

## **CURRICULUM VITAE**

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**Professor of Surgery and the Program in Trauma**  
**University of Maryland School of Medicine**

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### **Contact Information**

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### **EDUCATION AND TRAINING**

#### **Education**

1981 B.S., Biology, Massachusetts Institute of Technology  
1985 M.D., University of Pittsburgh School of Medicine (Cum Laude)

#### **Post Graduate Education and Training**

1985-1986 Internship, General Surgery, University Health Center of Pittsburgh  
1986-1993 Residency, General Surgery, University Health Center of Pittsburgh  
1988-1991 Research Fellowship, International Resuscitation Research Center  
Research mentor: Peter Safar, MD  
1993-1994 Fellowship, Surgical Critical Care, University Health Center of Pittsburgh

#### **Certifications**

1986 Diplomate, National Board of Medical Examiners  
1994 Diplomate, American Board of Surgery (recertification 2003, 2013)  
1995 Diplomate, American Board of Surgery, Certificate of Added Qualifications in  
Surgical Critical Care (recertification 2004, 2014)  
1994-1997 Advanced Cardiac Life Support Provider  
2010 Diplomate, United Council for Neurological Subspecialties Certificate in  
Neurocritical Care  
Present Advanced Trauma Life Support Provider  
Present Drug Enforcement Agency  
Present Advanced Trauma Life Support Instructor  
Present Basic Life Support Provider  
Present Advanced Cardiovascular Life Support Provider

### **Medical Licensures**

Active Maryland Physician and Surgeon  
Active Pennsylvania Medical Physician and Surgeon

### **Employment History**

#### **Academic Appointments**

1994-1999 Assistant Professor, Surgery, University of Pittsburgh School of Medicine  
1994-1999 Assistant Professor, Anesthesiology/CCM, University of Pittsburgh School of Medicine (Secondary appointment)  
1999-2005 Associate Professor, Surgery, University of Pittsburgh School of Medicine  
1999-2002 Associate Professor, Anesthesiology/CCM, University of Pittsburgh School of Medicine (Secondary appointment)  
2002-2008 Associate Professor, Critical Care Medicine, University of Pittsburgh School of Medicine (Secondary appointment)  
2005-2008 Associate Professor with tenure, Surgery, University of Pittsburgh School of Medicine  
2008-2009 Associate Professor with tenure, Critical Care Medicine, University of Pittsburgh School of Medicine  
2008-2009 Associate Professor, Surgery, University of Pittsburgh School of Medicine (Secondary appointment)  
2009-2014 Professor with tenure, Critical Care Medicine, University of Pittsburgh School of Medicine  
2009-2014 Professor, Surgery, University of Pittsburgh School of Medicine (Secondary appointment)  
2014-2014 Interim Visiting Assistant Professor of Surgery, University of Maryland School of Medicine  
2014-2018 Professor of Surgery, University of Maryland School of Medicine (tenure track)  
2018-present Professor of Surgery with tenure, University of Maryland School of Medicine

#### **Other Employment**

1994-1997 Attending Staff, Surgery and Critical Care, VA Pittsburgh Healthcare System, Pittsburgh, Pennsylvania  
2000-2004 Consulting Staff, Critical Care Medicine, LifeCare Hospitals of Pittsburgh, Pittsburgh, Pennsylvania  
1998-2005 Consulting Staff, Critical Care Medicine, Magee-Women's Hospital, Pittsburgh, Pennsylvania  
1994-2014 Attending Staff, Surgery and Critical Care, UPMC Presbyterian, Pittsburgh, Pennsylvania  
1997-2014 Consulting Staff, Surgery and Critical Care, VA Pittsburgh Healthcare System, Pittsburgh, Pennsylvania  
2014-present Attending Staff, R Adams Cowley Shock Trauma Center of the University of Maryland Medical Center, Baltimore, MD

### **Professional Society Activities**

#### American College of Surgeons

1990-present Member  
1997-present Fellow, American College of Surgeons

#### Society of Critical Care Medicine

1990-present Member

#### Surgery Section

1997-2000 Member, Clinical Trials Committee  
1997-2007 Member, Education Committee  
2001-2006 Chair, Education Committee  
2005-2006 Section Secretary/treasurer  
2005-2006 Section Chair elect  
2005-2006 Chair, Communications Committee  
2006-2007 Section Chair

#### Graduate Medical Education/Fellowship Committee

2000-2009 Member  
2003-2004 Chair  
2007-2008 Vice-Chair  
2008-2009 Chair

#### Multidisciplinary Critical Care Knowledge Assessment Program Committee

2000-2006 Member

#### Critical Care Congress Program Committee

2006-2014 Member  
2007-present Abstract reviewer  
2010-2013 Program co-chair for 2013 Congress

#### Physician/patient Ratio Task Force

2008-2012 Member

#### Clinical Focus Conference on Hypothermia

2009-2010 Member, Program Committee

#### Models of Critical Care Delivery Task Force

2009-2015 Member

#### Quality & Safety Committee

2010-2014 Member

#### Strategic Education Committee

2010-2014 Member

#### *Critical Care Medicine* Editor-in-Chief Search Task Force

2013-2014 Member

#### Critical Care as a Specialty Task Force

2015-present Co-chair

#### Congress Travel, Registration, and Faculty Reimbursement Policy Task Force

2016-2017 Member

#### Nominating Committee

2017-2018 Member

Council

2016-present Member  
Strategic Planning Committee  
2020 Co-chair, elect  
2021 Co-chair  
2022 Past-chair

American College of Critical Care Medicine

1999-present Fellow, American College of Critical Care Medicine  
2008-2009 Nominating Committee  
2009-2016 Member, Board of Regents  
2009-2013 Chair, Guideline Utilization Committee  
2012-2013 Secretary General  
2013-2014 Vice-Chancellor  
2014-2015 Chancellor  
2015-2016 Past-Chancellor

Association for Academic Surgery

1995-present Member

Eastern Association for the Surgery of Trauma

1995-present Member  
1999-2002 Member, Multi-Institutional Trials Committee  
2000-2012 Member, Practice Management Guidelines Committee  
2009-2011 Member, Careers in Trauma Committee  
2016-2019 Member, Seniors Section

American Association for the Surgery of Trauma

2000-present Member

Association for Surgical Education

2000-present Member  
2001-2002 Surgical Education Research Fellowship

Shock Society

2000-present Member

American College of Chest Physicians

2006-present Member  
2007-present Fellow, American College of Chest Physicians

Surgical Critical Care Program Directors Society

2003-present Member  
2008-2014 Member, Education Committee  
2010-2011 Chair, Education Committee  
2011-2014 Secretary

2014-2016 President-elect  
2016-2018 President  
2018-2020 Immediate past-president

American Heart Association

2004-present Abstract reviewer  
2008-2020 Member, Program Committee, Resuscitation Science Symposium  
2016-present Member

Neurocritical Care Society

2013-2019 Member, Program Committee  
2016-2018 Certification Task Force

**Honors and Awards**

1982 Aaron Stock Award for Microbiology, University of Pittsburgh School of Medicine  
1982 Charles Guthrie Award for Physiology, University of Pittsburgh School of Medicine  
1982 American Heart Association Undergraduate Research Prize, University of Pittsburgh School of Medicine  
1983 Paul Larimer McLain Award for Pharmacology, University of Pittsburgh School of Medicine  
1984 Alpha Omega Alpha Medical School Honor Society, University of Pittsburgh School of Medicine  
1984 Heard Junior Prize in Medicine, University of Pittsburgh School of Medicine  
1984 Eli Goldstein Award (Highest scholastic performance for 3 years) , University of Pittsburgh School of Medicine  
1985 Pittsburgh Surgical Society Award, University of Pittsburgh School of Medicine  
1985 Brinton Prize (Highest scholastic performance for 4 years) , University of Pittsburgh School of Medicine  
1985 Student Leadership Service Certificate, University of Pittsburgh Medical Alumni Association  
1989 Best Basic Research Paper, Southwestern Pennsylvania Chapter of the American College of Surgeons Residents' Day  
1991 Anesthesiology Award for best scientific paper, Society of Critical Care Medicine  
1997 "Outstanding Teacher", Multidisciplinary Critical Care Training Program, University of Pittsburgh  
1999 "Hooder" of 1999 graduating class, University of Pittsburgh School of Medicine  
1999 Excellence in Education Award, University of Pittsburgh School of Medicine  
2000 Shubin-Weil Award for Excellence in the Teaching and Ethical Practice of Critical Care Medicine, Society of Critical Care Medicine  
2003-2006 Presidential Citation, Society of Critical Care Medicine  
2006 Asmund S. Laerdal Memorial Lecture Award  
2008-2009 Presidential Citation, Society of Critical Care Medicine

- 2008, 2010 Pitt Innovator Award, University of Pittsburgh  
2006 Clinical Preceptor of the Year, University of Pittsburgh School of Medicine  
2007 Faculty Recognition Award (Class of 2007), University of Pittsburgh School of Medicine  
2007 Golden Apple Award Nominee, University of Pittsburgh School of Medicine  
2007 “Coater” for class of 2011, University of Pittsburgh School of Medicine  
2009 Lifetime Achievement Award in Trauma Resuscitation Science, American Heart Association Resuscitation Science Symposium  
2012 Best trauma abstract, American Heart Association Resuscitation Science Symposium  
2014 Ake N. Grenvik, MD, PhD, Faculty of the Year  
Multidisciplinary Critical Care Training Program, University of Pittsburgh  
2014 Multidisciplinary Critical Care Training Program Hall of Fame  
2016 Distinguished Service Award, Society of Critical Care Medicine  
2016 Gelfand Lectureship, Phi Delta Epsilon, University of Pittsburgh  
2018 Physician Colleague Award, University of Maryland School of Nursing  
2018 Cecil Gray Eponymous Lectureship, Tri-Service Anaesthetic Society  
2018 Peter Baskett Lectureship, London Trauma Conference  
2019-2020 Top Reviewer, Neurocritical Care Journal

### **Clinical Activities**

### **Clinical Expertise**

Board certified general surgeon

Additional certification in surgical critical care and neuro critical care

Clinical interests include hemorrhagic shock, cardiac arrest, hypotensive fluid resuscitation, therapeutic hypothermia, sepsis, simulation

### **Scope of Clinical Expertise**

- 1994-1997 General surgery coverage at the VA Pittsburgh Healthcare System  
1994-2006 General surgery and trauma coverage at UPMC Presbyterian  
1994-2014 Critical care coverage at UPMC Presbyterian  
2014-present Critical care coverage at the University of Maryland Medical Center

### **Clinical Positions**

- 1994-1996 Co-director, Surgical Intensive Care Unit, Montefiore University Hospital  
1996-1998 Co-director, Surgical Intensive Care Unit, Presbyterian University Hospital  
1998-2008 Co-director, Trauma/Surgical Intensive Care Unit, UPMC Presbyterian  
2008-2014 Director, Neurotrauma Intensive Care Unit, UPMC Presbyterian  
2014-present Director, Surgical Intensive Care Unit, University of Maryland Medical Center  
2016-present Director, Surgical Intermediate Care Unit, University of Maryland Medical Center

### **Clinical Performance Improvement**

Projects initiated in the Surgical Intensive Care Unit of UMMC

1. Family Centered Care Committee initiated to improve involvement of families in patient care and improve support for families of critically ill patients
2. Albumin Utilization Initiative designed to education providers regarding hospital guidelines for albumin utilization and decrease inappropriate utilization
3. Airway Emergency Management Taskforce designed to develop strategies to decrease the risk of unplanned extubations and airway emergencies
4. Operation Hard Stop designed to improve transitions of care between the operating room and the intensive care unit
5. Alarm Reduction Initiative to decrease the frequency of unnecessary alarms with the goal of mitigating alarm fatigue and improving response to true emergencies
6. Injury Prevention Taskforce designed to develop and implement strategies to mitigate healthcare associated patient injuries

### **Administrative Service**

#### **Institutional Service**

##### University of Pittsburgh Committees

1995-2000	UPMC Biomedical Institutional Review Board
1996-2000	University of Pittsburgh Clinical Trials Steering Committee
1995-2008	Medical School Dean's Applicant Interview Committee
1997-present	Minute Men of the Medical School of the University of Pittsburgh
2000-2014	GME Committee
2000-2014	GME Committee, Internal Reviewer
2000-2003	Resident Alumni Association Advisory Group
2000-2009	School of Medicine Student Retention Committee
2002-2005	Awards Committee, Medical Alumni Association, University of Pittsburgh
2004-2006	Member at large, Medical Alumni Association, University of Pittsburgh
2004-2009	School of Medicine Student Promotions Committee (alternate member)
2004-2005	Member, Committee for Non-tenured Faculty Promotions and Appointments
2005-2009	Vice-chair, Committee for Non-tenured Faculty Promotions and Appointments
2009-2014	Chair, Committee for Non-tenured Faculty Promotions and Appointments
2008-2014	Member, Admissions Committee
2012-2014	Member, University Faculty Assembly
2013-2014	Member, University Faculty Senate
2013-2014	Member, Senate Computing Usage Committee
2013-2014	Member, Senate ad hoc Committee to Investigate Non-tenure Stream Faculty Issues

University of Maryland, Baltimore Committees

- 2015-2016 Co-chair, Committee on Continuing Medical Education
- 2016-present Chair, Advisory Committee on Continuing Medical Education

UPMC Presbyterian Committees

- 1992-1994 Organ Donor Committee - University of Pittsburgh Medical Center
- 1994-1995 Interim chairman, MUH SICU Committee
- 1994-1998 UPMC Emergency Department Committee of the Medical Staff
- 1994-1998 UPMC ICU Committee for the Medical Staff
- 1994-1999 VAMC ICU Committee
- 1994-1999 UPMC ICU Committee
- 1999-2000 UPMC Presbyterian Enteral Access Task Force
- 2000-2002 UPMC Presbyterian Tracheostomy Task Force
- 2003-2004 UPMC Presbyterian Blood Donation Task Force
- 1999-2014 UPMC Presbyterian Critical Care Service Committee
- 2009-2014 Practitioner Health Committee
- 2009-2009 Hospital Acquired Infection Quality Initiatives Team
- 2009-2010 UPMC Presbyterian Tracheostomy Task Force
- 2011-2014 UPMC Presbyterian Shadyside Technology Assessment Committee

University of Maryland Medical System Committees

- 2016-2020 University of Maryland Critical Care Network, Clinical Performance Committee
- 2019-present Co-Clinical Lead, Acute Respiratory Failure Improvement Project
- 2019-present University of Maryland Critical Care Network, Sepsis Initiative

University of Maryland Medical Center Committees

- 2014-present UMMC Critical Care Operations Committee
- 2015-2016 UMMC Alarm Management Task Force
- 2015-present Shock Trauma Oversight Committee
- 2015-present Shock Trauma ICU Committee
- 2015-present UMMC Resuscitation Committee
- 2015-present Shock Trauma Research Committee
- 2015-present UMMC Patient Blood Management Committee
- 2016-2017 UMMC Pharmacoeconomics and Cost Effectiveness Strategies Committee
- 2016-present UMMC Antimicrobial Subcommittee of the Pharmacy and Therapeutics Committee
- 2019-present Co-chair, Executive Infection Control Committee
- 2019-present Co-chair, Sepsis Task Force
- 2021-present Chair, Rise and Shine Committee
- 2022-present Co-Chair, Palliative Care Sub-committee of Critical Care Operations Committee

University of Pittsburgh Departmental Committees

- 1991-1992 Residency Working Environment Committee, Department of Surgery
- 1994-1996 Critical Care Fellowship Issues
- 1995-1997 APACHE Steering Committee



1998-2000 Anesthesiology Department Clinical Competence Committee  
1999-2000 Search Committee for Chief of Critical Care Medicine  
1994-2014 Multidisciplinary Critical Care Training Program Education Committee  
1997-2007 Anesthesiology Department Clinical Education Committee  
1998-2009 Surgery Department Education Subcommittee of the Residency Committee  
2002-2007 Surgery Department Residency Committee  
2000-2009 Chair, Department of Surgery Medical Student Clerkship Committee  
2008-2014 Department of Critical Care Medicine Promotions Committee  
2009-2010 Chair, Department of Critical Care Medicine Patient Care Workflow Taskforce

#### University of Maryland Departmental Committees

2014-present Member, Clinical Competency Committee, Surgical Critical Care Fellowship,  
University of Maryland  
2016-2019 MASTRI Advisory Committee

#### National Service

2001-present Consultant to the Food and Drug Administration, Center for Devices and  
Radiological Health, Neurological Devices Panel  
2004 Participant, National Board of Medical Examiners Webcast Surgery Grading  
Study  
2004 Consultant to U.S. Army Medical Research and Materiel Command's  
Telemedicine and Advanced Technology Research Center (TATRC)  
2005-2011 Examination consultant, Committee on Surgical Critical Care, American Board of  
Surgery  
2015-2021 Board member, Trauma, Burns and Surgical Critical Care Board – American  
Board of Surgery  
2015-2021 American Board of Surgery representative to the American Board of  
Anesthesiology Critical Care Medicine Examination Committee

#### Editorial Service

1996 *Critical Care Medicine*, Guest Co-editor, February Supplement  
2008-present Editorial Board Member, *Critical Care Medicine*  
2009-present Editorial Board Member, *Critical Care Research and Practice*  
2017-2019 Editor, *Critical Connections*  
2017-present Section Editor for Surgical Education, *Current Surgery Reports*

#### Ad hoc Reviewer

2004 *Brain Research* (1x/yr)  
2004-present *Critical Care Medicine* (5x/yr)  
2005-present *Resuscitation* (2x/yr)  
2006-2007 *Surgical Infections* (1x/yr)  
2006-2011 *Journal of the American College of Surgeons* (1x/yr)  
2006-2014 *Pediatric Critical Care Medicine* (2x/yr)  
2007 *Gender Medicine* (1x/yr)  
2007 *Intensive Care Medicine* (1x/yr)

2007 *Journal of Applied Physiology* (2x/yr)  
2007-2009 *Journal of Neurotrauma* (1x/yr)  
2007-present *Journal of Critical Care* (1x/2 years)  
2007-2018 *Journal of Intensive Care Medicine* (1x/yr)  
2007-2019 *Neurocritical Care* (2x/yr)  
2008 *Expert Opinion on Investigational Drugs* (1x/yr)  
2008 *Neurosurgical Focus* (2x/yr)  
2010-2015 *Critical Care* (1x/yr)  
2010-present *Journal of Trauma and Acute Care Surgery* (2x/yr)  
2011 *Journal of Research in Medical Sciences* (1x/yr)  
2011-present *Respiratory Care* (1x/yr)  
2012 *Anesthesiology* (1x/yr)  
2012-2013 *ASAIO Journal* (1x/yr)  
2014 *BioMed Central* (1x/yr)  
2015-2018 *JAMA Surgery* (1x/yr)  
2015-present *Therapeutic Hypothermia and Temperature Management* (2x/yr)  
2016 *BMC Anesthesiology* (1x/yr)  
2016-present *PLOS ONE* (1-2x/yr)  
2016-present *Military Medicine* (1x/yr)  
2017 *BMC Geriatrics* (1x/yr)  
2017 *Dove Medical Press* (1x/yr)  
2017 *Trauma* (1x/yr)  
2018 *Brain Injury* (1x/yr)  
2019 *Pflügers Archiv - European Journal of Physiology*  
2019-present *Critical Care Explorations* (1x/year)  
2019-present *BMC Medical Education* (1x/year)  
2019-present *American Journal of Surgery* (1x/year)  
2020 *Journal of Thermal Biology*

#### Grant Reviewer

2004 Oesterreichsische Nationalbank Anniversary Fund for the Promotion of Scientific Research and Teaching  
2005 Jeffress Research Grant from the Thomas F. and Kate Miller Jeffress Memorial Trust  
2011 National Medical Research Council of Singapore  
2011 American Institute of Biologic Sciences  
2011, 2012 Austrian Science Fund  
2013 Greenwall Foundation  
2013 NASA Postdoctoral Program  
2016 NIH SIREN Special Emphasis Panel ZNS1 SRB-G (08)  
2017 NASA Innovative Advanced Concepts Program  
2017-2020 Department of Defense Combat Casualty Care Research Program  
2019 Department of Defense Peer Reviewed Medical Research Program  
2019 Department of Defense Combat Readiness Medical Research Program  
2020 Department of Defense Joint Warfighter Medical Research Program  
2021 Department of Defense Medical Research and Development Program

2022 Department of Defense Peer Reviewed Medical Research Program  
2022 NIH NHLBI and NINDS Review Panel

#### Research Positions Held

1989-1995 Steering Committee member, Brain Resuscitation Clinical Trial  
2000-2014 Associate Director, Safar Center for Resuscitation Research  
2014-present Associate Scientist, Safar Center for Resuscitation Research  
2004-2014 Resuscitation Outcomes Consortium  
Member, Steering Committee  
Chair, Regulatory Committee

#### Data Safety Monitoring Committees

2008-2011 Pilot Study of Hemofiltration after Traumatic Injury  
2008-2011 Pilot Study of Hemofiltration after Out-Of-Hospital Cardiac Arrest

#### Corporate Positions

1997-1999 Scientific and Medical Advisory Board, Life Resuscitation Technologies, Inc.  
2002 Wound Care Advisory, Bristol-Myers Squibb  
1997-2000 Scientific Advisory Board, Cardeon  
2000-2008 Trauma Studies Committee, Biopure  
2006-2008 Consultant, Fibrex Medical, Vienna, Austria  
2006-2008 Consultant, Velomedix  
2007-2010 Scientific Advisory Board, Myotech, Inc.  
2009-2010 Scientific Advisory Board, Therapeutic Reperfusion Advanced Integrated Network (TRAIN)  
2012-2014 Data Safety Monitoring Board, Velomedix  
2018-present Data Safety Monitoring Board, CoolTech

#### Local Service

1982-1983 President, American Medical Student Association, University of Pittsburgh Chapter  
1983-1984 Vice-president, Phi DE Medical Fraternity, University of Pittsburgh Chapter  
1984-1985 Vice-president, Alpha Omega Alpha, University of Pittsburgh Chapter  
1984-1985 President, Student Executive Council, University of Pittsburgh School of Medicine  
1998-1999 "Build for the Future" Leadership Committee, Fox Chapel Country Day School  
1999-2002 Board of Trustees, Fox Chapel Country Day School  
2004-2009 Alumni Council, Shady Side Academy

## **Teaching Service**

### **Teaching Positions – University of Pittsburgh**

1990-2012	Faculty advisor, Scope and Scalpel Society, University of Pittsburgh
1994-1996	Assistant Director, Surgical Critical Care Fellowship, University Health System of Pittsburgh
1996-2014	Director, Surgical Critical Care Fellowship, University Health System of Pittsburgh
1997-2010	Advisor, Medical Student Surgery Interest Group, University of Pittsburgh School of Medicine
1997-2014	Associate Director, CCM Education - Resident Programs, Department of Critical Care Medicine
2000-2010	Director, Surgery and Perioperative Care Clerkship, University of Pittsburgh School of Medicine
2004-2009	Director, Surgery Integrated Life Sciences Course, University of Pittsburgh School of Medicine
2004-2009	Director of Education – Critical Care, Department of Surgery, University of Pittsburgh
2006-2014	Member, Academy of Master Educators, University of Pittsburgh School of Medicine
2007-2014	Director, Acute Care Surgery Fellowship, University Health Center of Pittsburgh
2010-2012	Interim director, Multidisciplinary Critical Care Training Program, Department of Critical Care Medicine, University of Pittsburgh
2011-2014	Advisor, Medical Student Critical Care Medicine Interest Group, University of Pittsburgh School of Medicine
2012-2014	Director, Multidisciplinary Critical Care Training Program, Department of Critical Care Medicine, University of Pittsburgh
2012-2014	Advisor, Resuscitation Area of Concentration, University of Pittsburgh School of Medicine

### **Medical Student Teaching**

#### **1994-1998 First year medical students – Human Body Course Problem-Based Learning**

Facilitated small group sessions on thorax, abdomen, pelvis, and head/neck.

Approximately 10 students, 2 hours for each session.

Coordinator of this block segment, 1999-present. In 2004, working with Drs. Schumann, Humphrey, and Branstetter, we revised the cases for the PBL by updating the radiographs using the Stentor digital imaging system, including the addition of a complete set of normal films. We also revised the faculty syllabus with significantly more detailed suggestions for the facilitators.

#### **1998-2002, 2006-2010 First year medical students – Introduction to Being a Physician Course**

Small group facilitator.

Approximately 10 students, 8 hours each year.

Second year medical students - Clinical Skills Course

1995-1997 “Central venous catheters, Swan-Ganz catheters”..  
Approximately 10 students, 3 hours for each session.

Second year medical students – Clinical Procedures Course

1997-2005 Member of Course Design Group  
I initiated and organized a session on “Introduction to Surgical Techniques”. These sessions taught students about sterile technique and gave them a hands-on introduction to suturing using pigs’ feet and knot-tying using knot-tying boards. This was part of the course from 1998-2005. Approximately 50 students per session, 3 4-hour sessions per year.

Second year medical students – Integrated Case Studies

1999, 2000, 2002-2014. Team leader 2010-2014. Facilitated small group discussions.  
Approximately 10 students, 20 hours each year.

Third year students during Surgery clerkship

1995-2000 Weekly “Case Conference”, 6 students, 1 hour/week  
1995-2001 “Metabolic Response to Surgery and Nutrition”, 20 students, 1.5 hours every 6 weeks  
1998-2000 “Perioperative Management”, 20 students, 1.5 hours every 6 weeks  
1998-1999 “Suturing Workshop”, 20 students, 2 hours every 6 weeks  
1999-2010 “Suturing Workshop”, 25 students, 2 hours every 8 weeks

I developed these sessions to further develop the students suturing and knot-tying abilities with as much one-on-one teaching by residents and faculty as possible. I was able to obtain support for these sessions from the suture company.

2000-2014 “Clinical Case Conference”, 25 students, 3 1-hour sessions every 8 weeks

I developed these interactive sessions to present the students with typical clinical scenarios to review specific topics while having them work through the cases in a logical fashion.

2000-2009 “Teaching Walk Rounds”, 2-5 students, 2-3 hours 5-6 times every 8 weeks

As academic medicine has evolved, particularly on surgical services, students seem to have little opportunity to present and discuss cases with faculty. Bedside teaching seems rare. I therefore began walk rounds with students during which 4-6 students round with me at a time. They are tasked with presenting one of their patients to the group at the patient’s bedside.

2004-2014 “Trauma Simulation”, 12-14 students, 1.5 hours, twice every 8 weeks

To give students a hands-on experience in the initial assessment of trauma patients, I developed several cases for them to manage using full scale simulation at the Winter Institute for Simulation Education and Research. I have 3-4 students at a time act as the “trauma team” as they evaluated and manage the simulated trauma patient. The entire group watches and then we discuss the team’s performance and the critical points for management of that type of patient.

2000-2010 Surgery and Perioperative Care Clerkship Director

As director of the clerkship, I have added the teaching experience noted above. I also initiated mid-clerkship appointments to review students’ performance midway through the clerkship. I

also initiated a system for the students to request which services they would be assigned to for the clerkship.

Fourth year students during the Critical Care Medicine rotation and Rotating Residents

- 1995-1996 “Hypotension”, 2-3 students, 1 hour, 10 times per year
- 2000-2002 “Nutrition in the ICU”, 2-6 students and 2-3 residents, 1 hour, 12 times per year
- 1996-2014 “Lines and Hemodynamic Profiles”, 2-3 students and 2-3 residents, 1 hour, 12 times per year
- 2000-2014 “Gastrointestinal Hemorrhage”, 2-6 students and 2-3 residents, 1 hour, 12 times per year
- 2006-2014 “Hemorrhagic Shock”, 2-6 students and 2-3 residents, 1 hour, 12 times per year

2004-2010 Director, Surgery Integrated Life Sciences Course

This course is designed to integrate anatomy, pathophysiology, radiology, and clinical procedures for students before they graduate. Originally, the course was offered twice, with one course focusing on gastrointestinal and genitourinary issues and the other on thoracic and orthopedic issues. This was confusing and inefficient. In 2007, I totally reorganized the structure of the course to have a single course that would cover thoracic, gastrointestinal, and genitourinary issues in an organized fashion. This new version is now offered twice to students.

Medical student interest groups

University of Pittsburgh School of Medicine

1997-2010 Advisor for Surgery Interest Group

I initiated this interest group along with a group of medical students and Dr. Charles Watson. The activities of the group included shadowing experiences, receptions with faculty, and lunch-time discussions regarding careers in Surgery.

2011-2014 Advisor for Critical Care Medicine Interest Group

I initiated this interest group along with a group of medical students. The activities of the group included shadowing experiences, receptions with faculty, and lunch-time discussions regarding careers in Critical Care Medicine. We also have developed a series of critical care case discussions to coincide with the organ block curriculum for second year students.

2012-2014 Resuscitation Area of Concentration

I initiated this group in cooperation with faculty from the Departments of Emergency Medicine, Surgery, and Physical Medicine and Rehabilitation. Students learn about resuscitation from these various perspectives in a longitudinal experience through medical school. They participate in journal clubs and workshops. In addition, they are expected to participate in specific resuscitation-related electives and complete a scholarly project on a resuscitation topic.

University of Maryland School of Medicine

2015-present Medical student Surgery Bootcamp

I gave a lecture on How to Survive in the ICU to medical students interested in surgical careers.

Medical student advising

- 1997-2005 Advisor for 19 students in the Faculty and Students Together program, University of Pittsburgh School of Medicine  
1997-2010 Career advisor for 49 students of the University of Pittsburgh School of Medicine

**Resident and Fellow Teaching**

Conferences with residents (surgery and anesthesiology) rotating in the Intensive Care Unit

- 1994-2000 “Hemorrhagic Shock and GI bleeding”, 2 residents, 1 hour, 6 times per year  
1996-2000 “Nutrition”, 2 residents, 1 hour, 6 times per year  
1997-2000 Weekly “Case Conference”, 2 residents, 1 hour/week

Surgical Critical Care Fellowship

I was appointed as Director of the fellowship in 1996. This fellowship is part of the Multidisciplinary Critical Care Training Program (MCCTP) directed by Dr. Paul Rogers. I work with Dr. Rogers and the other fellowship directors to ensure that our training program meets the educational requirements set by the ACGME. I have successfully maintained accreditation of the program through site visits in 1996, 2000, 2005, 2010.

I was actively involved with the Education Committee for the MCCTP. In 2007 and 2008, I have worked with Dr. Jason Moore and Joe Darby to develop oral exams for evaluating the fellows’ abilities to logically work through complex critical care cases.

I have mentored 62 surgical critical care fellows between 1994 and 2014. Six of these fellows have also been acute care surgery fellows.

Acute Care Surgery Fellowship

This is a new fellowship based upon the surgical critical care fellowship and training in trauma and emergency general surgery. I was appointed as Director, with Dr. Andrew Peitzman as Co-Director. Dr. Jason Sperry was Associate Director. We have developed the curriculum and achieved accreditation by the American Association for the Surgery of Trauma.

Multidisciplinary Critical Care Training Program - University of Pittsburgh

I was appointed interim director of the MCCTP in 2010. In 2012, I became the permanent director of the Program. In that role, I oversaw the training of critical care fellows in all adult programs under the Department of Critical Care Medicine, including Critical Care Medicine (which includes trainees from internal medicine and emergency medicine), Anesthesiology Critical Care Medicine, Neurocritical Care, and Surgical Critical Care. We also have the International Multidisciplinary Program in Advanced Critical Care Training and an Extracorporeal Membrane Oxygenation Fellowship.

Conferences for Critical Care Medicine fellows – University of Pittsburgh

- 1994-2014 “CPR and Advanced Resuscitation Techniques”  
1995 “Abdominal Abscess”  
1995-1999 “GI Bleeding”  
1995 “Case Presentation”

1995-2002 “Surgical Airways and Chest Tubes”  
1995-2001 “Cadaver Workshop - Chest tubes, surgical airways”  
1995-2014 “Hypothermia”  
1996-2001 “Acute Abdomen”  
1996, 1997 “Stress Ulcers”  
1996-1998 “Trauma cases”  
1999-2003 “Nutrition I”  
2000-2001 “Knot-tying Workshop”  
2000 “Line-placement Workshop”  
2001-2014 “Abdomen Core Lecture”  
2002-2014 “Chest tubes, knot-tying, suturing”  
2003-2014 “Surgical Cases”  
2006-2014 “Hemorrhagic shock”.  
2008-2014 “Interesting case discussions”  
2009-2014 “Professor rounds”: I participated as a facilitator and organizer for these bedside teaching rounds.

Lectures to Nurse Practitioner Students – University of Pittsburgh

1995-1999, 2002-2014 “Assessment and Management of Ventilator Weaning”.  
1998-2014 “Diagnosing and Managing Acute GI Bleeding”.

Lecture to Bioengineering Students – University of Pittsburgh

2002, 2004, 2006 “Trauma for Bioengineers”.

**Teaching Positions – University of Maryland**

2014-present Director, Center for Critical Care and Trauma Education

R Adams Cowley Shock Trauma Center, University of Maryland Medical Center  
I provide oversight for the Shock Trauma Center Simulation Center and develop new simulation programs for a variety of trainees within UMMC and the STC. We have developed trauma assessment, hemoptysis, and gastro-intestinal bleeding simulations for critical care fellows. We have also developed a workshop on critical care communication for fellows utilizing standardized patients and family members, as well as our own nurses, chaplains, and social workers.

2017-present Chair, Education Subcommittee for the Surgical Critical Care Fellowship

We have been charged with identifying opportunities for improving the education curriculum for the fellowship, then developing strategies for implementing new approaches to educating critical care fellows.

Conferences for Critical Care Medicine fellows – University of Maryland

2015-present “Surgical Emergencies”  
2015-present “Update on Therapeutic Hypothermia”  
2015-present “Nutrition”  
2015-present “Promotion Process”



2015-present “Billing and Compliance”  
2015-present “Abdominal Catastrophes”  
2016-present “Preventing Surgical Airway Disasters”

Lectures for Nursing

2016-present “Sepsis”

Clinical Teaching

In addition to the formal lectures and conferences above, I routinely supervise and teach medical students, residents, and critical care fellows during clinical care of patients.

**Grant Support**

**Active Grants:**

2021-present (Local PI, 5%)  
“Skills Determination, Decay and Delay Study (SD3)”  
United States Army Medical Research Acquisition Activity  
Total costs: \$750,000

2021-present (Co-PI)  
“Gamification and In-situ, interprofessional simulation to improve the response to rapidly deteriorating patients”  
University of Maryland Medical Center Innovation Challenge Award  
Total costs: \$124,450

2020-present (Co-I, 2% effort)  
“Cooling to Help Injured Lungs (CHILL) Phase IIB Randomized Control Trial of Therapeutic Hypothermia in Patients with ARDS”  
Total costs requested: \$12,899,240

2020-present (Co-PI: 5%)  
“Medic Surgical Technical Assistance Tool (mSTAT) Development and Testing”  
US Army Medical Research & Materiel Command  
Total costs requested: \$998,133

2018-present (PI: 10%)  
“Safety and Feasibility of Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma (EPR-CAT)”  
US Army Medical Research & Materiel Command  
Total costs: \$1,176,968

**Completed Grants:**

- 2017-2021 (Co-PI: 5%)  
“Emergency Refreshing of Combat Surgical Skills”  
US Army Medical Research & Materiel Command  
Total costs: \$1,471,317
- 2017-2018 (Co-investigator)  
“A new era of “See one, Do one, Teach one.” Using an Interprofessional Education Module to Learn, Teach, and Optimize the Treatment of Sepsis”  
Interprofessional Education (IPE) and Interprofessional Care (IPC) Seed Grant  
University of Maryland Center for Interprofessional Education  
Total Cost: \$14,985
- 2015-2018 (Co-investigator)  
“Managing acute pain in non-communicative hospitalized palliative care patients”  
National Institute of Nursing Research  
Total costs: \$470,349
- 2015-2016 (Co-investigator: 2%)  
“Use of Performance Measures to Evaluate, Document Competence and Deterioration of Advanced Surgical Skills Exposure for Trauma (ASSET) Surgical Skills”  
U.S. Army Medical Research and Materiel Command, W81XWH-13-2-0028
- 2012-2014 (Co-investigator: 5%)  
“Neurological Emergencies Treatment Trial (NETT) Network Pittsburgh Clinical Hub”  
NINDS, 1U10 NS080371 01
- 2010-2011 (Co-investigator)  
“The effect of superoxygenated asanguineous perfusion after exsanguination cardiac arrest treated by emergency preservation and resuscitation”  
Laerdal Foundation for Acute Medicine  
Cost: \$12,000
- 2009-2011 (Co-investigator)  
“Microglia as a novel therapeutic target in exsanguination cardiac arrest and emergency hypothermia”  
American Heart Association  
Total costs: \$132,000
- 2008-2011 (Co-investigator)  
“The effect of microglial activation on neurologic outcome after deep hypothermic circulatory arrest in rats”  
Society of Cardiovascular Anesthesiologists

Total costs: \$40,000

- 2007-2017 (PI while at the University of Pittsburgh, then local PI at the University of Maryland: 10%)  
“Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma (EPR-CAT)”  
Telemedicine and Advanced Technology Research Center, US Army, W81XWH-07-1-0682  
Total costs: \$813,000
- 2007-2008 (Co-investigator)  
“Microglia – A novel therapeutic target for Emergency Preservation and Resuscitation”  
Laerdal Foundation for Acute Medicine  
Total costs: \$15,000
- 2005-2007 (Co-investigator)  
“A randomized, double-blind, placebo-controlled study to determine the efficacy and safety of epoetin alfa in critically ill subjects”  
Johnson & Johnson Pharmaceutical Research & Development, LLC  
Total costs: \$60,000
- 2004-2014 (Co-investigator: 20%)  
“Resuscitation Outcomes Consortium”  
NHLBI, U01 HL077871  
Total costs, \$400,000/year
- 2001-2002 (UPMC PI)  
“A phase II, multicenter, randomized, double-blind, placebo-controlled, parallel-group, dose-ranging evaluation of the safety and efficacy of  $\alpha$ -hANP infusion (Carperitide for injection. SUN4936) in patients with acute respiratory distress syndrome (ARDS)”  
Suntory Corporation
- 2000-2005 (Co-PI: 25%)  
“Novel Resuscitation from Lethal Hemorrhage. Suspended Animation for Delayed Resuscitation”  
US Army-Combat Casualty Care  
Total costs: \$1,000,000/yr
- 2000-2003 (UPMC PI: 5%)  
“A Prospective, Randomized, Double-Blind, Multicenter Trial Assessing The Safety And Efficacy Of Sequential (Intravenous/Oral) BAY 12-8039 (Moxifloxacin) 400 Mg Every 24 Hours Compared To Intravenous Piperacillin/Tazobactam 3.375 Grams Every 6 Hours Followed By Oral

- Amoxicillin/Clavulanic Acid Suspension 800 Mg Every 12 Hours For The Treatment Of Patients With Complicated Intra-Abdominal Infections”  
Bayer  
Total costs: \$52,000
- 2000-2003 (PI: 25%)  
“Novel Resuscitation from Lethal Hemorrhagic Shock”  
US Office of Naval Research Conduct and Compliance  
Total costs: \$270,000/year
- 1999-2003 (UPMC PI: 5%)  
“Prophylactic Antibiotics in the Management of Tube Thoracostomy for Traumatic Hemopneumothorax (PAMOTTTH study)”  
Department of Surgery funds
- 1999-2000 (UPMC PI: 5%)  
“LY333328 versus Vancomycin in Skin/Skin-structure Infections”  
Eli Lilly
- 1998-1999 (Co-investigator)  
“A Prospective, Multi-center, Double-Blind, Randomized Comparative Study to Evaluate the Safety, Tolerability, and Efficacy of MK-0826 Versus Piperacillin-Tazobactam in the Treatment of Complicated Intra-abdominal Infections in Hospitalized Adults”  
Merck
- 1998-1999 (Co-investigator)  
“Phase 2b Safety and Efficacy Study of HU23F2G in Subjects with Hemorrhagic Shock”  
ICOS Corporation
- 1998-1999 (UPMC PI)  
“A Randomized, Double-Blind, Placebo-Controlled, Multi-Center Phase III Study of Intravenous Betafectin PGG-Glucan for the Prevention of Serious Infections in Patients Undergoing Upper Gastrointestinal Surgery Who Are at High Risk for Infection”  
Alpha-Beta Technology, Inc.  
Total costs: \$75,000
- 1997-2000 (Co-PI: 50%)  
“Novel resuscitation from lethal hemorrhage. Increasing survival of combat casualties. Development in outcome models of UHS in rats and SA in dogs”  
US Office of Naval Research  
~\$2.4 million/yr

- 1997-1998 (Co-investigator)  
“Long-Term Outcome And Functional Status Of Patients Surviving  
Cardiopulmonary Resuscitation In The Hospital”  
Laerdal Foundation for Acute Medicine  
Total costs: \$14,575
- 1996-1997 (Co-PI: 25%)  
“Increasing survival of uncontrolled hemorrhagic shock in rats. Oxygen breathing  
and hypothermia”  
US Naval Medical Research and Development Command  
Total costs: \$250,000/year
- 1994-1995 (PI: 10%)  
“Exsanguination cardiac arrest, hypothermic preservation and delayed  
resuscitation”  
Laerdal Foundation for Acute Medicine  
Total costs: \$10,000
- 1992-1994 (PI: 10%)  
“Role of excitatory amino acid neurotransmitters in therapeutic hypothermic  
circulatory arrest”  
Presbyterian University Hospital Competitive Medical Research Fund  
Total costs: \$24,750
- 1989-1990 (PI: 10%)  
“Hypothermia for Preservation and Resuscitation from Exsanguination Cardiac  
Arrest in Dogs”  
Presbyterian University Hospital Competitive Medical Research Fund  
Total costs: \$22,500

### **Patents, Inventions and Copyrights**

Kochanek PM, Tisherman SA, Wu X, Stezoski SW, Yaffe LJ: Emergency Preservation and Resuscitation Methods. Patent US 8,628,512 B2.

### **Publications**

#### **Peer-reviewed journal articles**

1. Tisherman S, Chabal C, Safar P, Stezoski W: Resuscitation of dogs from cold-water submersion using cardiopulmonary bypass. Ann Emerg Med 1985;14:389-396.
2. Klain M, Ricci E, Safar P, Semenov V, Pretto E, Tisherman S, Abrams J, Comfort L, and other members of the Disaster Reanimatology Study Group: Disaster reanimatology

- potentials: A structured interview study in Armenia. I. Methodology and preliminary results. *Prehosp Dis Med* 1989;4:135-154.
3. Safar P, Abramson N, Angelos M, Cantadore R, Leonov Y, Levine R, Pretto E, Reich H, Sterz F, Stezoski W, Tisherman S: Emergency cardiopulmonary bypass for resuscitation from prolonged cardiac arrest. *Am J Emerg Med* 1990;8:55-67.
  4. Leonov Y, Sterz F, Safar P, Radovsky A, Oku K, Tisherman S, Stezoski W: Mild cerebral hypothermia during and after cardiac arrest improves neurologic outcome in dogs. *J Cereb Blood Flow Metab* 1990;10:57-70.
  5. Tisherman SA, Safar P, Radovsky A, Peitzman A, Sterz F, Kuboyama K: Therapeutic deep hypothermic circulatory arrest in dogs: A resuscitation modality for hemorrhagic shock with "irreparable" injury. *J Trauma* 1990;30:836-847.
  6. Sterz F, Leonov Y, Safar P, Radovsky A, Tisherman SA, Oku K: Hypertension with or without hemodilution after cardiac arrest in dogs. *Stroke* 1990;21:1178-1184.
  7. Tisherman SA, Safar P, Radovsky A, Peitzman A, Marrone G, Sterz F, Kuboyama K: Deep hypothermic circulatory arrest induced during hemorrhagic shock in dogs: Preliminary systemic and cerebral metabolism studies. *Curr Surg* 1990;47:327-330.
  8. Sterz F, Safar P, Tisherman S, Radovsky A, Kuboyama K, Oku K: Mild hypothermic cardiopulmonary resuscitation improves outcome after prolonged cardiac arrest in dogs. *Crit Care Med* 1991;19:379-389.
  9. Ricci EM, Pretto EA, Safar P, Klain M, Angus D, Tisherman SA, Abrams J, Crippen D, Comfort L, Semenov V, and other members of the Disaster Reanimatology Study Group: Disaster reanimatology potentials: A structured interview study in Armenia. *Prehosp Disaster Medicine* 1991;6:159-166.
  10. Tisherman SA, Safar P, Radovsky A, Peitzman A, Marrone G, Kuboyama K, Weinrauch V: Profound hypothermia (<10°C) compared to deep hypothermia (15°C) improves neurologic outcome in dogs after 2 hours circulatory arrest induced to enable resuscitative surgery. *J Trauma* 1991;31:1051-1062.
  11. Sterz F, Safar P, Johnson D, Oku KI, Tisherman SA: Effects of U74006F on multifocal cerebral blood flow and metabolism after cardiac arrest in dogs. *Stroke* 1991;22:889-895.
  12. Leonov Y, Sterz F, Safar P, Johnson D, Tisherman SA, Oku KI: Hypertension with hemodilution prevents cerebral hypoperfusion after cardiac arrest in dogs. *Stroke* 1992;23:45-53.
  13. Sterz F, Leonov Y, Safar P, Johnson D, Oku KI, Tisherman SA, Latchaw R, Obrist W, Stezoski SW, Hecht S, Tarr R, Janosky JE: Multifocal cerebral blood flow by Xe-CT and global cerebral metabolism after prolonged cardiac arrest in dogs. Reperfusion with open-chest CPR or cardiopulmonary bypass. *Resuscitation* 1992;24:27-47.
  14. Weinrauch V, Safar P, Tisherman S, Kuboyama K, Radovsky A: Beneficial effect of mild hypothermia and detrimental effect of deep hypothermia after cardiac arrest in dogs. *Stroke* 1992;23:1454-1462.
  15. Pretto EA, Ricci E, Klain M, Safar P, Semenov V, Abrams J, Tisherman S, Crippen D, Comfort L, and other members of the Disaster Reanimatology Study Group: Disaster reanimatology potentials: A structured interview study in Armenia. III. Results, conclusions, and recommendations. *Prehosp Dis Med* 1992;7:327-338.
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17. Oku K, Sterz F, Safar P, Johnson D, Obrist W, Leonov Y, Kuboyama K, Tisherman SA, Stezoski SW: Mild hypothermia after cardiac arrest in dogs does not affect postarrest multifocal cerebral hypoperfusion. *Stroke* 1993;24:1590-1597.
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### **Book Chapters**

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### **Editorials**

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5. Tisherman SA, Marik PE, Ochoa J: Promoting Enteral Feeding 101. Crit Care Med 2002;30:1653-1654..
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7. Fink EL, Callaway CW, Tisherman SA, Kochanek PM: Winning the cold war: inroads into implementation of mild hypothermia after cardiac arrest in adults from the European



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  21. Tisherman SA: Editorial critique of Black, et al. J Trauma Acute Care Surg, 2016;81:1011.
  22. Tisherman SA, Menaker J, Kon Z: Are we ready to take ECPR on the road? Maybe... Resuscitation 2017; 117:A1-A2. PMID: 28501590
  23. Tisherman SA, O'Connor JV: Can hypothermia save dying trauma patients? J R Army Med Corps 2018;164:140-141. PMID: 28851743
  24. Tisherman SA: Targeted temperature management after cardiac arrest: When, how deep, how long? J Thorac Dis 2017;9:4840-4843. PMID: 29312672.
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  27. Tisherman SA: Can mechanical devices be tested during CPR? Does it matter? Resuscitation 2021;158:273-274. PMID: 331866808

### **Letters to the Editor**

1. Safar P, Sterz F, Tisherman S, Radovsky A, Kuboyama K: Hypothermic cardiopulmonary resuscitation. Crit Care Med 1992;20:442-443.
2. Tisherman SA: Excess mortality associated with the use of a rapid infusion system at a Level I trauma center. Resuscitation 35:87-88, 1997.
3. Safar P, Bircher N, Pretto E, Berkebile P, Tisherman SA, Marion D, Klain M, Kochanek PM: Reappraisal of mouth-to-mouth ventilation. Ann Emerg Med 1998;31:653-4.
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6. Tisherman SA, Darby JM, Daly I: Damage control surgery prior to organ harvesting. J Trauma 2007;63:455.
7. Tisherman SA, Anders MG: Sepsis and trauma resuscitation have significant differences. J Trauma Acute Care Surg. 2016;80(4):677. PMID: 26808031

### **Major Invited Speeches**

#### Local/Regional

1. "Prolonged Cold-Water Drowning in Dogs: Reversibility by Cardiopulmonary Bypass" Medical Student Scientific Day, University of Pittsburgh, Pittsburgh, PA, 1983.
2. "Emergency Cardiopulmonary Bypass for Resuscitation from Cardiac Arrest" Emergency Medicine Grand Rounds, University of Pittsburgh, 1998.
3. "Closed-chest Emergency Cardiopulmonary Bypass for Cardiac Arrest", Surgical Grand Rounds, University of Pittsburgh, 1988.
4. "Closed-chest Emergency Cardiopulmonary Bypass for Cardiac Arrest.", Anesthesiology Grand Rounds, University of Pittsburgh, Critical Care Medicine Grand Rounds, University of Pittsburgh, 1989.
5. "Resuscitation in Disasters –The Experience in Armenia", Trauma Conference, University of Pittsburgh, 1989.
6. "Deep hypothermic circulatory arrest during resuscitation from exsanguinating hemorrhage", Southwestern Pennsylvania Chapter of the American College of Surgeons Residents' Day, Pittsburgh, PA, 1989.
7. "Cardiopulmonary Bypass in the Emergency Department", International Congress on Emergency and Trauma Medicine, Pittsburgh, PA, 1990.
8. "Profound hypothermia (<10°C) compared to deep hypothermia (15°C) improves neurologic outcome in dogs after 2 hours circulatory arrest induced to enable resuscitative surgery", Southwestern Pennsylvania Chapter of the American College of Surgeons Residents' Day, Pittsburgh, PA, 1990.
9. "Use of the rapid infusion system for volume resuscitation in hypovolemic trauma and non-trauma patients", Pennsylvania Committee on Trauma Resident Paper Competition, Hershey, PA, 1990

10. "Hypothermic Circulatory Arrest to Enable Resuscitative Surgery for Uncontrolled Hemorrhage in Dogs", Hypothermic Medicine, Allegheny General Hospital, Pittsburgh, PA, 1994.
11. "New CPR - Cups, Plungers, and Retractors", Department of Surgery Grand Rounds, University of Pittsburgh, Pittsburgh, PA, 1994.
12. "Intra-abdominal Infections", SmithKline Beecham Pharmaceuticals, Pittsburgh, PA, 1994.
13. "Issues in Trauma Surgery - case presentations", Bristol-Myers Squibb, Pittsburgh, PA, 1995.
14. "Resuscitation: New Techniques and Guidelines", Greene County Memorial Hospital, Waynesburg, PA, 1995.
15. "Oxygen delivery suspended during 60-120 min of profound hypothermic circulatory arrest (PHCA) in dogs", International Society on Oxygen Transport to Tissue, Pittsburgh, PA, 1995.
16. "Current Trends in Cardiopulmonary Resuscitation (CPR)", Citizens General Hospital, New Kensington, PA, 1995.
17. "Exposure Hypothermia", North Hills Passavant Hospital, Pittsburgh, PA, 1995.
18. "Cardiac Resuscitation Techniques", Latrobe Area Hospital, Latrobe, PA, 1995.
19. "Resuscitation from Refractory Cardiac Arrest", Critical Care Medicine Research Conference, Pittsburgh, PA, 1996.
20. "Hemorrhagic shock: To resuscitate or not to resuscitate", Pediatric Surgery/Anesthesiology Conference, Pittsburgh, PA, 1996.
21. "Hypothermia in Trauma", Visiting Professor Grand Rounds, Department of Surgery, York Hospital, York, PA, 1996.
22. "Surgical Prophylaxis", East Liverpool City Hospital, East Liverpool, OH, 1997.
23. "Questions Most Asked about Surgical Infections, Maybe.", Trinity East Medical Center, Steubenville, OH, 1997.
24. "Hypothermia and O2 Therapy during Hemorrhagic Shock", Critical Care Medicine Research Conference, Pittsburgh, PA, 1997.
25. "Resuscitative Hypothermia", Critical Care Medicine Grand Rounds, University of Pittsburgh, Pittsburgh, PA, 1997.
26. "Bedside vs Percutaneous Tracheostomy", Spring Meeting - Southwestern Pennsylvania Chapter of the American College of Surgeons, Pittsburgh, PA, 1997.
27. "Hypothermia and Hemorrhagic Shock", Surgery Department Research Conference, Pittsburgh, PA, 1997.
28. "Resuscitative Hypothermia: It's cool to be cool", Department of Surgery Grand Rounds, University of Pittsburgh, Pittsburgh, PA, 1997.
29. "Suspended animation", Safar Center for Resuscitation Research (SCRR) Research Conference, Pittsburgh, PA, 1998.
30. "Suspended animation", Critical Care Medicine Research Conference, Pittsburgh, PA, 1998.
31. "Uncontrolled hemorrhagic shock", Safar Center for Resuscitation Research (SCRR) Research Conference, Pittsburgh, PA, 1998.
32. "Hypothermia in Trauma", Annual Meeting of the Southwestern PA Chapter of the ACS, Pittsburgh, PA, 1998.

33. "Therapeutic Hypothermic Circulatory Arrest ("Suspended Animation") for Resuscitation from Exsanguinating Hemorrhage in Dogs", Cryo '98, The 35<sup>th</sup> Annual Meeting of the Society for Cryobiology, Pittsburgh, PA, 1998.
34. "Suspended animation", Critical Care Medicine Research Conference, Pittsburgh, PA, 1999.
35. "Management of Septic Shock", Latrobe Area Hospital, Latrobe, PA, 1999.
36. "Trauma Airways", University of Pittsburgh Department of Surgery Grand Rounds, Pittsburgh, PA, 2000.
37. "Resuscitative Hypothermia is a Hot Topic", Children's Hospital of Pittsburgh Pediatric Trauma Conference, Pittsburgh, PA, 2001.
38. "Hypothermia and hemorrhagic shock research", Department of Surgery multidisciplinary hemorrhagic shock research conference, Pittsburgh, PA, 2001.
39. "Suturing for Line Placement", Inservice to nurse anesthetists, Pittsburgh, PA, 2001
40. "Teaching Crisis Management Skills to Surgeons", 2002 Summer Anesthesia Seminar, Pittsburgh, PA, 2002.
41. "The Yin and Yang of Long Term Enteral Access", Nutrition Support Forum, University of Pittsburgh, Pittsburgh, PA, 2003.
42. "The Yin and Yang of Long Term Enteral Access", Swallowing Grand Rounds, University of Pittsburgh, Pittsburgh, PA, 2003.
43. "Hypothermia for Resuscitation from Trauma: It's Cool to be Cool", Critical Care Medicine Research Conference, University of Pittsburgh, 2003.
44. "Suspended Animation for Delayed Resuscitation from Exsanguinating Hemorrhage", 2<sup>nd</sup> Annual Safar Symposium, University of Pittsburgh, Pittsburgh, PA, 2003.
45. "The Yin and Yang of Long Term Enteral Access", Chartwell in-service, Pittsburgh, PA, 2004.
46. "Acute abdomen", Latrobe Area Hospital, Latrobe, PA, 2005.
47. "Therapeutic Hypothermia: The Good, The Bad, and the Really Cool", Division of Pulmonary, Allergy, and Critical Care Medicine and the Department of Critical Care Medicine, University of Pittsburgh, Pittsburgh, PA, 2006.
48. "Geriatric Trauma: You are Never Too Old to Rock and Roll", Geriatric Research, Education and Clinical Center (GRECC) Seminar, VA Pittsburgh Healthcare System, Pittsburgh, PA, 2006.
49. "The Resuscitation Outcomes Consortium: What's on the horizon in trauma resuscitation", Grand Rounds, Visiting Professor, Allegheny General Hospital, Pittsburgh, PA, 2006.
50. "Endpoints of Resuscitation: When is Enough, Enough?", Department of Anesthesiology Grand Rounds, University of Pittsburgh, Pittsburgh, PA, 2006.
51. "Hypertonic Resuscitation Following Traumatic Injury (ROC)", General Surgery and Trauma Clinical Research Meeting, Pittsburgh, PA, 2008.
52. "Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma (EPR-CAT)", General Surgery and Trauma Clinical Research Meeting, Pittsburgh, PA, 2008.
53. "Critical Care", Grand Rounds, Washington Hospital, Washington, PA, 2008.
54. "Hypothermia", Trauma Conference, University of Pittsburgh. Pittsburgh, PA, 2008.
55. "Trauma and Surgical Critical Care", Medical Explorers, Pittsburgh, PA, 2009.
56. "Trauma for Bioengineers", Engineering Graduate Seminar, Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA, 2009.

57. “Penetrating Neck Trauma: Can be a real pain in the neck”, Prehospital, Trauma and Surgical Critical Care Symposium, Trumbull Memorial Hospital, Warren, OH, 2009
58. “Stayin’ Alive: What’s New in CPR”, Nursing Critical Care Symposium, University of Pittsburgh, Pittsburgh, PA, 2010.
59. “Hypothermia”, Trauma Conference, University of Pittsburgh. Pittsburgh, PA, 2010
60. “Trauma and Surgical Critical Care”, Medical Explorers, Pittsburgh, PA, 2010.
61. “Resuscitation Outcomes Consortium Update”, General Surgery and Trauma Clinical Research Meeting, Pittsburgh, PA, 2010.
62. “Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma (EPR-CAT)”, General Surgery and Trauma Clinical Research Meeting, Pittsburgh, PA, 2010.
63. “Fluid resuscitation in hemorrhagic shock”, Pulmonary Division Grand Rounds, University of Pittsburgh, Pittsburgh, PA, 2011.
64. “Promotion for Clinician Educators”, Academy of Master Educators Seminar Series, Pittsburgh, PA, 2011.
65. “Field Trial of Hypotensive Resuscitation versus Standard Resuscitation in Patients with Hemorrhagic Shock after Trauma. A Pilot Trial”, General Surgery and Trauma Clinical Research Meeting, Pittsburgh, PA 2011.
66. “Advanced Resuscitation and Suspended Reanimation”, Management of the Neurotrauma Patient Residents Course, Pittsburgh, PA, 2012.
67. “Promotion as Clinician Educator”, Academic Administrator/Clinician Educator Track Meeting, Western Psychiatric Institute and Clinic, Pittsburgh, PA, 2012.
68. “Hypothermic Preservation and Cardiopulmonary Bypass for Cardiac Arrest from Trauma”, Perfusion in the 21<sup>st</sup> Century, Pennsylvania State Perfusion Society, Pittsburgh, PA, 2012.
69. “Therapeutic hypothermia”, Department of Medicine Grand Rounds, Shadyside Hospital, Pittsburgh, PA, 2012.
70. “Promotion as Clinician Educator”, Academic Administrator/Clinician Educator Track Meeting, Western Psychiatric Institute and Clinic, Pittsburgh, PA, 2012.
71. “Therapeutic hypothermia: It’s becoming cool to be a patient”, Respiratory Care Inservice, UPMC Presbyterian, Pittsburgh, PA, 2013.
72. “Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma”, Pittsburgh Trauma and Emergencies League, 2014.
73. “From CPR to EPR for Cardiac Arrest from Trauma: An Unexpected Journey”, Department of Surgery and Shock Trauma Center Grand Rounds, University of Maryland, Baltimore, MD, 2014.
74. “Promotion as a Clinician Educator”, Center for Critical Care and Trauma Education Seminar Series, Baltimore, MD 2015.
75. “From CPR to EPR for Cardiac Arrest from Trauma: An Unexpected Journey”, TraumaCare 2015, Maryland Committee on Trauma, Baltimore, MD, 2015.
76. “Saving Dying Trauma Patients: The Big Chill”, Phi Delta Epsilon Gelfand Lecture, Pittsburgh, PA, 2016.
77. “How Can We Save The Exsanguinating Trauma Patient?”, EMS Care 2016, Ocean City, MD, 2016.
78. “Hypothermia: Friend or Foe?” Multi-Departmental Critical Care Core Curriculum Conference, University of Maryland Medical Center, Baltimore, MD, 2016.

79. "Hypothermia: Friend or Foe?" EMS Education, Shock Trauma Center, Baltimore, MD, 2016.
80. "Saving the Exsanguinating Trauma Patient: Emergency Preservation and Resuscitation", Presentation to the University of Maryland School of Medicine Council, Baltimore, MD, 2017
81. "Saving the Exsanguinating Trauma Patient: Emergency Preservation and Resuscitation", Presentation to the University of Maryland Medical System Board, Baltimore, MD, 2017
82. "No pulse, no problem! Just insert a catheter and cool'em down", Trauma & Radiology, The Course 2017, Baltimore, MD, 2017.
83. "Saving the Exsanguinating Trauma Patient: From CPR to EPR", Department of Anesthesiology Grand Rounds, University of Maryland Medical Center, Baltimore, MD 2017.
84. "Using Simulation in Trauma Education", Special Topics in Trauma Care 2017, Baltimore, MD, 2017.
85. "Simulation in Medical Education: Fake It Till You Make It", 3th Annual Nurse Practitioner & Physician Assistant Clinical Conference, Baltimore, MD, 2018.
86. "Can Hypothermia Save the Exsanguinating Trauma Patient?", Pediatric Intensive Care Unit Seminar, Baltimore, MD 2018
87. "It Takes a Village to Prevent Airway Disasters", University of Maryland Medical Center Respiratory Care Symposium, Baltimore, MD, 2019
88. "Sepsis", Grand Rounds, Frederick Memorial Hospital, Frederick, MD, 2019
89. "Targeted Temperature Management after Trauma", Point/Counterpoint, Baltimore, MD, 2019
90. "Nonobstetric Surgical Diseases in the Pregnant Patient", Fundamentals of Critical Care Support: Obstetrics, Baltimore, MD, 2019.
91. "Resuscitation lessons learned: Fix the patient! But sometimes you have to buy time", Department of Surgery Grand Rounds, University of Maryland Medical Center, Baltimore, MD, 2021.

#### National

92. "Emergency Cardiopulmonary Bypass", NIH Devices and Technology Branch Contractors' Meeting, Washington, DC, 1988.
93. "Emergency Cardiopulmonary Bypass for Resuscitation from Cardiac Arrest", American Society of Extracorporeal Technicians Meeting, Indianapolis, Indiana, 1988.
94. "Exsanguination cardiac arrest in dogs. Pathophysiology of dying", Society of Academic Emergency Medicine, San Diego, CA (poster), 1989.
95. "Exsanguination vs ventricular fibrillation cardiac arrest in dogs. Comparison of neurologic outcome. Preliminary data.", Society of Academic Emergency Medicine, San Diego, CA (poster), 1989.
96. "Emergency cardiopulmonary bypass for resuscitation from prolonged cardiac arrest: Recent laboratory studies and clinical study plans", Cardiovascular Science and Technology: Basic and Applied, I, Louisville, KY, 1989.
97. "Deep hypothermic circulatory arrest during resuscitation from exsanguinating hemorrhage", Eastern Association for the Surgery of Trauma, Naples, FL, 1990.

98. "Deep hypothermic circulatory arrest induced during hemorrhagic shock in dogs: Systemic metabolism", Society of University Surgeons Residents' Program, Los Angeles, CA, 1990.
99. "Hematologic and morphologic alterations after protective deep hypothermic circulatory arrest of 1-2 h in dogs", American Society of Anesthesiologists, Las Vegas, NV, 1990.
100. "Multifocal cerebral blood flow (CBF) and global metabolism (CMR) after prolonged cardiac arrest in dogs. Effect of mild hypothermia (34°C)", American Society of Anesthesiologists, Las Vegas, NV, 1990.
101. "Use of emergency cardiopulmonary bypass to induce hypothermia during hemorrhagic shock or after cardiac arrest in dogs", Cardiovascular Science and Technology: Basic and Applied, II, Louisville, KY, 1990.
102. "Profound hypothermia (<10°C) compared to deep hypothermia (15°C) improves neurologic outcome in dogs after 2 hours circulatory arrest induced to enable resuscitative surgery", Eastern Association for the Surgery of Trauma, Longboat Key, FL, 1991.
103. "Profound hypothermia does, but an organ preservation solution does not, improve neurologic outcome after therapeutic circulatory arrest of 2 h in dogs", Society of University Surgeons Residents' Program, Galveston, TX, 1991.
104. "Profound hypothermia does, but an organ preservation solution does not, improve neurologic outcome after therapeutic circulatory arrest of 2 h in dogs", Society of Critical Care Medicine, Washington, DC, 1991.
105. "Role of surgeons in mass disasters: The experience in Armenia", Society of Critical Care Medicine, Washington, DC, 1991.
106. "Treating with Hypothermia", "Cardiopulmonary Bypass in the Field", Connecticut EMS: A System of Challenge and Change, Cromwell, CT, 1991.
107. "Feasibility of emergency cardiopulmonary bypass for resuscitation from CPR-resistant cardiac arrest - A preliminary report", Society of Academic Emergency Medicine, Washington, DC, 1991.
108. "Cardiopulmonary bypass without systemic anticoagulation for therapeutic hypothermic circulatory arrest during hemorrhagic shock in dogs", Society of University Surgeons Residents' Program, Cincinnati, OH, 1992.
109. "Feasibility of emergency cardiopulmonary bypass for resuscitation from CPR-resistant cardiac arrest - A preliminary report", American Society for Artificial Internal Organs, Nashville, TN, 1992.
110. "Cardiopulmonary bypass without systemic anticoagulation for therapeutic hypothermic circulatory arrest during hemorrhagic shock in dogs", Society of Critical Care Medicine, San Antonio, TX, poster, 1992.
111. "Limits of survivability following severe hemorrhagic shock: Can hypothermic circulatory arrest improve survival?", Eastern Association for the Surgery of Trauma, Sanibel Island, FL, 1995.
112. "Cost considerations for extracorporeal oxygenation and gas exchange systems in the intensive care unit", American Society for Artificial Internal Organs, Washington, D.C., 1996.
113. Panel Discussion (discussant): "Innovative Uses for Extracorporeal Support", Panel Discussion (moderator): "Avoiding Injury during Pericorporeal Support" American Society for Artificial Internal Organs, Atlanta, GA, 1997.

114. "Hypothermia, but not 100% oxygen breathing, prolongs survival during uncontrolled hemorrhagic shock in rats", Eastern Association for the Surgery of Trauma Scientific Assembly, Sanibel, FL, 1997.
115. "Exsanguination Cardiac Arrest (CA) Outcome Model in Rats", "Hypothermia, but not Increased PaO<sub>2</sub>, Protects Viscera During Uncontrolled Hemorrhagic Shock in Rats", Society of Critical Care Medicine 27th Educational and Scientific Symposium, San Antonio, TX, 1997.
116. "Education Workshop: Learning the Skills Required for Effective Teaching", with Paul Rogers, MD, and Michael Hansen, MD, Society of Critical Care Medicine 27th Educational and Scientific Symposium, San Antonio, TX, 1998.
117. "Hypotensive Hypothermic Fluid Resuscitation During Uncontrolled Hemorrhagic Shock in Rats and Hypothermic Strategies for Suspended Animation with Delayed Resuscitation in Dogs", Institute of Medicine Conference on Resuscitation Fluid Design and Resuscitation Protocols for Combat Casualties, Washington, DC, 1998.
118. "Suspended Animation Research" and "Therapeutic Hypothermia in Traumatic Shock", Society of Critical Care Medicine Scientific Symposium, San Francisco, CA, 1999.
119. "New Frontiers in Trauma Fluid Resuscitation", Hot Topics in Emergency Medicine, Duck Key, FL, 1999.
120. "Resuscitative Hypothermia is a Hot Topic", Visiting Professor, Hahnemann/MCP Department of Surgery, Philadelphia, PA, 1999.
121. "Resuscitative Hypothermia is a Hot Topic", Invited Perfusion Lecture, ASAIO 45<sup>th</sup> Annual Conference, San Diego, CA, 1999.
122. "Hypothermia for Hemorrhage: It's Cool to be Cool!!", Shock Society, Marco Island, FL, 2001.
123. "Resuscitation 2010", Combat Fluid Resuscitation, Washington, DC, 2001.
124. "Hypothermia during Hemorrhagic Shock is a Hot Topic", Advanced Technology Applications for Combat Casualty Care, Ft Walton Beach, FL, 2001.
125. "Development of an Evaluation Instrument for Surgical Crisis Resource Management", Association for Surgical Education, SERF Forum, Baltimore, MD, 2002.
126. "Suspended Animation Research", American Association of Neurological Surgeons, Chicago, IL, 2002.
127. "Hypothermia for Resuscitation from Trauma: It's Cool to be Cool", Society of Air Force Clinical Surgeons, Las Vegas, NV, 2002.
128. "Suspended Animation for Delayed Resuscitation from Exsanguinating Hemorrhage", Washington DC Area Critical Care Society, Bethesda, MD, 2002.
129. "We're Not Just Big Kids - The Principles of Adult Learning", Society of Critical Care Medicine 32<sup>nd</sup> Critical Care Congress, San Antonio, TX, 2003.
130. "When is it Enough? Endpoints of Resuscitation", American College of Surgeons Spring Meeting, New York, NY, 2003.
131. "Trauma Fluid Resuscitation: Which Fluid, How Much?", Mercer University, Macon, GA, 2003.
132. "Suspended Animation for Delayed Resuscitation", Society of Critical Care Medicine 33<sup>rd</sup> Critical Care Congress, Orlando, FL, 2004.
133. "Year in Review: What's New in Education", Society of Critical Care Medicine 33<sup>rd</sup> Critical Care Congress, Orlando, FL, 2004.



134. "Small Volume and Hypotensive Resuscitation: What are the Limits?", Society of Critical Care Medicine 33<sup>rd</sup> Critical Care Congress, Orlando, FL, 2004.
135. "Novel Resuscitation Strategies: Application for Clinical Practice", Battlefield Healthcare 2004, Arlington, VA, 2004.
136. "Hot or Cold: In support of cold", Terrorism and Trauma: A transatlantic perspective, University of Maryland, Baltimore, MD, 2004.
137. "Mild hypothermia improves survival after prolonged, traumatic hemorrhagic shock in pigs", American Association for the Surgery of Trauma, Maui, HI, 2004.
138. "Open Chest CPR: Who, When, Why?"
139. "Suspended Animation", Cardiac Arrest Symposium 2004, Henry Ford Hospital Department of Emergency Medicine, Detroit, MI, 2004.
140. "Structure of surgical critical care and trauma fellowships", Poster presentation. Society of Critical Care Medicine, Phoenix, AZ, 2005.
141. "Suspended Animation for Resuscitation from Exsanguinating Hemorrhage", Code Red: Advances in the Treatment of Traumatic Bleeding, 2005.
142. "Hypothermia for Hemorrhagic Shock: It's Cool to be Cool", Grand Rounds, Visiting Professor, Allegheny General Hospital, Pittsburgh, PA, 2005.
143. "Novel Resuscitation Strategies", Battlefield Healthcare, Arlington, VA, 2005.
144. "Emergency Preservation and Resuscitation for Trauma Patients", Shock Trauma Grand Rounds (guest professor), Baltimore, MD, 2005.
145. "Hypothermia in trauma: The good, the bad, and the really cool!", Detroit Trauma Symposium, Detroit, MI, 2005.
146. "Endpoints of resuscitation: When is enough, enough?", Detroit Trauma Symposium, Detroit, MI, 2005.
147. "Clinical endpoints of resuscitation", Society of Critical Care Medicine Clinical Congress, San Francisco, CA, 2006.
148. "Hypothermia in trauma: The good, the bad, and the really cool!" (Laerdal lecture), Society of Critical Care Medicine Clinical Congress, San Francisco, CA, 2006.
149. "Practice Management Guideline: Penetrating Neck Trauma", Eastern Association for the Surgery of Trauma, Orlando, FL, 2006
150. "Shock" (Lecture and tutorials), Adult Multiprofessional Critical Care Review Course, Chicago, IL, 2006
151. "Keeping a Cool Head after Brain Ischemia", American College of Surgeons Clinical Congress, Chicago, IL, 2006.
152. "Percutaneous Bypass for Hemorrhagic Shock", Resuscitation Science Symposium, Chicago, IL, 2006.
153. "Surgical Critical Care Survey", Society of Critical Care Medicine Critical Care Congress, Orlando, FL, 2007.
154. "Injury Response: A fresh look at basic mechanisms: Hemorrhagic Shock", Society of Critical Care Medicine Critical Care Congress, Orlando, FL, 2007.
155. "Contemporary Concepts In Surgical Education", Society of Critical Care Medicine Critical Care Congress, Orlando, FL, 2007.
156. "What's New in Pre-Hospital Trauma Resuscitation", Trauma Care: Current Trends, Hagerstown, MD, 2007.
157. "Emergency Preservation and Resuscitation for Exsanguination Cardiac Arrest: Is EPR the New CPR?", Experimental Biology 2007, Washington, DC, 2007

158. "Shock" (Lecture and tutorials), Adult Multiprofessional Critical Care Review Course, Chicago, IL, 2007.
159. "Hypothermia in Trauma: The good, the bad, and the really cool", University of Pennsylvania Trauma Multidisciplinary Conference, Visiting professor, Philadelphia, PA, 2007.
160. "Acute Care Surgery (ACS): Are surgeons ready for a new training paradigm?", Poster presentation. Society of Critical Care Medicine, Honolulu, HI, 2008.
161. "Acute Care Surgery Competency", Fellowship Directors' Breakfast, Society of Critical Care Medicine, Honolulu, HI, 2008.
162. "Simulation in Medical Education: Do you want your resident's first lap chole to be on your mother?", Hartford Hospital Department of Surgery Grand Rounds, Visiting Professor, Hartford, CT, 2008.
163. "Shock", Adult Multiprofessional Critical Care Review Course, Chicago, IL, 2008.
164. "Fluid Management Principles", Adult Multiprofessional Critical Care Review Course, Chicago, IL, 2008.
165. "Emergency Preservation and Resuscitation (EPR) for Cardiac or Traumatic Arrest: Will EPR Be the New CPR?", Resuscitation Science Symposium, American Heart Association, New Orleans, LA, 2008.
166. "Emergency Preservation: Role of Hypothermia", American Heart Association Scientific Sessions, New Orleans, LA, 2008.
167. "Challenges of Teaching at the Bedside", Society of Critical Care Medicine Clinical Congress, Nashville, TN, 2009.
168. "Hypothermia in Trauma: The good, the bad, and the really cool.", George Washington University Department of Surgery Grand Rounds (guest professor), Washington, DC, 2009.
169. "Who Else Might We Cool: Patients With Other Critical Care Medicine-Relevant Conditions?", 11<sup>th</sup> International Consensus Conference: Therapeutic Hypothermia – To Cool or Not to Cool?, San Juan, Puerto Rico, 2009.
170. "Organizing Emergency Preservation and Resuscitation after Trauma", Emergency Cardiopulmonary Bypass Network Conference, University of Pennsylvania, Philadelphia, PA, 2009.
171. "Shock", Adult Multiprofessional Critical Care Review Course, San Francisco, CA, 2009.
172. Organized Education Post-graduate Course, entitled "Intensivists as Educators: Developing an Educational Program and Surviving the Accreditation Process". Lectures included "Promotion as a Clinician-Educator" and "Measuring Outcomes (educational research, ACGME expectations)", Society of Critical Care Medicine, Nashville, TN, 2009.
173. "Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma: EPR-CAT Trial", Eastern Association for the Surgery of Trauma, Plenary Session, Phoenix, AZ, 2010.
174. "Induction of Hypothermia", Society of Critical Care Medicine Clinical Focus Conference: Hypothermia, Pasadena, CA, 2010.
175. "New Horizons in Therapeutic Hypothermia", Society of Critical Care Medicine Clinical Focus Conference: Hypothermia, Pasadena, CA, 2010.

176. "Hypothermia in Trauma : Friend or Foe?", Trauma Update for the New Decade, Virginia Commonwealth University, Richmond, VA, 2010.
177. "Development of Acute Care Surgery in Pittsburgh", American Association for the Surgery of Trauma, Boston, MA, 2010.
178. "Reanimation" (visiting professor), Oregon Health and Science University, Portland, OR, 2010.
179. "Curriculum Development", Moderated Post-graduate Course: "Multidisciplinary Critical Care Education: No Educator Left Behind", Society of Critical Care Medicine Clinical Congress, San Diego, CA, 2011.
180. "Surgery Year in Review", Society of Critical Care Medicine Clinical Congress, San Diego, CA, 2011.
181. "Clinical Trial of Emergency Preservation and Resuscitation", Society of Critical Care Medicine Clinical Congress, San Diego, CA, 2011.
182. "Uncontrolled vs Therapeutic Hypothermia", NHLBI and DoD Workshop: Hypothermia in Trauma: A New Crossroads, Bethesda, MD, 2011.
183. "Exsanguination Cardiac Arrest-Emergency Preservation and Resuscitation", NHLBI and DoD Workshop: Hypothermia in Trauma: A New Crossroads, Bethesda, MD, 2011.
184. "Hypothermia and Organ Transplantation", 2nd Annual Therapeutic Hypothermia and Temperature Management 2012, Miami, FL, 2012.
185. "Therapeutic Hypothermia and Trauma", Detroit Trauma Symposium, Detroit, MI, 2012
186. "Hypotensive Resuscitation from Hemorrhagic Shock", Detroit Trauma Symposium, Detroit, MI, 2012.
187. "Detailed Description of all Deaths in Both the Shock and Traumatic Brain Injury Cohorts of the Resuscitation Outcomes Consortium Hypertonic Saline Trials", Oral presentation, Resuscitation Science Symposium, Los Angeles, CA, 2012.
188. "Therapeutic Hypothermia and Trauma", Surgery Grand Rounds, Visiting Professor, University of Arizona, Tuscon, AZ, 2013.
189. "Therapeutic Hypothermia and Trauma", Surgery Grand Rounds, Visiting Professor, George Washington University, Washington, DC, 2013.
190. "Design of the Emergency Preservation and Resuscitation for Cardiac Arrest from Trauma (EPR-CAT) Clinical Trial", Military Health System Research Symposium, Fort Lauderdale, FL, 2013.
191. "Emerging Strategy: Competency-focused Education and Clinical Simulation. History, Costs and Advantages", Advanced Practitioners in Critical Care: Design & Implementation of the New Staff Models, Emory Conference Center, Atlanta, GA, 2013.
192. "CV: Shock, Monitoring", Update in Surgical Critical Care, American College of Surgeons Clinical Congress, Washington, DC, 2013.
193. "Design of a Field Trial of Hypotensive vs. Standard Resuscitation for Hemorrhagic Shock After Trauma (HypoResus)", American Thoracic Society, San Diego, CA, 2014
194. "Professional Development", Neurocritical Care Society, Seattle, WA, 2014
195. "Non-neuro Trauma", Neurocritical Care Society, Seattle, WA, 2014.
196. "Surgical Critical Care Training for Emergency Physicians", American College of Surgeons, San Francisco, CA, 2014.
197. "Targeted Temperature Management Following Traumatic Cardiac Arrest", American Heart Association, Chicago, IL, 2014.

198. "Rewarming in Polytrauma", Chilling at the Beach, 5th Annual Therapeutic Hypothermia and Temperature Management: Current and Future, Miami, FL, 2015.
199. "Review of Recent Trauma Literature That Could Change Your Practice", 24<sup>th</sup> Annual Hampton Roads Trauma Symposium, Williamsburg, VA, 2015.
200. "Hypothermia Treatment in Trauma", 24<sup>th</sup> Annual Hampton Roads Trauma Symposium, Williamsburg, VA, 2015.
201. "Keynote Lecture: Therapeutic Hypothermia: The Good, The Bad, and the Really Cool", Jefferson Critical Care Symposium: A Multispecialty Approach to Common ICU Diseases, Philadelphia, PA, 2015.
202. "From CPR to EPR for Cardiac Arrest from Trauma: An Unexpected Journey", Our Lady of the Lake Trauma Symposium, Baton Rouge, LA, 2015.
203. "Updates on Hemorrhagic Shock: Transfusion Strategies and Controversies with Pro-thrombotic Agents", Harvard Medical School Shock Symposium, Boston, MA, 2015.
204. "From CPR to EPR for Cardiac Arrest from Trauma: An Unexpected Journey", 30<sup>th</sup> Surgery for Trauma Day, USU Walter Reed Surgery, Washington, DC, 2015.
205. "From CPR to EPR for Cardiac Arrest from Trauma: An Unexpected Journey", 25<sup>th</sup> Annual Trauma Symposium, Mercer University School of Medicine, Macon, GA, 2016.
206. "Stemming the Tide: Resuscitative Endovascular Balloon Occlusion of the Aorta", 25<sup>th</sup> Annual Trauma Symposium, Mercer University School of Medicine, Macon, GA, 2016.
207. "Saving Exsanguinating Trauma Patients: From CPR to EPR", Surgery Grand Rounds, Harlem Hospital, New York, NY, 2016.
208. "Saving Exsanguinating Trauma Patients: Hypothermia and Cardiopulmonary Bypass" EMS Today, Baltimore, MD, 2016.
209. "How Can We Save the Exsanguinating Trauma Patient?", EMS Care 2016, Ocean City, MD, 2016.
210. "Lessons learned: Fix the patient! But sometimes you have to buy time", Inaugural Mathilda Horst Endowed Lectureship, Henry Ford Hospital Department of Surgery, Detroit, MI, 2016.
211. "Therapeutic Hypothermia and Reanimation in Trauma", AAST Grand Rounds, 2016.
212. "Pulmonary/Ventilator: Rescue, Salvage, ECMO", Annual Update in Surgical Critical Care, American College of Surgeons Clinical Congress, Washington, DC, 2016.
213. "Buying Time to Save the Exsanguinating Patient: Emergency Preservation and Resuscitation", Special Topics in Trauma Care, Baltimore, MD, 2016
214. "Saving the Exsanguinating Trauma Patient: Emergency Preservation and Resuscitation", Major John P. Pryor, MD Memorial Lecture, National Collegiate Emergency Medical Services Foundation, Baltimore, MD, 2017
215. "Saving the Exsanguinating Trauma Patient: From CPR to EPR", Miltenberger Emergency Services Seminar, Flintstone, MD, 2017
216. "Saving the Exsanguinating Trauma Patient: From CPR to EPR" and "Targeted temperature management: which patients, which targets" (visiting professor), Duke University Departments of Anesthesiology and Surgery, Durham, NC, 2017
217. "Targeted Temperature Management After Cardiac Arrest Improves Outcomes", Point/Counterpoint XXXVI, Baltimore, MD, 2017.
218. "Transitions of care and handoffs", Neurocritical Care Society 15<sup>th</sup> Annual Meeting, Waikoloa, HI, 2017.

219. "Saving the Exsanguinating Trauma Patient: From CPR to EPR" and "Targeted Temperature Management in Trauma: Which Patients, Which Targets?", Detroit Trauma Symposium, Detroit, MI, 2017.
220. "Targeted Temperature Management: Which Patients, Which Targets?" and "Simulation: Fake It 'til You Make It", Stormont Vail Health Trauma & Critical Care Symposium, Topeka, KS, 2017.
221. "Saving the Exsanguinating Trauma Patient: From CPR to EPR", Weill Cornell Medical College Department of Anesthesiology Grand Rounds, New York, NY, 2017.
222. "Hypothermia and Trauma: The Good, the Bad, and the Really Cool", 7<sup>th</sup> Annual Neurocritical Care Symposium: Current Hot Topics, Sidney Kimmel Medical College, Philadelphia, PA, 2018.
223. "The Big Chill: How Hypothermia May Save the Dying Trauma Patient", 5<sup>th</sup> Annual Northeast Emergency Medicine Interest Group Symposium, Donald and Barbary Zucker School of Medicine, Hempstead, NY, 2018.
224. "The Big Chill: How Hypothermia May Save the Dying Trauma Patient", Uniformed Services University Department of Health Sciences, Department of Surgery Grand Rounds, Bethesda, MD, 2018.
225. "The Big Chill: How Hypothermia May Save the Dying Trauma Patient", University of Alabama in Birmingham Biomedical Engineering, Surgery, and Pathology Tri-Departmental Seminar series, Birmingham, AL, 2018.
226. "Fellowship training: What you need to know", Association of Program Directors in Surgery panel discussion, American College of Surgeons, Boston, MA, 2018.
227. "Acute Kidney Injury and Renal Support", American College of Surgeons Annual Update in Surgical Critical Care, Boston, MA, 2018.
228. "Trauma Year in Review", Resuscitation Science Symposium 2018, Chicago, IL, 2018.
229. "Training and Practice of Surgical Critical Care" and "The Big Chill: How Hypothermia May Save the Dying Trauma Patient", University of California, Irvine, Department of Surgery Visiting Professor, Orange, CA, 2019.
230. "Emergency, Just-in-time Refreshing of Combat Trauma Surgical Skills, Via Video Review or Telementoring, Dramatically Improves Surgeon Performance of Extremity Fasciotomies", Military Health System Research Symposium, Orlando, FL, 2019.
231. "Emergency Preservation and Resuscitation", "Surviving Sepsis - a Human Perspective", "AKI: A Human Perspective", 2019 International Veterinary Emergency and Critical Care Symposium, Washington, DC, 2019.
232. "Cardiovascular Update", American College of Surgeons Annual Update in Surgical Critical Care, San Francisco, CA, 2019.
233. "Can Hypothermia Save Exsanguinating Trauma Patients?", American College of Surgeons Clinical Congress, San Francisco, CA, 2019
234. "Suspended Animation", What Happens When We Die? Insights from Resuscitation Science, New York Academy of Sciences, New York, NY, 2019
235. "Con: Let our past dictate our future", Society of Critical Care Medicine, Clinical Congress, Orlando, FL, 2020.
236. "Make Blood Whole Again", Uniformed Services Society of Anesthesiologists /Association of Veterans' Affairs Anesthesiologists Annual Academic Meeting, 2020.
237. "Hypothermia in Trauma: Friend or Foe?" and "Novel and emerging treatments?", American College of Surgeons Clinical Congress, 2020.

238. “The Big Chill: Can hypothermia save the dying trauma patient?”, Guest professor, UMMS Baystate Department of Surgery, 2020.
239. “The history of rounds” and “Early goal resuscitation: Then and now”, SCCM Clinical Congress, virtual, 2021.
240. “Development of the emergency preservation and resuscitation for cardiac arrest from trauma (EPR-CAT) clinical trial”, Wolf Creek XVI, virtual, 2021.
241. “Emergency Preservation and Resuscitation”, Icahn School of Medicine Critical Care Grand Rounds, 2021.
242. “Indications and interpretation of EEG, TCD, brain tissue oxygenation”, Neurocritical Care Update and Board Review Course, American Association for the Surgery of Trauma. Atlanta, GA, 2022.
243. “Resuscitation lessons learned: Fix the patient! But sometimes you have to buy time”, University of North Texas Health Science Center Department of Surgery Grand Rounds, 2021.
244. “Can hypothermia save the dying trauma patient”, 17<sup>th</sup> Advocate Injury Institute Symposium, 2021.
245. “Interpreting EEGs and TCDs”, Neurocritical Care Update and Board Review Course, American Association for the Surgery of Trauma. Chicago, IL, 2022.
246. “Resuscitation lessons learned: Fix the patient! But sometimes you have to buy time”, Rush University Multidisciplinary Critical Care Grand Rounds, virtual, 2022.

#### International

247. “Cardio-pulmonary-cerebral resuscitation (CPCR) ultra-advanced life support (ALS) with cardiopulmonary bypass (CPB after prolonged cardiac arrest”, International Symposium: Central Nervous System and Postresuscitation Pathology of Organism, Moscow, USSR, 1989
248. “Multifocal cerebral hypoperfusion after cardiac arrest and resuscitation in dogs. Potentials for therapeutic mitigation”, International Symposium: Central Nervous System and Postresuscitation Pathology of Organism, Moscow, USSR, 1989
249. “Asphyxiation cardiac arrest. Severity of brain damage”, Sixth World Congress on Emergency and Disaster Medicine, Hong Kong (poster), 1989
250. “Exsanguination cardiac arrest. Pathophysiology of dying and limits of reversibility”, Sixth World Congress on Emergency and Disaster Medicine, Hong Kong (poster), 1989
251. “New Technologies for Emergency Medicine”, Guest Lecturer, Medizinische Klinik Karl-Franzens-Universitat. Graz, Austria, 1990
252. “Innovations for Resuscitation from Cardiac Arrest: Cardiopulmonary Bypass and Resuscitative Hypothermia”, Japanese Society of Intensive Care Medicine, Sapporo, Japan, 1993
253. “Extending the Golden Hour of Hemorrhagic Shock Tolerance in Rats”, 10<sup>th</sup> World Congress on Emergency and Disaster Medicine, Mainz, Germany, 1997
254. “Advances in the Care of Trauma Patients in the Nineties....Where are We?”, First International Congress on Emergency and Disaster Medicine, Havana, Cuba, 1999
255. “New Guidelines For Resuscitation From Cardiac Arrest In The USA”, Japanese Reanimatology 2000, Tokyo, Japan, 2000

256. "Recent Progress In Resuscitation At The University Of Pittsburgh", Japanese Reanimatology 2000, Tokyo, Japan, 2000
257. "Extreme Resuscitation", International Surgical Society, Brussels, Belgium, 2001
258. "Therapeutic Hypothermia", Norwegian International Defense Symposium, Oslo, Norway, 2005
259. "Pushing the Borders of Temperature Control: Emergency Preservation and Resuscitation for Exsanguinating Hemorrhage", European Society of Intensive Care Medicine, Berlin, Germany, 2007
260. "A Glimpse of the Future: From CPR to EPR in Hemorrhagic Shock", Therapeutic Temperature Management, Cancun, Mexico, 2007
261. "Hypothermia in the Polytraumatized Patient: Friend, Foe, or Both?", Therapeutic Temperature Management, Cancun, Mexico, 2007
262. "Portable CPS during Normothermic Cardiac Arrest", European Association for Cardiothoracic Surgery, Lisbon, Portugal, 2008
263. "Hypothermic Preservation for Traumatic Cardiac Arrest", European Association for Cardiothoracic Surgery, Lisbon, Portugal, 2008
264. "Acute Care Case", 2nd World Congress for the Advancement of Surgery in Israel, Tel Aviv, Israel, 2010
265. "How do comorbidities affect trauma outcomes?", 2nd World Congress for the Advancement of Surgery in Israel, Tel Aviv, Israel, 2010
266. "Suspended animation for trauma – can the patient come in from the cold?", 2nd World Congress for the Advancement of Surgery in Israel, Tel Aviv, Israel, 2010
267. "What's New in CPR", New Horizons in Critical Care, Cozumel, Mexico, 2011
268. "Traumatic Brain Injury", New Horizons in Critical Care, Cozumel, Mexico, 2011
269. "Nutrition", New Horizons in Critical Care, Cozumel, Mexico, 2011
270. "Acute Abdomen in the ICU", New Horizons in Critical Care, Cozumel, Mexico, 2011
271. "Fibrinogen use?", Massive Transfusion Consensus Conference, Toronto, ON, Canada, 2011
272. "Therapeutic Hypothermia for Trauma", 4<sup>th</sup> International Hypothermia Symposium, Tokyo, Japan, 2011
273. Multiple lectures as visiting professor, Aso Iizuka Hospital, Iizuka, Japan, 2012
274. "Novel Approaches to Trauma Neuroprotection", Round table conference, "Neuroprotection: Clinical Aspects", Brussels, Belgium, 2013
275. "Therapeutic hypothermia: Also in severe trauma?", International Symposium on Intensive Care and Emergency Medicine, Brussels, Belgium, 2013
276. "Hypotensive resuscitation from hemorrhagic shock", International Symposium on Intensive Care and Emergency Medicine, Brussels, Belgium, 2013
277. "How much fluid in traumatic shock?", International Symposium on Intensive Care and Emergency Medicine, Brussels, Belgium, 2013
278. "Bleeding and Coagulation Disorders", Multiprofessional Critical Care Review Course, Trujillo, Peru
279. "Cardiac Arrest and Resuscitation", Multiprofessional Critical Care Review Course, Trujillo, Peru
280. "Managing the Ventilator and the Patient with Obstructive Airway Disease", Multiprofessional Critical Care Review Course, Trujillo, Peru
281. "Nutritional Support", Multiprofessional Critical Care Review Course, Trujillo, Peru

282. “Ethics and Legal Considerations in Critical Care”, Multiprofessional Critical Care Review Course, Trujillo, Peru
283. “Emergency Preservation and Resuscitation”, International Symposium on Critical Bleeding, Copenhagen, Denmark, 2015
284. “The Cellular Effects of Hypothermia”, International Symposium on Critical Bleeding, Copenhagen, Denmark, 2015
285. “Trauma Resuscitation”, Paramedics Australasia International Conference 2015, Adelaide, Australia, 2015
286. “Uncontrolled Hemorrhage: Are There Any Options?”, 31<sup>st</sup> International Winter Symposium. Anesthesia and Perioperative Care in Trauma, Leuven, Belgium, 2016
287. “Suspended Animation - putting death on hold?”, Euroanaesthesia 2017, Geneva, Switzerland, 2017
288. “The training of the surgical intensivist”, Critical Care Medicine Forum of Peking University, Beijing, China, 2017.
289. “The current status of trauma care systems in the US”, Critical Care Medicine Forum of Peking University, Beijing, China, 2017.
290. “Novel approaches to critical care education”, Critical Care Medicine Forum of Peking University, Beijing, China, 2017.
291. “What’s new with therapeutic hypothermia”, Critical Care Medicine Forum of Peking University, Beijing, China, 2017.
292. “Emergency preservation and resuscitation – not CPR: Delayed resuscitation from traumatic death”, European Society of Emergency Medicine, Athens, Greece, 2017.
293. “Exsanguinating Trauma: From CPR to EPR”, The Big Sick 2018, Zermatt, Switzerland, 2018.
294. “Emergency Preservation and Resuscitation”, Cecil Gray Eponymous Lectureship, Tri-Service Anaesthetic Society, London, England, 2018.
295. “The journey to extended preservation resuscitation in humans”, Peter Baskett Lectureship, London Trauma Conference, London, England, 2018.
296. “Reducing metabolic needs in hemorrhagic shock”, Trauma Hemostasis Oxygenation Research Remote Damage Control Research Symposium, Bergen, Norway, 2019.
297. “Will suspended animation ever become reality?”, World Congress of Surgery, Krakow, Poland, 2019.
298. “When is enough, enough: when to stop resuscitation” and “EPR – Emergency Preservation and Resuscitation in trauma”, European Emergency Medicine Congress, 2020.
299. “Resuscitation lessons learned: Fix the patient! But sometimes you have to buy time”, Edinburgh Student Surgical Society, Edinburgh, Scotland, 2021.
300. “A cool way to save patients”, 10<sup>th</sup> Congress for Emergency Medicine, Graz, Austria, 2022



**Current Research and Performance Improvement Interests**

1. Development of hypothermic and pharmacologic strategies to enable emergency preservation for the exsanguinated organism for transport and delayed resuscitation.
2. Hypothermia for acute respiratory distress syndrome.
3. Resuscitation for patients with surgical sources of sepsis.
4. Use of simulation to teach crisis management skills.
5. Rapid refreshing of surgical skills.
6. Understanding the needs of surgical critical care and acute care surgery trainees.
7. Prevention of airway emergencies in the intensive care unit.
8. Decreasing use of albumin in the intensive care unit.
9. Family centered care in the intensive care unit.