseases, affecting prognosis and post-treatment lifespan. This means that also, out of a concern for the worse off, there is something problematic with a policy that is silent when considering patient pairs below or above the cut-off point. The argument for counting

a co-existing disease towards status as being worse off is that co-existing diseases, which adversely affect one's prognosis in terms of Covid-19, may also plausibly affect other aspects of one's health and wellbeing. Therefore, we should say that a person is worse off from the egalitarian perspective of fairness.

This has two implications for the age-based cut-off policy. Firstly, if those with co-existing diseases are unjustly disadvantaged from the perspective of egalitarian justice. In that case the policy make a mistake when they cannot choose between two young people or two older people where only one has a co-existing disease. Secondly, if one of the persons in question suffers from other unjust disadvantages (i.e., socio-economic disadvantages), then it may also be the case that the recommended prioritizations are not just from the perspective of egalitarian fairness. This is likely to be the case when we consider people of the same age who are similarly affected by co-existing diseases, but it is less likely so when we make the comparison between people of large age differences.

White and Lo: Age-based tiebreaker

How should we evaluate the proposal from White and Lo that age should be employed as a tiebreaker for people who have an equal score? The priority score, ranging from 1-8, reflects a combination of prognosis for a successful treatment and life expectancy after the treatment. Thus, in the multiprinciple framework, short-term prognosis and long-term prognosis work in tandem to determine the priority score. The overall principle is that lower SOFA scores, which correspond to a lower likelihood of short-term mortality, receive higher priority, which is then supplemented by long-term mortality. Here, a shorter expected lifespan (<1 years) decreases the likelihood of receiving priority, while a longer expected lifespan increases (>5 years) the likelihood of receiving priority. For similar prognoses, age is the tiebreaker. In terms of choosing between two patients, this policy amounts to treating the person from the youngest age group whenever we have to choose between two people with a similar short-term and long-term prognosis. How does this proposal fare in balancing maximizing benefits and fairness?

Consider first the aim of maximizing benefits. Here, the policy fares well because it clearly gives high priority to maximizing benefits. Age only becomes part of the decision-making in cases where the benefits expected to be gained from choosing one or the other patient are relevantly similar. As such, this policy gives very high weight to maximizing benefits. In doing so, it avoids some of the disadvantages, from a maximizing benefit

perspective, identified with the policy of a cut-off point. This is the case because when the starting point is not whether people have passed a specific age, the effects co-existing diseases have on prognosis and lifespan matter in ways that are sensible from the perspective of maximizing benefits. We do not risk choosing the younger person if we have reasons to expect that this will not maximize benefits.

Now consider the two kinds of fairness. Here, it is less clear that the proposal achieves these. That is predictable due to the primacy given to prognosis and the less elevated role provided to age. From the perspective of fair innings fairness, the minor role provided to age seems problematic. It means that people who have gone through the life phases will get priority over those who have not when the short-term and long-term prognoses of the latter are slightly worse than that of the former.

This, of course, also raises problems from the perspective of egalitarian fairness. It means that all else being equal, those who have lived the fewest life years may not be afforded the opportunity to experience more of these if they suffer from a co-existing disease and are compared to an older person who is not. It also means if socio-economic position affects the likelihood of suffering from co-existing diseases, which affect prognosis – that the broader unfair social distribution of goods affects who gets treated. Simply put, on the 1-8 scale, we might feel that people can receive almost the same score for reasons that are quite different and do not take age into account. The SOFA scale employed to provide priority, in combination with the assessment of longer-term prognosis, allows for this.

<u>Emanuel: Indirect age rationing and restricting the role of long-term prognosis</u>

In the proposal from Emanuel et al., age is not a tiebreaker between people with similar prognoses. As above, if age (or co-existing disease) affects short-term prognosis, then the primacy given to maximizing benefits means that the young will be treated. The proposal, due to the role it affords maximizing benefits, thus allows what we might call an indirect age-based rationing. Note, however, that in this proposal, there is a curtailment of which benefits are taken into account, which limits the extent of indirect age-based rationing. Long-term prognosis is only taken into account when short-term prognosis is similar. In those cases, long-term prognosis functions as a tiebreaker (Emanuel et al. 2020, 2052). From the perspective of maximizing benefits, it is clear that this limit in the framework makes it the case that the framework does not maximize benefits. Doing so would require

giving a more direct and elevated role to future life expectancy – a role at least as prominent as the one afforded to it in the multiprinciple framework described above.

From the perspective of fairness, in either interpretation, the evaluation of the framework is, of course, affected by how much it allows co-existing diseases to affect prognosis and priority and that it declines to give age a direct role in the rationing procedure. This means that insofar as age affects prognosis – long or short term- it is only allowed to count if it affects the short term. All else being equal, this decreases the likelihood that maximizing benefits will correspond to treating the youngest.

There are other elements as well which may be problematic from the perspective of fairness. In the fair innings interpretation of fairness, drawing lots when people are equal on both long-term and short-term prognosis is clearly problematic. It means – at least in principle - that we could end up treating someone who has lived 65 years rather than someone who has lived 40.

In terms of egalitarian fairness, problems arise similar to those discussed above. This is the case because once again, prognosis can be influenced by a range of factors and co-existing diseases, which are unequally distributed across the population and related to social position. From the perspective of egalitarian fairness, several aspects are thus overlooked. For these reasons, it seems reasonable to suggest that the policy does not sufficiently consider several important aspects of what it means to be worse off.

Proposal: justice-adjusted priority and age-adjusted benefit

In light of the above, I believe to have identified specific points in the valuable and elaborate frameworks where they do not adequately pursue fairness (or rather, where they provide it with too minor a role) and where they allow a problematic role to maximizing benefits. There are feasible ways of correcting this. The easiest way of illustrating the corrections is to identify how they would change the multiprinciple framework as this is the one that is most elaborately described.

The first alteration is to give a larger role to egalitarian fairness and the concern for the worst off in ascribing priority points.[18] One way of doing so would be to subtract 1 priority point from those who come from the most deprived backgrounds. The purpose of doing so would be to attempt to mitigate the fact that co-existing diseases affect

[18]This is something that White and Lo are open to themselves (White and Lo 2020b).

people's long and short-term prognoses in a significant way. With this addition, the general ranking is kept, and maximizing benefits is still a very important concern, but we would ensure that a fairer chance is given to those whose prospects are predictably worsened by their socio-economic circumstances or co-existing diseases. This would go against maximizing benefits but leave more room for a fairness-based concern for the worst off. One worry with this proposal would be that for some comparisons, the difference in the SOFA score would mean that we give priority to people who have too small a chance to survive treatment. If the worse-off adjusted priority score moves people too much, the alternative would be a worse-off adjusted SOFA score, which would move people less. Nevertheless, do note that the framework seemingly already allows people with a high SOFA score and good long-term prognosis to be treated before those with low SOFA scores and a bad long-term prognosis.

The second alteration is directly about what the role of age should be. Many of the problems identified above reflect that age is given too indirect a role. We achieve, as it were, fair innings fairness by circumstance because age-based circumstances will often affect the benefits acquired in the short and long term. However, as the examples above showed, this might not always be the case. Sometimes, the circumstances would not produce age-based rationing. This is clear when the Emanuel et al. framework allows lots to be drawn between people of very unequal ages, and when small differences in prognosis mean that the multiprinciple framework does not get to employ the age-based tiebreaker but rather opts for treating the oldest with the slightly better prognosis. Both proposals involve the principled view that a life year gained weights equally no matter who receives it. This may seem initially plausible, but it produces the implausible priority decisions just described. For both frameworks, the adjustment would affect how long-term prognosis is taken into account. In the multiprinciple proposal, it could mean adding different points for long-term prognosis based on age, and in Emanuel et al.'s proposal, it would mean differentiating how long-term prognosis functions as a tiebreaker depending on the age of the persons in question.

Conclusion

The above identified three kinds of age-based rationing: an age-based cut-off, age as a tiebreaker, and indirect age rationing, where age matters to the extent that it affects short-term prognosis. The reasons provided for such policies are to maximize benefits from scarce

resources or because it is believed to be in accordance with the fairness understood as (a) fair innings, where less priority is given to those who have lived a full life or, (b) an egalitarian concern for the worse off, where it is considered fair to aid those who have lived the fewest years (and/or suffers other unjust disadvantages). Several shortcomings were highlighted in the three policies in terms of realizing benefit maximization and fairness. In light of this, it was proposed to adjust the proposals to care more for the worse off in a priority setting and to take into account whether the acquired benefits are given to the young or the old. While these adjustments are perhaps most relevant under the extreme scarcity presented to us in the pandemic, they may also be relevant under the more usual scarcity facing healthcare systems.

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