



MAYO CLINIC PROCEEDINGS

www.mayoclinicproceedings.org



Mission

To promote the best interests of patients by advancing the knowledge and professionalism of the physician community.

Editor-in-Chief

Karl A. Nath, MBChB
Mayo Clinic, Rochester, MN

Associate Editors

Thomas J. Beckman, MD
Mayo Clinic, Rochester, MN

Thomas C. Gerber, MD, PhD
Mayo Clinic, Rochester, MN

S. Vincent Rajkumar, MD
Mayo Clinic, Rochester, MN

Lori A. Erickson, MD
Mayo Clinic, Rochester, MN

Carl J. Lavie, MD
John Ochsner Heart and Vascular
Institute, New Orleans, LA

Ayalew Tefferi, MD
Mayo Clinic, Rochester, MN

Section Editors

David J. Ballard, MD, MSPH, PhD
Healthcare Policy
Baylor Scott & White Health, Dallas, TX
Keith H. Berge, MD
Medical Ethics
Mayo Clinic, Rochester, MN
J. Michael Bostwick, MD
Psychiatry
Mayo Clinic, Rochester, MN
Mark Denis P. Davis, MD
Dermatology
Mayo Clinic, Rochester, MN

Jennifer E. DeVoe, MD, DPhil
Family Medicine
Oregon Health & Science University,
Portland, OR
Matthew T. Drake, MD, PhD
Endocrinology
Mayo Clinic, Rochester, MN
Vesna D. Garovic, MD
Women's Health
Mayo Clinic, Rochester, MN
Matthew T. Gettman, MD
Urology, Men's Health
Mayo Clinic, Rochester, MN

Manish Kohli, MD
Medical Oncology
Mayo Clinic, Rochester, MN
Eric L. Matteson, MD
Rheumatology
Mayo Clinic, Rochester, MN
Michelle L. Mauermann, MD
Neurology
Mayo Clinic, Rochester, MN
James F. Meschia, MD
Neurologic Diseases, Stroke
Mayo Clinic, Jacksonville, FL

Joseph A. Murray, MD
Gastroenterology and Hepatology
Mayo Clinic, Rochester, MN
Kannan Ramar, MBBS, MD
Pulmonary Medicine
Mayo Clinic, Rochester, MN
Andrew D. Rule, MD
Nephrology and Hypertension
Mayo Clinic, Rochester, MN
Priya Sampathkumar, MD
Infection Control
Mayo Clinic, Rochester, MN

Members-At-Large

Samuel J. Asirvatham, MD
Cardiovascular Diseases
Mayo Clinic, Rochester, MN
David Barbara, MD
Anesthesiology, Critical Care Medicine
Mayo Clinic, Rochester, MN
Douglas B. Coursin, MD
Anesthesiology, Critical Care Medicine
University of Wisconsin-Madison
Philip R. Fischer, MD
Pediatric and Adolescent Medicine
Mayo Clinic, Rochester, MN
W. Michael Hooten, MD
Pain (Neurology)
Mayo Clinic, Rochester, MN

Paul B. Klaas, JD
Legal
North Coast Arbitration Chambers, Minneapolis, MN
Alex H. Krist, MD, MPH
Family Medicine
Virginia Commonwealth University, Richmond, VA
Kendall H. Lee, MD, PhD
Biotechnology, Neurologic Surgery
Mayo Clinic, Rochester, MN
David L. Levin, MD, PhD
Radiology
Mayo Clinic, Rochester, MN
Jay Mandrekar, PhD
Biomedical Statistics and Informatics
Mayo Clinic, Rochester, MN
John G. Mastrorarde, MD
Pulmonary Medicine, Critical Care Medicine
Providence Portland Medical Center, Portland, OR

Joseph I. Sirven, MD
Neurologic Diseases, Epilepsy
Mayo Clinic, Phoenix, AZ
Robert J. Spinner, MD
Neurologic Surgery, Orthopedics
Mayo Clinic, Rochester, MN
Jennifer St. Sauver, PhD
Epidemiology
Mayo Clinic, Rochester, MN
Thomas D. Thacher, MD
Family Medicine
Mayo Clinic, Rochester, MN
Adrian Vella, MD
Endocrinology
Mayo Clinic, Rochester, MN
Christopher M. Wittich, MD
General Internal Medicine, Medical Education
Mayo Clinic, Rochester, MN

Proceedings Staff

Managing Editor: Terry Jopke, BA
Editorial Processing Specialist: Kimberly D. Sankey
Editorial Assistant: Margaret R. Wentz, BA
Business Manager: Debra M. Eagle, MBA

Editorial Offices

Mayo Clinic Proceedings
Room 770 Siebens Building
Rochester, MN 55905
Telephone: (507) 284-2094
Fax: (507) 284-0252
E-mail: proceedings@mayo.edu
Direct editorial information and inquiries to the above offices.