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Ethics of kidney care in the era of COVID-19



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The coronavirus disease 2019 pandemic presents significant challenges for health systems globally, including substantive ethical dilemmas that may pose specific concerns in the context of care for people with kidney disease. Ethical concerns may arise as changes in policy and practice affect the ability of all health professionals to fulfill their ethical duties toward their patients in providing best practice care. In this article, we briefly describe such concerns and elaborate on issues of particular ethical complexity in kidney care: equitable access to dialysis during pandemic surges; balancing the risks and benefits of different kidney failure treatments, specifically with regard to suspending kidney transplantation programs and prioritizing home dialysis, and barriers to shared decision-making; and ensuring ethical practice when using unproven interventions. We present preliminary advice on how to approach these issues and recommend urgent efforts to develop resources that will support health professionals and patients in managing them.

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The coronavirus disease 2019 (COVID-19) pandemic presents significant challenges for health systems globally, including substantive ethical dilemmas. The pandemic has profoundly affected delivery of essential health services, including care for patients with or at risk of kidney disease. Measures to reduce infection risk have changed the way care is delivered, creating potential difficulties for health professionals in fulfilling their ethical responsibilities toward individual patients, public health, and their own families (see Table 1).^{1–4} For patients with kidney failure (KF), who are dependent for survival on access to kidney replacement therapy (KRT) in the form of transplantation or dialysis, some changes have high-stakes implications. In settings where access to care was already difficult, the disruption of COVID-19 has proven catastrophic for some patients.⁵ COVID-19 infection is associated with the development of nephropathy and acute kidney injury (AKI), increasing demand for dialysis during surge periods.^{6–10} Kidney transplant patients are more vulnerable to severe complications of COVID-19,¹¹ and transplant and dialysis patients may be at higher risk of infection.^{11–14} People with kidney disease and transplant recipients have a higher risk of death from COVID-19.¹⁵

Awareness of the effect of the pandemic on access to dialysis is growing,^{9,10} and professional societies have publicly called for action to address issues in kidney care during the pandemic.¹⁶ However, despite several publications offering ethical advice during the pandemic, most focus on long-standing ethical concerns in the context of pandemics, such as obligations of health care workers to provide care and the

Editor's Note

This is one of several articles we think you will find of interest that are part of our special issue of *Kidney International* addressing the challenges of dialysis and transplantation during the COVID-19 pandemic. Please also find additional material in our commentaries and letters to the editor sections. We hope these insights will help you in the daily care of your own patients.

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Table 1 | Challenges fulfilling ethical duties in the context of changes in health care delivery

Ethical duties	Challenges	Strategies
<ul style="list-style-type: none"> ■ <i>Respect for autonomy</i>: A competent person's right to govern their own life and make informed and voluntary decisions about their care in accordance with their values and preferences. 	<ul style="list-style-type: none"> ■ Increased use of telemedicine means there may be barriers to effective communication and shared decision-making, especially for patients with additional communication barriers (e.g., language, culture, hearing/visual impairment, and cognitive impairment). ■ Concerns about the sufficiency of informed consent given uncertain evidence base for decision-making. ■ Limitations on carers/family accompanying or visiting patients. 	<ul style="list-style-type: none"> ■ Use communication aids; additional support and training for staff, carers, and patients in technology use; investment in resources to facilitate timely communication. ■ Be transparent in communication of information and consideration of limits of knowledge. ■ Ensure that ethical oversight and procedures used to support informed consent and risk management are used in all clinical care and research activities.
<ul style="list-style-type: none"> ■ <i>Respect for privacy and confidentiality</i>: A person's right to govern access to their person and personal information, including rights to determine how information is used and by whom. 	<ul style="list-style-type: none"> ■ There may be an increase in health data collection and greater demand for monitoring and use of individual health data to inform practice and manage risks of infection to public health. ■ Obtaining informed consent on collection and use of personal data from patients may be difficult because of time constraints. Tensions may arise if patients refuse collection or use of data when this is required by public health law. 	<ul style="list-style-type: none"> ■ Ensure public health policies are clearly communicated to patients including information on rights and responsibilities with respect to privacy of health data. Potential benefits of monitoring/data use for patients should also be communicated.
<ul style="list-style-type: none"> ■ <i>Respect for beneficence and nonmaleficence</i>: Obligations to promote the well-being of patients and public health, to avoid causing harm, and to ensure that when harm is unavoidable it is proportionate to the expected benefits of an action. 	<ul style="list-style-type: none"> ■ Uncertainties regarding the risks and benefits of treatment options and strategies to manage risk of COVID-19 infection. ■ Limitations of increased use of telemedicine. ■ Physical distancing and use of PPE. ■ Reduced availability of staff. This may lead to deployment of staff to areas of practice outside their scope of expertise may cause some to feel less competent in providing best practice care. ■ Disruption to supply of health resources (e.g., dialysis). ■ Measures to reduce infection risks may result in delays in access to or delivery of care (e.g., staff taking time to don PPE before commencing cardiopulmonary resuscitation) or reduced quality of care considered to be best practice (e.g., by impairing nonverbal communication during end-of-life care). ■ Limited supply of health resources may require compromises in quality of care and/or withholding of treatment if rationing is necessary (see below). 	<ul style="list-style-type: none"> ■ Ensure adequate and accessible supply of PPE for health care workers to minimize the risk of harm to them (and resulting loss of resources), patients, and the public. ■ Provide training and support to staff working in unfamiliar areas. ■ Develop and disseminate guidelines to support decision-making when usual processes/standards of care must be adapted to meet constraints of pandemic environment. ■ Engage patients and their families in discussions so they are able to express their values and preferences when making decisions related to risk-benefit calculations. ■ Inform patients of conflicting duties between patient and public health so that changes in care provider or decisions that entail limitation of care are not interpreted as abandonment, and ensure patients are assured of ongoing care. Use additional resources where available to mitigate risks (e.g., remote monitoring to support telemedicine).
<ul style="list-style-type: none"> ■ <i>Duty of fidelity</i>: Obligation to be loyal to one's patient, prioritizing their well-being over other interests and committing to ongoing provision of care. 	<ul style="list-style-type: none"> ■ Conflicts may arise between duty of care to an individual patient and obligations to protect public health and/or to provide care to patients and to protect oneself and one's family. ■ Insufficient supply of resources may lead to rationing, which requires treatment to be withheld or withdrawn from a patient. ■ High staff turnover (e.g., because of infection and/or redeployment) may result in disruption to continuity of care. 	<ul style="list-style-type: none"> ■ Recognize potential effect of challenges on health care workers and provide support. ■ Respect health professionals' interests, including their interest in protecting themselves and their families.
<ul style="list-style-type: none"> ■ <i>Respect for human dignity</i>: Acknowledgment of the equal and inherent moral value of individual persons, encompassing the fundamental right to health and to be treated always as an end in oneself and never merely as a means to the ends of others. 	<ul style="list-style-type: none"> ■ Particular populations may be vulnerable to neglect because of barriers in accessing regular care (e.g., elderly in nursing homes). ■ Rationing frequently negatively affects those whose lives may be wrongly considered less valuable (e.g., people with disabilities). 	<ul style="list-style-type: none"> ■ Consider implications of rationing approaches that may discriminate unfairly against those who are already disadvantaged (i.e., when evaluating quality of life). ■ Give voice to those groups who may be overlooked.

(Continued on following page)

Table 1 | (Continued) **Challenges fulfilling ethical duties in the context of changes in health care delivery**

Ethical duties	Challenges	Strategies
<ul style="list-style-type: none"> ■ <i>Respect for justice</i>: Obligation to act and make decisions impartially, ensuring that where inequalities are unavoidable, these are fair and hence equitable, and determined by transparent and justifiable criteria that are open to scrutiny. 	<ul style="list-style-type: none"> ■ Health care workers may also be at risk of being used as a means to an end, rather than recognized as inherently valuable. ■ Insufficiency of resources to meet surging demand. ■ Decisions being made that affect large populations rather than just individuals and hence the need for fairness in decision-making. ■ Reliance on telemedicine and changes in treatment modalities may exacerbate inequities in access to care for patients who face barriers (e.g., poor health literacy and lack of Internet resources) to use of particular technologies. 	<ul style="list-style-type: none"> ■ Ensure that all processes and guidelines are evidence based, transparent, and that there is accountability. ■ Ensure that ethical guidelines consider stakeholder values and preferences and that principles are consistently applied. Include stakeholders in decision-making about resource allocation and communicate such decisions to all those affected. ■ Identify and strive to address potential barriers to accessing care—whether in person or via telemedicine—which may affect specific populations.

COVID-19, coronavirus disease 2019; PPE, personal protective equipment.

allocation of scarce resources, in particular personal protective equipment, ventilators, and antiviral medications.^{1,2,17–25} Consequently, specific considerations pertinent to KF care are neglected. In [Table 1](#), we summarize several challenges that may arise as changes in policy and practice affect the ability of kidney health professionals to fulfill their ethical duties toward their patients in providing best practice care. These important issues deserve further elaboration; however, we focus on 3 priority issues of particular ethical complexity: equitable access to dialysis during pandemic surges; balancing the risks and benefits of different KF treatments, specifically with regard to suspending kidney transplantation programs and prioritizing home dialysis, and barriers to shared decision making (SDM); and ensuring ethical practice when using unproven interventions. We present preliminary advice on how to approach these issues and recommend urgent efforts to develop resources that will support health professionals and patients in managing them.

Equity of access to dialysis

Surges in dialysis demand have been reported during the pandemic as a result of COVID-19–related AKI; there may also be difficulties in meeting regular demand for dialysis as a result of disruption to domestic and international supply chains.^{5,6,26,27} For example, there may be staff shortages because of illness or isolation measures, people may be unable to travel safely to access dialysis during lockdown periods, medical products such as dialysate fluid may be unavailable because of transport delays or diversion of supplies to meet urgent needs elsewhere, and insufficient supplies of personal protective equipment may limit the ability of clinics to provide full services while meeting infection control standards.^{26,28} Home dialysis patients may face difficulties in accessing telemedicine, laboratory services, prescriptions, and delivery of dialysis supplies.²⁹

Although some countries, especially low- and middle-income countries have experience with rationing of publicly

funded dialysis,^{30,31} rationing of dialysis in the context of the COVID-19 pandemic may present unfamiliar challenges for many health systems. Notably, people with AKI requiring only temporary dialysis for survival may be unable to access this treatment if systems are overwhelmed. The pandemic may potentially exacerbate the need for rationing in any country and complicate existing ethical dilemmas regarding equity in the allocation of available resources. Some dialysis centers may be able to provide dialysis to only some of those in need, leading some patients to die who would otherwise survive. Other centers may need to compromise on the quality of care provided, for example, by reducing dialysis frequency or duration or by using modalities that are not the preferred or standard treatment for particular patients. Burgner *et al.* have outlined measures that may increase efficiency in managing dialysis resources and enable more people to receive treatment or survive without dialysis during periods of peak demand.³² Nevertheless, rationing of resources may be required for a period of weeks, and on a recurrent basis, necessitating long-term planning for equitable and efficient resource allocation.

When there are insufficient resources to meet all needs, and those resources are necessary to preserve life, several ethical principles and values are commonly used to guide the allocation of resources so as to avoid or minimize unfair inequalities (inequities)³³ (see [Table 2](#)). In some situations several of these principles and values, taken in isolation, may produce the same conclusion. In practice, they are applied in variable combinations, informed by clinical evidence regarding the likely outcomes of particular allocation frameworks in specific populations, and, ideally, the values and preferences of those populations.

Like mechanical ventilation, dialysis is a life-sustaining treatment. Unlike ventilators, which are rarely used as long-term treatment of chronic end-stage organ failure, dialysis is used in the chronic treatment of >2 million people worldwide.³⁴ Dialysis machines are also routinely

Table 2 | Principles and values guiding resource allocation decision-making in the context of KF care, with examples of their limitations^a

Avoiding futility: ensuring resources are used only where they will provide a benefit.	Maximizing utility: allocating resources to produce the greatest benefits overall for a given population.
<ul style="list-style-type: none"> ■ Futility estimates may determine whether to offer dialysis to patients with COVID-19 who are admitted to an ICU given the high rate of mortality in patients with COVID-19 on ventilators and whether to admit patients with existing KF to an ICU if they are COVID-19 positive given their low survival rates. ■ Futility must be defined with respect to specific goals and often involves qualitative judgments that may be prone to bias. Decision aids should be used to promote objectivity when evaluating futility. 	<ul style="list-style-type: none"> ■ Utility—or benefits—is often defined by the number of lives or (quality-adjusted) life-years saved by an intervention; thus, allocation decisions may be informed by estimates of patient survival if they receive a share of resources. ■ If applied in isolation, this principle tends to disadvantage those with existing ill health and comorbidities who have poorer chances of longer-term survival (such as many patients with KF), thus potentially reinforcing existing inequities.
Reciprocity and solidarity: helping those who are necessary for the provision of care and/or who contribute to the common good.	“Fair innings”: focus on allowing all people to live a “normal” life span.
<ul style="list-style-type: none"> ■ Health care workers and others who contribute to efforts to provide care for patients with COVID-19, and/or more widespread efforts to support societal well-being during the pandemic, may be prioritized in the allocation of scarce resources in recognition of their contributions and because protecting these workers is beneficial for all. Reciprocity may also encourage prioritization of care for people who have previously contributed to society in other ways. ■ Promoting reciprocity and solidarity is often difficult when there are insufficient resources, for example, of PPE. Prioritization of health care worker safety, for example, may be in tension with professional obligations to care for patients, necessitating systemic interventions to ensure that workers are not forced to choose between their own safety and patient well-being. 	<ul style="list-style-type: none"> ■ Often considered in the context of utilitarian analyses, the “fair innings” approach encourages prioritization of lifesaving treatment for younger patients over those who have already enjoyed a normal, or close to normal, life span. ■ If used in isolation, this principle thus systematically discriminates against older persons and effectively devalues the lives of older patients, who are notably more likely to have KF.
Prioritarianism: providing first for the worst off.	Equality: respecting fundamental right to health.^b
<ul style="list-style-type: none"> ■ Often interpreted as prioritizing those most likely to die without treatment, those who have already suffered significant disadvantage (such as long-standing ill health or poor quality of life), and/or those for whom death due to the lack of treatment might be considered a greater harm (e.g., those who have not yet lived a full life—see “fair innings” above). ■ Although consideration of prioritarianism may help address existing inequities, if used in isolation it may lead to outcomes that arguably waste vital resources, for example, if those prioritized have a poor prospect of survival even with treatment. 	<ul style="list-style-type: none"> ■ Underpins justice in resource allocation, and prohibits discrimination on irrelevant grounds such as race, religion, sex, or politics; strategies used to promote equality may include use of lottery (random chance) or a “first come, first served” approach, or the setting of common limits on care for all (e.g., limited trials of dialysis for those with COVID-19–related AKI). • Although respect for an inherent equal right to health is fundamental for any resource allocation framework, it provides limited guidance for the allocation of resources when these are insufficient to meet all needs and when needs are different within or between groups.

AKI, acute kidney injury; COVID-19, coronavirus disease 2019; KF, kidney failure; ICU, intensive care unit.

^aThese highlight the need for use of allocation frameworks that engage with a range of considerations pertinent to distributive justice.

^bNotably may be interpreted as promoting equality of health outcomes, opportunities to access care, or shares of resources.

used to provide life-sustaining treatment to several individuals in a given time period, whereas in the same period a ventilator may be used by only 1 person. However, continuous KRT is often required in critically ill patients with COVID-19–related AKI,³⁵ making this treatment, like mechanical ventilation, a rival good—use by one patient may exclude others who could die as a result. Ethical guidelines designed to support the allocation of resources such as ventilators have received considerable attention from ethicists and politicians²⁰; however, they may not be well suited to allocation of dialysis resources.³⁶

Although some patients may be completely excluded from dialysis as a consequence of rationing during pandemic surges in resource-limited settings, rationing of dialysis that entails compromises in the quality of care provided is likely to be a more widespread challenge for health care providers (including health professionals and institutions) and patients in many countries. Guidelines are thus needed to ensure that

when compromises are necessary and unavoidable, they are fairly distributed and hence equitable. In the early phase of the pandemic, as resource capacities fluctuate and evidence to inform clinical decision-making slowly emerges, key strategies to optimize utility and promote equity in the allocation of limited dialysis resources include the following:

- (i) expand capacity and explore options to reduce demand for chronic dialysis where possible³²;
- (ii) use alternative dialysis modalities for which capacity is more readily expanded (e.g., acute start peritoneal dialysis) when possible^{27,35,37};
- (iii) use transparent clinical criteria to inform decision-making based on the best available current evidence³⁸; and
- (iv) engage in advance care planning with patients, exploring their preferences with regard to treatment options if they develop COVID-19 and require intensive care unit admission and/or dialysis.³⁹ Determining

treatment limits in advance may help avoid futile treatment.⁴⁰

The development of guidelines to support decision-making for the allocation of dialysis resources should be prioritized as part of long-term planning in response to the pandemic in all countries,⁴¹ with consideration for the local context and respect for the values and preferences of local stakeholders. Use of well-designed guidelines and decision-making tools that are supported by stakeholders—including patients—are likely to improve impartiality in decision-making and reduce the psychological burdens of rationing on clinicians, including moral distress.⁴² Procedural justice must be respected, with transparent communication of policies and guidelines, systematic monitoring and review of outcomes, and clear, accessible processes to support accountability.

Rethinking decision-making about KF treatment modalities

Efforts to reduce demand for KRT and avoid rationing, and to protect patients with KF and staff from COVID-19 infection, may influence decision-making about KF treatment modalities and potentially affect quality of patient care. The effect of COVID-19 is expected to persist for some years. Infection precautions such as use of personal protective equipment for high-risk procedures are likely to continue even if vaccines and successful treatments are developed. This will affect not only the financial cost of treatment of KF, threatening the viability of some services and increasing barriers to care for many patients, but also the risks and benefits associated with particular treatment modalities and the complexities of clinical decision-making for both patients and health care providers. Ethical values and principles that are commonly used to guide decision-makers in the clinical setting such as respect for patient autonomy, nonmaleficence, beneficence, and justice still prevail; however, the context in which decisions are made has changed significantly. Preparedness for managing these changes in clinical practice must include consideration of the ethical implications for decision-making, which we briefly explore below.

SDM. It is essential that patients, and their carers or substitute decision-makers when relevant, are actively engaged in decision-making about treatment options, as they are usually best placed to determine which option will accord with their personal values and preferences, in light of their individual circumstances. Inclusion of patients in decision-making about policy is also vital, enabling decisions to be informed by an understanding of patient experiences and perspectives and respecting the autonomy of those who will be most affected by the decisions made. Patients should also be involved in decision-making about—and informed of—rationing of health resources when relevant to promote transparency and accountability of resource allocation decisions.⁴²

SDM involves a collaborative approach in which clinicians and patients (or their substitute decision-makers) work together to make decisions about care that are based on

Table 3 | Summary of recommendations for ESKD treatment modality decision-making

Transparency and reassurance	Critical analysis
<ul style="list-style-type: none"> ■ Acknowledge the challenging nature of care decisions at this time. ■ Keep patients and their carers informed of new evidence and protocols and support understanding. ■ Establish systems to support continuity of care and communication between treating teams and patients. ■ Acknowledge any rationing considerations but address these separately from individual care decisions. 	<ul style="list-style-type: none"> ■ Engage with growing evidence in the COVID-19 literature, and contribute to this by involvement in clinical trials. ■ Evaluate evidence from different countries/health systems in context. ■ Use guidelines and other decision aids to avoid bias, but always consider application in context of patients as individuals. ■ Ensure broad acceptance of any rationing decisions (including patient community where possible).
Shared decision-making	Management of risk and moral distress
<ul style="list-style-type: none"> ■ Help patients understand complex risks and benefits and address potential sources of misinformation. ■ Recognize the limitations of telephone discussions; invest in time if technological resources are limited. ■ Avoid paternalism, especially when patients lack decision-making capacity. ■ Consider increased use of key staff with best skills and experience in supporting complex decision-making but also build capacity within teams. Sharing resources across institutions may be appropriate and feasible in the context of telemedicine. 	<ul style="list-style-type: none"> ■ Provide PPE and take other such measures to protect staff from infection. ■ Acknowledge morally complex decisions and seek support from colleagues when necessary. ■ Recognize the increased likelihood of moral distress in kidney health professionals as well as other parties in decision-making such as patients and their families. ■ Actively support colleagues.

COVID-19, coronavirus disease 2019; ESKD, end-stage kidney disease; PPE, personal protective equipment.

relevant clinical information and the patient’s interests, values, and preferences. In the clinical setting, there may be several practical barriers to SDM during the pandemic as a result of, for example, reliance on telemedicine or physical distancing measures in clinics.⁴³ These may raise ethical concerns about respect for patient autonomy and complicate efforts to determine the best interests of patients who lack decision-making capacity.⁴⁴ For example, if a patient who communicates nonverbally is hospitalized and COVID-19 protections prevent the attendance of their usual carers, video calls may be ineffective in enabling carers to ascertain the views and preferences of that patient through visual cues. The additional burdens of decision-making for patients and their families as outlined below may result in increased reliance on clinicians to advise on treatment decisions. Clinicians may have less information than they ordinarily would regarding the potential risks and benefits of treatment choices

and are thus likely to experience significant ethical anxiety when implementing these decisions or supporting patients to make treatment choices. Uncertainty regarding the potential risks and benefits of options makes it difficult for clinicians to know how best to fulfill their obligations to promote patient well-being (beneficence) and avoid causing harm, ensuring that unavoidable harms are proportionate to the expected benefits of decisions taken (nonmaleficence). Those who feel unable to fulfill their obligations, for example, as a consequence of resource constraints or policies enforcing restrictions on availability of treatments, may experience moral distress.

Fortunately, efforts to reduce risks associated with particular treatment modalities are increasingly informed by guidelines, and uncertainty may be reduced by the growing evidence base in the COVID-19 literature.¹² Use of patient and clinician decision aids, which comprise various structured tools designed to support evidence-based and deliberative decision-making, may help manage decision-making difficulties and promote the dialogue necessary for effective SDM.^{43,45,46} Effective staff training and support for SDM, tailored to the new clinical realities of the pandemic era, will be essential to ensure that any decision-making aids are used effectively. Clinicians will need to cautiously and critically evaluate evidence from experiences in different countries or health system contexts for application in their local setting and may benefit from additional training in risk communication and SDM with patients (see [Table 3](#)).

Kidney transplantation. Kidney transplant programs were paused or activity was restricted in many countries as the pandemic developed. This was due to fears of increasing the pool of vulnerable transplant recipients who face significant risks from COVID-19 infection—in particular those admitted for surgery or receiving organs from deceased donors who might be infected—and concerns that performing surgery that might result in the need for intensive care unit admission could use scarce resources at a time of increasing demand.^{47–52} In some contexts, insufficiency of intensive care unit resources may have also limited deceased donation activity because of limitations in capacity to provide maintenance care of prospective deceased donors before retrieval of organs. In contrast to kidney transplant programs, some heart, lung, and liver transplants have been permitted on the grounds of lifesaving necessity.^{47–49} However, for some patients, such as those in low- and middle-income countries for whom ongoing dialysis may be unavailable, inaccessible, or unfeasible because of the lack of availability or financial costs, the inability to obtain a timely living donor kidney transplant may be fatal.

Decisions to institute moratoria or reduce transplant activity were made in response to a rapidly developing crisis with limited consideration of longer-term consequences and how these may be managed. The temporary suspension will exacerbate the long-standing shortage of deceased donor kidneys, place increased pressure on systems to fulfill demand

once transplant activity resumes, and prevent preemptive transplantation, thus increasing demand for dialysis for those patients who would otherwise have received a transplant. For some, delays could eliminate the opportunity for transplantation altogether. Furthermore, continued reliance on dialysis may expose patients with KF to higher risks of COVID-19 infection over time because of limitations on social distancing when accessing dialysis (outpatient hemodialysis) and/or obtaining dialysis resources or receiving care at home. Hence, efforts to prevent harm to some patients may create or exacerbate inequities in access to transplantation or dialysis or in exposure to the risk of COVID-19 infection.

As health systems establish some control over the spread of COVID-19 and the management of health care resources, transplant professionals and policymakers are now determining when and how to recommence or scale-up kidney transplantation.⁵⁰ A gradual reopening of programs is likely to occur where nonrenal surgical capacity permits, with prioritization of low-risk cases in centers with effective systems and resources to manage infection risks. Stakeholders will have to contend with several challenging decisions involving evaluation of risks and benefits in the context of considerable uncertainty. Determining when to proceed with donation and/or transplantation has always involved efforts to ensure expected benefits are proportionate to potential risks. In the pandemic era, customary risk-benefit analyses will be further complicated by consideration of patients' risk of contracting COVID-19 infection and the associated risks that may be linked to specific treatment modalities. Patients', physicians', and surgeons' perceptions of risk, which may be influenced by media coverage and research reporting experiences in other countries, will also be a complicating factor in decision-making.

Kidney transplant recipients have a comparatively high risk of COVID-19 infection and mortality.^{15,53–55} Dialysis patients, particularly those attending outpatient dialysis clinics, are also at higher risk as a result of greatly increased contact with health care systems and hence exposure to potential infection.¹³ They are also likely to be at higher risk of serious complications and death as a result of older age and comorbidities.^{13,56} Patients contemplating transplantation must consider the possible effect of future pandemic developments in the context of their own health system and individual circumstances. For example, if a surge in infections occurs shortly after a transplant, the patient's risk of life-threatening infection may increase. For those who defer transplantation, a surge might limit dialysis availability; thus, concerns about infection risks will intersect with concerns about the availability of essential health resources and the potential effect of rationing measures on access to all treatments.

Dialysis treatment. For new patients with KF, the possibility of delaying commencement of KRT may be considered to reduce demand and protect patients from the risks of infection associated with either transplantation or dialysis. However, rather than postponing dialysis, physicians in some countries have been urged to consider whether new incident patients might be suitable for at-home dialysis.⁵⁷ Established

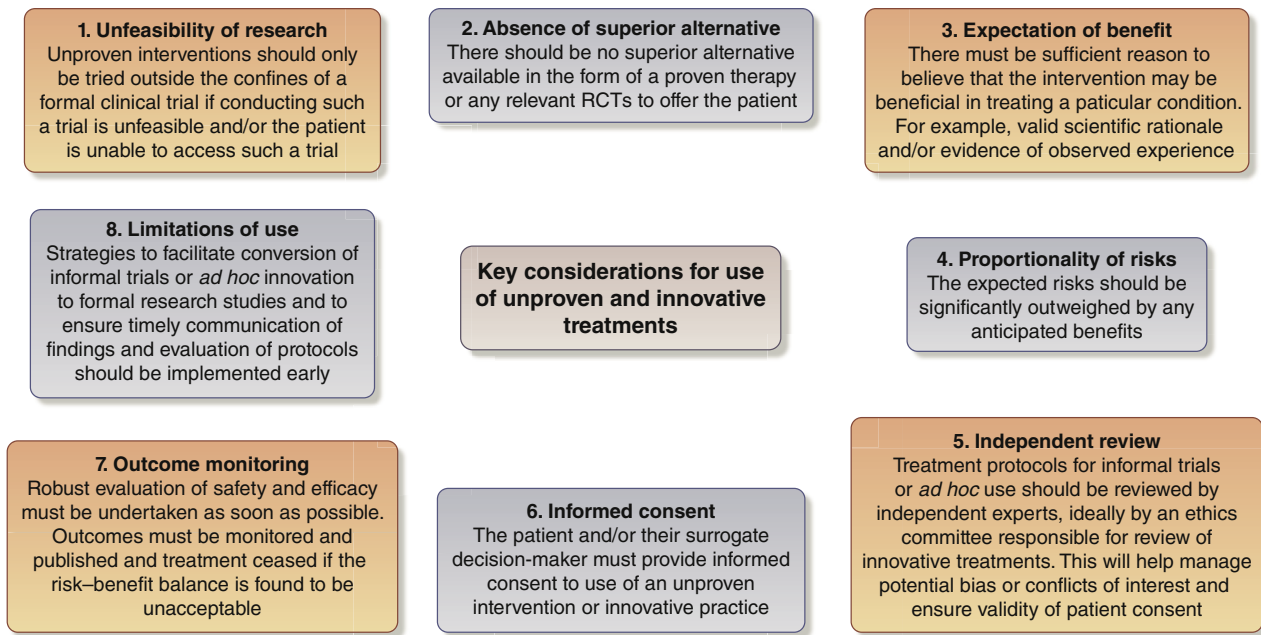


Figure 1 | Key considerations for the use of unproven and innovative treatments. RCT, randomized controlled trial.

patients may also be encouraged to change to home hemodialysis and/or peritoneal dialysis where this is an option so as to reduce pressure on hemodialysis clinics and facilitate social distancing. The benefits of this approach must be weighed against the potential burdens and risks for patients. For example, it may not be possible to provide the customary level of support to patients commencing home hemodialysis or peritoneal dialysis, leaving patients and their carers anxious or ill-equipped to manage and thus at higher risk of complications. However, these concerns may be reduced by use of remote monitoring.⁵⁸ Suspension of “nonessential” surgery has also restricted options for creation of dialysis access, resulting, for example, in continued reliance on catheters rather than the safer and more reliable arteriovenous fistulae.

When evaluating the potential burdens and infection risks associated with various treatment modalities, clinicians must consider not only patients with KF but also their personal carers. Those close to dialysis patients often play a significant role in their care, for example, by providing transport to clinics or assisting in dialysis at home.⁵⁹ Dependence on carers may increase during the pandemic because of the disruption of patient transport systems or supply chains or reduced availability of professional care. Carers may therefore be more exposed to the risk of infection.

Conservative care. Conservative kidney management without dialysis should always be considered as a treatment pathway for KF.⁶⁰ Given the increased risks now associated with various forms of KRT, the balance of risks and benefits may shift in favor of conservative kidney management without dialysis for some patients whether as a temporary deferral or a choice not to initiate dialysis at all. However, it is important to ensure that decisions about initiating dialysis in people approaching KF or discontinuing dialysis in those

already receiving it are not unconsciously influenced by rationing considerations; for example, information on treatment options should not be withheld from patients because a clinician believes that rationing may be required. Where rationing is necessary, this should be addressed explicitly and separately from decisions about what would be best for individual patients; rationing decisions should be made at the clinic, hospital, or government level to avoid situations in which clinicians may engage in *ad hoc* implicit bedside rationing, which may notably conflict with their duties of fidelity toward patients. Routine use of allocation guidelines to support clinical decision-making may help reduce moral distress and promote transparency, accountability, and consistent application of policy.^{61,62}

Ethical implications of unproven and innovative interventions for the treatment of COVID-19

There are growing ethical concerns about the use of experimental treatments for COVID-19 infection that are of unproven benefit and potentially significant risks and regarding the conduct of research in this field.^{63–65} Rapid communication of preliminary or incomplete trial results via media releases and journal publications has influenced practice in several countries, created confusion, and also undermined confidence in the peer review process, as evidenced by widespread controversy regarding the use of hydroxychloroquine as treatment of COVID-19.^{66,67} Kidney health professionals may be involved in clinical trials of novel interventions, which are more likely to be tested in patients with COVID-19 with more severe infection, who are at high risk of AKI.^{7,8} Clinicians may also need to advocate for inclusion of patients with KF in clinical trials to ensure new therapies are suitable for use in a population at high risk of COVID-19–

related morbidity and mortality.⁶⁸ When standard kidney therapies are unavailable or rationed as a result of the pandemic, clinicians may also consider innovative changes in standard practice in the care of people with kidney disease without COVID-19, including deviations from routine dialysis protocols or procedures, or changes in immunosuppression regimens for transplant recipients.⁶⁹

Ethical principles governing clinical research are equally relevant during public health crises; however, pandemic circumstances may complicate standard procedures of ethical review and the potential risks and benefits of conducting research may result in practices not normally considered justifiable. The World Health Organization provides general ethical guidance for research during the pandemic⁷⁰; however, there is little guidance as yet available for the use of interventions that are unproven in the treatment of COVID-19 infection but that are established therapies for other conditions, which have accordingly been fast-tracked for use in the pandemic. The so-called “off-label” use of existing therapies or changes in established practices including cessation of standard therapies such as angiotensin-converting enzyme inhibitors for the management of hypertension or kidney disease carry significant risks as clinicians may independently prescribe or withhold interventions without the oversight and patient protections normally afforded in clinical trials.^{71,72}

Use of unproven interventions or trial of innovative diagnostics, medicines, or surgery outside a formal research study may be considered ethically justified under certain conditions.^{73–75} Key considerations are outlined in Figure 1. Clinicians may feel pressure to offer unproven interventions to patients as a result of optimistic media coverage, particularly when supported by politicians or celebrities. Regulators may also feel pressure to approve some interventions.⁷⁶ Patients and/or their surrogate decision-makers may request treatments and, given significant known risks of COVID-19, clinicians may feel compelled to provide an unproven intervention in the absence of alternatives—so-called compassionate use.⁷⁷ Ethical decision-making regarding the use of unproven interventions or even participation in a formal trial may be complicated if the patient has a high risk of mortality from the infection, such as transplant recipients and those on dialysis, and if the patient currently lacks decision-making capacity. Regardless of these difficulties, clinicians should work to build the evidence base through randomized trials.

In the face of uncertainty relating to the clinical course of COVID-19 infection and the potential risks or benefits of novel interventions or off-label treatments, clinicians should uphold their customary ethical duties toward patients and communities. Respecting autonomy by ensuring that patients or their surrogates are informed of treatment options, and of the limitations of knowledge when relevant, and that valid consent is obtained for all treatments is essential. The imperative to avoid delays in provision of beneficial treatments to large numbers of patients with severe illness may conflict with efforts to generate data from robust clinical trials that are likely, over time, to substantially benefit many

people.⁷⁸ Clinicians should recognize that the obligation of beneficence does not entail the reckless pursuit of unproven interventions that may cause harm to patients and the wider community. Failure to uphold professional standards of evidence-based practice and ethical conduct of research, for example, may undermine public trust in health care systems at a time when trust may be essential for the effective implementation of public health measures to address the pandemic.

Conclusion

This article identifies a number of complex ethical issues with specific implications for kidney health care during the COVID-19 pandemic: concerns about equity in the allocation of limited resources, complex treatment decisions in the context of clinical uncertainty regarding risks and benefits of treatment modalities, and the use of unproven interventions for the treatment of COVID-19 or innovative practices for KF care. The ethical challenges that have emerged or been exacerbated during the pandemic are likely to persist for several years because of the long-term effect of changes in health care practice, economics, and social norms. Considerable work is still needed to explore these issues in greater depth and to develop guidelines and tools to support ethical decision-making in the local context.

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