Social Determinants of Health and Hospital Readmission

Yonit Lax, MD,[a] Maria Martinez, Nicole M. Brown, MD, MPH, MHS[b]

Hospital readmissions are influenced not only by patients' health status but also by access to resources such as income, insurance, and social support systems. Optimizing hospital discharge education, planning, and care coordination with outpatient providers are essential strategies to prevent avoidable hospital readmissions.[1] Researchers also suggest hospitals should consider social determinants of health (SDH) when assessing readmission risk.[2] SDH can be defined as the conditions in which people are born, live, work, and age, and are shaped by the distribution of money, power, and resources.[3] Research reveals that SDH contribute to an elevated burden of disease in affected children.[4] Children in poverty who experience housing insecurity, food insecurity, and low rates of parental education have higher rates of hospital readmission.[5] Recent studies reveal that race and/or ethnicity and household income are predictors of pediatric readmissions.[1,5,6]

We present a case in which lack of comprehensive screening for SDH contributed to a hospital readmission. We share the perspectives of the patient's mother, the primary care physician, and a pediatric resident involved in the hospitalization and offer suggestions for collaborative interventions to prevent potentially avoidable hospital readmissions that may be driven by SDH.

INITIAL HOSPITALIZATION

Dr Lax, Resident Physician

The patient is a 7-year-old former 26-week gestational age girl with a history of spina bifida and left hip dislocation who was admitted to the hospital after femur varus derotation osteotomy, pelvic osteotomy, and spica cast placement. Although the patient was recovering in the postanesthesia care unit, her time to transition to the pediatric floor was prolonged because of significant anxiety (specifically, concern over her recovery and going home to her new living environment). The patient's past medical history is notable for hydrocephalus status post ventriculoperitoneal shunt, neurogenic bladder, and scoliosis. Her surgical history includes myelomeningocele repair and ventriculoperitoneal shunt placement at 9 days of age, and tonsillectomy/adenoidectomy and tethered cord release 1 year and 3 months before admission, respectively.

The social history obtained on admission indicated that the patient's family is from Honduras and Spanish is their primary language. The patient resides with her mother, a 10-year-old brother with a learning disability, and a 3-year-old healthy sister. The patient's initial postoperative course and hospitalization was unremarkable, and social work was consulted to assist with discharge planning. On postoperative day 4, she was deemed medically cleared for discharge pending wheelchair arrival, and transportation was arranged for that evening. On the evening of discharge, a wheelchair was delivered and transportation arrived. However, the patient's mother did not feel she was properly trained on how to care for the patient in the spica cast and expressed concern about going home. She was given the option to stay overnight and receive instructions the following day

[b]*Division of Academic General Pediatrics and* [a]*Department of Pediatrics, Children's Hospital at Montefiore, Albert Einstein College of Medicine, The Bronx, New York*

Dr Lax conceptualized the manuscript and drafted part of the initial manuscript; Ms Martinez drafted part of the initial manuscript; Dr Brown drafted part of the initial manuscript and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.

DOI: https://doi.org/10.1542/peds.2017-1427

Accepted for publication Jun 27, 2017

Address correspondence to Yonit Lax, MD, Maimonides Infants and Children's Hospital, 1301 57th Street, Brooklyn, NY 11219, email: yonitlax@gmail.com

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

To cite: Lax Y, Martinez M, Brown NM. Social Determinants of Health and Hospital Readmission. *Pediatrics.* 2017;140(5):e20171427

or to leave with transportation that had been prearranged. The patient's mother chose to go home so she could care for her other children.

Maria Martinez, Patient's Mother (Translated From Spanish)

I am not from this country, and I cannot communicate in English. For me, this can be a barrier to getting appropriate care for my children. After my daughter had the surgery, she was placed in a complicated cast that I had difficulty keeping clean when she was in the hospital. I was concerned about keeping it clean but did not feel comfortable asking the nurses to help me because they did not speak Spanish and a translator was not used. We were living in a shelter, and I was concerned about getting home in time to take care of my other children and being back at the shelter in time. We moved to the shelter because where we were living beforehand was not safe. Sometimes there was no hot water or heat. I didn't know where else to go. My doctor helped me and my family move into a shelter. The shelter was much safer. However, when we were discharged from the hospital it was a problem because I couldn't have any family members visit to help me with my daughter's care. A visiting nurse was allowed to come, but she only stayed briefly to show me what to do. I had trouble turning my daughter because the cast was very heavy. The hospital sent us home with some supplies, but due to insurance issues we were not able to get enough diapers or catheters to keep her clean. My daughter's cast began to smell and there was poop on the cast. A nurse came to our house and she also had concerns that the cast was dirty and that there were sores on my daughter's skin.

CARE COORDINATION CHALLENGES: DR BROWN, PRIMARY CARE PROVIDER

As the patient's primary care physician, I had regular contact with her mother during her first admission and her initial discharge, but had little communication with the inpatient team, leading to challenges with coordinating her care postdischarge. Many of the challenges with care coordination lay not only in managing the patient's medical complexity but also in navigating her complex web of social circumstances.

The patient was a recent immigrant and experienced chronic housing instability and significant insurance-related barriers. Before her surgery, her family of 4 rented a small room in a shared apartment. Knowing that her suboptimal housing would pose significant barriers to her postsurgical care, I was part of a team that assisted with placing the family in a wheelchair-accessible homeless shelter just before surgery. The shelter was protective in many ways, but had restrictions on visitors, further limiting her mother's already thin base of social support. After the patient's first hospital discharge, the shelter authorized home visits by a nurse and physical therapist, but the patient's mother still felt overwhelmed with caring for her and her 2 siblings.

Her insurance coverage limited her ability to obtain basic services and supplies, and frequent communication with her supply company was required to ensure supplies were delivered in a timely manner. Postdischarge, catheters were late to arrive and few in number, resulting in infrequent catheterization. Diapers, which required frequent changing because of the patient's neurogenic bladder, were not covered by her insurance. The patient's mother did not have enough diapers to keep her spica cast clean, an issue that ultimately played a role in her readmission. I received calls from both her mother and home care nurse who were concerned about a foul odor from the cast and an evolving wound on her left hip. I referred the patient back to the emergency department for further assessment and likely readmission.

HOSPITAL READMISSION

Dr Lax

One week later the patient was readmitted with a chief complaint of foul smell from the cast and skin abrasions. Soiling was noted on the front and back of the spica cast, and erythematous abrasions were found on the patient's left heel and posterior hip. The patient was also found to have a urinary tract infection and was treated with antibiotics. On readmission, the inpatient team noted that the family currently lives in a shelter, and the mother had limited support. During the readmission, the spica cast was revised, double diapers were used to keep the cast clean, and nursing staff taught her mother proper cast maintenance techniques. Given the lack of insurance coverage for a subacute rehabilitation facility, arrangements were made for a visiting nurse service after the patient's mother demonstrated competencies with changing her foley bag, changing her diapers, bed mobility, showering, and transfer to wheelchair.

Ms Martinez (Translated From Spanish)

The second time we came in to the hospital, they worked with my daughter's pediatrician to get the care we needed and address the issues we were having that caused us to go back in the hospital. Before we left to go home, the nurses, social workers, and doctors made sure that I had enough diapers, catheter supplies, and training on how to care for the cast. My daughter's pediatrician also wrote a letter to the shelter requesting that my sister be able to visit to help me with my daughter's care. Having the supplies and extra help made me feel a lot

more confident in my ability to care for my daughter at home.

Dr Brown

Many lessons were learned from my patient's first hospitalization, and I worked closely with the inpatient team during her readmission to coordinate her transition from hospital to home. Our outpatient social work team collaborated with inpatient social workers to coordinate transportation to outpatient appointments and ensure that she had a steady supply of catheters and diapers. I participated in an interdisciplinary meeting attended by inpatient social work, nursing, and pediatric teams after her readmission to discuss aspects of her case that could have been improved. Particular emphasis was placed on optimizing communication about social issues that require special discharge planning and coordination.

LESSONS LEARNED: THE IMPLICATIONS OF SDH IN READMISSIONS

In this case, inadequate insurance coverage, homelessness, language barriers, parent discomfort with discharge, and lack of social supports all contributed to an unplanned readmission. Research on readmissions and SDH is limited, but shows an increased risk for unplanned pediatric readmissions in patients similar to our case, who live in poverty, are of Hispanic ethnicity, and who have a parent perceive that they are not ready for discharge.[1,6,7] The inpatient team recognized the importance of arranging home nurse visitation before the patient's initial discharge, and her outpatient team assisted with securing stable housing before surgery. However, had a more comprehensive plan to identify and address specific social needs been developed early on during her initial admission, we might have prevented the patient's readmission to the hospital.

Suboptimal care coordination also contributed to this patient's readmission. A recent study found that >41% of parents of children with special health care needs reported their child did not receive effective care coordination. This was found to be especially true for parents of Hispanic children.[8] In this case, better coordination of this patient's initial transition from hospital to home with her primary care provider may have prevented her readmission, because the inpatient team would have had a more comprehensive understanding of the challenging social circumstances this family faced and could have addressed them before discharge.

The American Academy of Pediatrics urges pediatricians to increase awareness and understanding of the effects of poverty on children by systematically screening for SDH.[9] In this case, we illustrate how identifying and addressing SDH early on can potentially improve health outcomes for families affected by poverty. More research is needed on the implementation and effectiveness of standardized SDH screening during transitions in care or during prehospitalization evaluations. For example, screening at the presurgical clearance visit before a planned admission for a scheduled surgery may prevent unplanned readmissions. Our institution has implemented several efforts to increase screening of SDH. These include resident education about how to screen for and address SDH, prompts in our electronic medical record to screen by using iHELLP[10] (an evidence-based SDH screening tool) and resource lists that can be printed from our electronic medical record and given to patients. This case, and lessons learned, was also presented at our annual hospital-wide Accreditation Council for Graduate Medical Education Day, during which SDH screening tools and local community resources were introduced to learners.

Addressing SDH in the inpatient setting involves partnerships and coordination between families, primary care providers, and inpatient providers to more holistically address the needs of our most vulnerable patients as they transition from hospital to home.

ACKNOWLEDGMENTS

We thank Pacific Interpreters for translating Ms Martinez's contribution from Spanish to English.

ABBREVIATION

SDH: social determinants of health

REFERENCES

1. Auger KA, Simon TD, Cooperberg D, et al. Summary of STARNet: seamless transitions and (re) admissions network. *Pediatrics*. 2015;135(1):164–175
2. Kangovi S, Grande D. Hospital readmissions–not just a measure of quality. *JAMA*. 2011;306(16):1796–1797
3. World Health Organization. "Social determinants of health." Available at: www.who.int/social_determinants/sdh_definition/en/. Accessed March 14, 2017
4. Gottlieb L, Hessler D, Long D, Amaya A, Adler N. A randomized trial on screening for social determinants of health: the iScreen study. *Pediatrics*. 2014;134(6). Available at: www.pediatrics.org/cgi/content/full/134/6/e1611
5. Nakamura MM, Toomey SL, Zaslavsky AM, et al. Measuring pediatric hospital readmission rates to drive quality improvement. *Acad Pediatr*. 2014;14(suppl 5):S39–S46
6. Richards MK, Yanez D, Goldin AB, Grieb T, Murphy WM, Drugas GT. Factors associated with 30-day unplanned

pediatric surgical readmission. *Am J Surg*. 2016;212(3):426–432

7. Berry JG, Ziniel SI, Freeman L, et al. Hospital readmission and parent perceptions of their child's hospital discharge. *Int J Qual Health Care*. 2013;25(5):573–581
8. Toomey SL, Chien AT, Elliott MN, Ratner J, Schuster MA. Disparities in unmet need for care coordination: the national survey of children's health. *Pediatrics*. 2013;131(2):217–224
9. Council on Community Pediatrics. Poverty and child health in the United States. *Pediatrics*. 2016;137(4):e20160339
10. Kenyon C, Sandel M, Silverstein M, Shakir A, Zuckerman B. Revisiting the social history for child health. *Pediatrics*. 2007;120(3). Available at: www.pediatrics.org/cgi/content/full/120/3/e734

Social Determinants of Health and Hospital Readmission

Yonit Lax, Maria Martinez and Nicole M. Brown

Pediatrics 2017;140;
DOI: 10.1542/peds.2017-1427 originally published online October 18, 2017;

Social Determinants of Health and Hospital Readmission

Yonit Lax, Maria Martinez and Nicole M. Brown

Pediatrics 2017;140;
DOI: 10.1542/peds.2017-1427 originally published online October 18, 2017;