

Western Journal of Emergency Medicine:

Integrating Emergency Care with Population Health

Mark I. Langdorf, MD, MHPE, Editor-in-Chief
University of California, Irvine School of Medicine

Sean O. Henderson, MD, Senior Associate Editor
Keck School of Medicine, University of Southern California

Shahram Lotfipour, MD, MPH, Managing Associate Editor
University of California, Irvine School of Medicine

Rick McPheeters, DO, Associate Editor
Kern Medical Center

Section Editors

Behavioral Emergencies

Leslie Zun, MD, MBA
Chicago Medical School
Michael P. Wilson, MD, PhD
University of California, San Diego

Clinical Practice

Eric Snoey, MD
Alameda County Medical Center
Joel M. Schofer, MD
Naval Medical Center Portsmouth

Critical Care

Jeffrey Sankoff, MD
University of Colorado
H. Bryant Nguyen, MD, MS
Loma Linda University

Disaster Medicine

Christopher Kang, MD
Madigan Army Medical Center

Education

Michael Epter, DO
University of Nevada
Douglas Ander, MD
Emory University

ED Administration

Jeffrey Druck, MD
University of Colorado
Erik D. Barton, MD, MS, MBA
University of Utah

Emergency Cardiac Care

William Brady, MD
University of Virginia
Amal Mattu, MD
University of Maryland

Emergency Medical Services

Christopher Kahn, MD, MPH
University of California, San Diego
David E. Slattery, MD
University of Nevada

Geriatrics

Teresita M. Hogan, MD
Resurrection Medical Center, Chicago

Infectious Disease

Robert Derlet, MD
University of California, Davis
Sukhjit S. Takhar, MD
Harvard Medical School

Technology in Emergency Medicine

James Killeen, MD
University of California, San Diego
Sanjay Arora, MD
University of Southern California

Injury Prevention

Bharath Chakravarthy, MD, MPH
University of California, Irvine
Wirachin Hoonpongmanont, MD
University of California, Irvine

International Medicine

Chris Mills, MD, MPH
Santa Clara Valley Medical Center
David Williams, MD
University of Southern California

Legal Medicine

Greg P. Moore, MD, JD
Madigan Army Medical Center

Methodology and Biostatistics

Craig Anderson, MPH, PhD
University of California, Irvine
Christian McClung, MD
University of Southern California
Michael Menchine, MD, MPH
University of Southern California

Musculo-skeletal

Juan F. Acosta DO, MS
Pacific Northwest University
Anita W. Eisenhart, DO
Maricopa Integrated Health Systems

Neurosciences

John Sarko, MD
University of Arizona

Pediatric Emergency Medicine

Judith Klein, MD
University of California, San Francisco
Paul Walsh, MD, MSc
University of California, Davis

Public Health

Jeremy Hess, MD, MPH
Emory University
Trevor Mills, MD, MPH
Northern California VA Health Care System

Resident/Student/Fellow Forum

Beau Briese, MD, MA
Stanford/Kaiser EM Program

Trauma

Ali S. Raja, MD, MBA, MPH
Brigham & Women's Hospital/ Harvard Medical School

Toxicology

Jeffrey R. Suchard, MD
University of California, Irvine
Brandon Wills, DO, MS
Virginia Commonwealth University

Ultrasound

Seric Cusick, MD, RDMS
University of California, Davis
Laleh Gharahbaghian, MD
Stanford University

Editorial Board

Peter A Bell, DO, MBA
Ohio University, Heritage College of Osteopathic Medicine

Barry E. Brenner, MD, MPH
Case Western Reserve University

David Brown, MD
Massachusetts General Hospital/Harvard Medical School

Robert W. Derlet, MD
University of California, Davis

Steven Gabaeff, MD
American Academy of EM

Debra Houry, MD, MPH
Emory University

Brent King, MD, MMM
University of Texas, Houston

Edward Michelson, MD
Case Western University

Linda Suk-Ling Murphy, MLIS
University of California, Irvine School of Medicine Librarian

Jonathan Olshaker, MD
Boston University

Edward Panacek, MD, MPH
University of California, Davis

Niels K. Rathlev, MD
Tufts University Medical School and Baystate Medical Center

Robert M. Rodriguez, MD
University of California, San Francisco

Scott Rudkin, MD, MBA
University of California, Irvine

Peter Sokolove, MD
University of California, Davis

Samuel J. Stratton, MD, MPH
Orange County, CA, EMS Agency

Thomas Terndrup, MD
Pennsylvania State University

Scott Zeller, MD
Alameda County Medical Center

Leslie Zun, MD, MBA
Chicago Medical School

International Editorial Board

Arif Alper Cevik, MD
Eskişehir Osmangazi University Medical Center, Eskişehir, Turkey

Francesco Della Corte, MD
Azienda Ospedaliera Universitaria "Maggiore della Carità", Novara, Italy

Vijay Gautam, MBBS
University of London, United Kingdom

Amin Antoine Kazzi, MD
The American University of Beirut, Lebanon

Steven Hoon Chin Lim, MD
Changi General Hospital, Singapore

Kobi Peleg, PhD, MPH
Tel-Aviv University, Israel

Rapeepron Rojsaengroeng, MD
Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Editorial Staff

Meghan A. Brown, BA
Editorial Assistant

Marcia Blackman
WestJEM Liaison

Rex Chang, BS
Editorial Director

June Casey, BA
Copy Editor

Calvin He, BS
Publishing Manager

Kelly C. Joy, BS
Editorial Assistant

Jennifer Mogi, BA, BS
Assistant Editorial Director

Cameron Sumrell, BS
Website Manager

Calvin Tan, BS
Assistant Editorial Director

Elyse Young, BS
Assistant Editorial Director

Official Journal of the California Chapter of the American College of Emergency Physicians, the American College of Osteopathic Emergency Physicians, and the California Chapter of the American Academy of Emergency Medicine

Publisher

Department of Emergency Medicine, University of California, Irvine



Available in Pub Med, Pub Med Central, CINAHL, SCOPUS, Google Scholar, eScholarship, Melvyl, Directory of Open Access Journals, Medscape and MDLinx Emergency Med.

WestJEM, 101 The City Drive, Rt. 128-01, Orange, CA 92868-3201; Office (714) 456-6389; Email: Editor@westjem.org

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health

This open access publication would not be possible without the generous and continual support of our society, chapter, and department sponsors.

Professional Society Sponsors

AMERICAN COLLEGE OF OSTEOPATHIC EMERGENCY PHYSICIANS
CALIFORNIA CHAPTER OF THE
AMERICAN ACADEMY OF EMERGENCY MEDICINE

CALIFORNIA CHAPTER OF THE
AMERICAN COLLEGE OF EMERGENCY PHYSICIANS

Professional Chapter Sponsors

FLORIDA CHAPTER OF THE
AMERICAN ACADEMY OF EMERGENCY MEDICINE

NEVADA CHAPTER OF THE
AMERICAN ACADEMY OF EMERGENCY MEDICINE

MISSOURI CHAPTER OF THE
AMERICAN ACADEMY OF EMERGENCY MEDICINE

TENNESSEE CHAPTER OF THE
AMERICAN ACADEMY OF EMERGENCY MEDICINE

UNIFORMED SERVICES CHAPTER OF THE
AMERICAN ACADEMY OF EMERGENCY MEDICINE

VIRGINIA STATE CHAPTER OF THE
AMERICAN ACADEMY OF EMERGENCY MEDICINE

Academic Department Sponsors

ADVOCATE CHRIST MEDICAL
CENTER
OAK LAWN, IL
BAYLOR COLLEGE OF MEDICINE
HOUSTON, TX
BAYSTATE MEDICAL CENTER/
TUFTS UNIVERSITY
SPRINGFIELD, MA
BOSTON MEDICAL CENTER
BOSTON, MA
BRIGHAM AND WOMEN'S
HOSPITAL
BOSTON, MA
CARL R. DARNALL MEDICAL
CENTER
FORT HOOD, TX
DENVER HEALTH
DENVER, CO
EASTERN VIRGINIA MEDICAL
SCHOOL
NORFOLK, VA
EMORY UNIVERSITY
ATLANTA, GA
FLORIDA HOSPITAL MEDICAL
CENTER
ORLANDO, FL
GEORGE WASHINGTON
UNIVERSITY
WASHINGTON, DC

HARVARD MEDICAL SCHOOL*
BOSTON, MA
HENRY FORD MEDICAL CENTER
DETROIT, MI
KAWEAH DELTA HEALTHCARE
DISTRICT
VISALIA, CA
KERN MEDICAL CENTER
BAKERSFIELD, CA
LEHIGH VALLEY HOSPITAL AND
HEALTH NETWORK
ALLENTOWN, PA
MADIGAN ARMY MEDICAL
CENTER
TACOMA, WA
MAIMONIDES MEDICAL CENTER*
BROOKLYN, NY
MARICOPA MEDICAL CENTER
PHOENIX, AZ
MASSACHUSETTS GENERAL
HOSPITAL
BOSTON, MA
MEDICAL COLLEGE OF GEORGIA
AUGUSTA, GA
MEDICAL UNIVERSITY OF SOUTH
CAROLINA
CHARLESTON, SC

MOUNT SINAI MEDICAL CENTER
MIAMI, FL
NEW YORK MEDICAL COLLEGE
VALHALLA, NY
NORTH SHORE UNIVERSITY HOSPITAL
MANHASSET, NY
REGIONS HOSPITAL/ HEALTH PARTNERS
INSTITUTE FOR EDUCATION AND
RESEARCH
ST. PAUL, MN
RESURRECTION MEDICAL CENTER*
CHICAGO, IL
ROBERT WOOD JOHNSON HOSPITAL*
NEW BRUNSWICK, NJ
SAN DIEGO MEDICAL CENTER
SAN DIEGO, CA
STANFORD UNIVERSITY
PALO ALTO, CA
UNIVERSITY OF CALIFORNIA DAVIS*
DAVIS, CA
UNIVERSITY OF CALIFORNIA IRVINE*
ORANGE, CA
UNIVERSITY OF CALIFORNIA LOS
ANGELES
LOS ANGELES, CA
UNIVERSITY OF CALIFORNIA SAN
DIEGO
LA JOLLA, CA

UNIVERSITY OF CALIFORNIA SAN
FRANCISCO
SAN FRANCISCO, CA
UNIVERSITY OF CALIFORNIA SAN
FRANCISCO FRESNO
FRESNO, CA
UNIVERSITY OF ILLINOIS AT CHICAGO
CHICAGO, IL
UNIVERSITY OF MARYLAND
COLLEGE PARK, MD
UNIVERSITY OF NEBRASKA MEDICAL
CENTER
OMAHA, NE
UNIVERSITY OF NEVADA
LAS VEGAS, NV
UNIVERSITY OF SOUTHERN
CALIFORNIA
LOS ANGELES, CA
UNIVERSITY OF TEXAS, HOUSTON
HOUSTON, TX
UNIVERSITY OF UTAH
SALT LAKE CITY, UT

*denotes department & residency sponsor

International Society Partners

SOCIEDAD ARGENTINA DE EMERGENCIAS
SOCIEDAD CHILENO MEDICINA URGENCIA

THAI ASSOCIATION FOR EMERGENCY MEDICINE
EMERGENCY MEDICINE ASSOCIATION OF TURKEY

Become a *WestJEM* departmental sponsor, waive article processing fees, receive print/electronic copies, and free CME advertisement space at www.calaaem.org/westjem or contact:

Marcia Blackman
Cal/AAEM: *WestJEM*
Phone: (800) 884-2236
MBlackman@aaem.org

or

Shahram Lotfipour, MD, MPH
Managing Associate Editor
Phone: (714) 456-2326
Shahram.Lotfipour@uci.edu