

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 Ilangoan**

AHJ

American Heart Journal

www.ahjonline.com

Founded in 1925

Associate Editors

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

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	Ritza 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, MB, ChB, DPHI	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 Bilchick, MD, MS	Jalal K. Ghali, MD	Darren K. McGuire, MD, MHSC	Chetan Shenoy, MBBS
Philip F. Binkley, MD, MPH	Raymond J. Gibbons, MD	Venugopal Menon, MD	Adhir Shroff, MD, MPH
John A. Bittl, MD	C. Michael Gibson, MS, MD	George A. Mensah, MD	Thomas N. Skelton, MD
Vera Bittner, MD, MSPH	Ian Gilchrist, MD	Robert E. Michler, MD	Steven R. Steinhubl, MD
Roger S. Blumenthal, MD	Robert P. Giugliano, MD, MS	D. Douglas Miller, MD	Lynne W. Stevenson, MD
Eric Boersma, MSc, PhD	Donald D. Glower, MD	Julie M. Miller, MD	William G. Stevenson, MD
Salvador Borges-Neto, MD	Christopher B. Granger, MD	Todd D. Miller, MD	Carla A. Sueti, MD, PhD
Sorin J. Brener, MD	Paul A. Gurbel, MD	David J. Moliterno, MD	Toru Suzuki, MD
Ralph G. Brindis, MD, MPH	Hilinder S. Gurm, MBBS	Fred Morady, MD	W.H. Wilson Tang, MD
Christopher E.H. Buller, MD	John R. Guyton, MD	David A. Morrow, MD, MPH	Allen J. Taylor, MD
T. Jared Bunch, MD	Frank E. Harrell Jr., PhD	Joseph Brent Muhlestein, MD	James E. Tcheng, MD
Javed Butler, MD, MPH, MBA	Robert A. Harrington, MD	Debabrata Mukherjee, MD, MS	Alan N. Tenaglia, MD
Alfred E. Buxton, MD	David Hasdai, MD	L. Kristin Newby, MD, MHS	Pierre Theroux, MD
Christopher P. Cannon, MD	Edward P. Havranek, MD	Peter A. Noseworthy, MD	Laine Thomas, PhD
Warren J. Cantor, MD	Robert C. Hendel, MD	Emily C. O'Brien, PhD	Jack V. Tu, MD, PhD
Blase A. Caraballo, MD	Timothy D. Henry, MD	Sean M. O'Brien, PhD	Mintu Turakhia, MD, MAS
Matthew Cavender, MD, MPH	Adrian F. Hernandez, MD, MHS	Christopher M. O'Connor, MD	Jacob A. Udell, MD, MPH
Mark Y. Chan, MBBS, MHSc	Charles A. Herzog, MD	Elizabeth O. Ofili, MD	Frans J.J. Van de Werf, MD, PhD
Melvin D. Cheitlin, MD, MACC	Connie N. Hess, MD, MHS	E. Magnus Ohman, MD	Sreekanth Vemulapalli, MD
W. Randolph Chitwood Jr., MD	Paul Hess, MD, MHS	Peter M. Okin, MD	Hector O. Ventura, MD
David J. Cohen, MD, MSc	James A. Hill, MD, MS	Brian Olshansky, MD	Mladen Vidovich, MD
Marc Cohen, MD	Mark A. Hlatky, MD	Catherine M. Otto, MD	David A. Vorchheimer, MD
Mauricio G. Cohen, MD	Judith S. Hochman, MD	Douglas L. Packer, MD	Lars Wallentin, MD, PhD
Adrian Coles, PhD	David R. Holmes Jr., MD	Richard L. Page, MD	Andrew Wang, MD
Heidi M. Connolly, MD	Michael P. Hudson, MD, MHSC	Neha Pagidipati, MD	Tracy Y. Wang, MD, MHS, MSc
Stuart J. Connolly, MD	Alice K. Jacobs, MD	Chetan B. Patel, MD	Jeffrey Washam, PharmD
Patricia Cowper, PhD	Stefan James, MD, PhD	Uptal Patel, MD	W. Douglas Weaver, MD
Anne B. Curtis, MD	James L. Januzzi, MDMarc E. Jolicœur, MD, MSc, MHS	Carl J. Pepine, MD	William S. Weintraub, MD
Ralph J. Damiano, MD	David E. Kandzari, MD	John L. Petersen II, MD, MHS	Cynthia M. Westerhout, PhD
James P. Daubert, MD		Eric D. Peterson, MD, MPH	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