Prepared: July 13, 2021

University of California, San Francisco

CURRICULUM VITAE

Name: Joseph Cuschieri, MD

Position: Professor In Residence, Step 4
Surgery
School of Medicine

Trauma Medical Director ZSFG

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EDUCATION

1986 - 1990	University of Michigan	BS	BioChemistry	
1990 - 1994	Wayne State University School of Medicine	MD	Medicine	
1994 - 1997	Henry Ford Hospital and Medical Center		Resident in Surgery	
1997 - 1998	Henry Ford Hospital and Medical Center		Surgical Critical Care	
1998 - 1999	Henry Ford Hospital and Medical Center		Resident in Surgery	
1999 - 2000	Henry Ford Hospital and Medical Center		Chief Resident in Surgery	
2000 - 2002	University of Washington School of Medicine		NIH T32 Fellow	Dr. Ronald V. Maier

LICENSES, CERTIFICATION

1995	National Board of Medical Examiners
1999	State of Michigan #4301063280 - Inactive
2000	State of Washington #MD00039268 - Active
2001	American Board of Surgery: Surgery
2002	State of Ohio #81266 - Inactive
2002	American Board of Surgery: Surgical Critical Care

2003	Advanced Trauma Life Support Instructor
2004	Advanced Trauma Life Support Course Director
2008	Advanced Trauma Life Support Instructor Course Director
2009	Advanced Surgical Skills for Exposure in Trauma Instructor
2010	American Board of Surgery: Surgery Recertified
2011	American Board of Surgery: Surgical Critical Care Recertified
2020	State of California #C170815-Active

PRINCIPAL POSITIONS HELD

2002 - 2004	Division of Trauma and Critical Care, University of Cincinnati, Cincinnati, Ohio	Assistant Professor of Surgery	Surgery
2004 - 2006	Division of Trauma and Critical Care, University of Washington SOM, Seattle, Washington	Assistant Professor of Surgery	Surgery
2006 - 2011	Division of Trauma and Critical Care, University of Washington SOM, Seattle, Washington	Associate Professor of Surgery	Surgery
2007 - 2011	Department of Neurosurgery, University of Washington SOM Seattle, Washington	Associate Adjunct Professor	Neurosurgery
2011 - 2021	Division of Trauma and Critical Care, University of Washington SOM, Seattle, Washington	Professor of Surgery	Surgery
2011 - 2021	Department of Neurosurgery, University of Washington SOM, Seattle, Washington	Adjunct Professor	Neurosurgery
2017 - 2021	Department of Orthopedics, University of Washington SOM Seattle, Washington	Adjunct Professor	Orthopedics
2021 - present	Department of Surgery, University of California San Francisco	Professor	Surgery

OTHER POSITIONS HELD CONCURRENTLY

2002 - 2004	University Hospital, Cincinnati, Ohio	Attending Surgeon Trauma/Critical Care	Surgery
2002 - 2004	Drake Hospital, Cincinnati, Ohio	Attending General Surgeon	Surgery
2004 - 2021	University of Washington Medical Center Seattle, Washington	Active Staff	Surgery

2004 - 2021	Seattle Cancer Care Alliance Seattle, Washington	Active Staff	Surgery
2004 - 2021	Harborview Medical Center, Seattle, Washington	Attending Surgeon Trauma/Critical Care	Surgery
2006 - 2013	Division of Trauma and Critical Care, University of Washington, SOM, Seattle, Washington	Associate Program Director Surgical Critical Care	Surgery
2006 - 2020	Harborview Medical Center, Seattle, Washington	Medical Director Surgical Critical Care	Surgery
2011 - 2016	Harborview Medical Center, Seattle, Washington	Acting Associate Medical Director-Critical Care	Surgery
2013 - 2020	Division of Trauma and Critical Care, University of Washington, SOM, Seattle, Washington	Program Director Surgical Critical Care	Surgery
2019 - 2021	Harborview Medical Center, Seattle, Washington	Associate Medical Director Surgical Services	Surgery
2021 - present	Zuckerberg San Francisco General Hospital, San Francisco, California	Trauma Medical Director	Surgery
2021 - present	Zuckerberg San Francisco General Hospital, San Francisco, California	Attending Surgeon Trauma/Critical Care	Surgery

HONORS AND AWARDS

1986	Michigan Competitive Scholarship Award	University of Michigan
1989	Outstanding College Student of America Award	University of Michigan
1990	Phi Beta Kappa	Univeristy of Michigan
1990	American Chemical Society Student Award in Biochemistry	American Chemical Society
1990	O.B. Weed Scholarship Award	Wayne State University School of Medicine
2000	Outstanding Surgical Resident Award	Hernry Ford Hospital, Detroit, Michigan
2000	Michael S. Benninger, MD Outstanding Resident Award	Hernry Ford Hospital, Detroit, Michigan

2000	1st Place Award: Basic Science Paper Committee on Trauma:	American College of Surgeons Committee of Trauma: Washington Chapter
2001	Shock Society Travel Award	Shock Society
2001	1st Place Award: Basic Science Paper Committee on Trauma:	American College of Surgeons Committee of Trauma: Washington Chapter
2001	2nd Place Award: Basic Science Paper Region X COT	American College of Surgeons Committee of Trauma: Region X
2002	3rd Place Award: Basic Science Paper Seattle Surgical Society	Seattle Surgical Society
2002	1st Place Award: Overall Paper 8th Annual Schilling Research Symposium	University of Washington School of Medicine
2002	Shock Society Travel Award	Shock Society
2006	Joseph Sussman Memorial Award	Surgical Infection Society
2006	Castle Connelly Top Doctors	
2015	UW Cares Award	Univeristy of Washington Medical System
2015	CDC HA-VTE Prevention Challenge Champion	Centers of Disease Control
2016	Best paper Award American Geriatrics Society Annual Meeting	American Geriatric Society
2018	Harborview Medical Center Employee of the Month (March)	Harborview Medical Center, Seattle, Washington
2019	John K. Stevenson Faculty Teaching Award in Surgery	University of Washington School of Medicine
2020	Castle Connelly Top Doctors	
2020	Seattle Magazine Top Docs, Surgery	Seattle Magazine
2020	Seattle Metropolitan Top Physicians, General Surgery	Seattle Metropolitan Magazine
2021	Castle Connelly Top Doctors	

CLINICAL ACTIVITIES

CLINICAL ACTIVITIES SUMMARY

I have a strong interest in trauma and surgical critical care, but I have not limited by clinical interest to only these surgical conditions. I have worked collaboratively with the gastroenterologists at Harborview Medical Center, and together we have developed a regionally well recognized inflammatory bowel disease program that treats and follows over

one thousand patients. As a result of this program development, we have improved patient outcomes by decreasing significantly the number of emergent admissions and surgical procedures. This has additionally led to a significant improvement in overall patient satisfaction. Additionally, I have worked collaboratively with both the neurosurgeons and orthopedic surgeons at the University of Washington to help train both surgical residents and spine fellows on the techniques of anterior exposures to the thoracic and lumbar spine. As a result, I was promoted to Adjunct Professor in both Neurosurgery and Orthopedics. As a result of these initiatives and overall patient care, I have been awarded both the UW Cares Award for the provider that embodies the service culture guidelines of the University of Washington Medical System, and the Harborview Employee of the Month that is exceedingly rare for a physician to receive.

I have been integrally involved in the improvement overall of care provided at Harborview Medical Center. I have been highly involved in the development and implementation of a number of protocols and guidelines for injured patients within our trauma program, and have served for the last several years on our Surgical Executive Committee dedicated to improving OR efficiency and outcome. I have been integrally involved in the critical care provided at Harborview Medical Center as the medical director of our Trauma Surgical ICU, and previous Associate Medical Director for Critical Care Services. Additionally, I have served as the surgical chair of our institutional VTE committee that has established the guidelines and protocols associated with prevention and treatment of this disease for over 10 years. The implementation of these guidelines and protocols allowed us to be recognized in 2015 by the Centers of Disease Control and Prevention as an awardee of the prestigious Health Care-Associated Venous Thromboembolism Prevention Challenge Champions.

CLINICAL SERVICES

2002 - 2004	Trauma Surgery Service, University of Cincinnati Medical Center/Attending Surgeon	3 months/year
2002 - 2004	General Surgery Service, University of Cincinnati Medical Center/Attending Surgeon	3 months/year
2002 - 2004	Surgical Critical Care Service, Univeristy of Cincinnati Medical Center/Attending Surgeon	3 months/year
2004 - 2021	Trauma Surgery Service, Harborview Medical Center/Attending Surgeon	1 week/month
2004 - 2021	General Surgery Service, Harborview Medical Center/Attending Surgeon	1 week/month
2004 - 2021	Surgical Critical Care Service, Harborview Medical Center/Attending Surgeon	1 week/month
2016 - 2021	EMCO Service, Harborview Medical Center/Attending Surgeon	1.5 months/year
2021 - present	Trauma Surgery Service, Zuckerberg San Francisco General Hospital/Attending Surgeon	3 months/year
2021 - present	Surgical Critical Care Service, Zuckerberg San Francisco General Hospital/Attending Surgeon	2 months/year

PROFESSIONAL ACTIVITIES

MEMBERSHIPS

1994 - present	American Medical Association
1998 - 2016	Society of Critical Care Medicine
2000 - present	The Roy D. McClure Surgical Alumni Society of Henry Ford Hospital
2000 - present	Harkins Medical Society
2000 - present	Seattle Surgical Society
2002 - 2004	American College of Surgeons Associate Fellow
2002 - present	American Association of Immunologists
2002 - present	Federation of American Societies for Experimental Biology
2002 - present	Shock Society
2003 - 2004	American College of Surgeons Committee of Trauma: Ohio Chapter
2003 - present	Surgical Infection Society
2003 - 2013	Association of Academic Surgeons
2003 - 2020	American College of Surgeons Committee of Trauma
2004 - 2021	American College of Surgeons Committee of Trauma: Washington Chapter
2004 - 2020	American College of Surgeons Committee of Trauma: Region X
2004 - present	American College of Surgeons Fellow
2005 - present	American Association for the Surgery of Trauma Fellow
2006 - 2014	Society of University Surgeons
2008 - present	Society of Surgical Critical Care Program Directors
2019 - present	American Surgical Association

SERVICE TO PROFESSIONAL ORGANIZATIONS

2003 - 2005	Association of Academic Surgeons: Informatics and Technology Committee	Committee Member
2005 - 2007	Association of Academic Surgeons: Program Committee	Committee Member
2005 - 2012	American College of Surgeons Committee of Trauma	Washington State Chair
2006 - 2007	Surgical Infection Society: Informatics and Technology Committee	Committee Member
2006 - 2008	Shock Society: Mebership Committee	Committee Member

2006 - 2012	American College of Surgeons Committee of Trauma: Surgical Skills	Committee Member
2006 - 2012	American College of Surgeons Committee of Trauma:National Trauma Data Committee	Committee Member
2007 - 2008	Shock Society: Mebership Committee	Chair
2008 - 2010	Surgical Infection Society: Ad Hoc Acute Care Surgery Committee	Committee Member
2008 - 2011	American Association for the Surgery of Trauma: Critical Care Committee	Committee Member
2009 - 2011	Association of Academic Surgeons	Councilor
2009 - present	American Board of Surgery	Assoicate Examiner
2011 - 2013	Surgical Infection Society: Scholarship Committee	Committee Member
2012 - 2019	American Board of Surgery: General Surgery SCORE Curriculum	Module Creator
2013 - 2016	Surgical Infection Society: Scientific Studies Committee	Committee Member
2014 - 2020	American College of Surgeons Committee of Trauma	National Committee Member
2014 - 2020	American College of Surgeons Committee of Trauma:Trauma Quality Improvement Project	Committee Member
2014 - 2020	American College of Surgeons Committee of Trauma:Verification Review Committee	Committee Member
2016 - 2020	American College of Surgeons Committee of Trauma: Washington Chapter	Board Member
2016 - present	American Association for the Surgery of Trauma: Critical Care Committee	Committee Member
2017 - 2019	American Board of Surgery: Surgical Critical Care SCORE Curriculum	Module Creator
2018 - 2019	National Quailty Forum: Trauma Outcomes	Committee Member
2018 - 2020	American College of Surgeons Committee of Trauma:Research Committee	Committee Member
2021 - present	Society of Critical Care Program Directors: Mentoring Committee	Vice Chair

2021 - present	Society of Critical Care Program Directors: Awards Committee	Committee Member

SERVICE TO PROFESSIONAL PUBLICATIONS

2007 - 2014 Editorial Board, Journal of Sugical Reseach

2011 - present Editorial Board, Journal of Trauma and Acute Care Surgery (Review 12 articles/year)

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2003 - present Ad Hoc Reviewer, British Medical Journal (Review 1-2 articles/year)

2004 - present Ad Hoc Reviewer, Journal of Antioxidant and Redox Potential (Review 2 articles/year)

2004 - present Ad Hoc Reviewer, Journal of Bilogical Chemistry (Review 1 article/year)

2004 - present Ad Hoc Reviewer, Journal of Immunology (Review 1 article/year)

2004 - present Ad Hoc Reviewer, Journal of Leukocyte Biology (Review 1 article/year)

2005 - present Ad Hoc Reviewer, Journal of Surgical Infection (Review 5 articles/year)

2005 - present Ad Hoc Reviewer, Journal of Surgical Research (Review 1-2 articles/year)

2006 - present Ad Hoc Reviewer, Critical Care Medicine (Review 1 article/year)

2006 - present Ad Hoc Reviewer, Pharmacological Research (Review 1 article/year)

2007 - 2013 Ad Hoc Reviewer, Journal of Trauma

2008 - present Ad Hoc Reviewer, Journal of the American College of Surgeons (Review 3 articles/year)

2008 - present Ad Hoc Reviewer, Journal of Postrgraduate Medicine (Review 1 article/year)

2010 - present Ad Hoc Reviewer, Plos-One (Review 1 article/year)

2011 - present Ad Hoc Reviewer, American Surgical (Review 1 article/year)

2012 - present Ad Hoc Reviewer, Annals of Surgery (Review 2 articles/year)

2014 - present Ad Hoc Reviewer, JAMA Surgery (Review 1 article/year)

2015 - present Ad Hoc Reviewer, JAMA (Review 1 article/year)

INVITED PRESENTATIONS - INTERNATIONAL

1998	"Microlaparoscopy in the Intensive Care Unit", 6th World Congress of Endoscopic Surgery and 6th International Congress of European Association for Endoscopic Surgery, Rome, Italy, May 31-June 6 1998	Poster

2002	"Modulation of Sepsis Induced Endothelial Function by Calcium/Calmodulin-Dependent Protein Kinase Inhibition", 22nd Annual Surgical Infection Society/1st Joint Meeting with European Surgical Infection Society, Madrid, Spain, May 2-4, 2002	Podium
2002	"Platelet Activating Factor Acetylhydrolase Inhibits Alveolar Macrophage Activation In Vivo", 22nd Annual Surgical Infection Society/1st Joint Meeting with European Surgical Infection Society, Madrid, Spain, May 2-4, 2002	Podium
2002	"Phosphatase Upregulation Controls Monocyte Proinflammatory Response", 22nd Annual Surgical Infection Society/1st Joint Meeting with European Surgical Infection Society, Madrid, Spain, May 2-4, 2002	Poster
2004	"CaMK Control of Inflammation Gene Regulation", 6th World Congress on Trauma, Shock, Inflammation and Sepsis, Munich, Germany, March 2-6, 2004.	Podium
2004	Oxidant Induced Macrophage Priming Requires Intracellular Calcium Release , 27th Annual Conference on Shock, Halifax, Nova Scotia, June 5-8, 2004.	Poster
2007	Lipid rafts an initiation of inflammatory cell signaling. 7th World Congress on Trauma, Shock, Inflammation and Sepsis, Munich, Germany, March 13-17, 2007	Podium
2007	Strict Glycemic control following injury: How strict do we really need to be? 27th Annual Meeting of the Surgical Infection Society, Toronto, Ontario, April 18-20, 2007.	Podium
2007	Translational control of cytokines modulates the inflammatory response. 27th Annual Meeting of the Surgical Infection Society, Toronto, Ontario, April 18-20, 2007.	Podium
2007	Endotoxin exposure in the macrophage: analysis of lipid raft proteomics. 27th Annual Meeting of the Surgical Infection Society, Toronto, Ontario, April 18-20, 2007.	Podium
2008	HSP70 is critical to regulated IL-8 production by LPS: The role of mRNA stabilization 31st Annual Conference on Shock. Cologne, Germany, June 28-July 2, 2008.	Poster

INVITED PRESENTATIONS - NATIONAL

1998	"A Comparison of Transesophageal Doppler, Thermodilution and Fick Cardiac Output Measurements in Critically Ill Patients", 27th Annual Society of Critical Care Medicine Symposium, San Antonio, Texas, February 4-8, 1998	Poster

1998	"Arterial-Venous Carbon Dioxide Gradients as an Indicator of Cardiac Index: A Comparison between the Mixed and Central Venous Circulation", 27th Annual Society of Critical Care Medicine Symposium, San Antonio, Texas, February 4-8, 1998	Poster
1998	"Fasciotomy Wound Management: Less is Better", American Association for the Surgery of Trauma, Baltimore, Maryland, September 24-26, 1998	Poster
1998	"Anterior Mediastinal Abscesses Complicating Closed Sternal Fracture", 34th Annual American College of Surgeons Clinical Congress, Orlando, Florida, October 25-30, 1998	Poster
1999	"Increased Arterial-Venous Carbon Dioxide Gradient During Septic and Hypovolemic Shock", 28th Annual Society of Critical Care Medicine Symposium, San Francisco, California, January 23-27, 1999	Poster
1999	"Bronchoalveolar Lavage: Complication Rate does not Warrant Post-Procedural Radiological Examination", 28th Annual Society of Critical Care Medicine Symposium, San Francisco, California, January 23-27, 1999	Poster
1999	"Clearing the Cervical Spine in Victims of Blunt Assault to the Head and Neck: What is Necessary", 42nd Annual Meeting Midwestern Surgical Association, Galena, Illinois, August 15-18, 1999	Podium
1999	"Arterial-Central Venous Carbon Dioxide Difference as an Indicator of Cardiac Output and Cardiac Index in the Emergency Department", Society of Academic Emergency Medicine, New York, New York, September 19-23, 1999	Poster
2000	"Repair of Low Grade Bladder Injuries: Few Adjuncts Required", 30th Annual Meeting of the Western Trauma Association, Tahoe City, California, February 27 March 3, 2000	Podium
2000	"Complex Stab Injuries to the Neck: Need for Operative Exploration and Repair", 47th Annual Meeting Michigan Chapter, American College of Surgeons and Annual Resident Competition, Traverse City, Michigan, May 4-5, 2000	Podium
2000	"Complex Stab Injuries to the Neck: Need for Operative Exploration and Repair", 50th Annual Keyport-Gaylord Trauma Symposium, Gaylord, Michigan, May 11-13, 2000	Podium

2000	"Renal Perfusion Dopamine: A Meta-analysis of Outcome", 36th Annual American College of Surgeons Clinical Congress, Chicago, Illinois, October 19-24, 2000	Poster
2001	"Monocyte Adherence Leads to IRAK Phosphorylation and Subsequent Degradation", 62nd Annual Meeting of the Society of University Surgeons, Chicago, Illinois, February 5-9, 2001	Podium
2001	"GM-CSF Reverses Endotoxin Tolerance in Endothelial Cells", 62nd Annual Meeting of the Society of University Surgeons, Chicago, Illinois, February 5-9, 2001	Podium
2001	"Endotoxin Tolerant Endothelial Cells as a Result of MAPK Inhibition", 21st Annual Meeting of the Surgical Infectious Society. Snowbird, Utah, May 3-5, 2001	Poster
2001	"Actin Cytoskeleton and Endotoxin Induced Activation", 21st Annual Meeting of the Surgical Infectious Society, Snowbird, Utah, May 3-5, 2001	Poster
2001	"Monocyte Adherence Leads to IRAK Phosphorylation and Subsequent Degradation", 24th Annual Conference on Shock, Marco Island, Florida, June 9-12, 2001	Poster
2001	"Hypertonic Preconditioning Results in Reduced Macrophage Responsiveness", 24th Annual Conference on Shock, Marco Island, Florida, June 9-12, 2001	Podium
2001	"Endotoxin Tolerance is Reversed in Monocytes by Phosphatase Inhibition", 24th Annual Conference on Shock, Marco Island, Florida, June 9-12, 2001	Podium
2001	"Hypertonic Preconditioning Prevents Endotoxin Induced Pro-Inflammatory Mediator Production in Endothelial Cells", 87th Clinical Congress of the American College of Surgeons/Surgical Forum, New Orleans, LA, October 7-12, 2001	Podium
2001	"Endotoxin Tolerance in Endothelial Cells is Reversed by Phosphatase Inhibition", 87th Clinical Congress of the American College of Surgeons/Surgical Forum, New Orleans, LA, October 7-12, 2001	Podium
2001	"Modulation of the Macrophage", Grand Rounds-Henry Ford Hospital, Detroit, Michigan, October 19, 2001	Podium
2001	"Stress Fiber Polymerization is Necessary for Endothelial Cell Production of NF-□B Dependent ICAM-1 Production During Sepsis", 35th Annual Meeting of the Association for Academic Surgery, Milwaukee, Wisconsin, November 15-17, 2001	Poster

2001	""Cross Tolerance Between LPS and IL-1□ in Mononuclear Cells", 35th Annual Meeting of the Association for Academic Surgery, Milwaukee, Wisconsin, November 15-17, 2001	Poster
2001	"Immunomodulation of the Macrophage", Research Conference-University of Cincinnati, Cincinnati, Ohio, December 5, 2001	Podium
2002	"Platelet Activating Factor (PAF) Priming of Endotoxin Induced Inflammatory Cell Activity Requires Cellular Adherence", 63rd Annual Meeting of the Society of University Surgeons, Honolulu, Hawaii, February 14-16, 2002	Podium
2002	"Calcium/Calmodulin-Dependent Kinase II is Required for Platelet Activating Factor (PAF) Priming of Inflammatory Cells", 25th Annual Conference on Shock, Big Sky, Montana, June 8-11, 2002	Podium
2002	"Androgens Inhibit Monocyte Cell Signalling", 25th Annual Conference on Shock, Big Sky, Montana, June 8-11, 2002	Podium
2002	"PTFE Porosity Modulates Monocyte Responsiveness", 25th Annual Conference on Shock, Big Sky, Montana, June 8-11, 2002	Poster
2002	"Modulation of Endotoxin-Induced Endothelial Activity by Microtuble Depolymerization", 62nd Annual Meeting for The American Association for the Surgery of Trauma, Orlando, Florida, September 26-28, 2002	Podium
2002	"Inflammatory States Following Trauma", University of Cincinnati Grand Round, November 3, 2002	Podium
2002	"Implications of Proteasome Inhibition: Enhanced Anti-inflammatory Macrophage Activity", 36th Annual Meeting of The Association for Academic Surgery, Boston, Massachusetts, November 7-9, 2002	Podium
2002	"GM-CSF and IFN□ Prime Monocyte Inflammatory Signaling Pathways", 36th Annual Meeting of The Association for Academic Surgery, Boston, Massachusetts, November 7-9, 2002	Poster
2002	University of Cincinnati Basic Science Forum: "Immunomodulation of the Macrophage"	Podium
2003	Novel Treatments in Sepsis , Annual University of Cincinnati Infection Conference: Novel Treatments in Sepsis, University of Cincinnati, Cincinnati, Ohio, January 12, 2003	Podium

2003	"Modulation of Macrophage Responsiveness to LPS by Manipulation of IRAK-1", 64th Annual Meeting of the Society of University Surgeons, Houston, Texas, February 12-14, 2003	Podium
2003	"B1-Integrin Ligation Mediates NADPH Oxidase Activation in Human Neutrophils", 64th Annual Meeting of the Society of University Surgeons, Houston, Texas, February 12-14, 2003	Podium
2003	"PKC-Zeta is Essential Toward Endotoxin-Induced Macrophage Activation", 37th Annual Meeting of The Association for Academic Surgery, Sacramento, California, November 13-15, 2003	Poster
2004	"Implications of Lipid Raft Disintegration: Enhance Anti-Inflammatory Macrophage Activation", 65th Annual Meeting of the Society of University Surgeons, St. Louis, Missouri, February 11-14, 2004.	Poster
2004	"The Role of Repeat Angiography in the Management of Pelvic Fractures", 34th Annual Meeting of the Western Trauma Association, Steamboat Springs, Colorado, February 22-27, 2004	Podium
2004	"Endotoxin Tolerance Attenuates LPS-Induced TLR4 Mobilization to Lipid Rafts: A Condition Reversed by PKC Activation", 24th Annual Meeting of the Surgical Infection Society, Indianapolis, Indiana, April 29-May1, 2004.	Podium
2004	"Phosphatidylcholine (PC)-Specific Phospho-Lipase C (PC-PLC) is required for LPS-Mediated macrophage Activation", 38th Annual Meeting of The Association for Academic Surgery, Houston, Texas, November11-13, 2004.	Podium
2005	"Oxidative induced calcium mobilization is dependent on annexin VI release from lipid rafts", 65th Annual Meeting of the Society of University Surgeons, Nashville, Tennessee, February 10-12, 2005.	Podium
2005	Vitamin E inhibits endotoxin mediated transport of phosphatases to lipid rafts , 25th Annual Meeting of the Surgical Infection Society, Miami, Florida, May 5-7, 2005.	Poster
2005	"Insulin regulates macrophage activity through SHIP production", 28th Annual Conference on Shock, Marco Island, Florida, June 4-7, 2005	Podium
2006	LPS-mediated TLR4 clustering is not dependent on LPS biding to TLR4, 1st Annual Meeting of the Academic Surgical Congress, San Diego, California, February 2-5, 2006.	Podium

2006	Hypertonic resuscitation modulates the inflammatory response in patients with traumatic hemorrhagic shock, 26th Annual Meeting of the Surgical Infection Society, La Jolla, California, April 27-29, 2006.	Podium
2006	The priming effect of C5a on LPS-induced IL-6 production by monocytes is predominantly mediated by the LPS MAPK pathway, 26th Annual Meeting of the Surgical Infection Society, La Jolla, California, April 27-29, 2006.	Poster
2006	Acid sphingomyelinase is required for macrophage activation, 26th Annual Meeting of the Surgical Infection Society, La Jolla, California, April 27-29, 2006.	Podium
2006	The C5a priming effect enhances TNF translation through the PI3K/AKT/MTOR pathway, 29th Annual Conference on Shock, Broomfield, Colorado, June 3-6, 2006.	Podium
2006	MODS development: The role of CaMK II, 29th Annual Conference on Shock, Broomfield, Colorado, June 3-6, 2006.	Poster
2006	Impact of delayed initiation of venous thromboembolism prophylaxis in the trauma ICU, 65th Annual Meeting of the American Association for the Surgery of Trauma, New Orleans, Louisiana, September 28-30, 2006.	Podium
2006	Targeted prehospital ventilation is associated with improved outcome following sever traumatic brain injury, 65th Annual Meeting of the American Association for the Surgery of Trauma, New Orleans, Louisiana, September 28-30, 2006	Podium
2007	Altered phenotypes in the pathogenesis of ARDS, 2nd Annual Meeting of the Academic Surgical Congress, Phoenix, Arizona, February 6-9, 2007.	Poster
2007	Emergency department ventilation effects outcome in severe brain injury, 37th Annual Meeting of the Western Trauma Association, Steamboat Springs, Colorado, February 25-March 2, 2007.	Podium
2007	Early elevation in serum IL-6 is predictive of poor outcome. 30th Annual Conference on Shock, Baltimore, Maryland, June 9-12, 2007.	Podium
2007	Differential leukocyte gene expression after hypertonic resuscitation. 30th Annual Conference on Shock, Baltimore, Maryland, June 9-12, 2007.	Poster
2007	Differential regulation of cytokine translation by the PI3K/AKT/MTOR pathway. 30th Annual Conference on Shock, Baltimore, Maryland, June 9-12, 2007.	Podium

2007	Oxidant alterations in CD16 expression are cytoskeletal induced. 30th Annual Conference on Shock, Baltimore, Maryland, June 9-12, 2007.	Podium
2007	Male gender is associated with excessive IL-6 expression following injury. 66th Annual Meeting of the American Association for the Surgery of Trauma, Las Vegas, Nevada, September 27-29, 2007.	Podium
2007	Critical Care Nursing Annual Conference: Acute Abdominal compartment syndrome: Diagnosis, Management and Follow Up, Seattle, Washington	Podium
2008	Omega-3 fatty acid supplementation modulates the inflammatory response in patients with traumatic shock. 3rd Annual Meeting of the Academic Surgical Congress, Huntington Beach, California, February 13-15, 2008.	Podium
2008	Impact of 2% chlorhexidine whole body washing on nosocomial infections among trauma patients. 28th Annual Meeting of the Surgical Infection Society, Hilton Head Island, South Carolina, May 7-9, 2008.	Podium
2009	The value of prior endotracheal aspirates in guiding empiric antibiotic therapy for ventilator associated pneumonia in trauma. 3rd Combine Meeting of the Surgical Infections Societies of North America and Europe, Chicago, Illinois, May 6-9, 2009.	Podium
2009	Timing of intubation, aspiration and ventilator associated pneumonia in trauma patients. 3rd Combine Meeting of the Surgical Infections Societies of North America and Europe, Chicago, Illinois, May 6-9, 2009.	Poster
2009	"Early Identification and Management of Hemorrhagic Shock", Department of Surgery Grand Rounds, University of Washington, June 21, 2009	Podium
2009	Goal Oriented Shock Resuscitation is Associated with Improved Outcomes following Severe Blunt Injury. 68th Meeting of the American Association for the Surgery of Trauma, Pittsburgh, Pennsylvania, October 1-3, 2009.	Podium
2009	End-Tidal Capnography Predicts Compensated Shock and need for Emergent Blood Transfusion. 68th Meeting of the American Association for the Surgery of Trauma, Pittsburgh, Pennsylvania, October 1-3, 2009.	Podium
2009	Statins American Heart Association Resuscitation Science Symposium. Orlando, Florida, November 14-15, 2009.	Podium

2010	Plasma levels of non-esterified fatty acids (NEFA) predicts the development of multiple organ failure in trauma patients. 33rd Annual Conference on Shock, Portland, Oregon, June 12-15, 2010.	Podium
2010	Hypertonic resuscitation modulates monocyte subset activation and cytokine production. 33rd Annual Conference on Shock, Portland, Oregon, June 12-15, 2010.	Podium
2010	Hypertonic resuscitation differentially modulates soluble adhesion molecules in shock patients. 33rd Annual Conference on Shock, Portland, Oregon, June 12-15, 2010.	Poster
2010	Hypertonic resuscitation of shock patients downregulates neutrophil activation. 33rd Annual Conference on Shock, Portland, Oregon, June 12-15, 2010.	Poster
2010	The effect of statin withdrawal on cytokine production in human peripheral blood mononuclear cells. 33rd Annual Conference on Shock, Portland, Oregon, June 12-15, 2010.	Poster
2010	Recovery from severe injury 2nd Annual Obeid Memorial Lecture, Grand Rounds Henry Ford Hospital, Detroit, Michigan, August 9, 2010.	Podium
2011	Increased neutrophil adenosine A3 receptor expression is associated with hemorrhagic shock and injury severity in trauma patients. 34th Annual Conference on Shock, Norfolk, Virginia, June 11-14, 2011.	Podium
2012	Prehospital hypertonic resuscitation is associated with hypo-cogulation, hyper-fibrinolysis and anti-inflammatory responses. 71st Annual Meeting of the American Association for the Surgery of Trauma, Kauii, Hawaii, September 12-15, 2012.	Podium
2012	Arrival hyperoxemia does not effect mortality in intubated patients with traumatic brain injury. 71st Annual Meeting of the American Association for the Surgery of Trauma, Kauii, Hawaii, September 12-15, 2012.	Poster
2012	Comparing clinical predictors of deep venous thrombosis versus pulmonary embolus after severe injury: a new paradigm for posttraumatic venous thromboembolism? 71st Annual Meeting of the American Association for the Surgery of Trauma, Kauii, Hawaii, September 12-15, 2012.	Podium
2012	Goal-directed resuscitation in the prehospital setting: a propensity-adjusted analysis. 71st Annual Meeting of the American Association for the Surgery of Trauma, Kauii, Hawaii, September 12-15, 2012.	Podium

2013	Clostiridium Difficilli infections: The role of colectomy. 33rd Annual Meeting of the Surgical Infection Society, Las Vegas, Nevada, April 12-15, 2013.	Podium
2013	The early bird gets the worm: Pre trauma center blood transfusions is associated with reduced mortality and coagulopathy in severely injured blunt trauma patients. 72nd Annual Meeting of the American Assocation for the Surgery of Trauma. San Francisco, California, September 21-24, 2013.	Podium
2013	The role of LPS structure in monocyte activation and cytokine secretion. 72nd Annual meeting of the American Association for the Surgery of Trauma, San Francisco, California, September 2013.	Poster
2013	American College of Surgeons Annual Meeting, Update on Neurological Trauma, Washington DC	Podium
2014	Wound Infection after Attenuating a Key Inflammatory Signaling Pathway. 34th Annual Meeting of the Surgical Infection Society, Baltimore, Maryland, May 1-3, 2014.	Podium
2014	Use of Computed Tomography to Diagnose Aspiration in Trauma Patients. 34th Annual Meeting of the Surgical Infection Society, Baltimore, Maryland, May 1-3, 2014.	Podium
2015	Trauma Acute or Chronic . 62nd Annual Meeting and 64th Annual Resident Surgeons Competition of the Michigan Chapter of the American College of Surgeons, Grand Rapids, Michigan, May13-15, 2015.	Podium
2015	Multicenter external validation of the geriatric trauma outcome score: The prognostic assessment of life and limiations after trauma in the elderly [PALLIATE] study. American Association for the Surgery of Trauma, Las Vegas, Nevada, September 2015.	Podium
2015	Inflammatory Response to Trauma. 100th Anniversary Henry Ford Hospital: McClure Forum. Detroit, Michigan, October 10, 2015.	Podium
2016	Venous thromboembolism after hospitalization in trauma patients: Does prophylaxis matter. 2016 Annual Meeting of the Society of Hospital Medicine, San Diego, California, March 6-9, 2016.	Podium
2016	Multicenter Validation of a Prognosis Calculator Annual meeting of the American Geriatrics Society, Long Beach, California, May 19-21, 2016.	Podium

2017	Blunt Cerebrovascular Injury Screening in Children: Are they just little adults? 47th Annual Meeting of the Western Trauma Association, Snowbird, Utah, March 5-10, 2017.	Podium
2017	Creating and Managing an ECMO Program Without a Perfusionist Team The RN/RT Model 28th Annual ELSO Conference, Baltimore, Maryland, September 24-27, 2017.	Poster
2017	Statewide protocol rapidly reverses oral anticoagulant induced coagulopathy in patients with isolated traumatic brain injury. 76th Annual Meeting of the American Association for the Surgery of Trauma Baltimore, Maryland, September 2017.	Poster
2017	Obesity facilitates distinct genomic changes and immune dysregulation in severe traumatic injury. 76th Annual Meeting of the American Association for the Surgery of Trauma Baltimore, Maryland, September 2017	Poster
2017	Department of Surgery Grand Rounds, Ischemia/Reperfusion, University of Washington	Podium
2018	Decreased Risk of Delirium With Use of Regional Analgesia in Geriatric Trauma Patients With Multiple Rib Fractures. 138th Annual Meeting of the American Surgical Association, Phoenix, Arizona, April 19-20, 2018	Podium
2018	Hypothermia Following Injury Results in Sustained Organ Dysfunction. 42nd Annual Meeting of the Shock Society, Coronado, CA, June 8 - 11, 2018.	Poster
2018	Ventilator-Associated Events not Ventilator Pneumonia is Associated with Higher Mortality in Trauma Patients. 77th Annual Meeting of the American Association for the Surgery of Trauma, San Diego, California, September 26-29, 2018.	Podium
2018	Splenic Artery Angioembolization for High-Grade Splenic Injury: Stop Wasting Time and Money. 77th Annual Meeting of the American Association for the Surgery of Trauma, San Diego, California, September 26-29, 2018.	Poster
2020	Lifting the Burden: State Medicaid Expansion Reduces Financial Risk for the Injured. 78th Annual Meeting of the American Association for the Surgery of Trauma, Dallas, Texas, September 18-21, 2020.	Podium

2020	Distinct Immunologic Endotypes are Associated with Clinical Trajectory After Blunt Trauma and hemorrhagic Shock. 79th Annual Meeting of the American Association for the Surgery of Trauma, Virtual-meeting, September 8-18, 2019.	Podium
2020	Prolonged Metabolic Alterations Characterize Persistent Inflammation, Immunosupression, and Catabolism Syndrome After Severe Trauma. 79th Annual Meeting of the American Association for the Surgery of Trauma, Virtual-meeting, September 8-18, 2020.	Podium
2020	Persistent inflammatory catabolic syndrome after hypothermia in trauma patients. 79th Annual Meeting of the American Association for the Surgery of Trauma, Virtual-meeting, September 8-18, 2020.	Podium
2020	Multicenter validation of the bowel injury prediction score (BIPS) for identifying patients requiring surgery. 79th Annual Meeting of the American Association for the Surgery of Trauma, Virtual-meeting, September 8-18, 2020.	Podium
2021	"Restoring Homeostasis Following Injury: A Personalized Approach", UCSF Grand Rounds, May 24, 2021	

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

1998	Detroit Surgical Assocation, "Arterial-Venous Carbon Dioxide Gradients as an Indicator of Cardiac Index: A Comparison between the Mixed and Central Venous Circulation"	Podium
1998	45th Annual Meeting Michigan Chapter, American College of Surgeons and Annual Resident Competition, "Fasciotomy Wound Management: Less is More",	Podium
2000	"Hypertonic Preconditioning Results in Reduced ERK 1/2 Activity and TNF Production in Mononuclear Cells", Oregon/Washington Resident/Fellow Committee on Trauma Competition, Olympia, Washington, November 9, 2000	Podium
2000	"Endotoxin Tolerant Endothelial Cells Result in Reduced MAPK Activity", Oregon/Washington Resident/Fellow Committee on Trauma Competition, Olympia, Washington, November 9, 2000	Podium
2001	"Hypertonic Preconditioning Results in Reduced MAPK Activity and TNF Production in Mononuclear Cells", Seattle Surgical Society, Seattle, Washington, January 19-20, 2001	Podium

2001	"Phosphatase Inhibition Reverses Endotoxin Tolerance in Endothelial Cells", Seattle Surgical Society, Seattle, Washington, January 19-20, 2001	Podium
2001	"Hypertonic Preconditioning Results in Reduced Macrophage Responsiveness", Washington Chapter of the American College of Surgeons, Skamania, Washington, June 22-23, 2001	Podium
2001	"Endotoxin Tolerance is Reversed by Granulocycyte Macrophage-Colony Stimulating Factor (GM-CSF)", Washington Chapter of the American College of Surgeons, Skamania, Washington, June 22-23, 2001	Podium
2001	"Stress Fiber Polymerization is Necessary for Endothelial Cell Production of NF-kB Dependent ICAM-1 Production During Sepsis", Oregon/Washington Resident/Fellow Committee on Trauma Competition, Olympia, Washington, December 8, 2001	Podium
2001	"Cell Biology After Severe Traumatic Injury: The Association Between Monocyte Cell Signaling and ARDS", Oregon/Washington Resident/Fellow Committee on Trauma Competition, Olympia, Washington, December 8, 2001	Podium
2002	"Slow Channel Calcium Inhibition Blocks Pro-Inflammatory Gene Signaling and Reduces Macrophage Responsiveness", Seattle Surgical Society, Seattle, Washington, January 11-12, 2002	Podium
2202	"Phosphatase Upregulation Controls Monocyte Proinflammatory Response", Seattle Surgical Society, Seattle, Washington, January 11-12, 2002	Podium
2002	"Platelet Activating Factor (PAF) Priming of Endotoxin Induced Inflammatory Cell Activity Requires Cellular Adherence", 8th Annual Resident Research Symposium of the University of Washington, Seattle, Washington, February 1, 2002	Podium
2002	"Phosphatase Upregulation Controls Monocyte Proinflammatory Response", 8th Annual Resident Research Symposium of the University of Washington, Seattle, Washington, February 1, 2002	Podium
2002	University of Cincinnati Resident Rounds: "Current Management of Sepsis"	Podium
2003	Basic Science Forum: Macrophage Priming and Activation, University of Cincinnati	Podium
2007	Trauma/Critical Care Retreat: Blood is it still the right stuff, University of Washington	Podium

2008	Seattle Resuscitation Rounds: Current Management of Hemorrhagic Shock	Podium
2009	TSICU Retreat: Trauma Resuscitation, University of Washington	Podium
2011	Recovery for severe injury: The effect of pre-injury statins 109th Meeting of the Seattle Surgical Society, Seattle, Washington, March 28, 2011.	Podium
2012	Improving Survival Following Severe Injury , WAMI Conference, Seattle, Washington, June 10, 2012	Podium
2012	Intra-abdominal Infections , 1st Annual UW Sepsis Conference, Seattle, Washington, November 7, 2012.	Podium
2016	WAMI Conference, My most challenging surgical cases, Seattle, Washington	Podium
2018	University of Washington Paramedic Training, Shock Recognition and Resuscitation, Seattle, Washington	Podium
2018	WAMI Conference, Transfusion Adjuncts, Seattle, Washington	Podium
2019	WAMI Conference, What is new in VTE Prophylaxis and management, Seattle, Washington	Podium

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

2008 - 2009	Austrian Science Fund	Reviewer
2010 - 2012	Italian Science Fund	Reviewer
2010 - present	NIH Study Section on Surgery, Anesthesia, and Sepsis	Ad Hoc Reviewer
2015 - present	NIH Special Emphasis Panel/Scientific Review Group	Study Section Member
2018 - present	NIH Study Section on Surgery, Anesthesia, and Sepsis: Prima Air Study	DSMB Member
2019 - present	Faraday Pharmaceuticals, ICUWA Study	Steering Committee Member

UNIVERSITY AND PUBLIC SERVICE

SERVICE ACTIVITIES SUMMARY

Providing service to the University and Medical Center is essential in a leadership position to provide guidance, education, research structure, and finical viability. During my time at the University of Washington I was extremely involved in a number of University processes, and institutional processes at Harborview Medical Center. Upon joining the faculty at the University of Washington/Harborview Medical Center I was named the medical director of our acute care

trauma floor. This allowed me to provide guidance to the management of injured patients, and to put several processes in place for discharge and post discharge care.

As the years progressed, I was recognized for my strong leadership within critical care and I was named the medical director of our Trauma Surgical ICU and Associate Program Director for the Surgical Critical Care fellowship at the University of Washington. This allowed me to work closely with the Chief of Surgery to further expand and grow our fellowship form 2 fellows per year to currently 7 fellows per year. During this time, I developed a multidisciplinary ICU journal club that was a multidisciplinary conference including medical, anesthesia, and surgical ICU providers. This allowed us to collaborate to improve overall care within Harborview Medical Center. As a result, when our Associate Medical Director left our institution I was named the interim Associate Medical Director for Critical Care services. During this time I lead to update our brain death criteria, developed a response to extubation and assessment of difficult airways, helped to develop and implement our mobility protocol, improve care in geriatric ICU patients, and ICU sign-out processes. This continued until I was tasked with helping to improve our OR efficiency and finical stability. This led to the creation of a new position which I was appointed to as Associate Medical Director for Surgical Services. In this role, I have helped to improve anesthesia and surgical collaboration, OR turn-over and first case starts, and minimize waste. Although these processes where in place prior to the COVID-19 pandemic, modification and further improvements were required regarding communication, PPE, and testing all of which I helped to direct.

In addition to these critical roles, I have been involved in a number of committees that have crossed over our entire medical system. Among these, was the UWMC Critical Care Council that oversaw critical care services across the entire medical system. As chair of this committee, I helped to develop and implement two critical care services at the University of Washington Medical Center at Mountlake which included both a Cardiothoracic ICU service, and Surgical Critical Care Service. These high intensity models have improved overall care and outcomes over the last decade. In addition, I have co-chaired not only our institutional VTE committee at Harborview Medical Center, but also our UWMC system wide VTE committee responsible for formalization of anticoagulation therapy and assessment of outcomes. Finally, I have been involved in the last year as part of our overall response to the COVID-19 pandemic to restore operative efficiency system wide, and surgical COVID-19 processes for testing and safety as part of an oversight UW committee.

Throughout my time at UW I have been highly involved in multiple aspects of care, and have served to drive improvements overall in patient care, research, and education.

UNIVERSITY SERVICE
UC SYSTEM AND MULTI-CAMPUS SERVICE

2021 - present	CPG Compliance Committee	Committee member
2021 - present	Zuckerberg San Francisco General Hospital Medical Executive Board	Committee member
2021 - present	Zuckerberg San Francisco General Hospital Trauma Peer Review Committee	Chair
2021 - present	Zuckerberg San Francisco General Hospital Trauma Process Improvement Committee	Chair

DEPARTMENTAL SERVICE

2021 - present	Zuckerberg San Francisco General Hospital	Trauma Medical Director

SERVICE AT OTHER UNIVERSITIES

2002 - 2004	Surgical Resident Review Committee	University of Cincinnati
2004 - 2006	Medical Director 7East Hospital (Trauma Acute Care Floor)	Harborview Medical Center
2006 - 2020	Surgical Critical Care Curriculum	University of Washington
2006 - 2020	Medical Director Trauma Surgical ICU	Harborview Medical Center
2006 - present	Surgical Council	Harborview Medical Center
2006 - present	Trauma Council	Harborview Medical Center
2006 - present	Critical Care Council (Chair 2011-2016)	Harborview Medical Center
2007 - 2011	UWMC Critical Care Committee (Chair 2008-2009)	University of Washington
2007 - present	UW Medicine Tumor Board	Harborview Medical Center
2008 - present	VTE Committee (Co-chair 2009-present)	Harborview Medical Center
2009 - 2009	H1N1 Response Committee	Harborview Medical Center
2011 - 2016	Acting Associate Medical Director Critical Care	Harborview Medical Center
2014 - 2014	EBOLA Response Committee	Harborview Medical Center
2014 - 2020	Department of Surgery Education Committee	University of Washington
2014 - present	Department of Surgery Research Committee	University of Washington
2014 - present	Code Blue Committee	Harborview Medical Center
2015 - present	Geriatric Trauma Committee	Harborview Medical Center

2015 - 2016	Associate Medical Director (Critical Care) Search Committee	Harborview Medical Center
2018 - 2021	UWMC VTE Committee (Co-chair)	University of Washington
2018 - 2021	Surgical Core Group	University of Washington
2019 - 2021	Surgical Executive Committee	Harborview Medical Center
2019 - 2021	OR Operational Committee	Harborview Medical Center
2019 - 2021	Operative Turn Around Team	Harborview Medical Center
2019 - 2021	Operative Block Scheduling Committee	Harborview Medical Center
2020 - 2021	UW Medicine Operative Efficiency Committee	UW Medicine
2020 - 2021	UW Medicine COVID OR Response Committee	UW Medicine

COMMUNITY AND PUBLIC SERVICE

2008 - 2012	Hospital Trauma Outcome Committee, King County, Washington	Committee member
2011 - 2017	Disaster Response Committee, King County, Washington	Committee member

CONTRIBUTIONS TO DIVERSITY

CONTRIBUTIONS TO DIVERSITY

Diversity and equity are essential to providing health care. Specifically, this is important to providing optimal medical education, research, and clinical care. Without appropriate diversity and the ability to provide exceptional care without exception a disservice is delivered. In simple terms, all individuals are created equal and deserve equal education and treatment. However, we are governed by bias, both explicit and implicit, and a culture that does not consistently support diversity. Despite this, diversity and equity is essential.

First and foremost, the concept of diversity and equity must be considered a central tenant in education and training, research, and health care. This requires awareness of inequities among underrepresented and economically disadvantaged groups. Although I grew up in a diverse area of Michigan, I was aware of economic inequities but unaware of the extent of inequities based on race and sexual orientation. It was during my first faculty position when I was struck hearing that treatment should vary based on socioeconomic status. Obviously, my understanding of equality was naïve and I was struck that professionals in the health care field actually thought and openly spoke this way. This led to me focus on furthering my education on inequities that exist, and to truly self-reflect on my own personal bias. But this injustice is not simply limited to socioeconomic status, it additionally includes race and sexual orientation.

As a healthcare leader and educator, I personally have strived to improving equity. As part of my training as a program director, I have been fortunate to have received further training in implicit bias and inequities.

This education and sustained commitment has enforced my personal commitment to making our fellowship in Surgical Critical Care diverse. I have made sure that equity and diversity is part of the training program with selective didactics and education to all fellows. Furthermore, working in a county hospital providing care to all individuals regardless of age, gender, race, or sexual orientation has allowed our fellowship to further explore and focus on diversity.

The simple motto of my current institution clearly demonstrates this importance, Exceptional Care without Exception. This is the same focus I have for each and every patient encounter. There is no selective VIP, rather all patients treated are VIPs.

It has remained my focus to model this important concept, and as a full professor it is not only the expectation professionally but personally. This important to model for students, trainees, and staff taking care of these vulnerable patients.

Although my research focus has been strongly associated with inflammatory changes following injury, I have focused efforts on further exploring the role of palliative care in our elderly population, and the financial effects on the uninsured in an effort to improve healthcare access to minorities and the underserved.

TEACHING AND MENTORING

TEACHING SUMMARY

Medical education is the cornerstone to providing and improving care to future generations. Through education of housestaff and medical students, we provide the tools required for these bright individuals to continue to advance care and provide optimal care to every patient. Education, however, is not limited to housestaff and medical students. It is as important to help provide education to prehospital and hospital providers overall. This is especially true in taking care of patients following traumatic injury. The management and treatment of this critical patient population requires coordinated care beginning in the field and throughout their hospitalization and discharge. Without appropriate education to each member of this team, optimal care cannot be provided. I have been involved throughout my career in the education of housestaff and medical students. In fact, I weekly preform dedicated protected teaching rounds with the housestaff and medical students at Harborview Medical Center. The focus of these teaching rounds is through direct patient scenarios to provide insight into the pathophysiology, diagnosis and treatment of critical ill surgical patients. I have also provide education to the prehospital providers of King County and nurses at Harborview Medical Center. Delivering medical education requires ongoing refinement of teaching skills. Teaching adult learners requires a multi-domain approach that I have focused on. I have been fortunate to direct our ATLS instructor course that focuses on adult education along with a surgical educator. Every time I direct this course, I learn new tools to further my ability to teach. I think it is imperative that we take each opportunity to provide education. The deliver cannot be confrontational, and must be given in a format that allows the learner to further expand their current knowledge by using their current foundation. Teaching is not limited to lectures; it includes all aspects of the medical care we provide. Finally, I have had the opportunity to serve as Program Director for our Surgical Critical Care Fellowship at the University of Washington School of Medicine. Without any doubt, one of the proudest accomplishments I

have for my career is training an outstanding group of leaders in trauma and critical care surgery. As a result of these fundamental educational beliefs, I was recently awarded the John K. Stevenson Faculty Teaching Award in Surgery at the University of Washington School of Medicine. Recognition and refinement of teaching is what we provide as faculty, and it is truly one of the most rewarding parts of our career.

FORMAL TEACHING

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
X	2002 - 2004	Trauma: Resuscitation, University of Cincinnati	Moderator, Presentor	Medicine	15
X	2002 - 2004	Endocrine disorders: Surgical Thyroid Disease, Unviversity of Cincinnati	Moderator, Presentor	Medicine	20
X	2002 - 2004	Medical Student Oral Board Exams, University of Cincinnati	Examiner	Medicine	
X	2006 - 2014	Trauma: Resuscitation and Endpoints, University of Washington	Moderator, Presentor	Medicine	15
	-				
X	2002 - 2004	Trauma Conference, University of Cincinnati	Moderator, Presentor	Medicine	
X	2002 - 2004	Department of Surgery Morbidity and Mortality Conference, University of Cincinnati	Moderator, participant	Medicine	
X	2004 - present	Department of Surgery Morbidity and Morality Conference, Harborview Medical Center	Moderator	Medicine	
X	2004 - present	Critical Care Conference, Harborview Medical Center	Moderator, Presentor	Medicine	

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
X	2005 - present	Trauma Conference, Harborview Medical Center	Moderator, Presentor	Medicine	
X	2005 - 2012	Junior Resident Trauma Chalk Talks	Organizer, Moderator, Presentor	Medicine	
X	2005 - 2006	Critical Care Procedures, University of Washington	Moderator, Presentor	Medicine	
X	2006 - present	Multidisciplinary Critical Care Journal Club, Harborview Medical Center	Organizer, Moderator	Medicine	
X	2006 - present	Acute Resuscitation and Critical Care Rounds (Maier Rounds), Harborview Medical Center	Organizer, Moderator, Presentor,	Medicine	
X	2006 - 2010	Ultrasound FAST, University of Washington	Organizer, Moderator		10
X	2008 - present	Shock and Resuscitation	Moderator, Presentor	Medicine	
X	2008 - present	Critical Care Billing	Moderator, Presentor		
X	2008 - present	VTE management and prophylaxis	Moderator, Presentor	Medicine	
X	2008 - present	Management of Solid Organ Injury	Moderator, Presentor	Medicine	
	-				
X	2004 - 2004	Advance Trauma Life Support, University of Cincinnati	Instructor	Medicine	16
X	2004 - present	Advance Trauma Life Support, University of Washington	Course Director, Instructor	Medicine	16

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
X	2007 - present	Rural Trauma Course, University of Washington	Instructor	Medicine	20
X	2007 - 2007	Advance Trauma Life Support, Sitka, Alaska	Instructor	Medicine	16
X	2007 - present	Advance Trauma Life Support Refresher Course, University of Washington	Course Director, Instructor	Medicine	16
X	2007 - present	Advance Trauma Life Support Instructor Course	Course Director, Instuctor	Medicine	8
X	2008 - 2008	Advance Trauma Life Support, Juneau, Alaska	Course Director, Instructor	Medicine	16
X	2009 - 2009	Advance Trauma Life Support, Providence Everett Medical Center	Course Director, Instructor	Medicine	16
X	2011 - 2011	Advance Trauma Life Support, Sitka, Alaska	Instructor	Medicine	16
X	2012 - present	Medic One Paramedic Training Program	Instructor		12
X	2012 - 2012	Advance Trauma Life Support, Fairbanks, Alaska	Course Director, Instructor	Medicine	16
X	2016 - 2016	Advance Trauma Life Support, Sitka, Alaska	Course Director, Instructor	Medicine	16
X	2018 - present	Paraedic Cadaver Course, Seattle, Washington	Instructor		10
X	2018 - 2018	Advance Trauma Life Support, Fairbanks, Alaska	Instructor	Medicine	16
X	2018 - present	Advanced Surgical Skills in Exposure for Trauma, Tacoma, Washington	Instructor	Medicine	8

Not UCSF	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
X	2019 - 2019	Advance Trauma Life Support, Fairbanks, Alaska	Course Director, Instructor	Medicine	16
X	2020 - 2020	Advance Trauma Life Support Instructor Course, University of Washington	Course Director, Instructor	Medicine	6
	-			Medicine	
	2021 - 2021	Neck Trauma	Instructor	Medicine	16
	2021 - 2021	Early Management and Resuscitation in Trauma	Instructor	Medicine	4

INFORMAL TEACHING

2002 - 2004 Clinical Supervision Trauma Service, University of Cincinnati (3 months/year)

2002 - 2004 Clinical Supervision General Surgery Service, University of Cincinnati (3 months/year)

2002 - 2004 Clinical Supervision Surgical Critical Care, University of Cincinnati (3 months/year)

2004 - 2021 Clinical Supervision Trauma Service, Harborview Medical Center, University of Washington (3 months/year)

2004 - 2021 Clinical Supervision General Surgery Service, Harborview Medical Center, University of Washington (3 months/year)

2004 - 2021 Clinical Supervision Surgical Critical Care, Harborview Medical Center, University of Washington (2 months/year)

2015 - 2021 Clinical Supervision ECMO Service, Harborview Medical Center, University of Washington (1 month/year)

2021 - present Clinical Supervision Trauma Service, Zuckerberg San Francisco General Hospital, University of California San Francisco (3 months/year)

MENTORING SUMMARY

Mentoring is the legacy created. It is truly one of the most essential components of academic surgery. Providing guidance to help develop the next group of surgeons. However, academic mentoring has not been limited to helping to guide and develop the next group of surgeon scientists, but also to develop the next group of clinical surgeons that can provide outstanding care without exception.

Over the last several years I have been fortunate to serve as Associate Program Director or Program Director of Surgical Critical at the University of Washington School of Medicine. This

has been an honor, and has allowed me to work closely with outstanding fellows. I am humbled to have played a critical but small role in each of their careers, and have been humbled by their career development. Many of them have become leaders regionally, nationally and internationally in the fields of trauma, critical care and burns. As a mentor, I take great pride in their outstanding achievements.

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2006 - 2007	Tam Pham, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Professor of Surgery University of Washington, Chief of Burns
2006 - 2007	Sharmila Dissanike, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Professor of Surgery Texas Tech, Chair Department of Surgery
2006 - 2007	Fred Endorff, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Attending Surgeon Hennepin Healthcare, Assistant Program Director Surgical Residence
2007 - 2008	Darwin Ang, MD PhD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Professor of Surgery Florida State, Chief of Surgery Ocala Medical Center
2007 - 2008	Zara Cooper, MD MPH	Surgical Critical Care and Trauma	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Professor of Surgery Brigham and Woman's Hospital

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2007 - 2008	Heather Evans, MD MS	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Professor of Surgery University of South Carolina, Vice Chair of Research
2007 - 2008	Edgar Figurero, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Professor of Surgery University of Washington
2008 - 2010	Sana Sakr, PhD	T32 NIH Fellowship	Research/Scholarly Mentor,Project Mentor,Career Mentor	Research mentor	Research Scientist, University of Washington
2008 - 2009	David Zoonies, MD MPH	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Associate Professor of Surgery OHSU, Medical Director Surgical Critical Care
2008 - 2009	Michael Mosier, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Attending Surgeon, The Oregon Burn Clinic
2008 - 2009	Eric VanEaton, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Associate Professor of Surgery University of Washington
2009 - 2010	Jose Sterling, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Attending Surgeon, CHRISTUS St. Vincent Regional Medical Center

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2009 - 2010	Kathleen Mandell, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Attending Surgeon Swedish Medical Center
2009 - 2010	Aaron Cheng, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Associate Professor of Surgery University of Washington, Medical Director Cardiothoracic Critical Care
2010 - 2011	Jeremy Hsu, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Associate Professor of Surgery, The University of Sydney
2010 - 2011	Beth Ann Riehmal, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Clinical Associate Professor of Surgery University of Washington
2010 - 2011	Christian Hamlet, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Attending Surgeon, St. Luke's Medical Center
2011 - 2012	Scott Brakenridge, MD MS	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Associate Professor of Surgery University of Florida

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2011 - 2012	Alexis Gage, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Associate Professor, memorial Health University
2011 - 2012	Thomas Wiser, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Associate Program Director	Associate Professor of Surgery Stanford University
2011 - 2013	Deborah Marquardt, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Associate Professor of Surgery University of Washington
2012 - 2014	Rebecca Plevin, MD	T32 NIH Fellow	Research/Scholarly Mentor,Career Mentor	Research Mentor	Assistant Professor University of San Francisco
2012 - 2013	Lisa Rea, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Associate Professor of Surgery Temple University, Chief of Burns
2012 - 2013	Matthew Delano, MD PhD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Associate Professor of Surgery University of Michigan
2012 - 2013	Julie Ottosen, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Minnesota

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2013 - 2014	Courtney Sommer, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon, Mission Health medical Center
2013 - 2014	Samuel Mandell, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Associate Professor of Surgery University of Washington
2013 - 2014	Samantha Quade, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon Providence Everett Medical Center
2014 - 2015	Deepika Nehra, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Washington
2014 - 2015	Darren Bowe, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon Providence Everett Medical Center
2014 - 2015	Damien Carter, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Maine, Chief of Burns

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2014 - 2015	Lyndsay Olsen, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Medical Director Western States Burn Center, North Colorado Medical Center
2015 - 2016	Callie Thompson, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Vanderbilt
2015 - 2016	Kathleen O'Connell, MD MPH	Surgical Critical Care	Research/Scholarly Mentor,Project Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Washington
2015 - 2016	Marta McCrum, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Utah
2015 - 2016	Brian George, MD MS	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Michigan
2015 - 2016	Elisha Brownson, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon Alaska Native Medical Center, Chief of Surgery

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2016 - 2017	Andrew Riggle, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon, St. Charles Health
2016 - 2017	Makenzie Cook, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery OHSU
2016 - 2017	Thomas Shultz, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Texas Southwestern
2016 - 2017	Rebecca Maine, MD MPH	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Washington
2016 - 2017	Theresa Chin, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of California Irvine
2016 - 2017	Joshua Wong, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Alberta
2017 - 2018	Ashley Meagher, MD MPH	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Indiana

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2017 - 2018	Lara Senekjian, MD MS	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of California San Francisco Eastbay
2017 - 2018	Ellie Curtis, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of California Davis
2017 - 2018	Joshua Corsa, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon Providence Everett Medical Center
2017 - 2018	Chinenye Iwuchukwu, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Mississippi
2018 - 2019	John Scott, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Michigan
2018 - 2019	Greg Lisse, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon Alaska Native Medical Center

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2018 - 2019	Barkley Stewart, MD MS	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Washington
2018 - 2019	Lacey LeGrone, MD MPH	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Colorado Boulder
2018 - 2019	Ashley Hink, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of South Carolina
2019 - 2020	David Miranda, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Surgical Resident University of Washington
2019 - 2020	Abbie Jensen, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon, mercy Medical Center
2019 - 2020	Jeffrey Anderson, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery Temple University
2019 - 2020	Racheal Payne, MD	Surgical Critical Care	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon Hennepin Healthcare

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2019 - 2020	Stephanie A Mason, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery University of Toronto
2019 - 2020	Navin Bhatia, MD	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Assistant Professor of Surgery, Mount Sinai Medical Center
2019 - 2020	Lela Posey, MD MPH	Surgical Critical Care	Career Mentor,Co-Mentor/Clinical Mentor	Program Director	Attending Surgeon, Locums

FACULTY MENTORING

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2007 - 2011	Tam Pham, MD	Assistant Professor of Surgery	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Served as a clinic mentor to help and support initial clinical practice. Additionally, worked closely to help develop initial aspect of research.	Professor of Surgery University of Washington, Chief of Burns
2008 - 2013	Heather Evans, MD MS	Assistant Professor of Surgery	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Served as clinical mentor to help and support initial clinical practice. Additionally, worked closely to help develop initial aspects of research in area of surgical infections.	Professor of Surgery University of South Carolina, Vice Chair of Research

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2016 - 2020	Bryce Robinson, MD	Associate Professor of Surgery	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Served as a clinical and administrative mentor to develop educational portfolio as Associate Program Director for Surgical Critical Care, and mentor for position as Associate Medical Director for Critical Care	Associate Professor of Surgery University of Washington, Associate Medical Director of Critical Care
2017 - present	Kathleen O'Connell	Assistant Professor of Surgery	Research/Scholarly Mentor,Project Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Served to provide clinical mentorship, and to help support MPH and fellowship in palliative care. Furthermore, I have provided support in research in geriatric trauma.	Assistant Professor of Surgery University of Washington
2019 - present	Deepika Nehra, MD	Assistant Professor of Surgery	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Served to provide clinical mentorship, and to help in career development and research.	Assistant Professor of Surgery University of Washington
2019 - present	Rebecca Maine, MD MS	Assistant Professor of Surgery	Research/Scholarly Mentor,Career Mentor,Co-Mentor/Clinical Mentor	Served to provide clinical mentorship, and to help in career development and research.	Assistant Professor of Surgery University of Washington

RESEARCH AND CREATIVE ACTIVITIES

RESEARCH AND CREATIVE ACTIVITIES SUMMARY

Medical research is essential for the improvement in patient care. It requires a multifaceted approach in which the pathophysiology, disease progression, and therapeutic options evaluated and optimized. In order to do this, basic science research is required to provide insight into the pathophysiology. This understanding not only provides insight into the disease to help develop therapeutics, but it also helps direct individual care through precision medicine. I have been involved in research my entire career and have focused on the inflammatory changes following injury leading to the development of organ failure. Through this research, I have helped demonstrate that the inflammatory changes following injury are sustained for long periods, and are associated with long-term complications. In addition, through a number of

collaborations I have helped develop a genomic signature that can identify injured patients at risk for complicated outcomes within 24 hours of injury. This genomic signature has been validated, and will hopefully help provide precision care in the future to this select patient population at the greatest risk for complications. Although my research has focused on trauma, research in all areas helps provide the foundation for critical thinking and improvement in patient care. My overall goal is to continue to further evaluate the acute inflammatory changes following injury, and help to determine potential areas of therapeutic intervention to the at risk patient population. This goal, however, is not limited to acute changes but the long term effects both clinical and immunologically due to injury. It is a result of this research that I hope we will be able to better predict and determine the course following multiple inflammatory disease processes, in addition to injury, to better inform patients and help with autonomous patient care decisions. It is imperative that overall we provide a collaborative atmosphere for research, and emphasize the importance and contributions that research provides.

RESEARCH AWARDS - CURRENT

1. NCT02984384	Trauma Site PI	5 % effort	O'Toole (PI)
PICORI		7/1/2016	6/30/2022
PREVENTion of Clot in Orthopaedic Trauma (PREVENT CLOT)			$ 11,198,854 total

There are 6 million fractures treated each year in the United States, and 2.3 million patients are admitted each year after trauma. Injuries that break certain bones, like the hip or thigh bone, are very common and associated with a particularly high risk of blood clots. If a patient does develop a blood clot, it can require the patient to take months of additional medications or can possibly even become fatal. However, medications to prevent blood clots can increase the risk of bleeding or other complications. Despite the frequency of these injuries and the potential devastating impact that blood clots can have on patients' lives, we currently do not know the best clot prevention medication for trauma patients. Current guidelines indicate that patients with certain fractures should be given medication to help prevent blood clots. Low molecular weight heparins (LMWHs) are medicines that have been used to prevent blood clots in the legs (deep vein thrombosis) of trauma patients since the 1990s. Today, despite a lack of good evidence, LMWHs remain in widespread use for patients with fractures. Aspirin is another commonly used clot prevention medicine that may have a similar or even superior ability to prevent blood clots in the legs and potentially fatal clots in the lungs (pulmonary embolism) that can occur after a traumatic injury. However, there have not been any studies to date that compare LMWHs with aspirin in preventing blood clots in fracture patients. This study should answer a question that is important to the millions of people who suffer a traumatic injury every year in the United States and are therefore at high risk for a blood clot. The study will compare the rates of death, blood clots in the lung, complications after surgery, patient satisfaction, out-of-pocket costs, and minor blood clots in patients to determine which medication is more effective in blood clot prevention after fractures. Patients and stakeholders have already taken an active role in developing this research proposal. Our research team comprises trauma survivors, blood clot survivors, caregivers, frontline clinicians, professional organizations, medical insurers, and experts in this field of research. In preparation for this study, we surveyed 232 trauma patients to determine the outcomes related to blood clots that they believed were most important. Our study is designed to respond to the concerns expressed by those patients. Trauma patients have historically been under-represented in research. The time-sensitive nature of traumatic injuries and the complicated medical condition of trauma patients at the time of hospital admission has long been a deterrent to scientific investigation. Our patients and caregiver team members have been crucial to designing this study so that it answers an important research question for patients and physicians while being respectful to the challenging circumstances faced by patients and their caregivers.

Trauma Site PI, and additionally part of protocol and writing group.

2.	5R01HL141094	Co-PI	5 % effort	Piliponsky (PI)
	National Institutes of Health/NIGMS		8/15/2018	6/21/2022
	Critical Role of Basophils in the Enhancement of the Innate Immune Response.		$ 768,772 direct/yr 1	$ 2,225,607 total

There are approximately 850,000 new cases of sepsis each year with mortality rates ranging from 240,000- 375,000. An impaired innate immune response can aggravate the septic condition by compromising the patient s ability to combat an infection. However, the cells and mediators that enhance the innate immune response in sepsis are still unknown. Basophils account for less than 1% of peripheral blood leukocytes, which makes them the rarest known granulocytes. Basophils are evolutionarily conserved in many animal species, suggesting a beneficial rather than deleterious role of basophils. Nevertheless, it is unknown whether basophils play any role in the host s defense against bacteria that can potentially prevent sepsis development. Our preliminary studies support such a role by showing that basophils are one of the very first cells to accumulate at the infection site at early stages of infection, and can improve survival and bacteria clearance in the polymicrobial model of sepsis induced by cecal ligation and puncture (CLP). We think that our findings in the murine system may be translatable to humans because we observed that trauma patients show increased numbers of basophils in circulation when a nosocomial infection was circumscribed to local tissues (early stages of infection) while basophil numbers decreased or remain unchanged when a patient developed a systemic infection (bacteremia) and was therefore at high risk of developing sepsis. Based on these studies, we hypothesize that basophils play a protective role in sepsis by enhancing the innate immune response against infection. Accordingly, we propose a research plan aimed at investigating the contribution of basophils to the innate immune response against bacteria. In Aim 1, we will identify mechanisms involved in basophil activation during an infection. We will use a genetic approach to investigate whether basophil stimulation through the TLR and MyD88 pathways is required to induce basophil activation and to confer protection during an infection; and we will examine whether the epithelial cell-derived cytokine, thymic stromal lymphopoietin (TSLP), can enhance the ability of basophils to respond to an infection. In Aim 2, we will define the mechanisms by which basophils confer protection against bacterial infections. Specifically, we will investigate interactions between basophils, the endothelium, and circulating leukocytes in a microvessel system and we will use mice with basophil-specific TNF deficiency to study these interactions during CLP. In Aim 3, we will establish the relevance of basophils in human infections and sepsis. Specifically, we will use mass cytometry (CyTOF) to assess basophil immune functions in samples collected from patients that develop nosocomial infections, mainly pneumonia, and we will establish whether these immune functions associate with clinical outcomes. We think that the studies proposed will expand our knowledge of sepsis physiopathology. Specifically, our studies will provide, for the first time, evidence for a critical role for basophils in the enhancement of the innate immune response against bacteria, an unexpected role for this rare cell population.

Co-primary investigator that was part of study design, patient recruitment, analysis, and interpretation of results.

3. NCT03818854	Site PI	5 % effort	Matthay (PI)
United States Department of Defense		1/28/2019	1/30/2024
Mesenchymal Stromal Cells For Acute Respiratory Distress Syndrome (STAT)			

This clinical study design is a randomized, double-blinded, placebo-controlled Phase 2b clinical trial using a 10 million cell/kg dose of human Mesenchymal Stromal Cells (hMSCs). Subjects will be randomized in a 1:1 randomization scheme to receive hMSCs or cell reconstitution media (1:1 mix of 5% human serum albumin and 10% Dextran 40) as the placebo; the study will enroll 120 patients who achieve a stable clinical baseline and receive study product (either hMSCs or the placebo). The Data and Safety Monitoring Board (DSMB) will review adverse outcomes and protocol compliance. A pre-specified interim review will occur after 60 subjects have been enrolled and received study product; enrollment will continue during the DSMB review. All pre-specified clinically important events and unexpected serious adverse events including death during hospitalization up to 60 days will be reported to the DSMB on an ongoing basis; the study will be stopped for a safety evaluation by the DSMB if they have any concerns or if three subjects have pre-specified clinically important events or unexpected serious adverse events except death since death will be common in this critically ill population due the nature of the underlying illness (e.g., ARDS).

Site PI

4. NCT04430283	Site PI, and steering committee member	5 % effort	Faraday Pharmaceuticals, Inc (PI)
Faraday Pharmaceuticals, Inc		6/12/2020	6/11/2024
Evaluation of FDY-5301 in Major Trauma Patients in ICU			

The purpose of the trial is to evaluate the efficacy, safety, and PK of FDY-5301 compared to placebo in trauma ICU patients at risk of ICUAW. Muscle wasting occurs rapidly after major trauma and is often associated with multi-organ failure lasting from a few weeks to a long term disability. It is believed that FDY-5301 may help prevent or treat muscle weakness and organ dysfunction in major trauma patients. Approximately 252 subjects will be randomized (1:1:1) to receive up to 7 daily bolus IV doses of FDY-5301 at 1 mg/kg or 2 mg/kg, or volume-matched placebo. To ensure equal representation in each group, the randomization will be stratified by the presence or absence of any pelvic or lower limb fractures. All subjects who satisfy the eligibility criteria will be randomly allocated to one of three treatment groups (FDY-5301 low dose, FDY-5301 high dose, or placebo). All subjects will be followed in-hospital until Day 28 or discharge, whichever occurs first, at Day 28 if discharged earlier, and then by telephone visits at Month 3 and Month 6. This study will be conducted at approximately 11 centers in the US and UK

I serve as a site PI, and on the steering committee involved in patient recruitment, protocol development, and analysis.

RESEARCH AWARDS - PAST

1.	2T32GM007037	T32 Fellow	100 % effort	Maier (PI)
	National Institutes of Health/NIGMS		7/1/1975	6/30/2005
	Postdoctoral Training		$ 179,283 direct/yr 1	

Postdoctoral training grant to develop independent researchers in area of inflammatory changes involved in trauma and burn care. Fellows will be taught critical thinking and experimental design to provide novel insights into the inflammatory cascade following traumatic injury. As a result of this basic understanding, and education in experimental design, experimental conduct, and critical analysis fellows will have the foundation to obtain independent funding.

T32 Fellow that through this support was able to gain skills in immunology to obtain independent national funding.

2.	K08GM068816	Primary Investigator	75 % effort	Cuschieri (PI)
	National Institutes of Health/NIGMS		9/1/2003	8/31/2008
	Cellular Signaling Mechanisms Involved in Macrophage Priming and Activation.		$ 129,330 direct/yr 1	$ 646,650 total

Sepsis, following trauma/hemorrhage and ischemia/reperfusion, is a common etiology for subsequent Acute Respiratory Distress Syndrome (ARDS) and multiple organ dysfunction syndrome (MODS) and remains a leading cause of subsequent morbidity and mortality. A number of different inflammatory cells are responsible for this condition; however, it appears that the macrophage is the common central orchestrating cell underlying these conditions. It is becoming evident that this inflammatory driven signaling cascade is affected by a number of different "priming" agents, such as platelet activating factor (PAF) and oxidant stress. "Priming" does not lead to pro-inflammatory mediator production; rather it causes enhanced responsiveness by the macrophage to secondary inflammatory stimuli, such as endotoxin. The mechanism in which these "priming" agents cause this enhanced response is unknown. Therefore, the purpose of this grant is to better delineate the intracellular signaling mechanisms which are responsible for this affect. This proposal will focus on the potential role that the secondary messenger, calcium, plays during initial "priming". Although calcium flux occurs during "priming", it is unknown if and how calcium could modulate endotoxin-mediated signaling. We, therefore, hypothesis that the increase in intracellular calcium results in the activation of regulatory kinases, such as calcium/calmodulin-dependent protein kinases (CaMK), leads to enhanced endotoxin-mediated signaling. Furthermore, we hypothesis that CaMK activation leads to modulation of actin polymerization and stress fiber polymerization induced by endotoxin resulting in enhanced intracellular spatial relationships and optimal endotoxin signaling. The role of calcium and CaMK during "priming" will be investigated through the use of specific inhibitors and activators on the ability of PAF and oxidant stress to induce "priming" of endotoxin-mediated activation within the macrophage. The overall aim of this proposal is to provide further insight into potential mechanisms that serve in the activation and "priming" of the macrophage. Through an enhanced understanding of these mechanisms it is our goal that potential therapeutic targets may be discovered to regulate the inflammatory response following trauma/hemorrhage and ischemia/reperfusion.

Primary Investigator

3.	U54 GM62119-01A1	Co-investigator	5 % effort	Tompkins (PI)
	National Institutes of Health, Large Scale Collaborative		8/30/2001	8/31/2013
	Inflammation and the Host Response to Injury		$ 7,859,924 direct/yr 1	$ 83,689,924 total

The Program seeks to improve our systems-level understanding of the key regulatory elements that direct the host response to serious injury. A greater understanding of the innate inflammatory response to serious injury will lead to the development of novel genomic and proteomic markers that can predict outcome, and will identify potential new avenues for further basic and clinical research, as well as targets for immunomodulatory interventions. The Program is organized to employ multiple high-throughput analytical tools including microarray and comparative, quantitative proteomics coupled with novel macroscale and microfluidics cell separation methodologies and bioinformatics approaches (including knowledge-based pathway analysis). The specific aims in Years 6-10 are as follows. (1) Determine genome-wide expression and the cellular proteome from well-defined cellular subpopulations of circulating leukocytes from hospitalized patients following severe trauma and burn injuries. (2) In these cell populations, identify patterns of gene expression and proteomic responses to the innate inflammatory response associated with different clinical trajectories and outcomes. (3) Using a systems biology approach, discover new biological knowledge based upon total cellular proteomics and genomics obtained from the cellular subpopulations. New knowledge will be obtained by fostering and supporting groups of investigators in vastly disparate disciplines, including clinicians, biochemists, immunologists, statisticians, and computational and systems biologists. These interactions will lead to the development of new paradigms for our biological understanding of the injury response. The project tasks and activities include the following: (1) enrollment of 580 severely traumatized or burned patients with stringent entry criteria and standardized guidelines for patient care; (2) high-throughput quantitative, comparative proteomic and functional proteomic analyses of enriched blood leukocyte populations; (3) genome-wide expression analysis of these same leukocyte populations using state-of-the-art high throughput formats; (4) implementation of a web-enabled trauma-related database containing clinical, physiologic, proteomic, and genomic expression data; (5) computational analysis of the complex data by data interpretation groups, comprised of biostatisticians, critical care physicians and basic scientists with the ultimate goal being an integrated systems view of the injury response.

I was involved as a co-investigator, and part of the protocol, analysis, and writing groups.

4.	R01GM078054	Primary investigator	10 % effort	Cuschieri (PI)
	National Institutes of Health/NIGMS		7/01/2008	6/30/2012
	Trauma and Sepsis Induced Changes in Immune-cell Membrane Receptor Trafficking		$ 270,480 direct/yr 1	$ 1,081,920 total

Mononuclear cells are critical to the eradication of invading organisms. The mechanism in which these innate immune cells respond to these invaders is through the activation of a series of pattern recognition receptors or Toll-like receptors (TLRs). Activation of these receptors, on specialized plasma membrane microdomains is complex and poorly elucidated. Based on previous work by us, we hypothesize that formation of these complexes requires breakdown of plasma membrane sphingolipids into ceramide leading to the formation of lipid raft macrodomains and the formation of TLR complexes. As a result, specific infectious factors are presented to these pattern recognition receptors leading to cellular activation. Although these responses may be life saving, severe trauma is know to result in reprogramming and alterations in innate immunity. These altered phenotypes, rather than leading to host protection, are responsible for increased susceptibility to invading organisms leading to the development of sepsis and organ failure. This state has been recreated in vitro by subjecting mononuclear cells to factors induced by trauma, including platelet activating factor, oxidant stress and complement 5a. Although the mechanism(s) responsible for this reprogramming remain unknown, previous work has demonstrated that this process is associated with alterations in the lipid and protein content within the plasma membrane. These alterations are hypothesized to occur on lipid rafts. Following injury, we hypothesize that factors induced by trauma result in the production of ceramide, but to a lesser degree than that seen during activation. Ceramide once produced fuses within rafts leading to the formation of macrodomains similar to that which occurs with activation. Additionally, ceramide leads to the mobilization of calcium leading to the activation of CaMK II. Activation of these cellular messengers is associated with the formation of focal adhesion-like complexes that contain some but not all of the TLR components. We hypothesize that assembly of these complexes and changes in lipid raft ceramide content are responsible for subsequent reprogramming that induces enhanced activation in response to subsequent infection. Thus, this proposal sets out to determine more fully the molecular mechanisms responsible for reprogramming and activation following trauma by exploring the effects of ceramide, calcium and CaMK II in vitro, and in severely injured trauma patients.

Primary investigator

5.	P41RR018522	Primary investigator	5 % effort	Cuschieri (PI)
	NATIONAL CENTER FOR RESEARCH RESOURCES		7/1/2006	6/30/2007
	TRAUMA-INDUCED REPROGRAMMING: CHANGES IN LIPID RAFT PROTEIN CONTENT		$ 21,015 direct/yr 1	$ 21,015 total

This subproject is one of many research subprojects utilizing the resources provided by a Center grant funded by NIH/NCRR. The subproject and investigator (PI) may have received primary funding from another NIH source, and thus could be represented in other CRISP entries. The institution listed is for the Center, which is not necessarily the institution for the investigator. Following severe trauma mononuclear cells are reprogrammed leading to alterations in innate immunity. These phenotypes are responsible for increased susceptibility to invading organisms leading to the development of organ failure. This state has been recreated in vitro by subjecting mononuclear cells to factors induced by trauma, including platelet activating factor (PAF), oxidant stress and complement 5a (C5a). Although the mechanism(s) responsible for this reprogramming remain unknown, previous work has demonstrated that this process may be associated with alterations in the protein content within specific plasma membrane microdomains that are rich in cholesterol and sphingolipids termed lipid rafts. Following injury, we hypothesize that factors induced by trauma result in the production of the lipid mediator ceramide from lipid rafts. Ceramide once produced fuses within rafts leading to the formation of macrodomains resulting in changes in membrane fluidity. Due to these changes, various proteins are recruited to the lipid raft resulting in the formation of focal adhesion-like complexes that contain some but not all of the Toll-like receptor (TLR) components. The following experimental approach will be followed: Differentiated THP-1 cells will be subjected to lipopolysaccharide (LPS) stimulation for various periods of time up to 60 min. Selected cells will be pre-treated with PAF, hydrogen peroxide or C5a for periods of time up to 30-60 min. Lipid raft protein extraction will be performed using sucrose gradient centrifugation. Harvested proteins will then be used for analysis using the LC-ESI-MS system. It is our hypothesis that assembly of these complexes and changes in lipid raft content are responsible for subsequent reprogramming that induces enhanced activation in response to subsequent infection. Based on these in vitro observations, it is our hope to then explore potential changes that occur in severely injured trauma patients in order to determine potential prognostic and therapeutic targets.

Primary investigator

6.	R01GM076101	Co-Investigator	5 % effort	Bulger (PI)
	National Institutes of Health/NIGMS		7/11/2007	5/31/2011
	Hypertonic Modulation of Inflammatory Signaling Following Injury.		$ 395,929 direct/yr 1	$ 1,446,044 total

This is a proposal to determine the effect of prehospital hypertonic resuscitation vs. conventional resuscitation with crystalloid on the inflammatory response early after injury. The leading cause of late mortality following injury is multiple organ dysfunction syndrome, which results from dysfunctional inflammatory response of the patient early after injury. Previous studies, suggest that hypertonic saline may be beneficial in modulating this initial response and thus decrease the subsequent organ injury. These effects, which have been well described in the laboratory, have yet to be proven in humans, particularly in the setting of severe injury. This proposal takes advantage of a unique opportunity to obtain blood samples from patients enrolled in a NIH supported multi-center trial of hypertonic resuscitation and analyze their inflammatory responses early after injury. The proposed trial is to be conducted by the Resuscitation Outcomes Consortium (ROC), which consists often clinical centers in the US and Canada. This study is a three arm, blinded, randomized trial comparing 7.5% saline, 7.5% saline/6% dextran-70 and normal saline (0.9%) as the initial resuscitation fluid administered to patients in hypovelemic shock or with signs of sever traumatic brain injury. Three of the ROC clinical sites will collaborate to study then inflammation response of patients enrolled at theses sites. The specific aims include: Aim 1: To profile and characterize the phenotype of the innate and cellular immune systems in response to hypertonic resuscitation following injury. Aim 2: To define, in humans, the cellular mechanisms responsible for hypertonic modulation of the inflammatory response. Aim 3: To determine whether immunologic changes observed following hypertonic resuscitation associated with differences in clinical outcome as manifested by the development of organ dysfunction, and nosocomial infection. The results of these studies will provide valuable information to determine the ultimate therapeutic use of the resuscitation strategy.

Co-investigator that was involved in concept, protocol, patient recruitment, and analysis.

7.	R01GM081510	Site PI	5 % effort	Sawyer (PI)
	National Institutes of Health, Large Scale Collaborative		8/11/2007	8/31/2014
	SIS multicenter study of duration of antibiotics for intra-abdominal infection.		$ 580,231 direct/yr 1	$ 2,725,894 total

The optimum duration of antibiotic therapy for intraabdominal infection remains unknown and has been identified by the Surgical Infection Society as a high priority for clinical research. The ultimate objective of our research is to optimize (and reduce) the duration of antibiotic therapy for intraabdominal infection throughout the world. The hypothesis to be tested is that four days of therapy for intraabdominal infection will lead to similar outcomes and a shorter duration of therapy when compared to a course based on the resolution of physiologic parameters in the setting of adequate operative or percutaneous intervention. This proposal is for a multicenter, randomized, double-blind (until the fourth day of therapy), non-inferiority clinical trial comparing a predetermined four days of antibiotic therapy to antibiotic therapy terminated one day after normalization of white blood cell count (= 11,000/ul) and normalization of systemic temperature (< 38.0¿ C) for one whole calendar day (and a maximum of 10 days of antibiotic therapy) in the setting of complicated intraabdominal infection treated with adequate source control. Inclusion criteria include age = 16 years, ability to obtain informed consent from the patient or surrogate, presence of an intraabdominal infection requiring any duration of hospitalization and managed with open, laparoscopic, or percutaneous intervention, and, adequate source control in the opinion of the local investigator and Principal Investigator. 1,120 patients will be enrolled to ensure adequate power to assess equivalence of the two arms. The primary endpoint will be percentage failure conditioned by assigned duration of antibiotic therapy (intent to treat analysis). Failure will be defined as need for reintervention (surgical or percutaneous), surgical site infection, or death within 30 days of the original intervention for intraabdominal infection. In addition, multiple secondary endpoints will be assessed, including duration of antibiotic therapy and the incidence of infection at non-abdominal and non-surgical wound sites, particularly with antibiotic-resistant pathogens. The ultimate objective of our research is to change practice throughout the world, specifically by shortening the duration of antibiotic therapy for intraabdominal infections and thus decreasing resource utilization and decreasing the selection of antibiotic-resistant pathogens.

Site PI with responsibility for patient enrollment and safety monitoring

8.	5T32GM007037	Co-investigator	5 % effort	O'Keefe (PI)
	National Institutes of Health/NIGMS		7/1/1975	6/30/2015
	Institutional Postdoctoral Research Grant		$ 243,393 direct/yr 1	

The program trains physician-scientists and post-doctoral PhD scientists in aspects of the pathophysiological processes that occur after traumatic injury and critical illness. Over the past 4 years we have successfully recruited to fill our positions and have addressed a key concern that was raised in our previous competitive renewal regarding diversity in our program. We have paid particular attention to identifying and recruiting strong under-represented minority candidates. Our previous competitive renewal also focused upon the "key initiatives", defined by the leaders at the National Institutes of Health and termed the "NIH Roadmap". This had direct bearing on the structure and direction of this training program. Briefly, the key initiatives or themes are: (1) New Pathways to Discovery, (2) Research Teams of the Future and (3) Reengineering the Clinical Research Enterprise. We propose to continue to educate trainees in established molecular biology techniques and will expand their training to include cutting edge research and analysis (i.e. biomedical computing) techniques. Through collaborations with basic scientists and integration with the available research education programs at the University of Washington, we will expose trainees to broad-based research teams and programs. Trainee education and experience will continue to include concepts of translational research, whereby basic observations will be evaluated as potential diagnostic and therapeutic benefit for critically ill patients. In summary, we aim to prepare a diverse group of interested scientists for academic careers as independent investigators and educators. Through a multidisciplinary and collaborative effort, trainees learn how to identify important research questions, how to design, conduct and analyze experiments that will address these questions and how to translate their findings into clinically relevant interventions. RELEVANCE: Trauma remains an important public health problem. Injuries are responsible for a high proportion of deaths in people of all ages and medical care for injury victims is costly. Our training program has successfully educated surgeons, physicians and post-doctoral students in aspects of the applied biology of injury and inflammation. Graduates from our program have demonstrated a commitment to understanding the biology of injury and to the care of critically ill injury victims.

I served as a co-investigator and mentored both MD and PhD post-doctoral fellows in research in immunology

9.	1UG3HL147011-01A1	Site PI	5 % effort	Boeckh (PI)
	National Institutes of Health/NIGMS		2/01/2012	8/31/2016
	A Randomized Double-Blind Placebo-Controlled Trial of Ganciclovir/Valganciclovir for Prevention of Cytomegalovirus Reactivation in Acute Injury of the Lung and Respiratory Failure.		$ 723,907 direct/yr 1	$ 2,341,858 total

Sepsis-associated acute respiratory failure is a leading cause of morbidity, mortality and health care expenditure world-wide, and is increasing in incidence. Despite intensive investigation, there are few pharmacologic interventions, and care is largely supportive. Cytomegalovirus (CMV) is a human herpesvirus that infects 50- 80% of healthy adults and establishes lifelong latency in the lung, generally causing overt disease only in severely immunosuppressed patients. CMV reactivation (viral replication) from latency occurs in ~40% of CMV seropositive, otherwise immunocompetent persons during critical illness and is associated with worse clinical outcomes including increased mortality, prolonged mechanical ventilation, and increased ICU length of stay. Compelling evidence implicating CMV reactivation as a causal contributor to morbidity and mortality in sepsis- associated respiratory failure comes from animal models and our recently completed NHLBI-funded phase 2 randomized placebo-controlled trial (RCT) of ganciclovir prophylaxis. In this trial, among CMV seropositive adults with sepsis-associated respiratory failure, ganciclovir effectively suppressed CMV replication, had an acceptable safety profile, and was associated with improved clinical outcomes, including increased ventilator-free days (VFD), shorter duration of mechanical ventilation among survivors, shorter ICU length of stay, and improved PaO2/FiO2 ratio in day-7 survivors. We hypothesize that IV ganciclovir administered early in critical illness will effectively suppress CMV reactivation in CMV seropositive adults with sepsis-associated acute respiratory failure, thereby reducing lung damage, accelerating recovery, and leading to improved clinical outcomes. We propose to conduct a phase 3 RCT to determine whether the antiviral drug ganciclovir given as prophylaxis improves VFDs and other clinically relevant outcomes when administered within 5 days of ICU admission to CMV seropositive immunocompetent adults with sepsis-associated acute respiratory failure. We will measure the effect of the study intervention on the primary trial outcome (VFDs) and secondary outcomes (mortality at 28 days, duration of mechanical ventilation in survivors, oxygenation, static respiratory system compliance, CMV plasma and lung reactivation, and a core set of longer-term outcomes at 6 months). In exploratory analyses, we will assess baseline factors as predictors for CMV reactivation, and characterize the relationship of CMV viral load kinetics with VFDs and other clinical outcomes. Our interdisciplinary team has unique experience in successfully coordinating multi-site multi-PI ICU-based RCTs. We have established a network of 19 clinical sites in the US, all of which have robust infrastructure for ICU clinical trials and proven ability to recruit patients into RCTs. If it is effective, this inexpensive and feasible intervention has the potential to significantly improve care of patients with sepsis-associated respiratory failure, substantially change clinical practice, and offer new insights into the sepsis-CMV reactivation relationship.

Involved as site PI and responsible for patient enrollment, safety monitoring, and analysis

10.	4R01GM104481	Co-investigator	5 % effort	Moldawer (PI)
	National Institutes of Health/NIGMS		6/1/2013	8/31/2018
	Genomic Validation following Severe Injury. The major goal of this project is to elucidate the changes and verify gene changes following severe injury.		$ 449,340 direct/yr 1	$ 1,820,579 total

Injuries continue to be the fifth leading cause of death overall and the leading cause of death for persons less than 45 years of age in the U.S. Multiorgan failure (MOF) and death remain unacceptably common in severely injured patients. In our recent Glue Grant study, 19% of severe trauma patients died, 41% developed MOF and the average time to recovery was 16 days. Despite an improved understanding of the basic pathophysiology of severe trauma and its sequelae, there are essentially no biological response modifiers that have proven successful in prospective, randomized clinical trials. We propose that a significant proportion of patients who would generally meet the inclusion criteria for a study of severely injured patients, are not in need of immunomodulatory therapy and are not only unlikely to benefit but also suffer direct toxicity from such therapies. In contrast, there exists subset of patients who are going to have a protracted clinical course, and would benefit from interventional therapies with biological-response modifiers. The most important challenge today is to identify prospectively the subset of patients who are going to have a protracted clinical course, and would benefit from interventional therapies with biological-response modifiers. We believe that we have developed such a prospective genomic test. Therefore, the overall goal of this proposal is to prospectively validate a rapid genomic test obtained from blood leukocyte subpopulations of severely traumatized patients in the first 24 hrs after admission that can be used to discriminate those patients who will have a complicated clinical trajectory and would, therefore, be good candidates for interventional, immunomodulatory therapies. Based on our preliminary data, we have developed several genomic models based on total leukocyte and enriched blood neutrophils that retrospectively can identify patients who will have a poor clinical outcome and would benefit from interventional immunological therapies. Here, we propose to validate this approach in 200 severely traumatized patients enrolled at two geographically-distinct institutions. These genomic tests will be compared for their precision to standard anatomical and physiological scoring systems, and models based on plasma cytokine concentrations. If successful, these studies would dramatically alter how clinical trials in severely traumatized patients would be conducted in the future. A successful, rapid, prognostic genomic test would reduce the size, cost and time required to evaluate new drugs in this population by identifying individuals at risk of a complicated outcome. Personalized medicine" would be one step closer to reality

Served as a co-investigator and site PI. I was responsible for study design, patient recruitment, data gathering, and analysis.

11.	Primary Investigator	5 % effort	Cuschieri (PI)
	University of Washington	7/1/2014	6/30/2015
	Standardized Verbal Hand-off in the ICU: Decreasing Patient Care Errors through Communication Optimization.	$ 25,000 direct/yr 1	$ 50,000 total

Although medical errors occur for a number of reasons, inadequate communication is one of the top preventable causes of medical errors. In an effort to improve communication in the most critically ill patients, a hand-off tool was developed to provide essential components of individual patient condition and assessment of risk of worsening. Based on this tool, an assigned and constructed hand-off nightly will occur within the ICUs of the University of Washington Medical Center and Harborview Medical Center. Error rates will be looked at before and after implementation. Additionally, provider satisfaction will be determined.

Primary Investigator

12. NCT00045760	Site PI	1 % effort	Eli Lilly and Co. (PI)
Eli Lilly and Co.		8/1/2003	06/30/2004

Efficacy and Safety of Drotecogin Alfa (Activated) in Adult Patients with Early Stage Severe Sepsis.

Drotrecogin alfa (activated), a recombinant form of human activated protein C, is the first therapeutic intervention shown to reduce all-cause mortality in severe sepsis. In the Phase 3 study (F1K-MC-EVAD; PROWESS), 1690 patients were randomly assigned to receive a 96-hour intravenous infusion of drotrecogin alfa (activated) 24 micrograms/kg/h or placebo (850 patients and 840 patients, respectively). Overall, administration of drotrecogin alfa (activated) yielded a clinically significant reduction in 28-day all-cause mortality: 24.7% of drotrecogin alfa (activated) patients died versus 30.8% of placebo patients (19.4% relative risk reduction; p=0.005; Bernard et al. 2001). The only safety concern noted in the Phase 3 trial was an increased risk of serious bleeding among drotrecogin alfa (activated) patients (3.5% versus 2.0% of placebo patients). The difference between the two treatment groups in the number of patients who experienced a serious bleeding event was due to the greater number of drotrecogin alfa (activated) patients who experienced a serious bleeding event that was related to a procedure (for example, bleeding that resulted from the placement of a catheter or nephrostomy tube). The number of patients who experienced spontaneous serious bleeding events was similar between the two treatment groups. The Regulatory authorities have approved the use of drotrecogin alfa (activated) in severe sepsis patients with a high level of disease severity and risk of death. Thus, the regulatory authorities have requested a study evaluating drotrecogin alfa (activated) in a specific subpopulation of patients with severe sepsis and at lower risk of death

Site PI

13. NCT02960854	Site PI	1 % effort	Bristol Meyers Squibb (PI)
Bristol Meyers Squibb		12/07/2017	01/31/2019

Randomized, Double-Blind, Parallel Group Study to Evaluate the Safety, Tolerability, Pharmacokinetics and Pharmacodynamics of BMS 936558 (nivolumab) in Participants with Severe Sepsis or Septic Shock

Phase 1 study to evaluate the safety, tolerability and pharmacokinetics of Nivolumab in participants with severe sepsis or septic shock.

Site PI

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SIGNIFICANT PUBLICATIONS

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   In this paper the first four authors had equal contribution to the design, writing, and analysis of the data. This paper is an important paper that evaluated the genomic response following injury. It provided critical and novel insight into the immune response following injury. The study took part over nearly a 10 year period of time while severely blunt injured patients were prospectively enrolled with standardization of trauma care provided. During this period of time I was a site PI, and was at the primary enrolling center for the study. In addition, I served on the protocol and writing committees for the study. At completion of the enrollment, analysis was performed of all collected samples and genome wide analysis was performed on circulating immune cells. The analysis of this data demonstrated that immune dysfunction that was thought to be initially pro-inflammatory followed by an anti-inflammatory response was not the case. The data demonstrated concurrent pro and anti-inflammatory processes occurring immediately after severe injury, and these findings challenged historical dogma. Working together with all authors, we were able to clearly express these findings that have provided novel insight into the pathogenesis of organ failure and chronic critical illness following injury.

2. Cuschieri J, Johnson JL, Sperry J, West MA, Moore EE, Minei JP, Bankey PE, Nathens AB, Cuenca AG, Efron PA, Hennessy L, Xiao W, Mindrinos MN, McDonald-Smith GP, Mason PH, Billiar TR, Schoenfeld DA, Warren HS, Cobb P, Moldawer LL, Davis RW, Maier RV, Tompkins RG. Benchmarking Outcomes in the Critically Injured Trauma Patient and the Effect of Implementing Standard Operating Procedures. Ann Surg. 2012:255(5):993-9

   In this paper I was the primary author evaluating the effect of a set of standard operating procedures in trauma care among 7 different geographically disperse institutions. In this paper I contributed to concept, data collection, analysis, and writing of the manuscript. This paper demonstrates that by careful assessment standard operating procedures can be incorporated into clinical practice and can lead to overall improvement in care. Additionally, this paper demonstrated that although mortality was improved compared to a number of comparisons, the number of patients still suffering from organ failure remained high. It further demonstrated for the first time the concept in sustained organ failure, as demonstrated by a prolonged period of organ dysfunction or time to recovery from organ failure. This has led to the concept of chronic critical illness following injury.

3. Brakenridge SC, Henley SS, Kashner TM, Golden RM, Paik DH, Phelan HA, Cohen MJ, Sperry JL, Moore EE, Minei JP, Maier RV, Cuschieri J; Inflammation and the Host Response to Injury Investigators. Comparing clinical predictors of deep venous thrombosis versus pulmonary embolus after severe injury: a new paradigm for posttraumatic venous thromboembolism? J Trauma Acute Care Surg. 2013:74(5):1231-7

   In this paper I was the senior author of looking at the pathophysiology of a common complication following severe injury, venous thromboembolism. In this paper I was responsible for the concept, analysis, and writing. This paper demonstrates that this common complication that was thought to occur late, actually occurred frequently early following injury. In fact, based on this observation the pathophysiology for early pulmonary embolism appears to be more closely associate with primary chest injury and as a result primary pulmonary thrombosis.

4. Mira JC, Cuschieri J, Ozrazgat-Baslanti T, Wang Z, Ghita GL, Loftus TJ, Stortz JA, Raymond SL, Lanz JD, Hennessy LV, Brumback B, Efron PA, Baker HV, Moore FA, Maier RV, Moldawer LL, Brakenridge SC.The Epidemiology of Chronic Critical Illness After Severe Traumatic Injury at Two Level-One Trauma Centers. Crit Care Med. 2017 Dec;45(12):1989-1996

   In this paper I was the second author looking at the epidemiology of chronic critical illness following severe trauma. In this paper I was responsible for concept, data collection, analysis, and critical review. I served to help mentor Dr. Mira, and worked closely with the senior author on the final publication. This paper provides further novel insight into the concept of chronic critical illness following severe injury, and that patients suffering from this condition have poor functional outcome following discharge and that this process is associated with a significantly higher risk of mortality up to a year following injury.

5. LaGrone L, McIntyre L, Riggle A, Robinson BRH, Maier RV, Bulger E, Cuschieri J. Changes in Error Patterns in Unanticipated Trauma Deaths Over 20 Years: In Pursuit of Zero Preventable Deaths. J Trauma Acute Care Surg 2020 Aug 6

   In this paper I was the senior author looking critically at areas of improvement to minimize errors. I served to mentor the first author, and was involved in the concept, data organization, analysis, and critical review of the publication. This paper demonstrates an evolution of errors over a 20 year period of time as process improvement is implemented. That as an initially area of concern is addressed, new concerns develop that occur downstream. This important work demonstrates the importance of constant and careful process improvement to continue to optimize patient outcome.

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ACADEMIC LEADERSHIP

Of the major leadership roles I have had over the last several years, three have played critical roles in improving education and clinical care.

The first leadership role was serving as Associate Program Director or Program Director of the Surgical Critical Care Fellowship at the University of Washington School of Medicine. During time in this role, I was responsible for the reorganization of the fellowship and further expansion of the fellowship from 2 fellows per year to 7. Additionally, within the fellowship the creation of three separate tracks focused on trauma, burn and cardiothoracic care. Each track provided an overview of surgical critical care with an emphasis on these specific areas. During the time in this leadership position I have been responsible for the education and training of 60 fellows. Many of whom have continued in academics and have become regional, national and international leaders.

Additionally, I have served a critical role in the development of critical care services across UW Medicine as medical director of the Trauma Surgical ICU at Harborview Medical Center, Acting Associate Medical Director of Critical Care overseeing 89 ICU beds at Harborview Medical Center, and chairing the UW Medicine Critical Care Committee that was responsible for the development of two high intensity ICU services at the University of Washington. During this time, I helped to lead our responses to the H1N1 and EBOLA pandemic, and still focus on our mission population of the underserved in King County, Washington.

Finally, as Associate Medical Director of Surgical Services for the last year I have helped to improve overall efficiency, develop collaborations with nursing, anesthesia and surgery to

optimize patient care and outcome. Furthermore, this role was instrumental in our responses to the COVID-19 pandemic in developing our OR response as cases increased, and a mechanism to convert OR and PACU space to ICU space as needed. Furthermore, in this role I was critical to the development of our overall testing response to acute emergencies and surgical procedures to optimize patient care and staff safety.