COMMENTARY

Social Determinants of Health and the Hospitalized Child

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KP, a 2.5-year-old infant with cachexia, recently was admitted to our hospital. A year ago, the hospitalist team treated her for sequelae of Zika virus exposure: microcephaly, central diabetes insipidus, and failure to thrive. Sadly, here she was again, weighing less than her discharge weight when she was 18 months old. Her standardized weight for age had plummeted from an already poor −2.5 to an abysmal −5.5. How had our medical system failed this child?

KP's mother had dual US and Dominican citizenship, but was homeless and lacking many social supports in the United States. When her medically complex child was born, her social safety net collapsed. She realized she could not continue to bounce around between homes with such a medically fragile child. She had applied for Section 8 housing but had no idea when it would be approved, so she did the only thing that seemed reasonable: move back to the Dominican Republic to live with her parents. She ran out of desmopressin acetate (DDAVP) for her child in 3 months. She was forced to replace her child's prescribed formula with powdered milk. She was hospitalized multiple times for aspiration pneumonia. KP returned to the United States with her mother, malnourished and weak, when their housing voucher was approved. Her health had dramatically declined, all because of housing insecurity and other key social determinants of health (SDOH).

SDOH are "conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life."[1] There is some variability in opinion on what constitutes the SDOH roster, but the determinants generally include economic stability, education, social and community context, health and health care, neighborhood and built environment, limited English proficiency, immigration status, transportation barriers, racism and bias, household domestic violence, and household drug abuse. SDOH are interconnected, can be synergistic, and have substantial impact on children's health, well-being, and outcomes. For example, ∼15 million US households were food insecure in 2017, with 14% of US children experiencing food insecurity in the previous month.[2,3] Food-insecure children and households are more likely to suffer from worse health status, impaired health-care access, and more frequent acute and chronic illnesses, compared with their food-secure counterparts.[3] Residing in substandard homes also is associated with worse health outcomes.[4] Not surprisingly, addressing SDOH is a powerful mechanism for improving health and health care. For example, intensive, data-driven, community-hospital partnerships aimed at mitigating SDOH, including housing violations, are associated with ∼20% reductions in both the inpatient bed-day rate and hospitalizations.[5]

In this issue of *Hospital Pediatrics*, 5 articles address crucial SDOH issues in the care of hospitalized children, including SDOH screening, identifying modifiable SDOH barriers, and the association of SDOH with length of stay

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(LOS) and readmissions.[6–10] A survey of hospitalists and inpatient nurses at 4 children's hospitals[6] revealed that most hospitalists (71%) and nurses (59%) infrequently or never screen patients for at least 1 SDOH. Barriers to SDOH screening cited included lack of resources, believing that screening does not truly make an impact, the absence of a social-navigation team, insufficient training and time, and no electronic health record prompts. Of note, only one-quarter of hospitalists consistently communicated patients' SDOH needs to primary-care providers, and only one-third felt confident conducting SDOH screening or received screening training. Most hospitalists and nurses desire training in SDOH screening and believe it should be part of routine professional training. Results of another survey study in this issue indicated that screening families of hospitalized children for SDOH was feasible, and SDOH were common in children with and without complex chronic conditions.[7]

The results of a prospective observational study of hospitalized children revealed that "social disadvantage" factors (public insurance, race and/or ethnicity, low income, low educational attainment, and need for an interpreter) were associated with system barriers, skill barriers, cultural distance, and marginalization, all of which, in turn, were significantly associated with prolonged LOS and/or 30-day readmissions.[8] Authors of two articles performed analyses of administrative and clinical databases.[9,10] Pantell et al[9] found that certain *International Classification of Diseases, Ninth Revision*, social codes were associated with approximately double the adjusted odds of a longer LOS, including family alcohol and drug problems, foster care, other economic strain, and legal circumstances. Ehwerhemepha et al[10] performed machine-learning analysis of 86 variables (including 4 SDOH: insurance type, median income by zip code, proportion of vacant homes by zip code, and proportion of single-parent households by zip code) to examine associations with 7-day readmissions; none of the SDOH, however, was found to be significantly associated with 7-day readmissions.

This important set of articles underscores the powerful impact that SDOH potentially can have on children's LOS and 30-day readmissions. These articles also, however, call attention to a substantial challenge that urgently requires answers: what can be done for hospitalized children and their families when they do screen positive for SDOH? Tragically, at least for now, there is an insufficient evidence base about what effective interventions to deploy for such children and families, and children's hospitals simply do not have the resources, systems, information technology, community partners, and cross-sector collaborations needed to usefully address SDOH, as several experts have recently and cogently pointed out.[11,12]

So what can be done for disadvantaged children and families while we wait for the urgently needed evidence base to accrue on interventions that are effective in combatting SDOH? First, there is a critical need for funding by federal agencies, such as the National Institutes of Health and Centers for Disease Control and Prevention, as well as foundations, of rigorous evaluations aimed at identifying the most effective interventions for addressing and eliminating SDOH.

Second, we need to routinely screen children and families for SDOH, both in inpatient and outpatient settings, so we can determine the scope and prevalence of SDOH and potential resources needed to mitigate them, but with the important caveats that one must always carefully consider the efficacy, validity, and psychometric properties of the SDOH screening tool to be used,[13] while emphasizing, as experts have underscored, that screening is just 1 step in a comprehensive, integrated process of family and patient engagement, early detection, and referrals and linkages that are responsive to families' unique priorities and needs.[12]

Third, we need to leverage promising, pragmatic solutions that already are available to hospitalists and inpatient nurses. When a family screens positive for SDOH, we must enlist the services of hospital case managers and social workers as far in advance of the hospital discharge as possible, so that a specific, targeted plan can be developed to address the family's SDOH. Evidence already exists that this is an effective strategy in reducing children's inpatient bed-day rates and hospitalizations.[5] Medical-legal partnerships are collaborations between health-care institutions and public-interest law organizations to address health-harming social needs that have civil-law remedies[14]; medical-legal partnerships have been shown to increase access to and enrollment in social services and improve housing quality and stability and economic security.[15] More partnerships with community-based organizations and community health workers (CHWs) are needed to address SDOH in the neighborhoods where these children and families reside, and Medicaid and Children's Health Insurance Program should provide reimbursement for CHWs to address SDOH (most states currently do not provide any Medicaid or Children's Health Insurance Program reimbursement for CHWs[16]). Parent mentors are a special CHW category for children in which parents who have children with particular health conditions or risks leverage their relevant experience, along with additional training (including specific training on SDOH), to assist, counsel, and support other parents of children with the same health conditions and risks. Randomized controlled trials have demonstrated that parent mentors eliminate children's health-care, improve children's outcomes (including enhanced health-care access and quality of care), empower parents, reduce family financial burden, save hundreds or thousands of dollars per child from a societal perspective, and create jobs in areas with the highest unemployment rates.[17–19] Housing vouchers that allow families to move to low-poverty communities have also been shown to mitigate SDOH and even reduce chronic illnesses, such as severe obesity and diabetes.[20]

Fourth, what holds promise for the greatest impact on mitigating or eliminating SDOH is an intersectoral approach. A collaboration among children's hospitals, payers, urban planners, schools, legislators, public-interest law organizations, supermarkets, farmers, employment agencies, the financial

sector, and federal, state, and local agencies, among others, could lead to revitalizing vulnerable communities so that SDOH are minimized and meaningful population health for all children and their families is optimized.

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