The Need to Address Social Determinants of Health during Critical Care Training

Deepa Ramadurai[1,2], Elizabeth G. Salazar[2,3], and Anireddy Reddy[2,4]

[1]Division of Pulmonary, Allergy, and Critical Care Medicine, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania; [2]Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, Pennsylvania; [3]Division of Neonatology and [4]Department of Anesthesiology and Critical Care Medicine, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania

ORCID ID: 0000-0003-3630-4244 (D.R.)

Critical illness affects more than 5 million adults, children, and neonates annually in the United States (1). Adult, pediatric, and neonatal intensive care units (ICUs) manage vulnerable populations with complex diseases that are impacted by their environments. Social determinants of health (SDOH)—defined by the World Health Organization as "conditions in which people are born, grow, live, work, and age" (2)—account for 30–55% of health outcomes (2), contribute to mortality in critical care (3), and severely impact health spending (4). Given their importance, several national societies call for the integration of SDOH in healthcare delivery (5, 6). However, the role of addressing SDOH remains understudied. As aspiring intensivists, we reflect on personal experiences with vulnerable patients and describe how trainees can play a key role in integrating SDOH and critical care.

WHY WOULD A CRITICAL CARE TRAINEE CARE ABOUT SDOH?

We have the privilege of caring for patients when they are most vulnerable. We experience frustration, disappointment, and anger watching patients cross our threshold because of social factors that no arterial line nor breathing tube can cure. We see babies born prematurely because of the inability to access prenatal care; teenagers die by suicide while waiting on an interminable waitlist for mental health services, and adults prohibited from transplant evaluation because of housing instability. Given the prevalence of such patient narratives, as trainees,

(Received in original form June 7, 2022; accepted in final form October 21, 2022)

This article is open access and distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives License 4.0. For commercial usage and reprints, please e-mail Diane Gern.

Supported by the NHLBI T32HL098054 training grant (D.R., E.G.S., and A.R.).

Correspondence and requests for reprints should be addressed to Deepa Ramadurai, M.D., Harron Lung Center, 3400 Civic Center Boulevard, Perelman Center, 1st Floor West, Philadelphia, PA 19104. E-mail: deepa.ramadurai@pennmedicine.upenn.edu.

ATS Scholar Vol 3, Iss 4, pp 518–521, 2022
Copyright © 2022 by the American Thoracic Society
DOI: 10.34197/ats-scholar.2022-0057VL

we need to learn the community context of SDOH to identify targets for sustainable interventions to optimize patient- and family-centered care.

THE ICU AS THE OPTIMAL SETTING TO ADDRESS SDOH

Many argue that the ICU is not the "right" place to identify or address SDOH. An array of screening tools was developed for the primary care setting (7), where clinicians are assumed to have the time and historical relationship with patients to understand social context. In the ICU, limitations of clinical workflow, medical acuity, and available social service supports contribute to this hesitation. Some worry that a social needs assessment is inefficient and creates an ethical dilemma for clinicians who may not know the resources or have expertise in counseling on SDOH (8).

There are numerous reasons why the ICU is not only an appropriate setting but perhaps the most optimal setting to address SDOH. Why expect a provider who has 20 minutes with a patient to address SDOH when the critical care team has days to weeks with this same patient at their most vulnerable time? The ICU offers a unique opportunity to communicate both with the patient and with their social supports, leading to a better understanding of the SDOH. In fact, critical illness itself places higher demands on the patient and their social network, and social isolation may increase the risk of adverse outcomes, including mortality (9). The ICU is the sobering, inescapable reality that forces families and patients to reflect on all the reasons they ended up under our care. The social context of why care was delayed, medications were not taken, vaccines were refused, guns were left unlocked, or depression was untreated is crucial for getting through this admission and preventing the next one.

Failing to understand how SDOH impacts disease trajectory during early critical illness may lead to gaps in addressing these needs when clinical care is transitioned to a lower acuity setting. Understanding how structural vulnerabilities may limit the options or access to these resources is essential for developing a safe plan of care moving forward. Take, for example, the case of an infant presenting to the ICU for a new seizure because of hyponatremia from inaccurate formula mixing. Understanding structural vulnerabilities, such as inadequate formula supply, due to high cost during the current shortage or access to available supply, will be key for preventing this outcome from recurring. For these myriad reasons, we believe that better understanding, identifying, and addressing of SDOH in critical care should be a key focus of future efforts.

WHAT ARE THE NEXT STEPS, AND HOW CAN WE INTEGRATE TRAINEES?

How can critical care trainees support efforts to understand and address SDOH? We propose a three-pronged approach: enrichment of existing curricula, immersive and didactic experiences to understand nearby neighborhoods and communities, and fostering research and quality improvement efforts in SDOH with measurable endpoints.

1. Critical care fellowship should require competency in defining and assessing the relationship between SDOH and critical illness, drawing from existing expert consensus in undergraduate medical education (10, 11). Trainees must understand a community-based definition of SDOH and that meeting individual social needs is not the same as addressing SDOH (12). Trainees should learn that structures

driving SDOH are a natural function of the environment because of social, cultural, political, and economic forces (10). Critical care trainees must have particular knowledge of topics relevant to ICU presentations (i.e., housing and food insecurity with complications of diabetes, decreased or delayed access to care with asthma, regional crime and violence with trauma). Critical care fellowships already require competence in serious illness conversations and shared decision-making. Understanding SDOH is key to helping patients navigate difficult decisions and goals of care, such as whether to pursue parenteral nutrition, home ventilation, or a transition to at-home hospice.

2. Trainees have a responsibility to understand the history, structures, and resources of the neighborhoods and communities they serve, which ultimately contribute to whether patients end up in our ICUs. As residents and fellows travel for training, they lack institutional knowledge of how the hospital shaped the surrounding built environment and vice versa. Exposure to the individuals served by the ICU facilitates a better understanding of community beliefs about health care and unique community challenges. Curricula within a critical care program should integrate regional patterns of illness (i.e., how and why access to care differs in areas of a city), local and state policies that affect practice, and the availability of medical services in the areas in which we train, with an emphasis on our institution's role in caring for the community. Immersive experiences during training, such as rotating through a community long-term acute care hospital or working with a community advisory panel, can help create this knowledge base. As tomorrow's leaders in critical care, trainees should appreciate how understanding local context is essential to understanding SDOH.
3. Despite a growing body of SDOH-focused research, little data examine the relationship between SDOH and critical care outcomes (13–16). Trainees can play a key role in generating this body of evidence, but they require mentorship in the appropriate methods. Trainees should be exposed to institutional and national funding resources supporting SDOH and patient-centered outcomes research. Moreover, understanding SDOH between disciplines can inform how each independently delivers multidisciplinary care. Contextual inquiry with social work, case management, therapists and dietitians can inform how, when, where, and why SDOH assessment and recognition may change clinical outcomes and move us toward interdisciplinary solutions. Community partners and mental health clinicians who care for these patients before and after their ICU stay, and often explore and manage the trauma that patients and families alike experience in the ICU, are vital in research design and dissemination.

It remains challenging to capture discrete opportunities for preventing, confronting, and managing critical illness from a social perspective. To address SDOH in critical care, we must educate trainees on how to assess and address population-level social needs, embed recognition of local social concerns into critical care training, and prioritize trainee-led interdisciplinary research.

Author disclosures are available with the text of this article at www.atsjournals.org.

REFERENCES

1. Barrett ML, Smith MW, Elixhauser A, Honigman LS, Pines JM. Utilization of intensive care services, 2011 (Statistical Brief #185). 2014 [accessed 2022 Jan 6]. Available from: http://hcup-us.ahrq.gov/reports/statbriefs/sb185-Hospital-Intensive-Care-Units-2011.jsp.

2. World Health Organization. Social determinants of health. [accessed 2022 Mar 30]. Available from: https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1.

3. McGowan SK, Sarigiannis KA, Fox SC, Gottlieb MA, Chen E. Racial disparities in ICU outcomes: a systematic review. *Crit Care Med* 2022;50:1–20.

4. Taylor LA, Tan AX, Coyle CE, Ndumele C, Rogan E, Canavan M, *et al.* Leveraging the social determinants of health: what works? *PLoS One* 2016;11:e0160217.

5. National Academies of Sciences, Engineering, and Medicine. Integrating social care into the delivery of health care: moving upstream to improve the nation's health. 2019 [accessed 2022 Jan 6]. Available from: https://www.nationalacademies.org/our-work/integrating-social-needs-care-into-the-delivery-of-health-care-to-improve-the-nations-health.

6. Celedón JC, Burchard EG, Schraufnagel D, Castillo-Salgado C, Schenker M, Balmes J, *et al.*; American Thoracic Society and the National Heart, Lung, and Blood Institute. An American Thoracic Society/National Heart, Lung, and Blood Institute workshop report: addressing respiratory health equality in the United States. *Ann Am Thorac Soc* 2017;14:814–826.

7. Eder M, Henninger M, Durbin S, Iacocca MO, Martin A, Gottlieb LM, *et al.* Screening and interventions for social risk factors: technical brief to support the US Preventive Services Task Force. *JAMA* 2021;326:1416–1428.

8. Garg A, Boynton-Jarrett R, Dworkin PH. Screening for social determinants of health–reply. *JAMA* 2016;316:2552–2553.

9. Turnbull AE, Groat D, Dinglas VD, Akhlaghi N, Bose S, Banner-Goodspeed V, *et al.*; APICS-01 Study Team. Perceived social support among acute respiratory failure survivors in a multicenter prospective cohort study. *Ann Am Thorac Soc* [online ahead of print] 19 May 2022; DOI: 10.1513/AnnalsATS.202203-190RL.

10. Bourgois P, Holmes SM, Sue K, Quesada J. Structural vulnerability: operationalizing the concept to address health disparities in clinical care. *Acad Med* 2017;92:299–307.

11. Mangold KA, Bartell TR, Doobay-Persaud AA, Adler MD, Sheehan KM. Expert consensus on inclusion of the social determinants of health in undergraduate medical education curricula. *Acad Med* 2019;94:1355–1360.

12. Castrucci BC, Auerbach J. Health affairs: meeting individual social needs falls short of addressing social determinants of health. 2019 [accessed 2022 Oct 24]. Available from: https://www.healthaffairs.org/do/10.1377/forefront.20190115.234942/full/.

13. Parker MG, Garg A, Brochier A, Rhein LM, Forbes ES, Klawetter S, *et al.* Approaches to addressing social determinants of health in the NICU: a mixed methods study. *J Perinatol* 2021;41:1983–1991.

14. Davis K. Adverse childhood experiences and social determinants of health in relation to pediatric intensive care unit admissions. 2021. [accessed 2022 Mar 30]. Available from: https://scholarworks.uark.edu/nursuht/163.

15. Levytska N, Patel V, Vatson JS, Hussain S. Finding the missing link: addressing social determinants in medical intensive care unit (MICU) [abstract]. *Am J Respir Crit Care Med* 2020;201:A4807.

16. Ramadurai D, Sarcone EE, Kearns MT, Neumeier A. A case-based critical care curriculum for internal medicine residents addressing social determinants of health. *MedEdPORTAL* 2021;17:11128.