Resuscitation Science Symposium 2019

Final Program

November 16–17 | The Philadelphia 201 Hotel | Philadelphia, PA

Sponsored by the American Heart Association Emergency Cardiovascular Care Committee and the Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation.

Register online at scientificsessions.org/ress
Sunrise Symposium – Sunday, Nov 17
Continental breakfast served
Advances in post-arrest TTM and neuroprognostication
A CME accredited program

Sunday, November 17th, 2019 – 7AM
Philadelphia 201 Hotel

Breakfast symposium program:
Getting the dose right: Door-to-TTM time, depth and duration of cooling
Benjamin Abella, MD, MPhil  Professor, Emergency Medicine, Penn Medicine
The role of biomarkers, EEG and imaging in neuroprognostication
Ramani Balu, MD, PhD Assistant Professor, Neurology, Penn Medicine
Moderator: David Gaireski, MD Associate Professor, Emergency Medicine, Thomas Jefferson University

TTM Academy: A CME/CNE program
Taught by expert faculty from Penn Medicine
A suite of educational programs focused on targeted temperature management for post-arrest care and neurocritical illness

TTM Academy programs include:
• Free podcast series
• Modular on-demand internet course
• Live one-day workshops
• Two-day master class at Penn

Upcoming events:
• One-Day workshops
  - Seattle, WA – December 10, 2019
  - Houston, TX – January 15, 2020
  - Chicago, IL – April 28, 2020

Recent TTM Academy podcasts
Episode 12 – HYPERION Results – TTM Following non-shockable arrest
Episode 11 – ECMO Implementation for Refractory Arrests in the ED
Episode 10 – TTM Following Opioid Overdose Cardiac Arrest
Episode 9 – MRI Imaging for Post-Arrest Neurological Prognostication

Learn more at www.pennTTM.com  Podcast at https://ttmacademy.podbean.com

This event is not part of the official Resuscitation Science Symposium 2019 (ReSS) as planned by the AHA Resuscitation Science Program Committee.
## ReSS 3-Day Program at a Glance

<table>
<thead>
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<th>Time</th>
<th>Friday, Nov. 15</th>
<th>Saturday, Nov. 16</th>
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<tr>
<td>7:00 AM</td>
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<td>7:00-8:00 AM Sunrise Symposium: Advances in Post-arrest TTM and Neuroprognostication (Not part of the official ReSS program)</td>
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<td>8:00-8:15 AM Symposium Opening: Welcome and Introduction</td>
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<td>8:15-9:30 AM Plenary 1 Post-Arrest Cardiac Interventions</td>
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<td>9:30-10:15 AM Presentation of ReSS Awards and Special Presentation: HYPERION Trial</td>
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<td>11:45 AM-12:15 PM Lunch on your own</td>
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<td>12:15-1:15 PM Year in Review Special Presentation: EPIC TBI Trial</td>
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<td>3:00-5:30 PM Poster Session 2 and Reception</td>
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<td>3:00-5:30 PM Registration Opens</td>
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<td>6:30-9:30 PM Young Investigator Dinner and Award Presentations</td>
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<td>8:00-10:00 PM 3CPR Council Reception and Networking Event</td>
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Program Committee

The American Heart Association thanks the members of the Program Committee for their dedication and leadership in planning this year’s meeting.

Program Committee Chairs:
Benjamin S. Abella, MD, MPhil, FACEP, FAHA, University of Pennsylvania, Philadelphia, Pennsylvania
Tom P. Aufderheide, MD, MS, FACEP, FACC, FAHA, Medical College of Wisconsin, Milwaukee, Wisconsin
Michael W. Donnino, MD, Beth Israel Deaconess Medical Center, Boston, Massachusetts

Members:
Sachin Agarwal, MD, Columbia University College of Physicians & Surgeons, New York, New York
Monique L. Anderson Starks, MD, MHS, Duke University Medical Center, Durham, North Carolina
Mark G. Angelos, MD, FAHA, Ohio State University, Columbus, Ohio
Lance B. Becker, MD, FAHA, Northwell Health, Manhasset, New York
John S. Berry IV, MD, Brooke Army Medical Center, San Antonio, Texas
Leopoldo Cancio, MD, U.S. Army Institute of Surgical Research, Fort Sam Houston, Texas
Maaret Castrén, MD, PhD, FERC, Helsinki University Hospital, Helsinki, Finland
Irshad H. Chaudry, PhD, University of Alabama at Birmingham, Birmingham, Alabama
Dana P. Edelson, MD, MS, FAHA, FHM, University of Chicago, Chicago, Illinois
Judith Finn, PhD, MEDSt, GradDipPH, BSc, DipAppSc, RN, RM, ICCert, FACN, FAHA, Curtin University and Monash University, Perth and Melbourne, Australia
Raul J. Gazmuri, MD, PhD, FCCM, Rosalind Franklin University of Medicine and Science, North Chicago, Illinois
Fumito Ichinose, MD, PhD, FAHA, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts
Tami L. Kayea, LP, MSML, Dallas Fire-Rescue Department, Dallas, Texas
Monica E. Kleinman, MD, Boston Children's Hospital, Boston, Massachusetts
Matthew Huei-Ming Ma, MD, PhD, National Taiwan University Hospital, Taipei, Taiwan
Linda Mattirsch, BS, EMT-P, Medical College of Wisconsin, Milwaukee, Wisconsin
Raina M. Merchant, MD, MSHP, FAHA, University of Pennsylvania, Philadelphia, Pennsylvania
Laurie J. Morrison, MD, MSc, FRCP(C), Director of Rescu, Li Ka Shing Knowledge Institute, St. Michael’s Hospital, University of Toronto, Toronto, Ontario, Canada
Sarah B. Murthy, MD, FACS, University of Maryland, The R. Adams Cowley Shock Trauma Center, Baltimore, Maryland
Robert Neumar, MD, PhD, FAHA, University of Michigan, Ann Arbor, Michigan
Graham Nichol, MD, MPH, FRCP(C), FAHA, University of Washington, Seattle, Washington
Jerry Nolan, MD, FRCA, FRCP, FFICM, FRCEM (Hon), University of Bristol, Royal United Hospital, Bath, United Kingdom
Theresa M. Olasveengen, MD, PhD, Oslo University Hospital, Oslo, Norway
Brian O’Neill, MD, Wayne State University, Detroit, Michigan
Melissa J. Parker, MD, MSc, FRCP(C), FAAP (PEM, PCCM), McMaster University, Hamilton, Ontario, Canada
Joshua C. Reynolds, MD, Michigan State University, Grand Rapids, Michigan
John C. Rittenberger, MD, Gutherie Robert Packer Hospital, Sayre, Pennsylvania
Kelly N. Sawyer, MD, MS, Beaumont Health System, Royal Oak, Michigan
Jane D. Scott, ScD, MSN FAHA, National Heart, Lung, and Blood Institute, NIH, Bethesda, Maryland
Carrie A. Sims, MD, MS, University of Pennsylvania, Philadelphia, Pennsylvania
Jasmeet Soar, MA, MB, BChir, FRCA, FERC, FFICM, FRCP, Southmead Hospital, Bristol, United Kingdom
Samuel A. Tisherman, MD, FACS, FCCM, University of Maryland R. Adams Cowley Shock Trauma Center, Baltimore, Maryland
Sandra M. Wanek, MD, Legacy Emanuel Medical Center, Portland, Oregon
Demetris Yannopoulos, MD, University of Minnesota, Minneapolis, Minnesota
The American Heart Association would like to thank
the following supporters of ReSS 2019

Penn Medicine TTM Academy
Stryker
Zoll Medical Corporation

Invited Speakers

Monique Anderson Starks, MD, Duke University, Durham, North Carolina
Jason Bartos, MD, PhD, University of Minnesota, Minneapolis, Minnesota
Audrey L. Blewer, PhD, MPH, Duke University School of Medicine, Durham, North Carolina
Justin J. Boutilier, PhD, University of Wisconsin-Madison, Madison, Wisconsin
Paul Chan, MD, Saint Lukes Hospital / MAHI, Kansas City, Missouri
Matthew M. Churpek, MD, MPH, PhD, University of Chicago, Chicago, Illinois
Jonathan Elmer, MD, University of Pittsburgh, Pittsburgh, Pennsylvania
Romolo J. Gaspari, MD, PhD, MSc, FACEP, University of Massachusetts Medical School, Worcester, Massachusetts
Cornelia Genbrugge, MD, Hasselt University, Hasselt, Belgium
Katsutaka Hashiba, MD, Saiseikai Yokohamashi Nanba Hospital, Yokohama, Japan
Elizabeth A. Hunt, MD, MPH, PhD, Johns Hopkins University School of Medicine, Baltimore, Maryland
Jean-Baptiste Lascarrou, MD, Médecine Intensive Réanimation, CHU de Nantes, Paris, France
Jorrit Lemkes, MD, Amsterdam University Medical Center, Amsterdam, Netherlands
Mark S. Link, MD, FAHA, UT Southwestern Medical Center, Dallas, Texas
Matthew Ma, MD, PhD, National Taiwan University, Taipei, Taiwan
Takahiro Nakashima, MD, National Cerebral and Cardiovascular Center, Osaka, Japan
Robert Neumar, MD, University of Michigan, Ann Arbor, Michigan
Soojin Park, MD, FAHA, Columbia University Medical Center, New York, New York
Sarah M. Perman, MD, MSCE, FAHA, University of Colorado School of Medicine, Aurora, Colorado
John C. Rittenberger, MD, Guthrie Robert Packer Hospital, Sayre, Pennsylvania
Claudio Sandroni, MD, Catholic University School of Medicine, Rome, Italy
Daniel W. Spaite, MD, FACEP, University of Arizona, Chandler, Arizona
Qiujun Yu, MD, University of Iowa, Iowa City, Iowa

AHA Volunteer Opportunities

Let us know how you would like to get involved!

Complete the Science Volunteer Online form at professional.heart.org/volunteerform!
Moderators

Dianne L. Atkins, MD, FAHA, University of Iowa, Iowa City, Iowa
John Bro-Jeppesen, MD, PhD, Copenhagen University Hospital, Copenhagen, Denmark
Clifton W. Callaway, MD, PhD, FAHA, University of Pittsburgh, Pittsburgh, Pennsylvania
Sheldon Cheskes, MD, University of Toronto, Toronto, Ontario
Mohamud R. Daya, MD, Oregon Health and Science University, Portland, Oregon
Marina Del Rios, MD, MSc, University of Illinois at Chicago, Chicago, Illinois
Michael W. Donnino, MD, Beth Israel Deaconess Medical Center, Boston, Massachusetts
David Gaieski, MD, Thomas Jefferson University, Philadelphia, Pennsylvania
Saket Girotra, MBBS, MS, University of Iowa, Iowa City, Iowa
David M. Greer, MD, FAHA, Boston University, Boston, Massachusetts
Anne V. Grossestreuer, MD, FAHA, Beth Israel Deaconess Medical Center, Boston, Massachusetts
Henry R. Halperin, MD, FAHA, Johns Hopkins Hospital, Baltimore, Maryland
Carolina Malta Hansen, MD, Copenhagen EMS, Copenhagen, Denmark
Mary Fran Hazinski, RN, MSN, FAHA, Vanderbilt University, Nashville, Tennessee
Cindy H. Hsu, MD, PhD, University of Michigan, Ann Arbor, Michigan
Won Young Kim, MD, PhD, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea
Rudolph W. Koster, MD, PhD, Academic Medical Center, Amsterdam, Netherlands
Lionel Lamhaut, MD, PhD, Necker University Hospital-APHP, Paris, France
Ken Nagao, MD, PhD, FAHA, Nihon University Hospital, Tokyo, Japan
Graham Nichol, MD, MPH, FRCP(C), FAHA, University of Washington, Seattle, Washington
Chika Nishiyama, MD, MPH, Kyoto University, Kyoto, Japan
Sam Parnia, MD, NYU Langone Medical Center, New York, New York
Mary Ann Peberdy, MD, FAHA, Virginia Commonwealth University, Henrico, Virginia
Sarah M. Pernar, MD, MSCE, FAHA, University of Colorado School of Medicine, Aurora, Colorado
Matthew L. Reiss, MD, Vanderbilt University Medical Center, Nashville, Tennessee
Kelly N. Sawyer, MD, MS, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania
Eirik Skogvoll, MD, PhD, St. Olav University Hospital, Trondheim, Norway
Robert A. Swor, DO, William Beaumont Hospital, Royal Oak, Michigan
Yoshio Tahara, MD, National Cerebral and Cardiovascular Center, Osaka, Japan

Poster Professors (as of October 24, 2019)

Benjamin S. Abella, Philadelphia, Pennsylvania
Lars W. Andersen, Boston, Massachusetts
Tom P. Aufderheide, Milwaukee, Wisconsin
Jason Bartos, Minneapolis, Minnesota
Robert A. Berg, Philadelphia, Pennsylvania
Audrey L. Blewer, Philadelphia, Pennsylvania
Raul J. Gazmuri, North Chicago, Illinois
Asger Granfeldt, Aarhus, Denmark
David M. Greer, Boston, Massachusetts
Anne V. Grossestreuer, Boston, Massachusetts
Mathias Johan Holmberg, Brighton, Massachusetts
Fumito Ichinose, Boston, Massachusetts
Monica E. Kleinman, Boston, Massachusetts
Mark S. Link, Dallas, Texas
Ari Moskowitz, Boston, Massachusetts
Vinay M. Nadkarni, Philadelphia, Pennsylvania
Robert W. Neumar, Ann Arbor, Michigan
Graham Nichol, Seattle, Washington
Brian O’Neill, Detroit, Michigan
Sarah M. Pernar, Aurora, Colorado
Jon C. Rittenberger, Sayre, Pennsylvania
Kelly N. Sawyer, Pittsburgh, Pennsylvania
Willard W. Sharp, Chicago, Illinois
General Information

On-Site Registration
Registration will be in the Liberty Ballroom Foyer at the Philadelphia 201 Hotel. Hours for on-site registration are:

- Friday, Nov. 15: 3:00-5:30 PM
- Saturday, Nov. 16: 7:00 AM-5:30 PM
- Sunday, Nov. 17: 7:00 AM-5:30 PM

Speaker Resource Room
All speakers must submit their presentations at least three hours before their session is scheduled to begin. Please note that no personal laptops will be permitted. The Speaker Resource Room is located in Salon 7 and will be open during the following times:

- Friday, Nov. 15: 3:00-5:30 PM
- Saturday, Nov. 16: 7:00 AM-5:30 PM
- Sunday, Nov. 17: 7:00 AM-4:00 PM

Conference Learning Objectives
1. Identify best practices for improved outcomes in cardiopulmonary arrest.
2. Discuss research and advancements in the field of cardiopulmonary arrest.
4. Assess research and advancements in the field of life-threatening traumatic injury.

Accreditation
In support of improving patient care, this activity has been planned and implemented by The American Heart Association. The American Heart Association is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

AMA Credit Designation Statement - Physicians
The American Heart Association designates this live activity for a maximum of 18 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

AAPA Credit Acceptance Statement – Physician Assistants
AAPA accepts certificates of participation for educational activities certified for AMA PRA Category 1 Credit™ from organizations accredited by ACCME or a recognized state medical society. Physician assistants may receive a maximum of 18 hours of Category I credit for completing this program.

AANP Credit Acceptance Statement – Nurse Practitioners
American Academy of Nurse Practitioners (AANP) accepts AMA PRA Category 1 Credit™ from organizations accredited by the ACCME.

**AMA Credit must be claimed within 6 months of attendance. Credit will no longer be available to claim after May 17, 2020.

ANCC Credit Designation Statement - Nurses
The maximum number of hours awarded for this CE activity is 18 contact hours.

**ANCC Credit must be claimed within 6 months of attendance. CME/CE will no longer be available to claim after May 17, 2020.

Continuing Education Accreditation – Emergency Medical Services
This continuing education activity is approved by the American Heart Association, an organization accredited by the Commission on Accreditation of Pre-Hospital Continuing Education (CAPCE), for 17 Advanced CEHs, activity number 19-AMHA-F1-0059.
General Information

By claiming CAPCE credit, the claimant acknowledges the following: I understand that the American Heart Association as a requirement of CAPCE accreditation will submit a record of my course completions to the CAPCE AMS. I further understand that my course completion records may be accessed by or shared with such regulators as state EMS offices, training officers, and NREMT on a password-protected, need-to-know basis. In addition, I understand that I may review my record of CAPCE-accredited course completions by contacting CAPCE.

**CAPCE credit must be claimed within 6 months of attendance. CME/CE credit will no longer be available to claim for this activity after May 17, 2020.**

Disclosure Policy

All persons who develop and/or control educational content in CME/CE activities provided by the American Heart Association will disclose to the audience all financial relationships with any commercial supporters of this activity as well as with other commercial interests whose lines of business are related to the CME/CE-certified content of this activity. In addition, presenters will disclose unlabeled/unapproved uses of drugs or devices discussed in their presentations. Such disclosures will be made in writing in course presentation materials.

Abstract Presentations

Abstracts from ReSS 2019 will be available in Circulation online (circ.ahajournals.org).

Abstracts and presentations are embargoed for release at the date and time of presentation or the time of the AHA news event. Written embargoed information can’t be shared with anyone, but one-on-one embargoed media interviews can be conducted as long as the reporter agrees to abide by the embargo policy. Failure to honor embargo policies will result in the abstract being withdrawn and barred from presentation.

Oral abstracts will be presented on Saturday and Sunday:

Saturday, Nov. 16
10:30-11:45 AM
• Best of the Best Oral Abstract Presentations
4:15-5:30 PM
• Late-Breaking Resuscitation Science

Sunday, Nov. 17
8:00-9:15 AM
• The Potential for ECMO and E-CPR to Change the Paradigm
10:45-11:45 AM
• Concurrent Session A: Epidemiologic and Outcomes-based Resuscitation Science
• Concurrent Session B: Laboratory and Translational Studies: Arrest and IR Injury
2:45-4:00 PM
• Concurrent Session A: Measuring Ischemia Reperfusion Injury and Prognostication
• Concurrent Session B: Interventions and Trials: Improving Arrest Outcomes

Poster abstracts will be presented in the Freedom/Independence/Philadelphia Ballrooms. The poster hall will be available for set-up beginning at 10:00 AM Saturday, Nov. 16. To maximize the poster viewing time for attendees, all posters will be available for viewing throughout both days of ReSS (Saturday and Sunday). Attendees are encouraged to visit the posters during breaks and lunch.

Poster abstract presenters will be available for questions and discussion during the dates/times specified below.

• Saturday, Nov. 16 1:15-2:45 PM
• Sunday, Nov. 17 4:00-5:30 PM

The Sunday poster session will include a special reception with hors d’oeuvres and a cash bar. Please plan to attend this special event. For more poster information, please see pages 22–23.

ePosters

In addition to the traditional poster format, presenters were invited to upload their posters electronically. During the meeting, ePosters are available to attendees on the Resuscitation Science Symposium website.

QR Codes

QR codes enable attendees with smart phones to view ePosters and, if applicable, the author’s narration of the poster. QR codes for all ReSS posters will be displayed on the poster boards.
Please be sure to visit our 2019 exhibitors. Exhibits will be in the Liberty Ballroom Foyer near registration on Saturday and Sunday. An exhibitor guide is available at the registration desk.

ReSS Highlights

**Women in Resuscitation Science Networking Meeting**

The annual Women in Resuscitation Science Networking Meeting begins at **12:15 PM Saturday, Nov. 16** in Liberty Ballroom D. We invite you to join us this year for a special networking session with the goal of facilitating introductions to others interested in resuscitation science at early, middle, and senior levels of their careers.

**Joint AHA/Japanese Circulation Society Session**

Join us in Liberty Ballroom A/B/C at **12:15-1:15 PM Saturday, Nov. 16**.

**Year in Review**

This popular annual session is scheduled at **12:15 PM Sunday, Nov. 17**, in Liberty Ballroom A/B/C, and includes a presentation on the EPIC TBI trial.

**Late-Breaking Abstracts in Resuscitation Science**

Late-breaking resuscitation abstracts were evaluated based on their impact and the novelty of the science. Late-breaking oral abstracts will be presented at **4:15-5:30 PM Saturday, Nov. 16** in the Late-Breaking Resuscitation Science Session.

The following late-breaking resuscitation science poster abstracts will be presented on Saturday and Sunday:

121 152 163 250 251
361 401 402 422

**AHA Research: Grant Funding and Other Opportunities**

The AHA is the largest non-governmental, non-profit funder of cardiovascular and cerebrovascular research in the US, and offers many service and career development opportunities. Join Glenn Dillon, PhD, Director of Research Operations at AHA on **Saturday, 5:30-6:30 PM** to learn about:

Grant Funding Opportunities at AHA:
- Across the career stage
- Application expectations and timelines
- The peer review process
- Program success rates

Other Award Opportunities

Service and Career Development Opportunities
The AHA Committee on Emergency Cardiovascular Care established the **Lifetime Achievement Award in Cardiac Resuscitation Science** in 2003 to honor scientists for their outstanding contributions to cardiac resuscitation science. The 2019 Award for Lifetime Achievement Awards will be presented at **9:30 am Saturday, Nov 16**.

The 2019 Award for Lifetime Achievement in Cardiac Resuscitation Science will be presented to **Rudolph W. Koster, MD, PhD**.

Dr. Rudolph W. Koster served as a cardiologist at the Academic Medical Center in Amsterdam, where he trained as an interventional cardiologist and implantation specialist. His PhD thesis was on prevention of ventricular fibrillation with lidocaine in suspected acute myocardial infarction. He retired from clinical work in 2014.

His active research interest in resuscitation started in 1992. He initiated an ongoing registry of out-of-hospital cardiac arrest in the Netherlands (ARREST, AmsteRdam REsuscitation STudies) in 2005. Embedded in this registry were randomized studies on AED use by police, effectiveness of biphasic and monophasic waveform for ventricular fibrillation and for cardioversion of atrial fibrillation, on improvement of AED voice prompts and on safety of mechanical chest compression devices. Recent focus of his work is on participation of lay rescuers with AEDs for residential cardiac arrest and further improvement of AED rhythm analysis.

He served as member of the Board of the European Resuscitation Council (ERC) and chair of the Working Group on Basic Life Support of the ERC. He participated in the International Liaison Committee on Resuscitation (ILCOR) since 2005 and as co-chair for the ILCOR Task Force Basic Life Support in the 2010 Consensus on Science and Treatment Recommendations process. He chaired the writing committee of the ERC BLS Guidelines 2010 and member in 2015. He is member of the scientific committee of the Netherlands Resuscitation Council and of the Steering Committee of the EuReCa study.

He received the Snellen award of the Netherlands Heart Foundation and is a Honorary Member of the ERC.

**Previous winners of the Lifetime Achievement Award in Cardiac Resuscitation Science**

2003  Myron L. Weisfeldt, MD, FAHA  
2004  Max Harry Weil, MD, PhD  
2005  Petter Steen, MD, PhD  
2006  Robert Berg, MD, FAHA, FAAP  
2007  Joseph P. Ornato, MD, FAHA, FACP, FACC, FACEP  
2008  Douglas Chamberlain, CBE, DSc (Hon), FRCP, FRCA, FACC, FESC  
2009  Mickey S. Eisenberg, MD, PhD  
2010  G. Guy Knickerbocker, PhD, and James R. Jude, MD  
2011  Fritz Sterz, MD, PhD  
2012  Lance Becker, MD, FAHA  
2013  Michael K. Copass, MD  
2014  Leonard A. Cobb, MD  
2015  Mary Fran Hazinski, MSN, FAAN, FAHA, FERC  
2016  Jerry P. Nolan, FRCA, FRCP, FFICM, FCEM (Hon)  
2017  Vinay Nadkarni, MD, FAAP, FAHA  
2018  Clifton W. Callaway, MD, PhD
ReSS Awards (continued)

2019 Ian G. Jacobs Award for International Group Collaboration to Advance Resuscitation Science

This award was established in 2010 to recognize international collaboration among individuals over an extended time that has resulted in major contributions to fundamental or clinical science related to cardiac arrest or traumatic injury. The award was named posthumously in honor of professor Ian George Jacobs, PhD, OStJ, FERC, FAHA, in 2014 in recognition of his tireless efforts to bring clinicians and researchers together from multiple disciplines and countries to improve acute resuscitation care throughout the world.

The 2019 award will be presented to the World Restart a Heart initiative. This global project delivers CPR training around the world and aims to improve the low numbers of people surviving out-of-hospital cardiac arrests.

2019 Resuscitation Champion Award

Established by the ReSS co-chairs in 2017, this award recognizes an individual who has demonstrated commitment to the field of resuscitation science through championing research and/or clinical improvements, supporting resuscitation scholars and serving as a passionate advocate for our field. This award is designated for an individual who is not a full-time healthcare professional, but someone who supports our field through their work in government, industry or public advocacy.

The 2019 Award will be presented to Jane D. Scott, ScD, MSN, FAHA, currently the Director, DCVS Office of Research and Training and Career Development at NIH. Since 2005, she has served as the Director, Office of Research Training and Career Development, Division of Cardiovascular Sciences (DCVS), National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health. In 2010, she took the lead in creating the NIH, NHLBI Institutional Training Program (K12) in Emergency Care Research. The program funded six centers and trained 42 clinical scholars for two to three years to conduct emergency care research. She helped create the current Trans NIH K12 Program in Emergency Care Research that was released in 2015, and funds 4 research centers.

Dr. Scott has worked in a variety of research, research training, and clinical settings pertaining to emergency and trauma care. She was the Associate Director of Clinical Research MS/PhD Program at Sackler Graduate School, and Associate Director of an AHRQ T32 Program in Clinical Research, Tufts University. From 1995-2002, she worked at the University of Maryland School of Medicine, first as a faculty member in the Charles Mathias Study Center for Trauma and EMS, and then as the Director, Office of Research, Program in Trauma, R Adams Cowley Trauma Center. She has served on numerous state and federal research and technical advisory panels, including the national advisory committee for the Robert Woods Johnson Foundation’s Urgent Matters Program to reduce ED crowding 2002-2004.

From 1988-1995, she was a program officer at AHRQ and provided oversight to federally funded research grants regarding pre-hospital, ED, and ICU care, as well as severity of illness tools/methods. She obtained a BSN from Duke University, MSN from Wayne State University, and ScD from the Johns Hopkins Bloomberg School of Public Health in Health Policy and Management. She started her career as a staff nurse in the Duke University Emergency Department, and subsequently worked as a nurse practitioner on the medical and surgical services in the Johns Hopkins Hospital Adult Emergency Department.

2019 Max Harry Weil Award for Resuscitation Science

The Max Harry Weil Award for Resuscitation Science, established in 2012, honors the memory of Max Harry Weil, MD, PhD, considered a “father of critical care medicine” and a pioneer in 3CPR science. The award acknowledges the scholarly accomplishments of an early career investigator dedicated to disciplines relevant to the 3CPR Council.

The 2019 award will be presented to Qinjun Yu, MD, PhD, who will present on Saturday morning, Nov. 16. The title of Dr. Yu’s presentation is BOLA (BolA Family Member 3) Deficiency Controls Endothelial Metabolism and Glycine Homeostasis in Pulmonary Hypertension.

Past recipients of the Max Harry Weil Award

2012 Theresa Olasveengen
2013 Zachary Goldberger
2014 Kotaro Kida
2015 Roxane Paulin
2016 Carolina Malta Hansen
2017 Kristian Kragholm
2018 Rebecca R. Vanderpool
ReSS Awards (continued)

2019 Best Abstract Awards

Four recipients have been selected to receive this award for the top-scoring abstracts submitted to the Resuscitation Science Symposium. The winners of the Best Abstract Awards will be recognized during the Best of the Best Oral Abstract Presentations at 10:30 AM Saturday, Nov. 16.

<table>
<thead>
<tr>
<th>Name</th>
<th>Presentation Number</th>
<th>Title</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Nordberg</td>
<td>01</td>
<td>The Importance of Time to Cooling in Out-Of-Hospital Cardiac Arrest Patients to Influence Neurologically Intact Survival: A Sub-Analysis of the Princess Trial</td>
<td>Cardiac Resuscitation Science</td>
</tr>
<tr>
<td>Jason Lesnick</td>
<td>02</td>
<td>Effect of Airway Insertion First-Pass Success Upon Patient Outcomes in the Pragmatic Airway Resuscitation Trial</td>
<td>Cardiac Resuscitation Science</td>
</tr>
<tr>
<td>Tulasi Jinka</td>
<td>03</td>
<td>High-Dose Intranasal Insulin During CPR Improves Neurological Outcomes in a Rat Model of Cardiac Arrest</td>
<td>Trauma Resuscitation Science</td>
</tr>
<tr>
<td>Kelley R. Branch</td>
<td>04</td>
<td>Diagnostic Accuracy of Coronary CT in Survivors of Out-Of-Hospital Circulatory Arrest: Can CT Serve as a Gatekeeper for Invasive Coronary Angiography?</td>
<td>Trauma Resuscitation Science</td>
</tr>
</tbody>
</table>

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#ReSS19

- Follow @AHAMeeting and @AHAScience on Twitter
- Please use hashtag #ReSS19 on all your tweets!

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2019 Young Investigator Awards

These awards are presented for the top-scoring abstracts submitted by young investigators within the first five years of their appointment. The Young Investigator Event will recognize the following winners of these awards on Friday, Nov. 18.

<table>
<thead>
<tr>
<th>Name</th>
<th>Presentation Number</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linn Andelius</td>
<td>16</td>
<td>Dispatched Citizen Responders Perform Three Out of Four of All Bystander Defibrillated Out-of-hospital Cardiac Arrests In Residential Areas</td>
</tr>
<tr>
<td>Jesse Chan</td>
<td>245</td>
<td>Role of The Resuscitation Champion on Survival Outcomes for In-hospital Cardiac Arrest</td>
</tr>
<tr>
<td>William Z. Chancellor</td>
<td>13</td>
<td>Adenosine Receptor Activation During Extracorporeal Cardiopulmonary Resuscitation Improves Survival After Cardiac Arrest in Swine</td>
</tr>
<tr>
<td>Ryan A. Coute</td>
<td>310</td>
<td>National Institutes of Health Research Investment for The Leading Causes of Disability-adjusted Life Years In The United States</td>
</tr>
<tr>
<td>Rajat Karla</td>
<td>14</td>
<td>Echocardiographic Evaluation of Left Ventricular Recovery After Refractory Out-of-hospital Cardiac Arrest</td>
</tr>
<tr>
<td>Pavitra Lotini-Shah</td>
<td>186</td>
<td>Sex Differences in Outcomes for Out-of-hospital Cardiac Arrest</td>
</tr>
<tr>
<td>Norihiro Nishioka</td>
<td>24</td>
<td>Association Between Serum Lactate During Cardiopulmonary Resuscitation and Survival in Adult Out-of-hospital Cardiac Arrest: A Multicenter Cohort Study (The Critical Study In Osaka, Japan)</td>
</tr>
<tr>
<td>Caitlin E. O’Brien</td>
<td>300</td>
<td>End-Tidal CO2 -Guided Chest Compression Delivery Improves Survival in a Pediatric Model of Respiratory Failure and Cardiac Arrest</td>
</tr>
<tr>
<td>Jung Soo Park</td>
<td>23</td>
<td>The Usefulness of Neuron-specific Enolase In Cerebrospinal Fluid To Predict Neurological Prognosis In Cardiac Arrest Survivors Who Underwent Target Temperature Management: A Prospective Observational Study</td>
</tr>
<tr>
<td>Alexis Steinberg</td>
<td>406</td>
<td>Are Providers Overconfident in Predicting Outcome After Cardiac Arrest?</td>
</tr>
<tr>
<td>Robert D. Stevens</td>
<td>405</td>
<td>A Machine Learning-based Prediction of Cardiac Arrest Outcome Using A Large Multi-Center Database</td>
</tr>
</tbody>
</table>

2019 3CPR Emergency Medical Services Travel Stipends

Sponsored by the Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation (3CPR), the EMS travel stipends allow EMS chiefs, educators and other non-physician EMS leadership to attend ReSS. The recipients of the 2019 travel stipends were selected based on their commitment and interest in cardiac arrest, CPR and resuscitation care, their potential to make an impact in out-of-hospital resuscitation care, and their record of EMS accomplishments.

The 2019 3CPR EMS Travel Stipend recipients are:

Albert Medina
Braxton A. Morrison
Kathleen O’Connor
Josh Pelonio
Policy Information

Disclaimer
The Resuscitation Science Symposium is a scientific and educational conference for exchanging and discussing research results and scientific developments in the field of cardiovascular outcomes research. Accordingly, the American Heart Association cannot offer any assurance or warranty of the accuracy, truthfulness or originality of the information presented at the conference.

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Abstracts, lectures and presentations in ReSS 2019 are embargoed for release at the time of presentation. Information may not be released before the scheduled presentation time.

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Seating is on a first-come, first-serve basis. According to fire code, a session must be closed if the room fills to capacity. You must wear your name badge at all times during the symposium. Nonregistered guests may not be permitted into the sessions or food and beverage events. Be sure to remove your badge when you leave the conference or your hotel room. The American Heart Association reserves the right to revoke or deny attendance to any registered participant, speaker, exhibitor, news media reporter, or photographer of presentations or activities at AHA/ASA scientific conferences and meetings.
ReSS Program Agenda

Friday, November 15

6:30–9:30 PM
Young Investigator Dinner
(RSVP required)

Saturday, November 16

8:00–8:15 AM
Liberty Ballroom A/B/C
Session 01
Symposium Opening:
Welcome and Introduction

8:15–9:30 AM
Liberty Ballroom A/B/C
Session 02
Plenary 1: Post Arrest Cardiac Interventions
Moderators:
Cindy H. Hsu, MD, PhD, University of Michigan, Ann Arbor, Michigan
Rudolph W. Koster, MD, PhD, Academic Medical Center, Amsterdam, Netherlands

8:15 Post-Arrest Coronary Angiography
Jorrit Lemkes, MD, Amsterdam University Medical Center, Amsterdam, Netherlands

8:30 ECMO for Post-Arrest Cardiogenic Shock
Matthew Ma, MD, PhD, National Taiwan University, Taipei, Taiwan

8:45 Implantable and Wearable Defibrillators After Arrest
Mark S. Link, MD, FAHA, UT Southwestern Medical Center, Dallas, Texas

9:00 Impella, Balloon Pump and Post-Arrest Support
Jason Bartos, MD, PhD, University of Minnesota, Minneapolis, Minnesota

9:15 Discussion

9:30–10:15 AM
Liberty Ballroom A/B/C
Session 03
2019 ReSS Awards and Special Presentation
Moderators:
Michael W. Donnino, MD, Beth Israel Deaconess Medical Center, Boston, Massachusetts
Henry R. Halperin, MD, FAHA, Johns Hopkins Hospital, Baltimore, Maryland

9:30 Lifetime Achievement Award in Cardiac Resuscitation Science Recipient
Rudolph W. Koster, MD, PhD, Academic Medical Center, Amsterdam, Netherlands

9:40 Ian G. Jacobs Award for International Group Collaboration to Advance Resuscitation Science World Restart a Heart

10:00 Special Presentation: Moderate Therapeutic Hypothermia After Cardiac Arrest in Non-shockable Rhythm: the HYPERION Trial
Jean-Baptiste Lascarrou, MD, Médecine Intensive Réanimation, CHU de Nantes, Paris, France

10:15–10:30 AM
Liberty Ballroom Foyer
Break and Exhibits

10:30–11:45 AM
Liberty Ballroom A/B/C
Session 04
Best of the Best Oral Abstract Presentations and Presentation of the Best Abstract Awards for Cardiac and Trauma Resuscitation Science
Moderators:
Dianne L. Atkins, MD, FAHA, University of Iowa, Iowa City, Iowa
Mohamud R. Daya, MD, Oregon Health and Science University, Portland, Oregon

10:30 The Importance of Time to Cooling in Out-Of-Hospital Cardiac Arrest Patients to Influence Neurologically Intact Survival: A Sub-Analysis of the Princess Trial

10:45 Effect of Airway Insertion First-Pass Success Upon Patient Outcomes in the Pragmatic Airway Resuscitation Trial
Jason Lesnick, UT Health - Univ of Texas HSC at Houston, Houston, TX; Yefei Zhang, UT Health - Univ Texas Houston, Houston, TX; Justin X Moore, Washington Univ of St. Louis, St. Louis, MO; Mohamud R Daya, OHFU, Portland, OR; Jeffrey William Jarvis, Petoskey, Petoskey, MI; Graham Nichol, Univ of Washington, University of Washington, WA; Jestin N Carlson, Saint Vincent Hosp, Erie, PA; Cameron D Klug,
Kaiser Sunnyside Medical Ctr, Clackamas, OR; Robert Schmicker, Kaiser Sunnyside Medical Ctr, Clackamas, OR; Seattle, WA; David Dennis, Tualatin Valley Fire Dept, Portland, OR; Ahamad H Idris, UT Southwestern Medical Ctr, Dallas, TX; George Sopko, NIH NHLBI, Bethesda, MD; Pratik Doshi, Eric Madden, Henry E Wang, UT Health - Univ Texas Houston, Houston, TX

11:00 High-Dose Intranasal Insulin During CPR Improves Neurological Outcomes in a Rat Model of Cardiac Arrest
Tulasi Jinka, Adam D. Chalek, Joseph M. Wider, Kathleen J Maheras, Amanda Ovgstad, Erin Gruley, Sarita Raghunayakula, Jinhui Liao, Xiaodan Ren, Rui Zhang, Thomas H Sanderson, Robert W Neumar, Dept of Emergency Med and Michigan Ctr for Integrative Res in Critical Care (MCIRCC), Univ of Michigan Medical Sch, Ann Arbor, MI

11:15 Diagnostic Accuracy of Coronary CT in Survivors of Out-Of-Hospital Circulatory Arrest: Can CT Serve as a Gatekeeper for Invasive Coronary Angiography?
Kelley R Branch, Univ of Washington, Seattle, WA; Ravi Hira, Seattle, WA; Robin M Brusen, Univ of Washington, Seattle, WA; Charles Maynard, Univ Washington, Seattle, WA; Medley Gatewood, Univ of Washington, Seattle, WA; Deborah L Fly, ACLS Consultants, Kirkland, WA; Bradley J Petek, ACLS Consultants, Kirkland, WA, Boston, MA; Peter Kudenchuk, Univ of Washington; Justin A Strote, Univ of Washington, Seattle, WA; Michelle Olsufka, Harborview Medical Ctr, Seattle, WA; Michael R Sayre, Univ of Washington, Seattle, WA; David Carlbom, Martin Gunn, Univ of Washington, Seattle, WA

11:30 Award Presentations

11:45 AM–12:15 PM Lunch Break

12:15–1:15 pm Liberty Ballroom A/B/C
Session 06
Joint Session: Japanese Circulation Society/ American Heart Association

Moderators:
David Gaiieski, MD, Thomas Jefferson University, Philadelphia, Pennsylvania
Yoshio Tahara, MD, National Cerebral and Cardiovascular Center, Osaka, Japan

12:15 CPR and AED Training for Citizens Organized by the Japanese Circulation Society
Katsutaka Hashiba, MD, Saiseikai Yokohamashi Nanbu Hospital, Yokohama, Japan

12:30 Racial, Ethnic, and Socioeconomic Disparities in AED Knowledge and Use of AEDs
Audrey L. Blewer, PhD, MPH, Duke University School of Medicine, Durham, North Carolina

12:45 Evidence from Japanese Public Access Defibrillation
Takahiro Nakashima, MD, National Cerebral and Cardiovascular Center, Osaka, Japan

1:00 Optimizing Drone Networks to Deliver AEDs
Justin J. Boutillier, PhD, University of Wisconsin-Madison, Madison, Wisconsin

1:15–2:45 pm Freedom/Independence/Philadelphia Ballrooms (Mezzanine Level)
Poster Session 1
For details please see page 22.

2:45–4:00 pm Liberty Ballroom A/B/C
Session 07
Plenary 2: In-Hospital Cardiac Arrest

Moderators:
Mary Ann Peberdy, MD, FAHA, Virginia Commonwealth University, Henrico, Virginia
Won Young Kim, MD, PhD, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

2:45 Prediction of In-Hospital Cardiac Arrest
Matthew M. Churpek, MD, MPH, PhD, University of Chicago, Chicago, Illinois

3:00 In-Hospital Resuscitation Quality
Paul Chan, MD, Saint Luke’s Hospital / MAHI, Kansas City, Missouri

3:15 Team Training and Debriefing for In-Hospital Arrest
Elizabeth A. Hunt, MD, MPH, PhD, Johns Hopkins University School of Medicine, Baltimore, Maryland
3:30  Registries and Outcomes from In-Hospital Cardiac Arrest
Monique Anderson Starks, MD, Duke University, Durham, North Carolina

3:45  Discussion

4:00–4:15 PM
Liberty Ballroom Foyer
Break and Exhibits

4:15–5:30 PM
Liberty Ballroom A/B/C
Session 08
Late-Breaking Resuscitation Science
Moderators:
Anne V. Grossestreuer, PhD, Beth Israel Deaconess Medical Center, Boston, Massachusetts
Eirik Skogvoll, MD, PhD, St. Olav University Hospital, Trondheim, Norway

4:15  Epinephrine in Children Receiving Cardiopulmonary Resuscitation for Bradycardia with Poor Perfusion
Mathias Johan Holmberg, Aarhus Univ Hosp, Aarhus N, Denmark; Catherine E Ross, Boston Children's Hosp, Boston, MA; Tuyen Yankama, Boston Children's Hosp, Boston, MA, Allston, MA; Joan S Roberts, Seattle Children's Hosp, Seattle, WA; Michael Donnino, Beth Israel Deaconess Medical, Boston, MA; Lars Wiuff Andersen, Res Ctr for Emergency Med, Aarhus, Herning

4:30  Neuromuscular Blockade for Post-cardiac Arrest Care: Results of a Randomized Controlled Trial
Ari Moskowitz, BIDMC, Boston, MA; Jon C Rittenberger, Geisinger Commonwealth Sch of Med, Scranton, PA; Robert A Swor, WM Beaumont Hosp, Royal Oak, MI; Raghu R Seethala, Brigham and Women's Hosp, Boston, MA; Michael C Kurz, University of Alabama at Birmingham, Hoover, AL; Lars W. Andersen, Aarhus Univ Hosp, Aarhus, Denmark; Katherine Berg, Beth Israel Deaconess Medical Cntr, Boston, MA; Maureen Chase, Beth Israel Deaconess Medical Center, Boston, MA; Michael N Cocchi, BIDMC Harvard Medical School, Dedham, MA; Anne V Grossestreuer, Beth Israel Deaconess Medical Cntr, Boston, MA; Mathias J Holmberg, BIDMC, Boston, MA; Michael Donnino, Beth Israel Deaconess Medical, Boston, MA

4:45  Heart Class – A Novel, Interactive CPR Training Film Leads to Better CPR Skill Acquisition and Retention Compared to Standard Training In High School Students
Lorrel E Brown, Univ of Louisville, Louisville, KY; John Wright, Louisville, KY; Jamaal Richie, Louisville, KY, Louisiville, KY; Arunpreet Kahlon, Louisville, KY, Louisiville, KY, Louisiville, KY, Patrick Disalvio, Alok R Amraoalkr, Univ of Louisiville, Louisiville, KY; Praneeth Katrapati, Louisiville, KY; Mariah Moore, Univ of Louisiville, Louisiville, KY; David Liu, Adam Lehnig, Univ of Louisiville SOM, Louisville, KY; Kuldeep Ghosh, Henry R Halperin, Johns Hopkins Hospital Halsted 571, Baltimore, MD

5:00  A Blinded, Randomized, Vehicle-Controlled Preclinical Trial of Novel Nanoparticle Formulations of Triiodothyronine in Cardiac Arrest
Brian R Weil, Shannon Allen, Thomas Barbaccia, Rebecca Young, Beth Palka, John M Canty Jr., Univ at Buffalo, Buffalo, NY; Shaker A Mousa, Pharmaceutical Res Inst at Albany Coll of Pharmacy and Health Sciences, Albany, NY

5:15  Vasopressin Infusion Along with Restrictive Fluid Resuscitation Improves 72-hour Survival in a Swine Model of Concurrent Hemorrhagic Shock and Traumatic Brain Injury
Matthew Maggio, Jenna Mendelson, Salvatore Aiello, Alvin Baetiong, Johanna Stecher, Darren Stapleton, Matthew Christensen, Rosalind Franklin Univ of Med and Science, North Chicago, IL; Regent Laporte, Univ of California, San Diego, CA; Dean Karahalios, Advocate Lutheran General Hosp, Park Ridge, IL; Jeejabai Radhakrishnan, Raul J Gazmuri, Rosalind Franklin Univ of Med and Science, North Chicago, IL

5:30-6:30 PM
Liberty Ballroom A/B/C
Session 08.a
AHA Research: Grant Funding and Other Opportunities
Presenter:
Glenn H. Dillon, PhD, Director of Research Operations, American Heart Association, Dallas, Texas
8:00 Getting the Dose Right: Door-to-TTM Time, Depth and Duration of Cooling
Benjamin S. Abella, MD, MPhil, FACEP, FAHA, University of Pennsylvania, Philadelphia, Pennsylvania

7:30 The Role of Biomarkers, EEG and Imaging in Neuroprognostication
Ramani Balu, MD, PhD, University of Pennsylvania, Philadelphia, Pennsylvania

8:00–9:15 AM
Liberty Ballroom A/B/C
Session 09
The Potential for ECMO and E-CPR to Change the Paradigm
Moderators:
Saket Girotra, MBBS, MS, University of Iowa, Iowa City, Iowa
Carolina Malta Hansen, MD, Copenhagen EMS, Copenhagen, Denmark

8:00 Early Neuroprognostication After Refractory VF/VT Cardiac Arrest Requiring ECPR
Jason A Bartos, Lindsay Nutting, Claire Carlson, Ganesh Raveendran, Univ of Minnesota, Minneapolis, MN; Tom P Aufderheide, Medical Coll Wisconsin, Milwaukee, WI; Demetris Yannopoulos, Univ of Minnesota, Minneapolis, MN

8:15 Early Magnetic Resonance Imaging to Quantify Ischemic Brain Insult Early Following Cardiac Arrest in a Swine Model
Miriam Peckham, Adam DeHavenon, Matthew David Alexander, Jeffrey Anderson, Scott McNally, Stephen H McKellar, Joseph Tonna, Ka-ho Wong, Jacob Steenblik, Scott T Youngquist, Univ of Utah, Salt Lake City, UT

8:30 Outcomes After Pediatric Extracorporeal Cardiopulmonary Resuscitation: Do Quantitative CPR Metrics Matter?
Tia Tortoriello Raymond, Medical City Children's Hosp, Dallas, TX; Ivie Esangbedo, Priscilla Yu, Children's Health UTSW, Dallas, TX; Todd Sweberg, Cohen Children's Hosp, New York, NY; Javier J Lasa, Texas Children's Hosp, Houston, TX; Dana Erika Niles, Xuemei Zhang, Heather Griffin, Richard Hanna, Vinay M Nadkarni, Children's Hosp of Philadelphia, Philadelphia, PA

8:45 Adenosine Receptor Activation During Extracorporeal Cardiopulmonary Resuscitation Improves Survival After Cardiac Arrest in Swine
William Z Chancellor, Univ of Virginia, Charlottesville, VA; Dustin Money, Jared P Beller, Matthew R Byler, Aimee Zhang, Jennifer R Charlton, Daniel E Levin, Univ of Virginia, Charlottesville, VA; Nadia Lunardi, Zequan Yang, Univ of Virginia, Charlottesville, VA; Victor Laubach, Univ Virginia Health Systems, Charlottesville, VA; James Mehaffey, Univ of Virginia, Charlottesville, VA; Irving Kron, U of Arizona Tucson, Tucson, AZ; Mark E Roese, Univ of Virginia, Charlottesville, VA

9:00 Echocardiographic Evaluation of Left Ventricular Recovery After Refractory Out-Of-Hospital Cardiac Arrest
Rajat Kaia, Jason Bartos, Marinos Kosmopoulos, Claire Carlson, Ranjit John, Andrew Shaffer, Cindy M Martin, Ganesh Raveendran, Demetris Yannopoulos, Univ of Minnesota, Minneapolis, MN

9:15–10:30 AM
Liberty Ballroom A/B/C
Session 10
Plenary 3: Intra-Arrest Monitoring and Assessment
Moderators:
Sheldon Cheskes, MD, University of Toronto, Toronto, Ontario
Sam Parnia, MD, NYU Langone Medical Center, New York, New York

9:15 Intra-Arrest Physiologic Monitoring
Robert M. Sutton, MD, MSCE, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania

9:30 The Role of Transthoracic and Transesophageal Ultrasound
Romolo J. Gaspari, MD, PhD, MSc, FACEP, University of Massachusetts Medical School, Worcester, Massachusetts

9:45 Capnography During CPR
Claudio Sandroni, MD, Catholic University School of Medicine, Rome, Italy

10:00 Near-Infrared Monitoring During CPR
Cornelia Genbrugge, MD, Hasselt University, Hasselt, Belgium

10:15 Discussion

10:30–10:45 AM
Liberty Ballroom Foyer
Break and Exhibits
10:45–11:45 AM  
**Liberty Ballroom A/B/C**  
**Session 11**  
**Concurrent A: Epidemiologic and Outcomes-Based Resuscitation Science**  
**Moderators:**  
Marina Del Rios, MD, MSc, University of Illinois at Chicago, Chicago, Illinois  
Chika Nishiyama, PhD, MPH, Kyoto University, Kyoto, Japan

10:45  
**Public Access Defibrillators: Sex-Based Inequities in Access and Application**  
Brian E Grunau, St Paul’s Hosp, Vancouver, BC, Canada; Emad Awad, Univ of British Columbia, Vancouver, BC, Canada; Takahisa Kawano, Univ of Fukui, Fukui, Japan; Frank Scheuermeyer, Univ of Fukui, Fukui, Japan, Vancouver, BC, Canada; Robert Stenstrom, Providence Health Care, Vancouver, BC, Canada; Steven Brooks, Queen’s Univ, Kingston, ON, Canada; Sean Van Diepen, Unv of Alberta, Edmonton, AB, Canada; Karin H Humphries, Providence HealthCare Res Inst, Vancouver, BC, Canada; Sarah Pennington, Providence Health Res Inst, Vancouver, BC, Canada; Bobby Gu, Univ of British Columbia, Vancouver, BC, Canada; Rahaf Al Assil, Providence Health Care, Vancouver, BC, Canada; James Christenson, Univ of British Columbia, Vancouver, BC, Canada

11:00  
**Dispatched Citizen Responders Perform Three Out of Four of all Bystander Defibrillated Out-Of-Hospital Cardiac Arrests in Residential Areas**  
Linn Andelius, Carolina Malta Hansen, Freddy Lippert, Emergency Medical Services Copenhagen, Ballerup, Denmark; Christian Torp-pedersen, Dept of Cardiology, North Zealand Hosp, Hilleroed, Denmark; Lena Karlsson, Gunnar H Gislason, Dept of Cardiology, Copenhagen Univ Hosp Herlev and Gentofte, Hllerup, Denmark; Fredrik Folke, Emergency Medical Services Copenhagen, Ballrup, Denmark

11:15  
**Cognitive, Psychological, and Functional Limitations After Sudden Cardiac Arrest Among a Racially and Ethnically Diverse United States Population**  
Sachin Agarwal, Evie Sobczak, Columbia Univ Medical Ctr, New York, NY; Alex Presciutti, Univ of Colorado Denver, Denver, CO; David Roh, Soojin Park, Jan Claassen, Mitchell S Elkind, Donald Edmondson, Columbia Univ Medical Ctr, New York, NY

11:30  
**Trends in Median CPR Duration Over Time in Patients with and Without Return of Spontaneous Circulation**  
Katherine M Berg, Michael Donnino, Ari Moskowitz, Mathias J Holmberg, Beth Israel Deaconess Medical Ctr, Boston, MA; Sebastian Wiberg, Rigshospitalet Copenhagen Univ Hosp, Copenhagen, Denmark; Anne V Grossesteuer, Beth Israel Deaconess Medical Ctr, Boston, MA

10:45–11:45 AM  
**Liberty Ballroom D**  
**Session 12**  
**Concurrent B: Laboratory and Translational Studies: Arrest and IR Injury**  
**Moderator:**  
Matthias L. Reiss, MD, Vanderbilt University Medical Center, Nashville, Tennessee  
Mary Fran Hazinski, RN, MSN, FAAN, FAHA, Vanderbilt University, Nashville, Tennessee

10:45  
**Ultra-Fast Cooling Induced by Total Liquid Ventilation Provides Neuroprotection Through a Delay in the Acute Systemic Inflammatory Response After Cardiac Arrest in Rabbits**  
Emilie Boissady, EnvA, Maisons Alfort, France; Matthias Kohlhauer, EnvA, Inserm U955, Maisons-Alfort, France; Fanny Lidouren, INSERM, U955, Ecole Natle Vétérinaire d’Alfort, Maisons-Alfort, France; Bijan Ghaleh, INSERM U955 EQUIPE 3, Creteil, France; Renaud Tissier, INSERM, U955, Ecole Natle Vétérinaire d’Alfort, Maisons-Alfort, France

11:00  
**Peripheral Intravenous Analysis Detects Return of Spontaneous Circulation Without Interruption of Chest Compressions in a Rat Model of Cardiopulmonary Resuscitation**  
Claudius Balzer, Vanderbilt Univ Medical Ctr, Nashville, TN; Franz J Baudenbacher, Vanderbilt Univ, Nashville, TN; Antonio Hernandez, Michele M Salzman, Vanderbilt Univ Medical Ctr, Nashville, TN; Matthias L Riess, Anesthesiology, TVHS VA Medical Ctr, Nashville, TN; Susan S Eagle, Vanderbilt Univ, Nashville, TN

11:15  
**Effects of the Selective NLRP3-Inflammasome Inhibitor MCC950 on Post-Resuscitation Myocardial and Cerebral Function in a Rat Model of Cardiopulmonary Resuscitation**  
Guanghui Zheng, Jing Xu, Fenglian He, Weil Inst, Richmond, VA; Juntao Hu, Virginia Commonwealth Univ, Richmond, VA; Weiwei Ge, Virginia Commonwealth Univ, Richmond, VA; Xiaofei Ji, Virginia Commonwealth Univ, Richmond, VA; Jennifer Bradley, Virginia Commonwealth Univ, Richmond, VA; Mary Ann A Peberdy, Virginia Commonwealth Univ, Henrico, VA; Joseph P Ornato, Virginia Commonwealth Univ, Richmond, VA; Longyuan Jiang, Tong Wang, Sun Yat-Sen Univ, Guangzhou, China; Stefano Toldo, Virginia Commonwealth Univ, Glen Allen, VA; Wunchun Tang, Virginia Commonwealth Univ, Richmond, VA
11:30  Poloxamer 188 Protects Mouse Brain Microvascular Endothelial Cells in an in-vitro Traumatic Brain Injury Model
   Felicia P Lotze, Univsmiedizin Greifswald, Greifswald, Germany; Michele M. Salzman, Vanderbilt Univ Medical Ctr, Nashville, TN; Johannes A Pille, Univsmiedizin Greifswald, Greifswald, Germany; Claudius Balzer, Vanderbilt Univ Medical Ctr, Nashville, TN; Josephine E Hees, Univsmiedizin Greifswald, Greifswald, Germany; William J Cleveland, Vanderbilt Univ Medical Ctr, Nashville, TN; Matthias L Riess, TVHS VA Medical Ctr, Nashville, TN

11:45 AM–12:15 PM
Lunch Break

12:15–1:15 PM
**Liberty Ballroom A/B/C**
**Session 13**
**Year In Review**

**Moderators:**
Ken Nagao, MD, PhD, FAHA, Nihon University Hospital, Tokyo, Japan
Graham Nichol, MD, MPh, FRCP(C), FAHA, University of Washington, Seattle, Washington

12:15  **Year In Review: Cardiac Arrest**  
Robert Neumar, MD, University of Michigan, Ann Arbor, Michigan

12:45  **Special Presentation: The Excellence in Prehospital Injury Care (EPIC) Traumatic Brain Injury Study: Results and Implications**  
Daniel W. Spaite, MD, FACEP, University of Arizona, Chandler, Arizona

1:15–2:30 PM
**Liberty Ballroom A/B/C**
**Session 14**
**Plenary 4: Neurologic Monitoring and Prognostication**

**Moderators:**
John Bro-Jeppesen, MD, PhD, Copenhagen University Hospital, Copenhagen, Denmark
David M. Greer, MD, FAHA, Boston University, Boston, Massachusetts

1:15  **EEG for Post-Arrest Assessment**  
John C. Rittenberger, MD, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania

1:30  **Quantitative Pupillometry After Cardiac Arrest**  
Jonathan Elmer, MD, University of Pittsburgh, Pittsburgh, Pennsylvania

1:45  **Brain Physiologic Data and Outcomes from Arrest**  
Soojin Park, MD, FAHA, Columbia University Medical Center, New York, New York

2:00  **Serologic Markers of Brain Injury**  
Sarah M. Perman, MD, MSCE, FAHA, University of Colorado School of Medicine, Aurora, Colorado

2:15  Discussion

2:30–2:45 PM
**Liberty Ballroom Foyer**
**Break and Exhibits**

2:45–4:00 PM
**Liberty Ballroom A/B/C**
**Session 15**
**Concurrent A: Measuring Ischemia Reperfusion Injury and Prognostication**

**Moderators:**
Kelly N. Sawyer, MD, MS, Beaumont Health System, Royal Oak, Michigan
Robert A. Swor, DO, William Beaumont Hospital, Royal Oak, Michigan

2:45  **The Usefulness of Neuron-Specific Enolase in Cerebrospinal Fluid to Predict Neurological Prognosis in Cardiac Arrest Survivors Who Underwent Target Temperature Management: A Prospective Observational Study**  
Jung Soo Park, Chungnam Natl Univ, Daejeon, Korea, Republic of

3:00  **Association Between Serum Lactate During Cardiopulmonary Resuscitation and Survival in Adult Out-Of-Hospital Cardiac Arrest: A Multicenter Cohort Study (The Critical Study in Osaka, Japan)**  
Norihiro Nishioka, Daisuke Kobayashi, Kyoto Univ, Kyoto, Japan; Junichi Izawa, Univ of Pittsburgh, Pittsburgh, PA; Takeyuki Kiguchi, Kyoto Univ, Kyoto, Japan; Tetsuhisa Kitamura, Osaka Univ, Suita, Japan; Takashi Kawamura, Taku Iwami, Kyoto Univ, Kyoto, Japan

3:15  **Prognostic Role of NT-ProBNP in Out-Of-Hospital Cardiac Arrest**  
David E Hamilton, Bradley J Petek, Lindsay G Panah, Sean R Mendez, Philip E Dormish, Michael G Silverman, Massachusetts General Hosp, Boston, MA

3:30  **Prevalence and Pattern of Myocardial Injury in Patients With Cardiac vs Non-Cardiac Cause of Out-Of-Hospital Cardiac Arrest: A One-Year Multicenter Clinical Experience With the High-Sensitivity Troponin T Assay**  
David E Hamilton, Bradley J Petek, Lindsay G Panah, Sean R Mendez, Philip E Dormish, Michael G Silverman, Massachusetts General Hosp, Boston, MA
Machine Learning Models for Outcome Prediction of Out-Of-Hospital Cardiac Arrest of Presumed Cardiac Cause Using the All-Japan Utstein Registry
Tomohisa Seki, The Univ of Tokyo Hosp, Tokyo, Japan; Tomoyoshi Tamura, Keio Univ Sch of Med, Tokyo, Japan; Kazuhiko Ohe, The Univ of Tokyo Hosp, Tokyo, Japan; Masaru Suzuki, Tokyo Dental Coll Ichikawa General Hosp, Ichikawa, Japan

2:45–4:00 PM
Liberty Ballroom D
Session 16
Concurrent B: Interventions and Trials: Improving Arrest Outcomes
Moderators:
Clifton W. Callaway, MD, PhD, FAHA, University of Pittsburgh, Pittsburgh, Pennsylvania
Sarah M. Perman, MD, MSCE, FAHA, University of Colorado School of Medicine, Aurora, Colorado

Feasibility and Safety of Pre-Hospital Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) in Non-Traumatic Out-Of-Hospital Cardiac Arrest
Jostein R Brede, Thomas Lafrenz, Pål Klepstad, Eivinn A Skjærseth, Trond Nordseth, Edmund Søvik, Andreas J Kruger, St. Olavs Hosp, Trondheim, Norway

Comparison of Amiodarone versus Lidocaine for Treatment of In-Hospital Cardiac Arrest
Deborah S Wagner, Coll of Pharmacy, Depts of Anesthesiology and Pharmacy Services, Univ of Michigan Medical Sch, Ann Arbor, MI; Humaira Nawer, CS Mott Children’s Hosp & Von Voithlander Women’s Hosp, Univ of Michigan, Ann Arbor, MI; Steven L Kronick, James A Cranford, Dept of Emergency Med, Michigan Ctr for Integrative Res in Critical Care, Univ of Michigan Medical Sch, Ann Arbor, MI; Steven M Bradley, Minneapolis Heart Inst, Minneapolis, MN; Robert W Neumar, Dept of Emergency Med, Michigan Ctr for Integrative Res in Critical Care, Univ of Michigan Medical Sch, Ann Arbor, MI

Targeted Temperature Management at 33 versus 36 Degrees: Outcomes After Real-World Implementation
Nicholas J Johnson, Univ of Washington, Seattle, WA; Kyle R Danielson, Airlift Northwest, UW Med, Seattle, WA; Catherine R Counts, Univ of Washington, Seattle, WA; Katelyn Ruek, Univ of North Dakota Sch of Med, Grand Forks, ND; Sue Scruggs, Seattle Fire Dept, Seattle, WA; Catherine L Hough, Univ of Washington, Seattle, WA; Charles Maynard, Univ Washington, Seattle, WA; Michael Sayre, David Carlbom, Univ of Washington, Seattle, WA

Low versus High Blood Pressure Targets After Out-Of-Hospital Cardiac Arrest
Pekka Jakkula, HUS Helsinki Univ Hosp, Helsinki, Finland; Koen Ameloot, Cathy De Deyne, Jo Dens, Ziekenhuis Oost-Limburg, Genk, Belgium; Matti Reinikainen, Kuopio Univ Hosp, Kuopio, Finland; Ville Pettitilä, Johanna Hästbacka, Markus Skrifvars, HUS Helsinki Univ Hosp, Helsinki, Finland

Chest Compression Fraction Increased When Police Used AED That Analyses Heart Rhythm During CPR
Corina de Graaf, Stefanie G Beesems, Amsterdam UMC, location AMC, Amsterdam, Netherlands; Ronald E Stickney, Fred W Chapman, Stryker Emergency Care, Redmond, WA; Rudolph W Koster, Amsterdam UMC, location AMC, Amsterdam, Netherlands

3:15
3:30
3:45
4:00–5:30 PM
Freedom/Independence/Philadelphia Ballrooms (Mezzanine Level)
Poster Session 2 and Reception
For details please see page 23.
Poster Sessions

All poster abstracts will be presented in the Freedom/Independence/Philadelphia Ballrooms located on the Mezzanine Level of the hotel. The poster hall will be available for set-up beginning at 10:00 AM Saturday, November 16. To maximize the poster viewing time for attendees, all posters will be available for viewing throughout both days of ReSS (Saturday and Sunday).

Poster abstract presenters will be available for questions and discussion during the dates/times specified below.

- Saturday, November 16 1:15–2:45 PM
- Sunday, November 17 4:00–5:30 PM

The Sunday poster session will include a special reception with hors d’oeuvres and a cash bar. Please plan to attend this special event.

Saturday, November 16
1:15–2:45 PM

Poster Session 1

<table>
<thead>
<tr>
<th>Session Number</th>
<th>Session Title</th>
<th>Poster Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS.01.01</td>
<td>Hypothermia / Targeted Temperature Management</td>
<td>100-107</td>
</tr>
<tr>
<td>APS.01.02</td>
<td>Hemorrhagic Shock</td>
<td>116-121</td>
</tr>
<tr>
<td>APS.01.03</td>
<td>Biomarkers</td>
<td>131-136</td>
</tr>
<tr>
<td>APS.01.04</td>
<td>Defibrillation</td>
<td>147-152</td>
</tr>
<tr>
<td>APS.01.05</td>
<td>Epinephrine</td>
<td>165-169</td>
</tr>
<tr>
<td>APS.01.06</td>
<td>Disparities</td>
<td>183-190</td>
</tr>
<tr>
<td>APS.01.07</td>
<td>ECPR/ECMO</td>
<td>205-211</td>
</tr>
<tr>
<td>APS.01.08</td>
<td>Epidemiology</td>
<td>226-230</td>
</tr>
<tr>
<td>APS.01.09</td>
<td>In-hospital Arrest</td>
<td>245-251</td>
</tr>
<tr>
<td>APS.01.10</td>
<td>Mechanical CPR</td>
<td>264-268</td>
</tr>
<tr>
<td>APS.01.11</td>
<td>Cerebral Monitoring During Arrest</td>
<td>280-287</td>
</tr>
<tr>
<td>APS.01.12</td>
<td>Pediatrics</td>
<td>300-303</td>
</tr>
<tr>
<td>APS.01.13</td>
<td>Trauma</td>
<td>320-326</td>
</tr>
<tr>
<td>APS.01.14</td>
<td>Guidelines</td>
<td>339-343</td>
</tr>
<tr>
<td>APS.01.15</td>
<td>Basic Science - Cardiac</td>
<td>355-361</td>
</tr>
<tr>
<td>APS.01.16</td>
<td>Post Arrest</td>
<td>375-379</td>
</tr>
<tr>
<td>APS.01.17</td>
<td>Training / Education 1</td>
<td>395-402</td>
</tr>
<tr>
<td>APS.01.18</td>
<td>Outcome Predictions</td>
<td>415-422</td>
</tr>
<tr>
<td>APS.01.19</td>
<td>CPR 1</td>
<td>434-439</td>
</tr>
<tr>
<td>APS.01.20</td>
<td>CPR 2</td>
<td>455-459</td>
</tr>
<tr>
<td>APS.01.21</td>
<td>CPR 3</td>
<td>470-475</td>
</tr>
<tr>
<td>APS.01.22</td>
<td>CPR 4</td>
<td>480-484</td>
</tr>
</tbody>
</table>
Sunday, November 17
4:00–5:30 PM
Poster Session 2
Includes reception with cash bar

<table>
<thead>
<tr>
<th>Session Number</th>
<th>Session Title</th>
<th>Poster Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS.02.01</td>
<td>In-hospital Arrest</td>
<td>108-113</td>
</tr>
<tr>
<td>APS.02.02</td>
<td>Defibrillation</td>
<td>123-128</td>
</tr>
<tr>
<td>APS.02.03</td>
<td>Guidelines and Best Practices</td>
<td>138-142</td>
</tr>
<tr>
<td>APS.02.04</td>
<td>Targeted Temperature Management</td>
<td>155-163</td>
</tr>
<tr>
<td>APS.02.05</td>
<td>Basic Science - Neuro</td>
<td>172-179</td>
</tr>
<tr>
<td>APS.02.06</td>
<td>Basic Science - Cardiac</td>
<td>194-200</td>
</tr>
<tr>
<td>APS.02.07</td>
<td>Basic Science</td>
<td>215-219</td>
</tr>
<tr>
<td>APS.02.08</td>
<td>CPR 5</td>
<td>235-541</td>
</tr>
<tr>
<td>APS.02.09</td>
<td>CPR 6</td>
<td>253-259</td>
</tr>
<tr>
<td>APS.02.10</td>
<td>CPR 7</td>
<td>272-277</td>
</tr>
<tr>
<td>APS.02.11</td>
<td>CPR 8</td>
<td>290-296</td>
</tr>
<tr>
<td>APS.02.12</td>
<td>Epidemiology</td>
<td>310-316</td>
</tr>
<tr>
<td>APS.02.13</td>
<td>Intra-arrest Management</td>
<td>330-336</td>
</tr>
<tr>
<td>APS.02.14</td>
<td>Pediatrics</td>
<td>345-348</td>
</tr>
<tr>
<td>APS.02.15</td>
<td>Devices</td>
<td>365-370</td>
</tr>
<tr>
<td>APS.02.16</td>
<td>Miscellaneous</td>
<td>385-392</td>
</tr>
<tr>
<td>APS.02.17</td>
<td>Outcome Predictions</td>
<td>405-412</td>
</tr>
<tr>
<td>APS.02.18</td>
<td>Post Arrest</td>
<td>425-431</td>
</tr>
<tr>
<td>APS.02.19</td>
<td>Training / Education 2</td>
<td>445-450</td>
</tr>
<tr>
<td>APS.02.20</td>
<td>Training / Education 3</td>
<td>461-466</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Neuroprotection Provided by Transnasal Airflow-Induced Brain Cooling in a Model of Pediatric Cardiac Arrest</td>
<td>Zeng-Jin Yang, C. Danielle Hopkins, Shawn Adams, Ewa Kulikowicz, Harikrishna S Tandri, Raymond C Koehler, Johns Hopkins Univ, Baltimore, MD</td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>Age-Dependent Trends in Survival After Adult In-Hospital Cardiac Arrest</td>
<td>Sebastian Wiberg, Mathias J Holmberg, Ctr for Resuscitation Science, Dept of Emergency Med, Beth Israel Deaconess Medical Ctr, Boston, MA; Michael Donnino, Beth Israel Deaconess Medical Ctr, Boston, MA; Jesper Kjærgaard, Christian Hassager, Reghospitalaet, Copenhagen; Lise Witten, Katherine BERG, Ari Moskowitz, Beth Israel Deaconess Medical Ctr, Boston, MA; Lars Wiuff Andersen, Res Ctr for Emergency Med, Aarhus, Herning</td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>Survival of In-Hospital Cardiac Arrest Patients Before and After the Implementation of the Act on Life-Sustaining Treatment; The Well-Dying Law</td>
<td>Minjung Kathy Cha. Chae-Won Jeong, Sung Eun Lee, Ajou Univ Medical Ctr, Suwon, Korea, Republic of</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>Readmission Rates and Causes for In-Hospital Cardiac Arrest Survivors at 30 and 180 Days: Insights from Nationwide Readmission Database</td>
<td>Ahmed Elkaryoni, Univ of Missouri-Kansas City, Kansas City, MO; Paul Chan, Saint Luke's Hosp / Mid America Heart Inst, Kansas City, MO</td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>121 Neuroprotection of Remote Ischemic Preconditioning And Hypothermia In A Model Of Hemorrhagic Shock Induced Heart Failure</td>
<td>Bonpei Takase, Yuko Higashimura, Kenichi Hashimoto, Natl Defense Medical Coll, Tokorozawa, Japan</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>122 Effects of Therapeutic Hypothermia on Blood Parameters of Adult In-Hospital Cardiac Arrest Survivors</td>
<td>Raymond C Koehler, Huntington Medical Res Inst, Pasadena, CA</td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>Chronic Efficacy of Liposome-Encapsulated Hemoglobin (HbV) on the Myocardium Through Improving Myocardial Electrical Remodeling and the Arrhythmogenic Substrate in Hemorrhagic Shock-Induced Heart Failure</td>
<td>Bonpei Takase, Yuko Higashimura, Kenichi Hashimoto, Natl Defense Medical Coll, Tokorozawa, Japan</td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>Resuscitative Transfusion with Hemoglobin Vesicles in the Management of Post-Partum Hemorrhage</td>
<td>Kohsuke Hagisawa, Manabu Kinoshita, Hiroki Ishibashi, Natl Defense Medical Coll, Tokorozawa, Japan; Hiromi Sakai, Nara Medical Univ, Kashihara, Japan</td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>Influence of Anesthetics on the Hemodynamic Response in a Rat Model of Hemorrhagic Shock</td>
<td>Claudius Balzer, Vanderbilt Univ Medical Ctr, Nashville, TN; Franz J Baudenbacher, Vanderbilt Univ, Nashville, TN; Susan S Eagle, Michele M Salzman, William J Cleveland, Vanderbilt Univ Medical Ctr, Nashville, TN; Matthias L Riess, Anesthesiology, TVHS VA Medical Ctr, Nashville, TN</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>Effects of Therapeutic Hypothermia on Blood Parameters in Rats with Acute Hemorrhagic Shock</td>
<td>Jianru Shi, Wangde Dai, Juan Carreno, Sharon L Hale, Robert A Klomer, Huntington Medical Res Inst, Pasadena, CA</td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>Neuroprotection of Remote Ischemic Preconditioning And Hypothermia In A Model Of Hemorrhagic Shock Induced Brain Injury</td>
<td>Jianru Shi, Wangde Dai, Juan Carreno, Robert A Klomer, Huntington Medical Res Inst, Pasadena, CA</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>Field Accuracy of Paramedic Shock Delivery Using a Filtered ECG Rhythm</td>
<td>Hill Stoecklein, Andrew Pugh, Michael Stroud, Scott Youngquist, Univ of Utah, Salt Lake City, UT</td>
<td></td>
</tr>
</tbody>
</table>
| 124  | A Machine-Learning Based Shock Advice Algorithm for Reliable Rhythm Diagnosis During Out-Of-Hospital Cardiac Arrest | Erika Alonso, Univ of the Basque Country, Bilbao, Spain; Unai Irueta, Univ del Pais Vasco, Bilbao; Elísabe Aramendi, Beatriz Chicote, Univ of the Basque Country, Bilbao, Spain; Carlos

**Posters**
Corcuera, Bilbao; Andima Larea, Jose Veintemillas, Mikel Olabarria, Daniel Alonso, Osakidetza, Bilbao, Spain

125 Automated External Defibrillator Shock Advisement Performance Among Multiple Human Electrocardiographic Rhythms and Devices
Xavier J. Szegathy, Connor J. Willson, David D Salcido, Dylan A. Deflippri, James J Menegazzi, Univ of Pittsburgh, Pittsburgh, PA

126 ‘Tick Tock’ it’s Time to Shock; Increased Shock Latency is Associated with Intra-Arrest Transport and Reduced Survival from Out-Of-Hospital Cardiac Arrest
Andrew Pugh, Hill Stoecklein, Michael Stroud, Scott T Youngquist, Univ of Utah, Salt Lake City, UT

127 Machine Learning Techniques to Predict Cardiac Re-Arrest in Out-Of-Hospital Setting
Andoni Elola, Elisabete Aramendi, Univ of the Basque Country, Bilbao, Spain; Uniia Irujita, Univ del Pais Vasco, Bilbao; Naroa Amezaga, Jon Urtega, Univ of the Basque Country, Bilbao, Spain; Pamela Owens, Ahamed H Idris, UT Southwestern Medical Ctr, Dallas, TX

128 Assessing the Temporal Trend in Survival to Hospital Admission Following Out-Of-Hospital Cardiac Arrest: Analysis from a Public Access Defibrillator Registry
Hannah Torney, Olibheer McAlistier, Ulster Univ, Newtownabbey, United Kingdom; Adam Harvey, Stryker Belfast, Newtownabbey, United Kingdom; Raymond Bond, Ulster Univ, Newtownabbey, United Kingdom; Dewar Finlay, Univ of Ulster, Belfast; Justin Magee, Ulster Univ, Newtownabbey, United Kingdom; David McEnaney, Craigavon Area Hosp, Craigavon, United Kingdom; Jennifer Adgey, Heart Ctr Royal Victoria Hosp., Lisburn

131 Elevated Serum MPEG-1 Protein is Associated with Reduced Survival and Poor Neurological Recovery in Resuscitated Out-Of-Hospital Sudden Cardiac Arrest
Sharma Kattel, Haridik Bhatt, Shirley Xu, Univ at Buffalo, Buffalo, NY; Saraswati Pokharel, Roswell Park Cancer Inst, Buffalo, NY; Umesh C Sharma, Univ at Buffalo, Buffalo, NY

132 Predictive Value of Inflammation Markers with Stroke Recurrence and Cardiovascular Mortality
Yang Yunyun, The First Affiliated Hosp of Xiamen Univ, Xiamen, China

133 Cardiovascular Protective Effect of Thymoxygen and Nano-Thymoxygen Against Ischemic Insults

135 N-Terminal Pro-B-Type Natriuretic Peptide May Serve as a Prognostic Indicator for 30-Day Mortality Following Out-Of-Hospital Cardiac Arrest, Whereas Both High-Sensitivity Cardiac Troponin-T and Copeptin Did Not Yield Prognostic Information
Reidun Aarsetoey, Stavanger Univ Hosp, Stavanger, Norway; Torbjorn Omland, Akershus Univ Hosp, Lorenskog, Norway; Helge Rosjo, Div of Res and Innovation, Akershus Univ Hosp, Lorenskog, Norway; Heidi Strand, Multidiciplinary Lab Med and Medical Biochemistry, Akershus Univ Hosp, Lorenskog, Norway; Hildegunn Aarsetoey, Stavanger Univ Hosp, Stavanger, Norway; Harry Staines, Sigma Statistical Services Ltd., York, United Kingdom; Dennis W Nilsen, Stavanger Univ Hosp, Stavanger, Norway

136 Activated Factor IX - Antithrombin Complex Predicts Outcome After Out-Of-Hospital Cardiac Arrest
Reidun Aarsetoey, Stavanger Univ Hosp, Stavanger, Norway; Hugo ten Cate, Henri M.h. Sprokne, Rene van Oerle, Deps. of Biochemistry and Internal Med, Thrombosis Expertise Ctr and Cardiovascular Res Inst Maastricht, Maastricht Univ Medical Ctr, Maastricht, Netherlands; Hildegunn Aarsetoey, Stavanger Univ Hosp, Stavanger, Norway; Thomas W. Lindner, RAKOS, Stavanger Univ hospital, Stavanger, Norway; Harry Staines, Sigma Statistical Services Ltd., York, United Kingdom; Dennis W Nilsen, Stavanger Univ Hosp, Stavanger, Norway

138 Defining System of Care Best Practices for Out-Of-Hospital Cardiac Arrest Survival
Mahshid Abir, Univ of Michigan; RAND Corp, Santa Monica, CA; Timothy C Guetterman, Sydney Fouche, Samantha Iovan, Jessica L Lehrich, Wilson Nham, Univ of Michigan, Ann Arbor, MI; Peter J Mendel, Christopher Nelson, RAND Corp, Santa Monica, CA; Michael D Fetters, Teri Shields, Robert W Neumar, Univ of Michigan, Ann Arbor, MI; Antony P Hsu, St. Joseph Mercy Hosp, Ann Arbor, MI; Bill Forbush, Alpena Fire Dept/Alpena County EMS, Alpena, MI; Robert A Swor, Oakland Univ William Beaumunt Sch of Med, Royal Oak, MI; Brian O’Neil, Wayne State Univ Sch Of Med, Detroit, MI; Brahamaje K Nallamothu, Univ of Michigan, Ann Arbor, MI

139 Does Simplification of Guidelines Improve Retention of BLS Skills 3 Months After Training?
Dung T. Nguyen, Randers Regional Hosp, Randers, Denmark; Kasper G. Lauridsen, Josephine Johnsen, Kristian Krogh, Bo Løgfløn, Aarhus Univ Hosp, Aarhus, Denmark

140 Prehospital Protocols for Post-Return of Spontaneous Circulation Care Are Highly Variable
Justin L Benoit, Jason T McMullan, Michael F Spigner, Univ of Cincinnati, Cincinnati, OH; James J Menegazzi, Univ of Pittsburgh, Pittsburgh, PA


142 Partnering with Survivors and Families to Set Cardiac Arrest Research Priorities: Moving Towards More Patient-Oriented Resuscitation Research
Katie N Dainty, North York General Hosp, Toronto, ON, Canada; Laurie J Morrison, Univ of Toronto, Toronto, ON, Canada; Christian Vaillancourt, Ottawa Hosp Res Inst, Ottawa, ON, Canada; Doug Sinclair, Andreas Laupacis, St. Michael’s Hosp, Toronto, ON, Canada; Judah Goldstein, Dalhousie Univ, Halifax, NS, Canada; Matthew Church, Cardiac Arrest Survivor, Toronto, ON, Canada; Jim Christenson, Univ of British Columbia, Vancouver, BC, Canada; Bianca Seaton, North York General Hosp, Toronto, ON, Canada

143 AED on the Fly: A Drone Delivery Feasibility Study for Rural and Remote Out-Of-Hospital Cardiac Arrest
Sheldon Cheskes, Univ of Toronto, Toronto, ON, Canada; Paul Snobelen, Peel Regional Paramedic Services, Brampton, ON, Canada; Shelley McLeod, Univ of Toronto, Toronto, ON, Canada; Steven Brooks, Queen’s Univ, Kingston, ON, Canada; Christian Vaillancourt, The Ottawa Hosp, Ottawa, ON, Canada; Timothy Chan, Univ of Toronto, Toronto, ON, Canada; Katie N Dainty, North York General Hosp, Toronto, ON, Canada; Mike Nolan, County of Renfrew Paramedic Service, Ottawa, ON, Canada

144 Installation and Deployment of Automated External Defibrillators in New York State Schools
Milla Arabadjian, Alexandra Stepianov, Marc Sherrid, NYU Sch of Med, New York, NY

145 DeoUble SEquential Extrenal Defibrillation in Refractory VEntricular Fibrillation: The Dose VF Pilot Randomized Controlled Trial
Sheldon Cheskes, Univ of Toronto, Toronto, ON, Canada; Paul Dorian, St Michael’s Hosp, Toronto, ON, Canada; Shelley McLeod, Damon Scales, Univ of Toronto, Toronto, ON, Canada; Abeer Sallam, Pharmaceutical Res Inst, Rensselaer, NY; Noureldien Darwish, The Pharmaceutical Res Inst at ACPHS, Rensselaer, NY; Bhargheerath Srikanta, Rensselaer, NY; Abeer Sallam, Rensselaer, NY

25

POSTERS (continued)
150 AED Transportation System with Smartphone Application Cooperating With Dispatch Center
Takeyuki Kiguchi, Tomonari Shimamoto, Kyoto Univ, Kyoto, Japan; Yusuke Homma, Tokyo Bay Medical Ctr, Urayasu, Japan; Chika Nishiyama, Takashi Kawamura, Taku Iwami, Kyoto Univ, Kyoto, Japan

151 Software Annotation of Defibrillator Files: Ready for Prime Time?
Vishal Gupta, UT Southwestern Medical Ctr, Dallas, TX; Robert Schmicker, Univ of Washington, Seattle, WA; Pamela Owens, UT Southwestern Medical Ctr, Dallas, TX; Elizabeth Aramendi, Elizabete Aramendi, Bilbao, Spain; Ahamed Idris, UT Southwestern Medical Ctr, Dallas, TX

152 Drones Are A Great Idea! What Is An AED? Novel Insights from A Qualitative Study On Public Perception Study On Using Drones To Deliver Aeds
Katie N DAINTY, Kimira Sedag, Bianca Seaton, North York General Hosp, Toronto, ON, Canada; Sheldon Cheskes, Univ of Toronto, Toronto, ON, Canada

155 Elevated Risk of Venous Thromboembolism in Patients Undergoing Targeted Temperature Management After Cardiac Arrest
Toishi Sharma, Univ of Connecticut, Hartford, CT; Jordan Kunkes, Hartford Hosp, Hartford, CT; Waleed Ibrahim, Univ of Connecticut, Hartford, CT; David O’ Sullivan, Hartford Hosp, Hartford, CT; Antonio B. Fernandez, Univ of Connecticut, Hartford Hosp, Hartford, CT

156 Lower Body Temperature ‘Dose’ Associated With Higher Likelihood of Survival Following Cardiac Arrest
David G Buckler, Konstantinos Totolos, Nabil M Abdulhay, Univ of Pennsylvania, Philadelphia, PA; Alexis M Zebrowski, Thomas Jefferson Univ, Philadelphia, PA; Benjamin S Abella, Univ of Pennsylvania, Philadelphia, PA

157 The Association Between Serum Magnesium Levels and QT Interval Duration During Therapeutic Hypothermia and its Effects on Neurological Outcomes
Manish Kumar, William Perucchi, Univ of Connecticut, Hartford, CT; Brett Hendifray, David O’Sullivan, Hartford Hosp, Hartford, CT; Silya Mazigh, Univ of Connecticut, Hartford, CT; Antonio B Fernandez, Hartford Hosp, Hartford, CT

158 Association Between Initial Body Temperature and Neurologic Outcomes of Out-Of-Hospital Cardiac Arrest Undergoing Targeted Temperature Management
Jong Hwan Kim, Jeong Ho Park, Sun Young Lee, Sang Do Shin, Jeun Pak, Tae Heon Kim, Seoul Natl Univ Coll of medicine, Seoul, Korea, Republic of

160 Interval from Collapse to Reaching Target Temperature Had No Impact for the Neurological Outcome in Post Cardiac Arrest Victims, Retrospective Cohort Study of J-Pulse-Hypothermia
Tadashi Kaneko, Shunji Kasaoka, Kumamoto Univ Hosp, Kumamoto, Japan; Yoshiho Tahara, Natl Cardiovascular Ctr, Osaka, Japan; Ken Nagao, Shimizu General Hosp, Shizuoka, Japan

162 A Novel Approach to Quality Improvement in a Hospital’s Targeted Temperature Management Program for Post Arrest Patients
Delia R Russell, Corroe Medical Ctr, Conroe, TX

163 The Effect of Lumbar Cerebrospinal Fluid Drainage on the Neurologic Outcome Improvement In Patients With Cardiac Arrest Treated With Targeted Temperature Management
Yeinho YOU, chungnam university hospital, Daejeon, Korea, Republic of

165 Impact of Prehospital Epinephrine for Patients Treated with Extracorporeal Cardiopulmonary Resuscitation After Refractory Out-Of-Hospital Shockable Cardiac Arrest
Ken Nagao, Yoshiho Tahara, Hiroshi Nonogi, Naoki Yonemoto, David Gaieski, Noritoshi Ito, Tsukasa Yagi, Chiba Nobutaka, Eizo Tachibana, Takanori Ikeda, Naoki Satoh, The Japanese Circulation Society Resuscitation Science Study (JCS-ReSS) Group, Tokyo, Japan

166 Physiological Effects of Adrenaline in Human Cardiac Arrest with Pulsless Electrical Activity: A Pilot Study
Magnus Bakke, Alexander Borgen, NTNU, Trondheim, Norway; Anders Norvik, St. Olavs Univ Hosp, Trondheim, Norway; Gunnar Waage Skjeflo, NLSH Bodeoe, Bodeoe, Norway; Unal Irusta, Univ del Pais Vasco, Bilbao, Spain; Tomas Dybos Tannvik, St. Olavs Univ Hosp, Trondheim, Norway; Daniel Bergum, St.Olav Univ Hosp, Trondheim, Norway; Elisabet Aramendi, Univ of The Basque Country, Bilbao, Spain; Trygve Efsetol, Univ of Stavanger, Stavanger, Norway; Eirik Skogvoll, St. Olav Univ Hosp, Trondheim, Norway

167 Epinephrine Plus Chest Compressions May Be Superior to Epinephrine Alone in a Hypoxia-Induced Porcine Model of Lifeless Shock
Felipe Teran, Claire Centeno, Univ of Pennsylvania, Philadelphia, PA; Alex L Lindqwister, William J Hunciker, The Geisel Sch of Med, Hanover, NH; William Landis, Children’s Hosp of Philadelphia, Philadelphia, PA; Karen L Moodie, Dartmouth-Hitchcock Medical Ctr, Hanover, NH; Benjamin S Abella, Univ of Pennsylvania, Ardmore, PA; Norman Alan Paradis, Dartmouth Hitchcock Medical Ctr, Lebanon, NH

168 Relation Between the Prehospital Administered Doses of Epinephrine and the Acquisition of Return of Spontaneous Circulation in Patients with Cardiopulmonary Arrest
Kiyohiro Oshima, Gunma Univ, Maebashi, Japan; Makoto Aoki, Gunma Univ Hosp, Maebashi City, Japan; Masato Murata, Jun Nakajima, Yusuke Sawada, Yuta Isshiki, Yumi Ichikawa, Kazunori Fukushima, Yuto Aramaki, Gunma Univ, Maebashi, Japan

169 Association Between Time to First Administration of Epinephrine After Defibrillation and Outcome in Out-Of-Hospital Cardiac Arrest Patients With Shockable Rhythm
Shoji Kawakami, Aso Iizuka Hosp, Fukuoka, Japan; Yoshiho Tahara, Natl Cardiovascular Ctr, Osaka, Japan; Teruo Noguchi, Natl Cardiovascular Ctr, Suita, Japan; Satoshi Yasuda, Natl Cereb Cardiovascular Ctr, Osaka, Japan; Naohiro W Yonemoto, NCNP Japan, Kyoto, Japan; Hiroshi Nonogi, Shizuoka General Hosp, Shizuoka, Japan; Ken Nagao, Shizuoka General Hosp, Shizuoka, Japan; Tokyo, Japan; Takanori Ikeda, Toho Univ Faculty of Med, Tokyo, Japan; Naoki Satoh, Kawaguchi Cardiovascular and Respiratory Hosp, Saitama, Japan, Hiroyuki Tsutsumi, Kyushu Univ, Fukuoka, Japan; and JCS-ReSS group

172 Ultra-Fast Cooling Through Total Liquid Ventilation is Safe and Feasible in Non-Human Primates
Matthias Kohlhauer, EnvA, Inserm U955, Maisons-alfort, France; Emilie Boissady, ENV, Maisons Alfort, France; Fanny Lidouren, EnvA, Inserm U955, Maisons-alfort, France; Estelle Faucher, EnvA, Inserm U955, Maisons-alfort, France; Mathieu Nadeau, Univ de Sherbrooke, Inolivent, Sherbrooke, QC, Canada; Biljan Ghaele, INSERM U955 EQUIPE 3, Creteil, France; Philippe Micheau, Univ de Sherbrooke, Inolivent, Sherbrooke, QC, Canada; Renaud Tissier, INSERM U955, Maisons-alfort, France.
173 The Neuroprotective Effect of JZL184 is Comparable With Therapeutic Hypothermia in a Rat Model of Cardiac Arrest
Jing Xu, Wei Inst, Richmond, VA; Guanghu Zheng, Juntao Hu, Weiwei Ge, Virginia Commonwealth Univ, Richmond, VA; Mary Ann A Peberdy, Virginia Commonwealth Univ, Henrico, VA; Joseph P Ornato, Wanchun Tang, Virginia Commonwealth Univ, Richmond, VA

174 Effects of Melatonin (N-Acetyl-5-Methoxytryptamine) on Inflammation and Cerebral Microcirculation After Cardiopulmonary Resuscitation in a Rat Model of Cardiac Arrest
Juntao Hu, Virginia Commonwealth Univ, Richmond, VA; Guanghu Zheng, Feglian He, Wei Inst, Richmond, VA; Weiwei Ge, Virginia Commonwealth Univ, Richmond, VA; Jing Xu, Wei Inst, Richmond, VA; Xianfei Ji, Wei Inst, Richmond, VA, Jinian; Jennifer Bradley, Virginia Commonwealth Univ, Richmond, VA; Mary Ann A Peberdy, Virginia Commonwealth Univ, Henrico, VA; Joseph P Ornato, Wanchun Tang, Virginia Commonwealth Univ, Richmond, VA

175 Cerebral and Myocardial Mitochondrial Injury Differ in a Rat Model of Cardiac Arrest
Xianfei Ji, Jinian; Jennifer Bradley, Virginia Commonwealth Univ, Richmond, VA; Guanghu Zheng, Wei Inst, Richmond, VA; Weiwei Ge, Virginia Commonwealth Univ, Richmond, VA; Jing Xu, Feglian He, Wei Inst, Richmond, VA; Mary Ann A Peberdy, Virginia Commonwealth Univ, Richmond, VA; Joseph P Ornato, Virginia Commonwealth Univ, Richmond, VA; Qun Chen, tbd, tbd, LA; Edward Joseph Lesnieskys, Virginia Commonwealth Univ, Midlothian, VA; Wanchun Tang, Virginia Commonwealth Univ, Richmond, VA

176 Genetic Abatement of Cyclophilin-D in Mice Increases Physical and Cognitive Performance During Hypoxia
Jeejabad Radhakrishnan, Alvin Baetong, Harrison Kaufman, Michelle Huyhn, Angela Leschinsky, Raul J. Gazzmuri, Rosalind Franklin Univ of Med and Science, North Chicago, IL

177 A Multimodal Neuroprotection Strategy Using Ketamine, Melatonin, and Limited Initial Reoxygenation Following Cardiac Arrest Does Not Improve MRI Cytotoxic Injury in a Swine Model: A Pilot Study
Miriam Peckham, Adam Deri-Havenaron, Matthew David Alexander, Scott McNally, Jeffrey Anderson, Stephen H McKellar, Joseph Misisco, Jeffrey Olenick, Michigan State Univ, East Lansing, MI

178 Evaluating Effects of Lysophosphatidic Acid on Neurological Function in a Rodent Model of Cardiac Arrest
Mitsuaki Nishikimi, Feinstein Inst, Manhasset, NY; Tsukasa Yagi, Northwell Health System, Manhasset, NY; Muhammad Shoail, Feinstein Inst, Manhasset, NY; Yu Okuma, Feinstein Institute for Medical Research, Manhasset, NY; Tai Yin, Feinstein Inst, Manhasset, NY; Lance B Becker, Northwell Health, Manhasset, NY; Junwhan Kim, The Feinstein Inst for Medical, Manhasset, NY

179 Effects of Necrosulfonamide on Post-Resuscitation Survival and Neurological Function in a Rat Model of Cardiac Arrest
Feglian He, Guanghu Zheng, Wei Inst, Richmond, VA; Juntao Hu, Weiwei Ge, Virginia Commonwealth Univ, Richmond, VA; Xianfei Ji, Jinian; Jing Xu, Wei Inst, Richmond, VA; Christine Moore, Jennifer Bradley, Virginia Commonwealth Univ, Richmond, VA; Mary Ann A Peberdy, Virginia Commonwealth Univ, Henrico, VA; Joseph P Ornato, Wanchun Tang, Virginia Commonwealth Univ, Richmond, VA

180 Association of Hospital-Level Factors With Variation in Survival After Out-Of-Hospital Cardiac Arrest Between Receiving Hospitals in Japan
Satoshi Koyama, Koichiro Gibo, Yutaka Yamaguchi, Okinawa Prefectural Chubu Hosp, Uruma, Japan; Masahisa Okubo, Pittsburgh, PA

181 Racial Disparities in Out-Of-Hospital Cardiac Arrest Interventions and Survival in the Pragmatic Airway Resuscitation Trial
Joshua R. Lupton, Oregon Health and Science Univ, Portland, OR; Robert Schmicker, Univ of Washington, Seattle, WA; J CSTin Carlson, Clifton W Callaway, Univ of Pittsburgh, Pittsburgh, PA; Heather Herren, Univ of Washington, Seattle, WA; Tom P Auferheide, Medical Coll Wisconsin, Milwaukee, WI; Graham Nichol, Harborview, Seattle, WA; Ricardo Cofell, Froedert Hosp, Milwaukee, WI; Matthew Lee Hansen, Froedert Hosp, Milwaukee, WI, Portland, OR; Henry E Wang, UTHouston - Univ Texas Health Science Center, Houston, TX; Mohammad R Daya, OHSP, Portland, OR

182 The Association Between Sudden Unexpected Death in Infancy and Neighborhood-Level Disadvantages: A Multi-Dimensional Evaluation in the City of Chicago
Hai Nguyen, Univ of Illinois Chicago, Chicago, IL; Marina Del Rios, Univ of Illinois at Chicago, Chicago, IL; Oksana Pugach, Univ of Illinois Chicago, Chicago, IL; Hoang H. Nguyen, Rush Univ Medical Coll, Chicago, IL

183 Sex Differences in Outcomes for Out-Of-Hospital Cardiac Arrest
Pavitra Kotini-Shah, Oksana Pugach, Ruizhe Chen, Marina Del Rios, Univ of Illinois at Chicago, Chicago, IL; Kimberly Vellanova, CAPES, Pearlrand, TX; Bryan Francis McNally, Emory Univ Sch of Med, Atlanta, GA; Terry L Vanden Hoeke, Univ Illinois Chicago, Chicago, IL; Paul Chan, Saint Lukes Hosp / MAHI, Kansas City, MO

184 Cardiovascular Disease Incidence, Bystander Cardiopulmonary Resuscitation Rates, and Community Characteristics Differ by High and Low Risk Areas
Rebecca Cash, Natl Registry of EMts; The Ohio State Univ Coll of Public Health, Columbus, OH; Madison K Rivard, Natl Registry of EMts; The Ohio State Univ Coll of Public Health, Columbus, OH; Eric Cortez, Columbus Div of Fire; Ohio Health Doctors Hosp, Columbus, OH; David Keseg, Columbus Div of Fire; The Ohio State Univ Wexner Medical Ctr, Columbus, OH; Ashish Panchal, The Ohio State Univ Wexner Medical Ctr; Natl Registry of EMts, Columbus, OH

185 Racial Disparities in Survival Outcomes Following Pediatric In-Hospital Cardiac Arrest
Sarah E Haskell, Sakeet Girotra, Univ of Iowa, Iowa City, IA; Yunshu Zhou, Iowa City, IA; Marina Del Rios, Univ of Illinois at Chicago, Chicago, IL; Raina M Merchant, Univ Pennsylvania, Philadelphia, PA; Dianne L Atkins, Univ of Iowa, Iowa City, IA

186 Time to Awakening in Women Compared to Men After Out-Of-Hospital Cardiac Arrest
Sarah M Perman, Univ of Colorado Sch of Med, Aurora, CO; Shelby Shelton, Stacie L Daugherty, Univ of Colorado Denver, Aurora, CO; Edward Havranek, Denver Health Hosp Authority, Denver, CO

187 Does Gender Matter? Addressing the Question of Gender Superiority in Resuscitation Leadership
Elizabeth D Rosenman, Univ of Washington, Seattle, WA; Anthony Misisco, Jeffrey Olenick, Michigan State Univ, East Lansing, MI; Anne K Chapman, Marie C Vrabil, Univ of Washington, Seattle, WA; Sarah M Brolliar, Univ of Washington, Seattle, FL; Colleen Kalynch, Univ of Florida Coll of Med - Jacksonville, Jacksonville, FL; James Grand, Univ of Maryland, College Park, MD; Georgia T Chao, Steve W Kozlowski, Michigan State Univ, East Lansing, MI; Rosemarie Fernandez, Univ of Florida, Gainesville, FL

188 Effects of PEG-20k on Coronary Perfusion Pressure and Post-Resuscitation Myocardial and Cerebral Function in a Rat Model of Cardiac Arrest
Weiwei Ge, Christine Moore, Virginia Commonwealth Univ, Richmond, VA; Guanghu Zheng, Wei Inst, Richmond, VA;
195 Chronic Enhancement of Endogenous Nitric Oxide Production via Whole Body Periodic Acceleration (WBPA) Induces Cardioprotection in 15 Months Diabetic Mice 
Arkady Uryash, Mount Sinai Medical Ctr Res, Miami Beach, FL; Valentina Flores, Mount Sinai Medical Ctr, Miami Beach, FL; Juan Kostel, Ctr de Investigaciones Biomédicas, Mexico, Mexico; Jose R Lopez, Jose Antonio Adams, Mount Sinai Medical Ctr, Miami Beach, FL

196 Cardiac Small Extracellular Microvesicles-Induced Adipogenesis Suppression Contribute to Metabolic Disorders in Heart Failure 
Lu Gan, West China Hosp, Sichuan Univ, Chengdu, China; Thomas Jefferson Univ, Philadelphia, PA; Dina Xie, Jing Liu, Demin Liu, Ling Zhang, Zhen Zhang, Thomas Jefferson Univ, Philadelphia, PA; Erhe Gao, Lewis Katz Sch of Med at Temple Univ, Philadelphia, PA; Wayne Bond LAU, Thomas Jefferson Univ Hosp, Philadelphia, PA; Bernard Lopez, Theodore Christopher, Yajing Wang, Xin L Ma, Thomas Jefferson Univ, Philadelphia, PA

197 Metabolic Syndrome Severely Alters Major Metabolic Pathways in the Pig Myocardium 
Maryam Karimi, Olivia Ziegler, Jun Feng, Anny Usheva, Brown Univ, Warren Alpert Medical Sch, Surgery, Providence, RI

198 Metabolic Stress Causes Mitochondrial Dysfunction and Vascular Senescence via Angiotensin II Type I Receptor Signal / Rho Kinase Induced Mitochondrial Fission 
Yoshihiro Uchikado, Yoshiyuki Ikeda, Yuichi Sasaki, Yuichi Akasati, Mitsu Ohashi, Kagoshima Univ, Kagoshima, Japan

199 TNF-Alpha Response After Experimental Cardiac Arrest in Rats is Not Attenuated by Thalidomide 
Tomas Drabek, Jason Stetzoski, Keri Janesko-Feldman, Patrick Kocianek, Univ of Pittsburgh, Pittsburgh, PA

200 Argon Reduces the Vasocostrictive Effects of Phenylephrine in a Rat Isolated Lungs Model 
Josephine E Hees, Univsmadizin Greifswald, Greifswald, Germany; William J Cleveland, Vanderbilt Univ Medical Ctr, Nashville, TN; Johannes A Pille, Felicia P Lotze, Univsmedizin Greifswald, Greifswald, Germany; Michele M Salzman, Claudius Balzer, Matthias L Riess, Vanderbilt Univ Medical Ctr, Nashville, TN

205 Resuscitation Using ECPR to Predict Survival After In-Hospital Cardiac Arrest (Rescue-IHCA Score) Survival Prediction Model – An Analysis of the American Heart Association Get with the Guidelines – Resuscitation Registry 
Joseph E Tonna, Univ of Utah, Salt Lake City, UT; Lance B Becker, Northwell Health, Manhasset, NY; Saket Girotra, Univ of Iowa, Iowa City, IA; Craig Selzman, Utah Univ, Salt Lake City, UT; Ravi R Thiagarajan, Children's Hosp Boston, Boston, MA; Angela P Presson, Chong Zhang, Heather T Keenan, Univ of Utah, Salt Lake City, UT

206 Neurological Outcomes and the Time From Collapse to the Initiation of Extracorporeal Membrane Oxygenation in Patients With Out-Of-Hospital and In-Hospital Cardiac Arrest 
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208 A Comprehensive Simulation-Based Training for E-CPR Improves the Neurological Outcome in Patients With Refractory Out-Of-Hospital Cardiac Arrest 
Takashi Unoki, Saiseikai Kumamoto Hosp Intensive Care Unit, Kumamoto, Japan; Daisuke Takagi, Saiseikai Kumamoto Hosp Dept of Acute Care and General Med, Kumamoto, Japan; Tadashi Sawamura, Saiseikai Kumamoto Hosp Cardiovascular Ctr, Kumamoto, Japan; Hiroto Suzuyama, Eiji Taguchi, Yuichi Sasaki, Yuichi Akasati, Mitsu Ohashi, Kagoshima University, Kagoshima, Japan

209 Does ECPR for the Younger Patients Who Has Long Downtime Improve Neurological Outcome? 
Shinichi Ijim, Aihiko Inoue, Nobuaki Igarashi, Shigenari Matsuyama, Tetsunori Kawase, Satoshi Ishihara, Shinichi Nakayama, Hyogo Emergency Medical Ctr, Kobe, Japan

210 Effects of Indication for Veno-Arterial Extracorporeal Membrane Oxygenation on Predictive Value of Save Score 
Marinos Kosmopoulos, Jason A Bartos, Donestris Yannopoulos, Univ of Minnesota, Minneapolis, MN

211 Naline Feeding Shortly After Cardiac Arrest Treated With Veno-Arterial Extra Corporeal Membrane Oxygenation and Therapeutic Hypothermia is Safe and Feasible 
Alejandra Gutierrez, Claire Carlson, Demetris Yannopoulos, Jason A Bartos, Univ of Minnesota Sch of Med, Minneapolis, MN

215 Hemodynamics of Absolute, Proportional, and Adaptive Mechanical Chest Compression Strategies in a Swine Model of Pediatric Out-Of-Hospital Cardiac Arrest 
David D Salcido, Allison C Koller, Cornelia Genbrugge, Univ of Pittsburgh, Pittsburgh, PA; Caele Kern, Univ of Pittsburgh SOM, Pittsburgh, PA; James J Merlazzzi, Univ Pittsburgh, Pittsburgh, PA

216 Therapeutic Hypothermia Alone and in Combination With Preconditioning Improves Long Term Survival During Resuscitation of Hemorrhagic Shock 
Wangde Dai, Jianru Shi, Juan Carreno, Robert A Kloner, Huntington Medical Res Inst, Pasadena, CA

217 Increased Oxidation of Amprex Red in Post-Cardiac Arrest Human and Rat Plasma Can Be Utilized as a Potential Marker of Injury Severity 
Muhammad Shoail, Ann Iverson, The Feinstein Inst for Medical, Manhasset, NY; Tai Yan, Manhasset, NY; Lance B Becker, Northwell Health, Manhasset, NY; Junhwa Kim, The Feinstein Inst for Medical, Manhasset, NY

218 A Comprehensive Simulation-Based Training for E-CPR Improves the Neurological Outcome in Patients With Refractory Out-Of-Hospital Cardiac Arrest 
Takashi Unoki, Saiseikai Kumamoto Hosp Intensive Care Unit, Kumamoto, Japan; Daisuke Takagi, Saiseikai Kumamoto Hosp Dept of Acute Care and General Med, Kumamoto, Japan; Tomohiro Sakamoto, Koichi Nakao, Saiseikai Kumamoto Hosp Cardiovascular Ctr, Kumamoto, Japan

207 The Association of Academia With Neurological Outcome Among Out-Of-Cardiac Arrest Patients Who Undergo Extracorporeal Cardiac-Pulmonary Resuscitation 
Yohei Okada, Takeyuki Kiguchi, Kyoto Univ, Kyoto, Japan; Tetsuhisa Kitamura, Osaka Univ, Osaka, Japan; Takashi Kawamura, Taku Iwami, Kyoto Univ, Kyoto, Japan

212 Apoptosis in 15 Months Diabetic Mice 
Yoshihiro Matsumoto, Tetsunori Kawase, Satoshi Ishihara, Shinichi Nakayama, Hyogo Emergency Medical Ctr, Kobe, Japan

213 Hemodynamics of Absolute, Proportional, and Adaptive Mechanical Chest Compression Strategies in a Swine Model of Pediatric Out-Of-Hospital Cardiac Arrest 
David D Salcido, Allison C Koller, Cornelia Genbrugge, Univ of Pittsburgh, Pittsburgh, PA; Caele Kern, Univ of Pittsburgh SOM, Pittsburgh, PA; James J Merlazzzi, Univ Pittsburgh, Pittsburgh, PA

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218 Therapeutic Hypothermia Alone and Combination With Preconditioning Blunt Inflammation in Experimental Hemorrhagic Shock 
Jianru Shi, Wangde Dai, Juan Carreno, Sharon L Hale, Robert A Kloner, Huntington Medical Res Inst, Pasadena, CA
219 Supplement Oxygen Dependence of Dissociated Oxygen Metabolism From Carbon Dioxide and Oxidative Toxic Stress in Post-Cardiac Arrest
Yu Okuma, Feinstein Inst for Medical Res, Manhasset, NY; Koichiro Shinohzaki, North Shore Univ Hosp, Manhasset, NY; Mitsuaki Nishikimi, Feinstein Inst for Medical Res, Manhasset, NY; Kota Saeki, NIHON KOHDEN Innovation Ctr, Cambridge, MA; Tai Yin, Junhwan Kim, Lance B Becker, Feinstein Inst for Medical Res, Manhasset, NY

226 Increasing Accidental Death in Elderly, Drawing in Bathtub and Foreign Body Airway Obstruction, Should Be Prevent in Japan
Hiroyuki Hanada, Katsuhito Ito, Shinya Yaguchi, Yoshihisa Ishizawa, Hirosaki Univ Graduate Sch of Med, Hirosaki, Japan; Kaoru Kita, Kyoji Saito, Yuta Sato, Aomori Prefectural Central Hosp, Aomori, Japan

227 Sudden Cardiac Arrest During Exercise Occurs Infrequently and With Few Warning Symptoms
Katherine S Allain, St. Michael’s Hosp, Toronto, ON, Canada; Brian E Grunau, St. Paul’s Hosp, Vancouver, BC, Canada; Morgan Haines, UBC Faculty of Med, Vancouver, BC, Canada; Armin Nowroozpoor, Yale Univ Sch of Med, New Haven, CT; James Christenson, Univ of British Columbia, Vancouver, BC, Canada; Floyd Besserer, St. Paul’s Hosp, Vancouver, BC, Canada; Christopher Fordyce, Univ of British Columbia, Vancouver, BC, Canada; Paul Dorian, Steve Lin, St. Michael’s Hosp, Toronto, ON, Canada

228 Epidemiology and Outcome of Out-Of-Hospital Cardiac Arrests in Kunming, Yunnan, China
Tao Yu, Tianen Zhou, Cai Wei, Sun Yat-Sen Memorial Hosp, Guangzhou, China

229 What is the Real Incidence of Out-Of-Hospital Cardiac Arrest in Norway
Ingvild B Tjelsmeland, NAKOS, Oslo, Norway; Morten Larsen, Vestre Viken HT, Drammen, Norway; Eirik Skogvoll, St. Olav Univ Hosp, Trondheim, Norway; Jo Kramer-Johansen, Oslo Univ Hosp, Oslo, Norway

230 Opioid-Related Cardiac Arrest Incidence and Epidemiology in Maine
Teressa MAY, David Gagnon, David B Seder, Maine Medical Ctr, Portland, ME; Bailey West, Univ of Maine, Orono, Orono, ME; Patricia Lerwick, Maine Medical Ctr, Portland, ME; Matthew Sholl, Maine Medical Ctr, Portland, ME; Falmouth, ME; Lee Lucus, Maine Medical Ctr, Ctr for Outcomes Res, Portland, ME; Richard R Riiker, Maine Medical Ctr, Portland, ME

235 The Association Between No-Flow Interval and Neurological Outcomes in Out-Of-Hospital Cardiac Arrest: Implications for Rescuer Response, Initiating Resuscitation, and ECPR Candidacy Evaluation
Brian E Grunau, St Pauls Hosp, Vancouver, BC, Canada; Andrew Guy, New Westminster, BC, Canada; Takahisa Kawano, Univ of Fukui, Fukui, Japan; Frank Scheuemeyer, Univ of Fukui, Fukui, Japan; Vincent Nguyen, Vancouver, BC, Canada; Floyd Besserer, UBC Dept of Emergency Med, Prince George, BC, Canada; Hussein Kanji, James Christenson, Univ of British Columbia, Vancouver, BC, Canada

236 Complete Recoil Duration Declines Over the Course of Longer Resuscitations
James R Russell, Oregon Health and Science Universit, McMinnville, OR; Amber Lin, Oregon Health and Science Universit, Portland, OR; Digna M Gonzalez-Otero, Univ of the Basque Country, Bilbao, Spain; Miguel Lefurtunio-Colon, University of the Basque Country, Bilbao, Spain; Jesus M Ruiz, Univ of the Basque Country, Bilbao, Spain; Mohamud R Daya, OHSU, Portland, OR; Sofia Ruiz de Gauna, Univ of the Basque Country, Bilbao, Spain

237 Using the Thoracic Impedance to Predict Measures From Invasive Arterial Blood Pressure in Out-Of-Hospital Cardiac Arrest
Andoni Eto, Eliesbete Aramendi, Unai Irusta, Univ of the Basque Country, Bilbao, Spain; Per-Olav Berve, Oslo Univ Hosp, Oslo, Norway; Fredrik Karl Arnwald, Physio Control, Lund, Sweden; Lars Wik, Nakao, Oslo, Norway; Fred W Chapman, Stryker Physio-Control, Redmond, WA

238 Automating Medical Record Matching: A Key Component of an Automated Cardiac Arrest Registry
Samuel McDonald, Raymond Fowler, Pamela Owens, UT Southwestern Medical Ctr, Dallas, TX; Susanne May, Heather Harren, Univ of Washington, Seattle, WA; Ahammer H Idris, UT Southwestern Medical Ctr, Dallas, TX

239 911 Caller Description of Seizure-Like Symptoms and Delays to Starting Telecommunicator CPR
Kara Kromeneyer, Phoenix Children's Hosp, Phoenix, AZ; Kameron Shoe, Arizona State Univ, Tempe, AZ; Vatsal Chikani, Arizona Dept of Health Services, Phoenix, AZ; Normandy Villa, Lesley Osborn, Micah Panczyk, Bentley Bobrow, McGovern Medical Sch at UTHealth Dept of Emergency Med, Houston, TX

240 Smartphone Application to Provide Real-Time Cardiopulmonary Resuscitation Quality Feedback
Emily Stumpf, Ravi Ambati, Raj Shekhari, Children's Natl Health System, Washington, DC; Steven Staffa, Boston, MA; David Zurakowski, Boston Children's Hosp and Harv, Boston, MA; Pranava Sinha, Children's Natl Health System, Washington, DC

241 Legal Risk of Bystander Cardiopulmonary Resuscitation
Travis Murphy, Sonora Windermere, Tareyn Morris, John Slish, Liam Holtzman, Torben Becker, Univ of Florida, Gainesville, FL

242 The Costs and Acute Outcomes Following Pulmonary Edema in Hospitalized Patients
Karen Eubank, Children's Hosp Phila, Philadelphia, PA; Kevin M Fenton, Children's Hosp Phila, Philadelphia, PA; Robert A Berg, Dana Erika Niles, Children's Hosp Phila, Philadelphia, PA

245 Role of the Resuscitation Champion on Survival Outcomes for In-Hospital Cardiac Arrest
Jesse Chan, Pembroke Hill High Sch, Kansas City, MO; Brahmajeet Kajit Nallamothu, Univ Michigan Health System, Ann Arbor, MI; Yuanyuan Tang, St Luke's Mid America Heart Inst, Kansas City, MO; Paul Chan, St Luke's Hosp / MAHI, Kansas City, MO

246 Development of a Reflex Work of Breathing Scale for Easy Implementation Outside Intensive Care Environments
Raul J. Gazmuri, Mylene Apigo, Nyembezi Dhliwayo, Mohammed Al Tameemi, Jeffrey Schechtman, Captain James A. Lovell Federal Health Care Ctr, North Chicago, IL

247 Development and Evaluation of Standardized Communication for In-Hospital Resuscitation
Kasper G Lauridsen, Ichiro Wataneb, Children's Hosp of Philadelphia, Philadelphia, PA; Akira Nishikawa, NEC, Philadelphia, PA; Robert A Berg, Dana Erika Niles, Children's Hosp of Philadelphia, Philadelphia, PA; Elizabeth Anne HUNT, The Johns Hopkins Univ, Baltimore, MD; Jordan M Duval-arnould, Johns Hopkins Univ, Abingdon, MD; Grace L Good, CHOP, Philadelphia, PA; Adam Cheng, Alberta Children's Hosp, Calgary, AB, Canada; Bo Logfren, AARHUS Univ Hosp, Aarhus N, Denmark; Vinay M Naidkarn, Children's Hosp Philadelphia, Philadelphia, PA

248 Initiation and Assessment of Timekeeping Roles During In-Hospital Cardiac Arrests to Track Rhythm Checks and Epinephrine Dosing
Conor Crowley, Peter Claridy, Jessica McCannon, Mount Auburn Hosp, Cambridge, MA; Rebecca Logiudice, North Shore Medical Ctr, Salem, MA

249 The Costs and Acute Outcomes Following Pulmonary Vein Isolation for Atrial Fibrillation in Elderly Patients: A Comparison Between Cryoballoon and Radiofrequency Ablation
Chao-Feng Chen, Hangzhou First People's Hosp, Hangzhou, China
Posters (continued)

250 **Trends in Survival After Pediatric In-hospital Cardiac Arrest In The United States**

Mathias Johan Holmberg, Aarhus Univ Hosp, Aarhus, Denmark; Sebastian Wilberg, RIGSHOSPITALET COPENHAGEN UNIV HOSP, Frederiksberg; Catherine Ross, Boston Children’s Hosp, Boston, MA; Monica E Kleinman, BOSTON CHILDREN, Boston, MA; Anne Kristine Hoejer-Nielsen, Aalborg Univ Hosp, Aalborg, Denmark; Michael Donnino, BETH ISRAEL DEACONESS MEDICAL, Boston, MA; Lars Wulf Andersen, Res Ctr for Emergency Med, Aarhus, Herning

251 **Lidocaine Versus Amiodarone for Pediatric In-hospital Cardiac Arrest With A Shockable Rhythm: An Observational Study**

Mathias Johan Holmberg, Aarhus Univ Hosp, Aarhus N, Denmark; Catherine E Ross, Boston Children's Hospital, Boston, MA; Dianne L Atkins, Univ of Iowa, Iowa City, IA; Santiago O Valdes, Texas Children's Hosp, Houston, TX; Michael Donnino, BETH ISRAEL DEACONESS MEDICAL, Boston, MA; Lars Wulf Andersen, Res Ctr for Emergency Med, Aarhus, Herning

252 **The Efficacy of Left Ventricular versus Traditional Chest Compressions During Selective Aortic Arch Perfusion to Treat Cardiopulmonary Arrest in a Swine Model**

Benjamin Barringer, Brooke Army Medical Ctr, San Antonio, TX; Maria Castaneda, Wilford Hall Ambulatory Surgical Ctr, San Antonio, TX; Jason Rall, USAF 59th MDW, Science and Technology, San Antonio, TX; Kenton Anderson, Stanford Univ Sch of Med, Palo Alto, CA

253 **A Novel and Accurate Method for Assessing Recoil During Synchronized Chest Compressions for Pseudo-PEA: Proof of Concept and Synching Algorithm**

Salvatore Aiello, Interventions During Cardiac Resuscitation in a Rat Model of Cardiac Arrest and Resuscitation, Minnesota, Lake Elmo, MN

254 **Synchronized Chest Compressions for Pseudo-PEA: Proof of Concept and Synching Algorithm**

Keith Marill, Massachusetts General Hospital, Boston, MA; James J Menegazzi, Allison C Koller, Matthew Sundermann, David D Salcido, Univ of Pittsburgh, Pittsburgh, PA

255 **Active Compression Decompression CPR with 5 Centimeters Lift and an Impedance Threshold Device Significantly Improves All Markers of Cerebral and Cardiovascular Hemodynamics and Blood Flow After 8 Minutes of Standard CPR**

Michael Luck, Hennepin Healthcare Res Inst, Minneapolis, MN; Paul S Berger, Zoll Medical Corp, Roseville, MN; Jeff R Gould, Zoll Medical Corp, Chelmsford, MA; Anja Metzger, Univ of Minnesota, Lake Elmo, MN

256 **Ventricular Fibrillation Amplitude Spectral Area to Assess the Myocardial Effect of Hemodynamic and Metabolic Interventions During Cardiac Resuscitation in a Rat Model**

Salvatore Aiello, Lorissa Lamoureux, Alvin Baetiong, Jeebabai Radhakrishnan, Raul J. Gazmi, Rosalind Franklin Univ of Med and Science, North Chicago, IL

257 **The Effect of Chest Compression Location on Cerebral Oxygenation**

Jeffrey R Gould, Joshua W Lampe, Lyra Clark, Zoll Medical Corp, Chelmsford, MA; Karen L Moodie, Dartmouth Medical Sch, Lebanon, NH; Jonathan T Elliott, Norman Alan Paradis, Dartmouth Hitchcock Medical Ctr, Lebanon, NH

258 **Controlled Sequential Elevation of the Head and Thorax Combined with Active Compression Decompression Cardiopulmonary Resuscitation and an Impedance Threshold Device Improves Neurological Survival in a Swine Model of Cardiac Arrest**

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264 **Automatic Detection of Ventilations Using the Thoracic Impedance Signal During Lucas Chest Compressions**

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265 **Deterioration of Hemodynamic Support During Prolonged Mechanical CPR in a Porcine Model of Cardiac Arrest**

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266 **The Effect of Different Kinds of Chest Compression Waveforms on the Heart Ischemia-Reperfusion Injury After Cardiac Arrest**

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267 **Injuries Associated With Mechanical Chest Compressions in Patients With Out-Of-Hospital Cardiac Arrest: A Comparison of LUCAS 2 and LUCAS 2 Active Decompression**

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268 **Evaluation of the Abdominal Aortic and Junctional Tourniquet as an Adjunct to Chest Compressions in a Swine Model of Out-Of-Hospital Cardiac Arrest**

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269 **Dose Optimization of Early High-Dose Valproic Acid for Neuroprotection After Cardiac Arrest**

Cindy H. Hsu, Mohammad H. Tila, Brendan M. McCracken, Carmen I. Colmenero, Zachary Pickell, Danielle C. Leander, Anne M. Weitzel, Tulasi Jinika, Brandon C. Cummings, Manjunath P. Pai, Kevin R. Ward, Robert W. Neumar, Univ of Michigan, Ann Arbor, MI

270 **Noninvasive Mitochondrial Modulation: Neuroprotection in a Translational Model of Cardiac Arrest and Resuscitation**

Joseph M Wider, Erin Gruley, Jennifer Matheiu, Emma Murphy, Rachel Mount, Univ of Michigan, Ann Arbor, MI; Brian J Oneil, Wayne State Univ, Clarkston, MI; Karin Przyklenk, Wayne State Univ Sch of Med, Detroit, MI; Robert W Neumar, Maik Huttemann, Univ of Michigan Health System, Ann Arbor, MI; Thomas H Sanderson, Univ of Michigan, Ann Arbor, MI

271 **Identifying the Optimal Cerebral Perfusion Pressure Following Hypoxic-Ischemic Brain Injury**

Izad-Yar Daniel Rasheed, Benjamin S Abella, W. Andrew Kolke, Ramani Balu, Univ of Pennsylvania, Philadelphia, PA

272 **Oxygen Weaning is Slow and Highly Variable Among Mechanically Ventilated Patients After Out-Of-Hospital Cardiac Arrest**

Shaun K McGovern, Kemarut Laothamatas, Abhishek Bhardwaj, David G Buckler, Benjamin S Abella, Univ of Pennsylvania, Philadelphia, PA
276  TAT-PTEN9c Targets Heart Directly to Improve Survival From Cardiac Arrest
Xiangdong Zhu, Filip Gasior, Jing Li, Huashan Wang, Zhiyi Zhu, J M Odoneull, Terry L Vanden Hoek, Univ of Illinois at Chicago, Chicago, IL

277  Long-Term Daily Prophylactic Supplement With Melatonin as a Health Care Medicine Significantly Improved Survival and Neurological Outcome After Cardiac Arrest
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280  Evaluation of Cerebral Blood Oxygenation by NIRS During Asphyxia Cardiac Arrest and Resuscitation in Rats
Tsukasa Yagi, Koichiro Shinozaki, Yu Okuma, Tai Yin, Mitsuaki Nishikimi, Feinstein Inst fur Med Res, Manhasset, NY; Takeyuki Kiguchi, Kaku Iwami, Kyoto Univ Health Service, Kyoto, Japan; Lance B Becker, Feinstein Inst fur Med Res, Manhasset, NY

281  Cerebral Regional Oxygen Saturation (rSO2) is Useful as a Physiological Monitoring Tool During CPR in the Pre-Hospital Settings. An Analysis of 87 Cases in Osaka, Japan
Shinji Shigeno, Osaka Municipal Fire Dept, Osaka, Japan; Tomohiko Sakai, Dept of Traumatology and Acute Critical Med, Osaka Univ Graduate Sch of Med, Suita, Japan; Tadahiko Shiozaki, Dept of Traumatology and Acute Critical Med, Osaka Univ Graduate Sch of Med, Suita, Japan, Suita, Japan; Mitsuo Ohnishi, Traumatology and Critical Care Medical Ctr, Natl Hosp Organization Osaka Natl Hosp, Osaka, Japan; Ryosuke Takegawa, Dept of Traumatology and Acute Critical Med, Osaka Univ Graduate Sch of Med, Suita, Japan; Jotaro Tachino, Dept of Traumatology and Acute Critical Med, Osaka Univ Graduate Sch of Med, Suita, Japan, Suita, Japan; Shunichiro Nakao, Osaka Univ Hosp, Suita, Japan; Arika Muratsu, Dept of Traumatology and Acute Critical Med, Osaka Univ Graduate Sch of Med, Suita, Japan, Suita, Japan; Sumito Hayashida, Osaka Fire Dept, Osaka, Japan; Takeshi Shimazu, Osaka Univ, Suita, Japan

282  Cerebral Oximetry to Identify Return of Spontaneous Circulation in Patients Treated With Manual or Mechanical Chest Compressions
Ruth Salaberria, Andima Larrea, Leyre Amas, Felix Zubia, Emergenziak-Osakidetza, Donostia, Spain; Miren Begoña Zubero, Univ of the Basque Country, Leioa, Spain; Daniel Alonso, Emergenziak-Osakidetza, Donostia, Spain; Ubal Irusta, Univ del Pais Vasco, Bilbao, Spain; Elisabetxe Aramendi, Univ of the Basque Country, Bilbao, Spain

283  Cerebral Regional Oxygen Saturation (rSO2) Will Support to Evaluate an Oxygenation for Emergency Patients Who Can Not Measure SpO2 at the Scene
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284  Cerebral Oximetry During Resuscitation; Course and Outcome
Jenny Shin, Jennifer E Blackwood, King County EMS, Seattle, WA; Rob G Walker, Fred W Chapman, Stryker Physio-Control, Redmond, WA; Joe Crackel, Nonin Medical Inc, Plymouth, MN; Thomas Rea, Univ of Washington, Seattle, WA

285  Analysis of Neurological Prognosis After Cardiac Arrest Patients by Using Cerebral Regional Oxygen Saturation Monitoring

286  Cerebral Microstructure Disruptions are Associated With Poor Neurologic Outcomes in Comatose Cardiac Arrest Patients
Ona Wu, Eric S Rosenthal, Gaston Cudeeumus-Deseda, Brittany Mills, Brian Edlow, W. Taylor Kimberly, Ming Ming Ning, Edlizbether Amorim De Cerequera Filho, M B Westover, Brandon L. Hancock, William A Copen, Pamela Schaefer, Massachusetts General Hosp, Boston, MA; Joseph T Gacino, Spaulding Rehabilitation Hosp, Boston, MA; David M Greer, Boston Medical Ctr, Boston, MA

287  Bimodal Brain Monitoring Using Portable EEG and Cerebral Oximetry During Cardiopulmonary Resuscitation (CPR): A Pilot Study
Sam Parnia, Emma Roelike, David Dupont, Tori Williams, Thaddeus Tarpey, Yingzi Qian, NYU Langone Health, New York, NY; Rebecca Spiegel, Stony Brook Medical Ctr, Stony Brook, NY

290  Association Between Hourly Call Volume in Emergency Medical Dispatch Center and Dispatcher-Assisted Cardiopulmonary Resuscitation Instruction Time in Out-Of-Hospital Cardiac Arrest
Jong Hwan Kim, Tae Han Kim, Sang Do Shin, Ki Jeong Hong, Jeong Ho Park, Sun Young Lee, Jieun Pak, Seoul Natl Univ Coll, Seoul, Korea, Republic of

291  Cardiopulmonary Resuscitation Prior to Arrival of Emergency Medical Services in Arizona Extended Care Facilities
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292  Accuracy of a Dispatch-Directed Breathing Verification Diagnostic Tool as Assessed by Data From Electronic Patient Care Records and Emergency Dispatch Systems
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293  CPR And AED for Layperson Initiative in a Place of Worship
Ali Haeder, Unirs Brawijaya, Malang, Indonesia

294  Different Effect of Bystander CPR According to Dispatcher-Assistance on Neurologic Outcome in Out-Of-Hospital Cardiac Arrest
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295  Improving Response to Out-Of-Hospital Cardiac Arrest: Verified Responder Pilot Program
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296 Quality Analysis of Cardiopulmonary Resuscitation From Two Emergency Medical Service Systems Using a Feedback Device
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300 End-Tidal CO2-Guided Chest Compression Delivery Improves Survival in a Pediatric Model of Respiratory Failure and Cardiac Arrest
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301 Identifying Critical Care Unit Organizational Factors That Impact Cardiac Arrest Incidence and Outcomes: A Report From the Pediatric Cardiac Critical Care Consortium
Javier J Lasa, Texas Children’s Hosp, Houston, TX; Jeffrey A. Alten, Cincinnati Children’s Hosp, Cincinnati, OH; Mosumi Banerjee, Univ of Michigan, Ann Arbor, MI; Wenyin Zhang, University of Michigan, Ann Arbor, MI; Kurt Schumacher, Michael G Gaies, Univ of Michigan, Ann Arbor, MI

302 Pediatric CPR Performance During One Year of RQI in a Pediatric Emergency Department

303 The Impact of Pediatric Resuscitation Events on Overall Emergency Department Flow

310 National Institutes of Health Research Investment for the Leading Causes of Disability-Adjusted Life Years in the United States
Ryan A Coute, Univ of Alabama at Birmingham, Birmingham, AL; Brian Nathanson, OptiStatim LLC, Longmeadow, MA; Michael C Kurz, Univ of Alabama at Birmingham, Hoover, AL; Nathan L Haas, Univ of Michigan, Ann Arbor, MI; Bryan McNally, Emory Univ, Atlanta, GA; Timothy J Mader, Baystate Medical Ctr, Springfield, MA

311 Trajectory of Risk-Standardized Survival Rates for In-Hospital Cardiac Arrest
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312 Evaluating Novel Methods of Post Cardiac Arrest Outcome Assessment
Noah Kramer, Jon C Ritterenger, Clifton W Callaway, Jonathan Elmer, Univ of Pittsburgh, Pittsburgh, PA

313 Visualizing Out-Of-Hospital Cardiac Arrest in the Young: A Network Analysis of the Cardiac Arrest Registry for Enhanced Survival in Chicago
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314 The Impact of City-Level Public Health Interventions on Increased Bystander Cardiopulmonary Resuscitation
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351 Community Characteristics Associated With Out of Hospital Cardiac Arrest Mortality: The Intersection of Urbanicity, Poverty, and Race

356 Missing Data and the SOFA Score in Cardiac Arrest Research: A Scoping Review
Anne V Grossstreuer, Tuyen Yankama, Ari Moskowitz, Long Huu Ngo, Michael Donnino, Beth Israel Deaconess Medical Ctr, Boston, MA

360 Statewide Implementation of the Prehospital Traumatic Brain Injury Guidelines in Children: The EPIC4Kids Study
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371 Pediatric Transfusion Score Predicts Transfusion Requirements for Children With Trauma
Akira Komori, Toshihaku Abe, Gautam A. Deshpande, Juntendo Univ Hosp, Tokyo, Japan; Makoto Aoki, Gunma Univ Graduate Sch of Med, Gunma, Japan; Toshio Naito, Juntendo Univ Hosp, Tokyo, Japan

378 Prehospital Care From Emergency Life-Saving Technicians Promotes the Survival of Trauma Patients
Tsuyoshi Nojima, Hiroshi Tatsuma Fukuda, Juntendo Univ, Tokyo, Japan; Junji Nakao, Oita Medical Ctr, Oita, Japan

385 Time to Specialized Prehospital Care and Neurologically Favorable Survival After Traumatic Out-Of-Hospital Cardiac Arrest: Results From a Japanese Registry-Based Study
Takashi Saito, Keio University, Tokyo, Japan; Tatsuya Usui, Ritsumeikan University, Beppu, Japan; Hiroshi Nakamura, Shinshu University, Matsumoto, Japan

393 Enhanced Survival in Chicago A Network Analysis of the Cardiac Arrest Registry for Enhanced Survival in Chicago
Alyssa Vermeulen, Rush Unv Medical Coll, Chicago, IL; Marina Del Rios, Univ of Illinois at Chicago, Chicago, IL; Teri Lynn Campbell, ILL. Heart Rescue Program, Arlington Heights, IL; Hai Nguyen, Univ of Illinois Chicago, Chicago, IL; Hoang H Nguyen, Rush Unv Medical Coll, Chicago, IL
324 Effect of Prehospital Use of Plasma and Erythrocytes on Crystalloid and Blood Product Requirements in Trauma
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325 Characteristics and Outcomes of Hanging Induced Out-Of-Hospital Cardiac Arrest: Insights From the Paris Sudden Death Expertise Center Registry
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326 Prehospital Use of Nasal Cannula End-Tidal CO2 Monitoring in Non-Intubated Major Traumatic Brain Injury Patients
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330 Intra-Arrest Cardioplegia Prevents the Diastolic Dysfunction Induced by Prolonged VF Arrest
Jason Allen, Univ of Minnesota, Minneapolis, MN; Matthias Riehs, Vanderbilt Univ, Nashville, TN; Jason Bartos, Univ of Minnesota, Minneapolis, MN

331 Novel Electrocardiogram Features and Dichotomous Variables to Predict Resuscitation Outcomes During Chest Compressions
Jason Coult, Univ of Washington, Seattle, WA; Jennifer E Blackwood, King County EMS, Seattle, WA; Thomas Rea, Univ of Washington, Seattle, WA; Peter Kudenchuk, Univ of Washington; Heemun Kwok, Univ of Washington, Seattle, WA

332 Novel Peptide Administered During CPR Improves Long-Term Survival After Prolonged Cardiac Arrest
Jing Li, Xiangdai Zhu, Chunjie Lue, Rong-Wen Tan, Kejia Cai, Terry L Vandcn Hoek, Univ of Illinois at Chicago, Chicago, IL

333 End-Tidal Carbon Dioxide, CPR Quality and ROSC During Pediatric Cardiac Arrests in a Large Academic Children's Hospital, 2013-2018
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334 Point-Of-Care Ultrasound in the Assessment of Optic Nerve Sheath Diameter After Out-Of-Hospital Cardiac Arrest
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335 Predicting Pulse Status From the ECG Signal Without Interrupting CPR
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336 A Machine Learning Algorithm for Detecting Pulse During Out-Of-Hospital Cardiac Arrest
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339 Quality of Physician Care Coordination During Inter-Facility Transfer for Cardiac Arrest Patients
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340 Effect of the 2015 CPR Guidelines for Patients With Out-Of-Hospital Cardiac Arrest Due to Non-Shockable Rhythm: Results From the All-Japan Utstein Registry
Tsukasa Yagi, Ken Nagao, Nihon Univ Hosp, Tokyo, Japan; Eizo Tachibana, Kawaguchi Municipal Medical Ctr, Kawaguchi, Japan; Nachiroyonemoto, Kyoto Univ, Kyoto, Japan; Yoshio Tahara, Nati Cardiovascular Ctr, Osaka, Japan; Hiroshi Nonoghi, Shizuoka General Hosp, Shizuoka, Japan; Takanoi Ikeda, Toho Univ Faculty of Med, Tokyo, Japan; Naoki Saio, Nippion Med Sch Musashikosugi Hosp, Kawasaki, Japan; Hiroyuki Tsutsui, Kyushu Univ, Fukuoka, Japan

341 Effect of Guideline Changes on Drug Administration in Pediatric In-Hospital Cardiac Arrest
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343 Chest Compressions Compliance With Guidelines Declines Over the Course of Rescues
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344 Forecasting the Number of Out-Of-Hospital Cardiac Arrest in the Young Using Generalized Additive Model
Alyssa Vermeulen, Rush Univ Medical Coll, Chicago, IL; Marina Del Rio, Univ of Illinois at Chicago, Chicago, IL; Tari Lynn Campbell, ILL Heart Rescue Program, Arlington Heights, IL; Hai Nguyen, Univ of Illinois Chicago, Chicago, IL; Hoang H Nguyen, Rush Univ Medical Coll, Chicago, IL

346 Cardiac Diagnoses and Initial Presentation to the Emergency Department May Be Associated With Hospital Mortality Among Hospitalized Pediatric Patients Who Experience Medical Emergency Team Events
Rebecca J Piasecki, Johns Hopkins Univ, Baltimore, MD; Mona B Bahouth, Johns Hopkins Sch of Med, Baltimore, MD; Chakra Budhathoki, Johns Hopkins Univ, Baltimore, MD;
347 Sudden Cardiac Arrest Caused by Coronary Artery Disease in School Students
Mamoru Ayusawa, Masataka Kato, Akiko Komori, Yuriko Abe, Rei Ichikawa, Nihon Univ, Tokyo, Japan

348 Laryngoscopy With Vallecula Blade Position is Associated With Higher Success in Tracheal Intubation for Critically III Children.
Priyanka Kharayat, Children's Hosp of Philadelphia, Philadelphia, PA; Akira Nishisaki, NIEC, Philadelphia, PA; Elizabeth Lavreniere, Aaron Donoghue, Children's Hosp of Philadelphia, Philadelphia, PA

355 Effect of Poloxamer 188 on Rat Brain Isolated Mitochondria After Exposure to Hydrogen Peroxide
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356 Dynamic Susceptibility Contrast Magnetic Resonance Imaging to Quantify Perfusion Changes in Early Ischemic Brain Insult Following Cardiac Arrest in a Swine Model
Miriam Peckham, Adam Del-Havenon, Matthew David Alexander, Jeffrey Anderson, Scott McNally, Stephen H McKellar, Joseph Tonna, Ka-ho Wong, Jacob Steentil, Scott T Younquist, Univ of Utah, Salt Lake City, UT

357 Cerebral Arterial Endothelial Dysfunction in the Post-Cardiac Arrest Period
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358 Three-Sided Chest Compression is Beneficial to Rats Suffering From Cardiac Arrest
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359 The Effect of BDNF on the Neuroprotection of Win55,212-2 Pharmacological Hypothermia After CPR in a Rat Cardiac Arrest Model

360 Effects of Different Doses of Pralidoxime Administered During Cardiopulmonary Resuscitation and the Role of Alpha-Adrenergic Receptors in its Pressor Action
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361 Eosinophils Improve Cardiac Functions After Myocardial Infarction
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365 Percutaneous Ventricular Assist Devices Versus Intra Aortic Balloon Pump in Cardiogenic Shock
Muhammad Faisal Asad Janjua, Univ of TN at Chattanooga, Chattanooga, TN; Hafiz Muhammad Zubair, Sisters of Charity Hosp, Buffalo, NY; Amir Shahbaz, Allama Iqbal Medical Coll, Lahore, Pakistan

366 Risk of Adverse Events With Left Ventricular Assist Device in Cardiogenic Shock Patients
Clauden Louis, UPMC, Rochester, NY

367 Ventricular Assist Device Association in Improving Outcomes in Patients Resuscitated From Out of Hospital Cardiac Arrest
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368 A Cardiac Arrest Simulation-Based Feasibility Cadaver Study Investigating Time for Semi Surgical Cut Down Procedure Followed by Insertion of a Novel REBOA Catheter
Helene Duhem, Univ of Grenoble Alps, Grenoble, France; Lionel Larnhaut, Alice Hutin, Hop Neck er, Paris, France; Alexandre Bellier, Stephane Tanguy, Francois Boucher, Philippe Chartanion, Guillaume Debaty, Univ of Grenoble Alps, Grenoble, France

369 Implantable Cardioverter Defibrillator Therapy in Patients With Vasospastic Angina After Sudden Cardiac Arrest
Kazuya Tateshii, Yuseke Kondo, Hidemi Kishitahara, Masahiro Nakano, Takashi Nakayama, Yoshie Fujimoto, Yoshio Kobayashi, Chiba Univ Hosp, Chiba, Japan

370 Delivery of CPR in Patients With Single and Biventricular Cardiac Disease
Todd Sweger, CCMC, New Hyde Park, NY; Heather Griffis, William Beaumont Hosp, Royal Oak, MI; Joseph B Miller, Henry Ford Hosp, Superior Twp, MI; Richard A. Pressman, Nai-Wei Chen, Troy, MI; David Berger, Bloomfield Hills, MI; E. Hees, Univsmedizin Greifswald, Greifswald, Germany; Michele M. Salzman, Anna A. Sonju, Vanderbilt Univ Medical Ctr, Nashville, TN; Matthias L. Riees, TVHS VA Medical Ctr, Nashville, TN; Robert Dean Welch, Wayne State Univ, Detroit, MI; Joshua C Reynolds, Michigan State Univ CHM, Grand Rapids, MI; James M FRIEBBLE, Univ of Michigan, Ann Arbor, MI; Ronny Otero, William Beaumont Hosp, Royal Oak, MI; Robert A SWOR, WM Beaumont Hosp, Royal Oak, MI

375 Utility of Routine Early Head Computed Tomography Following Non-Traumatic Out-Of Hospital Cardiac Arrest
Bradley J Petek, David E Hamilton, Lindsay G Panah, Philip E Dormish, Sean R Mendez, Massachusetts General Hosp, Boston, MA; Elizabeth K Stevenson, David Cardona Estrada, North Shore Medical Ctr, Boston, MA; Michael G Silverman, Massachusetts General Hosp, Newton, MA

376 Confounders of Early Processed EEG to Stratify Neurological Injury After Cardiac Arrest
David B Seder, Maine Medical Ctr, Portland, ME; Amelia Bilkanovic, Lund Univ, Lund, Sweden; John Dzidzio, Lee Lucas, Maine Medical Ctr, Portland, ME; Zana Haxhija, Sadio Denico, Lund Univ, Lund, Sweden; Lyn Ackert-Smith, David Gagnon, Maine Medical Ctr, Portland, ME; Sergey V Ryzhov, Maine Medical Ctr, Scarborough, ME; Teresa MAY, Richard Riker, Maine Medical Ctr, Portland, ME
377 Predictors of Recovery in Out-Of-Hospital Post-Arrest Patients With Mild to Moderate Early Cerebral Edema
Zachary Fuller, Univ of Pittsburgh, Pittsburgh, PA; John Faro, Univ of Cincinnati, Cincinnati, OH; Clifton W Callaway, Univ Pittsburgh, Pittsburgh, PA; Jonathan Elmer, University of Pittsburgh, Pittsburgh, PA; Christian Vaillancourt, Univ of Ottawa, Ottawa, ON, Canada; Henry E Wang, UTHouston - Univ Texas Houston, Houston, TX; Myron Weisfeldt, Johns Hopkins Univ, Baltimore, MD; Susanne May, Univ Washington, Seattle, WA

378 Diagnosing Pneumonia After Cardiac Arrest
Alexandra Weissman, Jacob S Puyana, David Spencer, Melissa Repine, Jon C Rittenberger, Clifton W Callaway, Univ of Pittsburgh, Pittsburgh, PA

379 Nursing Perspectives on Neuro-Prognostication for Post-Cardiac Arrest Patients and Their Integral Role in Supporting Surrogate Decision Makers
Sarah M Perman, Bonnie J. Siry, Univ of Colorado Sch of Med, Aurora, CO; Stacie L Daugherthy, Univ Colorado Denver, Aurora, CO; Edward Havranek, Denver Health Hosp Authority, Denver, CO

380 Family Presence During Resuscitation: A Needs Assessment
Carolina Tennyson, Callie Tennyson, Durham, NC

381 Prehospital Capnography in Non-Intubated Traumatic Brain Injury Patients: Association Between End-Tidal CO2 and Level of Consciousness
Bruce J Barnhart, Univ of Arizona, Phoenix, AZ; Daniel W Spaite, Univ of Arizona, Chandler, AZ; Eric Helfenbein, Philips Healthcare, Sunnyvale, CA; Dawn Jorgenson, Philips Medical Systems, Bothell, WA; Saeed Babaeizadeh, Philips Healthcare, Andover, MA; Joshua B Gaither, Amber Dawn Rice, Samuel M Keim, Univ of Arizona, Tucson, AZ; Chengcheng Hu, Univ of Arizona, Chandler, AZ

382 Awareness and Cognitive Activity During Cardiac Arrest
Sam Parnia, Tara Keshavaz, Meghan McMullin, Tori Williams, NYU Langone Health, New York, NY

383 Long-Distance Running Races Supported by Running Doctors Provide Better Clinical Outcomes for Runners With Cardiac Arrest
Norihiro Kuroki, Tokyo Metropolitan Bokutoh Hosp, Tokyo, Japan; Daikoku Abe, Tokyo Metropolitan Bokutoh Hosp, Sumida-city, Japan; Kouta Suzuki, Tokyo Metropolitan Bokutoh Hosp, Tokyo, Japan; Takao Yuba, Tokyo Metropolitan Bokutoh Hosp, Tokyo, Japan; Yoshiaki Yukita, Akira Takayama, Tokyo Metropolitan Bokutoh Hosp, Tokyo, Japan; Keisuke Ohashi, Tokyo Metropolitan Bokutoh Hospital, Tokyo, Japan; Hitoshi Hirano, Tokyo Metropolitan Bokutoh hospital, Tokyo, Japan; Takunori Aoyama, Takuto Mukaida, Yumi Kimura, Mikiko Okouchi, Tatsuki Kato, Riki Nagatomo, Yuichi Hamabe, Tokyo Metropolitan Bokutoh Hosp, Tokyo, Japan

384 Automating a Cardiac Arrest Registry: Challenges and Opportunities
Ahamed H Idris, Pamela Owens, Samuel McDonald, Raymond Fowler, UT Southwestern Medical Ctr, Dallas, TX; Heather Herren, Susanne May, Univ of Washington, Seattle, WA

385 Variation in Time to Notification After Enrollment in Trials Conducted Under Exception From Informed Consent for Emergency Research
Graham Nichol, Univ of Washington-Harborview, Seattle, WA; Rui Zhuang, Univ of Washington, Seattle, WA; Tom P Aufderheide, Medical Coll Wisconsin, Milwaukee, WI; Eileen Bulger, Harborview Medical Ctr, Seattle, WA; Clifton W Callaway, Univ Pittsburgh, Pittsburgh, PA; Jim Christenson, Univ of British Columbia, Vancouver, BC, Canada; Mohamud R Daya, OHSU, Portland, OR; Ahamed H Idris, UT Southwestern Medical Ctr, Dallas, TX; Peter Kudenchuk, Univ of Washington, Seattle, WA; Laurie J Morrison, Univ of Toronto, Toronto, ON, Canada; Martin A Schraiber, Oregon Health & Science Univ, Portland, OR; George Szpko, NIH NHLBI, Bethesda, MD; Jeremy Sugarman, Johns Hopkins Univ, Baltimore, MD

386 Use of a Low Resource Model for Group Cardiopulmonary Resuscitation Training: Knowledge Gains and Attitude Changes
Matthias Goldstein, Benjamin Goldstein, Joel Novograd, Inayzha Wallace, Leah Goldstein, Kailah Carden, Towson Univ, Baltimore, MD

387 State-Level CPR Education Legislation Associated With Higher Survival After Out-Of-Hospital Cardiac Arrest in Older Adults

388 Successful Virtual Reality Cardiopulmonary Resuscitation Training in Schools: Digitally Linking a Physical Manikin to a Virtual Lifesaving Scenario
Lana Gent, American Heart Association, Dallas, TX; David Sarno, Lighthouse Inc, Long Beach, CA; Kent Coppel, American Heart Association, Dallas, TX; David M. Axelrod, Stanford Univ Sch of Med, Palo Alto, CA

389 A New Paradigm in Resuscitation Education: “Does Frequency Matter?”
Kathleen Ward, The Valley Hosp, Ridgewood, NJ; David Rivera, The Valley Hosp, Ridgewood, NJ

390 CPR in Chicago Public Schools; A Survey for Implementation of Sudden Cardiac Arrest Education in Schools
Alyssa Vermeulen, Rush Univ Medical Ctr, Chicago, IL; Marina Del Rios, Teri Campbell, Univ of Illinois at Chicago, Chicago, IL; Hoang Nguyen, Rush Univ Medical Coll, Chicago, IL

391 Advanced Cardiac Life Support Taught in a Transitional Medical School Course Improves Retention: A Prospective Cohort Study
Lindsey R Mitrani, New York Presbyterian, New York, NY; Lauren Jean Sanderson, Dallas, TX; Rachel J Gordon, Columbia Univ Medical Ctr, New York, NY; Julia E Iyasere, New York Presbyterian, New York City, NY

392 Are You As Smart As A 5th Grader? Promoting CPR Awareness In Communities Through Kids
Syed F Itikhar, Riverside Community Hosp/UC Riverside SOM, Riverside, CA; Eashan Biswas, Riverside Unified Sch District, Riverside, CA; Raksha Maharaj, Univ of California Los Angeles, Los Angeles, CA; Shipij Jain, Cardiology Specialists Medical Group, Riverside, CA; Sabet Amin, UCSF Fresno, Fresno, CA; Mimi S Biewas, Riverside Community Hosp/UC Riverside SOM, Riverside, CA

393 Are You Comfortable Being A CPR Instructor With AHA?
Etsuko Fujita, Dept of Nursing, Hiroshima Univ Hosp, Hiroshima, Japan; Yoshitaka Shimizu, Dept of Dental Anesthesiology, Hiroshima Univ, Hiroshima, Japan; Masami Ishikawa, Dept of Anesthesiology and Critical-Care-Med, Kure kyoai Hosp, Kure, Japan; Koichi Tanigawa, Futaba Medical Ctr, Fukushina, Japan; Takafrumi Arishige, Higashihiroshima Municipal Fire Dept, Higashihiroshima, Japan; Noriko Shimizu, Shizuka Kono, Dept of nursing, Hiroshima City Hosp, Hiroshima, Japan; Yayoi Sasabe, Dept of Nursing, Hiroshima Univ Hosp, Hiroshima, Japan

394 A Machine Learning-Based Prediction of Cardiac Arrest Outcome Using a Large Multi-Center Database
Hanbiehn Kim, Hieu Nguyen, Qingchu Jin, Sharmila Tamby, Tatiana Gelaf Romer, Eric Sung, Ran Liu, Joseph Greenstein,
Are Providers Overconfident in Predicting Outcome After Cardiac Arrest? Alexis Steinberg, Clifton W Callaway, Cameron Dezfulian, Jonathan Elmer, Univ of Pittsburgh, Pittsburgh, PA

Utility of Abnormal Head Computed Tomography in Predicting Outcome in Out of Hospital Cardiac Arrest Victims Resuscitated and Subsequently Placed on Targeted Temperature Management Michael Bernet, Beaumont Hosp, Royal Oak, Mi; Robert A Swor, WM Beaumont Hosp, Royal Oak, MI

Predictors of Survival to Hospital Discharge, a Machine Learning Model for Out-of-Hospital Cardiac Arrest in the Young Alyssa Vermeulen, Hoang Nguyen, Rush Univ Medical Ctr, Chicago, IL; Hai Nguyen, Teri Campbell, Marina Del Rios, Univ of Illinois Chicago, Chicago, IL

Predictive Value of ‘OHCA’ and ‘C-GRAPH’ Score to Predict Neurological Outcome in Cardiac Arrest Patients Treated With Targeted Temperature Management Hyun Soo Kim, Kyu Nam Park, Soo Hyun Kim, Sang Hoon Oh, Chun Song Youn, The Catholic Univ of Korea, Seoul, Korea, Republic of

Early Imaging Incompletely Predicts Subsequent Cerebral Physiological Derangements After Cardiac Arrest Francisco Gomez III, Benjamin Abella, Univ of Pennsylvania, Philadelphia, PA; Ramani Balu, Univ of Pennsylvania, Philadelphia, PA

Location of Collapse is Independently Associated With Initial Rhythm and Survival in Out-Of-Hospital Cardiac Arrest Iris Oving, Michiel Hulleman, Paulien C Homma, Stefanie G Beesems, Hanno L Tan, Rudolph W Koster, Marieke T Blom, Amsterdam UMC, AMC, Amsterdam, Netherlands

Chance of Survival Decreases Within 10 Minutes of Transport in Trauma Patients Receiving Prehospital Cardiopulmonary Resuscitation Hiromichi Naito, Tetsuya Yumoto, Takashi Yorifuji, Tsuyoshi Nojima, Atsunori Nakao, Okayama Univ, Okayama, Japan

Underlying Liver Disease and Survival Outcomes in Out-Of-Hospital Cardiac Arrest Jieun Pak, Ki Hong Kim, Seoul Natl Univ Hosp, Seoul, Korea, Republic of; Jong Hwan Kim, Seoul Natl Univ Coll, Seoul; Sun Young Lee, Seoul Natl Univ Hosp, Seoul; Ki Jeong Hong, Seoul Natl Univ Hosp, Seoul, Korea, Republic of; Sang Do Shin, Seoul Natl Univ, Jongro Gu Seoul, Korea, Republic of

Four Score Remains Effective Prognostic Tool in Cardiac Arrest After Eliminating Respiratory Component Jonathan Duskin, Brigham and Women’s Hosp, Boston, MA; Stephanie Liang, Boston Univ Sch of Med, Boston, MA; Katie Dam, William Spears, Kushak Suchdev, Boston Medical Ctr, Boston, MA; David M Greer, Boston, MA

The Prognostic Value of Lactate in Cardiac Intensive Care Unit Patients With and Without Cardiac Arrest Barry Burstein, Sarasvandall Vallabhajosyula, Bradley Temus, Kianoush Kashani, Gregory W Barsness, Jacob C Jentzer, Mayo Clinic, Rochester, MN

Categorization of Post-Cardiac Arrest Patients According to the Pattern of Amplitude-Integrated Electroencephalography After Return of Spontaneous Circulation: Analysis of Long-Term Prognosis Kazuhiro Sugiyama, Tokyo Metropolitan Bokutoh Hosp, Tokyo, Japan; Kazuki Miyazaki, Tokyo Metropolitan Bokutoh hospital, Tokyo, Japan; Yuchi Hamabe, Tokyo Metropolitan Bokutoh Hosp, Tokyo, Japan

Admission to Hospital With Ongoing Resuscitation – Are There Survivors? Stephan Seewald, Univ Hosp Schleswig-Holstein, Kiel, Germany; Jan Wrent, Univ of Namibia, Sch of Med, Windhoek, Namibia; Jan-Thorsten Grässner, Univ Hosp Schleswig-Holstein, Kiel, Germany; Andreas Bohn, City of Münster Fire Dept, Münster, Germany; Matthias Fischer, Alb Flis Klinikken, Klinik am Eichert, Göppingen, Germany; Barbara Jakisch, Univ Hosp Schleswig-Holstein, Kiel, Germany

Comparison of Prognostic Predictors After Return of Spontaneous Circulation Between Cardiac and Non-Cardiac Cardiopulmonary Arrest Kenta Ohmure, Masaaki Miyata, Kento Tagata, Tatsuo Yokomine, Yuutarō Nomoto, Shunichi Imanurui, Mariko Kawasaki, Hideki Chazen, Naoya Oketani, Masakazu Ogawa, Kagoshima City Hosp, Kagoshima-Shi, Japan; Mitsuru Ohishi, Kagoshima Univ, Kagoshima, Japan

Point of Care Ultrasound Sonography (POCUS) in Cardiac Arrest: Predicting Survivorship Ada Wong, Renaissance Sch of Med at Stony Brook Univ, Stony Brook, NY; Hassan Patail, Stony Brook Univ Medical Ctr, Stony Brook, NY; Sahar Ahmad, Stony Brook Univ Medical Ctr, Stony Brook, NY, Stony Brook, NY

Relationship Between Optic Nerve Sheath Diameter Measured By Magnetic Resonance Image, Intracranial Pressure, And Neurological Outcome In Cardiac Arrest Survivors Who Underwent Target Temperature Management Changshin Kang, Yeonho YOU, Jung Soo Park, Chungnam Natl Univ Hosp, Daejeon, Korea, Republic of

A Sign of ST-Segment Elevation Predicts Type 1 Myocardial Infarction in Patients Resuscitated From Cardiac Arrest Nozomi Kotoku, Takumi Higuma, Yuki Ishibashi, Toskki Kihara, Shingo Kuwata, Masashi Koga, Takanoobu Mitorai, Ryu Kamijima, Khei Yoneyama, Yasuhiro Tanabe, Yoshihiro J Akashi, St. Marianna Univ Sch of Med, Kawasaki, Japan

Factors Contributing to Out-Of-Hospital Cardiac Arrest Mortality Trends in the City of Detroit (2014-2018) Shobi Mathew, James H Paxton, Brian Reed, Wayne State Univ, Detroit, MI; Joseph B Miller, Howard Klausner, Henry Ford Hosp, Detroit, MI; Robert Dunne, St. John Hosp and Medical Ctr, Detroit, MI; Brian O’Neil, Wayne State Univ, Detroit, MI

Sudden ECG Rhythm Changes After Return of Spontaneous Circulation in Porcine Models of Cardiac Arrest Allison C Koller, David D Salcido, Univ of Pittsburgh, Pittsburgh, PA; Cornelia Genbrugge, Univ of Pittsburgh, Pittsburgh, PA; James J Menegazzi, Univ of Pittsburgh, Pittsburgh, PA

Cause of Death Among Patients Resuscitated From Out-Of-Hospital Cardiac Arrest at a Single Urban Academic Hospital Shu Li, Christos Lazaridis, Univ of Chicago, Chicago, IL; Fernando D Goldenberg, Univ of Chicago Med, Chicago, IL; Atman Shah, David Beiser, Willard W Sharp, Univ of Chicago, Chicago, IL
First-Line Vasopressor Agent for Cardiogenic Shock Due to Acute Myocardial Infarction: Results From Tokyo CCU Network Registry

Using the Time Interval Between R-Wave Detection and Maximum Compression Pressure to Target and Validate Delivery of Synchronized Chest Compressions During Pseudo Electro-Mechanical Dissociation

Cardiopulmonary Resuscitation Training for Families of Cardiac Patients Before Hospital Discharge Using a Mobile Application

Availability and Quality of Cardiopulmonary Resuscitation Films Featuring a Female Victim on the Internet: A Cross-Sectional Study

Longitudinal Improvement in CPR Quality Following RQI Implementation in a Pediatric Emergency Department

Impact of Novel Healthcare Facility First Responder Training on Resuscitation Task Self-Efficacy Measures

Cost Analysis of a Contextualized Cardiopulmonary Resuscitation Training for Orderlies Participating in In-Hospital Cardiac Arrests

Rapid Cycle Deliberate Practice Improves Critical Item Retrieval From Crash Cart

A Comparison of CPR Quality Using an Augmented Reality Application versus a Standard Audio-Visual Feedback Manikin

Increasing the Compression Velocity and Acceleration Improved the Quality of Simulated Chest Compression Under the Direction of Real Time Visual Feedback Device

POSTERS (continued)
455 Comparison of Effect of Audio-Instructed and Video-Instructed Dispatcher-Assisted Cardiopulmonary Resuscitation on Resuscitation Outcomes After Out-Of-Hospital Cardiac Arrest

456 Pause Duration During Manual CPR is Associated With Survival and Favorable Neurological Outcome in All-Rhythm OHCA
Lyra R Clark, ZOLL Medical Corp, Chelmsford, MA; Robyn McDonnell, Margaret Mullins, Univ of Arizona, Phoenix, AZ; Bentley Bobrow, McGovern Medical School at UTHealth, Dept of Emergency Med, Houston, TX

457 The TripleCPR 16 Study: Does Rhythm Truly Needed to Be Checked Every 2 Minutes in Cardiopulmonary Arrest Patients?
Ryosuke Takegawa, Tadahiko Shiozaki, Mitsuo Ohnishi, Arisa Muratsu, Jotaro Tachino, Tomohiko Sakai, Osaka Univ Graduate Sch, Suita, Japan; Takashi Muroya, Kansai Medical Univ Hosp, Hirakata, Japan; Koichi Hayakawa, Kansai Medical Univ Medical Ctr, Moriyachi, Japan; Takeshi Shimazu, Osaka Univ Graduate Sch, Suita, Japan

458 Evaluation of the Impact of Additional Structured Cardiac Arrest Training on Internal Medicine Residents in a Community Hospital
Abdullah Zoheb Azhar, Monil Majmundar, Shmuel Golfeyz, Tikal Kansara, Jonna Mercado, Savi Mushiyev, Metropolitan Hosp Ctr, New York, NY

459 Medical Emergency Team Replaces Code Blue Activations at Pediatric Hospital
Elizabeth Masse, Joan S Roberts, Seattle Children’s Hospital, Seattle, WA

460 Communicating Through Chaos: A Hybrid Educational Initiative for Urgent Care Oncology Nurses
Julie Moore, University of Toronto, Toronto, ON, Canada; Maggie Billing, Princess Margaret Hosp, Toronto, ON, Canada

461 Improvement in Return of Spontaneous Circulation With a Cardiac Arrest Video Review and Team-Focused Mechanical CPR Program
Daniel M Rolston, Timmy Li, Casey Owens, Ghania Haddad, Timothy J Palmieri, Veronika Blinder, Michael Cassara, Qiuping Zhou, Lance B Becker, Northwell Health, Manhasset, NY

462 PERC: A 23 Years Experience of Disseminating BLS Techniques in Underserved Areas
Neiberg A Lima, Western Michigan Univ, Kalamazoo, MI; Sweilen Lima, Gabriel Persoao, Priscila Costa, Thomas Costa, Emanuel Vasconcelos, Wesla Praxedes, Larissa Silva, Thais Silva, Thais Barbosa, Univ Federal do Ceara, Fortaleza, Brazil

463 Consideration of an Optimal Educational Strategy for High-Quality Cardiopulmonary Resuscitation and Chest Compression Fraction in Basic Life Support Simulation Training
Hiroshi Sekiguchi, Kanako Saito, Masatake Fukami, Takayuki Taira, Gen Ouchi, Yuichiro Tamaki, Tatsuya Fukuda, Kazuhiko Hanashi, Kazuhiko Hanashi, Kawazuma Yoshikazu, koji Yonemoto, Shigeiyoishi Nakajima, Taiho Terada, Rykyuuyu Univ, Nishihiara, Japan; Ichiro Kukita, Univ of the Ryukyus, Nishihiara, Japan

464 Understanding the Distribution of CPR Training in Pennsylvania High Schools
Paige Meskers, Univ of Pittsburgh, Pittsburgh, PA; Vanessa Mejia, Florida Intl Univ, Miami, FL; Jessica Salerno, Leonard Weiss, David D Salcido, Univ of Pittsburgh, Pittsburgh, PA

465 Barriers to Performing CPR in a Community With a Low Prevalence of Bystander CPR
Parth Patel, Christina Smith, Eastern Virginia Medical Sch, Norfolk, VA; ERMS Bystander CPR Service Learning Group; Barry Knapp, Joseph Lang, Eastern Virginia Medical Sch, Norfolk, VA; Julie Stoner, Eastern Virginia Medical Sch, Norfolk, VA

466 Organizations Unite in “Call-Push-Shock” Movement to Impact Public Understanding That Drives Action
Mary M Newman, Sudden Cardiac Arrest Fndn, Wexford, PA; Martha E Lopez-Anderson, Parent Heart Watch, Wilmington, DE; Jennifer F Chap, StratåVer ve, Orlando, FL; Carissa B Caramanis, Sudden Cardiac Arrest Fndn, Wexford, PA

467 Will Obesity Bankrupt the United States? Obese Patients Who Underwent Cardiopulmonary Resuscitation Have Increased Thirty-Day Readmission and Total Hospital Cost

468 Higher Mortality From Cardiac Arrest in North Carolina versus Washington State and Denmark: Implications for Improving Systems of Care
Sidriel Moeller, Duke Clinical Res Inst, Durham, NC; Carolina Malta Hansen, Copenhagen EMS, Ballerup, Denmark; Matthew Dupre, Duke Clinical Res Inst, Durham, NC; Tom Rea, Cardiovascular Health Res Unit, Univ of Washington, Seattle, WA; Sean Van Diepen, Dept of Critical Care and Div of Cardiology, Dept of Med, Univ of Alberta, Alberta, AB, Canada; Lisa Monk, Duke Clinical Res Inst, Clemmons, NC; Clark Tyron, Duke Clinical Res Inst, Durham, NC; Bryan McNally, Emory Univ, Atlanta, GA; Monique Anderson Starks, Duke Clinical Res Inst, Durham, NC; Christopher Fordyce, Univ of British Columbia, Vancouver, BC, Canada; Jenny Shin, King County EMS, Seattle, WA; Fredrik Frode Frode, Emergency medical Services, Cph, Copenhagen; Christian Torp-pedersen, Dept of Cardiology, Hillerød Hospital, Denmark; James Jollis, Duke Univ, Durham, NC; Christopher Bull Granger, Duke Clinical Res Inst, Durham, NC

469 Association Between Bystander Delay in Activating the Emergency Response System and Outcomes Following Out-Of-Hospital Cardiac Arrest: All-Japan National Utstein Registry
Tomoyoshi Tamura, Keio Univ Sch of Med, Tokyo, Japan; Tomohisa SEKI, The Univ of Tokyo Hosp, Tokyo, Japan; Masaru Suzuki, Tokyo Dental Coll, Ichikawa General Hosp, Chiba, Japan; Junichi Sasaki, Keio Univ Sch of Med, Tokyo, Japan

470 Feasibility of an Augmented Reality Cardiopulmonary Resuscitation Training System for Health Care Providers
Steve Balian, Shaun McGovern, Benjamin Abella, Univ of Pennsylvania, Philadelphia, PA; Audrey Blewer, Duke Univ Sch of Med, Durham, NC; Marion Leary, Univ of Pennsylvania, Philadelphia, PA
481 Cardiopulmonary Resuscitation: The Effect of Fatigue on Professional Rescuers During Continuous Chest Compressions
Olibhear McAlister, HeartSine Technologies, Belfast, United Kingdom; Adam Harvey, Stryker Belfast, Belfast; Hannah Torney, Stryker Belfast, Belfast; Ben McCartney, HeartSine Technologies, Belfast, United Kingdom; Laura Davis, HeartSine Technologies, Belfast; Pamela Owens, Ahamed H Idris, UT Southwestern Medical Ctr, Dallas, TX

482 Differences in Ground Reaction Forces and Chest Compression Release Velocity in Professional and Lay Rescuers With and Without the Use of Real-Time CPR Feedback
Lyra Clark, ZOLL Medical Corp, Chelmsford, MA; Ben Senderling, Univ of Nebraska at Omaha, Omaha, NE; Jeff R Gould, Chris Kaufman, ZOLL Medical Corp, Chelmsford, MA; Nick Stergiou, Univ of Nebraska at Omaha, Omaha, NE

483 Out of Hospital Cardiac Arrest Outcomes After Transitioning to Pit Crew Model
Mohinder Reddy Vindhyal, KUSM-Wichita, Wichita, KS; Paul Muutu Ndunda, Univ of Kansas Sch of Med-Wichita, Wichita, KS; Shravani Vindhyal, Univ of Kansas- Wichita, Wichita, KS; Brant Duran, KUSM-Wichita, Wichita, KS

484 Heart Class - A Novel, Interactive CPR Training Film Leads to Better CPR Skill Acquisition and Retention Compared to Standard Training in High School Students
Author Index

Aarsethoe, Hildegunn .......... 135, 136
Aarsethoe, Reidun .......... 135, 136
Abbodessa, Mary Kate .......... 302, 447
Abdulhay, Nabi M. .......... 156
Abe, Daisuke .......... 388
Abe, Toshikazu .......... 321
Abe, Yuiko .......... 347
Abella, Benjamin ...... 01, 156, 167, .......... 274, 275, 315, 395, 410, .......... 445, 455, 480
Abir, Maheshid .......... 138
Ackerst-Smith, Lyn .......... 376
Adams, Jose A. .......... 195
Adams, Shawn .......... 100, 300
Adelson, David .......... 320
Adgey, Jennifer .......... 128
Adnet, Frederic .......... 325
Agrawal, Sachin .......... 17
Ahmad, Sahar .......... 421
Aiello, Salvatore .......... 09, 257
Ainsley, Matthew .......... 303
Akasaki, Yuichi .......... 198
Akashi, Yoshihiro J. .......... 425
Al Assil, Rahaf .......... 15
Alexander, Matthew D. ...... 11, 177, 356
Alexander, Tyler D. .......... 396
Allan, Katherine S. .......... 108, 227
Allen, Jason .......... 330
Allen, Shannon .......... 08, 265
Alonso, Daniel .......... 124, 282
Alonso, Erik .......... 124, 336
Al Tameemi, Mohammed .......... 246
Alten, Jeffrey A. .......... 301
Amas, Leyre .......... 282
Ambati, Ravi .......... 240
Ameloot, Koen .......... 31
Ameszaga, Narco .......... 126
Amin, Sabet .......... 401
Amortin De Cerqueira Filho, Edilberto .......... 286
Amraotkar, Alok R. .......... 07, 484
Andelius, Linna .......... 16
Andersen, Lars W. ...... 05, 06, 111, .......... 250, 251, 341
Anderson, Cedar .......... 107
Anderson, Jeffrey ...... 11, 177, 356
Anderson, Kenton .......... 253
and JCS-ReSS group, ........ 169
Ang, Samantha .......... 265
Aoki, Makoto .......... 168, 321
Aoyama, Takunori .......... 388
Apigo, Mylene .......... 246
Arabadzian, Milla .......... 148
Arakami, Yuto .......... 168
Aramendi, Elisabethe .......... 124, 127, 151, .......... 166, 237, 264, 282, 336
Arashige, Takefumi .......... 402
Arnwald, Fredrik K. .......... 237
Arunanandam, Shalini .......... 314
Ashida, Tadashi .......... 429
Ashwood, Daniel .......... 292
Atkins, Dianne L. .......... 188, 251
Auferheide, Tom P. ...... 10, 184, 391
Awad, Akil .......... 39
Awad, Emad .......... 15
Axelrod, David M. .......... 396
Ayusawa, Mamoru .......... 347
Azhar, Abdullah Zoheb .......... 461
Babaeizadeh, Saeed .......... 326, 386
Badaki-Makun, Oluwakemi .......... 333
Baer, Michel .......... 325
Baetong, Alvin .......... 09, 176, 257
Bahouth, Mona N. .......... 346
Bakke, Magnus .......... 166
Balian, Steve .......... 455, 480
Balu, Ramani .......... 274, 410
Baizer, Claudius .......... 119, 20, 22, .......... 200, 355
Banejee, Mousumi .......... 301
Barbaccia, Thomas .......... 08
Barbe, John .......... 315
Barbosa, Thais .......... 465
Barnes, Megan .......... 395
Barnhart, Bruce J. .......... 320, 326, 386
Barringer, Benjamin .......... 253
Barsness, Gregory W. .......... 417
Bartos, Jason A. ...... 10, 14, 210, .......... 211, 330
Baudenbacher, Franz J. .......... 119, 20
Bavery, Scott .......... 295
Becker, Lance B. ...... 01, 178, 205, .......... 217, 219, 280, 358, 464
Becker, Les R. .......... 448
Becker, Torben .......... 241
Beestmans, Stefanie G. .......... 32, 411
Beiser, David .......... 428
Beller, Jared P. .......... 13
Beller, Alexandre .......... 368
Benoit, Just L. .......... 140
Berg, Katherine M. ...... 06, 18, 110, 111
Berg, Robert A. .......... 247, 434, 445
Berger, David A. .......... 367, 430
Berger, Paul S. .......... 256, 437
Bergum, Daniel .......... 166
Berkova, Jana .......... 324
Bennett, Michael .......... 407
Berry, Donald .......... 107
Berve, Per-Olav .......... 237, 267
Besserer, Floyd .......... 227, 235
Bhandari, Shiv .......... 355
Bhardwaj, Abhishek .......... 275, 455
Bhatt, Hardik .......... 131
Bilkonovic, Amedina .......... 376
Binte Ahamad, Nur Shahidah .......... 314
Biswas, Eashan .......... 401
Biswas, Mimi S. .......... 401
Blackwood, Jennifer .......... 284, 295, .......... 296, 331, 335
Blewau, Audrey L. .......... 314, 445, 455, 480
Blinder, Veronika .......... 464
Blom, Marieke T. .......... 411
Blough, Perry .......... 268
Bobrow, Bentley .......... 239, 291, 320, 458
Bohn, Andreas .......... 419
Bolasdy, Emile .......... 172, 19
Bond, Raymond .......... 128
Bora, Kelly .......... 370
Borgen, Alexander .......... 166
Bosworth, Hayden B. .......... 314
Boucher, Francois .......... 368
Bougouin, Wulfra .......... 325
Bradley, Jennifer .......... 21, 173, 174, .......... 175, 179, 194
Bradley, Steven M. .......... 29
Branch, Kelley .......... 04
Brede, Jostein R. .......... 28
Brolliar, Sarah M. .......... 190
Brooks, Steven .......... 15, 147
Brown, Lorrel E. .......... 07, 446, 484
Brunen, Robin M. .......... 04
Buckler, David G. ....... 156, 275, 315, 395
Buda, Kevin .......... 105
Budhanthakai, Chakra .......... 346
Bulger, Eileen .......... 391
Burrage, Peter S. .......... 438, 439
Burststein, Barry .......... 417
Byler, Matthew R. .......... 13
Cai, Keqia .......... 332
Callaway, Clifton W. ...... 184, 312, .......... 377, 378, 391, 406
Camacho, Cheryl .......... 448
Campbell, Teri .......... 399, 408
Campbell, Teri L. .......... 313, 345
Canty, John M. .......... 08, 265
caro, Yu .......... 266, 456
Caramanis, Carissa B. .......... 472
Carbon, Christopher .......... 295
Carden, Kailah .......... 392
Cardona Estrada, David .......... 375
Cariou, Alain .......... 325
Caribborn, David .......... 04, 30
Carison, Claire .......... 10, 14, 211
Carson, Jodhn D. .......... 02, 184
Carr, Brendan G. .......... 315, 395
Carreno, Juan .......... 120, 121, 216, 218
Carrier, François-Martin .......... 449
Cash, Rebecca .......... 187
Casas, Michael .......... 464
Castaneda, Maria .......... 253, 268
Cavada, Aninalisa .......... 103
Centeno, Claire .......... 167
Chae, Minjung K. .......... 112, 431
Chaan, Hideoto .......... 420
Chaffanjon, Philippe .......... 368
Chalek, Adam D. .......... 03
Chang, Jesse .......... 245
Chap, Paul .......... 113, 186, 245, 311
Chen, Timothy .......... 108, 147
Chancellor, William Z. .......... 13
Chao, Georgia T. .......... 190
Chap, Jennifer F. .......... 472
Chapman, Fred W. .......... 32, 237, 284
Charbonneau, Julie .......... 295
Charlot, Jennifer R. .......... 13
Chase, Maureen .......... 06
Cheah, Si Oon .......... 314
Chen, Chao-Feng .......... 249
Chen, Nai-Wei .......... 367, 430
Chen, Gun .......... 175
Chen, Ruizhe .......... 186
Cheng, Adam .......... 247
Cheskes, Sheldon .......... 147, 149, 152
Chia, Michael Yih-Chong .......... 314
Chiba, Nobutaka .......... 141
Chicote, Beatriz .......... 124
Chikani, Vatsal .......... 239, 320
Chipman, Anne K. .......... 190
Cho, Sumin .......... 431
Chocron, Richard .......... 325
Christensen, Matthew .......... 09
Christensen, James .......... 15, 142, 143
Christopher, Theodore .......... 227, 235, 391
Church, Matthew .......... 142
Claassen, Jan .......... 17
<table>
<thead>
<tr>
<th>Author Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ishibashi, Hiroki</td>
<td>31, 110, 207,240, 207, 280</td>
</tr>
<tr>
<td>Ishihara, Satoshi</td>
<td>209</td>
</tr>
<tr>
<td>Ishikawa, Masami</td>
<td>402</td>
</tr>
<tr>
<td>Ishizawa, Yoshiya</td>
<td>226</td>
</tr>
<tr>
<td>Issa, Mahmoud S.</td>
<td>110</td>
</tr>
<tr>
<td>Isshiki, Yuta</td>
<td>168</td>
</tr>
<tr>
<td>Ito, Katsuhiro</td>
<td>141, 165</td>
</tr>
<tr>
<td>Ito, Noritoshi</td>
<td>217</td>
</tr>
<tr>
<td>Iverson, Ann</td>
<td>24, 106, 150,207, 220</td>
</tr>
<tr>
<td>Iwami, Taku</td>
<td>400</td>
</tr>
<tr>
<td>Izawa, Junichi</td>
<td>24</td>
</tr>
<tr>
<td>Jain, Shilpi</td>
<td>401</td>
</tr>
<tr>
<td>Jakisch, Barbara</td>
<td>419</td>
</tr>
<tr>
<td>Jakula, Pekka</td>
<td>31</td>
</tr>
<tr>
<td>Janesko-Feldman, Keri</td>
<td>199</td>
</tr>
<tr>
<td>Janjua, Muhammad Faisal Asad</td>
<td>365</td>
</tr>
<tr>
<td>Jarvis, Jeffrey W.</td>
<td>264</td>
</tr>
<tr>
<td>Jeang, Chae-Won</td>
<td>112</td>
</tr>
<tr>
<td>Jeong, Kyung Woon</td>
<td>360</td>
</tr>
<tr>
<td>Jha, Anil K</td>
<td>105</td>
</tr>
<tr>
<td>Ji, Xianfei</td>
<td>21, 174, 175,179, 194</td>
</tr>
<tr>
<td>Johnson, Nicholas J.</td>
<td>30</td>
</tr>
<tr>
<td>Jollis, James</td>
<td>474</td>
</tr>
<tr>
<td>Jones, Sarah J</td>
<td>333</td>
</tr>
<tr>
<td>Jung Hwan, Kim</td>
<td>457</td>
</tr>
<tr>
<td>Jonsson, Martin</td>
<td>295, 296,297, 298, 300</td>
</tr>
<tr>
<td>Jorgenson, Dace B.</td>
<td>326, 326</td>
</tr>
<tr>
<td>Jost, Daniel</td>
<td>325</td>
</tr>
<tr>
<td>Jouven, Xavier</td>
<td>325</td>
</tr>
<tr>
<td>Jung, Yong Hun</td>
<td>360</td>
</tr>
<tr>
<td>Kahlon, Arunpreet</td>
<td>348</td>
</tr>
<tr>
<td>Kalahara, Tosihki</td>
<td>425</td>
</tr>
<tr>
<td>Kalra, Rajat</td>
<td>14</td>
</tr>
<tr>
<td>Kalmychn, Colleen</td>
<td>190</td>
</tr>
<tr>
<td>Kamijima, Ryo</td>
<td>425</td>
</tr>
<tr>
<td>Kaneko, Tadashi</td>
<td>160</td>
</tr>
<tr>
<td>Kang, Changshin</td>
<td>422</td>
</tr>
<tr>
<td>Kari, Hussein</td>
<td>335</td>
</tr>
<tr>
<td>Karsara, Tidal</td>
<td>461</td>
</tr>
<tr>
<td>Karahalos, Dean</td>
<td>9</td>
</tr>
<tr>
<td>Karpunke, Benjamin</td>
<td>334</td>
</tr>
<tr>
<td>Karimi, Maryam</td>
<td>359</td>
</tr>
<tr>
<td>Karlsson, Lena</td>
<td>338</td>
</tr>
<tr>
<td>Kasaoka, Shinji</td>
<td>160</td>
</tr>
<tr>
<td>Kashani, Kianoush</td>
<td>417</td>
</tr>
<tr>
<td>Katayama, Yukihoko</td>
<td>206, 208</td>
</tr>
<tr>
<td>Kato, Masataka</td>
<td>347</td>
</tr>
<tr>
<td>Kato, Taichi</td>
<td>388</td>
</tr>
<tr>
<td>Katrapati, Praneeth</td>
<td>484</td>
</tr>
<tr>
<td>Kattel, Sharma</td>
<td>131</td>
</tr>
<tr>
<td>Kaufman, Chris</td>
<td>482</td>
</tr>
<tr>
<td>Kaufman, Harrison</td>
<td>176</td>
</tr>
<tr>
<td>Kawakami, Shoji</td>
<td>169</td>
</tr>
<tr>
<td>Kawamura, Takashi</td>
<td>150, 207, 240, 240</td>
</tr>
<tr>
<td>Kawase, Tsutsumori</td>
<td>209</td>
</tr>
<tr>
<td>Kawai, Maniko</td>
<td>420</td>
</tr>
<tr>
<td>Keenan, Heather T.</td>
<td>205</td>
</tr>
<tr>
<td>Keim, Samuel M.</td>
<td>320, 326, 386, 386</td>
</tr>
<tr>
<td>Kekkonen, Keri</td>
<td>450</td>
</tr>
<tr>
<td>Kern, Caelie</td>
<td>215</td>
</tr>
<tr>
<td>Kessig, David</td>
<td>187</td>
</tr>
<tr>
<td>Keshavaz, Tara</td>
<td>397</td>
</tr>
<tr>
<td>Clare, Priyanka</td>
<td>348</td>
</tr>
<tr>
<td>Kiguchi, Takeyuki</td>
<td>24, 150, 207,280</td>
</tr>
<tr>
<td>Kim, Hanibieh</td>
<td>405</td>
</tr>
<tr>
<td>Kim, Hyun Soo</td>
<td>409</td>
</tr>
<tr>
<td>Kim, Jong Hwan</td>
<td>158, 290, 294, 294, 300</td>
</tr>
<tr>
<td>Kim, Junhwan</td>
<td>178, 217, 219, 219, 358</td>
</tr>
<tr>
<td>Kim, Kig Hoon</td>
<td>415</td>
</tr>
<tr>
<td>Kim, Min Woo</td>
<td>294</td>
</tr>
<tr>
<td>Kim, Sarah E.</td>
<td>334</td>
</tr>
<tr>
<td>Kim, Soo Hyun</td>
<td>409</td>
</tr>
<tr>
<td>Kim, Tae Han</td>
<td>158, 290, 294, 300</td>
</tr>
<tr>
<td>Kimberly, W. Taylor</td>
<td>286</td>
</tr>
<tr>
<td>Kimura, Yumi</td>
<td>388</td>
</tr>
<tr>
<td>Kinoshita, Manabu</td>
<td>118</td>
</tr>
<tr>
<td>Kirskaard, Hans</td>
<td>109</td>
</tr>
<tr>
<td>Kita, Kiyoshi</td>
<td>369</td>
</tr>
<tr>
<td>Kitahara, Hideki</td>
<td>369</td>
</tr>
<tr>
<td>Kitamura, Tetsushi</td>
<td>207, 141</td>
</tr>
<tr>
<td>Kjaergaard, Jesper</td>
<td>111</td>
</tr>
<tr>
<td>Klausner, Howard</td>
<td>426</td>
</tr>
<tr>
<td>Kobayashi, Daisuke</td>
<td>24</td>
</tr>
<tr>
<td>Kobayashi, Yoshiho</td>
<td>369</td>
</tr>
<tr>
<td>Kochanek, Patrick</td>
<td>199</td>
</tr>
<tr>
<td>Koci, Jaromir</td>
<td>324</td>
</tr>
<tr>
<td>Koehler, Raymond C.</td>
<td>100, 300</td>
</tr>
<tr>
<td>Kolke, W. Andrew</td>
<td>274</td>
</tr>
<tr>
<td>Koga, Masashii</td>
<td>425</td>
</tr>
<tr>
<td>Kohnlauer, Matthias</td>
<td>19, 172, 172, 172, 172</td>
</tr>
<tr>
<td>Koller, Allison C.</td>
<td>215, 254, 427, 427, 427</td>
</tr>
<tr>
<td>Kolster, Juan</td>
<td>195</td>
</tr>
<tr>
<td>Komori, Akira</td>
<td>321, 347</td>
</tr>
<tr>
<td>Kondo, Yusuke</td>
<td>369</td>
</tr>
<tr>
<td>Kondo, Yutaka</td>
<td>323</td>
</tr>
<tr>
<td>Kono, Shizuka</td>
<td>402</td>
</tr>
<tr>
<td>Kosmopoulos, Marinos</td>
<td>14, 210</td>
</tr>
<tr>
<td>Koster, Rudolph W.</td>
<td>32, 411</td>
</tr>
<tr>
<td>Kotini-Shah, Pavitra</td>
<td>186, 334</td>
</tr>
<tr>
<td>Kotoku, Nozomi</td>
<td>425</td>
</tr>
<tr>
<td>Koyama, Satoshi</td>
<td>183</td>
</tr>
<tr>
<td>Kozlowski, Steve W. J.</td>
<td>190</td>
</tr>
<tr>
<td>Kramer-Johansen, Jo</td>
<td>229, 257</td>
</tr>
<tr>
<td>Kramp, Noah</td>
<td>312</td>
</tr>
<tr>
<td>Krishnan, Anand M.</td>
<td>105</td>
</tr>
<tr>
<td>Krogh, Kristian</td>
<td>109, 139</td>
</tr>
<tr>
<td>Kron, Irving</td>
<td>13</td>
</tr>
<tr>
<td>Kronemeyer, Kara</td>
<td>209</td>
</tr>
<tr>
<td>Kronick, Steven L.</td>
<td>29</td>
</tr>
<tr>
<td>Kruger, Andreas J.</td>
<td>28</td>
</tr>
<tr>
<td>Kua, Phek Hui Jade</td>
<td>314</td>
</tr>
<tr>
<td>Kudenchuk, Peter</td>
<td>335, 391</td>
</tr>
<tr>
<td>Kukita, Ichiro</td>
<td>323, 466</td>
</tr>
<tr>
<td>Kulikowicz, Ewa</td>
<td>100, 300</td>
</tr>
</tbody>
</table>
Author Index

Sawamura, Tadashi ..............206, 208
Sayre, Michael R. ..............04, 30
Scales, Damon ................149
Schaefer, Pamela ..............286
Schaeffer, Brian ..............295
Schechtman, Jeffrey ..........246
Scheuermann, Frank ..........15, 235
Schmicker, Robert ...........02, 151, 184
Schreiber, Martin A. ........391
Schumacher, Kurt ..........201
Schoen, G ... ....................92
Scruggs, Sue ...................30
Seaton, Bianca ..........142, 152
Secher, Niels .................357
Seder, David B. .............230, 376
Sedig, Kimia .................152
Seethala, Raghu R. ..........06
Seewald, Stephan ............419
Seki, Tomohisa ..........27, 475
Sekiguchi, Hiroshi ........323, 466
Selzam, Craig .................205
Senderling, Ben .............482
Seneta, Libor .................324
Shaffer, Andrew ..............14
Shaffner, Donald H. .........300, 333
Shah, Atman ...................66
Shahbaz, Amin .................365
Sharma, Toishi ................155
Sharma, Umesh C. ..........131
Sharp, Willard W. ..........428
Shea, Judy A. .................445
Shee, Katherine ..............239
Sheehan, Jacqueline ........473
Shekar, Hiro ....................240
Shelton, Shelby ...............189
Sherid, Mark ...................148
Shi, Guo-Ping .................361
Shi, Jianru ............120, 121, 216, 218
Shields, Tadashi .............138
Shigematsu, Shintarou ......281
Shimanto, Tomonari ..........150
Shimazu, Takeshi ...........281, 283, 285, 459
Shimizu, Noriko ...............402
Shimizu, Yoshitaka ..........402
Shin, Jenny .....................284, 474
Shin, Sang Do .................158, 290, 294, 415, 457
Shinozaki, Koichiro ........219, 280, 358
Shiozaki, Tetsumasa ..........281, 283, 285, 459
Shoaib, Muhammad ........178, 217
Sholl, Matthew .............230
Silva, Larissa .................465
Silva, Thais ...................465
Silverman, Michael G. ......25, 26, 375
Simonsen, Ulf ...............357
Sinclair, Doug .................142
Sinha, Pranava ...............240
Siry, Bonnie J. ...............379
Skjaerseth, Eivin A. .......28
Skjeflo, Gunnar W. ..........166
Skogvoll, Eirik ...............166, 229
Skrifvars, Markus ..........31
Sligh, John .....................241
Smith, Christina ..........471
Smith, Cody ...................265
Snobelen, Paul ..........147
Sobczak, Evie .................17
Sokoloff, Catalina ..........449
Song, Fengqing ..............359
Song, Yong-Jun ..........457
Songling, Tang ...............266
Songru, Anna S. .............331
Sopko, George ..............02, 391
Sorcher, Jill L. ...............338
Soucy, Zachary P. ..........438, 439
Savik, Edmund ...............28
Speite, Daniel W. ..........291, 320, 367, 407, 430
Spears, William .............416
Spencer, David ...............378
Spiegel, Rebecca ............287
Spigner, Michael F. ..........140
Spronk, Henri M. .........136
Staerk, Mathilde .............109
Staffa, Steven ...............240
Staines, Harry ..........135, 136
Stapleton, Darren ..........09
Starks, Monique A. ........474
Stecher, Johannna ..........09
Steenblik, Jacob ...........11, 177, 356
Steinberg, Alexi ............236
Stenstrom, Robert ..........15
Stepanov, Alexander ........148
Stergiou, Nick .............482
Stevens, Robert D. .........405
Stevenson, Elizabeth K. ....375
Stezoski, Jason ..............199
Stickney, Ronald E. ..........32
Stoecklein, Hill ..........123, 126, 292
Stoner, Julie .................471
Storm, Christian ..........405
Strand, Heidi ................135
Stray-Pedersen, Arne .......267
Strote, Justin A. ..........04
Stroud, Michael ..........123, 126
Studnek, Jonathan R. .......236
Stumpf, Emily ...............240
Suarez, Jose I. ...............405
Suchdev, Kushak .............416
Sugarman, Jeremy ..........391
Sugiyama, Kazuhiro ........418
Sui, Xin .....................277
Sullivan, David O. ..........155
Sun, Christopher ..........108
Sundermann, Matthew ......254
Sung, Eric .....................405
Suzuki, Kou ...................388
Suzuki, Masaru ..........27, 475
Suzuyama, Hiroko ..........206, 208
Svensson, Leif G. ..........01
Swee, Toon ...................12, 370
Swob, Robert A. ..........06, 138
Szegedy-Miller, Gerhard ...367, 407, 430
Tacon, Fabio Silvio ..........01
Tachibana, Eizo ..........141, 165, 340
Tachino, Jotaro ..........281, 283, 285, 459
Tagata, Kento .................420
Taguchi, Eiji ..................206, 208
Tain, Rong-Wen ..........332
Taira, Takayuki ..........466
Takagi, Daisuke ..........206, 208
Takase, Bonpei Takase ......116, 117
Takayama, Akira ..........388
Takayama, Morimasa ........429
Takayama, Tadateru ..........429
Takagawa, Ryosuke ..........281, 283, 285, 459
Tamaki, Yuichiro ..........466
Tamby, Sharmila .............405
Tamura, Tomoyoshi ..........27, 476
Tamura, Yuda .................206, 208
Tan, Hannio L. ...............411
Tanabe, Yasuhiko ..........425
Tandri, Harikrishna S. .....100
Tang, Wanchun ..........21, 173, 174, 175, 179, 194, 359
Tang, Yuanyuan ..............245
Tang, Yuyang .................368
Tani, Akihiko .................141
Tangigawa, Koichi ..........402
Tarpey, Thaddeus ..........287
Tateishi, Kazuya .............389
Techiryan, George ..........265
Ten Cate, Hugo ...............136
Tennison, Carolina ..........385
Terry, Tadzio ..................366
Tern, Felipe ....................167
Ternus, Bradley ..............417
Tessari, Maddalena ...........103
Tham, Lai Peng ...............314
Thiagaranj, Ravi R. ..........205
Thorne, Janet L. .............448
Tiah, Ling .....................314
Tiba, Mohamad H. ..........272
Tissier, Renaud ..............19, 172
Titus, Sheryl J. ..............448
Tjelmeland, Ingvild B. M. ..229
Toldo, Stefano ...............21
Tonra, Joseph ...............11, 177, 205, 356
Torney, Hannah .............128, 451
Torpa, Taizo, Christian ....16, 473
Totolos, Konstantinos .......156
Tram, Julie ....................367
Tresh, Anatoly ...............324
Tsutsui, Hiyoriuki ..........169, 340
Turner, Linda .................149
Turowski, Gitta Erika .......267
Tyson, Clark .................474
Uchikado, Yoshihiro ........198
Unoki, Takashi ..........206, 208
Urteaga, Jon ..................127
Uyash, Arkady ...............195
Usheva, Anny .................197
Vallancourt, Christian .....142, 147, 391
Valdes, Santiago O. .......251
Vallabhajosyula, Saraschandra ...417
Van Den, Terry L. ..........186, 262, 276, 332, 334
VanderVenter, Steven ......296
Van Diepen, Sean ..........15, 474
VanKeulen, Brent ..........295
van Oerle, Rene ..............136
Vasconcelos, Emanuel .......465
Veintemillas, Jose ..........124
Vellano, Kimberly ...........186
Verbeek, Richard ..........149
Vermeulen, Alyssa ..........313, 345, 399, 408

AUTHOR INDEX

45
<table>
<thead>
<tr>
<th>Author</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viera, Anthony</td>
<td>445</td>
</tr>
<tr>
<td>Villa, Normandy</td>
<td>239</td>
</tr>
<tr>
<td>Vincelette, Christian</td>
<td>449</td>
</tr>
<tr>
<td>Vindhyal, Mohinder Reddy</td>
<td>483</td>
</tr>
<tr>
<td>Vindhyal, Shravani</td>
<td>483</td>
</tr>
<tr>
<td>Viscusi, Chad</td>
<td>320</td>
</tr>
<tr>
<td>Vogus, Timothy J.</td>
<td>339</td>
</tr>
<tr>
<td>Vrablik, Marie C.</td>
<td>190</td>
</tr>
<tr>
<td>Wagner, Deborah S.</td>
<td>29</td>
</tr>
<tr>
<td>Walker, Rob G.</td>
<td>284</td>
</tr>
<tr>
<td>Wallace, Inaysha</td>
<td>392</td>
</tr>
<tr>
<td>Walpott, Beat H.</td>
<td>103</td>
</tr>
<tr>
<td>Wang, Henry E.</td>
<td>02, 184</td>
</tr>
<tr>
<td>Wang, Huashan</td>
<td>276</td>
</tr>
<tr>
<td>Wang, Tong</td>
<td>21</td>
</tr>
<tr>
<td>Wang, Yajing</td>
<td>196</td>
</tr>
<tr>
<td>Ward, Kathleen</td>
<td>398</td>
</tr>
<tr>
<td>Ward, Kevin R.</td>
<td>272</td>
</tr>
<tr>
<td>Ward, Michael J.</td>
<td>339</td>
</tr>
<tr>
<td>Watanabe, Ichiro</td>
<td>247, 302</td>
</tr>
<tr>
<td>Wayne, Marvin A.</td>
<td>107</td>
</tr>
<tr>
<td>Weil, Brian R.</td>
<td>08, 265</td>
</tr>
<tr>
<td>Weisfeldt, Myron</td>
<td>391</td>
</tr>
<tr>
<td>Weiss, Leonard</td>
<td>470</td>
</tr>
<tr>
<td>Weissman, Alexandra</td>
<td>104, 378</td>
</tr>
<tr>
<td>Weitzel, Anne M.</td>
<td>272</td>
</tr>
<tr>
<td>Welch, Robert D.</td>
<td>367, 430</td>
</tr>
<tr>
<td>Wen, Cai</td>
<td>228</td>
</tr>
<tr>
<td>West, Bailey</td>
<td>230</td>
</tr>
<tr>
<td>Westover, M B.</td>
<td>286</td>
</tr>
<tr>
<td>White, Alexander E.</td>
<td>314</td>
</tr>
<tr>
<td>Wilberg, Sebastian</td>
<td>18, 111, 250</td>
</tr>
<tr>
<td>Wider, Joseph M.</td>
<td>03, 273</td>
</tr>
<tr>
<td>Wiebe, Douglas J.</td>
<td>395</td>
</tr>
<tr>
<td>Wik, Lars</td>
<td>237, 267</td>
</tr>
<tr>
<td>Williams, Tori</td>
<td>287, 387</td>
</tr>
<tr>
<td>Willson, Connor J.</td>
<td>125</td>
</tr>
<tr>
<td>Windemere, Sonora</td>
<td>241</td>
</tr>
<tr>
<td>Winslow, Raimund</td>
<td>405</td>
</tr>
<tr>
<td>Witten, Lise</td>
<td>111</td>
</tr>
<tr>
<td>Wnt, Jan</td>
<td>419</td>
</tr>
<tr>
<td>Wolff, Jennifer L.</td>
<td>464</td>
</tr>
<tr>
<td>Wong, Ada</td>
<td>421</td>
</tr>
<tr>
<td>Wong, Ka-ho</td>
<td>11, 177, 356</td>
</tr>
<tr>
<td>Wong, Natalie</td>
<td>108</td>
</tr>
<tr>
<td>Wright, John</td>
<td>07, 484</td>
</tr>
<tr>
<td>Wu, Fangcheng</td>
<td>105</td>
</tr>
<tr>
<td>Wu, Lingling</td>
<td>473</td>
</tr>
<tr>
<td>Wu, Ona</td>
<td>286</td>
</tr>
<tr>
<td>Xie, Dina</td>
<td>196</td>
</tr>
<tr>
<td>Xu, Jing</td>
<td>21, 173, 174, 175, 179</td>
</tr>
<tr>
<td>Xu, Shirley</td>
<td>131</td>
</tr>
<tr>
<td>Yagi, Tsukasa</td>
<td>141, 165, 178, 280, 340, 358, 429</td>
</tr>
<tr>
<td>Yaguchi, Shinya</td>
<td>226</td>
</tr>
<tr>
<td>Yamaguchi, Yutaka</td>
<td>183</td>
</tr>
<tr>
<td>Yamamoto, Takeshi</td>
<td>429</td>
</tr>
<tr>
<td>Yamamuro, Megumi</td>
<td>206</td>
</tr>
<tr>
<td>Yang, Matthew</td>
<td>108</td>
</tr>
<tr>
<td>Yang, Zeng-Jin</td>
<td>100</td>
</tr>
<tr>
<td>Yang, Zheqian</td>
<td>13</td>
</tr>
<tr>
<td>Yang, Zhengfei</td>
<td>359</td>
</tr>
<tr>
<td>Yankama, Tuyen</td>
<td>05, 110, 316, 341</td>
</tr>
<tr>
<td>Yannopoulos, Demetris</td>
<td>10, 14, 210, 211</td>
</tr>
<tr>
<td>Yao, Peng</td>
<td>266, 456</td>
</tr>
<tr>
<td>Yasuda, Satoshi</td>
<td>169</td>
</tr>
<tr>
<td>Yasunaga, Hideo</td>
<td>101</td>
</tr>
<tr>
<td>Yin, Tai</td>
<td>178, 217, 219, 280, 358</td>
</tr>
<tr>
<td>Yokomine, Tatsuo</td>
<td>420</td>
</tr>
<tr>
<td>Yokoyama, Hiroaki</td>
<td>160</td>
</tr>
<tr>
<td>Yonemoto, Koji</td>
<td>466</td>
</tr>
<tr>
<td>Yonemoto, Naohiro</td>
<td>141, 160, 165, 340</td>
</tr>
<tr>
<td>Yonemoto, Naohiro W.</td>
<td>169</td>
</tr>
<tr>
<td>Yoneyama, Kihei</td>
<td>425</td>
</tr>
<tr>
<td>Yorifuji, Takashi</td>
<td>412</td>
</tr>
<tr>
<td>Yoshikazu, Kazuza</td>
<td>466</td>
</tr>
<tr>
<td>You, Yeonho</td>
<td>163, 422</td>
</tr>
<tr>
<td>Youn, Chun Song</td>
<td>360, 409</td>
</tr>
<tr>
<td>Young, Rebecca</td>
<td>08</td>
</tr>
<tr>
<td>Youngquist, Scott T.</td>
<td>11, 123, 126, 177, 292, 356</td>
</tr>
<tr>
<td>Yu, Priscilla</td>
<td>12, 370</td>
</tr>
<tr>
<td>Yu, Tao</td>
<td>228, 359</td>
</tr>
<tr>
<td>Yuba, Takao</td>
<td>388</td>
</tr>
<tr>
<td>Yui, Yoshiaki</td>
<td>388</td>
</tr>
<tr>
<td>Yumoto, Tetsuya</td>
<td>322, 412</td>
</tr>
<tr>
<td>Yunyun, Yang</td>
<td>132</td>
</tr>
<tr>
<td>Zebrowski, Alexis M.</td>
<td>156, 315, 395</td>
</tr>
<tr>
<td>Zhang, Aimée</td>
<td>13</td>
</tr>
<tr>
<td>Zhang, Chong</td>
<td>205</td>
</tr>
<tr>
<td>Zhang, Ling</td>
<td>196</td>
</tr>
<tr>
<td>Zhang, Rui</td>
<td>03</td>
</tr>
<tr>
<td>Zhang, Wenyong</td>
<td>301</td>
</tr>
<tr>
<td>Zhang, Xuemei</td>
<td>12, 303, 370</td>
</tr>
<tr>
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<td>02</td>
</tr>
<tr>
<td>Zhang, Zhen</td>
<td>196</td>
</tr>
<tr>
<td>Zhao, Xuyan</td>
<td>277</td>
</tr>
<tr>
<td>Zheng, Guanghui</td>
<td>21, 173, 174, 175, 179</td>
</tr>
<tr>
<td>Zhou, Qiuiping</td>
<td>464</td>
</tr>
<tr>
<td>Zhou, Tianen</td>
<td>228</td>
</tr>
<tr>
<td>Zhou, Yunshu</td>
<td>188, 311</td>
</tr>
<tr>
<td>Zhu, Xiangdong</td>
<td>276, 332</td>
</tr>
<tr>
<td>Zhu, Zhiyi</td>
<td>276</td>
</tr>
<tr>
<td>Zhuang, Rui</td>
<td>391</td>
</tr>
<tr>
<td>Ziegler, Olivia</td>
<td>197</td>
</tr>
<tr>
<td>Zubair, Haifiz Muhammad</td>
<td>365</td>
</tr>
<tr>
<td>Zubero, Miren Begoña</td>
<td>282</td>
</tr>
<tr>
<td>Zubia, Félix</td>
<td>282</td>
</tr>
<tr>
<td>Zurakowski, David</td>
<td>240</td>
</tr>
</tbody>
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