

Editor in Chief: **Daniel B. Mark, MD, MPH**, Durham, NC
Executive Editor: **Patricia K. Hodgson**, Durham, NC
Managing Editor: **Rebecca L. Hines**, Durham, NC
Issue Manager: **Varun Ilangovan**

AHJ

American Heart Journal

www.ahjonline.com

Founded in 1925

Associate Editors

Tariq Ahmad, MD New Haven	Justin A. Ezekowitz, MBChC, MSc Alberta, Canada	Renato D. Lopes, MD, PhD, MHS Durham	Jonathan P. Piccini, MD, MHS Durham
Thomas M. Bashore, MD, MPH Durham	Emil Fosbol, MD, PhD Denmark	Kenneth W. Mahaffey, MD Durham	Thomas J. Povsic, MD, PhD Durham
Gerald S. Bloomfield, MD, MPH Durham	John K. Harrison, MD Durham	Robert McGarrah, MD Durham	Sudarshan Rajagopal, MD Durham
Melissa Burroughs-Pena, MD, MS San Francisco	Paul A. Heidenreich, MD, MS Palo Alto	Rajendra H. Mehta, MD Durham	Sunil V. Rao, MD Durham
Tara Chang, MD, MS Palo Alto	Kevin D. Hill, MD Durham	Ann Marie Navar, MD, PhD Durham	Matthew T. Roe, MD, MHS Durham
Melissa A. Daubert, MD Durham	Padma Kaul, PhD Alberta, Canada	Jonathan D. Newman, MD, MPH New York	Zainab Samad, MD, MBBS, MHS Durham
Adam DeVore, MD, MHS Durham	Jennifer S. Li, MD, MHS Durham	Manesh R. Patel, MD Durham	Matthew Sherwood, MD Falls Church
			Sean van Diepen, MD, MSc Alberta

Editorial Board

David Aguilar, MD	Alexandre Schaan de Quadros, MD, MSc, PhD	Adnan Kastrati, MD	Pamela N. Peterson, MD, MSPH
Frank V. Aguirre, MD	Elizabeth R. DeLong, PhD	Dean J. Kereiakes, MD	Marc A. Pfeffer, MD, PhD
John H. Alexander, MD, MHSc	J. Michael DiMaio, MD	Morton J. Kern, MD	Matthias E. Pfisterer, MD, PhD
Karen P. Alexander, MD	Mark P. Donahue, MD, MHS	Prateeti Khazanie, MD, MPH	Karen S. Pieper, MS
Larry A. Allen, MD, MHS	Pamela S. Douglas, MD	Michel G. Khouri, MD	Louise Pilote, MD, MPH, PhD
Hussein Al-Khalidi, PhD	Shannon Dunlay, MD, MS	Ajay Kirrane, MD, SM	Bertram Pitt, MD
Sana M. Al-Khatib, MD, MHS	Vladimir Dzavik, BSc MD	Neal S. Kleiman, MD	Sean D. Pokorney, MD
Larry A. Allen, MD, MHS	Kim A. Eagle, MD	George J. Klein, MD	Jeanne E. Poole, MD
Kevin J. Anstrom, PhD	Zubin Eapen, MD, MHS	Robb Kociol, MD	Jeffrey J. Popma, MD
Paul W. Armstrong, MD	Kenneth A. Ellenbogen, MD	Richard A. Krasuski, MD	Eric N. Prystowsky, MD
Wilbert S. Aronow, MD	Stephen G. Ellis, MD	William E. Kraus, MD	Paolo Raggi, MD
Alvaro Avezum, MD, PhD	David P. Faxon, MD	Joel Kupersmith, MD	Harmony Reynolds, MD
Akshay Bagai, MD, MHS	G. Mike Felker, MD, MHS	Gervasio A. Lamas, MD	Vera H. Rigolin, MD
Steven R. Bailey, MD	T. Bruce Ferguson Jr., MD	Kerry L. Lee, PhD	Joseph G. Rogers, MD
Subhash Banerjee, MD	Jerome Fleg, MD	Thomas H. Lee Jr., MD	Melvyn Rubenfire, MD
Gust H. Bardy, MD	Gregg C. Fonarow, MD	Sergio Leonardi, MD, MHS	John S. Rumsfeld, MD, PhD
Piers Barker, MD	Christopher Fordyce, MD	A. Michael Lincoff, MD	Thomas Ryan, MD
Gregory W. Barsness, MD	Gary S. Francis, MD	Gregory Y.H. Lip, MD	Uche Sampson, MD, MPH, MBA, MSc
Eric R. Bates, MD	James Freeman, MD	James E. Lock, MD	Gillian D. Sanders, PhD
Jeroen J. Bax, MD, PhD	John K. French, PhD, MBChB	Yuliya Lakhnygina, PhD, MS	Hartzell V. Schaff, MD
Richard C. Becker, MD	Thomas C. Gerber, MD, PhD	Jared Magnani, MD, MS	Kevin A. Schulman, MD
George A. Beller, MD	Bernard J. Gersh, MD, ChB, DPhil	Thomas H. Marwick, MD, PhD, MBBS, MPH	Michelle O'Shaughnessy, MD
Jeffrey S. Berger, MD, MS	Myron C. Gerson, MD	Frederick A. Masoudi, MD, MSPH	Svati H. Shah, MD, MHS
Deepak L. Bhatt, MD, MPH	Jeffrey B. Geske, MD	Charles Maynard, PhD	Leslee Shaw, PhD
Kenneth Bitchick, MD, MS	Jalal K. Ghali, MD	Darren K. McGuire, MD, MHSc	Chetan Shenoy, MBBS
Philip F. Binkley, MD, MPH	Raymond J. Gibbons, MD	Robert E. Michler, MD	Adhir Shroff, MD, MPH
John A. Bittl, MD	C. Michael Gibson, MS, MD	D. Douglas Miller, MD	Thomas N. Skelton, MD
Vera Bittner, MD, MSPH	Ian Gilchrist, MD	Julie M. Miller, MD	Steven R. Steinhilb, MD
Roger S. Blumenthal, MD	Robert P. Giugliano, MD, MS	Todd D. Miller, MD	Lynne W. Stevenson, MD
Eric Boersma, MSc, PhD	Donald D. Glower, MD	David J. Moliterno, MD	William G. Stevenson, MD
Salvador Borges-Neto, MD	Christopher B. Granger, MD	Fred Morady, MD	Carla A. Sueti, MD, PhD
Sorin J. Brener, MD	Paul A. Gurbel, MD	David A. Morrow, MD, MPH	Toru Suzuki, MD
Ralph G. Brindis, MD, MPH	Hitinder S. Gurm, MBBS	Joseph Brent Muhlestein, MD	V.V.H. Wilson Tang, MD
Christopher E.H. Buller, MD	John R. Guyton, MD	Debabrata Mukherjee, MD, MS	Allen J. Taylor, MD
T. Jared Bunch, MD	Frank E. Harrell Jr., PhD	Brahmajeu Nallamothu, MD	James E. Tcheng, MD
Javed Butler, MD, MPH, MBA	Robert A. Harrington, MD	L. Kristin Newby, MD, MHS	Alan N. Tenaglia, MD
Alfred E. Buxton, MD	David Hasdai, MD	Peter A. Noseworthy, MD	Pierre Theroux, MD
Christopher P. Cannon, MD	Edward P. Havranek, MD	Emily C. O'Brien, PhD	Laine Thomas, PhD
Warren J. Cantor, MD	Robert C. Hendel, MD	Sean M. O'Brien, PhD	Jack V. Tu, MD, PhD
Blase A. Carabello, MD	Timothy D. Henry, MD	Christopher M. O'Connor, MD	Mintu Turakhia, MD, MAS
Matthew Cavender, MD, MPH	Adrian F. Hernandez, MD, MHS	Elizabeth O. Ofili, MD	Jacob A. Udell, MD, MPH
Mark Y. Chan, MBBS, MHSc	Charles A. Herzog, MD	E. Magnus Ohman, MD	Frans J.J. Van de Werf, MD, PhD
Melvin D. Cheitlin, MD, MACC	Connie N. Hess, MD, MHS	Peter M. Okin, MD	Sreekanth Vemulapalli, MD
W. Randolph Chitwood Jr., MD	Paul Hess, MD, MHS	Brian Olshansky, MD	Hector O. Ventura, MD
David J. Cohen, MD, MSc	James A. Hill, MD, MS	Catherine M. Otto, MD	Mladen Vidovich, MD
Marc Cohen, MD	Mark A. Hlatky, MD	Douglas L. Packer, MD	David A. Vorchheimer, MD
Mauricio G. Cohen, MD	Judith S. Hochman, MD	Richard L. Page, MD	Lars Wallentin, MD, PhD
Adrian Coles, PhD	David R. Holmes Jr., MD	Neha Pagidipati, MD	Andrew Wang, MD
Heidi M. Connolly, MD	Michael P. Hudson, MD, MHSc	Chetan B. Patel, MD	Tracy Y. Wang, MD, MHS, MSc
Stuart J. Connolly, MD	Alice K. Jacobs, MD	Uptal Patel, MD	Jeffrey Washam, PharmD
Patricia Cowper, PhD	Stefan James, MD, PhD	Carl J. Pepine, MD	W. Douglas Weaver, MD
Anne B. Curtis, MD	James L. Januzzi, MDMarc E. Jolicœur, MD, MSc, MHS	John L. Petersen II, MD, MHS	William S. Weintraub, MD
Ralph J. Damiano, MD	David E. Kandzari, MD	Eric D. Peterson, MD, MPH	Cynthia M. Westerhout, PhD
James P. Daubert, MD			J. Marcus Wharton, MD
Charles J. Davidson, MD			David J. Whellan, MD, MHS
			Harvey D. White, DSc
			Clyde W. Yancy, MD, MSc
			James B. Young, MD