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## ***NIH-Funded Experts Offer New Guidance for Navigating Ethical and Legal Challenges in Brain Research Using Portable MRI Technologies***

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MINNEAPOLIS/ST. PAUL (1/31/2025) — The expanding deployment of highly portable MRI (pMRI) technology for brain research outside the hospital to more remote settings is helping to expand research participation with underserved populations and ensure more inclusive research participation. But the rapid development of pMRI technology has outpaced the ethical, legal and societal implication (ELSI) guidelines necessary to ensure research participant safety and community trust during brain research projects.

Since 2020, top neuroethics, neurolaw, and neuroscience experts, funded by the National Institute of Mental Health (NIMH) and National Institutes of Health (NIH) grants, have been working to address barriers to the successful implementation of pMRI for brain research in the community, especially with participants traditionally underrepresented in neuroimaging studies.

A symposium of nine articles funded by the [NIH BRAIN Initiative](#) – “[Emerging Portable Technology for Neuroimaging Research in New Field Settings: Legal & Ethical Challenges](#)” – is the culmination of the group’s work to guide the use of pMRI in research. Among the tools offered is a powerful ELSI Checklist that will help researchers, Institutional Review Boards, and regulators address ELSI issues as the portable imaging equipment is deployed more broadly.

University of Minnesota Professors [Francis Shen](#), JD, PhD, [Susan M. Wolf](#), JD, and [Frances Lawrenz](#), PhD, were guest editors of the symposium, which appears in the Winter 2024 issue of the *Journal of Law, Medicine & Ethics*.

Symposium articles include:

- Conducting Research with Highly Portable MRI in Community Settings: A Practical Guide to Navigating Ethical Issues and ELSI Checklist
- Expert Stakeholder Perspectives on Emerging Technology for Neuroimaging Research with Highly Portable MRI: The Need for Guidance on Ethical, Legal, and Societal Issues
- Far from Home: Managing Incidental Findings in Field Research with Portable MRI
- The Realization of Portable MRI for Indigenous Communities in the USA and Canada
- Socioeconomic Factors in Brain Research: Increasing Sample Representativeness with Portable MRI
- Portable Accessible MRI in Dementia Research: Ethical Considerations About Research Representation and Dementia-Friendly Technology

- The Need for IRB Leadership to Address the New Ethical Challenges of Research with Highly Portable Neuroimaging Technologies
- Ethical Oversight and Social Licensing of Portable MRI Research

“Portable MRI has the potential to be a game changer for neuroscience research,” Prof. Shen says. “But to achieve that potential we need to address the significant ethical and legal challenges of democratizing access to sophisticated medical technologies in non-clinical settings. The ELSI Checklist in this symposium is a tool we hope all pMRI researchers will utilize.”

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### **About the Consortium on Law and Values in Health, Environment & the Life Sciences**

Founded in 2000, the Consortium on Law and Values in Health, Environment & the Life Sciences links 22 member centers working across the University of Minnesota on the societal implications of biomedicine and the life sciences. The Consortium publishes groundbreaking work on issues including genetic and genomic research, oversight of nanobiology, cutting-edge neuroscience, and ethical issues raised by advances in bioengineering.

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#### ARTICLE TITLES & AUTHORS

- [Introduction: Revolutionizing Neuroimaging Research with Highly Portable MRI: Confronting Ethical and Legal Challenges](#) (Francis X. Shen, JD, PhD; Susan M. Wolf, JD; Frances Lawrenz, PhD)
- (Francis X. Shen, JD, PhD; Susan M. Wolf, JD; Frances Lawrenz, PhD; Donnella S. Comeau, MD, PhD; [Conducting Research with Highly Portable MRI in Community Settings: A Practical Guide to Navigating Ethical Issues and ELSI Checklist](#) Barbara J. Evans, JD, PhD, LLM; Damien Fair, PA-C, PhD; Martha Farah, PhD; Michael Garwood, PhD; S. Duke Han, PhD; Judy Illes, CM, PhD; Jonathan D. Jackson, PhD; Eran Klein, MD, PhD; Matthew S. Rosen, PhD; Efrain Torres, PhD; Paul Tuite, MD; J. Thomas Vaughn, PhD)
- [Expert Stakeholder Perspectives on Emerging Technology for Neuroimaging Research with Highly Portable MRI: The Need for Guidance on Ethical, Legal, and Societal Issues](#) (Molly Madzelan, PhD; Frances Lawrenz, PhD; Susan M. Wolf, JD; Francis Shen, JD, PhD)
- [Far from Home: Managing Incidental Findings in Field Research with Portable MRI](#) (Susan M. Wolf, JD; Judy Illes, CM, PhD)
- [The Realization of Portable MRI for Indigenous Communities in the USA and Canada](#) (Shana Birly, MS; Angela Teeple, MLS; Judy Illes, CM, PhD)
- [Socioeconomic Factors in Brain Research: Increasing Sample Representativeness with Portable MRI](#) (Martha Farah, PhD)
- [Portable Accessible MRI in Dementia Research: Ethical Considerations About Research Representation and Dementia-Friendly Technology](#) (Eran Klein, MD, PhD; S. Duke Han, PhD; Paul Tuite, MD; W. Taylor Kimberly, MD, PhD; Mohit Agarwal, MD)
- [The Need for IRB Leadership to Address the New Ethical Challenges of Research with Highly Portable Neuroimaging Technologies](#) (Donnella S. Comeau, MD, PhD; Benjamin C. Silverman, MD; Mahsa Alborzi Avanki, MD; Susan M. Wolf, JD)
- [Ethical Oversight and Social Licensing of Portable MRI Research](#) (Barbara J. Evans, PhD, JD, LLM)

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