

Dáithí S. Heffernan, MD AFRCSI FACS

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EDUCATION

Undergraduate (1990-1993)	Trinity College, Dublin Ireland M.A. Liberal Arts
Medical School (1990 – 1996)	Trinity College, Dublin Ireland Bachelor in Medicine (MB) Bachelor in Surgery (BCh) Bachelor in Obstetrics and Gynecology (BAO)
Post-Graduate	Associate Fellow of the Royal College of Surgeons in Ireland (AFRCSI) 2000 Master's of Arts (<i>Ad eundem</i>) – Brown University 2019

POSTGRADUATE TRAINING

Internship	Meath & Adelaide Hospitals Dublin, Ireland 07/1996 – 06/1997
Residency	Dublin Basic Surgical Training Scheme Associate Fellow Royal College of Surgeons in Ireland (AFRCSI) 07/1997 – 06/2000
Fellowship	University of California, San Francisco, CA Postdoctoral Fellowship – Hepatology/Transplant Surgery 08/2000 – 06/2001
Residency	University of New Mexico, Albuquerque, New Mexico Surgery Resident 2001 – 2006
Fellowship	Vanderbilt University Medical Center, Nashville, TN Trauma Critical Care Fellow 2006 – 2007

HONORS AND AWARDS

- 1994 – 1st Place Adelaide/Meath Surgical Research Society Award
- 1995 – Special Commendation Sylvester O’Haloran Surgical Science Society
- 2002 – 1st Place (Krudibal Award) New Mexico Chapter College of Surgeons Meeting Resident Research
- 2003 – 1st Place Surgical Resident Research Award – University of New Mexico
- 2003 – 1st Place Region 6 Committee on Trauma Resident Research Meeting
- 2004 – Khatali Award for Best Medical Student Teaching awarded by the UNM Medical School
- 2004 – 1st Place (Krudibal Award) New Mexico Chapter College of Surgeons Meeting Resident Research
- 2004 – 2nd Place Surgical Resident Research Award – University of New Mexico
- 2004 – 2nd Place Region 6 Committee on Trauma Resident Research Meeting
- 2005 – 1st Place (Krudibal Award) New Mexico Chapter College of Surgeons Meeting Resident Research

TEACHING AWARDS

- 2000 – Best Resident Teaching Award – Blanchardstown Hospital, Dublin, Ireland
- 2004 – University of New Mexico – Dean’s Teaching Award for Medical Students
- 2006 – Department of Surgery University of New Mexico – Best Resident Teaching Award
- 2009 – Brown University Medical School – Dean’s Teaching Award for Medical Students
- 2010 – Brown University Medical School – Dean’s Teaching Award for Medical Students
- 2010 – Dept. of Surgery Brown University – Outstanding Faculty Teaching Award
- 2011 – Brown University Medical School – Dean’s Teaching Award for Medical Students
- 2011 – Faculty Alpha Omega Alpha award
- 2011 – Dept. of Surgery Brown University – Outstanding Faculty Teaching Award
- 2012 – Brown University Medical School – Dean’s Teaching Award for Medical Students
- 2012 – Brown University – Dean’s Teaching Award for the translation of basic science into clinical practice.
- 2015 – Dept. of Surgery Brown University – Outstanding Faculty Teaching Award
- 2017 – Brown University Medical School – Dean’s Teaching Award for Medical Students

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

- Rhode Island Board of Medical Licensure #12524 (Issued: 10/10/2007-Active)
- General Surgery – Board Certified - 2008, American Board of Surgery
- Surgical Critical Care – Board Certified – 2009, American Board of Surgery
- Fellow of the American College of Surgeons (FACS) - 2016
- General Surgery – Recertification – 2018, American Board of Surgery

Surgical Critical Care – Recertification – 2019, American Board of Surgery
Advanced Trauma Life Support (ATLS) – Certified
Advanced Trauma Life Support (ATLS) Instructor – Certified

ACADEMIC APPOINTMENTS

7/2007 – 12/2007 Vanderbilt University Medical Center, Nashville, TN,
Instructor in Surgery

1/2008 – 6/2018 Brown University, Providence, RI -
Assistant Professor of Surgery

7/2018 – Present Brown University, Providence, RI-
Associate Professor of Surgery Research Scholar

HOSPITAL APPOINTMENTS

7/2007 – 12/2007
Vanderbilt University Medical Center, Nashville, TN

1/2008 – Present
Rhode Island Hospital, Providence, RI – Active Staff

The Miriam Hospital, Providence, RI – Active Staff

2/2008 – Present
Women & Infants Hospital, Providence, RI – Active Staff

2/2016 – Present
Veterans Affairs Medical Center, Providence, RI – Active Staff

HOSPITAL TEACHING ROLES

7/2007 – 12/2007
Vanderbilt University Medical Center, Nashville, TN – Instructor in Surgery
Responsible for coordinating Trauma Surgery Fellow’s conference

1/2008 – 7/2015
Rhode Island Hospital/Alpert Medical School, Brown University – Assistant Professor of Surgery
Responsible for delivering bimonthly “Trauma Surgery” lecture series for 3rd year medical students

5/2020 – Present
VA Medical Center, Alpert Medical School, Brown University – Associate Professor of Surgery
Site Director for surgical clerkship

SOCIETY MEMBERSHIP AND COMMITTEE APPOINTMENTS

Alpha Omega Alpha Honor Medical Society – 2011 – present

Association of Academic Surgeons – 2009 – present

- Committee roles – member Membership Committee (2010-2012)
- member Informatics Committee (2012-2015)

New England Surgical Society – 2018 – present

Scholars Foundation Committee – 2020 - 2025

Society of Critical Care Medicine – 2011 – present

Surgical Infection Society – 2007 – present

- Committee role - member Informatics Committee 2010 – 2012
- Chairman Informatics Committee 2012 – 2015
- Chairman Informatics Committee 2015 – 2018

- Member – Strategic Planning Committee 2009 – 2011
- Strategic Planning Committee 2013 – 2015

- Member – Program Committee – 2018 – 2021
- Co-Chair – Program Committee – 2021 - 2022
- Junior Councilor – 2018 – 2020
- Senior Councilor – 2020 – 2022

Shock Society – 2011 – present

- Committee role - Member Strategic Planning Committee 2015 – 2017
- Chairman Strategic Planning Committee 2017-2019

- Member – Informatics and Website Committee – 2016 – 2018

- Member – Finance Committee – 2018 – 2021

Society of University Surgeons – 2018 – present

- Committee role – Member of Membership committee – 2018 – 2019
- SUS Social and Legislative Issues Committee – 2020 - present

Society of Leukocyte Biology

Rhode Island Medical Society – 2009 – present

OTHER APPOINTMENTS

Editorial board member

1. Infectious Disease Reports – 2014 – present
2. Surgical Infections – 2016 – present
3. Surgical Infections Case Reports – 2017 – present
4. BioMed Research International – 2018 – present

Ad-hoc Reviewer:

5. Journal of Trauma – 2010 – 2012
6. Journal of Surgical Research – 2011 – 2015
7. Surgical Infections – 2011 – present
8. Critical Care Medicine – 2012 - present
9. Critical Care – 2012 – present
10. Journal of Human Immunology – 2014 – present
11. World Journal of Surgery – 2014 - present
12. World Journal of Emergency Surgery – 2015- present
13. Irish Journal of Medical Sciences – 2016 - present
14. Annals of Surgery – 2016 – present
15. Scientific Reports – 2018 – present

ORIGINAL PUBLICATIONS IN PEER REVIEWED JOURNALS

1. **Heffernan D**, Terrault NA. “Treatment of chronic hepatitis B virus infection.” *Practical Gastroenterology* 2001; 25(10): 41-54
2. Bream P, **Heffernan DS**, Shukrallah B. “A novel technique for the retrieval of a lost wire during central venous catheter placement: A case report and review of the literature.” *Endovascular Today* 2008; 7: 38-41
3. Kasirajan K, **Heffernan DJ**, Langsfeld M. “Acute Thoracic Aortic Trauma: A comparison of endoluminal stent grafts with open repair and non-operative management. *Annals of Vascular Surgery* 2003 Nov; 17(6): 589-595

4. Kasirajan K, Mascha EJ, **Heffernan D**, Sifuentes J. “Determinants of in-hospital mortality and length of stay for acute intestinal gangrene.” *American Journal of Surgery* 2004; Apr; 187(4): 482-485
5. **Heffernan DS**, Schermer CR, Lu SW “What defines a distracting injury in cervical spine assessment?” *Journal of Trauma*. 2005 Dec; 59(6): 1396-1399
6. **Heffernan D**, Dudley B, McNeil PL, Howdieshell TR. “Local arginine supplementation results in sustained wound nitric oxide production and reductions in vascular endothelial growth factor expression and granulation tissue formation.” *Journal of Surgical Research* 2006 Jun; 133(1): 46-54
7. Shah SS, **Heffernan DS**, Howdieshell TR, Dietl CA. “Two-stage reconstruction of the superior vena cava after gunshot to the chest.” *Journal of Trauma* 2006 Sept; 61(3):736-738
8. Howdieshell TR, **Heffernan D**, Dipiro JT: Therapeutic Agents Committee of the Surgical Infection Society. “Surgical infection society guidelines for vaccination after traumatic injury”. *Surgical Infections (Larchmt)* 2006 Jun; 7(3):275-303
9. Dossett LA, Swenson BR, **Heffernan D**, Bonatti H, Metzger R, Sawyer RG, May AK. “High levels of endogenous estrogens are associated with death in the critically injured adult.” *Journal of Trauma* 2008 Mar; 64(3): 580-585
10. Dossett LA, **Heffernan DS**, Lightfoot MA, Collier B, Diaz JJ, Sawyer RG, May AK. “Obesity and pulmonary outcomes in critically injured adults.” *Chest* 2008; 134(5): 974-80
11. Hu CK, Venet F, **Heffernan DS**, Wang YL, Horner B, Huang X, Chung CS, Gregory SH, Ayala A. “The role of hepatic invariant NKT cells in systemic/local inflammation and mortality during polymicrobial septic shock.” *Journal of Immunology* 2009; 182(4): 2467-75
12. **Heffernan DS**, Adams CA. “Advancing boundaries in the care of the trauma patient.” *Med Health RI*. 2009; 29(5): 166-169
13. **Heffernan DS**, Saqib N, Terry M. “A case of appendiceal diverticulitis, and a review of the literature.” *Ir J Med Sci* 2009; 178(4): 519-521
14. May AK, Stafford RE, Bulger EM, **Heffernan DS**, Guillaumondegui O, Bochicchio G, Eachempati SR. “Surgical Infection Society Guidelines: Treatment of Skin and Soft Tissue Infections” *Surgical Infections* 2009; 10(5): 467-499
15. Gregg SC, **Heffernan DS**, Legere JT, Lilly HM, Kinsler A, Muschiano AB, McDonnell MK, Tober KL, Smith AL, Harrington DT, Adams CA. “The multiply injured trauma patient: resuscitation, rehabilitation, recovery.” *Med Health RI* 2010; 93(4): 115-116
16. **Heffernan DS**, Thakkar R, Monaghan S, Ravindran R, Adams CA, Kozloff MS, Gregg SC, Connolly MD, Machan JT, Cioffi WG. “Normal presenting vital signs are unreliable in geriatric blunt trauma victims.” *J Trauma* 2010; 69(4): 813-820.

17. **Heffernan DS**, Inaba K, Arbabi S, Cotton BA. "Sympathetic hyperactivity after traumatic brain injury and the role of beta-blocker therapy." *J Trauma* 2010; 69(9): 1602-1609
18. Howley I, Gregg SC, **Heffernan DS**, Adams CA. "Peritoneal free air due to evacuation of pneumobilia in blunt abdominal trauma." *J Emerg Trauma Shock* 2010; 3(4): 412-415
19. Thakkar RK, Chung CS, Chen Y, Monaghan SF, Lomas-Neira J, **Heffernan DS**, Cioffi WG, Ayala A. "Local tissue expression of the cell death ligand, FasL, plays a central role in the development of extra-pulmonary acute lung injury." *Shock* 2011; 36(2): 138-143
20. **Heffernan DS**, Vera RM, Monaghan SF, Thakkar RK, Kozloff MS, Connolly MD, Gregg SC, Machan JT, Harrington DT, Adams CA Jr, Cioffi WG. "Impact of socioethnic factors on outcomes following traumatic brain injury." *Journal of Trauma* 2011; 70(3): 527-534
21. Monaghan SF, **Heffernan DS**, Thakkar RK, Reinert, SE, Machan JT, Connolly MD, Gregg, SC, Kozloff MS, Adams CA, Cioffi WG. "The development of a Urinary Tract Infection is associated with increased mortality in trauma patients." *Journal of Trauma*. 2011; 71(6): 1569-1574
22. **Heffernan DS**, Dossett LA, Lightfoot MA, Fremont RD, Ware LB, Sawyer RG, May AK. "Gender and ARDS in critically injured adults: A prospective study." *Journal of Trauma* 2011; 71(4): 878-883
23. Monaghan SF, Thakkar RK, **Heffernan DS**, Huang X, Chung CS, Lomas-Neira J, Cioffi WG, Ayala A. "Mechanisms of indirect acute lung injury: A novel role for the Co-inhibitory receptor Programmed Death-1 (PD-1)." *Annals of Surgery* 2012; 255(1): 158-164.
24. **Heffernan DS**, Monaghan SF, Thakkar RK, Machan JT, Cioffi WG, Ayala A. "Failure to normalize lymphopenia following trauma is associated with increased mortality, independent of the leukocytosis pattern." *Critical Care* 2012; 16(1); R12
25. Shubin NJ, Chung CS, **Heffernan DS**, Irwin LR, Monaghan SF, Ayala A. "BTLA expression contributes to septic morbidity and mortality by inducing innate inflammatory cell dysfunction." *J Leuko Biol* 2012; 92(3): 593-603
26. Monaghan SF, Thakkar RK, Tran ML, Huang X, Cioffi WG, Ayala A, **Heffernan DS**. "Programmed Death-1 expression as a marker for immune and physiological dysfunction in the critically ill surgical patient." *Shock* 2012 38(2); 117-122.
27. Monaghan SF, Adams CA, Stephen AH, Connolly MD, Gregg SC, Machan JT, Cioffi WG, **Heffernan DS**. "Infections after trauma are associated with subsequent cardiac injury." *J Trauma and Acute Care Surg* 2012; 73(5): 1079-1084
28. Thakkar RK, Monaghan SF, Connolly MD, Gregg SC, Stephen AH, Adams CA, Cioffi WG, **Heffernan DS**. "Empiric antibiotics pending BAL results in patients without pneumonia significantly alters the flora but not the resistance profile if a subsequent pneumonia develops." *J Surg Res* 2013; 181(2): 328-8

29. Duron VP, Monaghan SF, Connolly MD, Gregg SC, Stephen AH, Adams CA, Cioffi WG, **Heffernan DS**. “Undiagnosed medical comorbidities in the uninsured: a significant predictor of mortality following trauma.” *J Trauma Acute Care Surg* 2013; 73(5): 1093-1098
30. **Heffernan DS**, Monaghan SF, Thakkar RK, Tran ML, Chung CS, Gregory SH, Cioffi WG, Ayala A. “Inflammatory mechanisms in sepsis: elevated invariant natural killer T-cell numbers in mouse and their modulatory effect on macrophage function.” *Shock* 2013; 40(2): 122-8
31. Fox ED, **Heffernan DS**, Cioffi WG, Reichner JS. “Neutrophils from critically ill septic patients mediate profound loss of endothelial barrier integrity.” *Crit Care* 2013; 17(5): R226
32. Shubin NJ, Monaghan SF, **Heffernan DS**, Chung CS, Ayala A. “B and T Lymphocyte attenuator expression on CD4+T-cells associates with sepsis and subsequent infections in ICU patients.” *Crit Care* 2013; 17(6): R276
33. Lomas-Neira J, Venet F, Chung CS, Thakkar R, **Heffernan D**, Ayala A. “Neutrophil-Endothelial interactions mediate angiopoietin-2 associated pulmonary endothelial cell dysfunction in indirect ALI in mice” *Am J Respir Cell Mol Biol* 2014; 50(1): 193-200
34. **Heffernan DS**, Monaghan SF, Chung CS, Cioffi WG, Gravenstein S, Ayala A. “A divergent response of innate regulatory T-cells to sepsis in humans: Circulating invariant Natural Killer T-cells are preserved.” *J Hum Immunol* 2014; 75(3): 277-282
35. Blakely A, **Heffernan DS**, Miner TJ. “Elevated C-Reactive Protein as a predictor of patient outcomes following palliative surgery.” *Journal of Surgical Oncology* 2014; 110(6): 651-5
36. Ottinger M, Monaghan SF, Gravenstein S, Cioffi WG, Ayala A, **Heffernan DS**. “The Geriatric cytokine response to trauma: time to consider a new threshold.” *Surg Infect* 2014; 16(6):800-805
37. **Heffernan DS**, Fox ED. “Advancing boundaries for the diagnosis and management of infections” *Surg Clin North Am* 2014; 94(6): 1163-1174
38. Young JS, Monaghan SF, Chung CS, Cioffi WG, Ayala A, **Heffernan DS**. “Divergent invariant Natural Killer T-cell (iNKT-cell) response to abdominal versus non-abdominal sepsis in humans.” *Surg Infect* 2015; 16(1): 29-35
39. Vidri RJ, Blakely AM, Kulkarni SS, Vaghjiani RG, **Heffernan DS**, Harrington DT, Cioffi WG, Miner TJ. “American College of Surgeons National Surgical Quality improvement program as a quality measurement tool for advanced cancer patients.” *Ann Palliat Med* 2015; 44(4): 200-206
40. Cohen DM, Carino GP, **Heffernan DS**, Lueckel SN, Mazer J, Skierkowski D, Machan JT, Mermel LA, Levinson AT “Arterial catheter use in the ICU: A national survey of antiseptic technique and perceived infectious risk.” *Crit Care Med* 2015; 43(11): 2346-2353

41. Chiulli LC, Stephen AH, Miner TJ, **Heffernan DS**. “Association of medical comorbidities, surgical outcomes and failure to rescue: An analysis of the Rhode Island Hospital NSQIP database.” *Journal of the American College of Surgeons* 2015; 221(6): 1050-1056
42. Lomas-Neira J, **Heffernan DS**, Ayala A, Monaghan SF. “Blockade of endothelial growth factor Angiopietin-2 reduces indices of ARDS and mortality in mice resulting from the dual-insults of hemorrhagic shock and sepsis.” *Shock* 2016; 45(2): 157-165
43. Young JS, **Heffernan DS**, Chung CS, Kettenmann ML, Young WA, Guillen VA, Cioffi WG, Ayala A. “Effect of PD-1:PD-L1 in invariant natural killer T-cell emigration and chemotaxis following sepsis.” *Shock* 2016; 45(5): 534-539
44. GlobalSurg Collaborative. “Mortality of emergency abdominal surgery in high- middle- and low-income countries.” *Br J Surg* 2016; 103(8): 971988
45. Zimmerman AM, Marwaha J, Nunez H, Harrington D, **Heffernan D**, Monaghan S, Adams C, Stephen A. “Preoperative myocardial injury as a predictor of mortality in emergency general surgery: An analysis using the American College of Surgeons NSQIP database.” *J Am Coll Surg* 2016; 223(2): 381-386
46. Sawhney JS, Stephen AH, Nunez H, Lueckel SN, Kheirbek T, Adams CA, Cioffi WG, **Heffernan DS**. “Impact of type of health insurance on infection rates among young trauma patients.” *Surg Infect* 2016; 17(5): 541-546
47. Gregg SC, **Heffernan DS**, Connolly MD, Stephen AH, Lueckel SN, Harrington DT, Machan JT, Adams CA, Cioffi WG. “Teaching leadership in trauma resuscitation: Immediate feedback from a real time competency-based evaluation tool shows long term improvement in resident performance.” *J Trauma Acute Care Surg* 2016; 81(4): 729-734
48. Wu Y, Chung CS, Chen Y, Monaghan SF, Patel S, Huang X, **Heffernan DS**, Ayala A. “A novel role for programmed cell death receptor ligand-1 (PD-L1) in sepsis-induced intestinal dysfunction.” *Mol Med* 2016; 22
49. Singh M, Butterfield K, Monteiro JFG, George A, **Heffernan DS**, McNicoll L, Gravenstein S. “Improved survival in patients older than 80 years with multiple rib fractures: Impact of geriatric trauma co-management.” *Gerontol Geriatr Res* 2016; 2(4): 1022
50. **Heffernan DS**, Monaghan SF, Ayala A. “Lymphocyte integrin expression differences between SIRS and sepsis patients.” *Ir J Med Sci* 2016; doi:10.1007/s11845-016-1525-4
51. Monaghan SF, Chung CS, Chen Y, Lomas-Neira J, Fairbrother WG, **Heffernan DS**, Cioffi WG, Ayala A. “Soluble Programmed Cell Death Receptor-1 (sPD-1): A potential biomarker with anti-inflammatory properties in human and experimental acute respiratory distress syndrome (ARDS).” *J Transl Med* 2016; 14(1): 312
52. Kao MJ, Nunez H, Monaghan SF, **Heffernan DS**, Adams CA, Lueckel SN, Stephen AH. “Trauma patients who present in a delayed fashion: a unique and challenging population.” *J Surg Res* 2017; 208: 204-210

53. Zhou EP, Goldberg DJ, Jung EE, Dunican A, **Heffernan DS**. “A case of campylobacter colitis presenting as pseudoappendicitis and review of the literature.” *Surg Infect Case Reports* 2017; 2(1): 20-22
54. Young WA, Fallon EA, **Heffernan DS**, Efron PA, Cioffi WG, Ayala A. “Improved survival following induction of sepsis by cecal slurry in PD-1 knockout murine neonates.” *Surgery* 2017; 161(15): 1387-1393
55. Chun TT, Garcia-Toca M, Eng JF, Slaiby J, Marcaccio E, Cioffi WG, **Heffernan DS**. “Post-operative infections are associated with increased risk of cardiac events in vascular patients.” *Ann Vasc Surg* 2017; 41:151-159
56. Dickinson CM, Karlin DR, Nunez HR, Cao SA, **Heffernan DS**, Monaghan SF, Kheirbek T, Adams CA, Stephen AH. “Do patients with pre-existing psychiatric illness have an increased risk of infection after injury?” *Surg Infect* 2017; 18(5): 545-549
57. Ottinger ME, Monaghan SF, Gregg SC, Stephen AH, Connolly MD, Harrington DT, Adams CA, Cioffi WG, **Heffernan DS**. “Trauma Morning Report is the ideal environment to teach and evaluate resident communication and sign-outs in the 80-hour work week.” *Injury* 2017; 48(9): 2003-2009
58. Fallon EA, Chun TT, Young WA, Gray C, Ayala A, **Heffernan DS**. “Programmed cell death receptor-1 mediated invariant Natural Killer T-cell control of peritoneal macrophage modulates survival in neonatal sepsis.” *Frontiers in Immunology* 2017; 8: 1469
59. Fallon E, Biron-Girard B, Chung CS, Lomas-Neira J, **Heffernan DS**, Monaghan S, Ayala A. “A novel role for co-inhibitory receptors/checkpoint proteins in the immunopathology of sepsis.” *J Leuk Biol* 2018; *epub ahead of print*
60. Pilienci SN, Salim SY, **Heffernan DS**, Itani KM, Khadaroo RG. “A randomized controlled trial of video education versus skill demonstration: Which is more effective in teaching sterile technique?” *Surg Infect* 2018; 19(3): 303-312
61. Dickinson CM, LeBlanc BW, Edhi MM, **Heffernan DS**, Faridi MH, Gupta V, Cioffi WG, O’Brien X, Reichner JS. “Leukadherin-1 ameliorates endothelial barrier damage mediated by neutrophils from critically ill patients.” *J Intensive Care* 2018; 6(19)
62. Lueckel SN, Kosar CM, Teno JM, Monaghan SF, **Heffernan DS**, Cioffi WG, Thomas KS. “Outcomes in nursing home patients with traumatic brain injury.” *Surgery* 2018 *epub ahead of print*
63. Delmonico T, Stephen AH, **Heffernan DS**. “A case of severe lumbar necrotizing soft tissue infection from an ileal pouch fistula.” *Surg Infect* 2018; 19(5): 548-550
64. GlobalSurg Collaborative. “Laparoscopy in management of appendicitis in high-, middle-, and low-income countries: a multicenter, prospective, cohort study.” *Surg Endosc* 2018; 32(8): 3450-3466

65. Chun TT, Chung CS, Fallon EA, Hutchins NA, Clarke E, Rossi AL, Cioffi WG, **Heffernan DS**, Ayala A. "Group 2 innate lymphoid cells (ILC2s) are key mediators of the inflammatory response in polymicrobial sepsis". *Am J Path* 2018; 188(9): 2097-2108
66. Monaghan SF, Banerjee D, Chung CS, Lomas-Neira J, Cygan KJ, Rhine CL, Fairbrother WG, **Heffernan DS**, Levy MM, Cioffi WG, Ayala A. "Changes in the process of alternative RNA splicing in soluble B and T lymphocyte attenuator with biological and clinical implications in critical illness" *Mol Med* 2018; 24(1): 32
67. Stephen AH, Lueckel SN, Shah M, Adams CA, Kheirbek T, Soipe A, **Heffernan D**, Monaghan SF, Sim J. "Dismal outcomes following damage control laparotomy in injured older adults, a cohort study." *Am J Surg* 2019; 218(1): 82-86
68. GlobalSurg Collaborative. "Pooled analysis of WHO Surgical Safety Checklist use and mortality after emergency laparotomy." *Br J Surg* 2019; 106(2): e103-e112
69. GlobalSurg Collaborative. "Global variation in anastomosis and end colostomy formation following left sided colorectal resection." *BJS Open* 2019; 3(3): 403-414
70. **Heffernan DS**. "Influenza and the Surgeon" *Surg Infect* 2019; 20(2): 119-128.
71. Gandhi C, Fowler RL, Hersey S, **Heffernan DS**, Stafford T. "Wandering spleen in a geriatric patient - a rare presentation of gastric volvulus." *JRSM Open* 2019; 10(6):
72. Wakeley ME, Shubin NJ, Monaghan SF, Gray CC, Ayala A, **Heffernan DS**. "Herpes Virus Entry Mediator (HVEM): A novel potential mediator of trauma-induced immunosuppression." 2019: 245; 610-618
73. Connolly MD, Monaghan SF, **Heffernan DS**, Lueckel SN, Adams CA. "Practice makes perfect: The evolution of blunt chest trauma." *RI Med J* 2019; 102(8): 27-29
74. Wakeley ME, Gray CC, Monaghan SF, **Heffernan DS**, Ayala A. "Check point inhibitors and their role in immunosuppression in sepsis." *Crit Care Clin* 2020; 36(1): 69-88
75. Rai I, Stephen AH, Lu Q, **Heffernan DS**. "The impact of multi-drug resistant pneumonia upon outcomes of critically ill trauma patients." *Surg Infect* 2020; 21(5): 422-7
76. **Heffernan DS**, Evans HL, Huston JM, Claridge JA, Blake DP, May AK, Beilman GS, Barie PS, Kaplan, LJ. "Surgical Infection Society guidance for operative and peri-operative care of adult patients infected by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2)." *Surg Infect* 2020; 21(4):301-308

BOOK CHAPTERS:

1. Thakkar RK, Huang X, Lomas-Neira J, **Heffernan D**, Ayala A. "Sepsis and the immune response." – *in Essential Immunology for Surgeons*; pp 303-342; Eds: Eremin O & Sewell H; Oxford Press 2011
2. Kochar A, **Heffernan DS**. "Subdural Hematomas" *5-Minute Clinical Consult 2012*. pp1256-1257; Lippincott William & Wilkins; Ed: FJ Domino
3. Kalasapudi B, **Heffernan DS**. "Ruptured Bowel" - *5-Minute Clinical Consult 2012*. Online Print – Lippincott William & Wilkins; Ed: FJ Domino
4. Adams CA, **Heffernan DS**, Cioffi WG. "Wounds, bites and stings." – *Trauma 2012*; 7th Edition – Eds Feliciano, Mattox, Moore; McGraw-Hill
5. **Heffernan DS**, Cioffi WG. "Esophageal Trauma – operative management."; *Atlas of Trauma / Emergency Surgical Techniques – Saunders*; eds Townsend, Evers 2013
6. **Heffernan DS**, Fox ED. "Advancing technologies in the diagnosis and management of surgical infections." *Surg Clinics North America 2014*; 94(6): 1163-1174
7. **Heffernan DS**, Adams CA, Cioffi WG. "Wounds, bites and sting" – *Trauma 2017*; 8th Edition – Eds Moore E, Feliciano D & Mattox K – McGraw-Hill
8. **Heffernan DS**. "Diagnosis of Sepsis: clinical findings and the role of biomarkers" in "Sepsis: Definitions, Pathophysiology and the Challenge of bedside management." 1st Edition 2016 – Eds Ward N, Levy M. New York, Humana Press

ABSTRACTS:

1. **Heffernan DS**, Gillan P, McDermott S, Keane FBV. "Mucosal field change in gastric carcinoma: A cell proliferation study using Ki67." *Ir J Med Sci* 1996;165 (S4); p50
2. **Heffernan D**, Dudley, McNeil PL. "Local Arginine Supplementation results in sustained wound nitric oxide production and reductions in vascular endothelial growth factor expression and granulation tissue formation." *J Surg Res* 2006; 130(2): 215
3. **Heffernan D**, Norris PR, Morris JA. Serum osmolality, despite tight glucose control, is associated with mortality. A study of 1,037 trauma patients." *J Surg Res* 2007; 137(2): 237-238
4. **Heffernan D**, Dossett LA, Sawyer RG, May AK. "The inflammatory profile of obese versus non-obese trauma patients." *J Surg Res* 2008; 144(2): 335
5. **Heffernan DS**, Thakkar R, Adams CA, Kozloff M, Majerick S, Gregg S, Harrington D, Cioffi WC. "The super-elderly (>80 years old) suffer devastating head injury outcomes following trauma when compared with their elderly counterparts (65 to 79 year old)." *J Surg Res* 2009; 151(2): 292
6. **Heffernan DS**, Thakkar R, Kozloff M Gregg S, Adams C, Cioffi WG. "UTI in elderly trauma patients: An underappreciated risk for trauma." *Surg Infect* 2009; 10 (2); p241

7. Stephen AS, **Heffernan DS**, Monaghan SF, Adams CA, Cioffi WC. “The presence, but not the degree of systemic inflammatory response syndrome (SIRS) in elderly trauma patients is predictive of mortality” *J Surg Res* 2010; 158(2): 351-352
8. Worth PJ, **Heffernan DS**, Monaghan SF, Adams CA, Cioffi WC. “Leukopenia (WCC<4) rather than leukocytosis within 48 hours of admission has a greater impact on mortality following trauma; An analysis of 2,467 patients”. *J Surg Res* 2010; 158(2): 351
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10. Ravindran RK, **Heffernan DS**, Adams CA, Cioffi WG. “Penetrating trauma in the elderly (65 years and older): An expression of despair.” *J Surg Res* 2010; 158(2): 287
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43. Fox ED, **Heffernan DS**, Cioffi WG, Reichner J. “Neutrophils from septic patients mediate earlier and more profound loss of endothelial barrier integrity than normal and stimulated healthy neutrophils.” *Surg Infect* 2013; 14(S1): S-17
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53. Fallon E, **Heffernan D**, Chun T, Muratore C, Cioffi W, Ayala A. “A role for programmed cell death receptor-1 (PD-1) in regulating iNKT-cell modulation of neonatal sepsis.” *Surg Infect* 2016; 17(S1): S20.
54. Benoit E, Nunez H, Sim J, **Heffernan D**, Monaghan S, Kheirbek T, Adams C, Cioffi W, Stephen A. “Dismal outcomes: infections and death after laparotomy in elderly trauma patients.” *Surg Infect* 2016; 17(S1): S28
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57. Fallon EA, Harman AL, Nunez H, Stephen AH, **Heffernan DS**, Cioffi WG, Stephen AH. “Geriatric pelvic trauma: An underestimated injury pattern in a vulnerable population: *J Am Coll Surg* 2016; 223(4)
58. Basmaci UN, Ayala A, Chung CS, **Heffernan DS**. “The role of iNKT-cells in modulating the peritoneal macrophage phenotype in response to sepsis.” *Shock* 2017; 47(S1): 33.

59. **Heffernan DS**, Chung CS, Ayala “Using an intestinal organoid to assess lymphocyte microbiome cross talk at the intestinal luminal interface”. *Shock* 2019; 51 (6S): 63
60. Fredricks AM, Wang EJ, Chung CS, **Heffernan DS**, Cioffi WG, Harrington EO, Fairbrother WG, Ayala A, Monaghan SF. “Novel B and T cell recombination identification in a model of critical illness”. *Shock* 2019; 51 (6S): 101
61. Wang EJ, Fredricks AM, Chung CS, **Heffernan DS**, Cioffi WG, Harrington EO, Fairbrother WG, Ayala A, Monaghan SF. “Unmapped viral RNA sequencing reads in critical illness: A potential biomarker”. *Shock* 2019; 51 (6S): 120.

ONLINE PUBLICATIONS

1. Young JS, **Heffernan DS**. “Breast Hidradinitis – Case report and review of management.” <http://www.sisna.org/case-reports-details?cid=2a9b24aa-1dc1-4d0f-9439-6ad2971324df>

INVITED PRESENTATIONS

REGIONAL

- 2008 - *Peter D. Smith Trauma Seminar* – “Trauma and Pregnancy – from door to door.” Providence, Rhode Island
- 2008 - *New England Regional Symposium* – “The evolving management of Aortic Injuries”, Massachusetts
- 2008 - *Brown University Department of Surgery* – Grand Rounds – “Obesity and the Role of Adipose tissue in critical illness”
- 2009 - *Peter D. Smith Trauma Seminar* – “Trauma – the first 24 hours!” Providence, Rhode Island
- 2009 - *Brown University Department of Surgery* – Grand Round – “The invariant Natural Killer T-cell. A critical underappreciated mediator of SIRS and Sepsis” Providence, Rhode Island
- 2010 - *South Coast Regional Conference* – “Missed Injuries in Trauma –Can we do better?” – Massachusetts
- 2010 - *South County Regional Conference* – “Trauma – beyond the first 24 hours”
- 2011 - *Rhode Island Trauma Symposium* – “Geriatric Trauma; a disease for the ages.”
- 2012 – *Rhode Island Trauma Symposium* – Peter D. Smith Memorial Lecture – “ARDS; from first breath to last”
- 2018 – *Rhode Island Trauma Symposium* – “Military STUFF need to get specifics

NATIONAL

2010 - The *Dr. Judah Skolnick and Douglas David Pulmonary Symposium* – The Pulmonary complications of Obesity” – Louisville KY

2013 – *Shock Society – Junior Faculty Award Presentation* – “Regulation of phagocyte function in shock – the role of the invariant natural killer T-cell.”

2015 – *Surgical Infection Society* – “Fever in the ICU; to treat or not to treat. Pro-Con Debate”

2018 – *Surgical Infection Society* – “The ‘flu vaccine and the Surgeon”

2018 – Dr. Fratianne invited lectureship, Cleveland Ohio – “The silver tsunami and geriatric burn victims”

INTERNATIONAL

2019 – Surgical Infection Society – Europe, Dublin, Ireland. “The risk of pneumonia among geriatric trauma patients is decreased with the use of a geriatric focused rib fracture protocol”

D. GRANTS

1) Shock Society Junior Faculty Award 07/01/2011-06/30/2013
The Role of the Invariant Natural Killer T-cell in Hemorrhagic Shock: Regulation of Neutrophil Response.”

Role: Principal Investigator

Agency: Shock Society - \$75,000

The major goal of this work is to delineate the effect of hemorrhage on invariant Natural Killer T-cells (*i*NKT-cells) and the effect of *i*NKT-cells on the neutrophil response following hemorrhagic shock.

2) SURDNA Foundation Fellowship Award 07/01/2011 – 06/30/2013

Aging and Inflammation: Trauma induced alteration in inflammatory phenotype

Role: Principal Investigator

Agency: SURDNA Foundation for the Geriatric Care - \$20,000

The major goal of this project is to define the phenotypic and functional changes in the lymphocytic and inflammatory response to traumatic injuries in critically ill geriatric trauma patients.

3) R01 GM107149-02 (PI: A. Ayala) 09/01/2013 – 05/31/2017

Co-Inhibitory Molecules and the Pathology of Indirect Acute Lung Injury

Role: Collaborator

Agency – NIH/NIGMS

Aims: To determine what the contribution of family of co-inhibitory cell surface-associated molecules, expressed on immune and non-immune cells in the development of acute lung injury in the critically ill surgical/trauma patient.

4) 2R01GM046354-20 (PI: Ayala)

01/01/2014 – 11/30/2017

NIH/NIGMS

Differential Effects of Sepsis on Immune Cell Function

Role: Collaborator

Agency – NIH/NIGMS

Aims: To determine the impact of a novel family of cell-associated co-inhibitor molecules/ ligands, on the development of immune/ organ dysfunction/injury and death resulting from sepsis. The contribution of these molecules to the development of both septic morbidity and mortality will be examined in the setting of experimental sepsis using genetically altered mice as well as drug interventions directed at genes or mediators thought to be involved in the regulation of these cells.

5) R01 HL125265-01 (PI: M. Kim, J. Reichner, R. Waugh) 9/15/2014 – 5/31/2019

Neutrophil-Endothelial Interactions and Barrier Function in Sepsis

Role: Collaborator

Agency – NHLBI/University of Rochester

Aims: To determine the underlying mechanisms that lead to the accumulation of neutrophils of the vasculature with ensuing damage to barrier function. Understanding how to control vascular damage through manipulation of neutrophil extravasation has potential applications in many acute/chronic inflammatory settings including sepsis

6) KO8 GM110495-01A1 (PI: D. Heffernan)

08/01/2015 – 07/01/2019

NIH/NIGMS

Sepsis induced changes in iNKT-cells and their effect on Phagocyte Function

Role: Principal Investigator

Agency – NIH/NIGMS - \$785,808

Aims: To determine the effect of sepsis on iNKT-cells and the role of iNKT-cells in modulating the immune dysfunction induced by sepsis, specifically the mechanisms of how iNKT-cells modulate macrophages following polymicrobial sepsis.

MENTEES AND TRAINEES

Primary Care Population Medicine (PC-PM) Brown University Medical Students

Alice Cao – 2016 – 2019 – A descriptive analysis of Trauma patients with pre-existing psychiatric diseases
Presented at the American College of Surgeons 2017 Annual Meeting

Stephanie Chang – 2016 – 2019 – Socioeconomic factors affecting outcomes in Trauma patients
Presented at the American College of Surgeons 2017 Annual Meeting

Brown University Medical Students

Isaac Howley – class of 2010 – matched into Surgery Johns Hopkins University
Socio-economic status affected outcomes of trauma patients

Ajar Kochar – class of 2011 – matched into Internal Medicine at Johns Hopkins
Radiation exposure relating to degree of injury in geriatric trauma patients

Bharati Kalasapudi – class of 2011 – matched into Internal Medicine at John Hopkins
The effects of secondary peritonitis on trauma patients

Patrick Worth – class of 2011 – matched into Surgery Oregon Health & Sciences University
The lymphopenic response to trauma – Presented at Academic Surgical Congress 2010

Elizabeth Gilbert – class of 2013 – matched into Psychiatry – Duke University
The impact of pre-existing psychiatric diseases upon trauma patients

Nicholas Carter – class of 2013 – matched into Surgery – Vanderbilt University
Adrenal Insufficiency in geriatric trauma patients

Rory Merritt – class of 2013 – matched into Emergency Medicine – George Washington University
The homeless trauma population – a unique challenge

Brown University Undergraduate/Post Graduate Students

Ugur Nur Basmaci – Honors thesis advisor – “The role of *i*NKT-cells in modulating the peritoneal macrophage phenotype following sepsis” – Graduated 2017

Bethany Biron – PhD Thesis committee member; “The role of NETS in the septic neutrophil response” – Graduated 2017