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See table of contents

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Article abstract

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ARTICLE (ÉVALUÉ PAR LES PAIRS / PEER-REVIEWED)

Operationalizing Equity in Surgical Prioritization

Kayla Wiebe[a,b], Simon Kelley[b], Annie Fecteau[c], Mark Levine[d], Iram Blajchman[e], Randi Zlotnik Shaul[f], Roxanne Kirsch[f,g]

Résumé

L'allocation des ressources en soins intensifs et le triage des patients ont fait l'objet d'une grande attention pendant la pandémie de COVID-19, mais il y a peu de conseils concernant les aspects éthiques de l'allocation des ressources et de la priorisation des patients dans des circonstances "normales" pour les systèmes de soins de santé canadiens. Les listes d'attente chirurgicales, qui ont été globalement exacerbées par la pandémie de COVID-19, sont l'un des contextes dans lesquels des décisions d'allocation et de priorisation sont nécessaires. Dans cet article, nous détaillons le processus utilisé pour développer un cadre éthique afin de soutenir la priorisation des opérations chirurgicales non urgentes à l'Hôpital pour enfants malades de Toronto, un hôpital pédiatrique tertiaire. Notre objectif était de fournir des conseils pour les aspects les plus valorisants de l'établissement des priorités, en particulier lorsque l'urgence clinique n'est pas suffisante pour dicter la priorité à elle seule. Dans cette optique, nous nous sommes efforcés de prendre en compte les aspects familiaux, relationnels et d'équité. Dans le cadre des efforts concertés de notre institution pour traiter de manière éthique et efficace notre retard en matière de chirurgie, un groupe de travail sur l'éthique a été formé, composé de cliniciens de la chirurgie, de l'anesthésie, des soins intensifs, d'un bioéthicien de l'hôpital, d'un conseiller parental et d'un chercheur en bioéthique de l'université. Un processus d'équilibre réflexif a été utilisé pour développer un cadre éthique. À cette fin, la même méthodologie a été utilisée pour créer un support pour la priorisation des patients qui identifie les facteurs cliniquement et moralement pertinents pour la priorisation parmi les cas chirurgicaux médicalement similaires, avec un objectif substantiel étant d'identifier et de corriger les inégalités en matière de santé dans la priorisation chirurgicale, dans la mesure où cela est possible. Bien que d'autres étapes soient nécessaires pour valider plusieurs aspects du cadre, notre recherche suggère qu'un cadre éthique fondé sur les réalités pratiques des opérations hospitalières apporte la cohérence, la transparence et le soutien nécessaire aux décisions qui sont souvent laissées aux cliniciens individuels, ainsi qu'une occasion de réfléchir à la présence d'inégalités en matière de santé dans tous les domaines de la prestation de soins de santé.

Mots-clés

priorisation, équité de santé, allocation des ressources, rationnement, justice distributive, éthique organisationnelle

Abstract

The allocation of critical care resources and triaging patients garnered a great deal of attention during the COVID-19 pandemic, but there is a paucity of guidance regarding the ethical aspects of resource allocation and patient prioritization in 'normal' circumstances for Canadian healthcare systems. One context where allocation and prioritization decisions are required are surgical waitlists, which have been globally exacerbated due to the COVID-19 pandemic. In this paper, we detail the process used to develop an ethics framework to support prioritization for elective surgery at The Hospital for Sick Children, Toronto, a tertiary pediatric hospital. Our goal was to provide guidance for the more value-laden aspects of prioritization, particularly when clinical urgency alone is insufficient to dictate priority. With this goal in mind, we worked to capture familial, relational, and equity considerations. As part of our institution's concerted efforts to ethically and effectively address our surgical backlog, an ethics working group was formed comprising clinicians from surgery, anesthesiology, intensive care, a hospital bioethicist, a parent advisor, and an academic bioethics researcher. A reflective equilibrium process was used to develop an ethics framework. To this end, the same methodology was used to create a support for patient prioritization that identifies clinically and morally relevant factors for prioritization among medically similar surgical cases, with a substantive goal being to identify and redress health inequities in surgical prioritization, inasmuch as this is possible. While further steps are needed to validate several aspects of the framework, our research suggests that an ethics framework grounded in the practical realities of hospital operations provides consistency, transparency, and needed support for decisions that are often left to individual clinicians, as well as an opportunity to reflect upon the presence of health inequities in all domains of healthcare delivery.

Keywords

prioritization, health equity, resource allocation, rationing, distributive justice, organizational ethics

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INTRODUCTION

The initial shutdown of nonemergent or 'elective' surgery during the early months of the COVID-19 pandemic created a global backlog of postponed procedures, as well as a hidden waitlist of patients who are delayed in referral for surgery due to ongoing diminished surgical, screening, and diagnostic capacity. Surgical backlogs are compounded by backlogs in other domains, such as screening and cancer diagnosis. While the term 'elective' has been widely used to capture any procedure that is categorically neither emergent nor urgent – that is, not immediately threatening to life or limb – it is colloquially misleading (1). The term 'elective' encompasses a range of vital procedures, many of which are time-sensitive and carry significant consequences for patients when delayed. These include, but are not limited to, interventions directly connected to surgery: e.g., diagnostic screening, hernia repairs, biopsies, valve replacements, spinal fusions and joint replacements. When delayed, risks of morbidity and mortality escalate (2).

A survey of twenty-five major hospitals in the US showed an initial 35% decrease in surgical activity from March to June 2021 (3). One study found that even with optimistic modeling, backlogs of > 1 million cases will remain two years after the initial shutdown, which means that even with pre-pandemic capacity, it will be impossible to get ahead of the accumulating waitlist (4). As of 2021, in the UK, NHS surgical waitlists were at a record high of 4.6 million (4), and if the estimated hidden waitlist is included, it will be 9.7 million by 2023-2024 (5). Canada's overall surgical capacity was down 47% from March to June 2020 (6), and the proportion of Canadian pediatric patients waiting past their clinically indicated window of time for surgery (7) ballooned from one third to two thirds during the pandemic (8). As of March 2023, these problems have not resolved. The Canadian Institute for Health Information found that over the past 31 months of the pandemic, 14% less surgeries have been performed, backlogs continue to grow, and patient need continues to outstrip available resources (9). Thus, the logistical, clinical, and ethical issues posed by surgical backlogs continue to require consideration, even after the immediate crisis posed by the initial stages of the COVID-19 pandemic had subsided.

Acknowledgment that the backlogs are unwieldy has been accompanied by various proposals to reduce them: increasing use of innovative procedures, developing infrastructure to maintain surgical operations during future pandemic surges (5), integrating 'prehabilitative' measures prior to surgery (10), increasing funding (5), centralizing waitlists, surgical smoothing, and making active efforts to prioritize elective cases in recognition that while they are not life-threatening, they are still necessary surgeries (11). However, even where sufficient increases in funds are available, there is recognition that would be ill-advised to race through the current backlog without oversight, transparency, and ethically informed guidance (1). Determining how to transparently and fairly work through surgical backlogs constitutes a growing problem; and there is a gap in the literature regarding the ethics of resource allocation and prioritization among 'normal' healthcare resources (12).

Working through the surgical backlogs requires many prioritization decisions, the burden of which often, though not always, fall to individual surgeons (1,13). While surgeons are certainly best positioned to evaluate the clinical urgency of a given case compared to others on their waitlists, most decisions regarding priority are not cleanly settled only by an examination of urgency. These decisions also require the weighing and balancing of seemingly incommensurate factors such as pain and quality of life, and these, along with the question of which factors ought to be considered when prioritizing, are all value laden. Further, with limitations on operative time, surgeons are left understandably vying for that time in order to serve the best interests of patients within their waitlist or division, which does not always amount to what is in the best interests of the population of surgical patients, taken as a whole (1).

Given the ethically challenging nature of prioritization decisions and the potential conflict of interests they pose for individual surgeons tasked with making these decisions, developing ethics support is necessary. In what follows, we outline the development process of one such ethics framework. The framework described here includes specific supports for prioritization based on and justified by the ethics principles identified included in the framework and is specific to one such crucial context: paediatric surgical prioritization.

FRAMEWORK DEVELOPMENT

In response to the plan to reinstate surgical services in the summer of 2020, The Hospital for Sick Children Toronto created what is now called the Surgical Backlog Initiative; it consists of multiple branches, including data modeling, communication, and an ethics working group. The ethics working group is comprised of surgeons from two different surgical subspecialties, an anesthesiologist, an intensive care physician and a bioethics associate who serves as the team lead, a hospital bioethicist, an academic bioethics researcher and a parent advisor, all of whom contributed to the development of the ethics framework, and each of whom collaborated in the authorship of this manuscript. The purpose of the ethics framework was to provide clinically and ethically informed recommendations for surgical prioritization, both in the context of individual waitlist management, and for interdivisional and systems level resource allocation. This framework was developed in response to early pandemic restrictions but is intended to function within ongoing and fluctuating levels of resource scarcity.

REFLECTIVE EQUILIBRIUM

The framework was developed in the following way. To start, the bioethics researcher completed a literature review, focusing on various provincial resource allocation guidelines within Canada, ethics frameworks for rationing critical care resources (14-16) and established bioethical literature on the ethics of resource allocation and rationing of scarce resources in general (17-

20). All members of the working group met virtually three times a week from May to July 2021, and the team lead and bioethics researcher met daily during this time. Following a widely accepted methodology in biomedical research (21), our group used a process of reflective equilibrium to develop the framework (22,23). Reflective equilibrium, as initially described by philosopher John Rawls (24), is a process by which we develop moral theories that involves working towards harmony – or equilibrium – between our considered judgments, principles, and intuitions. Because our purpose was not the development of a full-fledged moral theory, but rather to identify ways to implement already existing, justified, and accepted moral insights into a particular practical context, we included not just considered judgments and moral intuitions, but also the relevant contextual and logistical facts of the matter. These included prioritization practices already used by surgeons, family choice in surgical timing, the stated goals of our institution as we emerged from the pandemic (reduction of health inequities and promotion of health justice), and likely barriers to change (taking smaller, achievable steps, rather than proposing overhauls of long-standing systems of healthcare delivery). As the goal was for our framework be operationalizable, it was imperative to take seriously what was *possible* within our hospital.

There are two conceptual pieces of the ethics framework. The general piece is the collation of guiding ethics principles, and the more specific piece is a support for patient prioritization (SPP) that identifies factors for prioritization. The ethics principles were identified first in the process, following which the factors for prioritization were identified. The same material process was used to identify both the ethics principles and the factors for prioritization. First, multiple rounds of questionnaires were sent to each member of the working group to help isolate the key ethical issues involved in surgical prioritization and the most appropriate ethical principles relevant to the context of surgical prioritization. The responses to these questionnaires were returned to the project lead, anonymized, collated, and presented to the working group, where roundtable discussions followed. The same process was undertaken to identify the factors for prioritization, after the ethics principles had been decided upon. To ensure further stakeholder engagement throughout the framework development process, members of the Family Advisory Network (FAN) at our institution were consulted to provide additional perspectives and feedback to aspects of the framework. Those consulted were parents of children who received surgery at the hospital and who self-identified as members of marginalized groups. The conceptual ethics expertise within the working group, in conjunction with the clinical and personal expertise of the physicians and parent advisors, ensured a robust and inclusive process of reflective equilibrium. While we consider the framework complete, we also consider it a living document with a revision process built into the framework (e.g., in light of new evidence, different directives from the hospital).

ETHICS FRAMEWORK

Principles for Surgical Prioritization

The ethics principles identified by the working group can be distinguished into two types: procedural ethics principles, and substantive ethics principles. Procedural principles ensure that the processes used for priority setting are fair. Here, we draw on Norman Daniels and James Sabin's Accountability for Reasonableness (A4R) Framework (25) (Table 1).

Table 1: Procedural Ethics Principles

Principles	Definitions
Relevance	All pieces of the framework, and decisions made based on the framework, require substantial justification that reasonable people can agree to under similar circumstances.
Transparency	Prioritization decisions and justifications for those decisions ought to be made accessible and available to stakeholders.
Inclusivity	Stakeholders have been included in the development of the framework itself and continually involved in its implementation, in order that decisions supported by the framework will work better to effectively serve stakeholders.
Appeals	Decisions that are thought to be unfair can be appealed to either seek further justification, verification, or to change the decision.
Accountability	There should be a mechanism to ensure that principles are followed consistently and that all relevant actors are responsible throughout the framework's development and implementation.

Resource allocation and prioritization processes are inherently value laden endeavors, and while procedural principles are necessary, they are insufficient for determining direction of prioritization and resource allocation, or for achieving substantive justice in these processes, even if they are procedurally fair (20). To this end, the working group identified equity, nonmaleficence, beneficence, respect for autonomy, and utility as the substantive ethics principles appropriate to surgical prioritization (Table 2). Details regarding justification for why these principles were included, as well as explanation regarding how they are understood in the context of prioritization, are described in the next section.

Table 2: Substantive Ethics Principles

Principles	Definitions
Nonmaleficence	The prioritization of cases should result in the least amount of total avoidable harm. Nonmaleficence also specifies a clinical baseline below which each individual patient *must not* fall: once patients are booked for surgery, that surgery must be provided before the patient deteriorates to a point where the originally scheduled surgery is no longer beneficial.
Equity	Like cases should be treated alike unless relevant differences exist. Those differences should be identified and considered in prioritization wherever possible.
Autonomy	Although respect for autonomy will be limited in conditions where resources are limited, the prioritization should be consistent with and not violate respect for autonomy. Any justifiable limits to autonomy should be proportional to the limits on resources available, and patient autonomy ought to be respected wherever possible.
Beneficence	Prioritization should promote the best interests of each individual patient, inasmuch as this is possible given the extent of resource constraints.
Utility	Prioritization should efficiently use available resources. This maximizes benefit at a population level, where 'benefit' to the patient population is understood as achieving an appropriate balance of the above four principles: nonmaleficence, equity, beneficence, and respect for autonomy.

Support for Patient Prioritization

The ethics principles described above were then operationalized into a Support for Patient Prioritization (SPP), which identifies factors that are relevant in all surgical prioritization decisions (Table 3). Again, it was imperative that physicians who might use this part of the framework themselves were actively involved in its construction, as patient prioritization tools have less uptake and are generally less effective when they are not informed by clinical expertise (26). While these kinds of documents are called 'tools' or 'scores' in the literature, we do not use these label as they imply a validated quantifiable process that is fit for use in all cases. We call ours a 'support' because this is what it is meant to be: it identifies factors that were found to be medically and morally relevant and offers practical considerations for operationalizing them when prioritizing patients. By 'medically and morally relevant,' we mean that these are the factors that *should* be considered when making priority setting decisions. The support is designed to be complementary to how many surgeons already approach their waitlists, provide ethical justification for these practices, and to establish fairness insofar as patients are being evaluated on equivalent bases insofar as this is possible.

Table 3: Support for Patient Prioritization (SPP)

Factors for Consideration	Ethical Justification	Decreasing Priority				Increasing Priority
Risk of Disease Progression with Delay	Nonmaleficence	Can wait 16 weeks	12 weeks	8 weeks	6 weeks	4 weeks
Sequential and Time Sensitive Surgery	Nonmaleficence	Not Started	Not started, time sensitive	Started	At completion stage	Started and very time sensitive
Pain	Nonmaleficence	Intermittent, Mild	Constant, Mild	Moderate	Intermittent, Severe	Constant, Severe
Percentage out of Window	Nonmaleficence	0-25%	26-50%	51-100%	100-200%	201% +
Quality of Life Improvements	Nonmaleficence	Mild	Mild	Moderate Impact, any improvement	Significant impact, limited improvement	Significant impact, significant improvement
Relational Impacts	Nonmaleficence, Equity		Some impact, improved with support	Moderate impact, recurrent	Moderate impact, persistent	Significant impact
Health Inequity	Equity	Yes	AND can be ameliorated with social support	AND delayed presentation	AND delayed presentation with higher disease progression	AND significantly delayed presentation, with complications

USING THE SPP IN RELATION TO P-CATS

Importantly, the SPP is meant to be used once a patient's clinical urgency has been decided. Our framework recommends using the clinical tool appropriate to the institution to assess urgency. At our institution, the tool used to assess the degree of urgency and set baseline wait times for patients is the Paediatric Canadian Access Targets for Surgery (P-CATS; 7) (Table 4).

Table 4: Paediatric Canadian Access Targets for Surgery (P-CATS)

Priority Classification Level	Target Time for Surgery
Priority 1	Within 24 Hours
Priority 2a	Within 1 Week
Priority 2b	Within 3 Weeks
Priority 3	Within 6 Months
Priority 4	Within 3 Months
Priority 5	Within 6 Months
Priority 6	Within 12 Months

While the P-CATS is an excellent tool for assessments of diagnosis-specific urgency, it leaves several questions unanswered. For example, while two patients with the same condition can share the same P-CATS score, they might have radically different pain profiles. The P-CATS score alone will not differentiate between them based on their pain profile. Comparing different surgical conditions, a perianal fistula (General Surgery), craniosynostosis (Neurosurgery), strabismus (Ophthalmology), and laryngomalacia (ENT) all share the same P-CATS classification, but the consequences of delay for each condition vary widely. The P-CATS score alone does not dictate how to allocate resources between surgical divisions. P-CATS also does not account for surgeries that are part of a time-sensitive sequence, where the optimal timing for a surgical procedure depends not on the P-CATS score, but on the timing of a previous or upcoming surgery. Factors like pain, time-sensitive procedures, and risks of delay are included in the SPP for this reason: they are factors that are currently used by many practitioners to differentiate cases in the ways described above, and so they should be systematically factored into surgical prioritization practices.

The SPP is not intended to function as a rigid algorithm or score, nor to displace surgeons as decision-makers regarding their own waitlists. Our research suggested that supports such as the one we propose are less effective when they are designed for use without involvement from clinical stakeholders and practitioners. Further, when these supports are even *perceived* as overly rigid and inflexible, there is lower uptake, specifically among surgeons (26). Surgeons are best placed to know their capacity to operate and balance their caseloads, as well as the logistical parameters in which to exercise their operating time. However, research suggests that supports for prioritization are likely to provide higher levels of transparency and equity for patients, increase consistency regarding clinical conceptions of patient need, and they have the potential to alleviate moral distress (26). With these considerations in mind, we involved and engaged surgical stakeholders in developing the SPP and designed it to be flexible.

EXPLORING THE SUBSTANTIVE ETHICS PRINCIPLES

Equity

Early in the deliberative process, equity emerged as a substantive ethics principle, the inclusion of which maintained support throughout the framework development process. Equity was one of the stated goals of our institution and achieving equity has long been recognized as a key objective in resource allocation and prioritization ethics. There is growing support for the idea that healthcare systems have positive obligations to not just deliver healthcare equally, but to actively promote health *equity,* both domestically (27-30) and globally (31,32). The responsibility to work towards equity by identifying, addressing, and actively combating health inequities now within the healthcare system became undeniably clear over the course of 2020 and 2021 (32-36).

Functionally, promoting health equity entails identifying and reducing health *in*equities, which are inequalities, discrepancies, or differences in individual and population health that are avoidable, unnecessary, and unjust (37,38). Leaders in global health have gone as far as to define health equity in terms of health *in*equity. That is, health *equity* is understood as the "the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically." (39) Health inequities matter medically because of their impact on patient health, and they matter ethically insofar as the discrepancy in health state is caused in significant part by systemic injustices such as, but not limited to, racism (40), poverty, colonialism, and sexism (41).

In the context of prioritization, we analysed achieving equity as a matter of following two procedural maxims. First, patients who are alike in relevant categories of need ought to be treated alike (42). Second, differences between patients and across patient populations that we have widely agreed should *not* impact a patient's access to healthcare – such as geographic location, income, race and ethnicity – should not factor into prioritization decisions, either explicitly or implicitly.

The working group thus endeavoured to identify medically and morally relevant categories of patient need: that is, factors that should be included when making prioritization decisions. Clinical urgency was identified as the first relevant factor in surgical prioritization. Not only is this supported by the principle of nonmaleficence, but it is also uncontroversial; the consequences of not granting *prima facie* priority to urgent medical need over those who can wait without the risk of losing life and limb are widely considered to be ethically inexcusable.

At this point, the next step is determining which factors should be considered when prioritizing among cases that are equivalent with respect to clinical urgency. Again, at our institution, this occurs when patients in the same disease category have the same P-CATS score. It is worth noting that we considered and rejected two common approaches that are often used at this step of prioritization: *randomization* and *first-come / first-served* approaches. Both approaches are embraced for being practically straightforward and are acclaimed for achieving equality insofar as they treat all people the same. Our working group rejected both approaches because they fail when held to a standard of equity. People should not be treated as though they were the 'same'. With respect to their health status, they are not the same, and a commitment to equity requires that relevant differences, such as systemic disadvantage in the form of health inequities, are identified and addressed. Not only does neither approach contain a mechanism for doing this, but first-come / first-served is widely known to functionally reinforce existing socioeconomic and health inequities (20). This fails the second procedural maxim of equity, insofar as first-come / first-served approaches have been shown to allow factors such as wealth, status, and connection – which are often proxies for race – to influence the order of priority (20).

Instead, we developed the Support for Patient Prioritization (detailed above). The SPP identifies factors that should be considered once clinical urgency has been determined and surgeons are prioritizing patients who have comparable medical need and could all safely wait the same amount of time for surgical intervention. Again, these factors are the risk of disease progression with delay, whether an intervention is part of time-sensitive or sequential procedures, pain, time spent on waitlist, quality of life, relational consequences for family, and whether there is health inequity. The overarching argument in including normative factors such as relational consequences and health inequities is to operationalize the idea that disadvantaged populations should be given priority to offset, to whatever degree possible, the effects of that disadvantage on their health state. The entirety of the SPP is jointly justified by the principles of equity, nonmaleficence, beneficence, respect for autonomy, and utility, although several of the factors included in the SPP are further and specifically justified by particular ethics principles, as shown on the second column in Table 3.

Nonmaleficence & Beneficence

Proceeding with an equity lens, considerations of nonmaleficence and beneficence are structured in relation to the degree of resource constraint. For the purposes of surgical prioritization, nonmaleficence means ensuring that resource allocation and patient prioritization does the least amount of avoidable harm across the surgical waitlist. Beneficence, on the other hand, means allocating resources and prioritizing according to the best interests of patients over and above the threshold of avoiding harm. When resource constraint is high, nonmaleficence takes priority as the dominant ethical principle. On the other hand, when resource constraint is lower, allocating resources and priority decisions that are grounded by appeal to beneficence (such as allocated time to pursue surgical innovation), are justifiable.

Respect for Autonomy & Utility

Respect for autonomy is reflected primarily in the patient-centric focus of our ethics framework. Though stipulating that care must be patient-centred may seem obvious, healthcare delivery is often influenced by institutional, administrative, and logistical factors that can conflict with allocating resources in a way that maximizes patient wellbeing. There are many aspects of healthcare delivery in which the extent to which care is patient-centred can be improved (11,12,43).

Finally, utility, which in principle requires that we maximize benefit and minimize costs or harm, was found to be important for prioritization. Of course, asserting this principle requires further specification about which type of benefit we are seeking to maximize, and which type of costs or harms we are seeking to minimize. For example, according to the QALY system, 'benefit' and 'harm' are understood in terms of a unit of measurement: the quality adjusted life year (QALY) (44). However, research suggests that using QALYs as the *sole* metric for evaluating benefit and harm, and in absence of other balancing principles (such as equity), carries the consequence of exacerbating and creating health inequities (45), as is the case with adopting first-come / first-served approaches. This is true particularly when the QALY cost-effectiveness analysis is used to select against allocating resources for patients that have more complex needs, and who would therefore require a higher cost-per-QALY saved (45,46). Proceeding with a health equity lens shows us that a person's quality of life, likelihood of benefit, and life expectancy are not neutral factors – they are proxies for social inequity. Therefore, while the working group found that utility was important, it is best understood as an instrumental principle in conjunction with other substantive principles, rather than functioning as the sole normative objective. That is, maximizing the 'good' or 'benefit' is interpreted in the ethics framework to mean prioritizing and allocating resources so that they achieve the other four substantive principles: minimizing avoidable harm, remaining patient-centred, acting with the best interests of patients in mind, and with the aim to achieve equity in prioritization.

The approach in our framework to operationalizing these ethics principles is fundamentally outcome oriented. By this we mean both physiological outcomes (e.g., we meet the principle of nonmaleficence if our prioritization results in the least avoidable harm to the patient population) *and* ethical outcomes (e.g., we meet the principle of equity if our prioritization does not exacerbate health inequities further). The goals of this framework are also meant to be realistic and modest. We do not assume that having an ethics framework alone will be enough to solve the surgical backlog problem. In light of protracted resource constraints and the current lack of sufficient material resources, such as funding and personnel, it will not be possible to clear the backlog at a more rapid pace. However, an ethics framework can help to improve consistency, transparency, identify areas for improvement of prioritization processes, and ideally reduce harm to patients in the process. Several examples of how the principles and the SPP in our framework function are given below.

- *Impact to Family that Impacts the Child Factor*: A surgeon has a case where two patients can each wait six months for a surgery. Family A is a single-parent household, they live fourteen hours away from Toronto, need to rent or borrow a car, and will need to pay for accommodations while staying in the city, and have difficulty taking time off work multiple times throughout the year. Family B is a two-parent household, they live downtown and are financially secure, one parent works part-time and has little to no difficulty taking time off. When scheduling, the framework supports prioritizing additional effort in collaborating with Family A in timing of the surgery. This is a consideration that cannot be given to everybody but is less necessary for families who are financially, geographically, and logistically able to be more flexible.

- *Time Out of Window Factor*: A surgeon has a case where there are two patients, the first is P-CATS 5: they could wait for six months and have only waited for five. The second patient is P-CATS 6: they should be waiting for only one year but have waited for two and a half. Our framework recommends prioritizing the second case, *even though* their P-CATS score indicates lower urgency, therefore reflecting lower priority.

- *Health Inequity & Quality of Life (QOL) Factors*: There are two patients, both of whom suffer from the same condition, and are P-CATS 6. Patient 2 has been living with the condition for longer and was diagnosed late due to an inability to access healthcare services. Late diagnosis often means patients present with higher urgency, but this is not the case for this patient. Patient 2, however, suffers significant QOL costs as reported by them, which are compounded by their socioeconomic disadvantage. Our framework recommends that, other things being equal, the presence of health inequities and quality of life costs (both of which affect each other), priority in timing be given to Patient 2.

Importantly, the framework does *not* stipulate that an elective patient with, for example, extreme QOL costs and health inequities, be prioritized over a more urgent patient in such a way that the urgent patient does not receive needed surgery. This would fail the principle of nonmaleficence and is why clinical urgency is the first factor for consideration that our framework recommends. These recommendations for approaching prioritization are meant to direct attention to details about patient experience that are relevant but might be overlooked with a 'strictly medical' focus or a attention only to clinical urgency. In so doing, the framework aims to address several of what we earlier called the 'normative' dimensions of prioritization. What these examples should also show is that there are and will be overlaps between many factors listed on the SPP. Disease progression is likely to correlate with either increased pain or decreased quality of life (sometimes both), families who suffer health inequities are more likely to be those who experience higher relational consequences in terms of stress or financial loss, and are likely to reside in geographic locations that make travel difficult, etc., in the event of a health crisis. Given the fact that the negative effects and burdens of these factors for families are themselves cumulative, we consider this overlap appropriate.

LIMITATIONS

There are aspects of the framework and the support for patient prioritization tool (SPP) that need further validation, notably how to assess quality of life from the patient's or family's perspective so as not to perpetuate systemic bias. And although we take the inclusion of health inequity to be the strongest conceptual insight and practical goal of our framework, the logistical matter of sorting out how to identify and address health inequities so that we do not further perpetuate harm when determining priority requires further study, collaboration, and implementation. Clearly, setting out to address health inequity at the point of surgical prioritization is a small step to addressing a much larger problem. Improvements in prioritization cannot retroactively solve systemic propagation of health inequities that patients might have experienced up until the point of surgical intervention. There are limits when attempting to address health inequity at such a late stage of a patient's treatment trajectory. That being said, we think that attention to health equity in any domain provides a starting point to redressing health inequities in general, and a potential nidus for this kind of work in contexts beyond surgical prioritization.

Another limitation is that, at an institutional level, more work is needed to understand how to balance and arbitrate between seemingly incommensurate claims to medical need between different surgical divisions, all contending for limited operative time. Finally, the framework was designed for implementation at The Hospital for Sick Children, Toronto, which is a tertiary referral children's hospital, that functions within a single tier public health care system that provides access to medically necessary treatment. Like all supports for patient prioritization, the one presented here is tailored for use in a particular context. Nonetheless, we expect the ethical insights of the framework, particularly the focus on operationalizing the principle of equity, to be generalizable to non-paediatric centres and adaptable in similar referral centres that are likewise encumbered with waitlists in need of management.

CONCLUSION

While there is widespread consensus that when allocating critical care resources, these decisions should be ethics-driven, formal ethics guidance for prioritization decisions in moderate scarcity is rarely provided – this is a mistake. Individuals tasked with surgical prioritization decisions are being functionally charged with the determining a distribution of 'normal' health care services. The backlog of these services in the wake of the pandemic has brought into sharp focus that these decisions are not just determinations of urgency, they are rationing decisions. As a response, in this paper, we presented the process we undertook to develop an ethics framework that provides recommendations for prioritization of paediatric surgeries, and which is grounded in the practical realities of our hospital operations. The goal was to provide consistency, ethical justification, and

much needed support for decisions that would otherwise fall on the shoulders of individuals. With institutional and bioethics support, the burden for those choices can be shared, and moral distress mitigated. While questions about resource allocation and patient prioritization were incited by pandemic scarcity, how to allocate resources and prioritize patients in varying conditions of scarcity have persisted past the surgical shutdowns of 2020 and 2021. The longstanding pattern of failing to engage with these questions past the point of acute crisis and allowing prioritization processes to get lost in the impenetrability of bureaucracy, must change (11,12).

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