



Futility considerations in surgical ethics

Farhad R. Udwardia, MD, MBE^a, Jane Zhu, MBE^{b,*}, Haaris M. Khan, MD^a, Sunit Das, MD, PhD^{b,c}

Abstract

The topic of futility has been intensely debated in bioethical discourse. Surgical futility encompasses considerations across a continuum of care, from decision-making during initial triage, to the choice to operate or refrain from operating on the critically ill, to withdrawal of life-supporting care. Determinations over futility may result in discord between providers and patients or their families, who might insist that treatment be provided at all costs to sustain life. In this manuscript, we will explore some of the possible sources for and manifestations of these disputes, and describe approaches by which to resolve them. Part I will briefly address some of the reasons that families ask for life-sustaining measures against medical advice in the surgical setting. These include variable determinations of both the quality of life and the inherent value of life (stemming from religious, cultural, and personal beliefs). Part II will detail some general instances in which physicians and surgeons can override requests to provide futile treatment, namely: instances of resource scarcity, interventions which carry a high probability of harm, and those that carry significant moral distress. To conclude, Part III will provide concrete guidelines for navigating futility, making an argument for individual case-based communication models in surgical decision-making.

Keywords: decision-making, ethics, futility, surgery

Introduction

In the surgical setting, ethical conflicts can arise when patients and families request life-sustaining interventions which clinicians may consider to be futile. Broadly speaking, medical futility is defined as the determination that a proposed therapy should not be performed as it is not clinically predicted to improve the patient's medical condition^[1]. As a result, clinicians are not ethically obliged to provide such treatments, although they are required to facilitate assessment by a second clinician. These considerations are present across the entire spectrum of care, from the initial triage of surgical patients, to decision-making around whether to operate on the critically ill, or the withdrawal or cessation of care.

Futility judgements often call into question the patient's post-operative quality of life (QoL). Rodriguez *et al.*^[2] conducted a study on patients' perceptions of end-of-life interventions,

exploring the concerns they had about treatment futility. Patients considered their QoL to be paramount when contemplating whether a certain treatment was acceptable, and felt interventions to be futile if it prevented them from functioning below a level they found personally acceptable. However, there was a great discrepancy as to what that level was. For instance, some patients found being physically paralyzed and unable to partake in leisure activities unacceptable, while others felt that it was acceptable if they had mental capacity. Most patients and healthcare providers believed that decisions as to what constitutes an acceptable QoL are rooted in value judgements, which vary greatly from person to person^[3].

Part I: Why do patients and families ask for life-sustaining measures against medical opinion?

Firstly, it is possible that patients and physicians may make different determinations as to whether a certain QoL is acceptable. In medical circumstances, this is often navigated by having pre-emptive discussions around goals of care with patient and families. However, in surgical settings, ethical principles are oftentimes at odds and particularly salient in decision-making^[4]. These principles include beneficence, the moral obligation to act for the benefit of others, and nonmaleficence, the obligation to not harm others^[5].

Careful weighing of beneficence and nonmaleficence can be especially difficult in the surgical context given the degree of harm that can be caused through surgical intervention^[4]. Surgery requires for the imposition of controlled harm with the expectation that it will result in benefit and is often sought in severely ill patients for whom futility discussions are most relevant. Patients or families are often faced with immensely burdensome decisions with limited information, and may struggle to understand the risks involved. The added complexity of making time-sensitive

^aFaculty of Medicine, University of British Columbia, Vancouver, British Columbia,

^bTemerty Faculty of Medicine, University of Toronto and ^cCentre for Ethics, University of Toronto, Toronto, Ontario, Canada

Farhad R. Udwardia and Jane Zhu contributed equally to this study.

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*Corresponding author. Address: 1 King's College Circle, Toronto, ON M5S 1A8, Canada. Tel: 647-668-9106. E-mail address: ja.zhu@mail.utoronto.ca (J. Zhu).

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decisions, as is sometimes the case in acute or trauma-based surgical scenarios, can heighten the possibility that these value discrepancies can arise. This can result in situations in which there is an insistence for life-sustaining intervention based on a patient's determination of risks and benefits that would be different from that of the provider.

A closer look into the reasons behind these differing determinations of an acceptable QoL points to religious, cultural, and personal belief systems. Halliday observes that futility can only be useful when understood in a social context – of which religion is paramount^[6]. He remarks, “religious considerations can lead some patients, relatives, and medical professionals to feel obligated to try all possible avenues [...] in the expectation of a miracle”^[6]. As noted by Brown,^[7] in the Christian faith, stories of Jesus' healing miracles are central to the Christian ethos, which can lead the devout to pray for and expect modern healing miracles. While there is diversity in physician and patient beliefs, there are often differences between the position of religion and that position of medical science, which tends to be more secular. This may make it difficult for physicians to cede to religious beliefs, with several studies showing providers to feel untrained and uncomfortable discussing spiritual aspects of end-of-life care^[8]. These beliefs about modern medical miracles exist among other religions as well, including Hinduism, Buddhism, Judaism, and Islam^[7].

Cultural influences can also play an important factor in determinations over life-sustaining intervention. According to a study conducted by Caralis *et al.*^[9], more African Americans (37%) and Hispanics (42%) compared with non-Hispanic Whites (14%) wanted their doctors to keep them alive regardless of illness. More non-Hispanic Whites agreed to stop life-prolonging treatment under some circumstances, as compared with African American and Hispanics (89, 63, and 59%, respectively)^[9]. In this same study, 64% of participants wanted their wishes honored even if doctors felt treatment was futile. Black patients are more likely to use intensive care at end-of-life and less likely to use hospice care than White patients^[10]. These findings indicate that ethnicity and culture can also be a driving factor in patient values and access to end-of-life care. It is important to note that this may partially reflect the historical mistrust that African Americans and Hispanics have in the medical institution. Studies have shown that Blacks and Hispanics report higher levels of physician distrust than Whites, even after accounting for socioeconomic variables including city of residence, income, and education status^[11–13].

In addition to patient factors, institutional norms and clinician biases should also be taken into consideration. For instance, clinicians may feel compelled to offer life-sustaining treatments to avoid the perception of “failure” or to meet institutional goals on favorable outcomes^[14]. Importantly, clinicians must reconcile the notion that their practice is influenced by implicit biases rooted in their specialty, or from the culture of medicine more broadly. In surgery, one form of “buy-in” bias has been described in which surgeons are more likely to operate on high-risk patients who are agreeable to postoperative life support^[15]. Furthermore, surgeons were significantly less likely to withdraw life support for patients with elective operations, or in the setting of surgical error^[16].

Last, clinicians ought to be aware of their own personal or professional biases, which may influence decision-making. For instance, consideration of valve replacement surgery for an

individual who developed endocarditis in the setting of intravenous drug use involves a surgeon's assessment of relapse risk, a metric often influenced by prior patient experience and personal views towards substance use^[17]. In addition, provider bias oftentimes exists in consideration of what constitutes “quality of life,” particularly in the lens of disability. For instance, clinicians often underestimate the QoL of those with spinal cord injuries,^[18] as well as other disabilities^[19]. It is necessary to involve those in the disability community when considering futility and medical decision-making^[20,21].

Finally, judgement placed on one's value of life can vary greatly based on situational context. For example, a patient may demand life-sustaining measures at all costs because they know that doing so provides emotional comfort to others, despite having very little QoL themselves. As argued by a patient in the Rodriguez study:

“People are bedridden for one reason or another. But they still contribute to a family. They're still there. They're still alive. They're still human beings. Because they don't have the memories they used to have doesn't make them any less human. Or that we love them less.”^[1]

Even a small window of time could allow families to better cope, grieve, and transition from a major life stressor. It is hard to dispute a claim to an inherent value in being alive, whether conscious, dependent on technology, or not – these are all logically valid claims to life-sustaining interventions.

Part II: When can providers say no?

Earlier we teased apart the reasons by which patients/families are driven to request life-sustaining measures against the opinions of their surgical team. This section will examine when it might be ethically acceptable for surgical providers to override this request. These can serve as general guidelines to aid providers in disputes over futility. Broadly, these guidelines will examine the moral weight of three factors: probability of harm, resource scarcity, and extent of moral distress in determining which decisions to override.

Probability of harm

The potential for harm incurred by an intervention is of prime consideration when navigating futility discussions. One of the core principles of medical ethics is nonmaleficence, or the obligation to “do no harm”, which oftentimes is impossible to maintain given that nearly all procedures, medications, and treatments carry some risk for adverse effects. Thus, this duty for nonmaleficence is balanced with the duty of beneficence; an intervention becomes feasible when the perceived benefits outweigh its risks. The principle of futility can therefore be expanded to include medical interventions which are more likely to be burdensome than beneficial, or which carry unacceptable benefit-burden ratios^[5].

Providers are more cautious in providing treatment that is of higher risk than treatment that is of lower risk – for good reason. For instance, an individual with an abdominal aortic aneurysm, which carries a significant mortality risk if ruptured, is only recommended to undergo surgical repair when the risk of rupture equals the risk of surgery itself. This reasoning translates into discussions surrounding futility as well. There is a significant risk

difference between advocating for surgical intervention versus asking for more time on a ventilator. Although provider determinations of futility might be made in both cases, providing interventions of great risk must be justified by some tangible and measurable benefit. However, the strength of this justification might be lower for minimally risky interventions. Therefore, it is more morally permissible to override a request for life-sustaining interventions of extremely high-risk (such as intensive surgical intervention) than low-risk interventions (such as ventilator assistance for respiratory demands).

An additional important consideration is one's QoL following a potentially lifesaving intervention. Halliday argues that there is a qualitative aspect in addition to a purely quantitative one, and a futile treatment is one that "merely preserves permanent unconsciousness or fails to end total dependence on intensive medical care"^[6]. Physicians should differentiate between a treatment which produces an *effect* limited to one aspect of physiology, compared with a *benefit* which "improves the patient as a whole." If a treatment produces an effect but fails to provide a benefit, it may be deemed as futile.

Resource scarcity

Discussion of resource availability and rationing provide important context when examining cases of futility disagreements. Unfortunately, healthcare needs oftentimes exceed available resources and rationing becomes unavoidable. As distinguished by Jecker and Schneiderman,^[22] discussions around futility center around the treatment of a specific patient whereas discussions of rationing always occur against a backdrop of resource scarcity. Therefore, it often might be the case that resource scarcity plays a morally significant role when factoring into discussions around futility. In surgical decision-making, the resources in question are almost ubiquitously finite: operative time, surgeon and anesthesiologist availability, postoperative nursing capacities, among others.

In a sliding scale manner, when issues of resource scarcity are more prominent, providers should be more comfortable overriding requests for treatment at all costs. For example, the provision of "futile" treatment differs in moral significance when the intervention in case is of low resource intensity (e.g. inserting a chest tube), compared with a more resource-intensive procedure (e.g. cardiovascular surgery requiring cardiopulmonary bypass and an intensive care unit bed postoperatively). While no medical good or intervention is truly in unlimited supply, there are certainly goods for which use by one patient will not necessarily deprive care to another. The greater the resource burden required for a specific intervention, and the more diversion caused to other patients by the provision of such a treatment, the more morally acceptable it is to override the request for such treatment at all costs.

This argument is supported through the principle of justice and by examining the ethics of resource allocation. Justice can be described as fair, equitable, and appropriate treatment considering what is owed or due to persons^[5]. It encompasses distributive justice, which refers to the fair, equitable, and appropriate distribution of benefits and burdens determined by norms that structure the terms of social cooperation. Questions of justice become more apparent when the resource in question is scarce. One prime example of such scarcity is in transplant medicine, where the demand for life-prolonging resources far

outweighs their supply. Therefore, there must be adequate justification for providing a patient with such a scarce resource – which translates to strict criteria in determining who is eligible to receive an organ. When examined under the context of futility, this justification may not be present. Thus, we see that the scarcer a resource and the more it is in demand, the greater the moral justification of not providing it when its effect is determined to be futile.

Degree of moral distress

The level of moral distress experienced by a clinical team is a call for concern when performing what is thought to be futile treatment. According to a study by Meltzer *et al.*^[23], which analyzed the perceptions of critical care nurses on futile care and its effects on burnout, the frequency of moral distress involving futile care was directly and significantly related to the experience of emotional exhaustion, which is a direct component of burnout. This is a morally significant factor for reasons similar to resource allocation. If nurses experience burnout, which can be caused by conflicts with values and beliefs systems, then their ability to care for other patients becomes adversely effected^[24]. Burnout may lead to interpersonal workforce conflicts, absenteeism, lowered morale, and decreased productivity, which ultimately culminates in adverse effects on patient care^[24].

Therefore, when faced with patients and families asking for life-sustaining intervention at all costs, the potential for moral distress incurring in the healthcare team must be taken into consideration. It may be unjust to provide futile treatment to a patient if it could cause significant degrees of moral distress among the healthcare team and negatively impact their ability to care for others.

Part III: Towards patient-centered decision-making

In cases where ethical decision-making is tenuous, medical professionals may resort to principles set forth by hospital policies and procedures. Though tempting, institutional procedural approaches in resolving futility disputes may be problematic^[25]. Importantly, clinicians must recognize that their definition of futility may be shaped by institutional or cultural norms, unconscious biases, and ability to navigate conflict. Conflicts are oftentimes deferred to hospital ethics committees, which are largely comprised of healthcare workers who may not adequately represent communal or patient-centered values. In essence, this results in resolution as dictated by other clinicians, rather than patients themselves. On a larger scale, state laws such as the Texas Advanced Directive Act leave little room for the family to challenge futility determinations as made by the hospital ethics committees. They defer power in decision-making disproportionately to physicians and other healthcare workers.

An alternative model in which clinicians can better support each other, respect family values, and resolve disputes through effective communication and negotiation is preferable^[25].

Other scholars in the medical community have come to similar conclusions surrounding the futility debate. For example, as noted by Ellen Coonan:

"The issue of medical futility will always be complex as it is, by nature, multifaceted, and numerous elements—including possible risks, evidence of the probability of benefit, the wishes of the

Table 1**Guidelines for approaching futility in surgical decision-making**

Recommendation	Practical implications
1. Focus on patient-centered approach to decision-making and futility	Futility must be defined in primary consideration the patient's own values and goals rather than by clinical outcomes and surgical interventions
2. Early recognition of patient and family values and referral to palliative care	Goals of care discussions should be elicited and documented during early phases of care with the patient and/or the patient's caregivers and substitute decision-makers. Initiate palliative care involvement early in process with affirmative discourse
3. Involvement of ethics committee for complex cases	When there is doubt about whether an intervention should be deemed futile, the involvement of multidisciplinary ethics committees for complex cases should be undertaken
4. Fostering of an inclusive clinical environment	A clinical environment which emphasizes communication and circumvents the traditional vertical hierarchy in medicine to enable discussions surrounding moral distress and best approaches to care when distress may be present
5. Increased exposure to futility and surgical ethics in medical training	The concept of futility should be taught to medical students and residents early and practiced during continuing medical education (CME) and continuing professional development (CPD) sessions
6. Familiarization with medicolegal implications of end-of-life care	Physicians and hospital administrative staff should refer to the legal statutes of their country and province/state of practice and follow recommendations of legal advisors regarding medical futility and end-of-life care. Physicians should possess a thorough understanding of the role of substitute decision-makers (SDM) as proxies for patient wishes at end-of-life

patient (and family), professional standards, and cost—interact”^[26].

To provide a patient-centered approach to futility discussions, defining futility in light of the patient's own goals and values, instead of focusing purely on clinical outcomes and interventions is crucial to delivering meaningful surgical care^[27]. As proposed in a practical review by Kopar and colleagues exploring futility discussions in the ICU, palliative measures should be approached early with affirmative discourse, and include frank discussions about the limitations of medicine.

With this in mind, we propose the following set of practical guidelines when approaching futility in surgical decision-making (Table 1).

Conclusion

Decision-making processes at the end of life depend upon a large multitude of factors, and there are many ways in which futility can take form. Procedural guidelines expressed through a hospital's infrastructure may not be able to adequately represent the views of the parties involved. Therefore, clinicians must strive for an individually tailored case-specific process – with a focus around communication, negotiation, and compromise. Futility should be defined based on the presentation of each individual case, with communication between doctors and patients/families being of paramount importance.

Although futility will remain a difficult topic of discussion, case-based application of ethical principles underlying futility may guide clinicians in navigating disputes. Furthermore, an understanding of the rationale behind patient requests despite clinical futility should be of foremost importance in such discussions. Using the guidelines discussed in Parts I and II, and the practical table in Part III, we encourage clinicians to supplement their medical knowledge with fundamental ethical principles in decision-making. We believe that these guidelines are helpful for two reasons. First, unlike strict protocols, these guidelines are flexible and conducive to a case-based approach. Second, the application of these guidelines will help clinicians to better unpack their own moral views towards difficult cases. Over time, using the perspective of principles or guidelines would help

physicians reason logically and comprehensively about why they feel a certain degree of moral distress. In engaging with principles rooted in bioethics to guide decision-making, we hope to provide a broader understanding of what futility entails for patients and clinicians alike.

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F.R.U. contributed to study concept. F.R.U., J.Z., and H.M.K. contributed to writing and revising the manuscript. S.D. contributed to reviewing and commenting on subsequent drafts of the manuscript.

Conflicts of interest disclosure

The authors declare that they have no financial conflict of interest with regard to the content of this report.

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