ASO AUTHOR REFLECTIONS

ASO Author Reflections: Intersectionality of Social Determinants of Health in Lung and Colorectal Cancer Diagnosis and Treatment

Mary M. Leech, BA¹, Julie E. Weiss, MS², Chad Markey, BA¹, and Andrew P. Loehrer, MD, MPH^{1,3,4}

¹The Geisel School of Medicine at Dartmouth, Hanover, NH; ²Norris Cotton Cancer Center, Lebanon, NH; ³Department of Surgery, Dartmouth-Hitchcock Medical Center, Lebanon, NH; ⁴The Dartmouth Institute for Health Policy and Clinical Practice, Lebanon, NH

PAST

While social determinants of health involving race, insurance status, rurality, and socioeconomic status (measured using Social Deprivation Index, SDI) are well-described barriers to care, ^{1–4} little is known about the intersectionality of these factors. Lung and colorectal cancer are two of the most common, costly, and morbid cancers in the United States. For these patients, delays in care can be deadly.

PRESENT

This study explored the multiple and intersecting factors of race, insurance status, rurality, and SDI in relation to stage at the time of diagnosis and receipt of cancer-directed surgery for lung and colorectal cancer patients.⁵ We hypothesized that insurance coverage would have a differential impact on care delivery for non-Hispanic Black (vs. non-Hispanic White), rural (vs. urban), and high (vs. low) SDI communities.

This study found that among 6574 lung cancer patients, uninsured status was associated with increased odds of Stage IV disease (odds ratio [OR] = 1.46, 95% confidence interval [CI] 1.22–1.76) and decreased odds of receiving surgery (OR = 0.48, 95% CI 0.34–0.69) compared with

privately insured status. Among 5355 colorectal cancer patients, uninsured status was similarly associated with higher odds of Stage IV disease (OR = 1.53, 95% CI 1.17-2.00) compared with privately insured status. A significant insurance status and rurality interaction (p = 0.03) was found in the colorectal model for receipt of surgery. Within the privately insured group, non-Hispanic Black and rural patients had decreased odds of receiving colorectal surgery (OR = 0.69, 95% CI 0.50–0.94; and OR = 0.68, 95% CI 0.52–0.89; respectively) compared with their non-Hispanic White and urban counterparts.

FUTURE

This study demonstrates the association between social determinants of health, particularly uninsured status, and presenting with late-stage lung and colorectal cancer. Receipt of cancer-directed surgery is complicated by insurance status, especially for uninsured lung cancer patients. Among privately insured colorectal patients, persistent disparities by race and rurality were present for surgical care management. Understanding how social determinants of health, particularly the outsized impact of insurance status, influence cancer diagnosis and subsequent treatment is critical to ensure equitable access to and receipt of cancer care in the United States.

DISCLOSURE The authors report no financial or personal relationships with other people or organizations related to this work and its conclusions.

REFERENCES

1. Bierman AS, Dunn JR. Swimming upstream: access, health outcomes, and the social determinants of health. *J Gen Intern*

© Society of Surgical Oncology 2021

First Received: 1 December 2021 Accepted: 1 December 2021; Published Online: 16 January 2022

M. M. Leech, BA

 $e\hbox{-mail: }Mary.M.Leech.Med@dartmouth.edu$

- Med. 2006;21(1):99–100. https://doi.org/10.1111/j.1525-1497.200
- Dean LT, Gehlert S, Neuhouser ML, Oh A, Zanetti K, Goodman M, Thompson B, Visvanathan K, Schmitz KH. Social factors matter in cancer risk and survivorship. *Cancer Causes Control*. 2018;29(7):611–8. https://doi.org/10.1007/s10552-018-1043-y (Epub 2018 May 30).
- Kurani SS, McCoy RG, Lampman MA, Doubeni CA, Finney Rutten LJ, Inselman JW, Giblon RE, Bunkers KS, Stroebel RJ, Rushlow D, Chawla SS, Shah ND. Association of neighborhood measures of social determinants of health with breast, cervical, and colorectal cancer screening rates in the US Midwest. *JAMA Netw Open.* 2020;3(3):e200618. https://doi.org/10.1001/jamanetwor kopen.2020.0618.
- Blair A, Datta GD. Associations between area-level deprivation, rural residence, physician density, screening policy and late-stage colorectal cancer in Canada. *Cancer Epidemiol*. 2020;64:101654. https://doi.org/10.1016/j.canep.2019.101654 (Epub 2019 Dec 11).
- Leech MM, Weiss JE, Markey C, Loehrer AP. Influence of race, insurance, rurality and socioeconomic status on equity of lung and colorectal cancer care. *Ann Surg Oncol.* 2021;10:2873. https://doi. org/10.1245/s10434-021-11160-1 (in press).

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.