A 17-month-old male with malnutrition

Katherine Douglas, MD; Janani Sundaresan, MD, MSc; Karina Javalkar, MD; Jamie Lim, MD
Boston Children's Hospital
Boston, Massachusetts

The case

A 17-month-old male presents to a Massachusetts emergency department (ED) for cough, nonbloody, nonbilious vomiting, and dehydration. He first developed a cough and intermittent vomiting while he and his mother were migrating by foot from Central America to the United States, which took a total duration of 3 weeks. During this journey, food was scarce and medical treatment nonexistent. They arrived in Massachusetts 2 days prior to presentation, and since then his vomiting worsened and he developed nonbloody diarrhea. He was seen at an outpatient clinic where there were concerns for dehydration, so he was referred to the ED. There, a respiratory viral panel resulted positive for rhinovirus/enterovirus, parainfluenza, and respiratory syncytial virus, and a chest radiograph demonstrated peri-bronchial cuffing. His stool studies were positive for *Campylobacter*, Norovirus, and *Escherichia coli*. Additionally, he met criteria for protein-calorie malnutrition with weight-for-age at less than the 2nd percentile and a weight-for-length *Z* score of -2. He was admitted to the inpatient pediatrics unit for rehydration, management of his multiple infections, and multidisciplinary nutritional rehabilitation.

Diagnoses

Viral bronchiolitis, bacterial gastroenteritis, and protein-calorie malnutrition

Hospital course

When admitted, the patient received supportive care with intravenous fluid repletion and antipyretics. His respiratory and gastrointestinal symptoms improved after the first few days of his admission without need for escalated support. However, he continued to demonstrate poor oral intake that was attributed to overall discomfort and oral aversion in the setting of his respiratory and gastrointestinal infections, as well as a prior history of selective eating that was exacerbated during the journey to the United States. Therefore, a nasogastric (NG) tube was placed to supplement his feeds. After demonstrating tolerance of continuous NG feeds, he was transitioned to bolus NG feeds which he also tolerated well. He was closely monitored for refeeding syndrome with daily labs, without complications. The gastroenterology, nutrition, and occupational therapy teams were consulted and recommended continuing NG feeds while developing the patient's oral-motor skills. He continued to require NG feeds to meet caloric goals but gained weight with supplemental feeds. Given his weight gain trend on a stable feeding regimen, the medical team began discharge planning for the patient.

Unfortunately, the patient's immigration status deemed him eligible only for MassHealth Limited, a form of emergency Medicaid available to undocumented Massachusetts residents, which did not reimburse for home NG feeding supplies. Out-of-pocket costs for the supplies,

including a pump, were not financially feasible for the family. As an alternative, feeds by gravity were trialed, although the tubing clogged repeatedly without the use of a pump, and the patient failed multiple trials of full oral feeds. He remained admitted in the hospital for continued nutritional support.

Discussion

As demonstrated, our patient's clinical course was directly impacted by his limited insurance coverage, which in turn was a consequence of his undocumented immigration status. Undocumented immigrants are foreign-born individuals who do not meet criteria to be considered legal residents, as defined by the US Department of Homeland Security.[1] Included are those who enter the country without authorization and those who enter the country with authorization and stay past the expiration date of their visas. Data from 2018 estimated that approximately 11.4 million undocumented immigrants reside in the United States, representing roughly 40% of all non-citizens.[2] Over 1 million are children aged younger than 18 years.[3] Many come to the United States fleeing violence in their home countries or in search of better economic opportunities for their families and them.

Undocumented immigrants, including those with Deferred Action of Childhood Arrivals status, are ineligible for Medicare, Medicaid, the Children's Health Insurance Program (CHIP), and coverage through Affordable Care Act (ACA) marketplaces.[4] Some may be eligible for coverage through their employer or as the spouse or dependent of an employee. Others may be able to purchase private insurance outside of the ACA marketplaces, although the cost of this is often prohibitive. As of 2019, only 6 states: California, Illinois, Massachusetts, New York, Oregon, and Washington in addition to the District of Columbia had expanded Medicaid to cover income-eligible undocumented individuals, with the use of state funds. Additionally, some states extend insurance coverage to undocumented pregnant women otherwise ineligible for Medicaid by extending CHIP coverage to the unborn child.[5]

Because of these limitations, 46% of all undocumented immigrants and 35% of undocumented children are uninsured, compared to 25% of lawfully present immigrants and 9% of US citizens.[6] The implications of this are vast, as research demonstrates that a lack of insurance is a risk factor for delayed care, which in turn leads to worse health outcomes.[7]

As our case demonstrates, however, even in states where undocumented immigrants are eligible for public insurance, coverage is limited. In Massachusetts, for example, those who are undocumented are only eligible for a specific type of MassHealth—the state's Medicaid and CHIP program—referred to as MassHealth Limited, which only provides coverage for certain medical emergencies.[8] Despite being at risk for a range of short- and long-term physical and neurodevelopmental consequences secondary to malnutrition, our patient's condition which required supplemental nutrition via NG tube was not considered an emergency, and thus his NG tube supplies were not covered by MassHealth Limited. Ultimately, this led to a prolonged hospital stay with overall increased cost of care and led to difficult decisions about how to safely discharge the patient.

In 2019, an opinion poll held during the Democratic presidential primaries found that only 38% of respondents thought that public health insurance should be offered to undocumented immigrants.[9] Yet, proponents of expanding coverage note various potential societal benefits, in addition to improved outcomes for affected individuals.[10] From an economic perspective, for example, experts note that the cost of primary and preventive care is lower than that of emergency care—often the only option afforded to undocumented immigrants.[11] One study that performed a cost/benefit analysis of the elimination of public funding for undocumented pregnant immigrants in California found that mothers without routine prenatal care were more likely to deliver low-birth weight and premature infants compared to those with prenatal care, leading to far higher costs of postnatal pediatric care.[12] For our patient, more comprehensive insurance coverage would have allowed for discharge home with an NG tube, shortening his hospital length of stay and reducing overall hospital costs. Undocumented immigrants also contribute tens of billions of dollars in taxes and directly contribute to Medicaid and Medicare.[13]

From a public health perspective, expanding coverage also potentially improves the health of the broader American population. Insurance coverage has been demonstrated to cause fewer delays in seeking care.[7] This is particularly important in the context of the current COVID-19 pandemic, where early reporting and testing are crucial for disease management and containment. Data shows that immigration-related fears are contributing to the lower uptake of vaccinations among this population.[14] Although our patient did not test positive for SARS-CoV-2, his testing revealed multiple other viral and bacterial infections, and the extra days he spent in the hospital increased cumulative exposure and risk of transmission to staff and other patients.

Final treatment

After multiple days of nutritional support and starting cyproheptadine for appetite stimulation, our patient eventually demonstrated adequate weight gain on exclusively by mouth feeds and his NG tube was removed. On the 9th hospital day, through shared decision-making with the patient's family, he was discharged home with close outpatient follow up by specialist teams including gastroenterology, nutrition, and occupational therapy.

Follow up

The patient continues to be followed closely by a multidisciplinary team. He is also supported by the hospital food pantry. Thus far, he continues to demonstrate adequate weight gain and has not required hospital readmission. The family remains undocumented with MassHealth Limited.

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BIOS

Katherine Douglas is a PGY-2 Boston Combined Residency Program, Boston Children's Hospital and Boston Medical Center, Boston, MA .
Janani Sundaresan is a PGY-2, Boston Combined Residency Program, Boston Children's Hospital and Boston Medical Center, Boston, MA.
Karina Javalkar is a PGY-3, Boston Combined Residency Program, Boston Children's Hospital and Boston Medical Center, Boston, MA.
Jamie Lim is a PGY-3, Boston Combined Residency Program, Boston Children's Hospital and Boston Medical Center, Boston, MA.

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