Uncovering a Critical Link: Social and Environmental Determinants of Health in Patient Safety

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Patient safety has long been a cornerstone of anesthesiology and perioperative medicine (BMJ 2003;320:785-8). Anesthesiologists have been recognized as pivotal leaders in patient safety, having developed and orchestrated a multitude of critical interventions to safeguard patients throughout the perioperative continuum (Anesth Analg 2022;135:6-19). The profound influence and leadership of anesthesiologists in shaping the landscape of health care quality and safety are testaments to the ability of anesthesiologists to take on multifaceted roles, adapt to rapidly changing conditions, adopt new technologies, and lead diverse teams. While there has been broad appreciation that social determinants of health (SDOH) are fundamental drivers of the health of individuals and communities, it is time to bring SDOH and patient safety in anesthesiology and perioperative medicine together.

Defining social determinants of health
SDOH is defined by the World Health Organization as the nonmedical factors that influence health outcomes. They encompass the conditions under which people are born, grow, work, live, and age, and the wider set of forces and systems that shape daily life (asamonitor.pub/3Rkn75r). The U.S. Centers for Disease Control and Prevention (CDC) has made SDOH one of three priority areas for setting the national agenda of advancing health through Healthy People 2030, along with health equity and health literacy. The CDC identifies five key domains of SDOH: health care access and quality, education access and quality, social and community context, economic stability, and neighborhood and built environment (Figure). Examples of SDOH can include transportation, air and water quality, access to nutritious food, and a lack of access to physical health opportunities (asamonitor.pub/3LsooQr). SDOH can have both positive and negative influences on the health of people and can contribute significantly to health disparities.

Connecting SDOH and patient safety
Until recently, the connection between SDOH and patient safety has received relatively little attention across health care (BMJ Qual Saf 2021;30:356-61). SDOH factors can directly influence the quality of care, delivery of care, and patient safety. For example, a patient’s lack of access to consistent transportation can directly impact access to health services. Consequently, the patient may arrive late or be completely unable to attend an important appointment for monitoring chronic illnesses such as diabetes or cardiovascular disease. In another example, limited education and literacy can significantly reduce the ability of a patient to use medications appropriately and safely (Ann Intern Med 2011;155:97-107). This can increase the risk of medication errors or inappropriate use of critical medications that leads to an adverse event in the short or long term. Through understanding the connection between SDOH and patient safety, health care professionals and health care systems can address critical factors that drive safety outcomes.

How is SDOH connected to patient safety in anesthesiology and perioperative medicine? While work is only beginning in studying, understanding, and identifying interventions to address SDOH on perioperative patient safety, there are several examples we can consider. For example, lower socioeconomic status has been associated with a significantly higher risk of perioperative mortality and hospital readmission after surgery (Annu Surg 2010;252:552-7). Patients with lower levels of education and health literacy were associated with more than threefold increases in the risk of postoperative emergency department visits and readmissions following bariatric surgery (Laparoendosc Adv Surg Tech A 2018;28:1100-4). Patients with lower education levels may also be more likely to develop chronic pain and delays in returning to work following traumatic injuries than those with higher education levels. Patients who live farther away from trauma centers in rural and low-income urban areas have decreased access to expedient care due to the time needed to travel following traumatic injury (Injury 2017;48:332-5). Pediatric patients with underlying risk factors for respiratory complications were more likely to have a respiratory adverse event under general anesthesia during periods of exposure to wildfire smoke (Anesthesiology 2022;137:543-54).

Where do we go from here?
Anesthesia and perioperative patient safety are complex and multifaceted endeavors encompassing numerous factors that extend beyond the OR. The complex and multifaceted, dynamic nature of patient safety requires a similarly multidisciplinary approach if anesthesiologists are to address SDOH and patient safety.

The good news is that there are many areas where SDOH has been recognized as a vehicle for providing attention, resources, and focus on patient safety and health care quality. At a national level, the Centers for Medicare & Medicaid Services has an initiative that focuses on requiring Medicare patients to be screened for food insecurity, housing instability, utility needs, transportation needs, and interpersonal violence. While submission is voluntary in 2023, screening for key SDOH factors will be required in 2024. Furthermore, hospitals will also need to report what steps are being taken to address patients who screen positive for one or more SDOH factors (asamonitor.pub/3FOy5yi). As healthcare care systems move toward meeting this requirement and collecting patient information on SDOH, anesthesiologists and patient safety scientists have an opportunity to study perioperative patient outcomes and SDOH with the addition of SDOH risk data at the patient level.

Within anesthesiology, there has been a growing focus on the role of SDOH in patient safety, and it has already been recognized as an important area for growth. Professional societies, research foundations, and medical journals are taking intentional steps to work on uncovering the critical link between SDOH and patient safety (Anesth Analg 2022;134:1175-84; Anesth Analg 2022;134:1164-5). The Anesthesia Patient Safety Foundation and Foundation for Anesthesia Education and Research have funded a prospective study that focuses on understanding the impact of air quality on pediatric perioperative respiratory adverse events in elective surgery. The multidisciplinary nature of studying environmental exposures on patient safety required the innovative partnerships of anesthesiologists, air quality specialists, spatial data scientists, and patient safety scientists, and collaborative partnerships with industry. Key studies addressing SDOH and patient safety in other specialties within anesthesia are also occurring. The future of understanding the upstream impact of SDOH on patient safety is exciting and necessary.

As leaders in patient safety, we can take significant strides toward ensuring that every patient receives safe and high-quality anesthesia care. We are uniquely positioned to recognize and address the impact of social and environmental determinants of health on our patients, uncover the critical links, and find opportunities to mitigate SDOH risk factors to advance perioperative patient safety.

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