February 23 – 28, 2020
Sun Valley Resort
Sun Valley, Idaho

Western Trauma Association

50TH ANNUAL MEETING

FINAL PROGRAM

SAVE THE DATE

Western Trauma Association

51st Annual Meeting

February 28 – March 5, 2021

Location to be announced at the Business Meeting

Western Trauma Association

FIFTIETH ANNUAL MEETING

February 23 – 28, 2020
Sun Valley Resort
Sun Valley, Idaho

Dear Members, Friends and Guests:

Welcome to this historic meeting of the Western Trauma Association. In addition to the honor of being this year's president, I have the great pleasure of presiding over the 50th anniversary meeting of the WTA. From a small start-up organization in 1971, the WTA has become an association known not only for its scientific value, but one that is coveted for its attention to collegiality and family. Those of you who are members know exactly what I mean, and I hope that all of those attending for the first time experience the special WTA moments that have made the association so special.

A lot of work has occurred during the year in preparation for this year's meeting, with a special thanks going to the 50th Anniversary Planning Committee members of Tom Cogbill, Barry Esrig, Mark Metzdorff, Chris Cocanour, David Feliciano, David Livingston and Harold Sherman.

Nick Namias and the members of the Program Committee have done an outstanding job selecting the top 39 abstracts from the 187 that were submitted, in addition to the special sessions that I am sure you will enjoy. One of the sessions that I hope you and your family will make a special effort to attend is the Paint the Ceiling lecture. Jerry Jurkovich's presidential address of the same title, and for which the lectureship was created, stressed the human side of medicine. In keeping with the theme and extending it to our canine soldiers, I am honored that U.S. Marine Corps Master Sergeant (retired) Chris Willingham will speak on military working dogs, their relationship with our soldiers, and a particularly special canine soldier.

Finally, Sun Valley has long held a special place in my memory book of ski resorts and I am excited to bring our WTA family to this spectacular mountain. It has been 34 years since the WTA has held a meeting at Sun Valley. I hope that you enjoy it and that it also creates a special memory for you.

Enjoy the meeting and welcome to the 50th anniversary of the Western Trauma Association.

David Shatz, MD
President, Western Trauma Association

TABLE OF CONTENTS

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American College of Surgeons and Western Trauma Association. The American College of Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™

The American College of Surgeons designates this live activity for a maximum of **18.5** *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **13.0** credits meet the requirements for Self-Assessment.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **18.5** credits may qualify as **Trauma**.*

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **.25** credits may qualify as **Pediatric Trauma.***

** The content of this activity may meet certain mandates of regulatory bodies. ACS has not and does not verify the content for such mandates with any regulatory body. Individual physicians are responsible for verifying the content satisfies such requirements.*

AMERICAN COLLEGE OF SURGEONS
Inspiring Quality:
Highest Standards, Better Outcomes

AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION
Accredited with Commendation by the Accreditation Council for Continuing Medical Education

CME INFORMATION

TO CLAIM CME

You will receive an email with instructions on completing the meeting evaluation, taking self-assessment tests and obtaining your CME Certificate. These instructions will be sent to the email used to register you for the meeting. Instructions will also be posted on the WTA website. The self-assessment tests will be available at the end of each day.

MEETING APP INSTRUCTIONS

Download the WTA Meeting App on your iOS or Android device. The Schedule of Events, Attendee List, Abstracts and Self-Assessment tests can be found on the app.

View the Vimeo video for downloading an app on iOS – first time users – https://vimeo.com/155553890

Downloading the app is easy on iOS and Android! Instructions:

1. Visit http://my.yapp.us/WTAMEETING on your device and follow instructions on the page
2. You'll be asked to install Yapp from the app store. (if you don't have it already)
3. Open Yapp and tap "Download an existing Yapp" and your app will appear.

Don't have an iOS or Android device?

You can view this app from your desktop browser by visiting the my.yapp.us URL above.

LEARNING OBJECTIVES

This activity is designed for physicians of all specialties who are involved in the care of trauma patients.

Upon completion of this course, attendees will be able to:

- Compare VTE rates in pelvic fracture patients with vs without early chemo-prophylaxis
- Explain the relationship of social stressors on outcomes
- Recognize the link between tranexamic acid and survival in traumatized patients
- Assess the impact of frailty and pain on outcomes of traumatized patients
- Recognize the importance of early control of hemorrhage following injury
- Create hospital-based trauma survivor programs of injured patients in shock

DISCLOSURE INFORMATION

In compliance with the ACCME Accreditation Criteria, the American College of Surgeons must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

WTA MISSION STATEMENT

The Western Trauma Association is committed to the improvement of trauma care through research, education, sharing of clinical experiences, and the development of physicians of all specialties who are involved in the care of trauma patients. The goals of the Association are not only the intellectual growth attained through increased knowledge, but also the emotional growth attained through camaraderie and interaction with family and friends in an environment conducive to winter sports.

2019-2020 OFFICERS & COMMITTEE CHAIRS

Officers

President	David V. Shatz, MD
President-Elect	Robert McIntyre, MD
Vice President	Walter L. Biffl, MD
Secretary	Rosemary Kozar, MD
Treasurer	Richard Miller, MD
Historian	Mark Metzdorff, MD
Immediate Past President	Roxie M. Albrecht, MD

Board of Directors	**Term Ends**
Carl J, Hauser, MD	2020
Bonnie Baron, MD	2020
Riyad Karmy Jones, MD	2020
Dennis W. Vane, MD	2021
Rochelle Dicker, MD	2021
Mitch Cohen, MD	2021
Roxie M. Albrecht, MD	2022
Megan Brenner, MD	2022
Lawrence N. Diebel, MD	2022

Program Chair	**Term Ends**
Nicholas Namias, MD	2021

Publications Chair	**Term Ends**
Karen Brasel, MD	2020

Multi-Center Trials Chair	**Term Ends**
Carlos Brown, MD	2021

Algorithms Chair	**Term Ends**
Matthew Martin, MD	2022

Nominating Chair	**Term Ends**
Roxie M. Albrecht, MD	2020

2019-2020 COMMITTEES

Program Committee	**Term**
Nicholas Namias, MD, *Chair*	2019-2021
Michael Aboutanos, MD	2019-2021
Karen Brasel, MD, *ex-officio*	2018-2020
Charles Cook, MD	2019-2021
Ajai Malhotra, MD, *ex-officio*	2019-2020
Andrew Rosenthal, MD	2019-2021
Kevin Schuster, MD	2019-2021
David Shatz, MD, *ex-officio*	2019-2020
Deborah Stein, MD	2019-2020
Rob Todd, MD	2019-2021
Steven Wolf, MD	2019-2020

Publications Committee	**Term**
Karen Brasel, MD, *Chair*	2018-2020
Erik Barquist, MD	2019-2022
Kelley Bullard, MD	2019-2022
Marc deMoya, MD	2019-2022
Joseph Galante, MD	2018-2021
Stephanie Gordy, MD	2019-2022
Bellal Joseph, MD	2018-2021
Olga Kaslow, MD	2018-2021
Anastasia Kunac, MD	2017-2020
Robert Letton, MD	2016-2021
James McCarthy, MD	2016-2021
Jasmeet Paul, MD	2017-2020
Justin Richards, MD	2017-2020
David Shultz, MD	2019-2022
Jason Sperry, MD	2017-2020
Jennifer Watters, MD	2017-2020
Ben Zarzaur, MD	2017-2020
David Zonies, MD	2019-2022

2019-2020 COMMITTEES

Nominating Committee	**Term**
Roxie M. Albrecht, MD, *Chair*	2020
Carl Hauser, MD	2020
Manuel Lorenzo, MD	2020
Jasmeet Paul, MD	2020
Dennis Vane, MD	2020

Multi-Center Trials Committee	
Carlos Brown, MD, *Chair*	2018-2021
Clay Cothren Burlew, MD	2019-2022
Kenji Inaba, MD	2019-2021
Eric Ley, MD	2019-2021
Matthew Martin, MD	2019-2021
Laura Moore, MD	2019-2022
Michael Truitt, MD	2019-2022

Violence Prevention Committee	**Term**
Rochelle Dicker, MD, *Chair*	2019-2021
Kelley Bullard, MD	2019-2021
Bryan Collier, MD	2019-2021
Alex Eastman, MD	2019-2021
John Vermillion, MD	2019-2021
Amy Wyrzykowski, MD	2019-2021

Algorithms Committee	**Term**
Matthew Martin, MD, *Chair*	2019-2022
Carlos Brown, MD	2019-2022
Dave Ciesla, MD	2017-2020
Eric Ley, MD	2019-2022
Kimberly Peck, MD	2019-2022
Anne Rizzo, MD	2018-2021
Nelson Rosen, MD	2019-2022
Jack Sava, MD	2017-2020
Jason Sperry, MD	2018-2021
Rosemary Kozar, MD, *ex-officio*	2018-2021
Karen Brasel, MD, *ex-officio*	2018-2020
Ernest E. Moore, MD, *ex-officio*	

WTA PRESIDENTS

Robert G. Volz, MD	1971	Vail
Robert G. Volz, MD	1972	Vail
Peter V. Teal, MD	1973	Vail
William R. Hamsa, MD	1974	Aspen
Arthur M. McGuire, MD	1975	Sun Valley
Lynn Ketchum, MD	1976	Snowmass
Fred C. Chang, MD	1977	Park City
Glen D. Nelson, MD	1978	Steamboat
Gerald D. Nelson, MD	1979	Snowmass
Kevin G. Ryan, MD	1980	Snowbird
David S. Bradford, MD	1981	Jackson Hole
Erick R. Ratzer, MD	1982	Vail
William R. Olsen, MD	1983	Jackson Hole
Earl G. Young, MD	1984	Steamboat Springs
Robert B. Rutherford, MD	1985	Snowbird
Rudolph A. Klassen, MD	1986	Sun Valley
Robert J. Neviaser, MD	1987	Jackson Hole
Robert C. Edmondson, MD	1988	Steamboat Springs
Ernest E. Moore, MD	1989	Snowbird
Stephen W. Carveth, MD	1990	Crested Butte
George E. Pierce, MD	1991	Jackson Hole
Peter Mucha, Jr., MD	1992	Steamboat Springs
David V. Feliciano, MD	1993	Snowbird
R. Chris Wray, MD	1994	Crested Butte
David A. Kappel, MD	1995	Big Sky
Thomas H. Cogbill, MD	1996	Grand Targhee
G. Jerry Jurkovich, MD	1997	Snowbird
James B. Benjamin, MD	1998	Lake Louise
Herbert J. Thomas III, MD	1999	Crested Butte
Barry C. Esrig, MD	2000	Squaw Valley
Steven R. Shackford, MD	2001	Big Sky
James A. Edney, MD	2002	Whistler-Blackcomb
J. Scott Millikan, MD	2003	Snowbird
Harvey J. Sugerman, MD	2004	Steamboat Springs
Scott R. Petersen, MD	2005	Jackson Hole
Harold F. Sherman. MD	2006	Big Sky

WTA PRESIDENTS

Frederick A. Moore, MD	2007	Steamboat Springs
James W. Davis, MD	2008	Squaw Valley
Grace S. Rozycki, MD	2009	Crested Butte
Robert C. Mackersie, MD	2010	Telluride
M. Gage Ochsner, MD	2011	Big Sky
R. Lawrence Reed, MD	2012	Vail
Mark T. Metzdorff, MD	2013	Snowmass
David H. Livingston, MD	2014	Steamboat Springs
Christine S. Cocanour, MD	2015	Telluride
Thomas M. Scalea, MD	2016	Squaw Valley
Carl J. Hauser, MD	2017	Snowbird
Dennis W. Vane, MD	2018	Whistler
Roxie M. Albrecht, MD	2019	Snowmass
David V. Shatz, MD	2020	Sun Valley

NEW MEMBERS

Western Trauma Association Welcomed the Following New Members at the 2019 Annual Meeting

Vaidehi Agrawal, PhD
Baltimore, MD
Associate Member

Ronald Barbosa, MD
Portland, OR
Surgical Critical Care
Active Member

Stepheny Berry, MD
Kansas City, KS
General Surgery
Active Member

Scott Brakenridge, MD
Gainsville, FL
Surgical Critical Care
Active Member

Rachel Callcut, MD
Sacramento, CA
Surgical Critical Care
Active Member

Matthew Carrick, MD
Southlake, TX
General Surgery
Active Member

Warren Dorlac, MD
Loveland, CO
Surgical Critical Care
Senior Member

Evert Eriksson, MD
Charleston, SC
General Surgery
Active Member

Stephen Hafertepen, MD
Aurora, CO
Surgical Critical Care
Senior Member

Dmitriy Karev, MD
Bronx, NY
Surgical Critical Care
Senior Member

Natasha Keric, MD
Phoenix, AZ
General Surgery
Active Member

Nathaniel Kreykes, MD
Minneapolis, MN
Pediatric Surgery
Active Member

Gregory Magee, MD MSc
Los Angeles, CA
Vascular Surgery
Active Member

Lesley Osborn, MD
Houston, TX
Emergency Medicine
Active Member

NEW MEMBERS

Western Trauma Association Welcomed the Following New Members at the 2019 Annual Meeting (continued)

Shad Pharaon, MD
Vancouver, WA
Surgical Critical Care
Active Member

Samuel Prater, MD
Houston, TX
Emergency Medicine
Active Member

Daniel Rossi, DO
Anchorage, AK
Colorectal Surgery
Active Member

Ronald Tesoriero, MD
Baltimore, MD
Surgical Critical Care
Active Member

WESTERN TRAUMA FOUNDATION DONORS

Current lifetime accumulation status based on 2019 year end

Summit
($25,000 and up)

Barry Esrig
Ernest E. Moore
Thomas Scalea
Robert Volz

Extreme
($10,000-24,999)

James Davis
David Feliciano
David Livingston
Grace Rozycki

Couloir Society
($5,000 – $9,999)

Roxie Albrecht
Christine Cocanour
Kimberly Davis
Dean Gubler
Krista Kaups
David Kissinger
Matthew Martin
Robert McIntyre
Mark Metzdorff
Andy Michaels
Scott Millikan
Robert Neviaser
Kimberly Peck
Scott Petersen
R. Lawrence Reed
Steven Shackford
Herbert Thomas
Dennis Vane

Double Black Diamond Club
($2,500 - $4,999)

John Adams
Denis Bensard
Marilu Bintz
Gregory Campbell
George Dulabon
Soumitra Eachempati
Enrique Ginzburg
James Haan
Gregory Jurkovich
David Kappel
Peggy Knudson
Rosemary Kozar
Manuel Lorenzo
Robert Mackersie
Steven Moulton
Steven Ross
David Shatz
R. Stephen Smith
Harvey Sugerman
Jennifer Watters

WESTERN TRAUMA FOUNDATION DONORS

Black Diamond Circle
($1,000 - $2,499)

Hasan Alam
Erik Barquist
James Benjamin
Walter Biffl
Karen Brasel
Megan Brenner
Carlos Brown
Kelley Bullard
David Ciesla
Thomas Cogbill
Mitchell Cohen
Raul Coimbra
Marc deMoya
Rochelle Dicker
Lawrence Diebel
Doreen DiPasquale
Charles Fox
Carl Hauser
Riyad Karmy-Jones
Natasha Keric
Brent King
Guy Lanzi
Richard Leone
Robert Letton
William Long
Barbara Mainville
Ajai Malhotra
Jamie McCarthy
Richard Miller
Frederick Moore
Nicholas Namias
M. Gage Ochsner
Patrick Offner
Peter Rhee
Anne Rizzo
Susan Rowell
Martin Schreiber
Harold Sherman
Keith Stephenson
Ali Tabatabai
Brian Tibbs
Eric Toschlog
Michael Truitt
Steven Wald
Michaela West

Blue Trail Associate
($500 - $999)

Scott Armen
Bonny Baron
Allison Berndtson
Clay Burlew
Howard Champion
Roy Cobean
Alain Corcos
James Cushman
Brian Eastridge
Matthew Eckert
Bruce G Ferris
Alvaro Fonseca
Richard Gamelli
Rajesh Gandhi
Larry Gentilello
Stephanie Gordy
John Hall
Michael Hauty
David Hoyt
Laura Johnson
Alicia Mangram
Ashraf Mansour
Alan Marr
John McGill
Frank Nastanski
Raminder Nirula
David Notrica
Keith O'Malley
John B Pickhardt
Basil Pruitt
Drew Rosenthal
Henry Sagi
Henry Schiller
Kevin Schuster
Aaron Scifres
Mark Shapiro
George Testerman
S. Rob Todd
R. Christie Wray, Jr.
Ben Zarzaur

WESTERN TRAUMA FOUNDATION DONORS

Green Trail Associate
(up to $499)

Chip Baker
Christopher Barrett
Paul Beery
Saskya Byerly
Michael Cain
Donald Carter
Charles Cook
Todd Costintini
Martin Croce
Matthew Davis
Jody Digiacomo
Julie Dunn
Alexander Eastman
John Fildes
Warren Gall
Ernest Gonzalez
Rajan Gupta
James Hebert
Jeff Heisler
Brian Hoey
Kenji Inaba
Jay Johannigman
Dmitriy Karev
Olga Kaslow
Matthew LaPorta
Barbara Latenser
David Leshikar
Heather MacNew
Charles Mains
Robert Maxwell
Laura J. Moore
Charlene Nagy
Jamison Nielsen
Michael Norman
Robert O'Connor
Kumash Patel
Jasmeet Paul
Erik Peltz
Laurens Pickard
George Pierce
Bruce Potenza
Eugene Reilly
Nelson Rosen
Ed Rutherford
Jack Sava
Stephanie Savage
Carol Schermer
Chance Spalding
Kurt Stahlfeld
Desarom Teso
Ronald Tesoriero
Ricard Townsend
Pascal Udekwu
Daniel Vargo
Gary Vercruysse
Charles Wade
Robb Whinney
Amy Wyrzykowski

IN MEMORIAM

Earl G. Young, MD — February 27, 1989

Gerald S. Gussack, MD — August 25, 1997

Peter Mucha, Jr., MD — August 9, 2006

W. Bishop McGill, MD — October 14, 2007

Ronald P. Fischer, MD — January 25, 2013

M. Gage Ochsner, MD — April 26, 2013

George Cierny, MD — June 24, 2013

R. Christie Wray, MD — November 18, 2013

Robert B. Rutherford, MD — November 22, 2013

Doreen DiPasquale, MD — January 7, 2014

Barbara Latenser, MD — June 15, 2015

Matthew L Davis, MD — September 3, 2015

Arthur M. McGuire, MD — January 28, 2016

Glen D. Nelson, MD — May 14, 2016

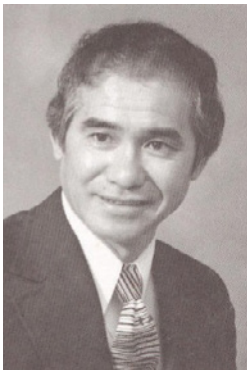
William R. Olsen — June 14, 2017

Erick R. Ratzer, MD — July 7, 2017

Stephen W. Carveth, MD — March 6, 2019

Basil A. Pruitt Jr., MD — March 17, 2019

EARL YOUNG RESIDENT PRIZE



Earl G. Young, MD
(1928-1989)

EARL YOUNG RESIDENT PRIZE FOR CLINICAL RESEARCH

The Earl Young Resident Prize for Clinical Research was established after the death of one of the Founding members of the Western Trauma Association. This prize is a continuation of Dr. Young's profound interest in the training of residents and his commitment to ongoing research. It is given each year to stimulate resident clinical research. Abstracts eligible for this award are submitted to the Program Committee for resident prize status and presentation at the annual meeting of the Western Trauma Association. A manuscript must be submitted to the *Journal of Trauma and Acute Care Surgery* in advance of the meeting for consideration of publication. The manuscript and presentation are judged with first and second place cash prizes and recognition given at the annual WTA annual banquet. The 1st place resident's name is listed in the annual meeting program book.

Dr. John Najarian characterizing Earl at a memorial service in his honor at the University of Minnesota:

Dr. Earl G. Young of Minneapolis was a founding member of the Western Trauma Association and its 14th President. He died of a myocardial infarction, Monday, February 27, 1989, while skiing at Snowbird during the 19th Annual Meeting of the Association.

Dr. Young received his medical degree from the University of Rochester, N.Y. and Ph.D. in surgery from the University of Minnesota. He completed advanced training in cancer research at Harvard, a fellowship in cardiovascular surgery at Baylor University in Houston and studied microvascular surgery at the University of California–San Diego.

EARL YOUNG RESIDENT PRIZE

He was a clinical professor of surgery at the University of Minnesota Medical School, and a practicing general and vascular surgeon at the Park-Nicollet Clinic in Minneapolis from 1960. He was nationally known and was actively involved in research and education throughout his career. In 1988, one year before his untimely death, he received the Owen H. Wangensteen Award for Academic Excellence from the University of Minnesota Health Science Center. It was awarded by an unprecedented unanimous vote of all 72 surgical residents.

The Residents Paper competition was begun in 1991 as a tribute to Dr. Young's memory and his "spirit of inquiry, love of learning ... and commitment in service to mankind."

EARL G. YOUNG AWARD RECIPIENTS

Resident	Institution	Year
Joseph Schmoker, MD	University of Vermont	1991
Joseph Schmoker, MD	University of Vermont	1992
Charles Mock, MD	University of Washington	1993
Gino Travisani, MD	University of Vermont	1994
Phillip C. Ridings, MD	Medical College of Virginia	1995
David Han, MD	Emory University	1996
Preston R. Miller, MD	Wake Forest University	1997
Geoffrey Manley, MD, PhD	University of California, San Francisco	1998
James M. Doty, MD	Medical College of Virginia	1999
David J. Ciesla, MD	Denver Health/University of Colorado	2000
Ricardo J. Gonzales, MD	Denver Health/University of Colorado	2001
Scott C. Brakenridge, MD	Cook County Hospital	2002
Adena J, Osband, MD	UMDNJ-New Jersey Medical School	2003
Cindy Lee, MD	UMDNJ-New Jersey Medical School	2004
Ernest A. Gonzalez, MD	University of Texas at Houston	2005
Jennifer M. Watters, MD	Oregon Health & Science University	2005
Jennifer J. Wan, MD	University of California, San Francisco	2006
Jennifer J. Wan, MD	University of California, San Francisco	2007
Keir J. Warner, MD	University of Washington	2008
T. W. Constantini, MD	University of California, San Diego	2009
C. Anne Morrison, MD	Baylor College of Medicine	2010
Marlin Causey, MD	Madigan Army Medical Center	2011
Phillip Letourneau, MD	University of Texas at Houston	2011
Gerard De Castro, MD	University of Maryland	2011
Matthew E. Kutcher, MD	University of California, San Francisco	2012
Kimberly Song, MD, MA	UMDNJ – New Jersey Medical School	2013
Lucy Kornblith, MD	UCSF/SFGH, San Francisco	2014
Hunter B. Moore, MD	Denver Health/University of Colorado	2015
George Black, MD	Madigan Army Medical Center	2016
Morgan Barron, MD	Madigan Army Medical Center	2017
John Kuckelman, MD	Madigan Army Medical Center	2018
Patrick Murphy, MD	Indiana University	2019

ERNEST E. MOORE RESIDENT PRIZE

Ernest E. Moore Moore Basic Science Award
The Ernest E. Moore Resident Prize for Basic Science Research has been established to encourage residents to become surgeon researchers. Dr. Ernest "Gene" Moore has been a major factor in the academic growth of the Western Trauma Association by encouraging resident attendance and participation in the program at the Annual Meeting of the WTA. Abstracts eligible for this award are submitted to the Program Committee for resident prize status presentation at the annual meeting of the Western Trauma Association. A manuscript must be submitted to the *Journal of Trauma and Acute Care Surgery* in advance of the meeting for consideration of publication. The manuscript and presentation are judged with first and second place cash prizes and recognition given at the annual WTA annual banquet. The 1st place resident's name is listed in the annual meeting program book.

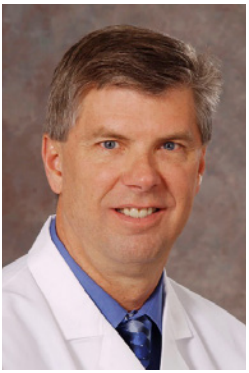
Resident	Institution	Year
Anders Davidson, MD	University of California, Davis	2019

ERNEST E. MOORE RESIDENT PRIZE FOR BASIC SCIENCE RESEARCH
Ernest E. Moore, M.D. F.A.C.S., M.C.C.M., F.A.C.N., F.A.C.E.P. (Hon), F.R.C.S. Ed. (Hon) F.R.C.S.T.(Hon), F.R.C.S.I.(Hon), F.E.B.S. Em Surg (Hon) first attended the WTA in 1977 and was the 19th president in 1989. He was the first member to sponsor surgical residents at the WTA and negotiated an affiliate society status of the WTA with the Journal of Trauma in 1985. Dr Moore was the Chief of Trauma at the Denver General Hospital for 36 years, Chief of Surgery for 28 years, the first Rockwell Distinguished Chair in Trauma Surgery, and a Distinguished Professor of Surgery at the University of Colorado Denver. Under Dr. Moore's leadership, the Denver General became internationally recognized for innovative care of the injured patient, and its trauma research laboratory has been funded by the NIH for 30 consecutive years. His team has made seminal contributions in defining the lethal triad of trauma induced coagulopathy, the two-hit model of multiple organ failure, the role of mesenteric lymph in post-shock lung injury, and the pathophysiology of fibrinolysis shutdown. In July 2018, the center

ERNEST E. MOORE RESIDENT PRIZE

was renamed the Ernest E Moore Shock Trauma Center at Denver Health. Dr. Moore has served as president of nine academic societies, including the Society of University Surgeons, American Association for the Surgery of Trauma, International Association for the Trauma and Surgical Intensive Care, and the World Society of Emergency Surgery; and was Vice President for the American Surgical Association. His awards include the Robert Danis Prize from the Society of International Surgeons, Orazio Campione Prize from the World Society of Emergency Surgery, Philip Hench Award from the University of Pittsburgh, Florence Sabin Award from the University of Colorado, Medallion for Scientific Achievement from the American Surgical Association, Lifetime Achievement Award from the Society of University Surgeons, Lifetime Achievement Award from the American Heart Association, Distinguished Investigator Award from the American College of Critical Medicine, Distinguished Investigator Award from the Shock Society, and Lifetime Service Award from the International Association for Trauma and Surgical Intensive Care. He has honorary fellowships in the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons in Ireland, the Royal College of Surgeons of Thailand; and is an honorary member of the Brazilian Trauma Society, Colombian Trauma Society, European Society for Trauma and Emergency Surgery, and Trauma Association of Canada. Dr. Moore is coeditor of the textbook Trauma, in its 9th edition, Surgical Secrets in its 7th edition, and Trauma Induced Coagulopathy, in its 2nd edition; he has >1700 publications and has lectured extensively throughout the world. He is married to Sarah Van Duzer Moore, M.D., an internist at the University of Colorado Denver, and they have two sons; Hunter, a chief surgical resident at UCD and Peter, a pulmonary fellow at UCD. Dr. Moore's additional interests include endurance sports, mountaineering, skiing, and wapiti pursuit. He lives by the principle to work hard you must play hard, with the understanding that family is the ultimate priority.

PRESIDENTIAL ADDRESS



A SPECK OF SAND

Tuesday, February 25
5:00 pm – 6:00 pm

David V. Shatz, MD, FACS
Sacramento, California

David V. Shatz, MD, FACS, Professor of Surgery at the University of California Davis School of Medicine, attended medical school at Loyola University in Chicago, IL. Dr. Shatz' early career interests were founded during his college years at UCLA, working as a technician in one of Los Angeles' busy emergency rooms, and then as an intern at the University of Hawaii during his surgical critical care rotations. The challenges of disrupted physiology and the even bigger challenges of correcting it cemented the pathway to a life-long career and passion as a trauma surgeon. After completing residency at Tripler Army Medical Center, he spent nearly a year at Ft. Sill, OK before a nine-month deployment to the Middle East as a combat surgeon during Operations Desert Shield and Desert Storm. After returning home from the Middle East, Dr. Shatz began his surgical critical care fellowship at the University of Miami/Jackson Memorial Hospital in Miami, FL. Following completion of his fellowship in 1992, he became an assistant professor of surgery and trauma surgeon at the newly opened Ryder Trauma Center at UM/JMH. During his 17 years in Miami, his second "career" as an EMS physician grew, becoming the assistant medical director of Miami-Dade Fire Rescue, the chair of the Florida EMS Advisory Council for three consecutive terms, and a member of one of Florida's regional domestic security task forces and the state's domestic security oversight council following the 9-11 attacks. He was the medical director for the Florida Urban Search and Rescue Task Force under FEMA, deploying to several domestic and international disaster events, as well as a member of

PRESIDENTIAL ADDRESS

FEMA's medical working group. His prehospital work continued when he joined the faculty at the University of California Davis Medical Center in 2008, where he continues as a trauma surgeon and professor of surgery, as well as the medical director for Sacramento Metropolitan Fire District, and chair of several of the state's trauma and EMS committees. He is a member of the ACS Committee on Trauma, serving on several subcommittees within the COT, and the current vice-chair of the AAST Disaster Committee. His primary research efforts have focused on the human body's immunologic capability following traumatic splenectomy, as well as EMS and disaster response efforts.

"PAINT THE CEILING" LECTURESHIP

In 1997, Dr. Gregory "Jerry" Jurkovich delivered his Presidential Address entitled "Paint the Ceiling: Reflections on Illness". This was a personal account of his battle with non-Hodgkin's lymphoma. His deep insights were shared from a patient's perspective, even that of a stained ceiling that he observed while lying on his back. He proposed that future WTA Scientific Programs have some time "dedicated to our patients and to the Art of Medicine".

This lecture has become an annual invited lecture which is integral to the unique identity of the Western Trauma Association Annual Meeting. Unlike the scientific session program, this lecture focuses on the humanistic aspects of medicine and can be attended by all participants, guests, and their families. Past lectures have been personal, local, national, and global, covering topics such as first-person accounts of illness, social and societal aspects that affect all patient care, programs providing relief in troubled or impoverished areas, or personal reflections on delivering care in a humane, holistic fashion. A speaker is chosen annually by the current President of the WTA. The Western Trauma Foundation provides an honorarium and expenses for this lecture.

"PAINT THE CEILING" LECTURESHIP

Presenter	Year	Location
G. Jerry Jurkovich, MD	1997	Snowbird
John W. McGill, MD	1998	Lake Louise
William T. Close, MD	1999	Crested Butte
Jimmy Cornell	2000	Squaw Valley
Geoff Tabin, MD	2001	Big Sky
James H. "Red" Duke, MD	2002	Whistler
David V. Shatz, MD	2003	Snowbird
Susan and Tim Baker	2004	Steamboat Springs
Alex Habel, MD	2005	Jackson Hole
Andrew Schneider	2006	Big Sky
Ernest E. Moore, MD	2007	Steamboat Springs
Pamela Kallsen	2008	Squaw Valley
Sylvia Campbell, MD	2009	Crested Butte
William Schecter, MD	2010	Telluride
Jeff McKenney, MD	2011	Big Sky
Larry M. Gentilello, MD	2012	Vail
Neil L. Barg, MD	2013	Snowmass
Ziad Sifri, MD	2014	Steamboat Springs
Julie Freischlag, MD	2015	Telluride
Lewis Rubinson, MD, PhD	2016	Squaw Valley
Kenneth Waxman, MD	2017	Snowbird
Steven R. Shackford, MD	2018	Whistler
M. Margaret Knudson, MD	2019	Snowmass
MSgt Chris Willingham, USMC, *Retired*	2020	Sun Valley

PAINT THE CEILING LECTURE

LUCCA: THE STORY OF A MARINE K-9 HERO

Thursday, February 27
5:20 pm – 6:00 pm

Master Sergeant Chris Willingham, USMC, Retired

Master Sergeant (retired) Chris Willingham served in the United States Marine Corps from January 1999 to January 2019. Master Sergeant Willingham dedicated a majority of his career to the Military Working Dog (MWD) Program. Throughout his 20-year career, Master Sergeant Willingham served as a MWD handler, trainer, instructor and supervisor.

From 2000-2003, Master Sergeant Willingham served as a Patrol Explosive Detection Dog handler at Provost Marshals Office Camp Lejeune, North Carolina. With his assigned MWD, Tekky, Master Sergeant Willingham provided force protection and conducted law enforcement operations to include supporting multiple Secret Service missions.

Master Sergeant Willingham reported to Marine Corps Detachment, Lackland Air Force Base, Texas in February 2003. While assigned to the DoD Dog Training Section, Master Sergeant Willingham served as a MWD trainer and Team Chief. He was selected to serve as the first Marine instructor for the Specialized Search Dog Handlers (SSD) Course which was newly developed off-leash explosive detection capability. In 2006, Master Sergeant Willingham completed an advanced Specialized Search Dog course through the Israeli Defense Force Oketz K-9 Unit where he was paired with SSD Lucca. Master Willingham and SSD Lucca completed two tours to Iraq where Lucca was credited with numerous IED finds and responsible for saving countless lives.

In June 2010, Master Sergeant Willingham led 30 MWD teams to Afghanistan in support of Operation Enduring Freedom. These 30 teams performed exceptional in combat and set a high standard for MWD teams.

PAINT THE CEILING LECTURE

From 2011 to 2014, Master Sergeant Willingham served as a Detachment Commander at the United States Embassy in Helsinki, Finland and the Recruiting, Advertising and Screening Chief for the Marine Corps Embassy Security Group at Quantico, Virginia.

Master Sergeant Willingham reported to 1st Law Enforcement Battalion in September 2014 where he served as the Kennel Master for the Military Working Dog Platoon. In April 2016, he deployed with 8 MWD teams in support of Operation Spartan Shield to establish the first MWD Kennels in Kuwait to support operations throughout the Middle East.

From 2017-2019, Master Sergeant Willingham served as the Marine Corps Special Operations Command Multi-Purpose Canine Program Manager.

Master Sergeant Willingham is married to Jill and they have two wonderful children; Claire and Michael.

FOUNDERS' BASIC SCIENCE LECTURE

This lecture was established by a founding member (Robert Volz, President 1971 & 1972) of the Western Trauma to enhance the academic mission and provide valuable basic science information that is relevant to the field of trauma. It is a scheduled part of the annual meeting in which an invited speaker is chosen to discuss a specific basic research topic that has clinical relevance to the care of the trauma patient. Honoraria and expenses are paid by the Western Trauma Foundation as part of its mission to support the academic endeavors of the Western Trauma Association. These surgeon/researchers are selected by the program committee for their specific expertise and contributions to the knowledgebase in the field of trauma. This lecture is often a combination of translational as well as basic science research.

Presenter	Year	Location
Raul Coimbra, MD	2009	Crested Butte
Lawrence Diebel, MD	2010	Telluride
Carl J. Hauser, MD	2011	Big Sky
Fred Moore, MD	2012	Vail
Steve Shackford, MD	2013	Snowmass
Hasan B. Alam, MD	2014	Steamboat Springs
Charles S. Cox, Jr. MD	2015	Telluride
Rosemary Kozar, MD	2016	Squaw Valley
Mitchell J. Cohen, MD	2017	Snowbird
Ernest "Gene" Moore, MD	2018	Whistler
Timothy R. Billiar, MD	2019	Snowmass
Martin A. Schreiber, MD	2020	Sun Valley

FOUNDERS' BASIC SCIENCE LECTURE

STEM CELLS IN TRAUMA: THE DAWN OF A NEW ERA

Wednesday, February 26
8:20 am – 9:00 am

MARTIN A. SCHREIBER, MD FACS FCCM
COL, MC, USAR
Professor of Surgery,
Chief, Division of Trauma, Critical Care & Acute Care Surgery
Oregon Health & Science University

Dr. Martin Schreiber is Chief of Trauma, Critical Care and Acute Care Surgery at Oregon Health & Science University. He is on the American College of Surgeons Board of Governors and he is the Chair of the Advocacy Pillar. He has been deployed to Iraq and Afghanistan and he has served as the Joint Theater Trauma System Director. Dr. Schreiber is also the director of the Trauma Research Laboratory at OHSU. The Trauma Research Lab has been continuously funded by federal sources since 2001. Lab research interests include resuscitation of hemorrhagic shock, hemorrhage control and development of novel blood products. Current funding sources include the Department of Defense, the NIH and private industry. The lab is engaged in over 40 investigational protocols at OHSU. Dr. Schreiber is considered a leader in the trauma community and he has been an invited speaker throughout the United States and around the world.

NOTES

SUNDAY, FEBRUARY 23, 2020

4:00pm - 5:00pm	**WTA FOUNDATION MEETING** *Sun Valley Inn, Columbine Room*
5:00pm - 7:30pm	**REGISTRATION OPEN** *Sun Valley Inn, Limelight Promenade*
5:00pm - 7:00pm	**WELCOME RECEPTION** *Sun Valley Inn, Limelight B*
5:00pm - 7:00pm	**KIDS WELCOME RECEPTION** *Sun Valley Inn, Limelight A*
7:00pm - 8:00pm	**WTA PAST PRESIDENTS MEETING** *Sun Valley Inn, Columbine Room*

MONDAY, FEBRUARY 24, 2020

6:00am - 9:00am	**REGISTRATION & EXHIBITS OPEN** *Sun Valley Inn, Limelight Promenade & Continental Room*	
6:30am - 8:00am	**ATTENDEE BREAKFAST** *Sun Valley Inn, Continental Room*	
7:00am - 9:30am	**FRIENDS & FAMILY BREAKFAST** *Gretchen's & Konditorei Restaurants*	
7:00am - 9:00am	**SCIENTIFIC SESSION 1** **Moderators: David Shatz, MD & Nick Namias, MD** *Sun Valley Inn - Limelight Ballroom* * Indicates Earl G. Young Clinical Research Competition ** Indicates Ernest E. Moore Basic Science Research Competition	
7:00 am - 7:20 am	1. DOES DIURESIS IMPROVE FASCIAL CLOSURE FOR OPEN ABDOMEN?* *Nicholas Duletzke MD, University of Utah, Salt Lake City, UT*	**Page 45**
7:20 am - 7:40 am	2. DYNAMIC EFFECTS OF IN-VIVO AND IN-VITRO CALCIUM ON PLATELET BEHAVIOR** *Zachary Matthay MD, Univ of California San Francisco, San Francisco, CA*	**Page 47**
7:40 am - 8:00 am	3. A RAT MODEL OF ORTHOPEDIC INJURY-INDUCED HYPERCOAGULABILITY AND FIBRINOLYTIC SHUTDOWN** *Kristen Carter MD, University of Mississippi Medical Center, Jackson, MI*	**Page 49**
8:00 am - 8:20 am	4. LIQUID PLASMA REDUCES WASTE AND HEALTHCARE EXPENSES COMPARED TO THAWED PLASMA AT A LEVEL 1 TRAUMA CENTER* *Sawyer Smith MD, Oregon Health & Science University, Portland, OR*	**Page 51**
8:20 am - 8:40 am	5. IMPROVED OUTCOMES UTILIZING A NOVEL PECTIN-BASED PLEURAL SEALANT FOLLOWING ACUTE LUNG INJURY** *John Kuckelman DO, Madigan Army Medical Center, Tacoma, WA*	**Page 53**

8:40 am - 9:00 am	6. ISOLATED LOW-GRADE SOLID ORGAN INJURIES IN CHILDREN FOLLOWING BLUNT ABDOMINAL TRAUMA: IS IT TIME TO CONSIDER DISCHARGE FROM THE EMERGENCY DEPARTMENT?* *Christian Streck MD, Medical University of South Carolina, Charleston, SC*	**Page 55**
3:30pm - 6:00pm	**REGISTRATION & EXHIBITS OPEN** *Sun Valley Inn, Limelight Promenade & Continental Room*	
4:00pm - 6:00pm	**SCIENTIFIC SESSION 2** **Moderators: Rosemary Kozar, MD & Charles Cook, MD** *Sun Valley Inn - Limelight Ballroom* * Indicates Earl G. Young Clinical Research Competition ** Indicates Ernest E. Moore Basic Science Research Competition	
4:00 pm - 4:20 pm	7. LOW PRE-HOSPITAL END-TIDAL CARBON DIOXIDE PREDICTS INFERIOR CLINICAL OUTCOMES IN TRAUMA PATIENTS* *Mary Kate Bryant MD, WakeMed Health & Hospitals, Raleigh, NC*	**Page 57**
4:20 pm - 4:40 pm	8. HISTONE DEACETYLASE (HDAC) 6 INHIBITION IMPROVES SURVIVAL IN A SWINE MODEL OF LETHAL HEMORRHAGE, POLYTRAUMA, AND BACTEREMIA** *Ben Biesterveld MD, University of Michigan, Ann Arbor, MI*	**Page 59**
4:40 pm - 5:00 pm	9. DELAY IN ICU TRANSFER IS PROTECTIVE AGAINST ICU READMISSION IN TRAUMA PATIENTS: AN UNINTENDED RANDOMIZED STUDY* *Stephen Ranney MD, University of Vermont Medical Center, Burlington, VT*	**Page 61**
5:00 pm - 5:20 pm	10. NATIONWIDE ANALYSIS OF CRYOPRESERVED RED BLOOD CELL TRANSFUSION IN CIVILIAN TRAUMA* *Kamil Hanna MD, University of Arizona, Tucson, AZ*	**Page 63**
5:20 pm - 5:40 pm	11. TEG IS INSUFFICIENT TO DETECT CHANGES IN FIBRINOLYSIS IN PATIENTS WHO RECEIVED PRE-HOSPITAL TRANEXAMIC ACID FOLLOWING TRAUMATIC BRAIN INJURY* *Alexandra Dixon MD MPH, Oregon Health & Science Univ, Portland, OR*	**Page 65**

5:40 pm - 6:00 pm	12. IMPACT OF VENOUS THROMBOEMBOLISM CHEMOPROPHYLAXIS ON POSTOPERATIVE HEMORRHAGE FOLLOWING OPERATIVE FIXATION OF PELVIC FRACTURES* *Bennett Berning MD, University of Tennessee Health Science Center, Saginaw, MI*	**Page 67**
6:00pm - 8:00pm	**WTA BOARD MEETING** (by invitation only) *Sun Valley Inn, Columbine Room*	
6:30pm - 7:30pm	**RESIDENT RECEPTION** *Sun Valley Inn, Sage Room*	

TUESDAY, FEBRUARY 25, 2020

6:00am - 9:00am	**REGISTRATION & EXHIBITS OPEN** *Sun Valley Inn, Limelight Promenade & Continental Room*	
6:30am - 8:00am	**ATTENDEE BREAKFAST** *Sun Valley Inn, Continental Room*	
7:00am - 9:30am	**FRIENDS & FAMILY BREAKFAST** *Gretchen's & Konditorei Restaurants*	
7:00am - 9:00am	**SCIENTIFIC SESSION 3** **Moderators: Karen Brasel, MD & Michel Aboutanos, MD** *Sun Valley Inn - Limelight Ballroom* * Indicates Earl G. Young Clinical Research Competition ** Indicates Ernest E. Moore Basic Science Research Competition	
7:00 am - 7:20 am	13. DON'T HOLD YOUR BREATH EXPECTING QUANTITY OR QUALITY OF LIFE IN THE INTUBATED ELDERLY TRAUMA PATIENT* *Arthur Grimes MD, University of Oklahoma, Oklahoma City, OK*	**Page 69**
7:20 am - 7:40 am	14. HOW AND WHY REPETITIVE MILD TRAUMATIC INJURY ALTERS LONG-TERM BRAIN PATHOLOGY** *Navpreet Dhillon MD, Cedars-Sinai Medical Center, Los Angeles, CA*	**Page 71**
7:40 am - 8:00 am	15. CLOSING THE GAP IN CARE OF BLUNT SOLID ORGAN INJURY IN CHILDREN* *Nicholas Yung MD, Yale New Haven Hospital, New Haven, CT*	**Page 73**
8:00 am - 8:20 am	16. DIAPHRAGM PACING DECREASES HOSPITAL CHARGES FOR ACUTE SPINAL CORD INJURY PATIENTS *Andrew Kerwin MD, University of Florida College of Medicine-Jacksonville, Jacksonville, FL*	**Page 75**
8:20 am - 8:40 am	17. ARE ALL TRAUMA CENTERS CREATED EQUAL? LEVEL-1 TO LEVEL-1 TRAUMA CENTER PATIENT TRANSFERS IN THE SETTING OF RAPID TRAUMA CENTER PROLIFERATION* *Michael Jones MD, St. Joseph's Hospital and Medical Center, Phoenix, AZ*	**Page 77**

8:40 am - 9:00 am	18. INCREASED LEGAL FIREARM SALES ARE NOT ASSOCIATED WITH CHANGES IN VIOLENT CRIME OR HOMICIDE RATES *Mark Hamill MD, Viriginia Tech Carilion School of Mediciine; Mayo Clinic; UT Health San Antonio; University Hospitals of Cleveland*	**Page 79**
3:00pm - 4:00pm	**VIOLENCE PREVENTION COMMITTEE MEETING** *Sun Valley Lodge, Garnet Room*	
3:30pm - 6:00pm	**REGISTRATION & EXHIBITS OPEN** *Sun Valley Inn, Limelight Promenade & Continental Room*	
4:00pm - 6:00pm	**SCIENTIFIC SESSION 4** **Moderator: Nick Namias, MD** *Sun Valley Inn - Limelight Ballroom*	
4:00 pm - 4:40 pm	19. PRO-CON: ORGAN DONATION AFTER CIRCULATORY DEATH IN TRAUMA - AND IDEA WHOSE TIME HAS COME *Charles Cook, MD & S. Rob Todd, MD*	**Page 81**
4:40 pm - 5:00 pm	20. A TRIBUTE TO PAST WTA MEMBERS PART 1 *David V. Feliciano, MD*	**Page 83**
5:00 pm - 6:00 pm	21. PRESIDENTIAL ADDRESS: A SPECK OF SAND *David Shatz MD, UC Davis, Sacramento, CA*	**Page 85**
6:00 pm - 7:00 pm	**WTA MULTICENTER TRIALS MEETING** *Sun Valley Inn - Limelight Ballroom*	

WEDNESDAY, FEBRUARY 26, 2020

6:00am - 9:00am	**REGISTRATION & EXHIBITS OPEN** *Sun Valley Inn, Limelight Promenade & Continental Room*	
6:30am - 8:00am	**ATTENDEE BREAKFAST** *Sun Valley Inn, Continental Room*	
7:00am - 9:30am	**FRIENDS & FAMILY BREAKFAST** *Gretchens and Konditorei Restaurants*	
7:00am - 9:00am	**SCIENTIFIC SESSION 5** **Moderators: Matt Martin, MD & Kevin Schuster, MD** *Sun Valley Inn - Limelight Ballroom*	
7:00 am - 7:20 am	22. TRANEXAMIC ACID IS ASSOCIATED WITH MULTIPLE ORGAN FAILURE IN FIBRINOLYSIS SHUTDOWN FOLLOWING SEVERE TRAUMA *Justin Richards MD, R Adams Cowley Shock Trauma Center, Baltimore, MD*	**Page 87**
7:20 am - 7:40 am	23. THE WINDLASS TOURNIQUET: IS IT TAKING THE WIND OUT OF THE "STOP THE BLEED" SAILS? *Victoria Schlanser DO, Cook County Trauma, Chicago, IL*	**Page 89**
7:40 am - 8:00 am	24. DRIVING UNDER THE INFLUENCE: A MULTI-CENTER EVALUATION OF VEHICULAR CRASHES IN THE ERA OF CANNABIS LEGALIZATION *Johanna Borst, UC San Diego School of Medicine, San Diego, CA*	**Page 91**
8:00 am - 8:20 am	25. ALGORITHM: VTE PROPHYLAXIS *Eric Ley, MD, Cedars-Sinai Medical Center*	**Page 93**
8:20 am - 9:00 am	26. FOUNDERS BASIC SCIENCE LECTURE: STEM CELLS IN TRAUMA: THE DAWN OF A NEW ERA *Martin A. Schreiber, MD FACS FCCM, Oregon Health & Science University, Portland, Oregon*	**Page 95**
10:00am – 12:00pm	**NASTAR RACE (PRE-REGISTRATION REQUIRED)** *Warm Springs*	
11:00am - 1:30pm	**MOUNTAIN PICNIC** *Warm Springs Greyhawk Area*	

3:30pm - 6:00pm	**REGISTRATION & EXHIBITS OPEN** *Sun Valley Inn, Limelight Promenade & Continental Room*	
4:00pm - 6:00pm	**WTA BOOK CLUB** *Sun Valley Lodge, Ernest Hemingway Suite*	
4:00pm - 6:00pm	**SCIENTIFIC SESSION 6** **Moderator: David Shatz, MD** *Sun Valley Inn - Limelight Ballroom*	
4:00 pm - 4:45 pm	27. AUDIENCE PARTICIPATION SESSION Deborah Stein, MD & Karen Brasel, MD	**Page 97**
4:45 pm - 5:00 pm	28. FIFTY YEARS OF 'WESTERN TRAUMA ASSOCIATION FAMILY' INJURIES *Micheala A. West MD, PhD, WTA Family*	**Page 99**
5:00 pm - 6:00 pm	**WTA BUSINESS MEETING** *Members only	
6:30pm - 8:30pm	**WTA FAMILY NIGHT – BOWLING, ARCADE & ICE SKATING** *Sun Valley Lodge – Bowling Alley & Skating Rink*	
8:00pm - 9:30pm	**WTA PAST PRESIDENTS' RECEPTION** *Sun Valley Lodge - Larkspur Room*	

THURSDAY, FEBRUARY 27, 2020

6:00am - 9:00am	**REGISTRATION OPEN** *Sun Valley Inn, Limelight Promenade*	
6:30am - 8:00am	**ATTENDEE BREAKFAST** *Sun Valley Inn, Limelight Promenade*	
7:00am - 9:30am	**FRIENDS & FAMILY BREAKFAST** *Gretchen's & Konditorei Restaurants*	
7:00am - 9:00am	**SCIENTIFIC SESSION 7** **Moderators: Carlos Brown, MD & Eric Toschlog, MD** *Sun Valley Inn - Limelight Ballroom*	
7:00 am - 7:20 am	29. TRAUMA CENTER FUNDING: STOP THE BLEED *Joseph D. Amos MD, FACS, Methodist Dallas Medical Center, Dallas, TX*	**Page 103**
7:20 am - 7:40 am	30. SPIROMETRY NOT PAIN LEVEL PREDICTS OUTCOMES IN ELDERLY PATIENTS WITH ISOLATED RIB FRACTURES *Kevin Schuster MD, MPH, Yale School of Medicine, New Haven, CT*	**Page 105**
7:40 am - 8:00 am	31. THE CENTER FOR TRAUMA SURVIVORSHIP: ADDRESSING THE GREAT UNMET NEED FOR POST-TRAUMA CENTER CARE *David Livingston MD, Rutgers-New Jersey Medical School, Newark, NJ*	**Page 107**
8:00 am - 8:20 am	32. CERTIFICATION IN ENDOVASCULAR HEMOSTASIS FOR TRAUMA SURGEONS: POSSIBLE AND PRACTICAL? *Joseph Herrold MD MPH, R Adams Cowley Shock Trauma Ctr, Baltimore, ND*	**Page 109**
8:20 am - 8:40 am	33. ALGORITHM: ANTICOAGULATION REVERSAL *Kimberly Peck, MD, Scripps Mercy Hospital*	**Page 111**
8:40 am - 9:00 am	34. ALGORITHM: CHILD PHYSICAL ABUSE *Nelson Rosen, MD, Cincinnati Children's Hospital*	**Page 113**
3:00pm - 4:00pm	**ALGORITHMS COMMITTEE MEETING** *Sun Valley Lodge - Garnet Room*	

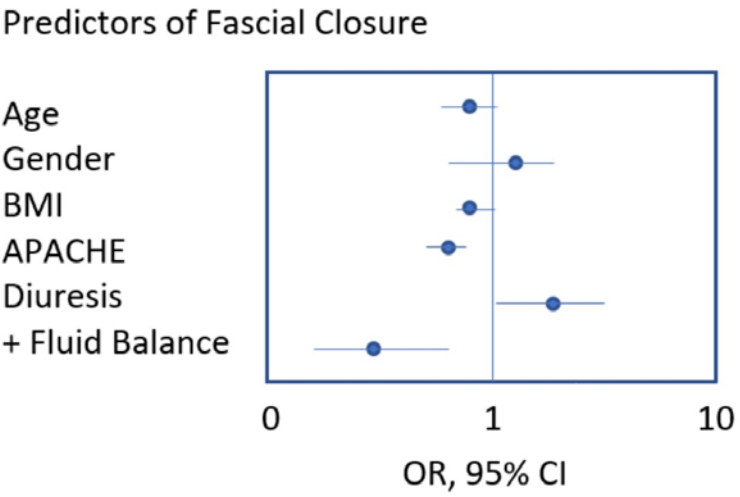
3:30pm - 6:00pm	**REGISTRATION OPEN** *Sun Valley Inn, Limelight Promenade*	
4:00pm - 6:00pm	**SCIENTIFIC SESSION 8** **Moderator: David Shatz, MD** *Sun Valley Inn - Limelight Ballroom*	
4:00 pm - 4:40 pm	35. PRO/CON DEBATE: FINGER THORACOSTOMY IS SAFE IN THE HANDS OF EMS AND ED DOCTORS *Matthew Martin, MD and Kevin Schuster, MD*	**Page 115**
4:40 pm - 5:00 pm	36. A TRIBUTE TO PAST WTA MEMBERS PART 2 *Gregory J. Jurkovich, MD*	**Page 117**
5:00 pm - 6:00 pm	37. PAINT THE CEILING LECTURE: LUCCA: THE STORY OF A MARINE K-9 HERO *Master Sergeant Chris Willingham, USMC, Retired*	**Page 119**
7:00pm – 10:30pm	**KIDS PARTY** *Sun Valley Inn - Continental Room*	
7:00pm - 7:30pm	**RECEPTION** *Sun Valley Inn – Limelight Foyer*	
7:30pm – 10:30pm	**BANQUET** *Sun Valley Inn – Limelight Ballroom*	

FRIDAY, FEBRUARY 28, 2020

6:00am - 9:00am	**REGISTRATION OPEN** *Sun Valley Inn, Limelight Promenade*	
6:30am - 8:00am	**ATTENDEE BREAKFAST** *Sun Valley Inn, Limelight Promenade*	
7:00am - 9:30am	**FRIENDS & FAMILY BREAKFAST** *Gretchen's & Konditorei Restaurants*	
7:00am - 9:00am	**SCIENTIFIC SESSION 9** **Moderators: Rochelle Dicker, MD & David Ciesla, MD** *Sun Valley Inn - Limelight Ballroom*	
7:00 am - 7:20 am	38. NEUROSURGICAL INTERVENTION (NSI) IN GERIATRIC PATIENTS WITH TRAUMATIC BRAIN INJURY (TBI): RESULTS FROM THE AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA (AAST) GERI-TBI STUDY *Mira Ghneim MD, AAST, San Francisco, CA*	**Page 121**
7:20 am - 7:40 am	39. BLUNT CEREBROVASCULAR INJURY - IS THERE A ROLE FOR UNIVERSAL SCREENING? *Stefan Leichtle MD, Virginia Commonwealth University, Richmond, VA*	**Page 123**
7:40 am - 8:00 am	40. RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA (REBOA) IN HEMODYNAMICALLY UNSTABLE PATIENTS WITH PELVIC FRACTURES: WHEN IT'S ALL ABOUT TIME *Bellal Joseph MD, FACS, Sunnybrook Health Sciences Centre, University of Arizona, Tuscon, AZ*	**Page 125**
8:00 am - 8:20 am	41. CHOOSING WISELY: A PROSPECTIVE STUDY OF DIRECT TO OR TRAUMA RESUSCITATION INCLUDING REAL-TIME TRAUMA SURGEON AFTER-ACTION REVIEW *Amelia Johnson PA-C, Legacy Emanuel Medical Center, Portland, OR*	**Page 127**
8:20 am - 8:40 am	42. EXPOSURE TO COMMUNITY VIOLENCE POST-INJURY PREDICTS PSYCHOLOGICAL DISTRESS AND PHYSICAL HEALTH AFTER NON-INTENTIONAL INJURY IN ETHNIC AND RACIAL MINORITY PATIENTS *Terri deRoon-Cassini PhD, Medical College of Wisconsin, Milwaukee, WI*	**Page 129**

8:40 am - 9:00 am	43. WHOLE BLOOD AT THE TIP OF THE SPEAR: ANALYSIS OF FRESH WHOLE BLOOD RESUSCITATION VERSUS COMPONENT THERAPY IN SEVERELY INJURED COMBAT CASUALTIES *Amanda Staudt MD, US Army Institute of Surgical Research / Joint Trauma System, San Antonio, TX*	**Page 131**
3:30pm - 6:00pm	**REGISTRATION OPEN** *Sun Valley Inn, Limelight Promenade*	
4:00pm - 6:00pm	**SCIENTIFIC SESSION 10** **Moderators: Roxie Albrecht, MD & Anastasia Kunac, MD** *Sun Valley Inn - Limelight Ballroom*	
4:00 pm - 4:20 pm	44. CHARACTERIZATION OF UNEXPECTED SURVIVORS FOLLOWING A PREHOSPITAL PLASMA RANDOMIZED TRIAL *Danielle Gruen PhD, University of Pittsburgh, Pittsburgh, PA*	**Page 133**
4:20 pm - 4:40 pm	45. EFFECT OF EARLY FASCIOTOMY ON LIMB SALVAGE AND COMPLICATIONS IN MILITARY LOWER EXTREMITY VASCULAR INJURY *David Kauvar MD, MPH, San Antonio Military Medical Center, JBSA Fort Sam Houston, TX*	**Page 135**
4:40 pm - 5:00 pm	46. PRELIMINARY ANALYSIS OF THE MULTI-INSTITUTIONAL MULTIDISCIPLINARY INJURY MORTALITY INVESTIGATION IN THE CIVILIAN PRE-HOSPITAL ENVIRONMENT (MIMIC) *Brian J Eastridge MD, UT Health San Antonio, San Antonio, TX*	**Page 137**
5:00 pm - 5:20 pm	47. ORAL ETHANOL VERSUS BENZODIAZEPINES AS PROPHYLAXIS FOR ALCOHOL WITHDRAWAL SYNDROME *Adeolu Adeboye MD, Guthrie Clinic, Sayre, PA*	**Page 139**
5:20 pm - 5:40 pm	48. DESCRIBING THE DENSITY OF URBAN TRAUMA CENTERS IN THE UNITED STATES 15 LARGEST CITIES *Anne Stey MD, MSc, Northwestern University, Chicago, IL*	**Page 141**
5:40 pm - 6:00 pm	49. IMPACT OF HELMET LAWS ON MOTORCYCLE CRASH MORTALITY RATES *David Notrica MD, FACS, FAAP, Phoenix Children's Hospital, Phoenix, AZ*	**Page 143**

NOTES


Predictors of Fascial Closure
Age
Gender
BMI
APACHE
Diuresis
+ Fluid Balance
0
1
10
OR, 95% CI

NOTES

Presentation #1
Monday, 2/24/2020, 7:00 am - 7:20 am

DOES DIURESIS IMPROVE FASCIAL CLOSURE FOR OPEN ABDOMEN?

N DULETZKE, H SHEPHERD, S STOKES, M MONE, A COLONNA, T ENNISS, M MCCRUM, J NUNEZ, J YOUNG, R NIRULA
University of Utah, Salt Lake City, Utah

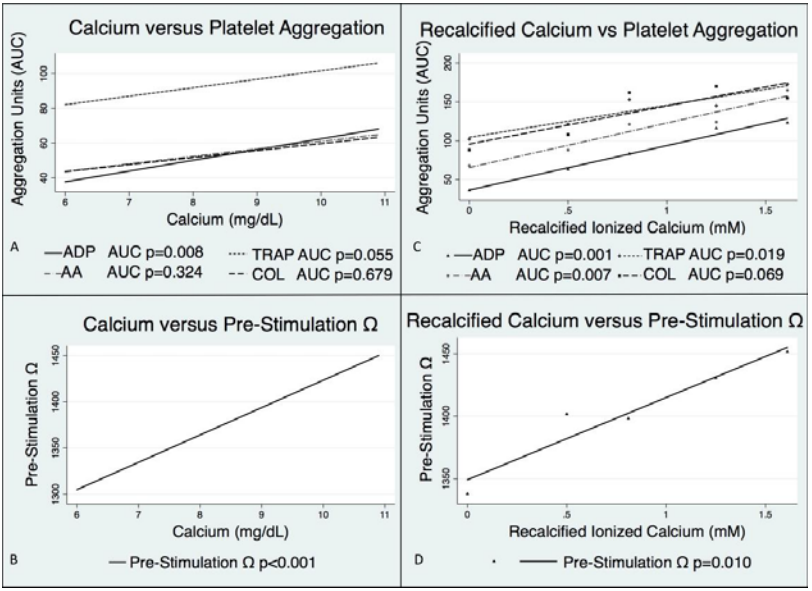
Presenter: Nicholas Duletzke
Senior Sponsor: Raminder Nirula

INTRODUCTION: Diuresis of open abdomen patients is an unproven strategy for facilitating abdominal closure. We hypothesized that diuresis and fluid balance were associated with fascial closure.

METHODS: A retrospective review of adult surgical intensive care unit (SICU) patients from 2011 to 2017 at a level I trauma center, who received laparotomy and subsequent open abdomen. Closure was defined as fascial closure without any bridging component. Cumulative fluid balance was recorded until abdominal closure or upon discharge from the ICU if the patient's fascia was never definitively closed. Bivariate and multivariate logistic regression analyses identified predictors of abdominal closure.

RESULTS: There were 312 patients (25.7% trauma) of whom 54 (17%) remained open (no fascial closure by 14 days). In univariate analysis, older age (p=0.01), higher body mass index (BMI) (p<.01), Acute Physiology Age Chronic Health Evaluation II (APACHE II) score (p<.01) and lack of diuretics (p=0.05) were associated with failure to close. After adjusting for patient demographics and risk profile, treatment with diuretics was independently associated with higher odds for achieving fascial closure (OR 2.2, 95%CI 1.0-4.8). Patients with a positive fluid balance had lower odds to achieve closure (OR 0.4, 95%CI 0.2-0.9). In multivariate models adjusting for all covariates, negative fluid balance was associated with significantly higher odds for closure (OR 2.3, 95%CI 1.1-5.0), while diuretic use was borderline significant. (OR 2.1, 95%CI 1.0-4.7)

CONCLUSIONS: Diuretic treatment and negative fluid balance in open abdomen patients are associated with an increased likelihood of fascial closure. Aggressive diuresis in critically ill open abdomen patients may be warranted.


Calcium versus Platelet Aggregation
Aggregation Units (AUC)
Calcium (mg/dL)
A
—ADP AUC p=0.008
- -AA AUC p=0.324
···· TRAP AUC p=0.055
-- COL AUC p=0.679
Recalcified Calcium vs Platelet Aggregation
Aggregation Units (AUC)
Recalcified Ionized Calcium (mM)
C
·—ADP AUC p=0.001
·- -AA AUC p=0.007
·····TRAP AUC p=0.019
·-- COL AUC p=0.069
Calcium versus Pre-Stimulation Ω
Pre-Stimulation Ω
Calcium (mg/dL)
B
— Pre-Stimulation Ω p<0.001
Recalcified Calcium versus Pre-Stimulation Ω
Pre-Stimulation Ω
Recalcified Ionized Calcium (mM)
D
—— Pre-Stimulation Ω p=0.010

NOTES

Presentation #2
Monday, 2/24/2020, 7:20 am - 7:40 am

DYNAMIC EFFECTS OF IN-VIVO AND IN-VITRO CALCIUM ON PLATELET BEHAVIOR

Z MATTHAY, A FIELDS, B NUNEZ-GARCIA, M PATEL, A WU, M COHEN, R CALLCUT, L KORNBLITH
University of California San Francisco, San Francisco, California

Presenter: Zachary Matthay
Senior Sponsor: Rachael Callcut

INTRODUCTION: Calcium is a universal secondary messenger, required for platelet activation, aggregation, and degranulation. However, the calcium-platelet axis after injury is unknown. We hypothesized that in-vivo calcium is associated with increased in-vitro platelet activation, aggregation, and clot-strength after injury, and that up-titration of calcium in-vitro in healthy blood increases expression of platelet activation surface markers and platelet aggregation.

METHODS: Clinical: Pre-resuscitation blood samples were collected from 539 trauma patients for platelet aggregometry (PA) and thromboelastometry (ROTEM). Adenosine diphosphate (ADP), thrombin receptor-activating peptide (TRAP), arachidonic acid (AA), and collagen (COL) were used to stimulate platelets. Platelet activation (pre-stimulation Ω), aggregation (stimulated AUC), and calcium were measured.
In-Vitro: Calcium was up-titrated from 0-1.61mM in healthy blood. PA was performed and expression of platelet glycoprotein IIb/IIIa and P-Selectin measured by flow cytometry (Flow). Linear regression tested the associations of calcium with PA, ROTEM, and Flow.

RESULTS: Clinical: The patients were moderately injured (median ISS10), with normal calcium and platelet counts. Increasing calcium was independently associated with increased platelet activation (pre-stimulation Ω; $p<0.001$), aggregation (ADP-stimulated AUC; $p=0.008$, Figure), and clot-strength (ROTEM EXTEM max clot firmness; $p <0.0001$), and inversely associated with 24h transfusions ($p=0.007$).

In-Vitro: Up-titrating calcium in healthy blood increased platelet activation (pre-stimulation Ω), aggregation (ADP, TRAP, AA, COL-stimulated AUCs; $p<0.05$; Figure), and expression of glycoprotein IIb/IIIa (untreated, ADP, TRAP; $p<0.05$).

CONCLUSIONS: Calcium is independently associated with platelet activation, aggregation, clot-strength, and transfusions after injury. Normalization of calcium during hemorrhage is paramount, and treating to supraphysiologic calcium levels for mitigation of post-injury alterations in platelet behavior deserves study.

	0h	6h	12h	24h
R	0.87	**0.48**	**0.70**	1.21
K	0.83	**0.52**	0.76	1.05
Alpha	1.04	**1.14**	**1.09**	0.98
MA	**1.07**	**1.09**	**1.10**	**1.09**
G	**1.23**	**1.39**	**1.55**	**1.51**
Native-LY30	0.81	0.60	0.27	**0.01**
TUCA-LY30	1.23	0.98	**0.64**	0.75

NOTES

Presentation #3
Monday, 2/24/2020, 7:40 am - 8:00 am

A RAT MODEL OF ORTHOPEDIC INJURY-INDUCED HYPERCOAGULABILITY AND FIBRINOLYTIC SHUTDOWN

K CARTER, A PALEI, F SPRADLEY, B WITCHER, L MARTIN, M KUTCHER
University of Mississippi Medical Center, Jackson, Mississippi

Presenter: Kristen Carter
Senior Sponsor: Larry Martin

INTRODUCTION: Post-injury hypercoagulability occurs in >25% of injured patients, increasing risk of thromboembolic complications despite chemoprophylaxis. Risk is compounded by orthopedic injury in >45% of trauma admissions. However, few clinically relevant models of orthopedic injury-induced hypercoagulability exist. Therefore, we aimed to evaluate a rodent model of bilateral hindlimb injury as a preclinical model of post-injury hypercoagulability.

METHODS: Thirty-two Wistar rats were anesthetized with isoflurane: sixteen underwent bilateral hindlimb fibula fracture, soft tissue and muscular crush injury, and bone homogenate injection, intended to mimic the physiological severity of bilateral femur fracture. Sixteen sham rats underwent anesthesia and skin puncture. Rats were sacrificed and citrated blood samples drawn at 0, 6, 12, and 24h for analysis by native thromboelastography (TEG) in the presence and absence of taurocholic acid (TUCA) to augment fibrinolysis.

RESULTS: Injured rats became hypercoagulable relative to baseline by 6h based on TEG R, K, MA, and G (all $p<0.01$), and showed impaired fibrinolysis by 12h based on TUCA-LY30 ($p=0.027$). Compared to sham animals, injured rats were hypercoagulable by MA and G immediately after injury, hypercoagulable by R, K, and alpha by 6h (all $p<0.001$), and showed impaired fibrinolysis by TUCA LY30 at 12h ($p=0.027$) and native LY30 at 24h ($p=0.026$; Figure shows fold difference).

CONCLUSIONS: Mimicking post-injury hypercoagulability in injured patients, orthopedic injury in rodents induced platelet and overall hypercoagulability within minutes, and fibrinolytic impairment by 12-24h. This rodent model of orthopedic injury may serve as a preclinical testing ground for potential therapies to mitigate hypercoagulability, maintain normal fibrinolysis, and prevent thromboembolic complications.

	Total Units	Wasted	Transfused	Significance
2015 (TP only)	2021	273 (13.5%)	1748 (86.5%)	
2016 (TP and LQP)	2086	214 (10.3%)	1872 (89.7%)	p=0.0013
Thawed Plasma	1739	204 (11.7%)	1535 (88.3%)	
Liquid Plasma	347	10 (2.9%)	337 (97.1%)	p<0.0001
Combined	4107	487 (11.9%)	3620 (88.1%)	

Table 1. Wastage rates between years and types of plasma.

NOTES

Presentation #4
Monday, 2/24/2020, 8:00 am - 8:20 am

LIQUID PLASMA REDUCES WASTE AND HEALTHCARE EXPENSES COMPARED TO THAWED PLASMA AT A LEVEL 1 TRAUMA CENTER

S SMITH, E DEWEY, M VANSANDT, M SCHREIBER
Oregon Health & Science, Portland, Oregon

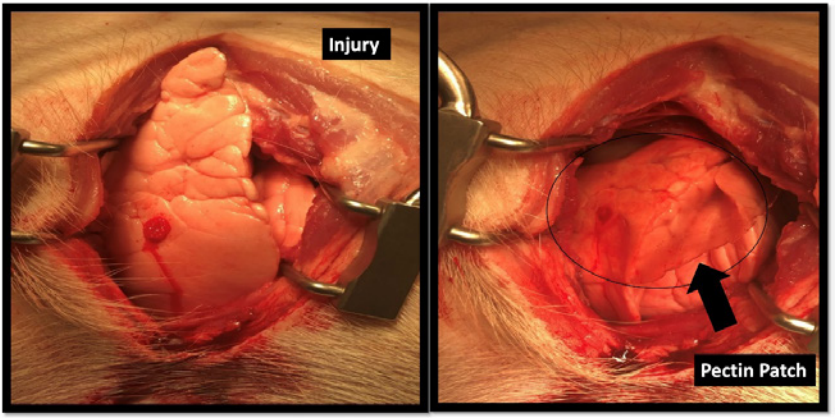
Presenter: Sawyer Smith
Senior Sponsor: Martin Schreiber

INTRODUCTION: Balanced resuscitation have led to increased utilization of plasma. Fresh frozen plasma that is thawed and discarded is a large source of waste. Thawed plasma (TP) and can only be stored for 5 days. Liquid plasma (LP) has never been frozen and can be stored for 26 days. Due to longer storage duration, we hypothesized that using LP would result in decreased waste and cost savings compared to TP.

METHODS: We performed a retrospective review of all trauma patients at our level 1 trauma center in the years 2015-2016. We compared 2015 when only TP was used to 2016 when both TP and LP were used. Wastage rates were compared between years and plasma type.

RESULTS: 5,789 trauma patients presented to our institution from 2015-2016. There were 4,107 plasma units ordered with 487 (11.9%) units wasted. During 2015, 2,021 units of plasma were ordered with 273 (13.5%) units wasted which was significantly higher than 2016 when 2,086 total units of plasma were ordered and 214 (10.3%) units were wasted ($p=0.0013$). During 2016, 1,739 units of TP were ordered and 204 (11.7%) units were wasted which was significantly higher than LP wastage, 347 units ordered and 10 (2.9%) units wasted ($p<0.001$) (Table 1). If TP was wasted at the same rate as LP, 368 fewer units of plasma would have been wasted representing $39,376 ($107/unit) of wasted healthcare expenses.

CONCLUSIONS: At a level 1 trauma center, the addition of LP for trauma resuscitations significantly reduced plasma wastage rates and healthcare expenses.



NOTES

Presentation #5
Monday, 2/24/2020, 8:20 am - 8:40 am

IMPROVED OUTCOMES UTILIZING A NOVEL PECTIN-BASED PLEURAL SEALANT FOLLOWING ACUTE LUNG INJURY

J KUCKELMAN, J CONNER, Y ZHENG, A PIERCE, I JONES, DLAMMERS, D CUADRADO, M ECKERT, S MENTZER
Brigham and Women's Hospital, Boston, Massachusetts

Presenter: John Kuckelman
Senior Sponsor: Matthew Eckert

INTRODUCTION: Persistent air leaks after thoracic trauma are associated with significant morbidity. To evaluate a novel pectin sealant in a swine model of traumatic air leaks, we compared the pectin biopolymer to standard surgical and fibrin-based interventions.

METHODS: A standardized lung injury was created in male Yorkshire swine (Figure). Interventions were randomized to stapled wedge resection (N=5), topical fibrin glue (N=5), fibrin patch (N=5) and a pectin sealant (N=6, Figure). Baseline as well as pre and post intervention tidal volumes (TV) were recorded. Early success was determined by return of TV to 95% of baseline. Late success evidence of no air leak upon closure of the chest with chest tube.

RESULTS: No differences were seen between groups for injury severity (mean TV loss = 62ml, p =0.2). Early success was appreciated in 100% of pectin interventions which was significantly better than the fibrin sealant (20%), fibrin patch (20%) and stapled groups (80%, p=0.01). Late success was also improved with pectin at 83% compared to 40% in the stapled group (p=0.008). Percent volume improvement after intervention was significantly increased in the pectin (98%) and staple arms (97%) compared to the fibrin sealant (91%) and patch (90%, p = 0.02; p = 0.03). Only 1 intermittent air leak was seen in the pectin arm (17%) compared to 3 intermittent leaks in the staple group (60%) and 90% of the fibrin-based interventions resulting in continuous air leaks (p=0.001).

CONCLUSIONS: Pectin-based bioadhesives effectively seal traumatic air leaks and may provide a superior parenchymal-sparing treatment option for traumatic air leaks.

	Without OMI		With OMI	
Grade (n)	Grade I-II (147)	Grade III (115)	Grade I-II (167)	Grade III (88)
Required Intervention	0	3 (2.6%)	14 (8.4%)	17 (19.3%)
Transfusion	0	3 (2.6%)	14 (8.4%)	15 (17.0%)
Angioembolization	0	1 (0.9%)	0	1 (1.1%)
Laparotomy/scopy	0	0	2	7 (8.0%)
Floor Admission	113 (77%)	76 (66%)	57 (34%)	39 (44%)
ICU Admission	27 (18%)	38 (33%)	97 (58%)	45 (51%)
ED to OR	0	0	10 (6%)	4 (5%)
Discharged Home	7 (5%)	1 (1%)	0	0
Median LOS	2 [1-3]	3 [2-4]	4 [2-7]	4 [2-6]

NOTES

Presentation #6
Monday, 2/24/2020, 8:40 am - 9:00 am

ISOLATED LOW-GRADE SOLID ORGAN INJURIES IN CHILDREN FOLLOWING BLUNT ABDOMINAL TRAUMA: IS IT TIME TO CONSIDER DISCHARGE FROM THE EMERGENCY DEPARTMENT?

L PLUMBLEE, R WILLIAMS, A JENSEN, B NAIK-MATHURIA, L EVANS, C STRECK
Medical University of South Carolina, Charleston, South Carolina

Presenter: Leah Plumbee
Senior Sponsor: Dennis Vane

INTRODUCTION: Acute intervention for solid organ injury (SOI) is rare in hemodynamically stable children. Pediatric guidelines recommend admission with follow-up labs, even for low-grade injuries.

METHODS: Datasets from two large multi-center prospective observational studies were used to analyze a cohort of children (age < 17 years) with grade I-III SOI following blunt abdominal trauma (BAT). Children with hollow viscus injuries (HVI) were excluded. Patients were divided into those with or without other major injuries (OMI) (traumatic brain injury (TBI), hemo/pneumothorax, pelvic fracture, urgent orthopedic or neurosurgical operation). Outcomes included acute interventions (AI) (transfusion, angiography, abdominal operation) and disposition (admission unit and length of stay).

RESULTS: There were 14,232 children enrolled, median age of 10 years. 517 patients with Grade I-III SOI were included and 262 of these had no OMI. Among patients with no OMI, no patient with a grade I-II injury underwent an intervention. Among patients with no OMI, three (2.6%) with grade III injuries underwent AI. All three patients had hemoperitoneum and 2/3 had an additional grade II SOI. 18% of patients with grade I-II and 33% of patients with grade III injuries and no OMI were admitted to an ICU. Among 255 patients with OMI, 31/255 (12.1%) underwent AI. Major injuries included hemo/pneumothorax (46.3%), TBI (40.0%), pelvic fracture (30.2%), urgent orthopedic surgery/neurosurgery operation (31.0%). Both patients who underwent abdominal exploration had a severe TBI

CONCLUSIONS: Intervention for Grade I-II SOI following BAT is extremely rare suggesting that patients with low-grade SOI without other major injuries could potentially be discharged from the ED.

Table 1. Unadjusted odds of clinical outcomes for patients with low initial pre-hospital ETCO2 compared to those with normal/high ETCO2

Clinical outcome	OR	95% CI	*p* value
Any blood transfusion within first 24 hours	2.80	0.99, 7.82	0.050
Any in-hospital complication	1.84	1.11, 3.04	0.017
Massive transfusion protocol	*	NA	NA
Any intubation	1.55	0.89, 2.68	0.119
Scene intubation	2.60	0.82, 8.23	0.105
Mortality	5.27**	1.98, 14.02	0.001
Hospital length of stay***[a]	1.06	0.78, 1.43	0.708
ICU length of stay[a]	0.82	0.57, 1.19	0.295
Inferior disposition[b]	1.26	0.59, 2.71	0.551

*predicts perfectly

**when adjusted for gender, age, ISS, comorbidities, intubation, ICU admission, OR increased to 9.56

***includes only those who survived to discharge

[a] Poisson models

[b] Includes discharge to SNF, Hospice, Left AMA, or LTACH

NOTES

Presentation #7
Monday, 2/24/2020, 4:00 pm - 4:20 pm

LOW PRE-HOSPITAL END-TIDAL CARBON DIOXIDE PREDICTS INFERIOR CLINICAL OUTCOMES IN TRAUMA PATIENTS

MK BRYANT, Z PATEL, N HICKS, P UDEKWU, RG MAINE, T REID, S MOORE
WakeMed Health & Hospitals, Raleigh, North Carolina

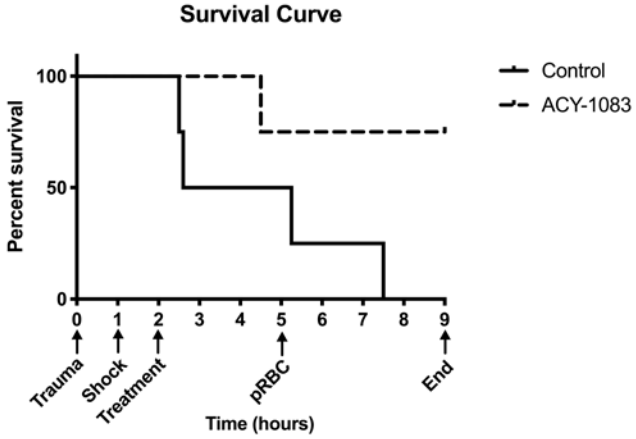
Presenter: Mary Kate Bryant
Senior Sponsor: Pascal Udekwu

INTRODUCTION: Because end-tidal carbon dioxide (ETCO2) has been correlated with mortality and hemorrhagic shock, it has been studied as a predictor for occult injury. Pre-hospital ETCO2 in a trauma population has only been studied in intubated patients. This study investigates the correlation between pre-hospital initial ETCO2 and in-hospital outcomes in a diverse trauma population.

METHODS: We retrospectively studied a cohort of adult trauma patients with initial pre-hospital side-stream capnography-obtained ETCO2 presenting via ground transport from a single North Carolina EMS agency to a level one trauma center in 2018. Low ETCO2 defined as =35mmHg.

RESULTS: Initial ETCO2 was recorded for 332 (25.5%) of 1479 patients with EMS data. The mean was 32.5 (sd10.9). Low initial ETCO2 patients (n=182, 54.8% of cohort) were older (54.9y vs 44.1y), had more chest injuries (28.0% vs 18.0%), and had higher incidences of hypertension, CHF, dementia, and anticoagulant use. ISS did not differ significantly between the low and normal/high ETCO2 groups (9.2 vs 8.5). Compared to normal/high ETCO2, low ETCO2 correlated with increased odds of mortality, in-hospital complication, and transfusion requirement (Table 1). None of the massive transfusion patients had a normal/high pre-hospital ETCO2. Low ETCO2 was associated with 9.56 odds of mortality (95% CI 1.89,48.46, p=0.006) after controlling for gender, age, ISS, comorbidities, intubation, ICU admission.

CONCLUSIONS: Low initial pre-hospital ETCO2 was associated with poor clinical outcomes despite similar injury severity. ETCO2 is a potentially useful pre-hospital point-of-care tool to aid triage of trauma patients, early identification of massive hemorrhage, and to predict in-hospital outcomes.


Survival Curve
Percent survival
100
50
0
0
1
2
3
4
5
6
7
8
9
Trauma
Shock
Treatment
pRBC
End
Time (hours)
Control
ACY-1083

NOTES

Presentation #8
Monday, 2/24/2020, 4:20 pm - 4:40 pm

HISTONE DEACETYLASE (HDAC) 6 INHIBITION IMPROVES SURVIVAL IN A SWINE MODEL OF LETHAL HEMORRHAGE, POLYTRAUMA, AND BACTEREMIA

B BIESTERVELD, A WILLIAMS, G WAKAM, M KEMP, R O'CONNELL, A SIDDIQUI, K CHTRAKLIN, N GRAHAM, H ALAM
University of Michigan, Ann Arbor, Michigan

Presenter: Ben Biesterveld
Senior Sponsor: Hasan Alam

INTRODUCTION: Trauma is the leading cause of death for young Americans. Nonspecific histone deacetylase (HDAC) inhibitors, such as valproic acid (VPA), have been shown to improve survival in preclinical models of lethal trauma, hemorrhage and sepsis. The doses needed to achieve a survival benefit are higher than FDA approved doses and their nonspecificity raise concerns about unintended adverse effects. The isoform specific HDAC 6 inhibitor, ACY-1083, has been found to be as efficacious as VPA in a rodent model of hemorrhagic shock. We hypothesized that ACY-1083 treatment would improve survival in a swine model of lethal hemorrhage and polytrauma.

METHODS: Swine were subjected to 45% blood volume hemorrhage, brain injury, femur fracture, rectus crush, splenic and liver lacerations, and colon injury. After 1 hour of shock (mean arterial pressure 30-35 mmHg), animals were randomized to normal saline resuscitation (control) or normal saline+ACY-1083 30mg/kg treatment (n=4/group). 3 hours later (simulating delayed evacuation), packed red blood cells and antibiotics were given, colon injury repaired, and abdomen closed. Animals were then monitored for another 4 hours. Survival was assessed using Kaplan-Meier and log-rank test.

RESULTS: This combination of injuries was highly lethal, and all the animals became bacteremic, in addition to the severe hemorrhagic shock. Survival in the control group was 0% and ACY-1083 treatment increased survival to 75% ($p=0.05$), despite having the same degree of metabolic acidosis (peak lactate: 7.4 vs. 7.6 mmol/L, control and ACY-1083, respectively).

CONCLUSIONS: A single dose of ACY-1083 markedly improves survival in an otherwise lethal model of polytrauma, hemorrhagic shock and bacteremia.

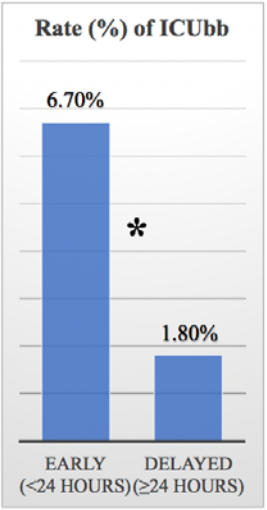


Figure (left): ICUbb rates of Early (<24 hours) and Delayed (>24 hours) groups. Time relates to the time of transfer from the time the initial order for transfer was placed. * Denotes $p<0.05$.

Table (below)**:** Odds ratio (95% Confidence Interval) of factors independently correlated with ICUbb by multivariate logistic regression. Age, CCI Score, and ISS are represented as continuous variables. Delayed transfer was dichotomous as Early or Delayed.

Age	**1.024** (1.014-1.034)
CCI Score	**1.123** (1.056-1.194)
ISS	**1.039** (1.020-1.059)
Delayed Transfer	**0.216** (0.094-0.498)

NOTES

Presentation #9
Monday, 2/24/2020, 4:40 pm - 5:00 pm

DELAY IN ICU TRANSFER IS PROTECTIVE AGAINST ICU READMISSION IN TRAUMA PATIENTS: AN UNINTENDED RANDOMIZED STUDY

S RANNEY, S AMATO, T LEE, P CALLAS, L PATASHNICK, J GRATTON, A SHARPE, D LAFRANCE, M TANDOH, W CHARASH, G AN, A MALHOTRA
University of Vermont Medical Center, Burlington, Vermont

Presenter: Stephen Ranney
Senior Sponsor: Ajai Malhotra

INTRODUCTION: Unplanned ICU re-admission after ICU discharge–bounce-back (ICUbb)– is associated with worse outcomes. Patients not requiring organ-system support or intensive nursing are deemed 'ICU discharge ready' and transfer orders are placed. However, actual transfer only occurs when an appropriate non-ICU bed is available resulting in an unintended randomization to Early (24 hours) transfers, after order placement. The current study leverages this unintended randomization to determine if additional ICU time is protective against ICUbb. We hypothesize that Delayed transfer is protective against ICUbb.

METHODS: Traumatized patients admitted to ICU over 10 years were included and categorized into Early (24 hours) groups based on actual transfer time after order placement. Patient characteristics [Age, Charlson co-morbidity index (CCI)], and injury severity score (ISS) were analyzed. Univariate and multivariate analyses were performed to compare ICUbb rates among Early and Unintended-Delayed groups.

RESULTS: 2,101 patients met criteria: Early–1,761, Unintended-Delayed–340. Early group was younger (Mean age 52.5+23.3 vs. 56.2+22.1 years), had fewer co-morbidities (Mean CCI 2.1+2.6 vs 2.4+2.7), and was less injured [Median ISS 17 (10-22) vs. 17 (10-25)], all $p<0.05$. Overall 124/2,101 (5.9%) patients experienced ICUbb: Early 118/1,761 (6.7%) vs. Unintended-Delay 6/340 (1.8%), $p<0.05$ (Figure). By regression analysis, Age, CCI, and ISS were independently associated with ICUbb while Delayed transfer was protective (Table).

CONCLUSIONS: Despite higher age, co-morbidities, and ISS, Unintended-Delayed group experienced lower ICUbb. After controlling for age, CCI and ISS, Delayed transfer reduced ICUbb risk by 78%. Specific care elements affording this protection remain to be elucidated.

Outcome	CPRBC (n=161)	LPRBC (n=39,785)	*P* value
In-hospital complications, %	27%	31%	0.21
AKI	3%	4%	0.26
ARDS	1.2%	3%	0.18
VAP	2.5%	2.6%	0.94
Deep SSI	2%	2.2%	0.78
Sepsis	1.2%	2.4%	0.32
DVT	5%	5%	0.99
PE	2.5%	1.9%	0.61
24hrs mortality, %	10.9%	12.3%	0.69
In-hospital mortality, %	21.2%	22.6%	0.72

CPRBC=Cryopreserved Packed Red Blood Cells; LPRBC=Liquid Packed Red Blood Cells; AKI=Acute Kidney Injury; ARDS=Acute Respiratory Distress Syndrome; VAP=Ventilator Associated Pneumonia; SSI=Surgical Site Infection; DVT=Deep Vein Thrombosis; PE=Pulmonary Embolism

NOTES

Presentation #10
Monday, 2/24/2020, 5:00 pm - 5:20 pm

NATIONWIDE ANALYSIS OF CRYOPRESERVED RED BLOOD CELL TRANSFUSION IN CIVILIAN TRAUMA

K HANNA, L BIBLE, M DITILLO, S ASMAR, M DOUGLAS, A TANG, N KULVATUNYOU, L CASTANON, B JOSEPH
University of Arizona, Tucson, Arizona

Presenter: Kamil Hanna
Senior Sponsor: Bellal Joseph

INTRODUCTION: Liquid packed red blood cells (LPRBCs) have a limited shelf life and worsening quality with age. Cryopreserved packed red blood cells (CPRBCs) can be stored up to 10-years with no deterioration in quality. The effect of CPRBCs on outcomes in civilian trauma is less explored. The aim of this study is to evaluate the safety and efficacy of CPRBCs in civilian trauma patients.

METHODS: We analyzed the (2015-2016) Trauma Quality Improvement Program including adult (age≥18y) patients who received a red blood cell transfusion within 4-hrs of admission. Patients were stratified: those who received LPRBC and those who received CPRBC. Primary outcomes were 24-hour and in-hospital mortality. Secondary outcomes were major complications. Propensity matching was performed adjusting for demographics, vitals, blood components, injury-parameters, comorbidities, and center-parameters.

RESULTS: A total of 39,946 patients were identified and a matched cohort of 483 was obtained. A total of 161 received CPRBC (CPRBC 2[2-4], Plasma 2[0-4], Platelets 1[0-1]) and 322 received LPRBC (LPRBC 4[2-8], Plasma 2[0-5], Platelets 1[0-2]). Mean age was 41±24y, 74% were male, ISS was 25[16-34], and 18% had penetrating injuries. Patients who received CPRBC had similar 24-hour mortality (10.9% vs. 12.3%; p=0.69), and in-hospital mortality (21.2% vs. 22.6%; p=0.72). No difference was found in terms of complications (27% vs. 31%; p=0.21) between the two groups.

CONCLUSIONS: Transfusion of CPRBCs may be as safe and effective as transfusion LPRBCs in severely injured trauma patients. Cryopreservation has the potential to expand our transfusion armamentarium in diverse settings such as periods of increased usage, disaster scenarios, and rural areas.

Table 1	D-Dimer Admit	D-Dimer 6H	*p*
PCB	4.28 (14.29)	3.81 (11.38)	0.15
BM	3.56 (10.40)	2.87 (6.42)	***<0.01****
BO	3.52 (9.32)	2.89 (6.48)	***<0.01****
p	0.06	***<0.01****	

Table 2	PAP Admit	PAP 6H	*p*
PCB	2140.74 (3022.73)	2044.12 (2973.30)	**<0.01***
BM	1501.90 (2081.00)	1725.49 (2182.46)	0.40
BO	1261.73 (1773.44)	1711.05 (2128.03)	***<0.01****
p	***<0.01****	***0.02****	

PCB = placebo; BM = 1-gram TXA bolus/1-gram maintenance;
BO = 2-gram TXA bolus only

NOTES

Presentation #11
Monday, 2/24/2020, 5:20 pm - 5:40 pm

TEG IS INSUFFICIENT TO DETECT CHANGES IN FIBRINOLYSIS IN PATIENTS WHO RECEIVED PRE-HOSPITAL TRANEXAMIC ACID FOLLOWING TRAUMATIC BRAIN INJURY

A DIXON, B MCCULLY, B RICK, S ROWELL, M SCHREIBER
Oregon Health & Science University, Portland, Oregon

Presenter: Alexandra Dixon
Senior Sponsor: Martin Schreiber

INTRODUCTION: Unpublished data from "Prehospital Tranexamic Acid Use for Traumatic Brain Injury" show significantly decreased mortality in patients in patients with intracerebral hemorrhage (ICH) who received 2-gram tranexamic acid (TXA) bolus (BO) versus 1-gram bolus/1-gram maintenance dose (BM) or placebo (PCB). No differences in progression of ICH were demonstrated between treatment groups.

METHODS: Data were extracted from the "Prehospital TXA Use for TBI Trial" in which patients with a GCS of 3-12 and SBP>90 were randomized prehospital to BO, BM, or PCB. Coagulation measures including PT, aPTT, INR, fibrinogen, D-dimer, plasmin anti-plasmin (PAP), thrombin anti-thrombin (TAT), tissue plasminogen activator (tPA), and plasminogen activator inhibitor-1 (PAI-1) were quantified at admission and 6-hours using Luminex assay.

RESULTS: Of 966 patients receiving study drug, 701 had admission and 6-hour samples. All TEG values, including LY 30, were similar between groups at admission ($p>0.05$). No differences between PT, aPTT, INR, fibrinogen, TAT, tPA, and PAI-1 were demonstrated across treatment groups. D-dimer in TXA treatment groups was less than placebo at 6 hours (Table 1). PAP was decreased in both TXA treatment groups on admission and 6 hours (Table 2). No difference in D-dimer and PAP were observed between BM and BO.

CONCLUSIONS: TEG is insufficiently sensitive to detect fibrinolytic activation as demonstrated by decreased D-dimer in those who received TXA with no change in LY30 on admission. TXA may impact survival in a mechanism separate from preventing hemorrhagic progression.

NOTES

Presentation #12
Monday, 2/24/2020, 5:40 pm - 6:00 pm

IMPACT OF VENOUS THROMBOEMBOLISM CHEMOPROPHYLAXIS ON POSTOPERATIVE HEMORRHAGE FOLLOWING OPERATIVE FIXATION OF PELVIC FRACTURES

B BERNING, L MAGNOTTI, R LEWIS, J DOTY, T FABIAN, M CROCE, J SHARPE
University of Tennessee Health Science Center, Memphis, Tennessee

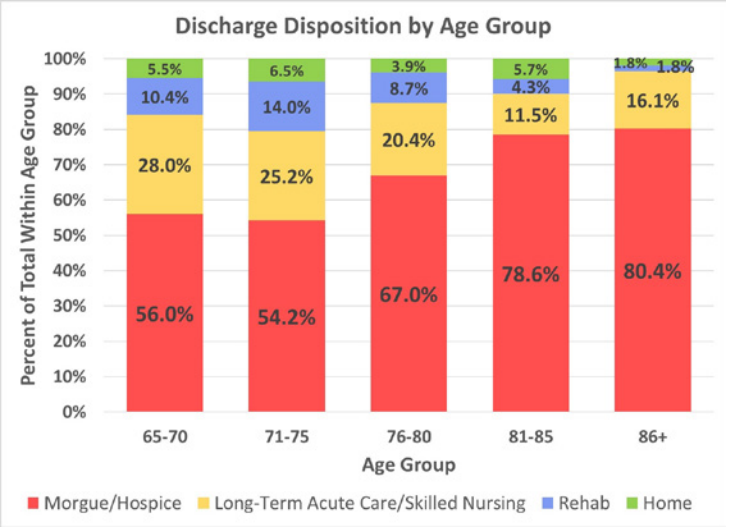
Presenter: Bennett Berning
Senior Sponsor: Martin Croce

INTRODUCTION: Although chemoprophylaxis may decrease venous thromboembolism (VTE) in patients with pelvic fractures, it risks postoperative bleeding in those requiring operative stabilization. This "risk" is commonly supposed but poorly supported. The purpose of this study was to evaluate the impact of preoperative anticoagulation on VTE and bleeding complications in patients with blunt pelvic fractures requiring operative fixation.

METHODS: Patients with blunt pelvic fractures requiring operative fixation over 10.5 years were identified. Patients were stratified by age, severity of shock, operative management, and timing and duration of anticoagulation. Outcomes were evaluated to determine risk factors for bleeding complications (wound/pelvic hematoma or infection) and VTE in the management of operative pelvic fractures.

RESULTS: 310 patients were identified: 212 patients received at least one dose of preoperative anticoagulation and 98 received no preoperative anticoagulation. Mean ISS and GCS were 26 and 13, respectively. Bleeding complications occurred in 24 patients and 21 patients suffered VTE. Patients with VTE had a greater initial severity of shock (resuscitation transfusions, 4vs2 units, p=0.02). Despite longer time to mobilization (4vs3 days, p=0.001), patients who received their scheduled preoperative doses within 48 hours of arrival had fewer episodes of pulmonary embolism (1.5%vs6.8%, p=0.03) with no difference in bleeding complications (7.5%vs8%, p=0.87) compared to either patients who had their doses held until after 48 hours of arrival or received no preoperative anticoagulation.

CONCLUSIONS: Preoperative anticoagulation in patients with operative pelvic fractures reduced the risk of pulmonary embolism without increasing bleeding complications. Preoperative anticoagulation is safe and beneficial in those patients with operative pelvic fractures.


Discharge Disposition by Age Group
Percent of Total Within Age Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
5.5%
10.4%
28.0%
56.0%
6.5%
14.0%
25.2%
54.2%
3.9%
8.7%
20.4%
67.0%
5.7%
4.3%
11.5%
78.6%
1.8%
1.8%
16.1%
80.4%
65-70
71-75
76-80
81-85
86+
Age Group
Morgue/Hospice
Long-Term Acute Care/Skilled Nursing
Rehab
Home

NOTES

Presentation #13
Tuesday, 2/25/2020, 7:00 am - 7:20 am

DON'T HOLD YOUR BREATH EXPECTING QUANTITY OR QUALITY OF LIFE IN THE INTUBATED ELDERLY TRAUMA PATIENT

A GRIMES, S BLAIR, K STEWART, T GARWE, Z SARWAR, D COURTNEY, C QUANG, R KENNEDY, A CELII, J LEES, R ALBRECHT, A CROSS
University of Oklahoma, Oklahoma City, Oklahoma

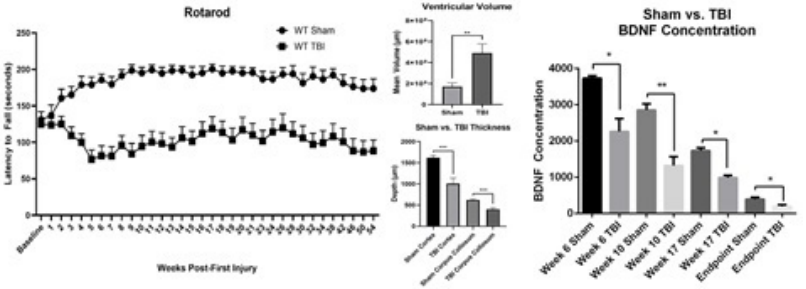
Presenter: Arthur Grimes
Senior Sponsor: Roxie Albrecht

INTRODUCTION: Early intubation (EI) is associated with increased mortality among all trauma patients. The association of EI with mortality and quality of life (QOL) among elderly trauma patients (ETP) is not well established. We aimed to examine mortality and QOL-related factors among trauma patients ≥ 65 years old (y/o) that required EI.

METHODS: This is a retrospective cohort study of trauma patients ≥ 65 y/o at our Level 1 trauma center from 2009-2018 who underwent EI, either prehospital or in the emergency department. Demographics, injury severity, vital signs, mortality, and QOL-related factors were collected. Logistic regression was used to identify covariates associated with mortality.

RESULTS: 518 patients ≥ 65 y/o with EI were identified from the trauma registry. Mortality increased significantly with age (Figure 1). Overall, 322 (62%) died and only 26 (5%) patients were discharged home; tracheostomies and feeding tubes (FT) were placed in 46% and 54% of survivors respectively. Compared to ages 65-70, patients age 81-85 and 85+ had 2.5 (95% CI 1.3-4.9) and 2.6 (95% CI 1.3-5.3) times higher adjusted odds of mortality respectively. Odds of mortality among those also hypotensive was nearly 5 times that of normotensive patients (OR 4.9, 95% CI 2.7-9.1).

CONCLUSIONS: Introduction Methods Results Conclusions This single center review establishes the high incidence of mortality in ETP with EI. In those who survive, few return home and many will have airway and FT access. Considering studies show 70% of older adults prioritize QOL over longevity, this information can help providers assist in early shared decision-making in the intubated ETP.


Rotarod
WT Sham
WT TBI
Latency to Fall (seconds)
Weeks Post-First Injury
Ventricular Volume
Sham
TBI
Sham vs. TBI Thickness
Sham vs. TBI
BDNF Concentration
BDNF Concentration
Week 6 Sham
Week 6 TBI
Week 10 Sham
Week 10 TBI
Week 17 Sham
Week 17 TBI
Endpoint Sham
Endpoint TBI

NOTES

Presentation #14
Tuesday, 2/25/2020, 7:20 am - 7:40 am

HOW AND WHY REPETITIVE MILD TRAUMATIC INJURY ALTERS LONG-TERM BRAIN PATHOLOGY

N DHILLON, N LINAVAL, J O'ROURKE, G BARMPARAS, A YANG, M ALKASLASI, N CHO, O SHELEST, G THOMSEN, E LEY
Cedars-Sinai Medical Center, Los Angeles, California

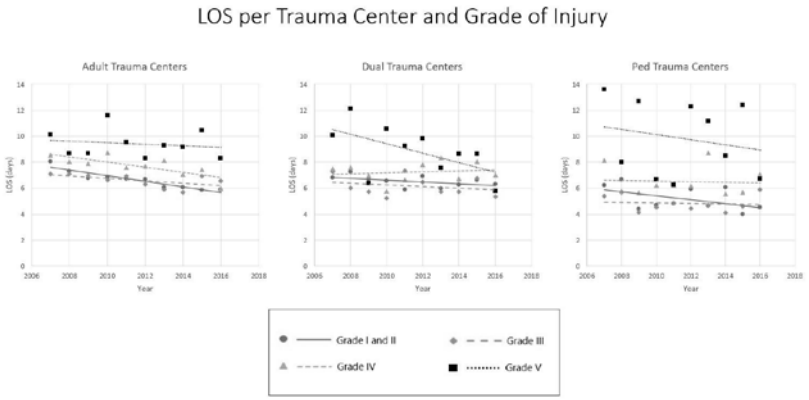
Presenter: Navpreet Dhillon
Senior Sponsor: Eric Ley

INTRODUCTION: How and why repetitive mild traumatic brain injury (rmTBI) alters brain pathology years after insult is largely unknown. This study aims to characterize the long-term brain deterioration following rmTBI using a rat model.

METHODS: Eighteen Sprague-Dawley wild-type (WT) rats underwent mild, bilateral TBI using a direct skull impact device or sham treatment, once per week for five weeks, and were euthanized 56 weeks after the first injury. Weekly rotorod performance measured motor deficits. Brain tissue were stained. Volume was computed using Stereo Investigator's Cavalieri Estimator. Brain-derived neurotrophic factor (BDNF) was determined using enzyme-linked immunosorbent assay. The L5 cortical layer proximal to the injury site was microdissected and submitted for sequencing with count analyzed using R "DESeq2" and "GOStats".

RESULTS: Rotorod data demonstrated permanent deficits one year after injury (left figure). TBI rats compared to sham demonstrated enlarged ventricles, thinner cortex, and thinner CC (middle figures) with no differences between male and female rodents. The decrease in BDNF was more pronounced after rmTBI (right figure). rmTBI led to differential expression of 72 genes (25 upregulated, 47 downregulated) including dysregulation of those associated with TBI (BDNF, NR4A1/2/3, Arc, and Egr) and downregulation in pathways associated with neuroprotection and neural plasticity.

CONCLUSIONS: rmTBI causes significant long-term effects on the brain leading to permanent rotorod deficits, cortical and CC thinning, and expansion of the lateral ventricles. BDNF and gene expression analysis suggest a significant drop in pathways associated with neuroplasticity and neuroprotection. Although repeat mild TBI may not cause immediate pathology, the damage may be apparent years later.


LOS per Trauma Center and Grade of Injury
Adult Trauma Centers
Dual Trauma Centers
Ped Trauma Centers
LOS (days)
Year
Grade I and II
Grade III
Grade IV
Grade V

NOTES

Presentation #15
Tuesday, 2/25/2020, 7:40 am - 8:00 am

CLOSING THE GAP IN CARE OF BLUNT SOLID ORGAN INJURY IN CHILDREN

N YUNG, D SOLOMON, K SCHUSTER, E CHRISTISON-LAGAY
Yale New Haven Hospital, New Haven, Connecticut

Presenter: Nicholas Yung
Senior Sponsor: Kevin Schuster

INTRODUCTION: Cross-sectional data of pediatric blunt solid organ injury (SOI) demonstrates higher rates of non-operative management and shorter lengths of stay (LOS) in pediatric (PTC) vs adult (ATC) or dual (DTC) trauma centers. Recent iterations of guidelines (McVay 2008, St Peter 2011, ATOMAC 2015) have emphasized physiologic parameters rather than injury grade in clinical decision making, improving resource allocation and decreasing LOS. We sought to evaluate how these guidelines have influenced care.

METHODS: The National Trauma Data Bank (2007-2016) was queried for isolated spleen and liver injuries in patients less than 19 years old. Linear regression, odds ratio, and chi-squared test were used to determine significance between operative intervention or LOS among different trauma center types and grade of injury.

RESULTS: A total of 55,036 blunt spleen or liver injuries were identified. Although operative rates decreased in ATCs over time ($p=0.037$), patients treated at ATCs or DTCs continued to demonstrate higher odds ratios of operative intervention (OR 4.43 and 2.88, respectively) compared to PTCs. Mean LOS decreased by 1.52 ($p<0.001$), 0.49 ($p=0.26$), and 1.31 ($p=0.05$) days at ATC, DTC, and PTC to 6.43, 6.68, and 5.16 days. Improvement in LOS for ATCs was distributed across injury Grades I, II, and IV, while there was no correlation among PTCs for Injury Grade.

CONCLUSIONS: Despite over a decade of guidelines in pediatric SOI supporting non-operative management and accelerated discharge pathways based on physiologic parameters, rates of operative intervention remain much higher in ATCs versus PTCs and all centers appear to fall short of consensus guidelines for discharge.

NOTES

Presentation #16
Tuesday, 2/25/2020, 8:00 am - 8:20 am

DIAPHRAGM PACING DECREASES HOSPITAL CHARGES FOR ACUTE SPINAL CORD INJURY PATIENTS

A KERWIN, Y DIAZ, R YORKGITIS, J MULL, A HSU, F MADBAK, D EBLER, D SKARUPA, J SHIBER, M CRANDALL
University of Florida COM- Jacksonville, Jacksonville, Florida

Presenter: Andrew Kerwin
Senior Sponsor: David Ciesla

INTRODUCTION: Cervical spinal cord injury (CSCI) is devastating and costly. Previous research has demonstrated that diaphragm pacing (DPS) is safe and improves respiratory mechanics. This may decrease hospital stays, vent days, and costs. We hypothesized DPS implantation would facilitate liberation from ventilation and would impact hospital charges.

METHODS: We performed a retrospective review of acute CSCI patients between 1/2005-5/2017. Routine demographics were collected. Patients underwent propensity matching based on age, ISS, ventilator days, hospital length of stay and need for tracheostomy. We then adjusted total hospital charges by year using US Bureau of Labor Statistics annual adjusted Medical Care Prices. Bivariate and multivariate linear regression statistics were performed using STATA v15.

RESULTS: Between 7/2011-5/2017 all acute CSCI patients were evaluated for DPS implantation. 40 patients who had laparoscopic DPS implantation (DPS) were matched to 61 who did not (NO DPS). Following DPS implantation there was a statistically significant increase in spontaneous Vt compared to NO DPS (+88mL vs. -13 mL; 95% CI 46 – 131 vs. -78 – 51 mL respectively; p=0.004). Median time to liberation after DPS was significantly shorter (10 vs. 29 days; 95% CI 6.5-13.6 vs 23.1-35.3 days; p<0.001). Adjusted hospital charges were significantly lower for DPS on multivariate linear regression models controlling for year of injury, sex, race, injury severity, and age (p=0.003).

CONCLUSIONS: DPS implantation in acute CSCI patients produces significant improvements in spontaneous Vt and reduces time to liberation, which translated into reduced hospital charges on a risk-adjusted, inflation-adjusted model. DPS implantation for acute CSCI patients should be considered.

Table 1. Outcomes based on propensity matched sample (6:1 matching control:transfers).

	Transfers from Level 1 (n=93)	Controls (n=558)	P-VALUE
LOS (days), median (IQR)	6.5 (3.2 – 13.9)	4.6 (1.8 – 9.5)	0.001
Mortality	11 (12.1%)	54 (9.7%)	0.492
Costs $, median (IQR)	36,027 (21,899 – 78,430)	30,654 (19,149 -53,077)	0.033

NOTES

Presentation #17
Tuesday, 2/25/2020, 8:20 am - 8:40 am

ARE ALL TRAUMA CENTERS CREATED EQUAL? LEVEL-1 TO LEVEL-1 TRAUMA CENTER PATIENT TRANSFERS IN THE SETTING OF RAPID TRAUMA CENTER PROLIFERATION

M JONES, J JACOBS, D VILLA, A SCHLINKERT, J BOGERT, H SOE-LIN, K CHAPPLE, J WEINBERG
St. Joseph's Hospital and Medical Center, Phoenix, Arizona

Presenter: Michael Jones
Senior Sponsor: Jordan Weinberg

INTRODUCTION: Level-1 trauma centers should provide definitive care for every aspect of injury. However, in environments that have experienced trauma center proliferation, not all level-1's may have the resources or expertise needed for every patient, necessitating transfer to another trauma center. The purpose of this study was to assess the incidence of such transfers and associated impact on patient outcome and burden on the receiving level-1 center.

METHODS: In a metropolitan area experiencing trauma center proliferation, we performed a five-year review of patient transfers to an established ACS level-1 (index center) from other state designated level-1's. ACS verification was determined for each facility. Comparisons were performed between the cohort of transferred patients and patients with similar demographics, injury patterns and severity managed at the index center using propensity score matching.

RESULTS: 104 patients were received from other state level-1's (39% ACS level-2, 61% ACS level-1). Most common reason for transfer was neurosurgical (71%). Comparison of the transfer cohort propensity score matched to the control cohort (93 vs. 558 patients) demonstrated increased length of stay and cost associated with the transfer cohort, with similar mortality (Table 1).

CONCLUSIONS: The number of level-1 to level-1 transfers observed imply a disparity in resources among level-1 trauma centers in the region. The majority of transfers were for neurosurgical care, suggestive of a deficit of adequate neurosurgical coverage in the setting of trauma center proliferation. Both patients and established trauma centers bear the burden for these transfers with respect to increased cost and length of stay.

Regression Results using GEE for State Data				
Outcome (log Rate)	**Estimate**	**Std Error**	**Wald**	**p**
UCR Violent Crime	0.01447	0.01121	1.67	0.197
UCR Murder	0.00914	0.03734	0.06	0.807
UCR Robbery	0.018	0.01502	1.44	0.230
UCR Rape	0.00964	0.01808	0.28	0.594
UCR Aggravated Assault	0.01935	0.01397	1.92	0.166
UCR Property Crime	0.00471	0.00888	0.28	0.600
UCR Vehicle Theft	**-0.05699**	**0.0192**	**8.81**	**0.003***
CDC Homicide	0.01648	0.03616	0.21	0.650
CDC Firearm Homicide	-0.03259	0.03403	0.92	0.340

NOTES

Presentation #18
Tuesday, 2/25/2020, 8:40 am - 9:00 am

INCREASED LEGAL FIREARM SALES ARE NOT ASSOCIATED WITH CHANGES IN VIOLENT CRIME OR HOMICIDE RATES.

M HAMILL, M HERNANDEZ, K BAILEY, C CUTHERELL, M ZIELINSKI, D JENKINS, D NAYLOR, B COLLIER, H SCHILLER
Virginia Tech Carilion School of Medicine, Roanoke, Virginia

Presenter: Mark Hamill
Senior Sponsor: Henry Schiller

INTRODUCTION: The effects of firearm sales and legislation on crime and violence are intensely debated. Multiple studies have yielded differing results. We studied the effect of lawful firearm sales on crime and murder throughout the US and hypothesized that changes in lawful firearm sales would have no effect on violent crime and homicide.

METHODS: National and state rates of crime and homicide were collected 1999 – 2015 from the US DOJ and CDC and merged with National Instant Criminal Background Check data as a surrogate marker for lawful firearm sales. A general multiple linear regression model using log event rates was initially used. Additional modeling was performed using an autoregressive correlation structure with generalized estimating equation (GEE) estimates for standard errors to adjust for the interdependence of firearm sales year to year within particular states.

RESULTS: Initial analysis revealed a decrease in all crimes except CDC Firearm Homicides as firearm sales increased. Using the naïve multiple regression approach, increases in firearm sales were associated with significant decreases in murder, robbery, overall property crime, burglary and vehicle theft. Repeat analysis using the more robust GEE modeling method demonstrated no significant changes in any crime variable except vehicle theft.

CONCLUSIONS: A robust statistical method demonstrates no association exists between increased lawful firearm sales and changes in violent crime. It is unclear if limiting lawful firearm sales will have any effect on crime, homicide or intentional firearm injuries. Statistical analysis of the effects of firearms must be performed in a robust manner to avoid inappropriate correlations and conclusions.

NOTES

Presentation #19
Tuesday, 2/25/2020, 4:00 pm - 4:40 pm

PRO/CON DEBATE: Organ Donation After Circulatory Death in Trauma - and Idea Whose Time Has Come

Charles Cook, MD and S. Rob Todd

NOTES

Presentation #20
Tuesday, 2/25/2020, 4:40 pm - 5:00 pm

A TRIBUTE TO PAST WTA MEMBERS (PART 1)

David V. Feliciano, MD

Past Presidents
Arthur M. McGuire, 1974-1975
Glen D. Nelson, 1977-1978
Erick R. Ratzer, 1981-1982
William R. Olsen, 1982-1983
Earl G. Young, 1983-1984

Non-President Members
Gerald S. Gussack (died 1997)
W. Bishop McGill (died 2007)
Ronald P. Fischer (died 2013)

NOTES

Presentation #21
Tuesday, 2/25/2020, 5:00 pm - 6:00 pm

PRESIDENTIAL ADDRESS

A Speck of Sand
David V. Shatz, MD, FACS
Sacramento, California

NOTES

Presentation #22
Wednesday, 2/26/2020, 7:00 am - 7:20 am

TRANEXAMIC ACID IS ASSOCIATED WITH MULTIPLE ORGAN FAILURE IN FIBRINOLYSIS SHUTDOWN FOLLOWING SEVERE TRAUMA

J RICHARDS, B FEDELES, J CHOW, J MORRISON, C RENNER, A TRINH, C SCHLEE, A KOERNER, T GRISSOM, R BETZOLD, T SCALEA, R KOZAR
R Adams Cowley Shock Trauma Center, Baltimore, Maryland

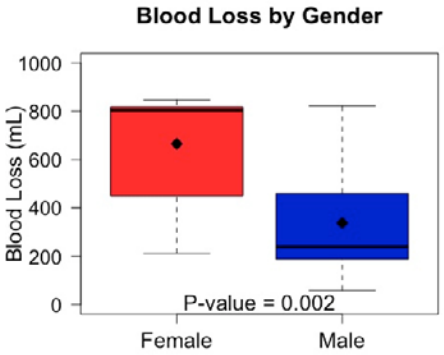
Presenter: Justin Richards

INTRODUCTION: Tranexamic acid is advocated based on data that fibrinolysis phenotypes may be associated with increased mortality and organ dysfunction.

METHODS: We examined the association of TXA use on mortality and multiple organ failure (MOF) in various fibrinolysis phenotypes. Two-year, single center, retrospective investigation. Inclusion criteria: scene admissions with age>17 years, Injury Severity Score (ISS) >16 who had thromboelastography within 30-minutes of arrival. Fibrinolysis phenotypes were defined as: Shutdown: LY30 2.9%.

RESULTS: Primary outcomes were mortality and multiple organ failure (MOF), defined by the Denver Organ Failure score. Significance was p-value 0.05) or time to TXA administration (p>0.05) between the groups. Mortality was the same in patients who received TXA compared to those who did not (Shutdown: 12.5% vs 13.2%, p=0.93; Physiologic: 0% vs 13.6%; p=0.34; Hyperfibrinolysis: 7.7% vs 16.1%; p=0.27). There was no difference in MOF in patients who received TXA in the Physiologic (16.7% vs 8.0%; p=0.46) or Hyperfibrinolysis (3.9% vs 6.5%, p=0.61) groups. However, there was a significant increase in MOF in Shutdown patients who received TXA (5% vs 3.1%; p=0.003).

CONCLUSIONS: TXA administration in fibrinolysis shutdown is associated with increased rates of MOF and should be avoided.


Blood Loss by Gender
Blood Loss (mL)
1000
800
600
400
200
0
P-value = 0.002
Female
Male

NOTES

Presentation #23
Wednesday, 2/26/2020, 7:20 am - 7:40 am

THE WINDLASS TOURNIQUET: IS IT TAKING THE WIND OUT OF THE "STOP THE BLEED" SAILS?

V SCHLANSER, L TATEBE, S PEKAREK, E LIESEN, K IVKOVIC, A IMPENS, A KHALIFA, F BAJANI, M KAMINSKY, T MESSER, F STARR, F BOKHARI, A DENNIS
Cook County Trauma, Chicago, Illinois

Presenter: Victoria Schlanser
Senior Sponsor: Andrew Dennis

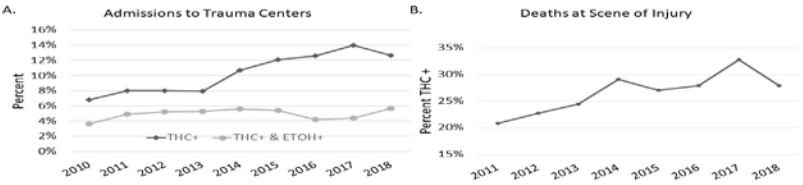
INTRODUCTION: Civilians need a simple hemorrhage control device. Our previous work demonstrated that untrained users were only 61.8% successful applying windlass tourniquets using only the enclosed instructions. This prospective follow-up study replicated testing after Stop the Bleed® (STB) training.

METHODS: One month following STB training, first-year medical students were given commercially-available windlass tourniquets with instructions. Each was given one minute to read and then apply the tourniquet using the TraumaFX® HEMO trainer measuring blood loss and "survival". Demographics, time to stop bleeding, blood loss, and simulation survival were analyzed.

RESULTS: Over 100 students received STB training. Currently, 31 have completed testing (51.6% female). 61.2% of participants stopped the bleeding. Only 31.2% of women successfully controlled hemorrhage, compared to 93.3% of men (p=0.001). Women required longer to successfully apply the tourniquet (p=0.004) and lost more blood (Figure, p=0.002). No difference was seen between those with additional prior hemorrhage-control training and those for whom STB was their only training (p=0.66). Further, no survival difference was seen between those with no experience in the first study (61.8%), and those in this study for whom STB was their only training (61.5%, p=0.85)

CONCLUSIONS: Participants experienced complete skills decay for tourniquet application one month following STB training. Untrained users, reading enclosed instructions produced the same hemorrhage control rates as STB training and instructions review. Significant gender differences, favoring males, in the successful use of the windlass tourniquet were re-demonstrated. The windlass device remains a poor choice for the untrained civilian population. A more intuitive device is desperately needed.

Figure 1: Annual THC+ Toxicology in Vehicular Crashes



NOTES

Presentation #24
Wednesday, 2/26/2020, 7:40 am - 8:00 am

DRIVING UNDER THE INFLUENCE: A MULTI-CENTER EVALUATION OF VEHICULAR CRASHES IN THE ERA OF CANNABIS LEGALIZATION

J BORST, T COSTANTINI, A SMITH, R STABLEY, J STEELE, V BANSAL, W BIFFL, L GODAT
UC San Diego School of Medicine, San Diego, California

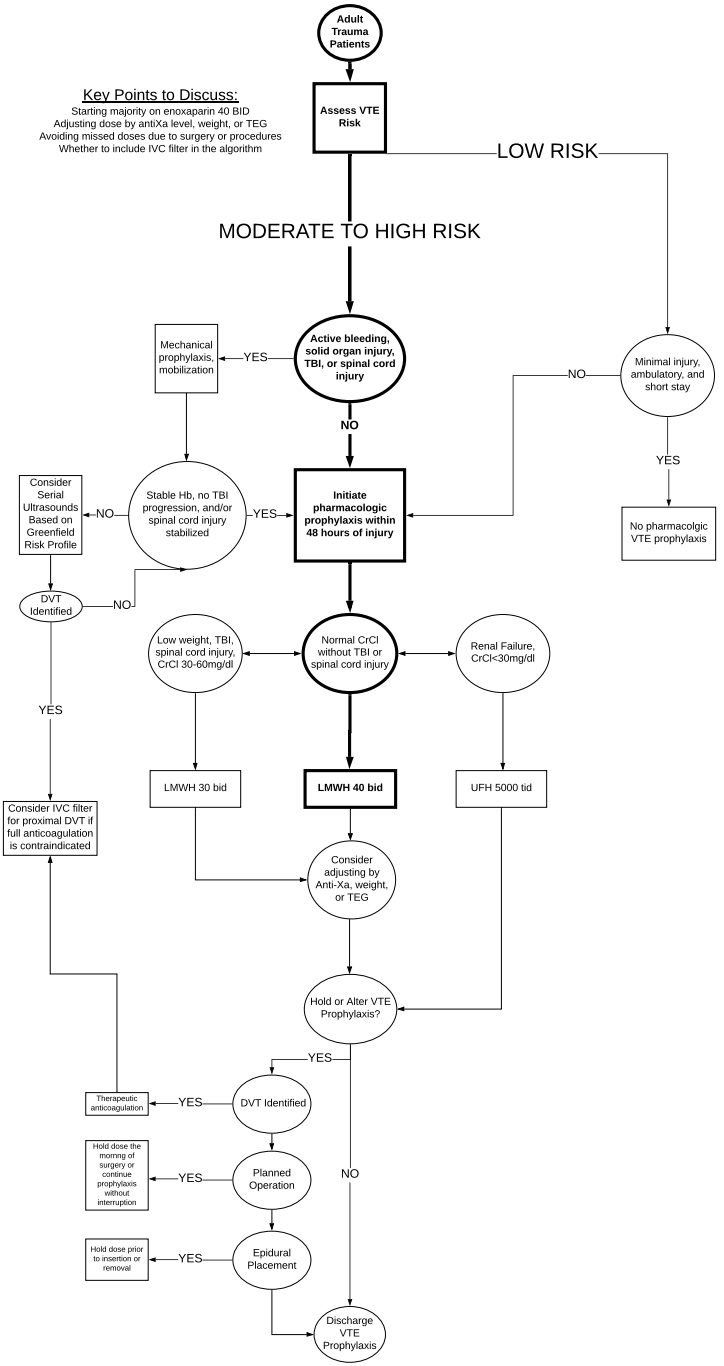
Presenter: Johanna Borst
Senior Sponsor: Walter Biffl

INTRODUCTION: Eleven states have instituted laws allowing recreational cannabis use leading to growing public health concerns surrounding the effects of cannabis intoxication on driving safety. We hypothesized that after the 2016 legalization, the use of cannabis among vehicular injury patients would increase and be associated with an increase in severity of injury.

METHODS: Four trauma center registries in a state with legalized recreational cannabis were queried from January 2010 - June 2018 for motor vehicle or motorcycle crash patients with toxicology screens. Patients were stratified as positive for only THC (THC+), only blood alcohol > 0.08% (ETOH+), THC+ETOH, or any combination with methamphetamine or cocaine (M/C). County medical examiner data was reviewed to characterize THC use in deaths at the scene.

RESULTS: Of the 8018 patients identified, there were 60.3% sober, 10.4% THC+, 14.8% ETOH+, 4.9% THC+ETOH, and 9.7% M/C. THC+ increased from 7% to 13% (Figure 1A) over the study period and peaked post-legalization in 2016. Compared to sober patients, THC+ patients were more likely to be male and younger. They were also less likely to wear seatbelts (9% vs. 15%, $p<0.001$) and had increased mean ISS (9.0 ± 10.1 vs. 8.3 ± 9.4, $p<0.05$). There was no difference in in-hospital mortality. Of the 777 deaths at the scene during the study period, 27% were THC+ (Figure 1B).

CONCLUSIONS: THC+ toxicology screens in vehicular injury patients peaked after the 2016 legalization of cannabis. Public education on the risks of driving under the influence of cannabis should be a component of injury prevention initiatives.


Adult Trauma Patients
Key Points to Discuss:
Starting majority on enoxaparin 40 BID
Adjusting dose by antiXa level, weight, or TEG
Avoiding missed doses due to surgery or procedures
Whether to include IVC filter in the algorithm
Assess VTE Risk
LOW RISK
MODERATE TO HIGH RISK
Active bleeding, solid organ injury, TBI, or spinal cord injury
YES
Mechanical prophylaxis, mobilization
NO
Minimal injury, ambulatory, and short stay
YES
No pharmacolgic VTE prophylaxis
NO
Initiate pharmacologic prophylaxis within 48 hours of injury
YES
Stable Hb, no TBI progression, and/or spinal cord injury stabilized
NO
Consider Serial Ultrasounds Based on Greenfield Risk Profile
NO
DVT Identified
YES
Consider IVC filter for proximal DVT if full anticoagulation is contraindicated
Low weight, TBI, spinal cord injury, CrCl 30-60mg/dl
Normal CrCl without TBI or spinal cord injury
Renal Failure, CrCl<30mg/dl
LMWH 30 bid
LMWH 40 bid
UFH 5000 tid
Consider adjusting by Anti-Xa, weight, or TEG
Hold or Alter VTE Prophylaxis?
YES
DVT Identified
YES
Therapeutic anticoagulation
Planned Operation
YES
Hold dose the morning of surgery or continue prophylaxis without interruption
Epidural Placement
YES
Hold dose prior to insertion or removal
NO
Discharge VTE Prophylaxis

Presentation #25
Wednesday, 2/26/2020, 8:00 am - 8:20 am

ALGORITHM 1 - VTE Prophylaxis

Presenter: Eric Ley, Cedars-Sinai Medical Center

NOTES

Presentation #26
Wednesday, 2/26/2020, 8:20 am - 9:00 am

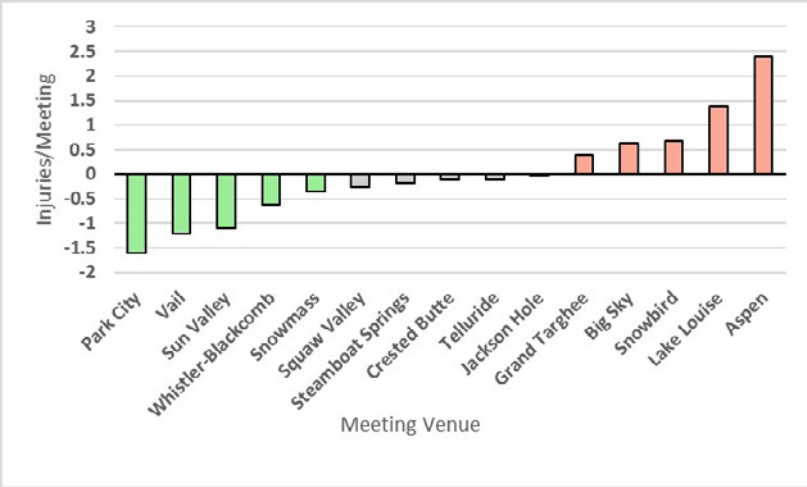
FOUNDERS BASIC SCIENCE LECTURE: STEM CELLS IN TRAUMA: THE DAWN OF A NEW ERA

Martin A. Schreiber, MD FACS FCCM, Oregon Health & Science University, Portland, Oregon

NOTES

Presentation #27
Wednesday, 2/26/2020, 4:00 pm - 4:45 pm

AUDIENCE PARTICIPATION


Injuries/Meeting
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Park City
Vail
Sun Valley
Whistler-Blackcomb
Snowmass
Squaw Valley
Steamboat Springs
Crested Butte
Telluride
Jackson Hole
Grand Targhee
Big Sky
Snowbird
Lake Louise
Aspen
Meeting Venue

NOTES

Presentation #28
Wednesday, 2/26/2020, 4:45 pm - 5:00 pm

FIFTY YEARS OF 'WESTERN TRAUMA ASSOCIATION FAMILY' INJURIES

M WEST, H SHERMAN, B CURRAN, M METZDORFF
North Memorial Health, Minneapolis, Minnesota

Presenter: Michaela A West

INTRODUCTION: The Western Trauma Association (WTA) "family" is welcoming, enthusiastic, innovative, and adventurous. Meeting participants work hard and play hard. For the WTA 50th Anniversary we sought detailed information on meeting-associated injuries.

METHODS: A RedCap survey was emailed to 313 active, senior, initiate, and retired WTA members requesting detailed demographic and injury information (including: who sustained injury, relationship to member, injury venue, skiing/boarding/other, terrain, weather conditions, helmet use, how diagnosed, interventions, impact on practice or future snowsports). Non-duplicate records from a 1995 WTA survey (N=18) were included.

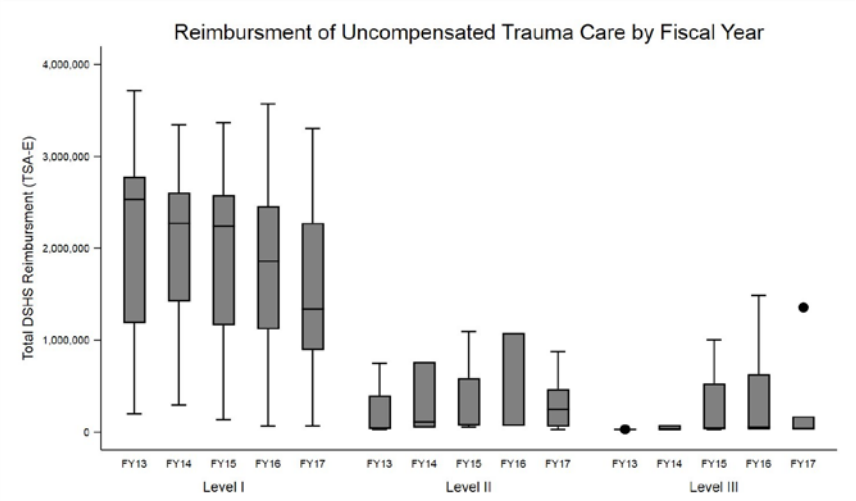
RESULTS: 218 emails were opened (69.5%) with 128 responses (58.7%!) identifying 76 injuries. Most injuries occurred in members (61.8%) or family (23.7%), rarely friends (6.6%) or fellows (1.3%). Skiing resulted in 60 injuries, snowboarding 6, and other 7. Male:female ratio was 3:1, with a mean age of 42.9. Black terrain was implicated in 42%, Blue 27%, Green 10%, with 10% off mountain and other. Among those injured helmet use was rare prior to 1995, 25% 1995-2009, but 75% 2010-2018. Knee injuries were most frequent (35%), followed by shoulder (11%), leg (11%), hand (7%), and arm (5%). Injury type: 34% sprain, 27% fracture, 11% contusion, 5% dislocation, 22% other. Injuries impacted clinical practice in 37.5% and 23.7% report taking fewer risks while skiing. The figure shows venue specific deviations from mean of 1.60±0.14 injuries/meeting.

CONCLUSIONS: Attendance at WTA meetings carries a risk of injury. Despite that risk, WTA members and families will continue to enjoy the combination of science, collegiality, family, and winter sports for years to come.

NOTES

Meeting
Wednesday, 2/26/2020, 5:00 pm - 6:00 pm

WTA BUSINESS MEETING (MEMBERS ONLY)


Reimbursment of Uncompensated Trauma Care by Fiscal Year
Total DSHS Reimbursment (TSA-E)
4,000,000
3,000,000
2,000,000
1,000,000
0
FY13
FY14
FY15
FY16
FY17
Level I
Level II
Level III

NOTES

Presentation #29
Thursday, 2/27/2020, 7:00 am - 7:20 am

TRAUMA CENTER FUNDING: STOP THE BLEED

HM GROSSMAN VERNER, BA FIGUEROA, M SALGADO-CRESPO, M LORENZO, JD AMOS
Associates in Surgical Acute Care, Dallas, Texas

Presenter: Joseph D. Amos
Senior Sponsor: Manuel Lorenzo

INTRODUCTION: Uncompensated care (UCC) is care provided with no payment from the patient or an insurance provider. UCC directly contributes to escalating healthcare costs in the United States affecting patient care and hospital viability. Distribution of trauma centers and designation of trauma service areas (TSA) is a particular challenge in Texas due to patient dispersion and access to care.

METHODS: Five years of total annual trauma UCC disbursement reports from the Texas Department of State Health Services (DSHS) along with data provided by the North Central Texas Trauma Regional Advisory Council were used to determine changes in UCC economic considerations for Level I, II, and III centers for the largest urban TSA, TSA-E. Statistical significance was determined using Kruskal-Wallis testing with Dunn's pairwise comparison post-hoc analysis.

RESULTS: TSA-E has 33% of the Level I trauma centers in Texas (n=6) and yet serves only 27% of the total state population across 14 metropolitan and five non-metropolitan counties. Since 2015, TSA-E has shown higher UCC costs ($p<0.02$) and lower reimbursement ($p<0.01$) than the second largest urban hub. TSA-E Level I centers experienced a notable sustained decrease in DSHS reimbursements and DCC costs since 2016.

CONCLUSIONS: The unregulated expansion of trauma centers in Texas has led to an unprecedented increase in hospitals participating in trauma care. Continued decreases in trauma center-specific funds could lead to further economic instability, compromise resource allocation, and negatively impact patient care in an already fragile healthcare environment.

	Home discharge	Other discharge	p-value	Correlation with LOS (p-value)
Grip strength (lbs)	45.7	34.7	0.028	-0.19 (0.121)
FVC -day 1 (L)	1.69	1.28	0.029	-0.23 (0.056)
FEV1 – day 1 (L)	1.25	0.88	0.001	-0.25 (0.034)
NIF – day 1 (cm H2O)	35.4	30.5	0.215	0.12 (0.319)
Pain (VAS) – day 1	4.31	3.69	0.310	0.28 (0.019)
FVC -day 3 (L)	1.54	1.19	0.036	-0.16 (0.246)
FEV1 – day 3 (L)	1.13	0.92	0.098	-0.13 (0.366)
NIF – day 3 (cm H2O)	40.1	30.0	0.020	-0.07 (0.620)
Pain (VAS) – day 3	3.45	3.00	0.534	0.24 (0.083)

NOTES

Presentation #30
Thursday, 2/27/2020, 7:20 am - 7:40 am

SPIROMETRY NOT PAIN LEVEL PREDICTS OUTCOMES IN ELDERLY PATIENTS WITH ISOLATED RIB FRACTURES

K SCHUSTER, R O'CONNOR, M SANGHVI, A MAUNG, R BECHER, K DAVIS
Yale School of Medicine, New Haven, Connecticut

Presenter: Kevin Schuster

INTRODUCTION: Elderly patients with rib fractures are at risk for developing complications and are often admitted to a higher level of care (intensive care units). Being able to predict outcomes in these patients has the potential to selectively focus resources on those at higher risk while avoiding overtreatment of low risk patients. Incentive spirometry, although frequently utilized, may not adequately quantify pulmonary capacity and the need for intensive treatment.

METHODS: We prospectively enrolled 70 patients over the age of 65 with isolated rib fractures presenting immediately after injury. After informed consent patients were assessed with respect to: pain (visual-analog scale), grip strength (lbs), forced vital capacity (FVC), forced expiratory volume 1 second (FEV1), and negative inspiratory force (NIF) on hospital days 1, 2, and 3. Outcomes included discharge disposition, length of stay (LOS), new pneumonia, intubation, and unplanned ICU admission.

RESULTS: Mean age was 77.9 (±10.2) and 33 (47.1%) were female. Thirty-five patients were discharged home, median LOS was 4 days (IQR 3, 7). Pneumonias (2), unplanned ICU admissions (3) and intubation (1) were infrequent. Most spirometry measures predicted discharge home and FEV1 and pain level on day 1 moderately correlated with LOS (table). Within each subject FVC, FEV1 and NIF did not change over 3 days despite pain decreasing from day 1 to 3 ($p=0.009$). Change in pain did not predict outcomes.

CONCLUSIONS: Spirometry measurements early in the hospital stay predict ultimate discharge home and this may allow immediate or early discharge. Intensive treatment improved pain but did not translate to improved pulmonary function.

Top 5 Themes/Gaps in Post-Trauma Center Care Identified from Focus Groups	1. Abandonment by Trauma Center 2. Mental Health/Addiction 3. Pain 4. Physical Limitations 5. General Support for Daily Living (Transportation, Financial, etc.)
Patient population	83% male, Mean age 39 years Mean ICU LOS 16 days Mean Hospital LOS 28 days Mean NISS 31
Mental Health Screen	(+) PTSD 32% (+) Depression 32% (+) Both 23%
ED Visit (not admitted; n=41)	Unrelated new Condition 17 Post-trauma/operative infection 13 Related not infection 6 Medication related 5
Unplanned Admissions (n=32)	Post-trauma/operative infection 17 Related not infection 10 Unrelated new Condition 5

NOTES

Presentation #31
Thursday, 2/27/2020, 7:40 am - 8:00 am

THE CENTER FOR TRAUMA SURVIVORSHIP: ADDRESSING THE GREAT UNMET NEED FOR POST-TRAUMA CENTER CARE

D LIVINGSTON, S LA BAGNARA, D SIECK, P YONCLAS, C CHO, P WALLING, C CASTELLANO, A MOSENTHAL
RUTGERS-NEW JERSEY MEDICAL SCHOOL, NEWARK, New Jersey

Presenter: David Livingston

INTRODUCTION: Returning patients to pre-injury status is the goal of a trauma system. Trauma Centers (TC) provide inpatient care, but post-discharge treatment is fragmented with follow up rates 2 days or have a NISS ≥16. CTS visits included physical and behavioral health care by a physiatrist, nurse practitioner, social worker and navigator.

METHODS: Patients were screened for PTSD and depression. Patients screening (+) were referred for behavioral health services. Patients were provided 24/7 access to the CTS team. Outcomes include: compliance with appointments, mental health visits, unplanned ED visits and readmissions.

RESULTS: Patients universally felt abandoned by the TC after discharge. Between 8/2018 to 8/2019, 108 patients had 386 CTS visits. Outcome data are presented in the TABLE. Average time for each appointment was >1 hour. CTS "no show" rate was 17%. 86% screening (+) for PTSD/depression successfully received behavioral health services. Post-discharge ED and hospital admissions are most often for infections or unrelated conditions.

CONCLUSIONS: A CTS fills the gaps in care following TC discharge leading to improved compliance with appointments and delivery of physical and behavioral health services. To achieve optimal long-term outcomes, care must continue after our patients leave the TC.

Table 1: The training requirements for vascular surgery (VS) and interventional radiology (IR), compared to 6 months average case volume with a dedicated endovascular trauma service (ETS).

Procedure	VS	IR	6 months of ETS
Vascular Access	-	100	106
Angiography	100	200	182
Therapeutic	80	50	145
Stent Deployment	20	25	14

NOTES

Presentation #32
Thursday, 2/27/2020, 8:00 am - 8:20 am

CERTIFICATION IN ENDOVASCULAR HEMOSTASIS FOR TRAUMA SURGEONS: POSSIBLE AND PRACTICAL?

J HERROLD, S ADNAN, A ROMAGNOLI, M MADURSKA, R BETZOLD, J DUBOSE, T SCALEA, J MORRISON
R Adams Cowley Shock Trauma Center, Baltimore, Maryland

Presenter: Joseph Herrold
Senior Sponsor: Thomas Scalea

INTRODUCTION: Endovascular hemostasis is commonplace with many practitioners providing services. Accruing sufficient experience during training could allow acute care surgeons (ACS) to expand their practice. We quantified case load and training opportunities at our center, where dedicated dual-trained ACS/vascular surgery faculty perform these cases. Our aim was to assess whether ACS fellows could obtain sufficient experience in 6 months of their fellowship in order to certify in these techniques, per the requirements of other specialties (eg: vascular surgery and interventional radiology).

METHODS: We performed a retrospective review of 4 years (2015-2018) of endovascular activity at an academic, level I trauma center quantifying arterial access, angiography, embolization, stent placement, and IVC filter procedures. This was compared to the certification requirements for vascular surgery and interventional radiology (Table 1).

RESULTS: Between 2015 and 2018, 881 patients with a mean +/- SD ISS of 21+/-13, underwent 3,587 procedures. Annual rates per procedure, expressed as (mean +/- SD), were arterial access (214+/-39), angiography (365+/-42), embolization (269+/-28), stent (28+/-5), and IVC filter procedures (21+/-7). The case volume over 6 months exceeded or was within 90% of the requirements quoted for vascular surgery and interventional radiology, with the exception of stent-graft deployment (Table 1).

CONCLUSIONS: The case volume at a large trauma center with a dedicated endovascular trauma service is sufficient to satisfy the case requirements for endovascular certification. Our trainees are already acquiring this experience informally. It is now time to establish an endovascular trauma curriculum that provides certification in endovascular hemostasis within ACS fellowship training.

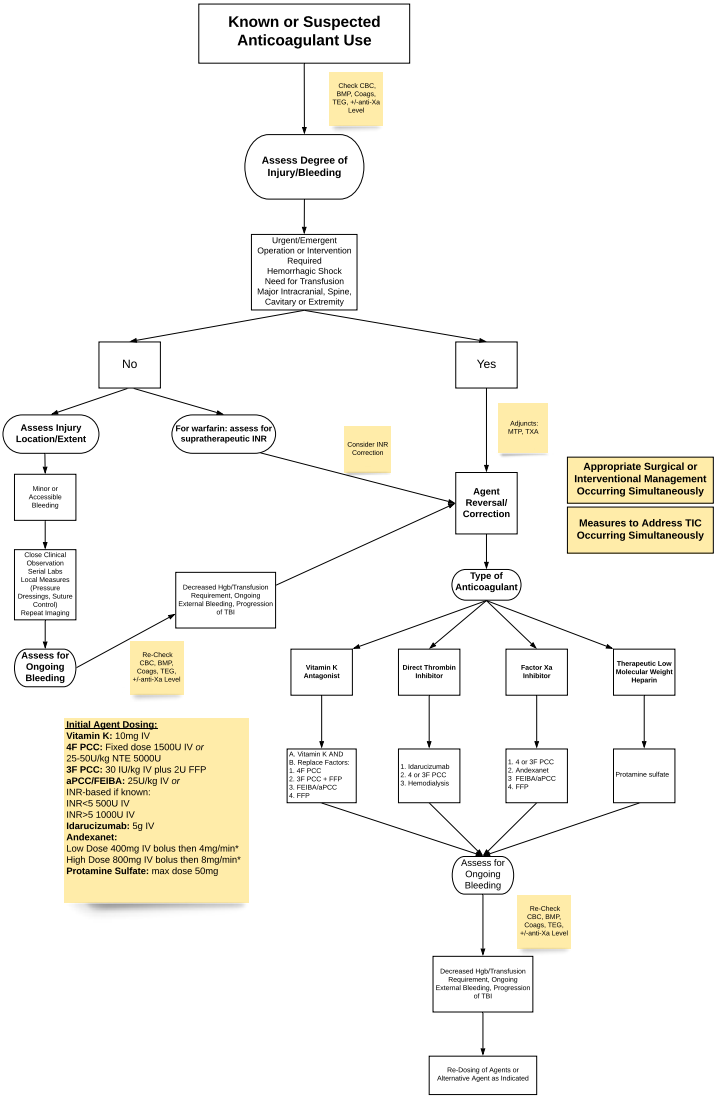
NOTES

Presentation #33
Thursday, 2/27/2020, 8:20 am - 8:40 am

ALGORITHM 2 - ANTICOAGULATION MANAGEMENT AND REVERSAL

Presenter: Kimberly Peck, Scripps Mercy Hospital

Early Anticoagulant
Reversal After Trauma

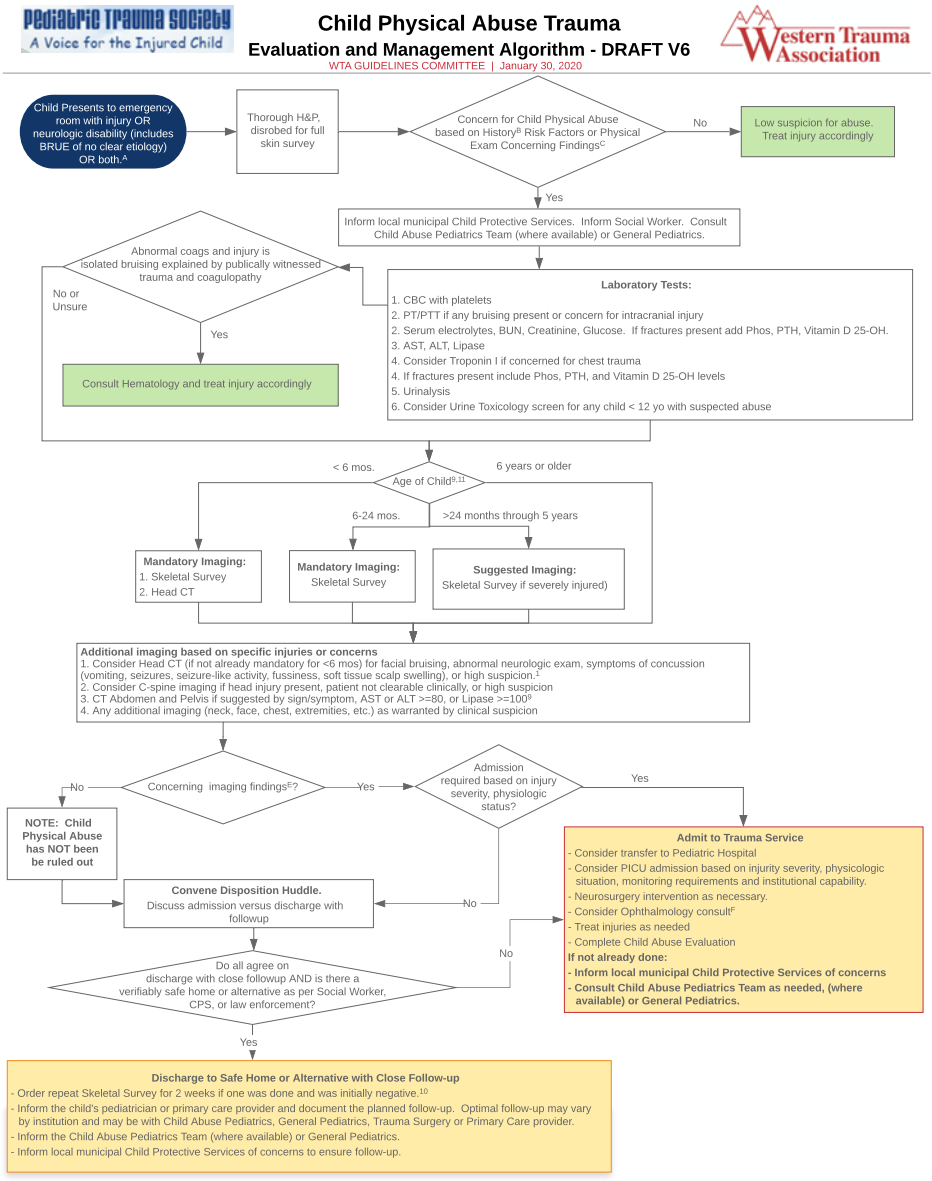


NOTES

Presentation #34
Thursday, 2/27/2020, 8:40 am - 9:00 am

ALGORITHM 3 - Child Physical Abuse

Presenter: Nelson Rosen, Cincinnati Children's Hospital



NOTES

Presentation #35
Thursday, 2/27/2020, 4:00 pm - 4:40 pm

PRO/CON DEBATE: Finger Thoracostomy is Safe in the Hands of EMS and ED Doctors

Matthew Martin, MD and Kevin Schuster, MD

NOTES

Presentation #36
Thursday, 2/27/2020, 4:40 pm - 5:00 pm

A TRIBUTE TO PAST WTA MEMBERS: PART 2

Gregory J. Jurkovich, MD

Past Presidents
Robert B. Rutherford, 1984-1985
Stephen W. Carveth, 1989-1990
Peter A. Mucha, 1991-1992
R. Christie Wray, 1993-1994
M. Gage Ochsner, 2010-2011

Non-President Members
George Cierny (died 2013)
Doreen DiPasquale (died 2014)
Barbara Latenser (died 2015)
Matthew L. Davis (died 2015)

NOTES

Presentation #37
Thursday, 2/27/2020, 5:00 pm - 6:00 pm

PAINT THE CEILING LECTURE: LUCCA: THE STORY OF A MARINE K-9 HERO

Master Sergeant Chris Willingham, USMC, Retired

Table 1. Inverse Probability of Treatment Weighted Estimates of the Risk Associated with NSI for each Outcomes among TBI Patients, Stratified by Age n=2,988

Outcome	Probability (95% Confidence Interval	P-value
Death at Discharge	**Risk Difference**	
40-59 years	-0.03 (-0.07,0.01)	0.141
60-80 years	0.04 (0.06,0.14)	0.429
>81 years	0.53 (0.18,0.88)	0.003
Discharge to admission location	**Risk Difference**	
40-59 years	0.06 (-0.15,0.27)	0.570
60-80 years	-0.23 (-0.48,0.01)	0.063
>81 years	-0.36 (-0.49,-0.22)	<0.001
Good functional outcomes at discharge	**Risk Difference**	
40-59 years	0.12 (0.00,0.24)	0.049
60-80 years	-0.15 (-0.38,0.07)	0.188
>81 years	-0.44 (-0.69,-0.31)	<0.001
Palliative Interventions	**Risk Difference**	
40-59 years	-0.04 (-0.08,-0.00)	0.031
60-80 years	0.05 (-0.06,0.16)	0.385
>81 years	0.49 (0.21,0.77)	0.001

NOTES

Presentation #38
Friday, 2/28/2020, 7:00 am - 7:20 am

NEUROSURGICAL INTERVENTION (NSI) IN GERIATRIC PATIENTS WITH TRAUMATIC BRAIN INJURY (TBI): RESULTS FROM THE AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA (AAST) GERI-TBI STUDY

M GHNEIM, J ALBRECHT, K BRASEL, J WATRAS, J HAAN, R WINFIELD, S ADAMS, S ARMEN, F NASRALLAH, J DUNN, T SCHROEPPEL, Z COOPER, C ADAMS, J MURRY, A WILLIAMS, M LISSAUER, K NAJAFI, N MARTIN, C BERRY, J ROBERTS, M TRUITT, H HASHIMI, J CLARI
R Adams Cowley Shock Trauma Center, Baltimore, Maryland

Presenter: Mira Ghneim
Senior Sponsor: Deborah Stein

INTRODUCTION: While TBI is the leading cause of morbidity and mortality in geriatric trauma patients, the efficacy of NSI in this population remains controversial. Our objective was to evaluate the association between NSI and in-hospital mortality among geriatric TBI patients.

METHODS: This was a retrospective analysis of the AAST MITC Geri-TBI study. Individuals aged ≥40 years with computed tomography verified TBI, who presented within 24-hours of injury, and underwent neurosurgical interventions were included. We excluded patients with any other body region abbreviated injury scale score (AIS) >2, head AIS=6, or death within 48-hours. To minimize confounding by injury severity, we created inverse probability of treatment weights to balance covariates between exposure groups and stratified models by age (40-59, 60-81, >81 years).

RESULTS: Of 2,988 included patients, 300 (10%) underwent NSI. Compared to patients without NSI, these patients were often younger, with a head AIS>3, GCS 81 years) was associated with increased mortality (RD 0.53, 95% CI(0.18, 0.88), p=0.003), receipt of palliative interventions (RD 0.49, 95%CI (0.21, 0.77), p=0.001), and decreased likelihood of good functional outcomes at discharge (RD-0.49, 95%CI (-0.69, -0.31), p <0.001) or discharge to preinjury residence (RD -0.36, 95%CI (-0.49, -0.22), p<0.001).(Table1)

CONCLUSIONS: Outcomes among the oldest TBI patients who receive NSI are poor. This stresses the need to reassess indications for operative interventions, and the importance of early establishment of goals of care in this vulnerable population.

NOTES

Presentation #39
Friday, 2/28/2020, 7:20 am - 7:40 am

BLUNT CEREBROVASCULAR INJURY - IS THERE A ROLE FOR UNIVERSAL SCREENING?

S LEICHTLE, D. BANERJEE, B. TORRES, B. BROERING, M ABOUTANOS
Virginia Commonwealth University, Richmond, Virginia

Presenter: Stefan Leichtle
Senior Sponsor: Michael Aboutanos

INTRODUCTION: Blunt cerebrovascular injury (BCVI) is a rare but potentially devastating consequence of trauma.

METHODS: As established screening criteria have limited sensitivity, we implemented universal screening with CT angiography (CTA) of the neck for all major trauma activations at our level 1 trauma center. We hypothesized that a clinically relevant number of patients would have BCVI not identified by our existing or other published screening criteria. All adult blunt trauma activations underwent full-body CT scan incl. CTA neck with a 128-slice scanner. Those with BCVI were reviewed to assess if they would have fulfilled any screening criteria without a universal protocol. Descriptive statistics were performed and results expressed as N (%) or median (25th / 75th percentile).

RESULTS: Over 18 months, 3,437 patients fulfilled inclusion criteria. 85 (2.5%) had BCVI, 66 (77.7%) and 71 (83.5%) of which would have met TQIP and institutional criteria, respectively. Of 35 patients with BCVI grade >=3, 28 (80%) would have fulfilled TQIP or institutional criteria. All patients were severely injured with ISS 18 (12/28) and mortality rate of 15% (N=13). 43 patients (51%) received antiplatelets, 13 (15%) therapeutic heparin, while 14 (17%) had a clear contraindication to anticoagulation. A stroke occurred in 3 patients (4%), 4 (5%) had a bleeding complication from anticoagulation. BCVI is rare, but does occur in severely injured patients. 20% of patients with BCVI grade >=3 would have been undiagnosed without universal CTA screening.

CONCLUSIONS: Detection of a BCVI did not necessarily allow for treatment, and both antiplatelet agents and therapeutic heparin caused bleeding complications in some patients.

Table 1. Study Outcomes			
Outcome	**REBOA within 1- Hr (n=94)**	**No REBOA (n=188)**	**P-Value**
24-Hour Mortality, %	25%	16%	<0.01
In-Hospital Mortality, %	33%	23.4	<0.01
Lower Limb Amputation, %	3.8%	0%	0.02
pRBCs Transfusion 24-hours, units [IQR]	12 [6-20]	12 [7-23]	0.64
AKI, %	5.9%	4.2%	0.71
Time to Laparotomy, minutes [IQR]	97 [51-264]	58 [38-83]	<0.01
Time to Angioembolization, minutes [IQR]	273 [103-877]	199 [127-319]	<0.01

pRBCs: Packed Red Blood Cells, IQR: Interquartile Range, AKI: Acute Kidney Injury.

NOTES

Presentation #40
Friday, 2/28/2020, 7:40 am - 8:00 am

RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA (REBOA) IN HEMODYNAMICALLY UNSTABLE PATIENTS WITH PELVIC FRACTURES: WHEN IT'S ALL ABOUT TIME

B JOSEPH, L BIBLE, K HANNA, S ASMAR, L GRIES, M DITILLO, L CASTANON, A TANG, A NATHENS
University of Arizona, Tucson, Arizona

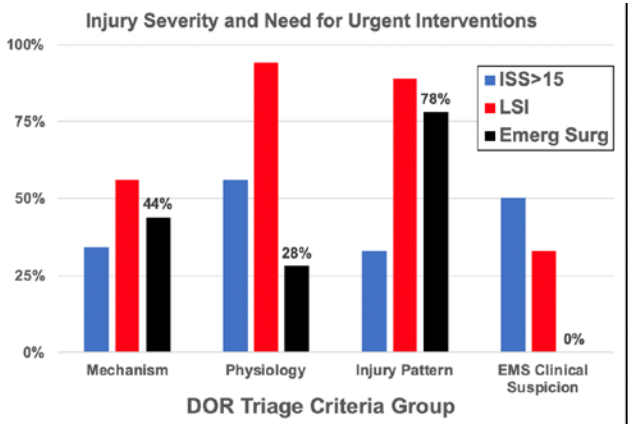
Presenter: Bellal Joseph

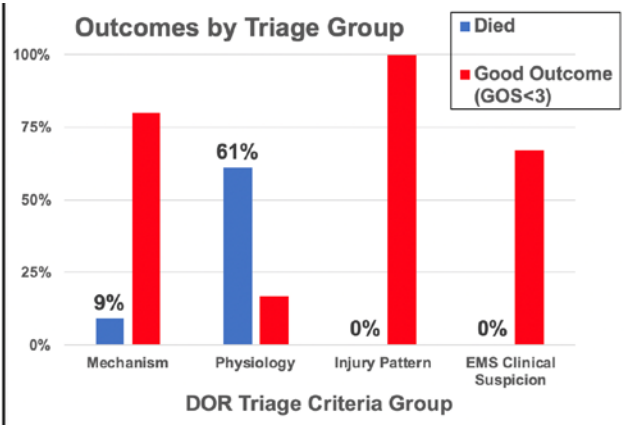
INTRODUCTION: REBOA is a temporizing means of hemorrhage in pelvic fractures. The risk-benefit ratio of REBOA is not well established. The aim of our study was to evaluate the impact of REBOA on outcomes in hemodynamically unstable patients with pelvic fractures.

METHODS: We conducted a one-year (2017) analysis of the Trauma Quality Improvement Program. We selected hemodynamically unstable (<90 mmHg) adults with isolated-pelvic fracture (other body regions AIS<2). Patients were stratified into REBOA within 1 hour of admission vs. no-REBOA. Propensity matching was performed (1:2) adjusting for demographics, vitals, injury-parameters, and center-parameters. Primary outcomes were 24-hour mortality, in-hospital mortality, and time to hemorrhage control. Secondary outcomes were complications and 24-hour PRBC transfusion.

RESULTS: A total of 843 patients were identified. A matched cohort of 282 was obtained of which 94 received REBOA. Mean age was 47±19y, ISS was 33[22-43], and pelvic-AIS was 3[2-4]. Angioembolization was performed in 32% of patients while 36% underwent an operative intervention. The REBOA group had a higher rate of 24-hour mortality, in-hospital mortality, and lower limb amputation. No difference was found in the number of PRBC units transfused between the two groups or the rate of acute kidney injury. REBOA was associated with a longer time to laparotomy and pelvic angioembolization. Table 1

CONCLUSIONS: The use of REBOA in unstable pelvic fracture patients may be associated with adverse outcomes and a delay in definitive hemorrhage control. Further studies are needed to ascertain whether this bridging intervention is worthy of valuable resuscitation time.


Injury Severity and Need for Urgent Interventions
100%
75%
50%
25%
0%
ISS>15
LSI
Emerg Surg
44%
28%
78%
0%
Mechanism
Physiology
Injury Pattern
EMS Clinical Suspicion
DOR Triage Criteria Group


Outcomes by Triage Group
Died
Good Outcome (GOS<3)
100%
75%
50%
25%
0%
9%
61%
0%
0%
Mechanism
Physiology
Injury Pattern
EMS Clinical Suspicion
DOR Triage Criteria Group

NOTES

Presentation #41
Friday, 2/28/2020, 8:00 am - 8:20 am

CHOOSING WISELY: A PROSPECTIVE STUDY OF DIRECT TO OR TRAUMA RESUSCITATION INCLUDING REAL-TIME TRAUMA SURGEON AFTER-ACTION REVIEW

A JOHNSON, A KUCHLER, E WILLIAMS, M ROTT, F COLE, A RAMZY, R BARBOSA, W LONG, M MARTIN, MD
Legacy Emanuel Medical Center, Portland, Oregon

Presenter: Amelia Johnson
Senior Sponsor: Matthew Martin

INTRODUCTION: Although several centers have "Direct to OR" (DOR) resuscitation programs, there are no published prospective studies on optimal patient selection, interventions, outcomes, or real-time surgeon assessments.

METHODS: DOR cases over 1 year were prospectively enrolled. Demographics, injury types/severity, triage criteria, interventions, and outcomes including Glasgow Outcome Score (GOS) were collected. Detailed time-to-event and sequence data on initial lifesaving interventions (LSI) or emergent surgeries (ES) were analyzed. A structured real-time attending surgeon assessment tool (SAT) for each case was collected. DOR activation criteria were grouped into categories: mechanism, physiology, injury pattern, or EMS suspicion.

RESULTS: There were 104 DOR cases; 84% male, 80% penetrating, and 40% severely injured (ISS>15). The majority (65%) required at least one LSI (median of 7 mins from arrival), and 41% underwent immediate emergent surgery (median 26 mins). Blunt patients were more severely injured, more likely to undergo LSI (86% vs 59%), but less likely to require ES (19% vs 47%, all $p<0.05$). Analysis of DOR criteria categories showed unique patterns in each group for interventions and outcomes (Figure), with EMS suspicion associated with the lowest need for DOR. SAT results found DOR was indicated in 84% and improved care in 63%, with a small subset identified (9%) where DOR had a negative impact.

CONCLUSIONS: DOR resuscitation facilitated rapid emergent interventions in penetrating truncal trauma and a select subset of critically ill blunt patients. Unique intervention/outcome profiles were identified by activation criteria groups, with little utility among activations for EMS suspicion. Real-time SAT identified high and low yield DOR groups.

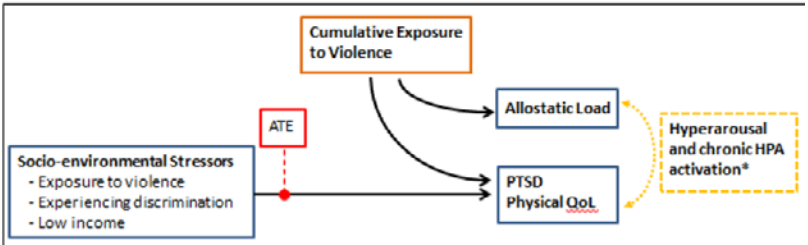


Figure 3. Model of the association between exposure to socio-environmental stressors, biological vulnerability, and PTSD & QoL suggested by results of this study
*Hypothesized relationship based on literature
ATE: Acute Traumatic Event, PTSD: Posttraumatic Stress Disorder, QoL: Quality of Life

NOTES

Presentation #42
Friday, 2/28/2020, 8:20 am - 8:40 am

EXPOSURE TO COMMUNITY VIOLENCE POST-INJURY PREDICTS PSYCHOLOGICAL DISTRESS AND PHYSICAL HEALTH AFTER NON-INTENTIONAL INJURY IN ETHNIC AND RACIAL MINORITY PATIENTS

TA DEROON-CASSINI, P CODNER, A SCHRAMM, A BRANDOLINO, M DE MOYA, D MILIA
Medical College of Wisconsin, Milwaukee, Wisconsin

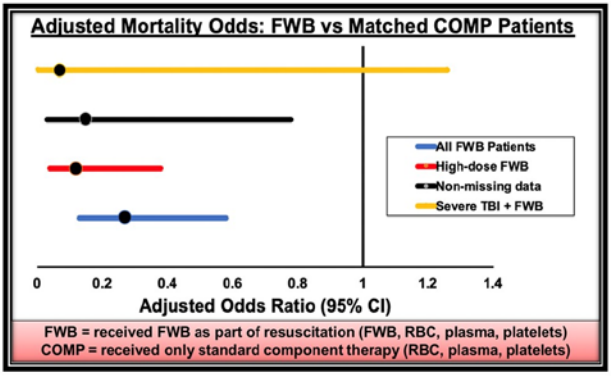
Presenter: Terri deRoon-Cassini
Senior Sponsor: Marc deMoya

INTRODUCTION: High rates of morbidity exist within the trauma population, including development of posttraumatic stress disorder and poor quality of life. It is well known that chronic socioenvironmental stress (SE), including exposure to community violence, has physical health consequences, but less well understood is how SE stress impacts recovery after injury. The purpose of this study was to investigate the link between exposure to community violence after injury and posttraumatic stress disorder (PTSD), allostatic load, and physical quality of life in a sample of urban racial minority trauma survivors at a large level 1 trauma center.

METHODS: This was a longitudinal study of 78 racial minority trauma survivors assessed at 2 weeks and 6 months post-injury. At both timepoints, participants had blood drawn and vitals measured to create an index of allostatic load (AL), a cumulative measure of physiologic dysregulation linked to stress. Validated and reliable survey measures were: Survey of Exposure to Community Violence, PTSD Checklist for DSM-5 (PCL-5), the RAND Short Form 36 (SF-36) to assess physical quality of life.

RESULTS: All subjects had a non-intentional mechanism of injury (75% motor vehicle crash). Over 70% of subjects experienced exposure to community violence within the first six months after injury. Increased exposure to community violence after injury was significantly related to higher PTSD symptoms ($r(65)=.25$, $p=.043$), poor physical QoL ($r(63)=-.329$, $p=.008$), and allostatic load ($r(51)=.30$, $p=.032$), all at 6 months.

CONCLUSIONS: These results demonstrate the impact of chronic stress and social determinants of health in a patient population especially vulnerable to PTSD after trauma.


Adjusted Mortality Odds: FWB vs Matched COMP Patients
All FWB Patients
High-dose FWB
Non-missing data
Severe TBI + FWB
0
0.2
0.4
0.6
0.8
1
1.2
1.4
Adjusted Odds Ratio (95% CI)
FWB = received FWB as part of resuscitation (FWB, RBC, plasma, platelets)
COMP = received only standard component therapy (RBC, plasma, platelets)

NOTES

Presentation #43
Friday, 2/28/2020, 8:40 am - 9:00 am

WHOLE BLOOD AT THE TIP OF THE SPEAR: ANALYSIS OF FRESH WHOLE BLOOD RESUSCITATION VERSUS COMPONENT THERAPY IN SEVERELY INJURED COMBAT CASUALTIES

J GURNEY, A STAUDT, D DEL JUNCO, M MARTIN, S SHACKELFORD, E MANN-SALINAS, A CAP, P SPINELLA
Joint Trauma System / US Army Institute of Surgical Research, San Antonio, Texas

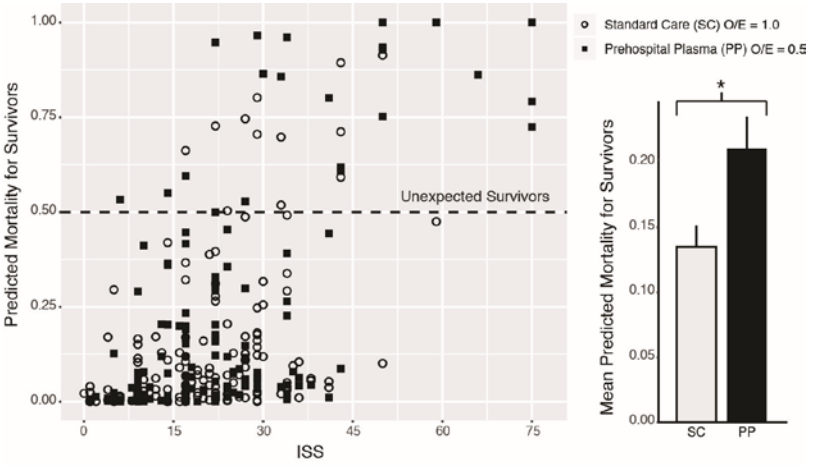
Presenter: Amanda Staudt
Senior Sponsor: Matthew Martin

INTRODUCTION: Death from uncontrolled hemorrhage occurs rapidly, particularly among combat casualties. The U.S. military has utilized fresh whole blood (FWB) during combat operations due to clinical and operational exigencies, albeit published outcome data is limited. We compared early mortality between casualties who received FWB versus standard component therapy (COMP).

METHODS: Casualties injured in Afghanistan (2008-2014) who received ≥2 red blood cell containing units were reviewed. COMP patients were frequency-matched to FWB patients on identical profiles by injury type, patient affiliation, tourniquet use, prehospital transfusion, and average hourly unit red blood cell transfusion rates. Logistic modeling adjusting for survivor bias and variability of injury/hemorrhage severity was performed. The primary outcome was 6-hours mortality.

RESULTS: Clinically unique strata (29) were comprised of 1,105 matched patients (221 FWB, 884 COMP). The adjusted odds ratio of 6-hour mortality was 0.27 (95% CI 0.13-0.58) for the FWB versus COMP group. The reduction in mortality increased in magnitude (OR=0.15, p=0.02) among the subgroup of 422 patients with complete data allowing adjustment for 7 additional covariates. There was a dose-dependent effect of FWB, patients receiving higher FWB dose (>33% of RBC containing units) had significantly lower mortality.

CONCLUSIONS: Early death after trauma is primarily from uncontrolled hemorrhage; death within 6-hours is likely a surrogate for hemorrhagic death. FWB resuscitation was associated with a significant reduction in 6-hour mortality versus COMP in combat casualties, with a dose-dependent effect. Findings were robust in all models and support and early mortality outcome for hemorrhage control as well as expanded study of whole blood in trauma.


Predicted Mortality for Survivors
1.00
0.75
0.50
0.25
0.00
Unexpected Survivors
0
15
30
45
60
75
ISS
Standard Care (SC) O/E = 1.0
Prehospital Plasma (PP) O/E = 0.5
Mean Predicted Mortality for Survivors
0.20
0.15
0.10
0.05
0.00
*
SC
PP

NOTES

Presentation #44
Friday, 2/28/2020, 4:00 pm - 4:20 pm

CHARACTERIZATION OF UNEXPECTED SURVIVORS FOLLOWING A PREHOSPITAL PLASMA RANDOMIZED TRIAL

D GRUEN, F GUYETTE, J BROWN, B DALEY, R MILLER, B HARBRECHT, J CLARIDGE, H PHELAN, M NEAL, J SPERRY
University of Pittsburgh, Pittsburgh, Pennsylvania

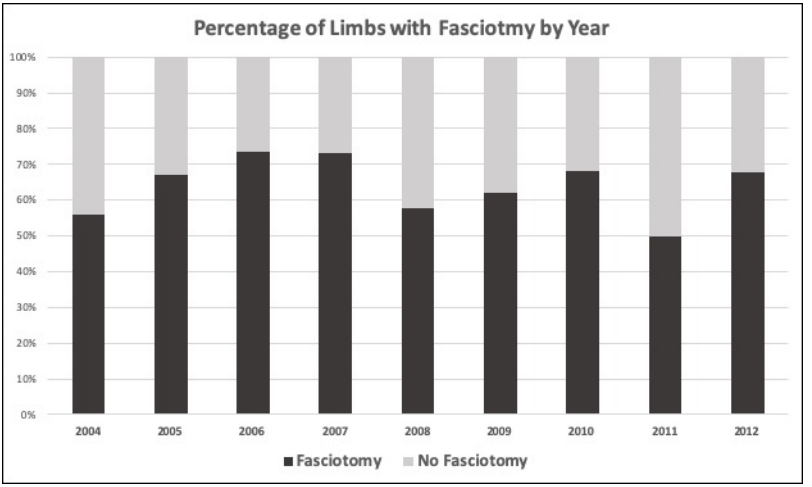
Presenter: Danielle Gruen
Senior Sponsor: Jason Sperry

INTRODUCTION: Prehospital plasma improves survival for trauma patients transported by air ambulance. We sought to characterize the unexpected survivors, patients who would have died had they not received prehospital plasma.

METHODS: We built a generalized linear model to calculate predicted mortality for patients enrolled in the Prehospital Air Medical Plasma (PAMPer) trial (n=501) using standard care patients for training data. Area under the receiver operating characteristic curve (AUC) was used to evaluate model performance. We defined unexpected survivors as patients who had predicted mortality >50% and survived to 30 days. Observed to expected (O/E) mortality ratios were calculated and compared across study arms.

RESULTS: Our model predicted mortality better than the revised trauma score and ISS (0.88, 0.81, and 0.64, respectively). The unexpected survivor cohort is characterized by a high predicted mortality (75% [62%, 91%]), ISS of 34 [27, 50], greater endothelial tissue damage (syndecan-1 64.14 [29.55, 137.51] vs. 113.25 [78.51, 188.14] ng/mL, P=0.002), and high incidence of traumatic brain injury (58%) and blunt mechanism of injury (94%). Despite a greater predicted mortality, plasma patients were more likely to survive (60% vs 24%, P=0.001). Within the unexpected survivor cohort, plasma patients had a lower O/E ratio (0.5 vs 1.0, P<0.01, Figure 1). The prehospital plasma unexpected survivor cohort had greater ICU LOS and ventilator requirements and a higher incidence of multiple organ failure.

CONCLUSIONS: Prehospital plasma is associated with an increase in the number of unexpected survivors, and may deliver its greatest benefit as ISS, tissue damage, and the probability of mortality increase.


Percentage of Limbs with Fasciotmy by Year
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2004
2005
2006
2007
2008
2009
2010
2011
2012
Fasciotomy
No Fasciotomy

NOTES

Presentation #45
Friday, 2/28/2020, 4:20 pm - 4:40 pm

EFFECT OF EARLY FASCIOTOMY ON LIMB SALVAGE AND COMPLICATIONS IN MILITARY LOWER EXTREMITY VASCULAR INJURY

D KAUVAR, A STAUDT, Z ARTHURS, B PROPPER, M DUBICK, T WALTERS
San Antonio Military Medical Center, JBSA Fort Sam Houston, Texas

Presenter: David Kauvar
Senior Sponsor: Michael Dubick

INTRODUCTION: Military guidelines endorse early fasciotomy after revascularization of lower extremity (LE) injuries to prevent compartment syndrome, but the real-world impact is unknown. We assessed the association between fasciotomy and amputation/limb complications among LE's with vascular injury.

METHODS: A retrospectively collected LE injury database was queried for limbs undergoing attempted salvage with vascular procedure (2004-2012). Limbs were categorized as having undergone fasciotomy or not. Injury and treatment characteristics were collected, as were intervention timing data when available. The primary outcome measure was amputation within 30 days. Multivariate models examined the impact of fasciotomy on limb outcomes.

RESULTS: Inclusion criteria were met by 515 limbs, 335 (65%) with fasciotomy (median 7.7 hours postinjury). 174/212 (84%) limbs with timing data had fasciotomy within 30 minutes of initial surgery. Compartment syndrome/ suspicion of elevated pressure documented in 127 (25%) of limbs (122 had fasciotomy). Tourniquet and shunt use, fracture, multiple arterial/combined arteriovenous injuries, popliteal involvement, and graft reconstruction more common in fasciotomy limbs. Isolated venous injury and vascular ligation more common in non-fasciotomy limbs. Fasciotomy timing not associated with amputation. Controlling for limb injury severity, fasciotomy was not associated with amputation but was associated with limb infection, motor dysfunction, and contracture. 63% of fasciotomies open for >7d, 43% had multiple closure procedures. Fasciotomy revision (17%) not associated with increased amputation or complications.

CONCLUSIONS: Fasciotomy following military LE vascular injury is predominantly performed early; frequently without documented compartment pressure elevation. Fasciotomy is independently associated with limb complications and a reconsideration of liberal prophylactic use may be in order.

Survivability Determination	Immediate Access	Actual Scenario
Non-Survivable	322 (77.8%)	389 (94.0%)
Potentially Survivable	87 (21.0%)	24 (5.8%)
Definitely Survivable	5 (1.2%)	1 (0.2%)
Cannot Determine	0 (0%)	0 (0%)

Table 1. Prehospital Injury Survivability

NOTES

Presentation #46
Friday, 2/28/2020, 4:40 pm - 5:00 pm

PRELIMINARY ANALYSIS OF THE MULTI-INSTITUTIONAL MULTIDISCIPLINARY INJURY MORTALITY INVESTIGATION IN THE CIVILIAN PRE-HOSPITAL ENVIRONMENT (MIMIC)

BJ EASTRIDGE, K NOLTE, E MACKENZIE, R STEWART, JB HOLCOMB, L VILLAREAL, N MEDRANO, M PRICE, G DAVIS, RT MAXSON, E MAZUCHOWSKI AND THE MIMIC INVESTIGATOR GROUP
UT Health San Antonio, San Antonio, Texas

Presenter: Brian J Eastridge

INTRODUCTION: Advances in trauma centers and systems have substantially reduced death associated with injury. However, there are substantial opportunity to further reduce deaths in the prehospital setting. The goal of this research was to characterize survival potential of prehospital injury deaths in order to develop mitigation strategies and improve trauma systems.

METHODS: A steering committee developed prehospital injury survivability definitions and study process. Balanced expert review panels were established from 80 military and civilian reviewers specializing in trauma surgery, orthopedics, neurosurgery, emergency medicine, EMS, and forensic pathology. Panels reviewed injury mortalities from comprehensive medical examiner systems and assigned a determination of survivability to each case based upon principal mechanism of death. Survivability determinations were made based upon the assumption of immediate access to care and in the context of the actual injury scenario. Non-consensus in determination of survivability was remediated though an online adjudication process. Data were entered into an electronic review and response tool (Profiler) for collation and analysis.

RESULTS: 436 prehospital mortality cases were assessed by the reviewer panel. Panel consensus of survivability was reached in 414/436 cases (94.9%) (Table 1). Assuming immediate access to care, potentially / definitely survivable mortality was 22.2% of which 90.8% was due to hemorrhage (82.7% truncal, 9.3% junctional, and 8.0% extremity).

CONCLUSIONS: This preliminary analysis of prehospital injury mortality develops a perspective of relative importance of injury mortality causation in the prehospital environment. This assessment may provide objective evidence to support the development of mitigation strategies for therapy and injury prevention to improve trauma systems.

Table 1. Outcomes of patients who developed alcohol withdrawal syndrome

	Hospital A	Hospital B	p-value
Rate of AWS (%)	1.11	1.25	0.728
Injury Severity Score (mean)	9.15	7.98	0.001
ICU LOS (mean days)	3.52	3.50	0.917
Intubation rate (%)	14.4	15.8	0.176
Ventilator days (mean)	4.99	4.21	0.11
Complication rate (%)	0.3	0.1	0.42
Mortality rate (%)	2.6	2.0	0.183

NOTES

Presentation #47
Friday, 2/28/2020, 5:00 pm - 5:20 pm

ORAL ETHANOL VERSUS BENZODIAZEPINES AS PROPHYLAXIS FOR ALCOHOL WITHDRAWAL SYNDROME

G PREZKOP, A HUSSAIN, A ADEBOYE, H ECKERT, K WILLIAMS, J CAMPBELL, K PRIBISH, E BRIDENBAUGH, J ROPP, I WILHELM, J GRANET, R BEHM
Guthrie Clinic, Sayre, Pennsylvania

Presenter: Adeolu Adeboye
Senior Sponsor: Oliver Gunter

INTRODUCTION: Benzodiazepines are associated with adverse outcomes in ICU patients yet remain the common method of prophylaxis for alcohol withdrawal syndrome (AWS). Another method of prophylaxis is oral alcohol. We identified two rural level II trauma centers that use these methods of prophylaxis; Hospital A primarily uses oral alcohol and supplements with benzodiazepines while Hospital B only uses benzodiazepines. We hypothesized Hospital A would have lower rates of AWS.

METHODS: A retrospective analysis was performed of trauma patients admitted between 2010 and 2018 with either a positive alcohol/drug screen on admission or a history of alcohol/drug abuse. Both hospitals utilize a similar AWS clinical assessment tool and used identical registrar collection techniques to retrospectively capture patients. An ANOVA logistic regression model was used for data analysis. Lastly, we considered the cost associated with each method of prophylaxis.

RESULTS: Hospital A included 3165 patients while Hospital B included 2162 patients with withdrawal rates of 1.11% (35 patients) and 1.25% (27 patients) respectively (p=0.728). We noted no significant differences in several of our secondary outcomes shown in Table 1. The cost of oral alcohol is $0.80 per dose whereas the cost of a typical dose of lorazepam, the most commonly used benzodiazepine, is $0.50.

CONCLUSIONS: We found no difference in AWS rates between these two methods of prophylaxis nor was there a difference in several secondary outcomes. There is no cost benefit with either method. Our data suggests these two methods of prophylaxis are equivalent however a multi-center trial may better answer this question.


New York
Chicago
Los Angeles
Houston
Phoenix
Philadelphia
San Antonio
San Diego

NOTES

Presentation #48
Friday, 2/28/2020, 5:20 pm - 5:40 pm

DESCRIBING THE DENSITY OF URBAN TRAUMA CENTERS IN THE UNITED STATES 15 LARGEST CITIES

A STEY, D STEIN, K BILIMORIA, R MACKERSIE, M CRANDALL
Northwestern University, Chicago, Illinois

Presenter: Anne Stey
Senior Sponsor: Deborah Stein

INTRODUCTION: There has been a proliferation of urban high-level trauma centers. The aim of this study was to describe the density of high-level trauma centers in 15 largest cities.

METHODS: The largest 15 cities by population were identified. The American College of Surgeons'(ACS) and states' department of health websites were cross-referenced for designated high-level (level 1 and 2) trauma centers in each city. Trauma centers and associated 20-minute drive radius were mapped. High-level trauma center per square mile and per population were calculated. The minimum distance between high-level trauma centers was calculated.

RESULTS: Among the 15 largest cities, 12 had multiple level one trauma centers and 14 cities had multiple high-level trauma centers. There was a median of one high-level trauma center per every 85.3mi2 and ranged from one center per every 20.1mi2 in New York to one center per 318.8mi2 in Houston. There was a median of one high-level trauma center per 356,494 people and ranged from one center per 223,133 people in Columbus to one center per 1,162,751 people in Houston. The median minimum distance between high-level trauma centers in the 14 cities with multiple centers was 3.2 miles and ranged from 0.4 miles in Houston to 16.7 miles in San Antonio.

CONCLUSIONS: High-level trauma centers are densely located in 14 of 15 largest US cities with marked 20-minute drive radius overlap. Institution-level data should be evaluated for these areas to determine the effect of overlap on volume, training and outcomes. Such data could allow for better resource allocation in population dense areas.

Table 1. Regression estimates for helmet laws, other state laws, verified trauma centers and crash characteristics on motorcycle mortality rates, 1999-2015

Factor	Age Group Cohorts N=850 *Unstandardized Regression Coefficient (p-value)*			
	16-20	**21-55**	**56-65**	**Over 65**
Universal helmet laws	-0.48(0.007)	-0.17(0.001)	-0.38(0.04)	-0.54(0.002)
Partial helmet laws	0.39(0.001)	0.13(0.001)	0.22(0.02)	0.26(0.006)
Partial helmet x helmet use	0.01(0.001)	0.00(0.5)	0.00(0.6)	-0.00(0.2)
GDL: Passenger restrictions	-0.06(0.01)	NA	NA	NA
Reduced BAC limits	-0.05(0.6)	-4.9(0.02)	17.7(0.001)	13.7(0.007)
Over service	NA	-0.38(0.001)	-0.16(0.002)	-0.15(0.03)
Alcohol in transport	NA	-0.05(0.3)	-0.18(0.05)	-0.27(0.02)
Use or Lose (<21 years)	0.14(0.04)	NA	NA	NA
Speed Camera	0.15(0.009)	0.23(0.02)	0.33(0.001)	0.29(0.02)

NOTES

Presentation #49
Friday, 2/28/2020, 5:40 pm - 6:00 pm

IMPACT OF HELMET LAWS ON MOTORCYCLE CRASH MORTALITY RATES

DM NOTRICA, LW SAYRS, N KRISHNA, K DAVENPORT, R JAMSHIDI
Phoenix Children's Hospital, Phoenix, Arizona

Presenter: David Notrica

INTRODUCTION: Helmets are effective in reducing traumatic brain injury. However, effectiveness of helmet laws has not been well-described. This study assesses the impact of helmet laws on motorcycle fatality rates in the US, 1999-2015.

METHODS: Motorcycle fatalities (aged ≥16years) and crash characteristics from FARS were obtained from 1999-2015. Motorcycle-related laws and year of effect for all 50 states were collected over the same period to create a pooled time series. Generalized linear autoregressive modeling was applied to assess the relative contribution of helmet laws to motorcycle fatality rates, controlling for>30 crash factors and other major driver laws.

RESULTS: : Universal helmet laws were associated with 17-54% declines in motorcycle mortality rates during the study period across all age cohorts:16-20years(B=-0.48[p=0.007], 21-55years(B=-0.17[p=0.001]); 56-65years(B=-0.38[p=0.04]); >65years(B=-0.54[p=0.002]). Partial helmet laws were associated with 13-39% increases in fatality rates:16-20years(B=0.39[p=0.001]), 21-55years(B=0.13[p=0.001]); 56-65years(B=0.22[p=0.02]); >65years(B=0.26[p=0.006]). Laws placing the liability for alcohol impairment on host/business contributed to declines in fatality rates for 21-55years(B=-0.38[p=0.001]), 56-65years(B=-0.16[p=0.002]) and >65years(B=-0.15[p=0.03]) cohorts; laws reducing allowable blood alcohol content(BAC) contributed to declining rates for 21-55years(B=-4.9[p=0.02]) only. For riders (aged 16-20years), Graduated Driver License(GDL) laws limiting passengers were associated with declining fatality rates(B=-0.06[p=0.01]) and helmet usage did not attenuate the countervailing effect of weak laws(B=0.01[p=0.001]).

CONCLUSIONS: Universal helmet laws were associated with declining mortality rates, while weak helmet laws were associated with increasing mortality rates. Weak laws coupled with helmet use did not mitigate the inflationary effects of weak helmet laws. Assessment of the impact of state laws on helmet use should inform trauma surgeons' advocacy efforts with lawmakers to reduce motorcycle mortality.

NOTES

Aboutanos, Michel (Sharline)
VCUHS
VCU - West Hospital 15th Floor
Department of Surgery
PO Box 980454
Richmond, VA 23298
804-827-1207
michel.aboutanos@vcuhealth.org
Surgical Critical Care, Active Member

Adams, John (Janet)
Atlantic Health System
100 Madison Ave
Box 88
Morristown, NJ 7962
973-971-5863
johnmadams@optonline.net
General Surgery, Active Member

Adams, Raeanna (Joshua Ehrenfeld)
Vanderbilt University Medical Center
1211 21st Ave S, 404 MAB
Nashville, TN 37212
615-936-8119
raeannaadams@gmail.com
Surgical Critical Care, Active Member

Agrawal, Vaidehi
2809 Boston Street
Apt 224
Baltimore, MD 21224
vaagrawal2@gmail.com
Associate Member

Aiken, James (Tonia)
LSU Health Science Center
81 Yosemite Drive
New Orleans, LA 70131
jaiken@lsuhsc.edu
Emergency Medicine, Senior Member

Alam, Hasan (Tracy)
University of Michigan Hospital
2920 Taubman Center
1500 E. Medical Center Drive
Ann Arbor, MI 48109-5331
734-936-5823
alamh@med.umich.edu
General Surgery, Active Member

Albrecht, Roxie (Jerry Gipper)
University of Oklahoma
Dept of Surgery, University of Okla. HSC
800 Stanton L. Young Boulevard
Suite 9000 AAT
Oklahoma City, OK 73104
405-271-5781
Roxie-Albrecht@ouhsc.edu
Surgical Critical Care, Senior Member

Armen, Scott (Melissa)
Penn State Herhsey Medical Center
500 University Drive
PO Box 850 MC H075
Hershey, PA 17033-0850
717-531-6066
sarmen@hmc.psu.edu
Surgical Critical Care, Active Member

Baker, Chip
698 Alyssum Avenue
Caswell Beach, NC 28465
540-588-8309
christopherbaker191@gmail.com
General Surgery, Senior Member

Ball, Chad
University of Calgary
1403 - 29th N.W.
Trauma Services
Calgary, AB T2N2T9
403-944-3417
ball.chad@gmail.com
General Surgery, Active Member

Ballow, Shana (Brett Lent)
Central California Faculty Medical Group
Communtiy Regional Medical Center
Department of Surgery, First Floor
2823 Fresno St.
Fresno, CA 93721
559-459-4090
sballow@fresno.ucsf.edu
General Surgery, Active Member

Balogh, Zsolt
John Hunter Hospital - Trauma Service
Locked Bag 1
Hunter Regional Mail Centre
Newcastle, NSW(AUS) 2310
'+61 2-49214259
Zsolt.Balogh@hnehealth.nsw.gov.au
General Surgery, Active Member

Barbosa, Ronald
Legacy Emanuel Hospital
2801 N. Gantenbein, MOB #130
Portland, OR 97227
503-915-3536
rbarbosa91@yahoo.com
Surgical Critical Care, Active Member

Baron, Bonny
SUNY Downstate Medical Center and Kings County Hos
450 Clarkson Ave., Box 1228
Department of Emergency Medicine
Brooklyn, NY 11203
718-245-4790
bonny.baron@verizon.net
Emergency Medicine, Senior Member

Barquist, Erik (Julie)
University of South Florida
1403 MEDICAL PLAZA DR
STE 102
Sanford, FL 32771
407-323-7821
TAGAMUNDO@BELLSOUTH.NET
Surgical Critical Care, Senior Member

Barton, Richard (Marie Zolezzi)
University of Utah
50 N. Medical Drive
Salt Lake City, UT 84132
801-585-7280
richard.barton@hsc.utah.edu
Surgical Critical Care, Senior Member

Beery, Paul (Christina Charles-Beery, MD)
Grant Medical Center
111 South Grant Avenue
Columbus, OH 43215
614-566-9489
prbeery2@yahoo.com
General Surgery, Active Member

Bensard, Denis (Jerilyn)
Denver Health Medical Center
777 Bannock Street
MC 0206
Denver, CO 80204
303-436-3034
Denis.Bensard@DHHA.org
Pediatric Surgery, Senior Member

Berry, Stepheny (Troy Groves)
University of Kansas Hospital
4000 MURPHY BLDG / MS 2005
Kansas City, KS 66160
913-588-6615
sberry@kumc.edu
General Surgery, Active Member

Biffl, Susan (Walter Biffl, MD)
UCSD, Rady Children's Hospital
3020 Children's Way, MC 5096
San Diego, CA 92123
858-966-8974
susan@biffl.com
Physical Medicine & Rehabilitation, Active Member

Biffl, Walter (Susan Elizabeth Biffl, MD)
Scripps Memorial Hospital La Jolla
9888 Genesee Ave.
MC LJ601
La Jolla, CA 92037
858-626-6362
walt@biffl.com
General Surgery, Senior Member

Bintz, Marilu
Gundersen Health System
1900 South Avenue, H03-006
La Crosse, WI 54601
608-775-4744
mbintz@gundersenhealth.org
General Surgery, Senior Member

Bradford, David
david.bradford@ucsf.edu
Retired Member

Brakenridge, Scott (Jillianne)
University of Florida
1600 SW Archer Rd, Rm M-602
PO BOX 100108
Gainesville, FL 32610-0108
352-273-5670
Scott.Brakenridge@surgery.ufl.edu
Surgical Critical Care, Active Member

Brasel, Karen (Steve Alberts)
Oregon Health & Science University
3181 SW Sam Jackson Park Road
L223
Portland, OR 97239
503-494-7344
brasel@ohsu.edu
Surgical Critical Care, Active Member

Brenner, Megan
University of California Riverside
26520 Cactus Ave.
CPC 102-7
Riverside, CA 92555
951-486-5021
mbrenner@umm.edu
Vascular Surgery, Active Member

Brown, Carlos (Debbie)
Dell Seton Medical Center at UT
1500 Red River Street
Austin, TX 78701
512-324-8470
cvrbrown@seton.org
Surgical Critical Care, Active Member

Brundage, Susan
Barts and The London School of Medicine and Dentis
Blizard Institute
4 Newark Street, Whitechapel
London, TWH England E1 2AT
+44 0- 20 7882 6532
s.brundage@qmul.ac.uk
Surgical Critical Care, Senior Member

Bullard, Kelley
UCSF East Bay Surgery
1411 East 31st Street
Oakland, CA 94602
510-437-4458
m.kelleybullard@gmail.com
Surgical Critical Care, Senior Member

Burlew, Clay (Paul)
Denver Health Medical Center
777 Bannock Street
Department of Surgery
Denver, CO 80204
303-602-1830
clay.cothren@dhha.org
Surgical Critical Care, Active Member

Callcut, Rachael
UCSF/SFGH
598 Ashton Park Lane
Sacramento, CA 95864
650-796-3652
callcutr@sfghsurg.ucsf.edu
Surgical Critical Care, Active Member

Campbell, Gregory (Dr. Lisa Campbell)
North County Trauma Associates
2067 Wineridge Place, Suite A
Escondido, CA 92029
760-489-5955
gscparkland@hotmail.com
Surgical Critical Care, Senior Member

Carrick, Matthew
Medical Center of Plano
604 Aberdeen Way
Southlake, TX 76092
214-336-0731
1mattcarrick@gmail.com
General Surgery, Active Member

Carveth, Stephen (Beth)
6200 Old Cheney Road
Lincoln, NE 68516
402-423-1768
swcarveth@aol.com
Thoracic Surgery, Retired Member

Champion, Howard (Pat)
954 Melvin Rd.
Annapolis, MD 21403
410-626-0322
hrchampion@aol.com
General Surgery, Senior Member

Chang, Frederic (Jan)
35 Via Roma
Wichita, KS 67230
316-733-0627
fjc62235@sbcglobal.net
General Surgery, Retired Member

Ciesla, David (Alexis)
University of South Florida
Morsani College of Medicine
1 Tampa General Circle, Ste G-417
Tampa, FL 33606
813-844-7968
dciesla@health.usf.edu
General Surgery, Active Member

Cocanour, Christine
U California Davis Medical Center
2335 Stockton Blvd
NAOB, Room 5004
Sacramento, CA 95817
916-734-7330
spooksam2000@yahoo.com
Surgical Critical Care, Senior Member

Codner, Panna (Eric)
Froedtert & The Medical College of Wisconsin
Froedtert Hospital
8701Watertown Plank Road
Milwaukee, WI 53226
414-805-9420
pcodner@mcw.edu
General Surgery, Active Member

Cogbill, Thomas (Jan)
Gundersen Health
Gundersen Health System
1836 South Avenue
La Crosse, WI 54601
608-775-2310
cogbill6@gmail.com
General Surgery, Retired Member

Cohen, Mitchell (Stephanie Tomasky)
Denver Health Medical Center
777 Bannock St
Denver, CO 80204
415-269-7222
Mitchell.Cohen@dhha.org
Surgical Critical Care, Active Member

Coimbra, Raul (Sandra)
10793 Carillon Ct
San Diego, CA 92131
raulcoimbra62@yahoo.com
Vascular Surgery, Senior Member

Collier, Bryan (Elizabeth Chilton)
Virginia Tech Carilion School of Medicine
1906 Belleview Ave
Med Ed Build., Ste 331
Roanoke, VA 24014
540-981-7434
brcollier@carilionclinic.org
Surgical Critical Care, Active Member

Cook, Charles (Allison)
Beth Israel Deaconess Medical Center
110 Francis St
Suite 2G
Boston, MA 2215
617-632-9770
chcook@bidmc.harvard.edu
Surgical Critical Care, Active Member

Corcos, Alain (Leyvoy Joensen)
UPMC Mercy
1400 Locust Street, Suite 6538
Pittsburgh, PA 15219
412-232-7786
corcosa@upmc.edu
Surgical Critical Care, Active Member

Croce, Martin (Celine)
University of Tennessee-Memphis HSC
910 Madison, #219
Memphis, TN 38163
901-448-8140
mcroce@uthsc.edu
Surgical Critical Care, Senior Member

Cryer, H. Gill (Karen)
UCLA Medical Center
757 Westwood Plaza, #8501
Los Angeles, CA 90095
310-267-9609
hcryer@mednet.ucla.edu
General Surgery, Senior Member

Cullinane, Daniel (Maribeth)
Maine Medical Center
887 Congress St., Suite 210
Portland, ME 4102
207-774-2381
cullinane.daniel@marshfieldclinic.org
Surgical Critical Care, Active Member

Dart, Benjamin (Allison)
UT College of Medicine
979 East Third St, Suite B401
Chattanooga, TN 37403
423-778-7695
Benjamin.Dart@erlanger.org
General Surgery, Active Member

Davis, James (Amy)
UCSF/Fresno
Dept of Surgery 1st Flr
2823 Fresno Street
Fresno, CA 93721
559-459-3770
jdavis@fresno.ucsf.edu
General Surgery, Senior Member

Davis, Kimberly
Yale School of Medicine
330 Cedar St., BB 310
PO Box 208062
New Haven, CT 06520-8062
203-785-3494
kimberly.davis@yale.edu
Surgical Critical Care, Senior Member

DeMoya, Marc (Adriana)
Medical College of Wisconsin
8701 Watertown Plank Rd.
Milwaukee, WI 53226
414-955-1734
mdemoya@mcw.edu
Surgical Critical Care, Active Member

Dennis, Andrew (Melissa Dennis, MD)
Cook County Trauma & Burn
Dept of Trauma and Burn
1900 W Polk St
Rm 1300
Chicago, IL 60612
312-864-2730
adennis@cookcountytrauma.org
Surgical Critical Care, Active Member

Dente, Christopher
Emory University School of Medicine
69 Jesse Hill Junior Drive Southeast
Suite 311
Atlanta, GA 30303
404-251-8915
cdente@emory.edu
Surgical Critical Care, Active Member

Dicker, Rochelle
University of California, Los Angeles
10833 Le Conte Ave, Office 72-160
Los Angeles, CA 90095
415-717-9908
rochelledicker@gmail.com
Surgical Critical Care, Active Member

Diebel, Lawrence
Wayne State University Dept of Surgery
University Health Center 6-C
4201 St. Antoine
Detroit, MI 48201
313-577-5005
ldiebel@med.wayne.edu
General Surgery, Senior Member

Dorlac, Warren (Gina)
University of Colorado
Medical Center of the Rockies
Trauma Services
2500 Rocky Mountain AVE
Loveland, CO 90538
970-624-4161
warren.dorlac@uchealth.org
Surgical Critical Care, Senior Member

Dubick, Michael (Ellen)
US Army Institute of Surgical Research
3698 Chambers Pass
San Antonio, TX 78234
210-539-3680
michael.a.dubick.civ@mail.mil
Senior Member

Dulabon, George (Jennifer)
George R. Dulabon, MD, PLLC
1700 E Evergreen Blvd
Vancouver, WA 98661
360-773-6338
dulabon@aol.com
Surgical Critical Care, Active Member

Dunn, Julie (Thomas Warne)
University of Colorado Health
2500 Rocky Mountain Avenue
Suite 360
Loveland, CO 80538
970-221-5878
julie.dunn@uchealth.org
General Surgery, Senior Member

Eastman, Alexander
US Department of Homeland Security
125 East John Carpenter Fwy
Ste 800
Irving, TX 75062
972-444-7548
aleastman298@gmail.com
Surgical Critical Care, Active Member

Eastridge, Brian (Maggie)
UTHSCSA Surgery/Trauma
7703 Floyd Curl Drive, MC 7740
San Antonio, TX 78229
210-743-4130
eastridge@uthscsa.edu
General Surgery, Senior Member

Eckert, Carly (Matthew)
KenSci
506 2nd Ave
Suite 2100
Seattle, WA 98104
615-739-1080
millerc7@uw.edu
Preventative Medicine: Occupational Health, Active Member

Eckert, Matthew (Carly)
Madigan Army Medical Center
2916 North Puget Sound Avenue
Tacoma, WA 98407
312-342-4574
matteckert1@gmail.com
Surgical Critical Care, Active Member

Edmondson, Robert (Ann)
921 Cleveland Street
Woodland, CA 95695
530-662-7856
edsmail@woodland.net
Hematology/Oncology, Retired Member

Edney, James (Debbie)
University of Nebraska
12930 Burt St
Omaha, NE 68154
402-880-8180
jedney@unmc.edu
General Surgery, Retired Member

Eriksson, Evert (Julie)
Medical University of South Carolina
MUSC
96 Jonathan Lucas Drive CSB 420
Charleston, SC 29464
843-792-3780
evert.eriksson@gmail.com
General Surgery, Active Member

Esrig, Barry (Darlene)
2580 S Ocean Blvd
1C6
Palm Beach, FL 33480
646-662-0157
besrigmd@aol.com
Thoracic Surgery, Senior Member

Falimirski, Mark (Patricia)
Indiana University
1030 W Michigan St
C5226
Indianapolis, IN 46202
317-944-8997
mfalmito@gmail.com
Surgical Critical Care, Active Member

Feliciano, David (Grace F. Rozycki, MD, MBA)
University of Maryland Medical Center
22 S. Greene Street
S4D07
Baltimore, MD 21201-1595
410-328-7611
davidfelicianomd@gmail.com
General Surgery, Senior Member

Ferrigno, Lisa (David Gilmore)
University of Colorado, Denver
Anschutz Medical Campus Dept of Surgery
12631 E. 17th Avenue, Room 6203
Mail Stop C-313
Aurora, CO 80045
503-475-3913
lisalouferrigno@yahoo.com
General Surgery, Active Member

Ferris, Bruce G (Joan)
1861 N Webb Rd
Wichita, KS 67206
316-688-7500
bferrisusa@hotmail.com
Plastic Surgery, Senior Member

Fildes, John (Elizabeth)
University of Nevada School of Medicine
2040 W Charleston Blvd, Ste. 329
Las Vegas, NV 89102
702-895-1296
john.fildes@unlv.edu
General Surgery, Senior Member

Fonseca, Alvaro (Jennifer)
Memorial University Medical Center
4750 Waters Avenue
Provident Building Suite 212
Savannah, GA 31404
912-350-7412
alvaro.fonseca@hcahealthcare.com
Surgical Critical Care, Active Member

Foster, Careen
1700 13th Street
Trauma and Acute Care Surgery
Everett, WA 98201
425-261-3300
caryfos@gmail.com
General Surgery, Active Member

Fox, Charles (Kathy Via)
University of Colorado
115 W. Irvington Place
Denver, CO 80223
202-697-1456
charles.fox@cuanschutz.edu
Vascular Surgery, Senior Member

Galante, Joseph (Brandy Nagle)
UC Davis Medical Center
2335 Stockton Blvd
North Addition
Sacramento, CA 95817
916-734-4652
jmgalante@ucdavis.edu
Surgical Critical Care, Active Member

Gall, Warren (Beth Ann)
University of Dubuque
2000 Univeristy Avenue
Dubuque, IA 52001
563-589-3880
wgall@dbq.edu
Thoracic Surgery, Retired Member

Gamelli, Richard (Mary)
Stritch School of Medicine - Loyola University Chicago
2160 S. First Ave.
SSOM - 420
Maywood, IL 60153
708-216-9222
rgamell@lumc.edu
General Surgery, Retired Member

Gandhi, Rajesh
John Peter Smith Hospital
1500 South Main St, OPC-303
Fort Worth, TX 76104
817-927-1172
rgandhi@jpshealth.org
Surgical Critical Care, Senior Member

Gentilello, Larry (Olivia)
1938 Centro West Street
Tiburon, CA 94920
916-606-8866
lgenti@gmail.com
General Surgery, Retired Member

Ginzburg, Enrique (Barbara)
University of Miami School of Medicine
PO Box 016960 (D-40)
Miami, FL 33101
305-585-1178
eginzburg@miami.edu
Vascular Surgery, Senior Member

Gonzalez, Ernest (Deborah Lynn)
South Austin Trauma Surgeons
3585 Lost Creek Blvd
Austin, TX 78735
512-496-9808
ernest.a.gonzalez@gmail.com
General Surgery, Active Member

Gordy, Stephanie
Baylor College of Medicine
Ben Taub Hospital
1504 Taub Loop
Department of Surgery
Houston, TX 77030
703-873-2000
gordysdmd@yahoo.com
Surgical Critical Care, Active Member

Gracias, Vicente (Wendy Klein-Gracias, MD)
Rutgers University, The State University of New Je
89 French Street
Ste 4100
New Brunswick, NJ 8901
732-235-7631
graciavh@rbhs.rutgers.edu
Surgical Critical Care, Active Member

Gubler, Dean (Barbara)
Pacific Surgical
500 N Graham Street
Suite 580
Portland, OR 97227
503-528-0704
dgubler@pacsurg.com
Surgical Critical Care, Senior Member

Guillamondegui, Oscar
Vanderbilt University Medical Center
404 Medical Arts Building
1211 21st Avenue South
Nashville, TN 37212
615-875-5843
Oscar.Guillamondegui@vumc.org
Surgical Critical Care, Active Member

Gunter, Oliver
Vanderbilt University
1211 21st Avenue South
404 Medical Arts Building
Nashville, TN 37212
615-875-5843
oliver.l.gunter@vumc.org
General Surgery, Active Member

Gupta, Rajan (Sarah Greer)
Rutgers Robert Wood Johnson Medical School
125 Paterson Street
Suite 6300
New Brunswick, NJ 8901
732-235-4959
rajan.gupta@rutgers.edu
Surgical Critical Care, Active Member

Haan, James (Ami)
St Francis VC
818 N Emporia
#200
Wichita, KS 67214
316-268-5543
jimhaan@icloud.com
Surgical Critical Care, Active Member

Hafertepen, Stephen
Colorado Surgical and Critical Care Associates
1421 S Potomac St Ste 220
Aurora, CO 80012
303-585-0001
hafertepen@gmail.com
Surgical Critical Care, Active Member

Hall, John (Mary)
East Tenn State Univ
26 East Beach Lagoon Rd
Hilton Head Island, SC 29928
jrhmdtraum@aol.com
Pediatric Surgery, Retired Member

Hamsa, William
1900 Gulf Shores Blvd N
Naples, FL 34102-4695
Retired Member

Harrison, Paul (Carolyn)
Kansas Surgical Consultants
3243 E. Murdock, #404
Wichita, KS 67208
316-685-6222
paulh49@cox.net
General Surgery, Retired Member

Hartwell, Jennifer (Scott)
Indiana University School of Medicine
1604 N. Capitol Ave.
B232
Indianapolis, IN 46202
630-995-6225
hartwell.jennifer@gmail.com
Surgical Critical Care, Active Member

Hauser, Carl
Beth Israel Deaconess Medical Center
Department of Surgery
110 Francis St, Lowery 2G
Boston, MA 2215
617-632-9770
cjhauser@bidmc.harvard.edu
General Surgery, Senior Member

Hauty, Michael (Rose Blackwell)
1800 Paradise Ridge Rd
Mosier, OR 97040
541-490-9165
michael.hauty@gmail.com
General Surgery, Senior Member

Hebert, James (Mary Ellen)
University of Vermont
Dept of Surgery, Fletcher 301, FAHC
111 Colchester Ave.
Burlington, VT 5401
802-847-2194
James.Hebert@vtmednet.org
General Surgery, Senior Member

Hewitt, Lisa (Brian Tibbs)
Parkland Hospital
5450 Auburndale Ave
Dallas, TX 75205
913-579-3584
lisa.n.hewitt@gmail.com
Associate Member

Hoey, Brian
St Luke's University Hospital
Division of Traumatology & Critical Care
801 Ostrum Street
Bethlehem, PA 18015
484-526-2201
brian.hoey@sluhn.org
General Surgery, Senior Member

Holbrook, Troy
EPI-SOAR Consulting, Inc.
3522 Harwich Drive
Carlsbad, CA 92010
619-972-2752
tholbrooksd@gmail.com
Senior Member

Holcomb, John (Kelly L Wirfel)
UAB
1922 7th Avenue South
KB120
Birmingham, AL 35294
205-975-3030
john.holcomb@uth.tmc.edu
General Surgery, Senior Member

Holmes, Fred (Maria)
8207 N. 11th Avenue
Phoenix, AZ 85021
602-234-1803
painlez@cox.net
Anesthesiology, Senior Member

Hoyt, David (Beth Russell)
University of California, Irvine
Dept of Surgery
333 City Blvd West, #700
Orange, CA 77030
714-456-6262
dhoyt@facs.org
General Surgery, Retired Member

Inaba, Kenji (Susie Korsmit)
University of Southern California
2051 Marengo St, IPT, C5L 100
Los Angeles, CA 91105
323-409-8597
kinaba@surgery.usc.edu
General Surgery, Active Member

Jeremitsky, Elan
Forbes Regional Hospital
2580 Haymaker Road
Pob #2
Suite 304
Monroeville, PA 15146
412-445-2500
jeremitskye@yahoo.com
General Surgery, Active Member

Johnson, Laura (Richard)
Medstar Washington Hospital Center
100 Irving St NW 3B-55
Washington, DC 20010
202-877-7347
laurasjohnson@gmail.com
General Surgery, Active Member

Johnson, Steven (Karen)
University of Arizona College of Medicine - Phoeni
First Floor - Surgery
1441 N. 12th street
Phoenix, AZ 85006
602-521-5967
steven.Johnson@bannerhealth.com
General Surgery, Senior Member

Joseph, Bellal
University of Arizona
1501 N. Campbell Ave.
PO Box 245063
Tucson, AZ 85724
520-626-5056
bjoseph@surgery.arizona.edu
General Surgery, Active Member

Jurkovich, Gregory (Deanne (De))
University of California, Davis
Department of Surgery
UC Davis Health
2335 Stockton Blvd, Room 6017
Sacramento, CA 95817
916-734-8298
gjjurkovich@ucdavis.edu
General Surgery, Senior Member

Kappel, David (Charl)
WV OEMS/RETI
2265 Market Street
Wheeling, WV 26003
304-242-6644
davidkappel45@msn.com
Plastic Surgery, Retired Member

Karev, Dmitriy
Saint Barnabas Hospital, Bronx
4422 Third Ave
Bronx, NY 10457
646-584-4133
karev62@yahoo.com
Surgical Critical Care, Senior Member

Karmy-Jones, Riyad (Lorie Thomas, PhD)
PeaceHealth Medical Group
505 87 Ave
Suite 300 Building B
Vancouver, WA 98664
360-514-1854
rkarmy-jones@peacehealth.org
Thoracic Surgery, Senior Member

Karrer, Frederick (Debbie)
University of Colorado
13123 E. 16th Avenue, B323
Denver, CO 80045
720-777-5506
fritz.karrer@childrenscolorado.org
Pediatric Surgery, Senior Member

Kashuk, Jeffry (Aviva)
Assia Medical Group, Assuta Hospital, Tel Aviv Isr
PO Box 605
Monsey, NY 10952
303-653-5700
jeffrykashuk@gmail.com
General Surgery, Senior Member

Kaslow, Olga (Alex Kaslow, PhD)
Medical College of WI
Department of Anesthesiology
Froedtert Memorial Lutheran Hospital
9200 W. Wisconsin Ave
Milwaukee, WI 53226
414-805-2715
ozakharo@mcw.edu
Anesthesiology, Senior Member

Kaups, Krista
UCSF Fresno
CRMC, Dept of Surgery, First Floor
2823 Fresno Street
Fresno, CA 93721
559-459-3722
kkaups@fresno.ucsf.edu
Surgical Critical Care, Senior Member

Kepros, John (Michele)
HonorHealth Osborn
6855 E Camelback Rd
7017
Scottsdale, AZ 85251
517-202-9439
john.kepros@sparrow.org
Surgical Critical Care, Active Member

Keric, Natasha
Banner-University Medical Center Phoenix
1441 North 12th Street
#1069
Phoenix, AZ 85006-2837
737-210-2572
nkericmd@gmail.com
General Surgery, Active Member

Ketchum, Lynn
ldkmd5701@aol.com
Retired Member

King, Brent (Rosemary Kozar, MD, PhD)
The University of Maryland
110 S. Paca St
6th Floor, Suite 200
Baltimore, MD 21202
410-328-8025
bking@em.umaryland.edu
Emergency Medicine, Senior Member

Kissinger, David (Dr Lauren Kissinger)
South Sacramento Kaiser Permanente
6600 Bruceville Drive
Suite 116
Department of General Surgery
Sacramento, CA 95823
916-688-6718
kissinger3@comcast.net
Surgical Critical Care, Senior Member

Klassen, Rudolph (Frieda)
Mayo Clinic
200 First Street, SW
Rochester, MN 55905
507-284-3662
Orthopaedic Surgery, Retired Member

Knudson, Peggy (Steve Delateur)
University of California, San Francisco @ ZSFG
Department of Surgery, 3A, San Francsco
1001 Potrero AVenue
San Francisco, CA 94110
415-206-4622
peggy.knudson@ucsf.edu
General Surgery, Senior Member

Kozar, Rosemary (Brent King, MD)
University of Maryland/R Adams Cowley Shock Trauma Center
22 S. Greene Street
T1R40
Baltimore, MD 21201
410-328-4253
rkozar@umm.edu
Surgical Critical Care, Senior Member

Kreykes, Nathaniel
Pediatric Surgical Associates
2530 Chicago Ave S
Suite 550
Minneapolis, MN 55404
612-813-8000
nkreykes@pediatricsurgical.com
Pediatric Surgery, Active Member

Kulvatunyou, Narong (Panit Wongnikom)
Banner Health
1501 N. Campbell Ave, Rm 5411
PO Box 245063
Tucson, AZ 85724
520-626-6302
nkulvatunyou@surgery.arizona.edu
Surgical Critical Care, Active Member

Kunac, Anastasia (Brian D. Milhorn)
Rutgers--New Jersey Medical Scool
185 South Orange Avenue
Medical Science Building, G-595
Newark, NJ 7103
973- 972-1602
anastasia.kunac@rutgers.edu
Hospice & Palliative Medicine, Active Member

Lancaster, Brent (Julie)
Wichita Surgical Specialists
818 N. Emporia, Suite 200
Wichita, KS 67214
316-263-0296
blancaster@wsspa.com
General Surgery, Senior Member

Lanzi, Guy (Maureen)
15 E. Euclid Avenue
Haddonfield, NJ 8033
856-795-4600
rollcast2@yahoo.com
Oral and Maxillofacial Surgery, Senior Member

Leone, Richard (Kathy Leone, ARNP)
1400 E Kincaid Street
Thoracic Surgery
Mount Vernon, WA 98274
360-739-8057
rjleone1@yahoo.com
Thoracic Surgery, Senior Member

Letton, Robert (Kathy)
Nemours Children's Specialty Care
807 Children's Way
Pediatric Surgery
Jacksonville, FL 32207
904-697-3467
robert.letton@nemours.org
Pediatric Surgery, Senior Member

Ley, Eric (Heidi Ley)
CEDARS SINAI MEDICAL CENTER
8635 West 3rd Street, Suite 650W
Los Angeles, CA 90048
310-423-6444
eric.ley@cshs.org
Surgical Critical Care, Active Member

Livingston, David (Debbie)
New Jersey Medical School
University Hospital, M234
150 Bergen Street
Newark, NJ 7103
973-972-6869
livingst@rutgers.edu
Surgical Critical Care, Senior Member

Long, William (Carole)
Legacy Emanuel Medical Center
10840 NW La Cassel Crest
Portland, OR
503-626-8745
wlong@lhs.org
Thoracic Surgery, Senior Member

Loos, Matthew
East Tennessee State University
400 N. State of Franklin Road
Johnson City, TN 37604
423-431-1061
msloosmd@gmail.com
Hand Surgery, Active Member

Lorenzo, Manuel (Ana Cecilia Lorenzo MD (Ceci))
Methodist Dallas Medical Center
1441 Beckley Dr
Dallas, TX 75208
214-947-3231
drmanuellorenzo@yahoo.com
General Surgery, Senior Member

Luchette, Fred (Barbara)
Dept. of Surgery
2160 South First Avenue
Maywood, IL 60153
630-325-2375
fluchet@lumc.edu
General Surgery, Senior Member

Mackersie, Robert (Katherine Tillotson)
San Francisco General Hospital
1001 Potrero Avenue, Ward 3A
San Francisco, CA 94110
415-206-8814
robert.mackersie@ucsf.edu
General Surgery, Senior Member

MacNew, Heather
Memorial University Medical Center
4750 Waters Avenue
Suite 212
Savannah, GA 31406
912-350-7174
heathermacnew@memorialhealth.com
General Surgery, Active Member

Magee, Gregory (Stacy)
University of Southern California
318 Ohio St #8
Pasadena, CA 91106
gregory.magee@med.usc.edu
Vascular Surgery, Active Member

Mains, Charles
Centura Health
9100 E. Mineral Cr.
Centennial, CO 80112
303-673-7260
charlesmains@centura.org
General Surgery, Senior Member

Mainville, Barbara
Canabo Medical Clinic
1385 Bank St., Suite 305
Ottawa, ON K1H 8N4
613-627-2280
bjmainville@gmail.com
Emergency Medicine, Senior Member

Malhotra, Ajai (Nancy)
University of Vermont Medical Center
111 Colchester Avenue
Burlington, VT 5401
802-847-4910
ajai.malhotra@uvmhealth.org
Surgical Critical Care, Senior Member

Mangram, Alicia
Honor Health John C. Lincoln Medical Center
9202 N. Second Street
Phoenix, AZ 85020
602-870-6059
alicia.mangram@honorhealth.com
Surgical Critical Care, Active Member

Mann, Fred
Seattle Radiologists, A.P.C.
1229 Madison, Suite 900
Seattle, WA 98104
206-292-6233
fmann@searad.com
Radiology, Retired Member

Mansour, Ashraf
Spectrum Health Medical Group
100 Michigan Street NE
MC 005
Grand Rapids, MI 49503
616-267-8884
ashraf.mansour@spectrumhealth.org
Vascular Surgery, Senior Member

Marr, Alan (Susan)
LSUHSC, School of Medicine
Department of Surgery
1542 Tulane Ave Room 734
New Orleans, LA 70112
504-568-4750
amarr@lsuhsc.edu
General Surgery, Senior Member

Martin, Larry (Meg)
University of Mississippi Medical Center
2500 N. State St.
Jackson, MS 39216
601-815-1176
mart7789@gmail.com
General Surgery, Senior Member

Martin, Matthew (Becky)
Scripps Mercy Medical Center
Trauma and Acute Care Surgery
550 Washington Street, Suite 641
San Diego, CA 92103
619-299-2600
traumadoc22@gmail.com
General Surgery, Active Member

Massetti, Jennifer
22 South Greene Street, T1R60
Baltimore, MD 21201
410-328-03495
jmassetti@umm.edu
Associate Member

Maxwell, Robert (Kelly)
University Surgical Associates
979 East Third Street, Suite C300
Chattanooga, TN 37403
423-778-7695
Robert.maxwell@erlanger.org
Surgical Critical Care, Active Member

McAuley, Clyde (Ted) (Trudi)
1063 Eldersville Rd
Burgettstown, PA 15021
724-947-9030
richhollow@earthlink.net
Surgical Critical Care, Retired Member

McCarthy, Jamie (Suzanne)
Memorial Hermann Health System
6344 Wakeforest Ave
Houston, TX 77005
713-927-4368
james.j.mccarthy@uth.tmc.edu
Emergency Medicine, Active Member

McGill, John (Lori Volding)
Hennepin County Medical Center
4854 Thomas Ave S
Minneapolis, MN 55410
jwmcgill@gmail.com
Emergency Medicine, Senior Member

McIntyre, Robert (Jacque)
University of Colorado School of Medicine
Academic Office One, Room 6001
12631 E. 17th Avenue, C313
Aurora, CO 80045
303-724-2728
robert.mcintyre@ucdenver.edu
General Surgery, Senior Member

McNutt, Michelle (Billy Gill, MD)
University of Texas Health Science Center at Houst
6431 Fannin
Houston, TX 77030
713-500-6362
Michelle.K.McNutt@uth.tmc.edu
General Surgery, Active Member

Metzdorff, Mark (Marie-Louise)
Retired
14961 SW Summerview Drive
Tigard, OR 97224
971-762-2922
mtmetz@outlook.com
Thoracic Surgery, Senior Member

Michaels, Andy
Pacific Integration, LLC
PO Box 10617
Portland, OR 97296-0617
503-807-5105
andrewjmichaels@gmail.com
Surgical Critical Care, Senior Member

Miller, Preston (Julie)
Wake Forest University Dept. of Surgery
1 Medical Center Boulevard
Winston-Salem, NC 27157
336-716-7398
pmiller@wakehealth.edu
Surgical Critical Care, Senior Member

Miller, Richard (Karen)
Vanderbilt University Medical Center
404 Medical Arts Building
1211 21st Avenue South
Nashville, TN 37212-1750
615-936-0189
richard.miller@vumc.org
Surgical Critical Care, Senior Member

Millikan, Scott (Tamra)
Billings Clinic
2825 8th Ave N
Billings, MT 59107
406-238-2770
smillikan@billingsclinic.org
Thoracic Surgery, Senior Member

Mitchell, Frank (Diana)
St. David's South Austin Medical Center
98 San Jacinto Blvd
No. 1301
Austin, TX 78701
918-408-5202
FLMTulsa@aol.com
General Surgery, Senior Member

Moore, Ernest (Sarah V. Moore, MD)
Denver Health / University of Colorado
777 Bannock St
MC0206
Denver, CO 80204
303-602-1815
ERNEST.MOORE@DHHA.ORG
General Surgery, Senior Member

Moore, Frederick (Paula Jo)
University of Florida Health
1600 Southwest Archer Rd
Box 100108
Gainesville, FL 32610
352-273-5670
frederick.moore@surgery.ufl.edu
General Surgery, Senior Member

Moore, Laura J.
The University of Texas at Houston
6431 Fannin St.
Ste. 4.270
Houston, TX 77030
713-500-7244
laura.j.moore@uth.tmc.edu
General Surgery, Active Member

Morris, Jr., John (Julia)
Vanderbilt University Medical Center
3401 West End Avenue
Suite 290
Nashville, TN 37203
615-936-0176
john.morris@vumc.org
General Surgery, Senior Member

Moulton, Steven (Karen)
Children's Hospital Colorado
Pediatric Surgery, B-323
13123 E. 16th Ave.
Aurora, CO 80045
720-777-3625
Steven.Moulton@childrenscolorado.org
Pediatric Surgery, Senior Member

Murray, Jim (Debi)
1045 Atlantic Avenue
Suite 1004
Long Beach, CA 90813
562-432-9911
jmurraymd@socal.rr.com
Surgical Critical Care, Senior Member

Namias, Nicholas (Beth)
University of Miami Miller School of Medicine
PO Box 016960 D40
Miami, FL 33101
305-585-1822
nnamias@med.miami.edu
Surgical Critical Care, Senior Member

Nastanski, Frank (Jennifer)
999 North Tustin Ave #109
Santa Ana, CA 92705
714-954-1182
fnastans@yahoo.com
General Surgery, Active Member

Neideen, Todd (Jen)
Froedtert & The Medical College of Wisconsin
8701 Watertown Plank Road
Milwaukee, WI 53226
414-955-1732
tneideen@mcw.edu
General Surgery, Active Member

Nelson, Gerald (Doris Nelson)
825 N. Hillside Street
Wichita, KS 67214
316-684-1524
geraldnelson1@comcast.net
Plastic Surgery, Retired Member

Neviaser, Robert (Anne)
George Washington University
14620 Seneca Road
Germantown, MD 20874
301-869-1919
rjneviaser@gmail.com
Orthopaedic Surgery, Retired Member

Nirula, Raminder (Julie)
University of Utah
Department of Surgery
30 N. 1900 E. #3B110
Salt Lake City, UT 84132
801-587-9367
r.nirula@hsc.utah.edu
Surgical Critical Care, Active Member

Norman, Michael (Jennifer Hoang)
350 N Texas Ave
Suite A-2
Webster, TX 77598
713-293-2995
norman_m101@yahoo.com
General Surgery, Active Member

Notrica, David
Phoenix Children's Hospital
1919 E. Thomas Road
Trauma Services
Phoenix, AZ 85016
602-933-5601
dnotrica@phoenixchildrens.com
Pediatric Surgery, Active Member

O'Connor, Robert (Johannah)
Lee Health
2780 Cleveland Ave
Ste 702
Fort Myers, FL 33901
239-343-3474
b.oconnor2008@gmail.com
Surgical Critical Care, Active Member

Offner, Patrick (Rebecca)
Sky Ridge Medical Center
10101 Ridgegate Parkway
Lone Tree, CO 80124
303-523-6753
poffner@comcast.net
General Surgery, Senior Member

O'Malley, Keith (Susan)
Augusta University- Medical College of Georgia
1120 15th Street
BA-4411
Augusta, GA 30912
706-721-3153
Kkayo@aol.com
Surgical Critical Care, Senior Member

Omert, Laurel (Thomas Iarrapino)
Einstein Medical Center/CSL Behring
3064 Blackberry Lane
Malvern, PA 19355
610-640-1428
omertl@yahoo.com
Surgical Critical Care, Senior Member

O'Neill, Patrick (Jennifer)
Advanced Surgical Associates
2945 S Dobson Road
Mesa, AZ 85202
480-629-5167
pj.oneill@me.com
General Surgery, Active Member

Osborn, Lesley
UT Health Emergency Department
6431 Fannin Street
JJL 431
Houston, TX 77030
713-500-7885
lesley.a.osborn@uth.tmc.edu
Emergency Medicine, Active Member

Patel, Nirav
Banner University Medical Center Phoenix
1441 N 12th Street
Phoenix, AZ 85006
602-521-5967
nirav.patel@bannerhealth.com
Surgical Critical Care, Active Member

Paul, Jasmeet (Vinita)
University of New Mexico
Department of Surgery
MSC10-5610
1 University of New Mexico
Albuquerque, NM 87131-0001
505-272-6441
jspaul@salud.unm.edu
Surgical Critical Care, Active Member

Peck, Kimberly (Shane Balderston)
Scripps Mercy Hospital
550 Washington St. Suite 641
San Diego, CA 92103
619-299-2600
peck.kimberly@scrippshealth.org
General Surgery, Active Member

Peltz, Brianne (Erik)
305 Lake Hills Drive
Kalispell, MT 59901
720-838-0531
briannea@hotmail.com
Associate Member

Pelzl, Casey (Michael)
ION Research
5439 Seminole Rd
Indian Hills, CO 80454
858-334-3168
casey.pelzl@trauma-research.com
Associate Member

Petersen, Scott (Judy Munz)
2213 E. Glenn Drive
Phoenix, AZ 85020
sprmdpc@aol.com
General Surgery, Retired Member

Pharaon, Shad
Peacehealth Southwest Medical Center
505 NE 87th Avenue
Bldg B, Suite 301
Vancouver, WA 98664
360-514-1854
kpharao@yahoo.com
Surgical Critical Care, Active Member

Pickard, Laurens (Julie)
Select One
3656 Timberside Circle Drive
Houston, TX 77025
832-654-7655
pickardlaurens@sbcglobal.net
Thoracic Surgery, Retired Member

Pickhardt, John B (Nancy)
Saint Patrick Hospital and Health Sciences Center
PO Box 7817
500 West Broadway
Missoula, MT 59807
406-542-7525
bpickhardt@saintpatrick.org
General Surgery, Senior Member

Pierce, George (Carolyn)
drgepierce@kc.rr.com
Vascular Surgery, Retired Member

Polack, E. (Wendy)
Tower 1
Suite 101
Wheeling, WV 26003
304-243-3134
eppwv1@yahoo.com
Plastic Surgery, Senior Member

Potenza, Bruce (Donna L. Shettko, DVM)
Phoenix VAMC
14112 N 172nd Ave
Surprise, AZ 85388
bruce.potenza@va.gov
Surgical Critical Care, Senior Member

Prater, Samuel (Erica)
McGovern Medical School at UTHealth
6431 Fannin Street
JJL433
Houston, TX 77030
713-704-5007
SAMUEL.J.PRATER@UTH.TMC.EDU
Emergency Medicine, Active Member

Reed, R. Lawrence (Geraldine)
IU Health Physicians
Suite 635
1801 N. Senate Ave.
Indianapolis, IN 46202
317-963-1400
rreed8@iuhealth.org
General Surgery, Senior Member

Reilly, Eugene (Jennafer Kathleen)
Tower Health
Trauma Program, T-Ground
301 S. Seventh Avenue
Reading Hospital
West Reading, PA 19611
484-628-4884
eugene.reilly@towerhealth.org
Preventive Mediine: Informatics, Active Member

Rhee, Peter (Emily)
Westchester Medical Center
100 Woods Road
Taylor Pavilion
Valhalla, NY 10595
404-387-9901
peterhee@hotmail.com
Surgical Critical Care, Senior Member

Richards, Justin
R Adams Cowley Shock Trauma Center
22 S Greene St.
T1R77
Baltimore, MD 21201
410-328-0315
justinrichardsmd@gmail.com
Anesthesiology, Active Member

Rives, Terry
Tarrant County Hospital Dist. Dba JPS Health Network
1137 NW Renfro St.
Burleson, TX 76028
trives@jpshealth.org
Retired Member

Rizzo, Anne (Michael A. Fantini)
INOVA Fairfax Medical Campus
3300 Gallows Rd
Falls Church, VA 22042
703-343-5241
anne.rizzo@inova.org
General Surgery, Senior Member

Roettger, Richard (Sara)
Surgical Specialists of Charlotte
SSM DePaul Hospital, Bridgeton, MO
25 Balmagoun Lane
St. Louis, MO 63122
704-364-8100
rsroettger@charter.net
General Surgery, Senior Member

Rosen, Nelson (Jeanne)
Cincinnati Children's Hospital
Medical Center
3333 Burnet Avenue
MLC 2023
Cincinnati, OH 45229
513-636-3240
nelson.rosen@cchmc.org
Pediatric Surgery, Active Member

Rosenthal, Drew
Memorial Regional Hospital
1150 N 35th Ave
Ste. 600
Hollywood, FL 33021
954-265-5969
anrosenthal@mhs.net
Surgical Critical Care, Active Member

Ross, Steven (Carolyn)
Cooper University Hospital
3 Cooper Plaza
Suite 411
Camden, NJ 8103
856-342-3341
rosssemd@hotmail.com
General Surgery, Senior Member

Rossi, Daniel (Latisha)
Alaska Colorectal Surgery
2751 Debarr Road
Suite 280
Anchorage, AK 99508
907-222-1401
DAN@AKCRS.COM
Colorectal Surgery, Active Member

Rowell, Susan (Brett Rabata)
Duke University School of Medicine
DUMC 2837
Durham, NC 27710
rowells@ohsu.edu
General Surgery, Active Member

Rozycki, Grace (David V. Feliciano, MD)
640 South River Landing Road
Edgewater, MD 21037
317-586-3513
grace.rozycki@att.net
General Surgery, Senior Member

Rutherford, Ed (Eloise)
3024 New Bern Ave., Suite 304
Raleigh, NC 27610
919-350-8729
DCCLXI@gmail.com
General Surgery, Senior Member

Ryan, Kevin
ksryan@ecryan.com
Retired Member

Sava, Jack (Lisa Kountoupes)
MedStar Washington Hospital
Center
110 Irving Street NW
Room 4B39
Washington, DC 20010
202-877-5190
Jack.A.Sava@Medstar.net
General Surgery, Active Member

Savage, Stephanie
University of Wisconsin School of
Medicine and Pub
600 Highland Ave
G5/341
Madison, WI 53792
608-263-2474
saasavage@hotmail.com
Surgical Critical Care, Active Member

Sawyer, Mark (Florencia G. Que, MD)
Mayo Clinic
700 W. Avenue South
LaCrosse, WI 54601
608-392-8831
sawyer.mark@mayo.edu
Surgical Critical Care, Senior Member

Scalea, Thomas
R Adams Cowley Shock Trauma Center
22 S. Greene St.
Baltimore, MD 21201
410-328-8976
tscalea@som.umaryland.edu
General Surgery, Senior Member

Schermer, Carol
Astellas Pharma
One Astellas Way
Northbrook, IL 60062
916-813-8264
cschermer@sbcglobal.net
Surgical Critical Care, Senior Member

Schiller, Henry (Jean)
Mayo Clinic
200 First Street SW
Rochester, MN 55905
507-255-2245
schiller.henry@mayo.edu
General Surgery, Senior Member

Schinkel, Christian
Klinikum Memmingen
Bismarckstr. 23
Memmingen, CO 87700
x498331702356
Christian.schinkel@klinikum-memmingen.de
Orthopaedic Surgery, Active Member

Schreiber, Martin (Karen L. Kwong MD)
OHSU
3181 SW Sam Jackson Park Rd
Portland, OR 97239
503-494-5300
schreibm@ohsu.edu
Surgical Critical Care, Senior Member

Schultz, David (Vicki)
Surgical Associates of Neenah
100 Theda Clark Medical
#400
Neenah, WI 54956
920-725-4527
david.schultz@thedacare.org
General Surgery, Active Member

Schurr, Michael (Melinda)
Mountain Area Health Education Center
509 biltmore avenue
Asheville, NC 28801
828-776-5735
michael.schurr@msj.org
Surgical Critical Care, Senior Member

Schuster, Kevin (Donna)
Yale School of Medicine
330 Cedear Street
BB 310
New Haven, CT 06520-8062
203-785-2572
kevin.schuster@yale.edu
General Surgery, Active Member

Scifres, Aaron (Christina Scifres, MD)
Indiana University
IU Methodist
1730 N. Capitol Ave.
B253
Indianapolis, IN 46202
317-962-6024
amscifres@gmail.com
General Surgery, Active Member

Shapiro, Mark (Jennifer)
PRH
9 Strawberry Ln
Stratham, NH 03885
603-583-5367
mlshap@me.com
General Surgery, Active Member

Shatz, David (Janice)
University of California, Davis
UC Davis Medical Center, Dept. of Surg
2315 Stockton Blvd, Rm 4206
Sacramento, CA 95817
916-734-5535
dvshatz@ucdavis.edu
General Surgery, Senior Member

Sherman, Harold (Denice Suriano)
MA Home For the Bewildered
P.O. Box 276
505 Laurel Street
Lee, MA 1238
413-243-2696
hfsherman@aol.com
General Surgery, Retired Member

Slone, Denetta (George Tilden)
Swedish Medical Center
13600 Rampart Dr.
Conifer, CO 80433-5106
303-788-5300
sue.slone@healthonecares.com
General Surgery, Senior Member

Smith, R. Stephen (Nellie)
University of Florida
Department of Surgery
PO BOX 1000108
Gainesville, FL 32610-0108
316-706-0851
Steve.Smith@surgery.ufl.edu
Surgical Critical Care, Senior Member

Smoot, Dustin (Vinnie)
Surgical Institute of South Dakota
1434 E Woodland Dr
Spearfish, SD 57783
515-493-6301
dsmoot78@hotmail.com
General Surgery, Active Member

Sperry, Jason (Naomi)
University of Pittsburgh Medical Center
Presbyterian Suite F-1268
200 Lothrop Street
Pittsburgh, PA 15213
412-215-7025
sperryjl@upmc.edu
General Surgery, Active Member

Stein, Deborah (Kelly)
Zuckerberg San Francisco General Hospital
1001 Potrero Ave., Ward 3A
San Francisco, CA 94110
628-206-4623
Deborah.stein@ucsf.edu
Surgical Critical Care, Active Member

Stephenson, Keith (Julann)
Carilion Clinic Surgery
901 Plantation Rd.
Blacksburg, VA 24060-3880
540-731-7600
krstephenson@carilionclinic.org
General Surgery, Senior Member

Stevens, Mark (Marilyn)
Intermountain Medical Center
5121 So. Cottonwood st
Salt Lake City, UT 84157
801-507-3460
mark.stevens@imail.org
General Surgery, Senior Member

Stothert, Joseph (Jean)
UNMC
Dept of Surgery
983280 Nebraska Medical Center
Omaha, NE 68198
402-559-8884
jstother@unmc.edu
General Surgery, Senior Member

Sugerman, David (Ciara)
Centers for Disease Control and Prevention and Emo
2031 Addis Ababa Pl
Apt 7
Dulles, VA 20189
770-488-4646
dsugerm1@gmail.com
Emergency Medicine, Active Member

Sugerman, Harvey (Betsy)
290 Southwinds Drive
Sanibel, FL 33957
239-472-4625
hsugerman@comcast.net
General Surgery, Retired Member

Suh, Kwang
Riverside Surgical Associates
3545 Olentangy River Rd
Suite 525
Columbus, OH 43214
614-261-1900
kpkesuh@yahoo.com
Surgical Critical Care, Active Member

Sutyak, John (Wendee)
SIU
PO Box 19663
Springfield, IL 62794-9663
217-545-5183
sutyak@icloud.com
General Surgery, Senior Member

Tabatabai, Ali (Lisa Stanley)
Shock Trauma
22 South Greene Street
Baltimore, MD 21201
410-328-9781
atabatabai@umm.edu
Internal Medicine, Active Member

Tawes, Roy (Joyce)
Vascular Surgery, Retired Member

Teal, Peter (Annie)
2950 Walden Place
Billings, MT 59102
406-245-6565
peterannie55@gmail.com
Orthopaedic Surgery, Retired Member

Teso, Desarom (Cheryl)
Peacehealth Medical Group
505 NE 87th Avenue, Bldg B. Suite 301
Vancouver, WA 98664
360-514-1854
dteso@peacehealth.org
Vascular Surgery, Active Member

Tesoriero, Ronald
R Adams Cowley Shock Trauma Center
22 S. Greene St
Baltimore, MD 21201
410-328-9878
tesoriero@mac.com
Surgical Critical Care, Active Member

Testerman, George
ETSU
1125 Watauga Street
Kingsport, TN 37660
423-224-5825
gmt0@charter.net
General Surgery, Senior Member

Thomas, Herbert (Klasina VanderWerf)
H J Thomas Orthopaedics
5250 E Chenango Ave
Littleton, CO 80121
303-880-2975
hjt3ors@aol.com
Orthopaedic Surgery, Senior Member

Tibbs, Brian (Lisa Hewitt)
Texas Health Dallas Presbyterian Hospital
8230 Walnut Hill Lane
Suite 320
Dallas, TX 75231
214-369-5432
britibbs@yahoo.com
Surgical Critical Care, Active Member

Todd, S. Rob
Grady Health System
80 Jesse Hill Jr. Drive, SE
Atlanta, GA 30303
404-616-4212
srtodd@gmh.edu
General Surgery, Active Member

Toschlog, Eric (Amanda)
ECU-Brody School of Medicine
Dept of Surgery
600 Moye Blvd
Greenville, NC 27834
252-847-5715
toschloge@ecu.edu
General Surgery, Active Member

Townsend, Ricard
650-804-0197
townsendric@yahoo.com
General Surgery, Senior Member

Truitt, Michael (Jennifer)
Methodist Health System
Medical Education
1441 N. Beckley Ave
Dallas, TX 75203
214-947-2315
Mike_truitt@hotmail.com
General Surgery, Active Member

Tuggle, David (Judy)
26204 Countryside Drive
Spicewood, TX 78669
davidtuggle@gmail.com
Pediatric Surgery, Senior Member

Udekwu, Pascal (Patricia)
WakeMed Health & Hospitals
3024 New Bern Ave
Suite 304
Raleigh, NC 27610
919-350-2279
OUDEKWU@wakemed.org
Surgical Critical Care, Senior Member

Vane, Dennis (Jerrie)
Medical University of South Carolina
1340 Polly Point Rd
Wadmalaw Island, SC 29487
314-703-2053
dvane@slu.edu
Pediatric Surgery, Senior Member

Vercruysse, Gary
University of Michigan
Division of Acute Care Surgery
1500 E. Medical Center Dr.
Ann Arbor, MI 48103-5033
734-936-9690
vercruys@med.umich.edu
General Surgery, Active Member

Vermillion, John Mark (Misty)
Baptist Medical Center South / MSTA
2055 East South Blvd
Suite 601
Montgomery, AL 36116
334-286-2999
johnmarkvermillion@yahoo.com
General Surgery, Active Member

Volz, Robert (Ann)
Arizona Health Sciences Center
6701 ave de las palazas
Tucson, AZ 85750
520-343-9722
drrvolz@comcast.net
Orthopaedic Surgery, Retired Member

Wade, Charles (Barbara Jackson)
The University of Texas Health Science Center at H
6431 Fannin
MSB 5.204
Houston, TX 77030
713-500-5391
Charles.E.Wade@uth.tmc.edu
Senior Member

Wald, Steven (Linda)
469 White Horse Trail
Palm Desert, CA 92211
waldsteven@hotmail.com
Neurological Surgery, Retired Member

Watters, Jennifer (Daniel S. Hagg, MD)
St. Charles Health System
2500 NE Neff Road
Bend, OR 97701
541-706-6915
jmwatters@mac.com
Surgical Critical Care, Active Member

Weinberg, Jordan (Michelle)
St. Joseph's Hospital and Medical Center
Trauma Administration
350 W. Thomas Rd.
Phoenix, AZ 85013
602-406-3157
jordanweinberg8@gmail.com
General Surgery, Active Member

West, Michaela
North Memorial Health
3300 Oakdale Ave
Robbinsdale, MN 55426
763-561-3704
westmichaela@outlook.com
Surgical Critical Care, Senior Member

Wetjen, Nicholas
Iowa Clinic, Dept of Neurosurgery
1215 Pleasant St
Suite 608
Des Moines, IA 50309
515-241-5760
nwetjen@iowaclinic.com
Neurological Surgery, Active Member

Wilson, Robert (Jacqueline)
Detroit Receiving Hospital
4201 St. Antoine
Suite 4V-23
Detroit, MI 48201
313-745-3487
rwilson3@dmc.org
General Surgery, Retired Member

Wittmann, Dietmar (Heidi)
Medical College of Wisconsin
990 Gulf Winds Way
Nokomis, FL 34275
941-412-0308
dhwittmann@openabdomen.org
General Surgery, Retired Member

Wolf, Steven (Kristin)
UTMB
815 Market Street
Galveston, TX 77555-1220
409-770-6590
swolf@utmb.edu
General Surgery, Senior Member

Wyrzykowski, Amy
Atlanta Medical Center
315 Boulevard NE
Suite 500
Atlanta, GA 30312
404-265-3635
amy.wyrzykowski@me.com
General Surgery, Active Member

Zarzaur, Ben
University of Wisconsin - Madison
600 Highland Aveneu
G5/335
Madison, WI 53792
608-265-9574
bzarzaur@iupui.edu
General Surgery, Active Member

Zielinski, Martin (Elizabeth)
Mayo Clinic
200 1st Street SW
Rochester, MN 55905
507-255-2923
zielinski.martin@mayo.edu
Surgical Critical Care, Active Member

Zietlow, Scott (Jill Swanson, MD)
Mayo Clinic
Department of Surgery
200 First Street, SW
Rochester, MN 55905
507-255-6960
zietlow.scott@mayo.edu
Surgical Critical Care, Senior Member

Zonies, David (Eliesa Ing, MD)
OHSU
3181 SW Sam Jackson Park Rd.
L611
Portland, OR 97239
503-494-5300
zonies@ohsu.edu
Hospice and Palliative Medicine, Active Member

NOTES

NOTES

COMMERCIAL PROMOTION

The Western Trauma Association wishes to recognize and thank the following companies for their commercial promotion:

Acell, Inc.

Avanos

Haemonetics

Journal on Trauma and Acute Care Surgery

KLS Martin Group

Portola

Prytime Medical Devices, Inc.

Synapse Biomedical

Thrombo Therapeutics, Inc.

UC Health

Zimmer Biomet

WESTERN TRAUMA ASSOCIATION
4655 Rockcress Court
Zionsville, IN 46077

Telephone: 678.675.2696
Fax: 678.668.7312
Web: www.westerntrauma.org
Email: carrie@westerntrauma.org