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Ethics in the Era of COVID-19

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ABSTRACT

The COVID-19 pandemic has led to new ethical challenges and exposed or exacerbated others that were already present. Through the lens of pediatric surgery, this article aims to discuss issues that have been impacted by the pandemic including triage of care and allocation of scarce resources, equity and access to care, and a physician's competing responsibilities to their patients, families, and selves.

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Introduction

The COVID-19 pandemic has created a global health crisis of a scale not seen in over a century. While the SARS-CoV-2 virus has predominantly affected older individuals and those with comorbidities, children have also been directly impacted, representing approximately 10% of known cases in the United States. Other ways in which children have been impacted include the wide-ranging effects of mitigation efforts (e.g., school closures, parental economic strain, etc.) that have been variably implemented across the country and world.¹⁻³ The field of pediatric surgery has been both directly and indirectly affected. This article will review ethical issues surrounding the COVID-19 pandemic from the pediatric surgery perspective including the ethics of triage and utilization of limited resources, longstanding societal inequities that have been further exposed by the effects of the pandemic, and the balancing of physicians' responsibility to their patients, families, and selves.

Case 1: limited resources

Dr S is a pediatric surgeon at a busy urban academic center that cares for both children and adults. The ECMO program has resources available to accommodate up to five patients on ECMO at a time at the pediatric dedicated facility, with additional ECMO resources at the connected adult facility. Due to a massive influx of patients with respiratory illness related to the Covid-19 epidemic, the adult ECMO resources are fully utilized and there is only one

available ECMO circuit for use. At nearly the same time, two separate calls are received to place a patient on ECMO. The first patient is a full-term newborn infant with meconium aspiration. She has been on increasing respiratory support for the first 48 h of life and is now on maximal support. Her pH is 7.1 and PaO₂/FiO₂ has been around 50 mmHg for nearly 6 h. The second patient is a 48-year-old nurse who works in the PICU at your hospital and has a history of breast cancer several years ago that was successfully treated. She has developed multi-organ system failure related to Covid-19 infection, has undergone all available respiratory maneuvers and meets criteria for cannulation.

Discussion

Patient triage and resource allocation

Although the pandemic has arrived asynchronously around the world, with surges seen in different locations at different times, nearly every location has been forced to alter standard approaches to patient care. Most significantly, some individuals have had their care withheld or delayed due to overwhelming patient volume and inadequate resources. In a public health crisis where demand outweighs supply, health care providers and systems must begin prioritizing patients according to a different set of guiding principles. Triage, which derives from the French word *trier* which means "to sort", is used every day during routine medical encounters, such as in the Emergency Department, but takes on an entirely different significance in a public health crisis.⁴ When this shift occurs, it represents a transition from the individual-level focus of standard medical ethics towards a population-level focus. In other words, our guiding values of medical ethics – justice, autonomy, non-maleficence and beneficence – are replaced by the values of ra-

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tioning – maximizing benefits, equal treatment, promoting instrumental value, and prioritizing the worst off.^{5,6} This is frequently summarized by the utilitarian concept of providing the greatest good for the greatest number; however, utilitarianism represents just one of many ethical principles that can be considered reasonable bases for triage guidelines, including egalitarianism (“allocation based on need”) and communitarianism (“respect for social and cultural values”), among others.⁷⁻⁹

As triage guidelines inherently consist of an amalgamation of medical evidence and cultural values it has been argued that such guidelines should incorporate multiple community stakeholders.^{7,10} Triage in a pandemic situation will inherently cause some degree of harm by prioritizing some individuals over others.¹¹ Those who are not offered treatment may feel victimized so achieving broad public support for triage guidelines is critical for successful implementation and acceptance. Knowledge that guidelines were developed multilaterally and within the community should help promote widespread acceptance; this underscores the importance of effective communication and community engagement.^{7,12,13} This is how triage guidelines will be seen by the community to have “legitimacy”.⁵

Naturally, development of such guidelines is conditioned upon a multitude of factors, including the community in which they are being developed, the availability of resources, and the specific situations to which they will apply. However, they must establish a set of parameters that will guide behaviors through the emergency.

First, decisions about priority for treatment must be addressed. Some triage guidelines will institute automatic thresholds based on age, comorbidities, or other factors, that determine certain groups that will be automatically excluded from consideration of care.^{10,13} Such policies have been argued against as too restrictive and may decrease the likelihood of community acceptance.⁷ In the absence of strict cutoffs, other criteria must be provided to determine who is prioritized. Scoring systems, such as the Sequential Organ Failure Assessment (SOFA), have been used for this purpose, however there is no perfect framework, and these scores should be considered with other factors as well.⁹

Next, the procedures surrounding re-evaluation and reconsideration of priority must be addressed. As a pandemic is an ongoing and dynamic process, new patients will continue to present despite resource utilization having been maximized. Similarly, guidelines about withdrawal of treatment are important, as new patients who might be capable of achieving more favorable outcomes could arrive while less favorable patients are utilizing life-saving resources.^{6,8,14}

It should be determined whether certain groups will be given priority for resources. For example, distribution of limited resources such as the first vaccine doses were prioritized to health-care and other front-line workers.⁶ Support for such decisions is not universal, however.¹⁴ Others have argued for priority given to volunteers of research studies, children, and pregnant women.

Finally, triage guidelines should explain who will be responsible for determining resource allocation in real time. Leaving these decisions up to physicians and other care providers can force these individuals to make morally fraught decisions, with their loyalty torn between the individual patient in front of them and their obligations to their community at large.¹⁵ Distribution of donor organs provides an apt comparison for this, as decisions about allocation are determined by an independent body that takes into consideration a number of objective factors including scoring systems and geography to remove as much bias as possible.⁵ Having a group of people responsible for making triage decisions who are separate from the clinical care providers is often proposed as the best way to minimize bias on the part of individual providers and also to reduce feelings of moral distress when tough decisions are made.^{9,12}

The clinical scenario presented above exemplifies the conflicts that can arise. Pre-established thresholds might exclude one of the two ECMO candidates outright. A score calculated by a standardized scoring system for severity of illness above a set threshold might similarly prioritize one of the two patients. Alternatively, criteria that allows for reconsideration of the other patients currently receiving ECMO resources might force withdrawal of care for a moribund individual, so that both the neonate and PICU nurse will have ECMO resources available to them. Prioritization of health care workers – or pediatric patients for that matter – might similarly prompt redeployment of already in-use ECMO circuits. Appealing to an impartial triage council will help remove the moral distress associated with this decision, given the personal ties the surgeon has to both patients.

Even though pediatric patients as a group have been less severely affected than older adults by the COVID-19 pandemic, the drastic changes in how health care is delivered and triaged has impacted people of all ages. One of the primary concerns about pediatric patients has to do with adult patients encroaching on available hospital beds and other resources, such as ventilators. When adults start taking beds on pediatric units, how are decisions made regarding who gets access to those beds? This underscores the importance of the decisions made regarding how triage allocations are determined. If a patient's age alone determined their priority for treatment, then clearly children would not lose access to pediatric beds. However, other methods of triage may select an older patient over a child; for example, a 45 year old nurse may be prioritized in a system of instrumental value as a health care worker.⁵ There is no truly right or wrong way to undertake triage as the system must reflect the specific priorities and values of the community in which it is being used.

Beyond just the loss of physical space in hospitals is the potential to lose specially trained personnel to redeployment, resulting in fewer available staff or replacements who are not as well trained.¹ Care must be taken to ensure that such unintended consequences are avoided or minimized when surge plans are developed. Minimizing the number of visitors to a hospital, and the potential of scaling back supplemental resources such as Child Life, could have substantial psychosocial impacts on hospitalized pediatric patients. It is important that triage efforts, meant to maximize benefit to a community during a public health crisis, do not unintentionally cause harm to a minority of the population.

Similar to how children have been affected despite not being the primary focus of the COVID-19 pandemic, surgical care has been altered despite the crisis being a primary respiratory disorder. Cessation of most elective surgical procedures in March 2020 was initiated due to fears of a massive surge of COVID-19 patients that would overwhelm hospital resources.¹⁶ This was anticipatory triage. Even management of acute surgical diseases, such as acute appendicitis, was altered in an effort to minimize utilization of operating room and inpatient resources.¹⁷ This initial cessation, along with the subsequent curtailment of surgical volume in areas experiencing surges, has produced a backlog of cases, resulted in progression of disease for many patients, and has negatively impacted training and research.¹⁸ Only in the coming months and years will the full impact of these delays be understood. For surgeons, beyond the ongoing risk of catching the virus, many experienced frustrations at being sidelined while others were redeployed to provide care in areas outside our usual scope of practice.¹⁹

Even with increasing vaccination rates, as long as surges continue in one location after another, the need to refocus prioritization of care due to demand outpacing supply will continue around the globe.²⁰ Most departments and institutions will have plans to account for local surges of COVID-19.^{21,22} These can and should be utilized as frameworks for how to respond to any type of future public health crisis. The present pandemic is an airborne, primar-

ily respiratory illness that tends to affect an older, sicker population. The next event might present in an entirely different manner and impact an entirely different patient population. COVID-19 has clearly demonstrated that even though pediatric surgeons were not typically involved in treating this disease, everyone in health care was impacted in some way. Establishing the guiding principles on how to proceed the next time a health crisis occurs will undoubtedly mitigate strain on our health care systems so we can continue to provide quality care for all patients.

Case 2: unequal care

An eight-year-old Hispanic male, whose parents are both immigrants from Central America and do not speak English, has been having lower abdominal pain and vomiting for 5 days. His father has been hospitalized with COVID-19 for the last 10 days and is fortunately improving. His mother has not been able to afford to take time off from work, now that they are down to just one income. Unable to wait any longer, but unable to do it herself, she is able to convince one of their neighbors to take the boy to the emergency room at the same hospital where his father is admitted. Due to new processes in place for the pandemic and being short staffed due to illness among employees, it takes 18 h for a CT scan to be done, which ultimately shows he has a pelvic phlegmon from perforated appendicitis. It is initially undrainable, and he is admitted for IV antibiotics. After a prolonged course that included a PICC line for TPN and ultimately IR drainage the collection, he is sent home with planned follow up to schedule an interval appendectomy. However, he never arrives at his follow up visit as his parents were unable to navigate scheduling the appointment, and the discharge instructions were not clearly translated into Spanish.

Discussion

Equity and inclusion

Despite initial beliefs that the COVID-19 pandemic might impact all Americans across the board, it has instead brutally exposed the long-standing disparities in care within the US healthcare system. Around the country, minority deaths were significantly greater than for white individuals, disproportionate with their share of the population.²³ This reality, along with other events taking place in the summer of 2020, contributed to a notable shift in public perceptions regarding issues of social justice, equity, and inclusion. Across all of healthcare these forces have manifested in changes to how care is delivered, evaluating disparities in care, and in efforts to promote social justice in our practices and profession.

Research across virtually all disciplines has demonstrated that socioeconomic status is too often a significant predictor of health outcomes.²⁴ Pediatric surgery is no exception to this. A recent meta-analysis looking at appendicitis in children demonstrated that among nine included studies, Hispanic children or those coming from low-and middle-income families were more likely to present with perforated appendicitis and minority children were more likely to undergo an open appendectomy.²⁵ As the most common procedure performed by pediatric surgeons these outcomes provide a surrogate of how our field is performing more generally. Pediatric trauma care has also been shown to be characterized by a wide range of disparities, from increased wait times and less analgesic prescriptions provided for minorities to higher rates at attempted digit reimplantation after amputations for white children.²⁶

In order to affect change, as suggested in a recent article by Bonner, et al (2020), we as surgeons first need to recognize what is taking place within our own practices and resolve to make changes

that will help mitigate disparities.²⁷ Analyzing our own outcomes based on race might highlight areas of weakness. Within our departments, improving the diversity of providers will help us better represent our communities. Creation of committees and task forces dedicated to improving outcomes within these areas can help formalize and enforce these efforts. Finally, we ought to apply these same approaches to the institutions or healthcare systems in which we work, so that areas for improvement can be identified and our communities can hold us accountable for serving them better.

The American Pediatric Surgical Association (APSA) has responded to this moment with a series of position statements regarding diversity, equity, and inclusion.²⁸ These serve as a call to action for all pediatric surgeons to recognize the diversity of our patient populations and to ensure we are doing our part to provide equitable care across the board. It has also announced the inclusion of Equity and Social Justice among the four pre-existing strategic pillars (Quality of Care, Access to Care, National Healthcare Agenda, and Organizational Health). APSA has begun to assess the current status of our field and invest resources in improving the diversity within our profession, as we do not often represent the communities for whom we provide care.

With respect to improving patients' access to care, the COVID-19 pandemic has led to a rapid increase in the adoption of telehealth. This utilization of technology has come with significant advantages, providing a whole new access point for patients to reach providers. For many visits where being in person is not critical, this has added a great deal of convenience for patients to see their physician.²⁹⁻³¹ Consider a parent with multiple young children, for whom an in-person doctor visit can become an ordeal; being able to simply use their cell phone from home to see a surgeon has truly simplified the process for them. Undoubtedly it can help parents engage more fully in the discussion with their surgeon, rather than focusing attention on their child or children.

A systematic review on the use of telemedicine in the post-operative surgery from 2016 looked at 21 studies and reported significant savings for patients in terms of travel distance, time and cost.³⁰ Another study reported cost savings to both patients and families/caregivers.³¹ The ability to quickly share images has also clearly added yet another level of convenience to both patients and providers.^{32,33} A study looking at pediatric surgery departments in Germany found that the majority of families (91%) were not bothered by not physically seeing the doctor during the visit. Positive feedback included less waiting, less time spent traveling, and protection from infections. The main disadvantage noted was lack of personal contact with the doctor.³⁴ The COVID-19 pandemic likely served to expedite a transition towards more remote visits that was inevitably going to occur.

Telemedicine is not without its liabilities, however. Although much of the country has access to smart phones and fast internet connections, many areas are still poorly served by internet or cellular providers. For example, even in New York City, only about 70% of households have a broadband connection. Access declines significantly as you look at other socioeconomic groups; for example, only 44% of low-income families (<\$19,111 per year) and 55% of individuals without a high school diploma have broadband access. Furthermore, up to 12% of households have no computer or computing device and 7% of households have only a smartphone as their device for internet access.³⁵ Even with internet access, unreliable network speeds can cause disruptions and dropped connections during a visit. Further, some platforms require downloading a separate app to use which can be difficult for individuals with less computer literacy. Finally, patients who do not speak English face even more difficulty communicating with their physician through an interpreter via telemedicine. These limitations unfortunately relate to those groups of patients who already experience the most

difficulty with access to care, suggesting that telemedicine, although providing a great deal of convenience for many patients and providers, is not a panacea for all of the problems with health-care access.

Case 3: competing priorities

Dr. L recently began her first faculty position at a major academic medical center in NYC. Prior to her pediatric surgery training, she had completed a critical care fellowship. In March 2020, the initial surge of the COVID-19 pandemic struck, and all elective surgical activity was suspended at her institution. While the children's hospital where she worked was relatively unaffected, the attached adult hospital was overwhelmed and rapidly converted all available space to patient care areas and pop-up ICUs. Supplies of PPE were inadequate as the hospital's purchasing department struggled against crippled supply chains to procure masks, gloves and gowns. With her critical care skills and lightened clinical load, Dr L was a natural choice for redeployment to lead a provider team composed of trainees from all disciplines that had been mobilized to care for the massive influx of COVID-infected adult patients.

Though Dr. L's instinct was to immediately join the effort, her thoughts quickly turned to her family. Quarantined in her apartment a few blocks from the hospital, her two children were cared for by Dr L's elderly parents who had moved in to support her. Both immigrants to the US, they spoke little English, and her father was diabetic. How could Dr. L respond to this once-in-a-generation crisis without putting her family's health in jeopardy? How could she possibly isolate from them in a small New York apartment? How would she explain her long absences to her 4-year-old son, who continually asked when she would be home?

Discussion

Balancing a physician's duty to patients, family and self

The term "moral distress" was first coined by Andrew Jameton in the early nineteen eighties to describe the psychological effects experienced by nurses when institutional constraints prevented them from doing what they felt was ethical and "right".^{36,37} Examples of provocative clinical situations would include withholding life-saving transfusion from a child whose parents objected for religious reasons, or a directive to perform invasive resuscitative procedures in a hopeless situation. The definition has broadened in the time since Jameton's description, and we now understand that, in addition to nurses, physicians and other health care workers also suffer moral distress. A 2013 study published in *The Journal of Clinical Ethics* concluded that moral distress is experienced across healthcare disciplines, but with differences that vary with profession. While mean moral distress scores are similar across various medical professions, nurses experience moral distress more frequently, and physicians experience it with greatest intensity.³⁸ End of life clinical scenarios produced the highest intensity of moral distress. When experienced to a high degree, moral distress may lead to burnout, neglect of self-care, or even to self-harm and suicide.

A constellation of factors that arose in association with the COVID-19 global pandemic dramatically raised awareness of the moral distress suffered by healthcare workers. Some of the causative elements of this pandemic-associated moral distress, its effect on healthcare providers, and what actions, if any, can be taken to alleviate it are discussed here.

In general terms, those in pandemic "hot spots" experienced a demand for medical care that vastly exceeded the supply of resources available to provide it. Medical professionals lacked equipment and supplies needed to provide care and were asked to

compromise infection control practices that placed their personal health at risk, such as when single-use items like masks were re-used. This, in turn, was felt to jeopardize the health of loved ones with whom providers came in contact. To avoid this, many health-care workers isolated themselves from their families, making them feel alone and apart from the emotional support that a family may provide. Unprecedented professional demands meant that nurses and physicians were called upon to practice well outside normal professional boundaries. This came in the form of administering untried and unproven treatments, working long hours without adequate time to rest and recover, and managing supportive equipment (like ventilators and dialysis machines) without the typical amount of training. This placed providers in a situation of continually doubting their own competency.

News writer Sara Berg summarized four ways in which the COVID-19 pandemic provoked moral distress as: lack of PPE, contagion management and risk to families, amplification of healthcare inequities/disparities, and social deprivation.³⁹ Mental health counselor Jennifer Mooney at the University of Rochester has cited the rapid shift from patient-centered ethics to public health ethics as an additional source of moral distress for health care workers, as it became necessary to withhold treatments that may have been life-saving for an individual in order to allocate resources to greater cumulative effect.⁴⁰ In many cases only the adverse effect of withheld treatment, but not the positive effect of helping a greater number of patients was apparent to an individual provider.

Though the specific causes of moral distress encountered by health care providers juggling competing duties to patients, family, and self are well-recognized, evidence-based strategies to mitigate it are not abundant.⁴¹ Mooney notes the need for collaborative effort between practitioners and organizational leaders.⁴⁰ Organizations must build and maintain a work environment that facilitates provision of safe, effective and efficient care in order to minimize practitioner vulnerability and frustration. They must provide infrastructure and resources to allow providers to develop peer support networks. Awareness and education about moral distress should be provided, to help practitioners recognize it. Treatment protocols that relieve individual providers from the burden of making decisions about scarce resource allocation must be developed.

The steps that individual practitioners can take include taking time to focus on the significance and positive impact of one's work. For example, the time taken to call and update a family member who is not permitted to visit their sick relative is meaningful and valuable. Sharing our concerns with our loved ones may alleviate the burdens we bear. Mark T. Hughes from the Berman Institute for Bioethics at Johns Hopkins has offered steps that we can take to help alleviate moral distress:

- Check in with yourself and with your colleagues about how things are going
- Be mindful of what you can control
- Find ways to connect people to their purpose or calling
- Leverage knowledge and skills to build self-efficacy
- Remind people that they are not alone
- Provide psychological "first-aid"
- Seek and offer peer support opportunities ⁴²

Health care providers who cared for patients afflicted with COVID-19, especially during the initial surge of cases, faced a unique constellation of stressors. A sudden pivot from patient-centered to public health ethics imposed immense personal and professional demands on teams of professionals who were simultaneously placed at increased personal health risk by scarcity of

personal protective equipment. In addition, emotional support networks were taken away by the demands of isolation and quarantine needed to limit the spread of disease. The collective response of the healthcare and biomedical communities to this public health threat was in many ways inspirational and awe inspiring, as vaccines were developed and distributed with unprecedented speed. Demonstrations of public support and gratitude were widespread, and the public's esteem for healthcare workers and scientists seemed to surge.

Conclusion

Although the COVID-19 pandemic has led to untold human suffering – the end of which still remains in the distance – it has been met with ingenuity, resiliency, and humanity. Institutions have adapted rapidly, with important lessons learned, so that future crises may be handled with less overall disruption. Underlying inequities in our health care systems have been laid bare, which has led to meaningful efforts to correct these structural failures. Finally, acts of selflessness have paradoxically enhanced the focus on the well-being of those providing care.

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