Accessed December 27, 2023. https://innovation.cms. gov/strategic-direction-whitepaper

6. Singhal S, Patel N. The future of US healthcare: what's next for the industry post-COVID 19?. McKinsey & Company. July 19, 2022. Accessed December 27, 2023. https://www.mckinsey.com/industries/healthcare/ourinsights/the-future-of-us-healthcare-whats-next-for-theindustry-post-covid-19

7. Wilson M, Guta A, Waddell K, Lavis J, Reid R, Evans C. The impacts of accountable care organizations on patient experience, health outcomes and costs: a rapid review. *J Health Serv Res Policy*. 2020;25(2):130-138. doi:10.1177/1355819620913141

8. Bernstein AS, Stevens KL, Koh HK. Patientcentered climate action and health equity. *JAMA*. 2022;328(5):419–420. doi:10.1001/jama.2022.12404

9. Climate change and health. World Health Organization. October 12, 2023. Accessed December 27, 2023. https://www.who.int/news-room/fact-sheets/detail/ climate-change-and-health

10. Ragavan MI, Marcil LE, Garg A. Climate change as a social determinant of health. *Pediatrics*. 2020;145(5):e20193169. doi:10.1542/peds.2019-3169

11. Dzau VJ, Levine R, Barrett G, Witty A. Decarbonizing the U.S. health sector — a call to action. *N Engl J Med.* 2021;385(23):2117-2119. doi:10.1056/NEJMp2115675

12. HHS launches pledge initiative to mobilize health care sector to reduce emissions. News release. U.S. Department of Health and Human Services; April 22, 2022. Accessed December 27, 2023. https://www.hhs.gov/about/news/2022/04/22/hhs-launches-pledge-initiative-mobilize-health-care-sector-reduce-emissions.html

13. Ramseur JL. Inflation Reduction Act of 2022 (IRA): provisions related to climate change. Congressional Research Service. Updated October 26, 2023. Accessed December 27, 2023. https://crsreports.congress.gov/ product/pdf/R/R47262

14. Lee VS, Gerwig K, Hough E, Mate K, Biggio R, Kaplan RS. Decarbonizing health care: engaging leaders in change. *NEJM Catal Innov Care Deliv.* 2023;4(5):CAT.22.0433. doi: 10.1056/CAT.22.0433

15. Whelan T, Fink C. The comprehensive business case for sustainability. *Harvard Business Review*. October 21, 2016. Accessed December 27, 2023. https://hbr.org/2016/10/the-comprehensive-business-case-forsustainability

16. Putnis N, Neilson M. Environmental sustainability and quality care: not one without the other. *Int J Qual Health Care*. 2022;34(3):mzac066. doi:10.1093/intqhc/mzac066

17. Mortimer F, Isherwood J, Wilkinson A, Vaux E. Sustainability in quality improvement: redefining value. *Future Healthc J.* 2018;5(2):88–93. doi:10.7861/ futurehosp.5-2-88

18. Pendleton R. We won't get value-based health care until we agree on what "value" means. *Harvard Business Review*. February 27, 2018. Accessed December 27, 2023. https://hbr.org/2018/02/we-wont-get-value-based-health-care-until-we-agree-on-what-value-means

19. MacNeill AJ, McGain F, Sherman JD. Planetary health care: a framework for sustainable health. *Lancet Planet Health.* 2021;5(2):e66-e68. doi:10.1016/S2542-5196(21)00005-X

20. Robèrt KH, Broman G. Prisoners' dilemma misleads business and policy making. *J Clean Prod*. 2016;140(1):10-16. doi.org/10.1016/j.jclepro.2016.08.069

Letters to the Editor

continued from page 331

 Sharma P, Brooks M, Roomiany P, Verma L, Criscione-Schreiber L. Physician assistant student training for the inpatient setting: a needs assessment. *J Physician Assist Educ.* 2017;28(4):189-195. doi:10.1097/JPA.00000000000174

5. Gietzen L, Roman C, Hegmann T. Reliability and validity of national end of rotation examinations: an update. *J Physician Assist Educ*. 2018;29(2):86-88. doi:10.1097/JPA.000000000000191

• • •

Author Affiliations: Division of General Hospital Medicine, Section of Hospital Medicine, Medical College of Wisconsin, Milwaukee, Wisconsin (Jha, Bequest, Gioia).

Corresponding Author: Andrea Bequest, PA-C, Department of Medicine, Division of Hospital Medicine, Medical College of Wisconsin, 8701 Watertown Plank Rd, Milwaukee, WI 53226; email abequest@mcw.edu; ORCID ID 0009-0009-0950-8680

Funding/Support: None declared. Financial Disclosures: None declared.

Examining the Relationship Between Obstructive Sleep Apnea During Pregnancy and Autistic Spectrum Disorder in Children

Dear Editor,

We recently reviewed the article "Are Symptoms of Obstructive Sleep Apnea During Pregnancy Associated With Autism Spectrum Disorder in Children: A Case-Control Study" by Nick et al¹ with great interest. Obstructive sleep apnea (OSA) is a common and serious condition. While treatments like continuous positive airway pressure (CPAP) and mandibular advancement splints are effective, many patients struggle with adherence.²

The study offers valuable insights into OSA but could be strengthened by exploring neuroinflammation in offspring due to gestational OSA and the sex-specific effects on children. These areas hold potential for uncovering new pathways and biomarkers, paving the way for more targeted treatments. Notably, a recent study revealed an increased soluble vascular endothelial growth factor receptor 1/PIGF ratio and reduced levels of pregnancy-associated plasma protein A in individuals with sleep disorder breathing, after adjusting for key factors.³

The study by Nick et al relied on selfreported symptoms and medical history rather than objective sleep testing, which may have influenced the findings. Previous research shows that increased daytime drowsiness is common during pregnancy, so this factor could affect results.⁴ While somnolence is not always a reliable indicator of severe sleep disorders in pregnancy, exploring more clinical markers could enhance the understanding of OSA's impact. Including confounding factors, such as maternal health and social circumstances, in future studies would provide a more comprehensive analysis.⁵

—Saim Mahmood Khan, MBBS; Jawairya Muhammad Hussain, MBBS; Iman Azam, MBBS

REFERENCES

1. Nick J, Seaborg K, Kastner K, Bazalakova M, Antony K. Are Symptoms of Obstructive Sleep Apnea During Pregnancy Associated With Autism Spectrum Disorder in Children: A Case-Control Study. *WMJ*. 2024;123(1):18-23.

2. Carney AS, Antic NA, Catcheside PG, et al. Sleep apnea multilevel surgery (SAMS) trial protocol: a multicenter randomized clinical trial of upper airway surgery for patients with obstructive sleep apnea who have failed continuous positive airway pressure. *Sleep.* 2019;42(6):zsz056. doi:10.1093/sleep/zsz056

3. Onslow ML, Wolsk J, Wisniewski S, et al. The association between sleep-disordered breathing and maternal endothelial and metabolic markers in pregnancies complicated by obesity. *J Clin Sleep Med.* 2023;19(1):97-109. doi:10.5664/jcsm.10254

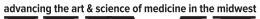
4. Pien GW, Pack AI, Jackson N, Maislin G, Macones GA, Schwab RJ. Risk factors for sleep-disordered breathing in pregnancy. *Thorax*. 2014;69(4):371-377. doi:10.1136/thoraxjnl-2012-202718

 Köseoğlu Hİ, İnanır A, Kanbay A, et al. Is there a link between obstructive sleep apnea syndrome and fibromyalgia syndrome?. *Turk Thorac J.* 2017;18(2):40-46. doi:10.5152/TurkThoracJ.2017.16036

• • •

Author Affiliations: Karachi Medical and Dental College, Karachi, Pakistan (Khan, Hussain, Azam). Corresponding Author: Saim Mahmood Khan, MBBS, Karachi Medical and Dental College, M Block of North Nazimabad Karachi,74600, SP +923363045390, Pakistan, email saimmahmoodkhanrajput@gmail.com; ORCID ID 0009-0001-602**3**-5835

Funding/Support: None declared. Financial Disclosures: None declared.





WMJ (ISSN 1098-1861) is published through a collaboration between The Medical College of Wisconsin and The University of Wisconsin School of Medicine and Public Health. The mission of *WMJ* is to provide an opportunity to publish original research, case reports, review articles, and essays about current medical and public health issues.

 $\ensuremath{\mathbb{C}}$ 2024 Board of Regents of the University of Wisconsin System and The Medical College of Wisconsin, Inc.

Visit www.wmjonline.org to learn more.