

Health Disparities in the Hospitalized Child

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ABSTRACT

Health care disparities exist along the continuum of care for children admitted to the hospital; they start before admission, impact hospital course, and continue after discharge. During an acute illness, risk of admission, length of stay, hospital costs, communication during family-centered rounds, and risk of readmission have all been shown to vary by socioeconomic status, race, and ethnicity. Understanding factors beyond the acute illness that increase a child's risk of admission, increase hospital course complications, and lower discharge quality is imperative for the new generation of pediatric hospitalists focused on improving health for a population of children. In this article, we describe a framework to conceptualize socioeconomic, racial, and ethnic health disparities for the hospitalized child. Additionally, we offer actions pediatric hospitalists can take to address disparities within their practices.

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Health disparities are defined as differences in health that can be attributed to social, economic, or environmental disadvantage.¹ Disparities can adversely affect any group of people who have systematically experienced greater obstacles to health on the basis of a dimension of their identity that has been historically linked to discrimination or exclusion.¹ Most pediatric health disparities research has focused on inequities between socioeconomic, racial, and ethnic groups. Differences in child health and exposure by socioeconomic status (SES), race, and ethnicity can have a cumulative and synergistic impact on the life-course trajectory and lead to disparate outcomes in adulthood.²⁻⁴ Thus, efforts to lessen inequities in childhood may mitigate disparities in both children and adults. Despite increasing recognition that these efforts are important, decreasing health disparities is difficult because of the complex social, political, and economic factors that contribute to them.

Research and advocacy initiatives over the years have targeted health disparities through the lens of preventive and primary care focused on addressing social determinants, improving care delivery, and establishing a medical home in the outpatient setting.^{4,5} In contrast, few have focused on diminishing health disparities in the inpatient setting. Minority and low-SES children are at increased risk of hospitalization, morbidity, and mortality.⁶ Taking a population health approach that partners outpatient and inpatient initiatives to better care for these vulnerable populations is essential to reducing disparities. Here, we will review the literature, provide a conceptual framework, and offer suggested actions to address health disparities in the hospitalized child.

RISK OF ADMISSION

Admission rates for several common inpatient conditions vary by SES, race, and ethnicity. For example, children living in poverty are at higher risk of being hospitalized for asthma, bronchiolitis, pneumonia, influenza, gastroenteritis, and urinary tract infections.⁷⁻⁹

Social and medical determinants of health that are present before an acute illness or

chronic disease exacerbation influence risk of admission (Fig 1). Below are 2 examples of how social and medical factors may increase risk of hospitalization for an acute and chronic condition among vulnerable populations:

1. In an acute condition, such as gastroenteritis, excess hospitalization may be due to inadequate access to outpatient care (hospitalization may be avoided if given antiemetics and counseling on hydration early in the illness) and care sought in the emergency department rather than a primary care pediatrician's office, which may increase risk of admission.^{10,11}
2. In a chronic condition, such as asthma, increased frequency and severity of exacerbations may be due to environmental exposures (poor air or housing quality),^{12,13} dietary factors,¹⁴ comorbidities that vary by SES (ie, obesity or prematurity),¹⁵⁻¹⁷ worse compliance (possibly due to competing priorities, decreased health literacy, or patient-provider mistrust or miscommunication^{18,19}), or decreased access to or use of primary care (sometimes due to past experiences of being marginalized by health care providers), leading to worse control.²⁰

Many of these "excess" hospitalizations among poor and minority children are potentially preventable.²¹ The Agency for Healthcare Research and Quality defines a potentially avoidable hospitalization as an admission that may be reduced with timely access to quality outpatient care. Although access to care is essential for early treatment and management of ambulatory-sensitive conditions, as demonstrated in these cases, equal access to care alone would not eliminate health disparities.²²⁻²⁴ For example, if the precipitating factor for an asthma exacerbation was poor housing and air quality, providing insurance or access to a pediatrician may not prevent an exacerbation. Indeed, several studies reveal persistent disparities in avoidable hospitalizations by SES, race, or ethnicity despite improving health insurance coverage and among children with the same insurance.^{22,23}

Material hardships, such as food insecurity or utility need, may also predispose vulnerable children to hospitalization both directly (ie, malnutrition) and indirectly (chronic stress).^{25,26} Chronic or toxic stress, often due to poverty and/or discrimination (personal, institutional, and societal), has been shown to impact immunologic, autonomic, and endocrine regulation, potentially increasing risk of disease.^{27,28} In a sentinel article, Cohen et al²⁹ demonstrated an association in a dose-response manner between psychological stress and cold symptoms after exposure to respiratory viruses. In addition to chronic stress, interpersonal discrimination may also lead to ineffective interactions with and avoidance of health care providers.²⁰ In a recent national survey conducted by National Public Radio, the Robert Wood Johnson Foundation, and the Harvard T.H. Chan School of Public Health, >1 in 5 African American and 1 in 6 Hispanic respondents reported they have avoided seeking medical care for fear of discrimination.³⁰ Thus, material hardship, toxic stress, and discrimination likely contribute to disparities in hospitalization by increasing susceptibility to disease, delaying the presentation of ambulatory-sensitive conditions due to access issues (transportation, job inflexibility, etc), and possibly avoiding early outpatient care because of mistrust of the health care system.^{20,31}

Several recent studies have investigated the role of neighborhoods (and not simply individual-level social determinants of health) on health outcomes. Historically, marginalized people of color and the poor have been structurally insulated from advancement in economic, political, and educational domains. African American and Hispanic children disproportionately reside in low-income households, defined as $\leq 200\%$ of the federal poverty level; 61% of all African American children, 59% of all Hispanic children, and 60% of all American Indian children reside in low-income households in comparison to 28% of all white children in the United States.³² Additionally, African American families in poverty are more than twice as likely to live in concentrated high-poverty neighborhoods than poor white families.³³ Crowded housing

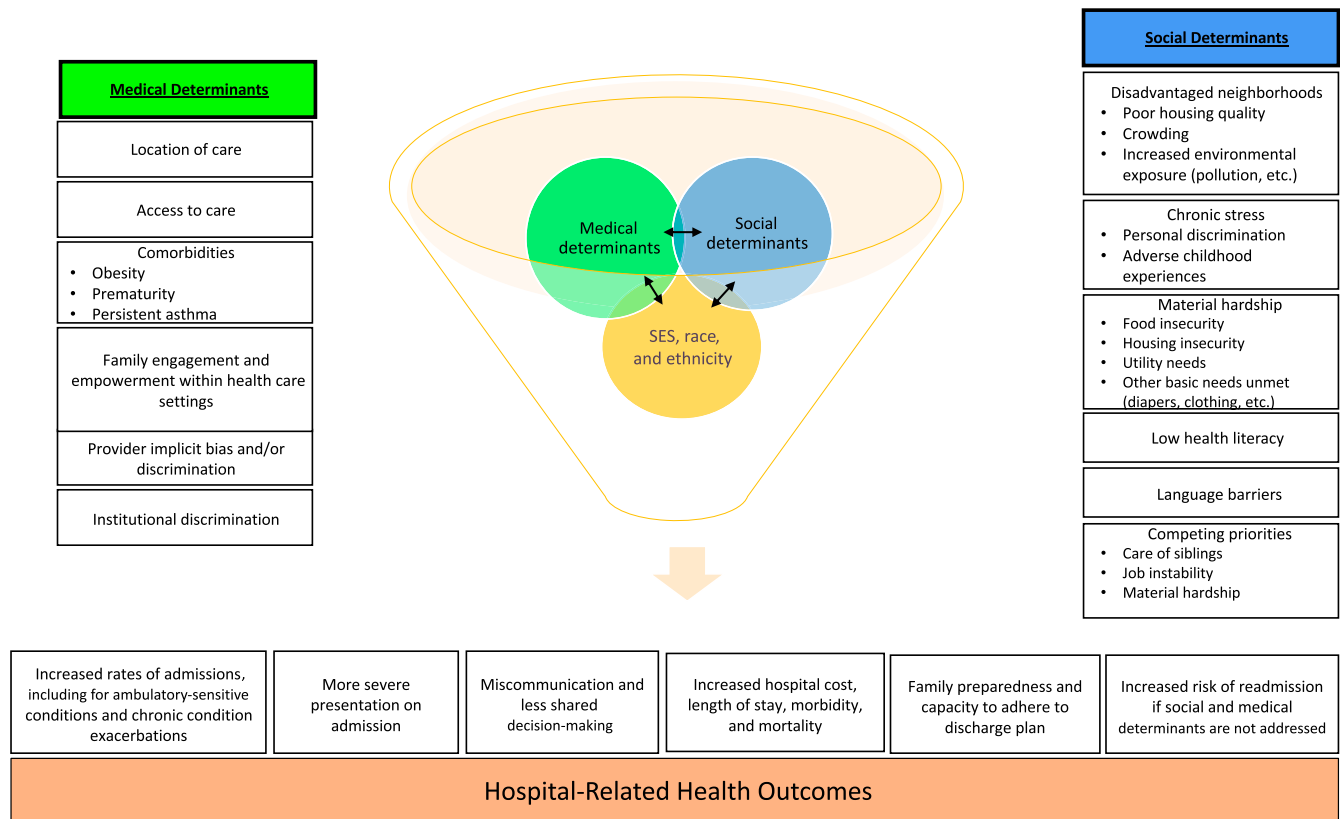


FIGURE 1 Conceptual model for understanding health disparities by SES, race, and ethnicity in the hospitalized child.

in concentrated high-poverty neighborhoods can facilitate transmission of communicable diseases. In addition, in areas of concentrated poverty, children are more likely to be exposed to air pollutants and “other particle environment exposures,” including tobacco smoke, which impairs cilia function and damages mucosal lining, predisposing them to respiratory illnesses and bacterial colonization of the nasopharynx.^{34–36} Impressively, rates of bronchiolitis, pneumonia, and asthma hospitalization can vary up to 6-fold, 11-fold, and 18-fold, respectively, across local neighborhoods.^{37,38} Additional research is needed to understand contributors to neighborhood-level disparities and determine how to best leverage place-based contextual information to improve population health and reduce preventable hospitalizations.³⁹

DIFFERENCES IN HOSPITAL COURSE

Once admitted, hospital course and outcomes may also vary by SES, race, or

ethnicity. Studies have revealed disparities in length of stay, hospital cost, medical errors, pain control, perioperative outcomes, and family centeredness in the acute care setting.^{7,40–45} It is hypothesized that differences in length of stay and cost are likely due to delayed care, access to outpatient services, and comorbidities, leading to more severe presentations on admission and subsequently more intensive inpatient care.^{40,42} For example, impoverished children admitted with bronchiolitis are more likely to have a longer ICU stay and need for mechanical ventilation.⁴⁶ It is estimated that the excess costs for patients from the lowest income group result in \$8.4 million more in hospital-level and \$13.6 million more in patient-level costs.⁷ In addition to disparities in inpatient use, which may in part reflect severity of illness on presentation, the quality and experience of the hospitalization may differ on the basis of patient demographics.

Since 2003, the American Academy of Pediatrics has endorsed family-centered

care as the gold standard in providing high-quality pediatric care.⁴⁷ In the inpatient setting, teams have enacted family-centered rounds (FCRs) to meet this standard. FCRs can be defined as bedside rounds in which the “patient and family share in the control of the management plan as well as in the evaluation of the process itself.”⁴⁸ Caregiver race, ethnicity, language, income, and education level may all impact caregiver-provider communication and the ability of caregivers to effectively participate in FCRs.^{49,50} For example, negative biases and stereotyping toward people of color may impede effective communication. In an outpatient-based study, clinician pro-white bias on the race implicit association test was associated with poorer visit communication and ratings of care among African American patients.⁵¹ In the inpatient setting, Spanish-speaking and African American families may be less empowered to ask questions during FCRs compared with English-speaking and white families.^{50,52} One study found that some Spanish-speaking

caregivers perceive requesting an interpreter as burdensome to the medical team despite evidence that the presence of an interpreter may improve understanding of the child's diagnosis and the medical plan.⁵³ Low parental education has also been associated with lack of shared understanding of the medical plan between providers and caregivers.^{54,55} We hypothesize that disparities by SES, race, and ethnicity in effective communication during FCRs can likely be attributed to provider factors (implicit bias, misinterpretation of cultural norms), family factors (health literacy, advocacy skills, English proficiency, competing unmet needs), and system factors (limited and set time for rounds, availability of interpreters, lack of family orientation to FCRs, learners with various competency in FCRs). Importantly, studies reveal that the overwhelming majority (up to 99%) of parents want to participate in shared decision-making for their children's health care regardless of SES, race, or ethnicity.^{56,57}

In addition to improved parent satisfaction, effective family engagement and participation during a child's hospitalization can lead to more positive patient outcomes, such as increased comfort, increased activity, and decreased length of stay.^{58,59} Recognizing barriers to family engagement is essential for the health care team to develop high-quality, patient-centered management plans. Competing priorities, disproportionately felt by low-income families, such as food insecurity, care for siblings, utility or housing issues, and unsupportive employers, may also limit families' ability to participate in their children's health care and decision-making.⁵⁹ Hospitalization has a disproportionate financial burden on those with underlying economic hardship. A recent study revealed that caregivers with greater financial hardship lost or spent 6 times more of their daily income on nonmedical costs (including lost earnings and expenses such as transportation, meals, and child care) compared with those without hardship.⁶⁰ Having more unmet needs and greater financial hardships impacts the ability of low-SES families to fully engage with the health care team,

which can have effects on patient hospital course and outcome.

Children from low-SES and racial and/or ethnic minority backgrounds may have increased risk of in-hospital mortality. Increased odds of mortality for acute conditions, such as low-income neonates admitted with sepsis, are likely due to upstream factors, such as severity at presentation, comorbidities, and hospital quality.⁶¹ Neighborhood rurality, distance to a tertiary-care hospital, and transportation may all impact where parents seek care for their children. For several conditions, studies suggest disparities in morbidity and mortality may be less within hospitals but greater between hospitals.⁶² However, in-hospital processes likely also contribute to disparities.^{43,63,64} One study of children with terminal cancer found African American, Hispanic, and Asian American children had higher rates of in-hospital death and a higher degree of medical intensity at the end of life.⁶⁵ Overall, more research and advocacy are needed to better understand and address differences in hospital course and hospital-acquired conditions by SES, race, and ethnicity.

DISPARITIES IN DISCHARGE PROCESS AND RISK OF READMISSION

Most providers recognize the importance of assessing and understanding a patient's social, cultural, and economic context to provide a high-quality discharge.⁶⁶ A family's degree of psychosocial functioning impacts their ability to successfully return home and complete care tasks. Hospitalizations are stressful for families. In a qualitative study, lower-SES families more commonly reported a lack of support from families and friends to "cushion the blow" dealt by the hospitalization in the postdischarge period.⁶⁷ Lower-SES families may have less stable support from employers, more difficulty making follow-up appointments (due to their job, transportation, and child care arrangements for other children), and difficulty obtaining medications. These factors and others contribute to disparities in readmissions by SES.

Interestingly, a study of asthma patient readmissions found that the risk of

readmission by race, ethnicity, and income didn't vary at 2 months but greatly differed at 1 year postdischarge. This finding suggests that the disparities in readmission were not reflective of differences in acute care management, as would be seen in the first weeks to months after discharge, but represented the influence of social determinants of health and access to care as predisposing factors to readmission.⁶² Another study of asthma patient readmission within 12 months revealed that socioeconomic hardships accounted for 40% of the racial disparity in readmission rates between African American and white children.⁶⁸ Indeed, several of the social and medical determinants that contribute to increased risk of admission for vulnerable children (Fig 1), such as environmental exposures, access to care, and previous marginalization and/or discrimination within the health care system, likely predispose them to readmission if not addressed during the hospitalization or outpatient follow-up.^{38,69}

Family partnership and engagement are essential to a quality discharge and preventing readmission. Indeed, parental perception of their child's readiness for discharge predicts unplanned readmission.⁷⁰ Although 1 study revealed no difference in understanding of discharge plan by parent SES, race, or ethnicity,⁷¹ others have revealed barriers to effective communication, such as language barriers, can impact parent preparedness for discharge.^{72,73} Regardless, high-quality discharge depends on establishment of an effective provider-caregiver partnership that addresses the psychosocial, cultural, and economic context the child is returning to. More intervention-based studies are needed to determine evidence-based strategies to leverage a child's hospitalization as an opportunity to both address social determinants of health that may have contributed to the acute illness and build partnerships with community pediatricians and resources to improve the health of that child in the future.

WHAT CAN HOSPITALISTS DO?

There are several strategies hospitalists and health systems can employ to decrease health disparities (Table 1). At the patient

level, we can (1) be aware of our own implicit biases and have both curiosity and humility in patient interactions and (2) screen for and address social determinants of health.⁷⁴ Studies reveal implicit bias toward people of color in terms of positive attitudes toward white patients are common among physicians and similar to levels in the general population.⁷⁵ Negative implicit bias toward people of color can impede effective communication and worsen clinical care for those patients.^{51,75} Efforts to increase awareness of and reflection on personal biases through taking an implicit association test or developing a health equity curriculum can mitigate bias and may impact behavior.⁷⁶ At our institution, we have also led interactive case-based conferences that encourage self-reflection and identification of personal and systemic bias within real clinical

encounters. Burgess et al⁷⁷ provide a helpful framework, adapted from social cognitive psychology, that can be used to design comprehensive curricula to reduce bias among health care workers.

In addition, at the individual patient level, few physicians screen for social needs despite the overwhelming sentiment among physicians (85%–90%) that unmet social needs directly lead to worse health.^{74,78} Lack of training, physician discomfort, and fear for patient discomfort are common barriers to screening. Despite these obstacles, studies suggest that screening can be well executed and well received in the inpatient setting.⁷⁴ To promote screening, health systems can provide clinicians resources on how to screen and work with multidisciplinary teams (including social workers) to address unmet social needs.

At the health systems level we can (1) routinely collect patient demographic data and monitor for differences in outcome by SES, race, ethnicity, and language; (2) identify systems and structures that contribute to disparities at our institution; (3) use quality improvement (QI) and implementation science methodologies to identify and reduce health care disparities^{79,80}; and (4) develop clinical care pathways to standardize care both between and within hospitals. Without collection of demographic data, institutions may not realize that disparities exist. Routine monitoring of outcomes by SES, race, and ethnicity will highlight potential QI opportunities to reduce disparities. When using QI to standardize care, it is important to note that QI initiatives can decrease, increase, or have no change on disparities. Lion and Raphael⁷⁹ provide a thoughtful and

TABLE 1 Strategies to Be Employed by Pediatric Hospitalists and Health Systems to Address Health Disparities

Strategy Level	Strategy	Exercises and/or Examples
Provider	Mitigate implicit bias	Take the implicit association test Reflect on and be aware of personal biases Recognize that implicit bias is more likely to impact decisions when there is ambiguity or provider is experiencing fatigue, stress, or high cognitive load Use case-based discussion to reflect on how bias or social determinants of health impacted the patient's clinical course
	Screen for social determinants of health	Encourage screening by leveraging technology (ie, embed screening tools into note templates) Work in multidisciplinary teams
Health system	Routinely collect demographic data and monitor for differences	Stratify process and outcome measures by SES, race, and ethnicity to monitor for disparities
	Incorporate equity into QI initiatives	Standardized clinical care pathways based on evidence Reduce disparities within ongoing QI project Use QI methodology to decrease known disparity at your institution
Population	Partner with primary care providers, nonprofits, and local government to improve health for population of children	Design disease-specific (asthma) or population-specific (children with medical complexity) inpatient-outpatient interventions
	Use research to identify evidence-based methods to reduce disparities	Use epidemiology to identify where disparities exist Perform qualitative and quantitative research studies to understand the causes of disparities and experience of marginalized populations in the inpatient setting
	Advocate for policies to reduce health disparities	Study interventions to reduce health disparities Advocate for policies that would reduce disparities

thorough review of the potential impact of QI on disparities. To reduce disparities using QI, we suggest evaluating baseline outcome measures by SES, race, and ethnicity, exploring reasons for baseline differences and considering designing the intervention in a way that reduces disparities.

At the population level we can (1) perform additional research to enrich our understanding of health disparities; (2) develop partnerships with community pediatricians, nonprofits, and local government or health departments to improve care of children outside of the hospital; and (3) advocate and lobby for policies that would reduce modifiable contributors to health disparities.

CONCLUSIONS

Achieving equity is a fundamental pillar of providing high quality of care as defined by the National Academy of Medicine (formerly the Institute of Medicine).⁸¹ To better care for our patients and the population of children that seek care in our institutions, we need to acknowledge the impact social determinants of health have in the acute care setting. In our review of the literature, we found several gaps in research surrounding health disparities for the hospitalized child, including the need to (1) better describe differences in experience, empowerment, and outcomes for the hospitalized child by SES, race, and ethnicity; (2) identify evidence-based strategies to improve FCR and inpatient care for marginalized communities; (3) report interventions that successfully address individual and neighborhood-level social determinants of health in the inpatient setting; and (4) make the case for institutional investment in implicit bias training and resources and/or tools to address socioeconomic, racial, and ethnic disparities across health care settings.

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