

INSIGHTS

Breaking point

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Alex was wheeled into the pediatric intensive care unit (PICU) at two o'clock in the morning. I read about him as I was getting ready for work, my coffee growing cold in the glow of the computer screen.

"Thirteen-year-old boy, severe asthma exacerbation at home and became unresponsive. Arrested at the local hospital after developing a pneumothorax. Return of spontaneous circulation after eight minutes. Intubated. Chest tube placed. Given albuterol, magnesium sulfate, methylprednisolone," read the resident's note.

I scanned through the electronic flowsheets showing one bad arterial blood gas after another. I can see the ventilator settings being changed every few minutes. I felt the frantic rush of the PICU fellow, nurses, and respiratory therapists as I read—central and arterial lines placed, continuous albuterol initiated, terbutaline drip started, ketamine infusion hung. Then I saw the note placing him on extracorporeal membrane oxygenation (ECMO) watch, a neon sign signaling my intensivist colleague's worry as she lined up Plan B. I hurried to get to work.

They were taking the post-ECMO x-rays when I got to the bedside. The room was strewn with the detritus of a hectic cannulation. Alex, sedated and paralyzed, lay still as I watched his bright red and dark purple blood whoosh through the cannulas, the ECMO monitor finally showing good gas exchange. My colleague, exhausted, filled me in. With no daily controller medication, Alex had been having more frequent asthma attacks and has visited their local emergency department once a month for the past few months. Tonight was the breaking point.

My colleague, a young and dedicated pediatric intensivist, paused, and looked at Alex. Then she asked me, "Was there anything else we could have done?"

I pondered that question all week. Of course, she did everything an intensivist would have done, and our PICU and surgical teams' performance getting him on ECMO rivaled that of a Formula 1 pit crew. Alex had the supreme good luck of being born in a country with critical care services that are able to push the limits of medicine and technology. His was a great "teaching case," and the way he was managed in terms of escalating critical care culminating in veno-venous ECMO for status asthmaticus was textbook. But as I tried to focus on the minute details of his care and got to know his mother and his family, I could not shake the feeling that we, as a country and society, had failed him in many ways only to heroically save his life.

One week later, I found myself knocking on Alex's door in the general pediatrics ward. After that initial harrowing night, he recovered remarkably well and was getting ready to go home the

next day. I sat down with his mother, Amy, finally away from the beeping machines and blaring alarms of the PICU, to try to understand how they had found themselves in our care.

I learned that Alex's father was an undocumented Hispanic immigrant who was deported back to Mexico more than 10 years ago. Alex and Amy had not heard from him since. Amy had remarried, and Alex's stepfather is the main breadwinner of the family, working at a factory manufacturing machine parts. Amy lost her job in retail during the pandemic and has had difficulty finding a new one. She suffered from mental health problems and had difficulty getting good care herself. Their family lived in a small house with one air-conditioned room, where they all slept. Amy also spoke about ongoing family dysfunction and was upset at one family member's overt racism directed at Alex's Hispanic heritage.

Amy noticed that Alex's asthma was getting worse and was frustrated that a different physician saw him each time she would bring him to the pediatric clinic. She would bring him frequently to the emergency department (ED) for his asthma attacks, where she was viewed with suspicion by the staff, who asked other family members if they thought she was taking good care of Alex. Both the primary care clinic and ED staff did not notice the pattern of his frequent visits and hence did not get the full picture of his worsening disease.

Slowly, the reasons why Alex almost lost his life became clear to me. Of the domains encompassing the social determinants of health, which include economic stability, education and health care access and quality, neighborhood conditions and the built environment, and the social and community context,¹ Alex and his family, who live in one of the richest nations on earth, were struggling with every single one.

The World Health Organization defines the social determinants of health as "the conditions in which people are born, grow, live, work, and age. These circumstances are shaped by the distribution of money, power, and resources at the global, national, and local levels."² It is becoming clear that these social determinants have a major impact on people's health, well-being, and quality of life, and that medical care alone is insufficient for ensuring better health outcomes.³ In the United States, disparities in childhood asthma morbidity are evident across racial and ethnic groups, which may be explained by social, economic, and environmental inequities.⁴ Despite our country spending a higher percentage of our gross domestic product on medical care—for which our shiny PICU and state-of-the-art equipment are a testament to—compared with other

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developed countries that proportionately spend more on social services, our health outcomes are worse.³

Alex's terrifying ordeal in the PICU was a painful reminder of how our society's inadequate response to poverty, poor housing, poor access to primary and specialty care, high levels of family chaos, and a lack of community and social support for children and their families contribute to critical illness far beyond biomedical pathophysiology. Without a radical shift toward the delivery of health care integrated with addressing these crucial social determinants, fueled by a stronger social safety net and more robust multi-sector community partnerships, pediatric intensivists like me will be left with saving lives only to have them languish outside of the walls of the ICU.

I said goodbye to Alex and Amy after making sure that the social worker was aware of some minor things they needed assistance with—she wanted him to get the coronavirus disease 2019 vaccine before they left and they needed transportation home. As I wished them the best, I got a message from the fellow about another critically ill child on the way. I wearily walked back to the PICU.

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ADDITIONAL INFORMATION

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