Racial Disparities in Pediatric Anesthesia

An Updated Review

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KEYWORDS

• Health care disparities • Racial or ethnic inequity • Implicit bias
• Perioperative mortality • Postoperative outcomes • Pediatric anesthesia

KEY POINTS

- Provider factors play a role in health care disparities and one of the biggest contributors may be implicit bias among health care workers.
- Patient and family factors are multilayered and may include distrust of the medical system, inherited, multigenerational experiences of health and social inequities as well as cultural preferences.
- System factors contributing to racial disparities include lack of diversity in medical trials, health care algorithms that emphasize cost rather than need and lack of enhanced recovery after surgery protocols.

INTRODUCTION

Disparities in US health care and outcomes related to race, ethnicity, gender, and social status were described in Medicare patients and have since been documented in multiple studies in the literature over the last quarter century.[1] Despite increased recognition of disparities and countermeasures to correct them, inequalities in health outcomes due to race, ethnicity, gender, and social status remain pervasive. Since the publication of our last review,[2] numerous studies have been published regarding racial disparities in all aspects of perioperative care in children. These include differences in analgesic selection,[3] perioperative pain management,[4] intraoperative analgesic administration,[5] postoperative pain management,[6] surgical outcomes,[7] and postoperative complications including death.[8] In this review, the authors summarize the

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literature examining health care disparities in pediatric anesthesia patients at the provider, patient, and system level (Fig. 1). The authors review strategies for addressing pediatric health care disparities and focus on the modifiable subject of health care disparities in the pediatric anesthesia setting.

PROVIDER FACTORS

Bias is an inclination or preconceived outlook that favors toward or against an idea, person, or group, with the tendency to evaluate one's own membership group more favorably than a nonmembership group.[9] In 2003, the Institute of Medicine identified health care provider bias and stereotyping as contributors to health care disparities.[10] Since then, the presence of both explicit and implicit bias has been repeatedly correlated with a negative impact on physician–patient interaction and communication,[11] higher risk of compromised care,[12] and lack of cultural competence.[13] Biases develop early in life and provide a framework to subjectively organize the environment and orient ourselves to those people and things within it. Explicit biases are intentional and manifest in obvious discriminatory actions.[9] Implicit biases subconsciously occur without a person's full awareness or control and are not necessarily congruent with self-reported attitudes.[14] Implicit attitudes are more likely to influence responses when time pressure, cognitive stressors, and symptoms of burnout are present.[15,16]

Although there are no studies specifically looking at bias among pediatric anesthesiologists, differences in physician–patient communication have been examined in other specialties. A retrospective study of primary care physicians and adult patients who self-identified as White or African American aimed to assess the quality of interactions between physicians and patients during office visits.[17,18] This study found that physicians were 23% more verbally dominant and 33% less patient centered with African American patients compared with their interactions with White patients. In addition, for both physicians and African American patients, positive affect was lower than when compared with visits with White patients.[17] Additionally, the Hispanic population has been found to be at higher risk of receiving suboptimal care due to presence of provider–patient language barriers. These barriers lead to decreased trust in and lack of compliance with health care provider recommendations.[4]

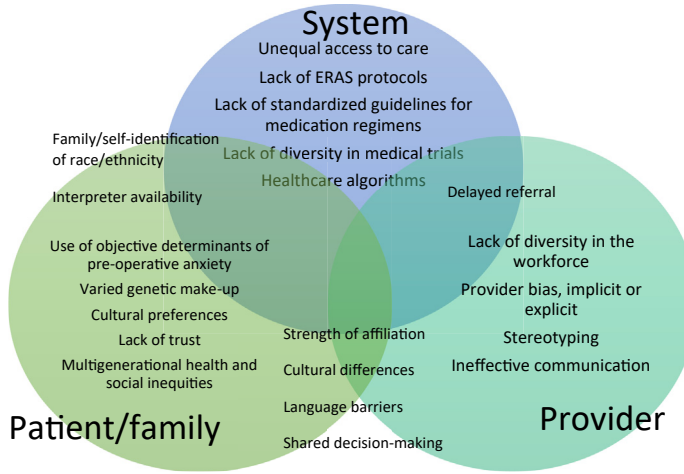

Fig. 1. Factors contributing to health care disparities in pediatric anesthesia.

Sabin and colleagues[19] examined data from test takers who voluntarily completed the Race Implicit Attitude Test (IAT) at Harvard University. The power of the IAT to create change stems from consequent reflective process, conscious awareness, and intrinsic drive to change ones' behavior.[19] Test results examining implicit attitudes among physicians aligned with the same pattern seen in the overall population. When measuring implicit attitudes by physician race and ethnicity, they found that White physicians showed the strongest preference for Whites. In addition, White, male, physician bias applied to other social characteristics, including sexuality, weight, ability, age, and religion.[20] African American physicians did not show an implicit preference for either White Americans or Black Americans. When considering physician gender, Sabin and colleagues[19] observed a strong preference for White Americans among male physicians and a weaker but still appreciable preference for White Americans among female physicians. Johnson and colleagues[16] reported levels of health care provider implicit racial bias toward children as similar to levels of racial bias directed toward adults. Two studies in the emergency department setting showed significant pro-White implicit bias toward children, suggesting that children may also be vulnerable to biased racial attitudes of health care providers.[21,22]

Sabin and colleagues[23] conducted a similar study of implicit and explicit attitudes among pediatricians (including attendings, fellows, and residents) at a single institution. They observed that pediatricians displayed less overall implicit preference for Whites compared with most IAT test takers; however, a moderate implicit association was found describing European Americans as more likely to be "compliant patient." No difference was observed in treatment recommendations as associated with patient race and implicit measures, as was previously demonstrated in studies performed by Bogart and colleagues.[24] However, the study showed a significant positive correlation between physician age and the presence of implicit bias toward European Americans.[25] A different study found that female physicians, in comparison to their male colleagues, were more likely to spend more time with their patients regardless of race, were more likely to be more collaborative with treatment plans, and were more likely to address social and emotional patient concerns.[26] Patient satisfaction was also higher for patients of female physicians, which the research team speculated could be a result of differences in implicit attitudes and effect on nonverbal behavior.[26]

Racial and gender concordance impacts patient outcomes,[27] illustrating the critical importance of ensuring diversity of race, ethnicity, and gender in the workplace. A retrospective study examining neonatal care suggested that the presence of racially concordant newborn–physician pairs was associated with a greater than 50% reduction in mortality as well as reduced parental communication difficulties.[28] Additionally, patient–physician gender concordance may result in increased participation in preventative cancer screenings and health care utilization.[29] Another study found that female patients treated by female physicians were twice as likely to survive after myocardial infarction in comparison to female patients treated by male physicians.[30]

A study of pediatric patients within Managed Care Organizations found that the pediatric patient–physician interpersonal relationship was often shorter in duration and weaker in quality for minorities including Black, Hispanic, and Asian patients compared with White patients, regardless of insurance status.[31] Reasons for this included language barriers, difficulty in finding a primary care physician of the same race, and cultural differences in seeking care related to limitations instituted by managed care policies.[4] Interestingly, pediatricians were reported to have better interpersonal relationships with patients than other generalists in this study.

The American Academy of Pediatrics published a technical report summarizing literature on racial and ethnic disparities in the pediatric population in 2010.[32] In this

review, African American children experienced a higher risk of unmet health care needs, lower rates of access to primary care physicians, lower rates of referral to a specialist for evaluation, and higher risk of not receiving adequate time and information from physicians compared with White children.[32] This is concerning in that if trust, communication, and shared decision-making occur less frequently for minority children in settings meant to foster continuity of care and trust-building, these concepts may be present even less frequently for single episodes of care (ie, anesthesia care in the perioperative period). In addition, African American children in this report were found to have lower scores for primary care provider interpersonal relationships, comprehensiveness, and strength of affiliation. African American families also displayed lower physician-visit rates with higher odds of going more than 1 year between physician visits and placing fewer calls to physician offices. Similar findings have been reported for Asians/Pacific Islander, Latino, American Indian, and Alaska Native children.[32]

In 2022, *Anesthesia & Analgesia* dedicated 3 articles to addressing health care inequity and the role anesthesiologists can play in reducing disparities.[33] This series of related articles proposes several solutions to improve health equity, including formation of a multilevel framework for examining and addressing health care inequities,[13] championing workforce diversity and implementation of educational programs aimed at reducing biases,[27] and supporting inclusion via networking, active recruitment, and education.[34]

Although no studies to date specifically examine provider bias among pediatric anesthesia providers, the preceding findings are important given that a strong patient–physician relationship is crucial for providing high-quality care and making long-term treatment decisions as well as promoting adherence to treatment plans, coordinating care, increasing patient and family satisfaction, and working toward better health outcomes.

PATIENT FACTORS

The practice of pediatric anesthesia nearly always involves input from both patients and their caregiver. Numerous influencers help inform patient and family decisions regarding choices in anesthesia. These preferences may be impacted by factors such as race, ethnicity, education level, and English language proficiency. Additional influencing factors may include personal experience, resource utilization in the form of conventional media as well as social media platforms, experiences of friends or family members, religious beliefs, and economic constraints such as insurance status. Several recent studies in pediatric anesthesia have explored these topics (**Table 1**) including one published by Lo and colleagues[3] exploring factors impacting analgesic choice for children 6 years or younger undergoing a urologic procedure. In their practice, all patients younger than 6 years undergoing a urologic procedure are offered a caudal block for postoperative pain control largely removing provider bias. They studied whether race, ethnicity, income level, and/or English language proficiency impacted the choice for neuraxial blockade in the form of caudal analgesia. Overall, this retrospective study of over 4700 patients found that Black and Latino/families were nearly 30% less likely to choose caudal analgesia for pain control for their child. Those families with limited English proficiency and those with government insurance were 7% and 15% less likely, respectively, to choose caudal for their child. Their results are congruent with numerous adult and obstetric studies that show minority patients receive neuraxial or regional anesthesia less often than their White peers.[35–37] Though retrospective, the authors postulated that the choice to avoid

Table 1
Summary of racial disparities in pediatric anesthesia literature

Study	Design	Purpose	Sample Size	Findings	Limitations
Lo et al,[3] 2020	Cross-sectional, retrospective	Examine differences of caudal analgesia usage in different racial, ethnic, English language proficiency, and socioeconomic groups among children undergoing urologic surgery	4739 children 25.4% non-Latino/a White, 8.7% non-Latino/a Asian, 7.3% non-Latino/a Black, 23.1% Latino/a, 35.4% other	62% of Latino/a parents and 60.8% of non-Latino Black parents chose no caudal anesthesia; 65.1% of Spanish-speaking families chose no caudal anesthesia	Retrospective, difficult to evaluate information given to families, time spent; difficult to tease out overlap among race, ethnicity, language proficiency, and household income
Jette et al,[5] 2021	Retrospective	1° outcome: total intraoperative morphine equivalent dosing among different racial and ethnic groups 2° outcomes: intraoperative non-opioid analgesics, first conscious pain score	21,229 anesthetics; Hispanic 38.9%, NH White 34.5%, Asian 18.6%, Black 2.1%, Pacific Islander 1.4%, Other 4.5%	No statistical difference in intraoperative morphine equivalents; Asian, Hispanic, and Pacific Islanders had lower odds of receiving non-opioid analgesics	Retrospective study, single institution, demographics may not reflect other institutions, practice patterns at institution
Gan et al,[39] 2023	Retrospective cohort	1° outcome: Use of GA during MRI among different racial and ethnic groups	457,314 MRI encounters, 29,108 of them with GA; White 80.4%, Hispanic 9.5%, Black 7.2%, Asian 3%	Asian pts 0–6 y, Black pts 2–11 y and Hispanic pts 0–1 y more likely to receive GA compared to White pts	Exclusion criteria omitted patients with more complex health history, scan length not included, no option for more than one race
Nafiu et al,[6] 2017	Retrospective	1° outcome: overall 30 d in-hospital postoperative mortality; 2° outcomes: overall 30 d postoperative complications and serious adverse events	172,549 children; 11.4% AA, 70.1% White	AA children 3.4 times the odds of dying after surgery, 18% relative odds of postoperative complication, 7% relative higher odds of developing serious adverse event	Possible ASA PS misclassification; site of care unknown; no accounting for socioeconomic status

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Table 1
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Study	Design	Purpose	Sample Size	Findings	Limitations
Willer et al,[43] 2022	Retrospective cohort	1° outcome: risk-adjusted in-hospital mortality rates by race and parent income quartile	1,378,111 children: 18% Black, 82% White	Mortality rates decreased as income quartile increased; mortality among Black children in highest income quartile equivalent to White children in lowest income quartile	Use of zip code as proxy for socioeconomic status
Chen et al,[45] 2022	Retrospective cohort	1° outcome: 30 d in-hospital mortality; 2° outcomes: wound, pulmonary, CV, renal, neurologic complications, postoperative sepsis or septic shock	16,097 children ASA PS 4 or 5; 77% White, 23% Black	Black children had higher incidence of 30-d mortality, pulmonary and CV complications; Black children more likely to have longer LOS	NSQIP database difficult to generalize; site of care unknown; retrospective—possible selection bias; exclusion of SES, insurance status
Nasr et al,[44] 2022	Retrospective	1° outcome: 30 d mortality; 2° outcomes: 30 d postoperative cardiac arrest, reintubation, infections, renal failure, neurologic or thromboembolic complication, reoperation or any hospital readmission	55,859 children with CHD; 76% White, 19.4% Black	Higher 30 d mortality, cardiac arrest, reintubation and 30 d reoperation rates among Black children	Site of care unknown; no accounting for SES or social risk factors; NSQIP database difficult to generalize

Abbreviations: AA, African American; ASA PS, American Society of Anesthesiologists Physical Status; CHD, congenital heart disease; GA, general anesthesia; NH, non-Hispanic; NSQIP, National Surgical Quality Improvement Program Pediatric database; pts, patients.

caudal technique may be rooted in lack of provider trust and insufficient time to develop understanding of the technique, all in the context of multigenerational histories of health and social inequities.

Treatment of pain is a fundamental part of pediatric anesthesia and usage of a multimodal analgesia pathway is considered standard of care. In a recent study, Jette and colleagues[5] evaluated whether minority children undergoing a variety of surgical procedures received opioids and non-opioid analgesic medications at a different rate compared to White children during the intraoperative period. Overall, they found no clinical or statistical difference in opioid administration for non-Hispanic (NH) White children and all other included racial and ethnic groups. Asian, Hispanic, Pacific Islander, and Black patients all had lower odds of receiving non-opioid pain medications compared to NH White patients. First conscious pain scores were also compared among the different groups and only Asian patients had a lower odds of reporting pain scores $\geq$4 than NH White patients. The authors attributed these results to possible differences in provider practice or disparate patient response to nociception. These findings contrast with studies conducted in the pediatric emergency department evaluating usage of opioids and non-opioids in suspected appendicitis and limb fractures where NH Black and Hispanic children were significantly less likely to receive opioids compared to NH White children with the same conditions.[38]

The choice of anesthetic technique for most surgical procedures is typically dictated by the procedure itself. For nonoperating room procedures where stillness is required for lengthy periods and therefore may be difficult to obtain in a young child, anesthetic choice may be guided more by the patient and family with input from the anesthesiologist. A recent study by Gan and colleagues[39] looked at the use of general anesthesia (GA) in MRI and whether it varied based on patient race and/or ethnicity. They retrospectively examined over 450,000 MRI patients, of whom roughly 29,000 received GA to tolerate the procedure. Among patients receiving GA, Asian children aged 0 to 1 year and 2 to 5 years were more likely to receive GA. Black patients aged 2 to 5 years and 6 to 11 years, as well as Hispanic patients aged 0 to 1 year, were more likely to receive GA compared to their White peers. Due to the retrospective nature of the study, authors drew no conclusions given the uncertainty of the meaning behind the data. Their study included only privately insured children. Including children with government insurance may have an impact on rates of anesthesia usage and further research in this patient population is warranted given its potential impacts on patient care. Recent studies examining neurodevelopmental outcomes show children younger than 3 years may be negatively impacted when exposed to GA for greater than 3 hours.[40] Additionally, GA in younger age groups when compared to either sedation or no anesthesia is complicated by higher rates of perioperative respiratory adverse events, alterations in hemodynamics as well as cost.[41,42] If race or ethnicity plays a role in anesthetic choice, this represents a disparity with potentially negative consequences for minority children undergoing MRI.

Weaving together the phases of pediatric anesthesia care as well as postoperative care, recent studies have repeatedly shown worse postoperative outcomes for Black children compared to their White peers. Among patients deemed American Society of Anesthesiologists Physical Status 1 or 2, healthy African American children undergoing inpatient surgery from the National Surgical Quality Improvement Program Pediatric database had 3.4 times the odds of dying after surgery compared to their White peers.[8] In addition to higher rates of mortality, African American children had greater odds of developing serious postoperative complications such as bleeding requiring transfusion and sepsis, as well as adverse events such as unplanned tracheal

reintubation. While the study was robust in enrollment and findings were consistent, the database employed did not consider socioeconomic status (SES).

Given that poverty, combined with less access to health care, plays a key role in health outcomes, the authors followed their study with consideration given to SES. Though the population examined in their follow-up review differed from that of the first study, this second study of over 1 million pediatric surgical patients demonstrated that even when SES was accounted for, Black children had worse postoperative outcomes compared to their White peers. Indeed, authors found that Black children in the highest income quartile had adjusted odds of mortality comparable to White children in the lowest income quartile.[43] While the study was limited by use of zip code as a proxy for household income, the finding that SES did not afford the same protection to Black children as it did to White children at all levels of income is concerning.

A more specific subset of the pediatric surgical population is that of children with congenital heart disease undergoing noncardiac surgery. As surgical outcomes improve among this population, the number of encounters for noncardiac surgeries is increasing.[44] Consistent with the findings in the general high-risk pediatric surgical population, a recent study found that 30 day mortality, cardiac arrest, 30 day reoperation, and reintubation rates were all higher in Black children compared to their White peers. There was no association between race and more severe congenital heart disease. Authors postulated that proximity to a tertiary care hospital may play a role in outcome disparity. Additionally, consideration of provider-level attitudes and stereotyping may play a role in communication and medical decision-making in this high-risk population. Additional studies examining high-risk pediatric surgical patients also show that Black children compared to their White peers have higher rates of 30 day postoperative mortality and morbidity including development of pulmonary complications, cardiovascular complications, and increased length of stay.[45]

SYSTEMIC FACTORS

Worldwide, limited surgical access exists for children and adolescents from low-income and middle-income countries leading to increased morbidity and mortality.[46,47] Decreased access to surgery and surgical rates has also been described in the United States within pediatric populations. Children with Black race or Hispanic ethnic backgrounds when compared to White children have an increased likelihood of requiring emergent surgery.[48,49] One cause of decreased ambulatory surgery in pediatric patients may be the low numbers of ambulatory surgery centers in areas with higher minority populations, thus limiting surgical access.[50] This may lead to minority children undergoing surgery in hospitals less accustomed to caring for pediatric patients or to delayed referrals. Geographic location may be a predisposing factor to access to a pediatric anesthesiologist as shown in a recent study; 10 million children in the United States live more than 50 miles from a hospital with a pediatric anesthesiologist.[51] Overall health as well as access to care has been shown to be related to SES, higher SES corresponds to improved health of patients, while the converse is also true.[52,53] When evaluating the odds of having surgery, Black children have lower odds than White children despite standardization of SES and health.[43] Limited access to pediatric surgical care occurs within all pediatric subspecialties. Within otolaryngology, minority patients receive cochlear implants at decreased frequency and at older ages compared to their White peers.[54] Congenital heart defects are the most common birth defect in the United States. Racial disparities exist when evaluating surgical outcomes and mortality in patients undergoing surgical correction for cardiac lesions.[55,56] A recent study evaluating one specific heart defect, hypoplastic left heart

syndrome showed centers that had higher surgical volumes, had improved surgical outcomes, and decreased mortality. This was across all patients regardless of race at high-volume centers. It also showed these "high volume centers" cared for a disproportionate number of White patients.[57]

The practice of anesthesia is increasingly protocol driven, with implementation of enhanced recovery after surgery (ERAS) protocols, the perioperative surgical home, and standard care pathways (SCP) intended to minimize physiologic stress and promote earlier recovery. Adult and pediatric studies show that ERAS protocols improve care and decrease length of stay observed among racial differences.[58–61] Anesthesia for posterior spinal fusion (PSF) tends to be protocol driven. Two recent studies evaluating PSF and differences in care showed that Black children had a higher rate of blood transfusion than White children for similar surgeries.[62,63] A recent study by Merced evaluated outcomes pre-implementation and post-implementation of an SCP for PSF for idiopathic scoliosis and found that this intervention improved outcomes, decreased length of stay, and reduced care variabilities by race.[64] Administration of antiemetic medication is considered a standard of care with clear guidelines for adult patients, has been associated with improvement in patient outcomes, and is the responsibility of the anesthesia provider.[65,66] Andreae and colleagues[67] postulated that antiemetic prophylaxis could serve as a marker of anesthesia quality and examined its use in both pediatric and adult surgery. They found that only 40% of patients with Medicaid received antiemetic therapy compared with 60% of patients with commercial insurance.[67] Proving bias among anesthesia providers with this dataset is difficult; however, this study offers an area for potential improvement in health care disparities and patient outcomes specifically related to anesthesia practice. Utilizing ERAS protocols embedded within an electronic medical record may be a way to combat care differences in the future.

STRATEGIES FOR MITIGATING RACIAL DISPARITIES

Studies have repeatedly shown that racial disparities exist in nearly every field of medicine, including the field of pediatric anesthesia. Many studies within the field of pediatric anesthesia and the related field of pediatric surgery are retrospective. As such, it remains difficult to draw firm conclusions as to the causes of unequal care among one of the most vulnerable groups of patients in medicine. However, given the recurring themes found among the studies reviewed earlier, we can begin to address some of the potential reasons for continued disparate care.

Recent demographic data among fellowship training in pediatric anesthesia show that the gender gap has almost entirely disappeared; however, there remains very little movement in increasing diversity among different racial and ethnic trainees.[68] Between 2000 and 2018, the odds of a pediatric anesthesia fellow being White increased 3% each year. Over the same period, the odds of change among Black, Asian, and Hispanic fellows showed no statistical difference one way or the other. In a more general demographic study of physicians from the 2021 Association of American Medical Colleges (AAMC) physician specialty data report, just over 5% of anesthesiologists identify as Black or African American.[69] Previous studies in a variety of medical fields have shown improved outcomes when patients share the same race or ethnicity as their medical provider.[70] This may be due to improved communication as well as increased shared decision-making. Notably, in this survey, racial diversity was found to be an important factor for patients and families. If patients and families present to the preoperative area with stronger trust and expectations of input in decision-making for their child, a more diverse group of pediatric anesthesiologists may be

better positioned to guide families through the stressful perioperative period. Further studies are needed to elucidate the influence of racial concordance in pediatric anesthesia rather than extrapolating data from different medical specialties. A recent survey of over 3000 health care workers (HCWs) in a variety of settings found that over 60% of Black HCWs but just over 40% of White HCWs reported ever seeing a patient face racism or discrimination based on their race or ethnicity.[71] Younger HCWs were more likely to report racism compared to HCWs over the age of 60 years. As one Black physician in the survey responded, "[for] the nonperson of color it is seen as advocating for themselves … and wanting the care they deserve, whereas a person of color doing that is seen as aggressive or belligerent."

Improving racial diversity in any medical field is a long-term commitment and must begin earlier than simply recruiting medical students to the field of anesthesia or employing unconscious bias techniques in the hiring process. Current projects underway at our institution and many like it, include collaboration between undergraduate students and local middle schoolers in underserved communities to formulate career pathways at an earlier stage of education. In addition to recruiting a more diverse workforce, over a dozen states have undertaken measures in the past several years to require implicit bias training among medical providers. What impact this has on patient care remains to be seen. While health equity training is a good start, when we frame mitigation of racism through the lens of quality improvement work, education is considered a weak intervention in the action hierarchy.

Mounting studies evaluating rates of morbidity and mortality among both apparently healthy children undergoing surgery and children with a higher burden of disease repeatedly show that Black children have higher rates of complications in the postoperative period compared to White children up to and including death.[6–8,43–45] Even when SES is considered, these higher rates of complications persist. Systemic-level issues such as lack of diversity in clinical trials, especially regarding device development, may have negative repercussions for our racially diverse population. Clinical trials of devices have historically underrepresented women, people of color, and those over the age of 65 years. Despite relatively recent attempts to improve diversity in trials, a recent study found that subgroup analyses for some of the highest risk devices are still not publicly available.[72] Population health algorithms, while intended to aid in health care resource allocation, may inadvertently exacerbate disparities. These algorithms often predict health care *costs* rather than *illness*. Due to unequal access to health care, minority patients may appear to have lower health care costs compared to White patients. Consequently, the algorithm may allocate even more funds to White patients who are already receiving the most resources, further widening the inequity gap.[73]

SUMMARY

Since 2020 and our nation's renewed reckoning with racism, numerous studies have been published attempting to identify and understand disparities in health care delivery to a variety of underserved populations. Much work remains to be done regarding endeavors as basic as accurate collection of demographic data to tasks as complex as understanding social determinants of health, with systemic racism as the underlying theme for these ongoing disparities. As the Heckler report[74] pointed out nearly 40 years ago, "Despite the unprecedented explosion in scientific knowledge and the phenomenal capacity of medicine to diagnose, treat and cure disease, Blacks, Hispanics, Native American Indians, and those of Asian/Pacific Islander Heritage have not benefited fully or equitably from the fruits of science or from those systems

responsible for translating and using health sciences technology." Unlike the response to the Heckler report that put the emphasis on a "change in personal behavior,"[75] we must acknowledge racism in nearly every facet of our lives and endeavor to have all patients benefit equitably from all the good that medicine has to offer.

CLINICS CARE POINTS

- *Health literacy*: Promote health literacy among pediatric patients and their families to empower them to make informed decisions about perioperative care and reduce disparities in health outcomes.
- *Implicit bias*: Be aware of and address implicit biases among health care providers, which may contribute to disparities in perioperative care delivery and outcomes.
- *Health system barriers*: Identify and address upstream factors that contribute to perioperative care disparities, such as lack of insurance coverage, employment, education, long wait times for appointments, and limited availability of specialized services in underserved areas.
- *Quality improvement initiatives*: Implement quality improvement initiatives aimed at identifying and addressing disparities in perioperative care, such as tracking outcomes by race and ethnicity and SES and implementing targeted interventions to improve equity.

DISCLOSURE

The authors have nothing to disclose.

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