

CURRICULUM VITAE

(shortened version)

BIOGRAPHICAL

| | | | |
|-------------------|---|---------------|-----------------|
| Name: | John Alston Kellum | Birthdate: | March 9, 1962 |
| Home Address: | 5541 Hampton Street Pittsburgh, PA 15206 | Birthplace: | Boston, MA |
| Home Phone: | 412: 361-7475 | Citizenship: | USA |
| Business Address: | University of Pittsburgh School of Medicine Center for Critical Care Nephrology 3347 Forbes Ave. Suite 220, Room 203B Pittsburgh, PA 15213 | Email: | kellum@pitt.edu |
| Business Phone: | 412: 383-4223 | Business Fax: | 412: 383-4222 |

EDUCATION AND TRAINING

Undergraduate

| | | |
|-----------|------------------------------------|-----------------------------------|
| 1980-1984 | University of Toledo Toledo, OH | B.A., 1984 Pre-Med, Psychology |
|-----------|------------------------------------|-----------------------------------|

Graduate

| | | |
|-----------|--|---|
| 1984-1988 | Medical College of Ohio at Toledo Toledo, OH | M.D., 1988 |
| 1993-1994 | University of Pittsburgh Graduate School of Public Health Pittsburgh, PA | Coursework towards MPH (biostatistics, epidemiology) |

Postgraduate

| | | |
|-----------|--|---|
| 1988-1991 | University of Rochester Strong Memorial & Affiliated Hospitals Rochester, NY | Internship/Residency (Internal Medicine) Rudolph J. Napodano, M.D. |
| 1991-1992 | University of Rochester The Genesee Hospital Rochester, NY | Chief Resident (Internal Medicine) Rudolph J. Napodano, M.D. |
| 1992-1994 | University of Pittsburgh Medical Center Presbyterian University Hospital Pittsburgh, PA | Fellowship (Critical Care Medicine) David Powner, M.D. Ake Grenvik, M.D. |
| 2008 | University of Pittsburgh, Joseph M. Katz Graduate School of Business Certificate Course "Academic Entrepreneurship: The Business of Innovation Commercialization" | |

APPOINTMENTS AND POSITIONS

Academic

| | | |
|--------------|--|--|
| 1991-1992 | University of Rochester Department of Medicine The Genesee Hospital Rochester, NY | Instructor |
| 1994-2000 | University of Pittsburgh School of Medicine Department of Anesthesiology Division of Critical Care Medicine Pittsburgh, PA | Assistant Professor (Primary Appointment) |
| 1996-2001 | University of Pittsburgh School of Medicine Department of Medicine Pittsburgh, PA | Assistant Professor (Secondary Appointment) |
| 2000-2002 | University of Pittsburgh School of Medicine Department of Anesthesiology Division of Critical Care Medicine Pittsburgh, PA | Associate Professor (Primary Appointment) |
| 2001-2008 | University of Pittsburgh School of Medicine Department of Medicine Pittsburgh, PA | Associate Professor (Secondary Appointment) |
| 2002-2005 | University of Pittsburgh School of Medicine Department of Critical Care Medicine Pittsburgh, PA | Associate Professor (Primary Appointment) |
| 2005-2008 | University of Pittsburgh School of Medicine Department of Critical Care Medicine Pittsburgh, PA | Professor (Primary Appointment) |
| 2006-Present | University of Pittsburgh School of Medicine Department of Medicine Pittsburgh, PA | Professor (Secondary Appointment) |
| 2008-Present | University of Pittsburgh School of Medicine Clinical and Translational Science Pittsburgh, PA | Professor (Secondary Appointment) |
| 2008-Present | University of Pittsburgh School of Medicine Department of Critical Care Medicine Pittsburgh, PA | Professor with Tenure (Primary Appointment) |
| 2008-Present | University of Pittsburgh School of Medicine | Vice Chair for Research |

| | | |
|---------------------|---|--------------------------------------|
| | Department of Critical Care Medicine | |
| 2009-Present | University of Pittsburgh School of Engineering Department of Bioengineering Pittsburgh, PA | Professor (Secondary Appointment) |
| 2013-Present | University of Pittsburgh Center for Critical Care Nephrology School of Medicine Department of Critical Care Medicine | Director |
| <u>Non Academic</u> | | |
| 1983-1984 | University of Toledo Department of Chemistry Toledo, OH | Teaching Assistant |
| 1989-1992 | Rochester General Hospital Emergency Department Rochester, NY | Per Diem - Staff Physician |
| 1990-1992 | The Genesee Hospital University of Rochester Emergency Department Rochester, NY | Per Diem - Staff Physician |
| 1993-1994 | Westmoreland Hospital Medical/Surgical ICU Greensburg, PA | Intensivist |
| 1993-1994 | St. Francis Central Hospital Surgical ICU Pittsburgh, PA | Per Diem - Staff Physician |
| 1993-1994 | Washington Hospital Surgical ICU Washington, PA | Per Diem - Staff Physician |
| 1994-2004 | University of Pittsburgh Medical Center Liver Transplant ICU Pittsburgh, PA | Intensivist |
| 1996-2017 | University of Pittsburgh Medical Center Cardiothoracic ICU Pittsburgh, PA | Intensivist |
| 2017-Present | Magee Women's Hospital, UPMC Adult ICU Pittsburgh, PA | Intensivist |

CERTIFICATION AND LICENSURE

Specialty Certification

| | | |
|-------------------------------------|-----------------------|-------------|
| National Board of Medical Examiners | Certification #362242 | 7/89 |
| American Board of Internal Medicine | Certification #136519 | 9/91, 11/02 |

Expires 12/31/2025

American Board of Internal Medicine - CCM
Expires 12/31/2025

11/95, 5/05, 11/15

Medical Licensure

PA Active - Present

MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

| | | |
|--|------------------|--------------|
| Society of Critical Care Medicine (SCCM) | Member | 1992-1999 |
| - Congress Program Committee | Member | 2011-Present |
| | Fellow | 1999-2013 |
| | Master | 2013-Present |
| American College of Physicians (ACP) | Member | 1992-1998 |
| | Fellow | 1998-Present |
| American College of Chest Physicians (ACCP) | Affiliate Member | 1992-1996 |
| | Fellow | 1996-Present |
| American Thoracic Society (ATS) | Member | 1996-2011 |
| - Long Range Planning Committee/Critical Care Assembly | Member | 1997-1998 |
| - Advisory Group / Program Review Committee | Member | 2000-2004 |
| - Advisory Group / International Conference Committee | Member | 2000-2004 |
| - Research Advocacy Committee | Member | 2009-2011 |
| International Society of Nephrology | Member | 2006-Present |

HONORS (last 5 years)

| | |
|------------------|---|
| 2013, 2014, 2016 | Presidential Citation, Society of Critical Care Medicine |
| 2014, 2019 | Prince Mahidol Award Youth Program Mentor, Bangkok Thailand |
| 2016 | Co-Chair, Scientific Program Committee, Society of Critical Care Medicine |
| 2016 | Inaugural recipient, UPMC Endowed Chair in Critical Care Research |
| 2017-2020 | #1 Expert in the world for Acute Kidney Injury (www.expertscape.com) |
| 2017 | Life Sciences Award, Carnegie Science Awards |
| 2018, 2019 | Highly Cited Researcher (Web of Science Top 1%) |
| 2019 | Jeff Gray Memorial Award "Translating to Management in AKI" |
| 2019 | Honorable Member, European Society of Intensive Care Medicine |
| 2019 | Pitt Innovator Award, University of Pittsburgh Innovation Institute |
| 2020 | 34 th Meneely/George Lecturer LSU Health Center |

PUBLICATIONS

Refereed Articles (past 2 years; selected from more than 350 articles)

1. Bonnassieux M, Duclos A, Schneider AG, Schmidt A, Bénard S, Cancalon C, Joannes-Boyau O, Ichai C, Constantin JM, Lefrant JY, **Kellum JA**, Rimmelé T; AzuRéa Group. Renal Replacement Therapy Modality in the ICU and Renal Recovery at Hospital Discharge. *Crit Care Med*. 2018; 46(2):e102-e110. PMID: 29088005
2. Al-Jaghbeer M, Dealmeida D, Bilderback A, Ambrosino R, **Kellum JA**. Clinical Decision Support for In-Hospital AKI. *J Am Soc Nephrol*. 2018; 29(2):654-660. PMC5791078
3. Meersch M, Küllmar M, Schmidt C, Gerss J, Weinhage T, Margraf A, Ermert T, **Kellum JA**, Zarbock A. Long-Term Clinical Outcomes after Early Initiation of RRT in Critically Ill Patients with AKI. *J Am Soc Nephrol*. 2018; 29(3):1011-1019. PMC5827600
4. Ostermann M, McCullough PA, Forni LG, Bagshaw SM, Joannidis M, Shi J, Kashani K, Honore PM, Chawla LS, **Kellum JA**; all SAPPHERE Investigators. Kinetics of Urinary Cell Cycle Arrest Markers for Acute Kidney Injury Following Exposure to Potential Renal Insults. *Crit Care Med*. 2018; 46(3):375-383. PMC5821475
5. Peng Z, Yu K, Ostermann M, Xi X, Hsu R, Vincent JL, Prowle JR, Du B, Gallagher M, Wang C, Murugan R, Qiu H, Rimmelé T, Li J, Forni LG, Kashani K, Ronco C, **Kellum JA**; Acute Disease Quality Initiative (ADQI) Workgroup 19. Pragmatic studies for acute kidney injury: Consensus report of the Acute Disease Quality Initiative (ADQI) 19 Workgroup. *J Crit Care*. 2018; 44:337-344. PMID: 29274596
6. Möckel M, Slagman A, Vollert JO, Ebmeyer S, Wiemer JC, Searle J, Giannitsis E, **Kellum JA**, Maisel A. Rationale and design of the IMPACT EU-trial: improve management of heart failure with procalcitonin biomarkers in cardiology (BIC)-18. *Biomarkers*. 2018; 23(1):97-103. PMID: 29264937
7. Husain-Syed F, Ferrari F, Sharma A, Hinna Danesi T, Bezerra P, Lopez-Giacoman S, Samoni S, de Cal M, Corradi V, Virzì GM, De Rosa S, Muciño Bermejo MJ, Estremadoyro C, Villa G, Zaragoza JJ, Caprara C, Brocca A, Birk HW, Walmrath HD, Seeger W, Nalesso F, Zanella M, Brendolan A, Giavarina D, Salvador L, Bellomo R, Rosner MH, **Kellum JA**, Ronco C. Preoperative Renal Functional Reserve Predicts Risk of Acute Kidney Injury After Cardiac Surgery. *Ann Thorac Surg*. 2018; 105(4):1094-1101. PMID: 29382510
8. Fuhrman DY, Kane-Gill S, Goldstein SL, Priyanka P, **Kellum JA**. Acute kidney injury epidemiology, risk factors, and outcomes in critically ill patients 16-25 years of age treated in an adult intensive care unit. *Ann Intensive Care*. 2018; 8(1):26. PMC5812957
9. Leaf DE, Siew ED, Eisenga MF, Singh K, Mc Causland FR, Srivastava A, Ikizler TA, Ware LB, Ginde AA, **Kellum JA**, Palevsky PM, Wolf M, Waikar SS. Fibroblast Growth Factor 23 Associates with Death in Critically Ill Patients. *Clin J Am Soc Nephrol*. 2018; 13(4):531-541. PMC5969465
10. Wen X, Cui L, Morrisroe S, Maberry D, Emler DR, Watkins SC, Hukriede NA, **Kellum JA**. A zebrafish model of infection-associated acute kidney injury. *Am J Physiol Renal Physiol*. 2018; 315(2):F291-F299. PMC6139521
11. Lumlertgul N, Peerapornratana S, Trakarnvanich T, Pongsittisak W, Surasit K, Chuasuwan A, Tankee P, Tiranathanagul K, Praditpornsilpa K, Tungsanga K, Eiam-Ong S, **Kellum JA**, Srisawat N; FST Study Group. Early versus standard initiation of renal replacement therapy in furosemide stress test non-responsive acute kidney injury patients (the FST trial). *Crit Care*. 2018; 22(1):101. PMC5909278
12. Malard B, Lambert C, **Kellum JA**. In vitro comparison of the adsorption of inflammatory mediators by blood purification devices. *Intensive Care Med Exp*. 2018; 6(1):12. PMC5935601
13. Huang DT, Yealy DM, Filbin MR, Brown AM, Chang CH, Doi Y, Donnino MW, Fine J, Fine MJ, Fischer MA, Holst JM, Hou PC, **Kellum JA**, Khan F, Kurz MC, Lotfipour S, LoVecchio F, Peck-

- Palmer OM, Pike F, Prunty H, Sherwin RL, Southerland L, Terndrup T, Weissfeld LA, Yabes J, Angus DC; ProACT Investigators. Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection. *N Engl J Med*. 2018; 379(3):236-249. PMC6197800
14. Göcze I, Eehalt K, Zeman F, Riquelme P, Pfister K, Graf BM, Bein T, Geissler EK, Kasprzak P, Schlitt HJ, **Kellum JA**, Hutchinson JA, Eggenhofer E, Renner P. Postoperative cellular stress in the kidney is associated with an early systemic $\gamma\delta$ T-cell immune cell response. *Crit Care*. 2018; 22(1):168. PMC6030780
 15. Welch HK, **Kellum JA**, Kane-Gill SL. Drug-Associated Acute Kidney Injury Identified in the United States Food and Drug Administration Adverse Event Reporting System Database. *Pharmacotherapy*. 2018; 38(8):785-793. PMID: 29883524
 16. Fiorentino M, Tohme FA, Wang S, Murugan R, Angus DC, **Kellum JA**. Long-term survival in patients with septic acute kidney injury is strongly influenced by renal recovery. *PLoS One*. 2018; 13(6):e0198269. PMC5988328
 17. Nadim MK, Forni LG, Bihorac A, Hobson C, Koyner JL, Shaw A, Arnaoutakis GJ, Ding X, Engelman DT, Gasparovic H, Gasparovic V, Herzog CA, Kashani K, Katz N, Liu KD, Mehta RL, Ostermann M, Pannu N, Pickkers P, Price S, Ricci Z, Rich JB, Sajja LR, Weaver FA, Zarbock A, Ronco C, **Kellum JA**. Cardiac and Vascular Surgery-Associated Acute Kidney Injury: The 20th International Consensus Conference of the ADQI (Acute Disease Quality Initiative) Group. *J Am Heart Assoc*. 2018; 7(11). PMC6015369
 18. Li S, Wang S, Murugan R, Al-Khafaji A, Lebovitz DJ, Souter M, Stuart SRN, **Kellum JA**, Monitoring Organ Donors to Improve Transplantation Results (MONITOR) Study Investigators. Donor biomarkers as predictors of organ use and recipient survival after neurologically deceased donor organ transplantation. *J Crit Care*. 2018; 48:42-47. PMC6294437
 19. Murugan R, Balakumar V, Kerti SJ, Priyanka P, Chang CH, Clermont G, Bellomo R, Palevsky PM, and **Kellum JA**. Net ultrafiltration intensity and mortality in critically ill patients with fluid overload. *Critical Care*. 2018; 22(1):223. PMC6151928
 20. Pickkers P, Mehta RL, Murray PT, Joannidis M, Molitoris BA, **Kellum JA**, Bachler M, Hoste EAJ, Hoiting O, Krell K, Ostermann M, Rozendaal W, Valkonen M, Brealey D, Beishuizen A, Meziani F, Murugan R, de Geus H, Payen D, van den Berg E, Arend J; STOP-AKI Investigators. Effect of Human Recombinant Alkaline Phosphatase on 7-Day Creatinine Clearance in Patients With Sepsis-Associated Acute Kidney Injury: A Randomized Clinical Trial. *JAMA*. 2018; 320(19):1998-2009. PMC6248164
 21. Fabian-Jessing BK, Massey MJ, Filbin MR, Hou PC, Wang HE, Kirkegaard H, Yealy DM, Aird WC, **Kellum JA**, Angus DC, Shapiro NI; ProCESS Investigators. In vivo quantification of rolling and adhered leukocytes in human sepsis. *Crit Care*. 2018; 22(1):240. PMC6164176
 22. Srisawat N, Tungsanga S, Lumlertgul N, Komaenthammasophon C, Peerapornratana S, Thamrongsat N, Tiranathanagul K, Praditpornsilpa K, Eiam-Ong S, Tungsanga K, **Kellum JA**. The effect of polymyxin B hemoperfusion on modulation of human leukocyte antigen DR in severe sepsis patients. *Crit Care*. 2018; 22(1):279. PMC6204024
 23. Massey MJ, Hou PC, Filbin M, Wang H, Ngo L, Huang DT, Aird WC, Novack V, Trzeciak S, Yealy DM, **Kellum JA**, Angus DC, Shapiro NI; ProCESS investigators. Microcirculatory perfusion disturbances in septic shock: results from the ProCESS trial. *Crit Care*. 2018; 22(1):308. PMC6245723
 24. Wu L, Hu Y, Liu X, Zhang X, Chen W, Yu ASL, **Kellum JA**, Waitman LR, Liu M. Feature Ranking in Predictive Models for Hospital-Acquired Acute Kidney Injury. *Sci Rep*. 2018; 8(1):17298. PMC6251919

25. Anthonymuthu TS, Kenny EM, Shrivastava IH, Tyurina YY, Hier ZE, Ting HC, Dar H, Tyurin VA, Nesterova A, Amoscato AA, Mikulska-Ruminska K, Rosenbaum JC, Mao G, Jinming Z, Conrad M, **Kellum JA**, Wenzel SE, VanDemark AP, Bahar I, Kagan VE, Bayir H. Empowerment of 15-lipoxygenase catalytic competence in selective oxidation of membrane ETE-PE to ferroptotic death signals, HpETE-PE. *J Am Chem Soc.* 2018; 140(51):17835-17839. PMC6622169
26. Leaf DE, Rajapurkar M, Lele SS, Mukhopadhyay B, Boerger EAS, Mc Causland FR, Eisenga MF, Singh K, Babitt JL, **Kellum JA**, Palevsky PM, Christov M, Waikar SS. Iron, Heparin, and Death in Human Acute Kidney Injury. *J Am Soc Nephrol.* 2019; 30(3):493-504. PMC6405140
27. Singbartl K, Formeck CL, **Kellum JA**. Kidney-Immune System Crosstalk in AKI. *Semin Nephrol.* 2019; 39(1):96-106. PMID: 30606411
28. Li YM, Zhang J, Su LJ, **Kellum JA**, Peng ZY. Downregulation of TIMP2 attenuates sepsis-induced AKI through the NF- κ B pathway. *Biochim Biophys Acta Mol Basis Dis.* 2019; 1865(3):558-569. PMID: 30562560
29. Joyce EL, DeAlmeida DR, Fuhrman DY, Priyanka P, **Kellum JA**. eResearch in acute kidney injury: a primer for electronic health record research. *Nephrol Dial Transplant.* 2019; 34(3):401-407. PMC6399481
30. Kernan KF, Ghaloul-Gonzalez L, Shakoory B, **Kellum JA**, Angus DC, Carcillo JA. Adults with septic shock and extreme hyperferritinemia exhibit pathogenic immune variation. *Genes Immun.* 2019; 20(6):520-526. PMC6320733
31. Husain-Syed F, Ferrari F, Sharma A, Hinna Danesi T, Bezerra P, Lopez-Giacoman S, Samoni S, de Cal M, Corradi V, Virzi GM, De Rosa S, Muciño Bermejo MJ, Estremadoyro C, Villa G, Zaragoza JJ, Caprara C, Brocca A, Birk HW, Walmrath HD, Seeger W, Nalesso F, Zanella M, Brendolan A, Giavarina D, Salvador L, Bellomo R, Rosner MH, **Kellum JA**, Ronco C. Persistent decrease of renal functional reserve in patients after cardiac surgery-associated acute kidney injury despite clinical recovery. *Nephrol Dial Transplant.* 2019; 34(2):308-317. PMID: 30053231
32. Adams PS, Vargas D, Baust T, Saenz L, Koh W, Blasiolo B, Callahan PM, Phadke AS, Nguyen KN, Domnina Y, Sharma M, **Kellum JA**, Sanchez-de-Toledo J. Associations of Perioperative Renal Oximetry Via Near-Infrared Spectroscopy, Urinary Biomarkers, and Postoperative Acute Kidney Injury in Infants After Congenital Heart Surgery: Should Creatinine Continue to Be the Gold Standard? *Pediatr Crit Care Med.* 2019; 20(1):27-37. PMC6322941
33. Puttarajappa CM, Bernardo JF, **Kellum JA**. Renal Complications Following Lung Transplantation and Heart Transplantation. *Crit Care Clin.* 2019; 35(1):61-73. PMID: 30447781
34. Ackland GL, Brudney CS, Cecconi M, Ince C, Irwin MG, Lacey JRN, Pinsky MR, Grocott MPW, Mythen MG, Edwards MR, Miller TE, Perioperative Quality Initiative (POQI) 3 workgroup. Perioperative Quality Initiative (POQI) consensus statement on the physiology of blood pressure control as applied to perioperative medicine. *Br J Anaesth.* 2019; 122(5): 542-551. PMID: 30916002
35. Sanders RD, Hughes F, Shaw AD, Thompson A, Bader AM, Hoeft A, Williams DA, Grocott MPW, Mythen MG, Miller TE, Edwards MR, Perioperative Quality Initiative (POQI) 3 workgroup. Perioperative Quality Initiative (POQI) consensus statement on preoperative blood pressure, risk and outcomes for elective surgery. *Br J Anaesth.* 2019; 122(5):552-562. PMID: 30916006
36. Sessler DI, Bloomstone JA, Aronson S, Berry CB, Gan TJ, **Kellum JA**, Plumb JOM, Mythen MG, Grocott MPW, Edwards MR, Miller TE, Perioperative Quality Initiative (POQI) 3 workgroup. Perioperative Quality Initiative (POQI) consensus statement on intraoperative blood pressure, risk and outcomes for elective surgery. *Br J Anaesth.* 2019; 122(5):563-574. PMID: 30916004
37. McEvoy MD, Gupta R, Koepke EJ, Feldheiser A, Michard F, Levett DZH, Thacker JKM, Hamilton MA, Grocott MPW, Mythen MG, Miller TE, Edwards MR, Perioperative Quality Initiative (POQI) 3

workgroup. Perioperative Quality Initiative (POQI)-3 consensus statement on postoperative blood pressure: risk and outcomes for elective surgery. *Br J Anaesth*. 2019; 122(5):575-586. PMID: 30916008

38. Cove ME, Vu LH, Ring T, May AG, Federspiel WJ, **Kellum JA**. A Proof of Concept Study, Demonstrating Extracorporeal Carbon Dioxide Removal Using Hemodialysis with a Low Bicarbonate Dialysate. *ASAIO J*. 2019; 65(6):605-613. PMID: 30281542
39. Fuhrman DY, Nguyen LG, Sanchez-de-Toledo J, Priyanka P, **Kellum JA**. Postoperative Acute Kidney Injury in Young Adults with Congenital Heart Disease. *Ann Thorac Surg*. 2019; 107(5):1416-1420. PMID: 30763561
40. Martin-Loeches I, Sandiumenge A, Charpentier J, **Kellum JA**, Gaffney AM, Procaccio F, Westphal GA. Management of donation after brain death (DBD) in the ICU: the potential donor is identified, what's next? *Intensive Care Med*. 2019; 45(3):322-330. PMID: 30820584
41. Vu LH, **Kellum JA**, Federspiel WJ, Cove ME. Carbon dioxide removal using low bicarbonate dialysis in rodents. *Perfusion*. 2019; 34(7):578-583. PMID: 30938270
42. Tyurina YY, Croix CSM, Watkins SC, Watson AM, Epperly MW, Anthony-muthu TS, Kisin ER, Vlasova II, Krysko O, Krysko DV, Kapralov AA, Dar HH, Tyurin VA, Amoscato AA, Popova EN, Bolevich SB, Timashev PS, **Kellum JA**, Wenzel SE, Mallampalli RK, Greenberger JS, Bayir H, Shvedova AA, Kagan VE. Redox (phospho)lipidomics of signaling in inflammation and programmed cell death. *J Leukoc Biol*. 2019; 106(1):57-81. PMC6626990
43. Srisawat N, Kulvichit W, Mahamitra N, Hurst C, Praditpornsilpa K, Lumlertgul N, Chuasuwan A, Trongtrakul K, Tasnarong A, Champunot R, Bhurayanontachai R, Kongwibulwut M, Chatkaew P, Oranrigsupak P, Sukmark T, Panaput T, Laohacharoenyot N, Surasit K, Keobounma T, Khositrangsikun K, Suwattanasilpa U, Pattharanitima P, Santithisadeekorn P, Wanitchanont A, Peerapornrattana S, Loaveeravat P, Leelahavanichkul A, Tiranathanagul K, Kerr SJ, Tungsanga K, Eiam-Ong S, Sitprija V, **Kellum JA**. The epidemiology and characteristics of acute kidney injury in the Southeast Asia intensive care unit: a prospective multicentre study. *Nephrol Dial Transplant*. 2019; [Epub ahead of print] pii: gfg087. PMID: 31075172
44. Fiorentino M, Tohme FA, Murugan R, **Kellum JA**. Plasma Biomarkers in Predicting Renal Recovery from Acute Kidney Injury in Critically Ill Patients. *Blood Purif*. 2019; 48(3):253-261. PMC6773527
45. Kashani K, Rosner MH, Haase M, Lewington AJP, O'Donoghue DJ, Wilson FP, Nadim MK, Silver SA, Zarbock A, Ostermann M, Mehta RL, Kane-Gill SL, Ding X, Pickkers P, Bihorac A, Siew ED, Barreto EF, Macedo E, **Kellum JA**, Palevsky PM, Tolwani AJ, Ronco C, Juncos LA, Rewa OG, Bagshaw SM, Mottes TA, Koyner JL, Liu KD, Forni LG, Heung M, Wu VC. Quality Improvement Goals for Acute Kidney Injury. *Clin J Am Soc Nephrol*. 2019; 14(6):941-953. PMC6556737
46. Seymour CW, Kennedy JN, Wang S, Chang CH, Elliott CF, Xu Z, Berry S, Clermont G, Cooper G, Gomez H, Huang DT, **Kellum JA**, Mi Q, Opal SM, Talisa V, van der Poll T, Visweswaran S, Vodovotz Y, Weiss JC, Yealy DM, Yende S, Angus DC. Derivation, Validation, and Potential Treatment Implications of Novel Clinical Phenotypes for Sepsis. *JAMA*. 2019; 321(20):2003-2017. PMC6537818
47. Murugan R, Kerti SJ, Chang CH, Gallagher M, Clermont G, Palevsky PM, **Kellum JA**, Bellomo R. Association of Net Ultrafiltration Rate With Mortality Among Critically Ill Adults With Acute Kidney Injury Receiving Continuous Venovenous Hemodiafiltration: A Secondary Analysis of the Randomized Evaluation of Normal vs Augmented Level (RENAL) of Renal Replacement Therapy Trial. *JAMA Netw Open*. 2019 Jun; 2(6):e195418. PMC6563576
48. Guzzi LM, Bergler T, Binnall B, Engelman DT, Forni L, Germain MJ, Gluck E, Göcze I, Joannidis M, Koyner JL, Reddy VS, Rimmelé T, Ronco C, Textoris J, Zarbock A, **Kellum JA**. Clinical use of

[TIMP-2]•[IGFBP7] biomarker testing to assess risk of acute kidney injury in critical care: guidance from an expert panel. *Crit Care*. 2019; 23(1):225. PMC6585126

49. Schunk SJ, Zarbock A, Meersch M, Küllmar M, **Kellum JA**, Schmit D, Wagner M, Triem S, Wagenpfeil S, Gröne HJ, Schäfers HJ, Fliser D, Speer T, Zewinger S. Association between urinary dickkopf-3, acute kidney injury, and subsequent loss of kidney function in patients undergoing cardiac surgery: an observational cohort study. *Lancet*. 2019; 394(10197):488-496. PMID: 31202596
50. Kane-Gill SL, Ostermann M, Shi J, Joyce EL, **Kellum JA**. Evaluating Renal Stress Using Pharmacokinetic Urinary Biomarker Data in Critically Ill Patients Receiving Vancomycin and/ or Piperacillin-Tazobactam: A Secondary Analysis of the Multicenter Sapphire Study. *Drug Safety*. 2019; 42(10):1149-1155. PMID: 31240688
51. Hippensteel JA, Uchimido R, Tyler PD, Burke RC, Han X, Zhang F, McMurtry SA, Colbert JF, Lindsell CJ, Angus DC, **Kellum JA**, Yealy DM, Linhardt RJ, Shapiro NI, Schmidt EP. Intravenous fluid resuscitation is associated with septic endothelial glycocalyx degradation. *Crit Care*. 2019; 23(1):259. PMC6652002
52. Joannidis M, Forni LG, Haase M, Koyner J, Shi J, Kashani K, Chawla LS, **Kellum JA**; Sapphire Investigators. Use of Cell Cycle Arrest Biomarkers in Conjunction With Classical Markers of Acute Kidney Injury. *Crit Care Med*. 2019; 47(10):e820-e826. PMC6750148
53. Rewa OG, Tolwani A, Mottes T, Juncos LA, Ronco C, Kashani K, Rosner M, Haase M, **Kellum JA**, Bagshaw SM, ADQI Consensus Meeting Members on behalf of ADQI XXII. Quality of care and safety measures of acute renal replacement therapy: Workgroup statements from the 22nd acute disease quality initiative (ADQI) consensus conference. *J Crit Care*. 2019; 54:52-57. PMID: 31349160
54. Yende S, **Kellum JA**, Talisa VB, Peck Palmer OM, Chang CH, Filbin MR, Shapiro NI, Hou PC, Venkat A, LoVecchio F, Hawkins K, Crouser ED, Newman AB, Angus DC. Long-term Host Immune Response Trajectories Among Hospitalized Patients With Sepsis. *JAMA Netw Open*. 2019; 2(8):e198686. PMC6686981
55. Zwagg J, Beunder R, Warle MC, **Kellum JA**, Riksen NP, Pickkers P, Kox M. Remote ischaemic preconditioning does not modulate the systemic inflammatory response or renal tubular stress biomarkers after endotoxaemia in healthy human volunteers: a single-centre, mechanistic, randomised controlled trial. *BR J Anaesth*. 2019; 123(2): 177-185. PMC6676055
56. Peerapornratana S, Manrique-Caballero CL, Gómez H, **Kellum JA**. Acute kidney injury from sepsis: current concepts, epidemiology, pathophysiology, prevention and treatment. *Kidney Int*. 2019; 96(5):1083-1099. PMC6920048
57. Ring T, **Kellum JA**. Modeling Acid-Base by Minimizing Charge-Balance. *ACS Omega*. 2019; 4(4):6521-6529. PMC6648237
58. Joyce EL, Kane-Gill SL, Priyanka P, Fuhrman DY and **Kellum JA**. Piperacillin/Tazobactam and Antibiotic-Associated Acute Kidney Injury in Critically Ill Children. *JASN*. 2019; 30(11): 2243-2251. PMC6830781
59. Perez Ruiz de Garibay A, **Kellum JA**, Honigschnabel J, Kreymann B. Respiratory and metabolic acidosis correction with the ADVanced Organ Support system. *Intensive Care Med Exp*. 2019; 7(1):56. PMC6751235
60. Carcillo JA, Berg RA, Wessel D, Pollack M, Meert K, Hall M, Newth C, Lin JC, Doctor A, Shanley T, Cornell T, Harrison RE, Zuppa AF, Reeder RW, Banks R, **Kellum JA**, Holubkov R, Notterman DA, Dean JM, MD; on behalf of the Eunice Kennedy Shriver National Institute of Child Health and Human Development Collaborative Pediatric Critical Care Research Network. A Multicenter

Network Assessment of Three Inflammation Phenotypes in Pediatric Sepsis-Induced Multiple Organ Failure. 2019; 20(12): 1137-1146. PMID: 31568246

61. McCullough PA, Ostermann M, Forni LG, Bihorac A, Koyner JL, Chawla LS, Shi J, Kampf JP, McPherson P, **Kellum JA**; the Sapphire Investigators. Serial Urinary Tissue Inhibitor of Metalloproteinase-2 and Insulin-Like Growth Factor-Binding Protein 7 and the Prognosis for Acute Kidney Injury over the Course of Critical Illness. *Cardiorenal Med.* 2019; 9(6): 358-369. PMID: 31618746
62. Fuhrman DY, Nguyen L, Hindes M, **Kellum JA**. Baseline tubular biomarkers in young adults with congenital heart disease as compared to healthy young adults: Detecting subclinical kidney injury. *Congenit Heart Dis.* 2019; 14(6): 963-967. PMC6952564
63. Edgar RH, Cook J, Noel C, Minard A, Sajewski A, Fitzpatrick M, Fernandez R, Hempel JD, **Kellum JA**, Viator JA. Bacteriophage-mediated identification of bacteria using photoacoustic flow cytometry. *J Biomed Opt.* 2019; 24(11):1–7. PMC6874036
64. Fuhrman DY, **Kellum JA**, Joyce EL, Miyashita Y, Mazariegos GV, Ganoza A, Squires JE. The use of urinary biomarkers to predict acute kidney injury in children after liver transplant. *Pediatr Transplant.* 2020; 24(1):e13608. PMC7216780
65. Joannidis M, Forni LG, Klein SJ, Honore PM, Kashani K, Ostermann M, Prowle J, Bagshaw SM, Cantaluppi V, Darmon M, Ding X, Fuhrmann V, Hoste E, Husain-Syed F, Lubnow M, Maggiorini M, Meersch M, Murray PT, Ricci Z, Singbartl K, Staudinger T, Welte T, Ronco C, **Kellum JA**. Lung-kidney interactions in critically ill patients: consensus report of the Acute Disease Quality Initiative (ADQI) 21 Workgroup. *Intensive Care Med.* 2020; 46(4):654-672. PMC7103017
66. Küllmar M, Weiß R, Ostermann M, Campos S, Novellas NG, Thomson G, Haffner M, Arndt C, Wulf H, Iqrsusi M, Monaco F, Di Prima AL, Garcia-Alvarez M, Italiano S, Correoso MF, Kunst G, Nair S, L'Acqua C, Hoste E, Vandenberghe W, Honore PM, **Kellum JA**, Forni L, Grieshaber P, Wempe C, Meersch M, Zarbock A. A Multinational Observational Study Exploring Adherence With the Kidney Disease: Improving Global Outcomes Recommendations for Prevention of Acute Kidney Injury After Cardiac Surgery. *Anesth Analg.* 2020; 130(4):910-916. PMID: 31922998
67. Murugan R, Ostermann M, Peng Z, Kitamura K, Fujitani S, Romagnoli S, Di Lullo L, Srisawat N, Todi S, Ramakrishnan N, Hoste E, Puttarajappa CM, Bagshaw SM, Weisbord S, Palevsky PM, **Kellum JA**, Bellomo R, Ronco C. Net Ultrafiltration Prescription and Practice Among Critically Ill Patients Receiving Renal Replacement Therapy: A Multinational Survey of Critical Care Practitioners. *Crit Care Med.* 2020; 48(2): e87-e97. PMID: 31939807
68. Hoste E, Bihorac A, Al-Khafaji A, Ortega LM, Ostermann M, Haase M, Zacharowski K, Wunderink R, Heung M, Lissauer M, Self WH, Koyner JL, Honore PM, Prowle JR, Joannidis M, Forni LG, Kampf JP, McPherson P, **Kellum JA**, Chawla LS, RUBY Investigators. Identification and Validation of Biomarkers of Persistent Acute Kidney Injury: The RUBY Study. *Intensive Care Med.* 2020; 46(5):943-953. PMC7210248
69. Priyanka P, Zarbock A, Izawa J, Gleason TG, Renfurm RW, **Kellum JA**. The Impact of Acute Kidney Injury by Serum Creatinine or Urine Output Criteria on Major Adverse Kidney Events in Cardiac Surgery Patients. *J Thorac Cardiovasc Surg.* 2020; S0022-5223(20)30029-5. PMID: 32033818
70. Wen X, Li S, Frank A, Chen X, Emler D, Hukriede NA, **Kellum JA**. Time-dependent Effects of Histone Deacetylase Inhibition in Sepsis-Associated Acute Kidney Injury. *Intensive Care Med Exp.* 2020; 8(1):9. PMC7007462
71. Kane-Gill SL, Peerapornratana S, Wong A, Murugan R, Groetzinger LM, Kim C, Smithburger PL, Then J, **Kellum JA**. Use of tissue inhibitor of metalloproteinase 2 and insulin-like growth factor binding protein 7 [TIMP2]•[IGFBP7] as an AKI risk screening tool to manage patients in the real-world setting. *J Crit Care.* 2020; 57:97-101. PMID: 32086072

72. Joyce EL, Crana CM, Yabes J, **Kellum JA**. Validation of an Electronic Pediatric Index of Mortality 2 Score in a Mixed Quaternary PICU. *Pediatr Crit Care Med*. 2020; 21(8):e572-e575. PMC7417868
73. **Kellum JA**. Impact of Consensus Papers Versus Randomized Trials in Critical Care Nephrology. *Blood Purif*. 2020; [Epub ahead of print]. DOI: 10.1159/000507422. PMID: 32268336
74. Naorungroj T, Neto AS, Zwakman-Hessels L, Yanase F, Eastwood G, Murugan R, **Kellum JA** and Bellomo R. Early net ultrafiltration rate and mortality in critically ill patients receiving continuous renal replacement therapy. *Nephrol Dial Transplant*. 2020; gfaa032. [Epub ahead of print]. doi:10.1093/ndt/gfaa032. PMID: 32259841
75. Jin K, Ma Y, Manrique-Caballero CL, Li H, Emler DR, Li S, Baty CJ, Wen X, Kim-Campbell N, Frank A, Menchikova EV, Pastor-Soler NM, Hallows KR, Jackson EK, Shiva S, Pinsky MR, Zuckerbraun BS, **Kellum JA**, Gómez H. Activation of AMP-activated protein kinase during sepsis/inflammation improves survival by preserving cellular metabolic fitness. *FASEB J*. 2020; 34(5):7036-7057. PMID: 32246808
76. Li Y, Zhai P, Zheng Y, Zhang J, **Kellum JA**, Peng Z. Csf2 Attenuated Sepsis-Induced Acute Kidney Injury by Promoting Alternative Macrophage Transition. *Front Immunol*. 2020; 11:1415. PMC7358306
77. Macedo E, Bihorac A, Siew ED, Palevsky PM, **Kellum JA**, Ronco C, Mehta RL, Rosner MH, Haase M, Kashani KB, Barreto EF. Quality of care after AKI development in the hospital: Consensus from the 22nd Acute Disease Quality Initiative (ADQI) conference. *Eur J Intern Med*. 2020; S0953-6205(20)30177-1. PMID: 32616340
78. Schaubroeck HA, Gevaert S, Bagshaw SM, **Kellum JA**, Hoste EA. Acute cardiorenal syndrome in acute heart failure: focus on renal replacement therapy. *Eur Heart J Acute Cardiovasc Care*. 2020; [Epub ahead of print]. PMID: 32597679
79. Fiorentino M, Xu Z, Smith A, Singbartl K, Palevsky PM, Chawla LS, Huang DT, Yealy DM, Angus DC, **Kellum JA**; ProCESS and ProGRess-AKI Investigators. Serial Measurement of Cell-cycle Arrest Biomarkers [TIMP-2]•[IGFBP7] and Risk for Progression to Death, Dialysis or Severe Acute Kidney Injury in Patients with Septic Shock. *Am J Respir Crit Care Med*. 2020; [Epub ahead of print]. doi: 10.1164/rccm.201906-1197OC. PMID: 32584598
80. Bataineh A, Dealmeida D, Bilderback A, Ambrosino R, Al-Jaghbeer MJ, Fuhrman DY, **Kellum JA**. Sustained effects of a clinical decision support system for acute kidney injury. *Nephrol Dial Transplant*. 2020; 35(10): 1819-1821. PMID: 32572486
81. Meersch M, Küllmar M, Pavenstädt H, Rossaint J, **Kellum JA**, Martens S, Klausmeyer P, Schmidt EA, Kerschke L, Zarbock A. Effects of Different Doses of Remote Ischemic Preconditioning on Kidney Damage Among Patients Undergoing Cardiac Surgery: A Single-Center Mechanistic Randomized Controlled Trial. *Crit Care Med*. 2020; 48(8):e690-e697. PMID: 32520891
82. Peerapornratana S, Priyanka P, Wang S, Smith A, Singbartl K, Palevsky PM, Chawla LS, Yealy DM, Angus DC, **Kellum JA**; ProCESS and ProGRess-AKI Investigators. Sepsis-Associated Acute Kidney Disease. *Kidney Int Rep*. 2020; 5(6):839-850. PMC7270721
83. Hall A, Crichton S, Dixon A, Skorniakov I, **Kellum JA**, Ostermann M. Fluid removal associates with better outcomes in critically ill patients receiving continuous renal replacement therapy: a cohort study. *Crit Care*. 2020; 24(1):279. PMC7268712
84. Cove ME, Vu LH, Ring T, Federspiel WJ, **Kellum JA**. Respiratory Dialysis-A Novel Low Bicarbonate Dialysate to Provide Extracorporeal CO2 Removal. *Crit Care Med*. 2020; 48(7):e592-e598. PMID: 32304418
85. Fuhrmann V, Weber T, Roedel K, Motaabbed J, Tariparast A, Jarczak D, Ruiz de Garibay AP, Kluwe J, Boenisch O, Herkner H, **Kellum JA**, Kluge S. Advanced organ support (ADVOS) in the

critical ill: first clinical experience in patients with multiple organ failure. *Ann Intensive Care*. 2020; 10(1):96. PMID: 32676849

86. Husain-Syed F, Wilhelm J, Kassoumeh S, Birk HW, Herold S, Vadász I, Walmrath HD, **Kellum JA**, Ronco C, Seeger W. Acute kidney injury and urinary biomarkers in hospitalized patients with coronavirus disease 2019. *Nephrol Dial Transplant*. 2020; gfaa162. [Epub ahead of print]. doi: 10.1093/ndt/gfaa162. PMID: 32691068
87. Ostermann M, Bellomo R, Burdman EA, Doi K, Endre ZH, Goldstein SL, Kane-Gill SL, Liu KD, Prowle JR, Shaw AD, Srisawat N, Cheung M, Jadoul M, Winkelmayr WC, **Kellum JA**; Conference Participants. Controversies in acute kidney injury: conclusions from a Kidney Disease: Improving Global Outcomes (KDIGO) Conference. *Kidney Int*. 2020; 98(2):294-309. PMID: 32709292
88. Wu L, Hu Y, Zhang X, Chen W, Yu ASL, **Kellum JA**, Waitman LR, Liu M. Changing relative risk of clinical factors for hospital-acquired acute kidney injury across age groups: a retrospective cohort study. *BMC Nephrol*. 2020; 21(1):321. PMID: 32741377
89. Formeck CL, Joyce EL, Fuhrman DY, **Kellum JA**. Association of Acute Kidney Injury With Subsequent Sepsis in Critically Ill Children. *Pediatr Crit Care Med*. 2020; doi: 10.1097/PCC.0000000000002541. [Epub ahead of print]. PMID: 32858738
90. Naorungroj T, Neto AS, Zwakman-Hessels L, Fumitaka Y, Eastwood G, Murugan M, **Kellum JA**, Bellomo R. Mediators of the Impact of Hourly Net Ultrafiltration Rate on Mortality in Critically Ill Patients Receiving Continuous Renal Replacement Therapy. *Crit Care Med*. 2020; 48(10):e934-e942. PMID: 32885938
91. de Boer I, Alpers C, El-Achkar T, Barasch J, Azeloglu E, Barisoni L, Balis U, Blank K, Bomback A, Brown K, Dagher P, Dighe A, Eadon M, Gaut J, Hachohen N, He Y, Hodgins J, Jain S, **Kellum J**, Kiryluk K, Knight R, Laszik Z, Lienczewski C, Mariani L, McClelland R, Menez S, Moledina D, Mooney S, O'Toole J, Palevsky P, Parikh C, Poggio E, Rosas S, Rosengart M, Sarwal M, Schaub J, Sedor J, Sharma K, Steck R, Toto R, Troyanskaya O, Tuttle K, Vazquez M, Waikar S, Williams K, Wilson F, Zhang K, Iyengar R, Kretzler M, Himmelfarb J. The Kidney Precision Medicine Project: rationale and design. *Kidney Int*. 2020; in press.
92. Hundemer GL, Srivastava A, Jacob KA, Krishnasamudram N, Ahmed S, Boerger E, Sharma S, Pokharel KK, Hirji SA, Pelletier M, Safa K, Kulvichit W, **Kellum JA**, Riella LV, Leaf DE. Acute kidney injury in renal transplant recipients undergoing cardiac surgery. *Nephrol Dial Transplant*. 2020; gfaa063. doi: 10.1093/ndt/gfaa063. [Epub ahead of print]. PMID: 32892219
93. Ostermann M, Zarbock A, Goldstein S, Kashani K, Macedo E, Murugan R, Bell M, Forni L, Guzzi L, Joannidis M, Kane-Gill SL, Legrand M, Mehta R, Murray PT, Pickkers P, Plebani M, Prowle J, Ricci Z, Rimmelé T, Rosner M, Shaw AD, **Kellum JA**, Ronco C. Recommendations on Acute Kidney Injury Biomarkers From the Acute Disease Quality Initiative Consensus Conference: A Consensus Statement. *JAMA Netw Open*. 2020; 3(10):e2019209. PMID: 33021646
94. Serpa Neto A, Naorungroj T, Murugan R, **Kellum JA**, Gallagher M, Bellomo R. Heterogeneity of Effect of Net Ultrafiltration Rate among Critically Ill Adults Receiving Continuous Renal Replacement Therapy. *Blood Purif*. 2020; 1-11. doi: 10.1159/000510556. [Epub ahead of print] PMID: 33027799
95. Song X, Yu A, **Kellum JA**, Waitman L, Matheny M, Simpson S, Hu Y, and Liu M. Cross-Site Transportability of an Explainable Artificial Intelligence Model for Acute Kidney Injury Prediction. *Nat Commun*. 2020; 11(1):5668. PMC7653032
96. Zarbock A, Küllmar M, Kindgen-Milles D, Wempe C, Gerss J, Brandenburger T, Dimski T, Tyczynski B, Jahn M, Mülling N, Mehrländer M, Rosenberger P, Marx G, Simon TP, Jaschinski U, Deetjen P, Putensen C, Schewe JC, Kluge S, Jarczak D, Slowinski T, Bodenstein M, Meybohm P, Wirtz S, Moerer O, Kortgen A, Simon P, Bagshaw SM, **Kellum JA**, Meersch M; RICH

Investigators and the Sepnet Trial Group. Effect of Regional Citrate Anticoagulation vs Systemic Heparin Anticoagulation During Continuous Kidney Replacement Therapy on Dialysis Filter Life Span and Mortality Among Critically Ill Patients With Acute Kidney Injury: A Randomized Clinical Trial. *JAMA*. 2020; 324(16):1629-1639. PMID: 33095849

97. Wen X, Zhang J, Wan X, Frank AA, Qu X, **Kellum JA**. Tissue Inhibitor of Metalloproteinases-2 Mediates Kidney Injury during Sepsis. *Nephron*. 2020; 144(12):644-649. PMID: 33091916
98. Gomez H, Priyanka P, Bataineh A, Keener CM, Clermont G, **Kellum JA**. Effects of 5% Albumin Plus Saline Versus Saline Alone on Outcomes From Large-Volume Resuscitation in Critically Ill Patients. *Crit Care Med*. 2020 Nov 9. doi: 10.1097/CCM.0000000000004706. [Epub ahead of print]. PMID: 33165027
99. Sirivongrangson P, Kulvichit W, Payungporn S, Pisitkun T, Chindamporn A, Peerapornratana S, Pisitkun P, Chitcharoen S, Sawaswong V, Worasilchai N, Kampunya S, Puchcharoen O, Thawitsri T, Leelayuwatanakul N, Kongpolprom N, Phoophiboon V, Sriprasart T, Samransamruajkit R, Tungsanga S, Tiankanon K, Lumlertgul N, Leelahavanichkul A, Sriphojanart T, Tantawichien T, Thisyakorn U, Chirathaworn C, Praditpornsilpa K, Tungsanga K, Eiam-Ong S, Sitprijia V, **Kellum JA**, Srisawat N. Endotoxemia and circulating bacteriome in severe COVID-19 patients. *Intensive Care Med Exp*. 2020; 8(1):72. PMID: 33284413
100. Kane-Gill SL, Wong A, Culley CM, Perera S, Reynolds MD, Handler SM, **Kellum JA**, Aspinall MB, Pellett ME, Long KE, Nace DA, Boyce RD. Transforming the Medication Regimen Review Process Using Telemedicine to Prevent Adverse Events. *J Am Geriatr Soc*. 2020; doi: 10.1111/jgs.16946. [Epub ahead of print] PMID: 33233016
101. Fuhrman DY, Nguyen L, Joyce EL, Priyanka P, **Kellum JA**. Outcomes of adults with congenital heart disease that experience acute kidney injury in the intensive care unit. *Cardiol Young*. 2020; 1-5. doi: 10.1017/S1047951120003923. [Epub ahead of print] PMID: 33191892

Reviews, Invited Papers, Conference Proceedings and Symposia, Books and Book Chapters

Invited Reviews (past 2 years, selected from more than 200 reviews)

1. Kawano-Dourado L, Zampieri FG, Azevedo LCP, Corrêa TD, Figueiró M, Semler MW, **Kellum JA**, and Cavalcanti AB. Low- Versus High-Chloride Content Intravenous Solutions for Critically Ill and Perioperative Adult Patients: A Systematic Review and Meta-analysis. *Anesthesia-Analgesia*. 2018; 126(2):513-521. PMID: 29189271
2. Pool R, Gomez H, **Kellum JA**. Mechanisms of Organ Dysfunction in Sepsis. *Crit Care Clin*. 2018; 34(1):63-80. PMC6922007
3. **Kellum JA** and Prowle JR. Paradigms of acute kidney injury in the intensive care setting. *Nat Rev Nephrol*. 2018; 14(4):217-230. PMID: 29355173
4. Fuhrman DY, **Kellum JA**. Hyperchloremic IV Solutions: Have We Seen Enough?...or "Still Good Medicine?" *Pediatr Crit Care Med*. 2018; 19(2):171-172. PMID: 29394229
5. **Kellum JA**. Abnormal saline and the history of intravenous fluids. *Nat Rev Nephrol*. 2018; 14(6):358-360. PMID: 29654298
6. Fiorentino M, **Kellum JA**. Improving Translation from Preclinical Studies to Clinical Trials in Acute Kidney Injury. *Nephron*. 2018; 140(2):81-85. PMID: 29791911
7. Su LJ, Li YM, **Kellum JA**, Peng ZY. Predictive value of cell cycle arrest biomarkers for cardiac surgery-associated acute kidney injury: a meta-analysis. *Br J Anaesth*. 2018; 121(2):350-357. PMID: 30032873

8. Hoste EAJ, **Kellum JA**, Selby NM, Zarbock A, Palevsky PM, Bagshaw SM, Goldstein SL, Cerdá J, Chawla LS. Global epidemiology and outcomes of acute kidney injury. *Nat Rev Nephrol.* 2018; 14(10):607-625. PMID: 30135570
9. Zarbock A, Koyner JL, Hoste EAJ, **Kellum JA**. Update on Perioperative Acute Kidney Injury. *Anesth Analg.* 2018; 127(5):1236-1245. PMID: 30138176
10. Kashani K, Dalili N, Carter RE, **Kellum JA**, Mehta RL. Using Clinical Decision Support Systems for Acute Kidney Injury Pragmatic Trials. *J Transl Crit Care Med.* 2019; 1:28-34.
11. Joannes-Boyau O, **Kellum JA**. Renal replacement therapy: Time to give up on early initiation? *No. Anaesth Crit Care Pain Med.* 2018; 37(6):505-506. PMID: 30573206
12. Semler MW, **Kellum JA**. Balanced Crystalloid Solutions. *Am J Respir Crit Care Med.* 2019; 199(8):952-960. PMC6467313
13. **Kellum JA** and Fuhrman DY. The handwriting is on the wall: there will soon be a drug for AKI. *Nat Rev Nephrol.* 2019; 15(2):65-66. PMID: 30546091
14. **Kellum JA**, Wen X, de Caestecker MP, Hukriede NA. Sepsis-Associated Acute Kidney Injury: A Problem Deserving of New Solutions. *Nephron.* 2019; 143(3):174-178. PMC6813847
15. Cove M, **Kellum JA**. The End of the Bicarbonate Era? A Therapeutic Application of the Stewart Approach. *Am J Respir Crit Care Med.* 2020; 201(7):757-758. PMC7124708
16. Sakhuja A, Gomez H, **Kellum JA**. The Janus faces of bicarbonate therapy in the ICU: con *Intensive Care Med.* 2020; 46(3):519-521. PMC7071988
17. Ronco, C, Bellomo R, **Kellum JA**. Acute kidney injury. *The Lancet.* 2019; 394(10212):23-29. PMID: 31777389
18. Silver SA, Nadim MK, O'Donoghue DJ, Wilson FP, **Kellum JA**, Mehta RL, Ronco C, Kashani K, Rosner MH, Haase M, Lewington AJP. Community Healthcare Quality Standards to Prevent Acute Kidney Injury and its Consequences. *Am J Med.* 2020; 133(5):552-560.e3. PMID: 31830434
19. Manrique-Caballero CL, Peerapornratana S, Formeck C, Del Rio-Pertuz G, Gomez Danies H, **Kellum JA**. Typical and Atypical Hemolytic Uremic Syndrome in the Critically Ill. *Crit Care Clin.* 2020; 36(2):333-356. PMID: 32172817
20. Sack KD, **Kellum JA**, Parikh SM. The Angiopoietin-Tie2 Pathway in Critical Illness. *Crit Care Clin.* 2020; 36(2):201-216. PMID: 32172809
21. Ronco C, Bagshaw SM, Bellomo R, Clark WR, Husain-Syed F, **Kellum JA**, Ricci Z, Rimmelé T, Reis T, Ostermann M. Extracorporeal Blood Purification and Organ Support in the Critically Ill Patient during COVID-19 Pandemic: Expert Review and Recommendation. *Blood Purif.* 2020; 1-11. [Epub ahead of print]. PMC7270067.
22. Srisawat N, **Kellum JA**. The Role of Biomarkers in Acute Kidney Injury. *Crit Care Clin.* 2020; 36(1):125–140. PMID: 31733675
23. Molinari L, Sakhuja A, **Kellum JA**. Perioperative renoprotection: general mechanisms and treatment approaches. *Anesth Analg.* 2020; 131(6):1679-1692. PMID: 33186157
24. **Kellum JA**, van Till O, Mulligan G. Targeting Acute Kidney Injury in COVID-19. *Nephrol Dial Transplant.* 2020; 35(10): 1652-1662. PMID: 33022712
25. Jentzer JC, Bihorac A, Brusca SB, Del Rio-Pertuz G, Kashani K, Kazory A, **Kellum JA**, Mao M, Moriyama B, Morrow DA, Patel HN, Rali AS, van Diepen S, Solomon MA; Critical Care Cardiology Working Group of the Heart Failure and Transplant Section Leadership Council. Contemporary Management of Severe Acute Kidney Injury and Refractory Cardiorenal Syndrome: JACC Council Perspectives. *J Am Coll Cardiol.* 2020; 76(9):1084-1101. PMID: 32854844

26. Liu KD, Forni LG, Heung M, Wu VC, **Kellum JA**, Mehta RL, Ronco C, Kashani K, Rosner MH, Haase M, Koyner JL; Acute Disease Quality Initiative Investigators. Quality of Care for Acute Kidney Disease: Current Knowledge Gaps and Future Directions. *Kidney Int Rep.* 2020; 5(10):1634-1642. PMC7569680
27. Murugan R, Bellomo R, Palevsky PM, **Kellum JA**. Ultrafiltration in critically ill patients treated with kidney replacement therapy. *Nat Rev Nephrol.* 2020; doi: 10.1038/s41581-020-00358-3. [Epub ahead of print] PMID: 33177700
28. Nadim MK, Forni LG, Mehta RL, Connor MJ Jr, Liu KD, Ostermann M, Rimmelé T, Zarbock A, Bell S, Bihorac A, Cantaluppi V, Hoste E, Husain-Syed F, Germain MJ, Goldstein SL, Gupta S, Joannidis M, Kashani K, Koyner JL, Legrand M, Lumlertgul N, Mohan S, Pannu N, Peng Z, Perez-Fernandez XL, Pickkers P, Prowle J, Reis T, Srisawat N, Tolwani A, Vijayan A, Villa G, Yang L, Ronco C, **Kellum JA**. COVID-19-associated acute kidney injury: consensus report of the 25th Acute Disease Quality Initiative (ADQI) Workgroup. *Nat Rev Nephrol.* 2020; 16(12):747-764. PMC7561246

Books and Book Chapters (past 2 years, selected from more than 100 books and chapters)

1. Murugan R, **Kellum JA**. Fluid Management on Continuous Renal Replacement Therapy. In: Bellomo R, **Kellum JA**, La Manna G, Ronco R Eds. 40 Years of Continuous Renal Replacement Therapy. *Contrib Nephrol.* Karger, 2018, vol 194, pp 60-69.
2. 40 Years of Continuous Renal Replacement Therapy. Karger; Bellomo R, **Kellum JA**, La Manna G, Ronco R, eds. Series Editor: Ronco C. 2018.
3. *Critical Care Clinics – Mechanical Ventilation & Ventricular Assist Devices.* Volume 34, Issue 3. Elsevier; Marini JJ, Murali S, eds. Consulting Editor: **Kellum JA**. 2018
4. **Kellum JA**, Zarbock A, Göcze. Biomarker-guided Care Bundles for Acute Kidney Injury: The Time has Come. In: Vincent J-L Eds. *Annual Update in Intensive Care and Emergency Medicine* 2018. Springer, 2018. pp 345-353.
5. *Complications During and After Critical Illness: Part I: Chronic Critical Illness Part II: Post-Intensive Care Syndrome.* Elsevier; Hodgson CL ed. Consulting Editor: **Kellum JA**. 2018.
6. *Critical Care Clinics – Critical Care of the Solid Organ Transplant Patient.* Volume 35, Issue 1. Elsevier; McCurry KR, Al-Khafaji A, eds. Consulting Editor: **Kellum JA**. 2019.
7. Puttarajappa CM, Bernardo JF, **Kellum JA**. Renal complications following lung transplantation and heart transplantation. *Critical Care Clinics – Critical Care of the Solid Organ Transplant Patient.* Volume 35, Issue 1. Elsevier; McCurry KR, Al-Khafaji A, eds. Consulting Editor: **Kellum JA**. 2019. pp 61-73
8. *Critical Care Clinics – Modern Critical Care Endocrinology.* Volume 35, Issue 2. Elsevier; Bellomo R ed. Consulting Editor: **Kellum JA**. 2019.
9. **Kellum JA**, Kernan KF, Carcillo JA. Atypical Sepsis-Associated Acute Kidney Injury. In: Vincent J-L Eds. *Annual Update in Intensive Care and Emergency Medicine* 2019. Springer, 2019. pp 347-354.
10. *Critical Care Clinics –Intensive Care Unit Telemedicine.* Volume 35, Issue 3. Elsevier; Kashani KB, ed. Consulting Editor: **Kellum JA**. 2019
11. *Critical Care Clinics – Intensive Care Unit in Disaster.* Volume 35, Issue 4. Elsevier; Baldisseri MR, Reed MJ, Wax RS, eds. Consulting Editor: **Kellum JA**. 2019

12. Izawa J, Zhou F, **Kellum JA**. Acute Kidney Injury. In: Peitzman AB, Yealy DM, Fabian TC, Schwab CW, eds; Guyette FX, Seamon MJ, Zuckerbraun BS, assoc eds. The Trauma Manual: Trauma and Acute Care Surgery, 5th Edition. Wolters Kluwer. 2019. pp 578-584.
13. Srisawat N, **Kellum JA**. The Role of Biomarkers in Acute Kidney Injury. Crit Care Clin. 2020; 36(1):125–140. doi:10.1016/j.ccc.2019.08.010

INTELLECTUAL PROPERTY

Issued Patents

1. Angheloiu GO, **Kellum JA**, Anderson WD, Toma C. Removal of contrast agents from blood. Patent #US8398576; Filed 4/2/08; Issued 3/19/13
2. **Kellum JA**, Fink MP. Administration of an adsorbent polymer for treatment of systemic inflammation. US Patent #US8647666; Filed 10/2/09; Issued 2/11/14
3. **Kellum JA**, Singbartl K, Carter MC. Urinary biomarkers to predict long-term dialysis. Patent #US8501489; Filed 9/23/09; Issued 8/16/13
4. Singbartl K, **Kellum JA**. Urinary biomarkers for predicting long-term dialysis. Patent #US8815602; Filed 7/18/13; Issued 8/26/14
5. Federspiel, WJ, **Kellum JA**, Sinbartl, K. Devices, systems and methods for cell modification. Patent #US10258734; Filed 3/8/2017; Issued 4/16/19

PROFESSIONAL ACTIVITIES

Teaching

| | |
|--------------|--|
| 1991-1992 | University of Rochester, Genesee Hospital Emergency Lecture Series, Diagnostic Teaching Series |
| 1992 | University of Rochester, Genesee Hospital Basic Skills Program - Preceptor for Medical Students |
| 1992 | University of Rochester, Genesee Hospital Teaching Attending Physician |
| 1993-2000 | Anesthesiology/CCM Didactic Lectures, University of Pittsburgh Medical Center Fourth Year Medical Students (Monthly lecture: July-May) "Hypoxemia/Hypercarbia" Anesthesiology/CCM MCCTP Educational Lectures for CCM Fellows, University of Pittsburgh Medical Center |
| 1993-present | Mini Course in Advanced Acid-Base Physiology (annually) |
| 1993-1997 | "Molecular Biology Series" |
| 1998-2005 | "Targets of Resuscitation" |
| 2000-2002 | Coordinator, Clinical Research Rotation |
| 1998-2008 | Coordinator, Renal, Electrolyte, Acid-Base Lecture Series |
| 2000-2002 | University of Pittsburgh, School of Medicine Senior Elective: Evidence Based Medicine and Clinical Decision Making "Framing the Question" |
| 1995-2005 | Editor, University of Pittsburgh, Critical Care Medicine Journal Club Evidence-Based Medicine Training Series |
| 1996-2001 | Anesthesia Residents (Monthly) |

"Sepsis and Oxygen Transport"

2001

Director, Acid-Base Course, Trieste Italy

Mentoring (last 5 years)

- Jicheng Zhang (2012-2015) "Evaluation of Adsorbents for Extracorporeal Cytokine Removal in Rat Models of Sepsis"
- Iain Keir, BVMS (2013-2015) "Veterinary-AKI and critical care veterinary work"
- Kui Jin, MD (2013-2015) "Limited monitoring worsened prognosis of patients with AKI"
- Dana Furhman, DO, MS (2014-2015) "Acute Kidney Injury Predictors in Young Adults"
- Emily Joyce, MD (2015-2019) "Determinants of Acute Kidney Injury in Critically Ill Children"
- Liyan Cui, MD (2015-2016) "Mitochondrial dysfunction in Acute Kidney Injury"
- Marco Fiorentino, MD (2016-2019) "Endophenotyping of Acute Kidney Injury"
- Shengnan Li, MD (2016-2018) "Acute Kidney Injury in surgical patients"
- Olafiranye Oladipupo, MD (2016-2018) "Remote Ischemic Preconditioning to prevent Acute Kidney Injury"
- Fadhi Tomi, MD (2016-2017) "Recovery after Acute Kidney Injury"
- Vikram Balakumar, (2016-2018) "Sub-analysis of Baxter fluid overload and renal recovery in the critically ill"
- Junichi Izawa, MD, PhD (2017-2019) "Acute Kidney Research"
- Win Kulvichit, MD (2017-2018) "Relapse AKI; exosome project"
- Carlos Manrique, MD (2017-present) "Role of glycocalyx shedding and platelet adhesion in sepsis induced microvascular dysfunction"
- Sadudee Peerapornratana, MD (2017-2019) "Existing biomarkers predicting AKD"
- Cassy Formeck, MD (2017-2020) "Risk of AKI in critically ill pediatric patients with urinary tract infections compared to patients with respiratory tract infections."
- Huiwen Chen, MD (2018-2020)
- Ayham Bataineh, MD (2018-2019)
- Alex Kobzik, MD (2018-2019)
- Lin Shi, MD (2018-2020) "Effects of TIMP2 in primary human kidney distal tubule cells *in vitro*"
- Gaspar Del Rio, MD (2019-2020)
- Luca Molinari, MD (2019-present) "AKI in septic patients; pathophysiology of sepsis"
- Matthew Gray, PharmD (2019-present)

NIH K-Grantees

| | |
|---|------------|
| Kai Singbartl, MD (K08GM081459) | 2007- 2012 |
| Raghavan Murugan, MD (K12HS019461) | 2009- 2013 |
| Kelly Liang, MD (K23DK092278) (secondary) | 2012- 2016 |
| Hernando Gomez, MD (K12 HL109068-03) | 2013- 2016 |

Dana Fuhrman, MD (K23DK116973)

2019-present

Thesis Review (last 5 years)

- 2015 Thesis Committee, Florentina Sileanu, Towards unbiased estimation of the optimal time for renal replacement therapy
- 2015 Thesis Committee, Tracy Daum, Improved Acute Kidney Injury (AKI) Screening and Communication to Prevent AKI
- 2017 Thesis Committee, Alex Malkin, Surface coatings for modifying circulating blood cell behavior

University Committees

- 2008-present Member, Clinical and Translational Science Institute Internal Advisory Committee (CTSI IAC), University of Pittsburgh
- 2014-2018 Faculty Promotions and Appointments (TFPA), Office of Faculty Affairs, School of Medicine

RESEARCH

1. Grants Received/Years Inclusive/Grant Number and Title/Source (completed more than 50 funded awards)

Current

Federal

UH3DK114861 (Kellum, Palevsky, Rosengart) 09/15/2017 – 06/30/2022 1.2CM
NIDDK \$145,581 DC

Phenotyping Renal Cases in Sepsis and Surgery for Early Acute Kidney Injury

Study whether biopsy findings predict patients at high risk for developing new or progressive CKD after an episode of AKI. Relate biopsy findings to recovery status at various time points.

R35GM119519 (Seymour) 08/02/2016 – 05/31/2021 0.3CM
NIGMS \$10,274 DC

Sepsis endotyping using clinical and biological data

The major purpose of this project is to translate findings from "big data" in the EHR and efficiently enrolled biologic specimens into generalizable bio-types for enrichment strategies in future clinical trials and EHR alerts.

UL1TR001857 (Reis) 07/12/2016 – 05/31/2021 1.8CM
NIH/CTSA \$35,796 DC

University of Pittsburgh Clinical and Translational Science Institute

The major goal of this proposal is to continue CTSI work as the academic home for clinical and translational science in western Pennsylvania. The goals of the CTSI are workforce development, collaboration and engagement, integration and methods and processes.

R21DK113486 (Oladipupo) 09/01/2017 – 08/31/2020 0.6CM
NIDDK \$11,897 DC

Biochemical and Reno-Protective Effects of Remote Ischemic Preconditioning on Contrast-Induced Acute Kidney Injury

This project will determine the effect of RIPC on CI-AKI and on vasoactive and damage associated molecules in patients with CAD. The findings from this study will inform the design of a larger (R01), efficacy trial to determine the long term effect of RIPC on kidney function, and also help develop new therapy for CI-AKI.

R01DK106256 (Murugan) 09/20/2016 – 06/30/2021 0.24CM contributed
NIH/NIDDK

Biomarkers Effectiveness Analysis in Contrast Nephrology (BEACON)

The main objective of this proposal is to advance NIDDK's mission of early detection, risk-stratification, and prognostication of CIAKI. It will provide new scientific knowledge on using biomarkers to monitor patients undergoing angiography and will have a high impact on clinical practice, physicians, and policy makers.

R01GM108618-05 (Carcillo) 09/01/2019 – 08/31/2024 0.6CM
NIH \$10,088 DC

Inflammation Phenotypes in Pediatric Sepsis Induced Multiple Organ Failure Renewal

Goals: our long term objective is to plan 'precision medicine' trials testing therapies on an individual patient basis in order to further reduce death from sepsis organ shutdown in children.

R01DK116986-01A1 (Liu) 09/01/2019 – 06/30/2022 1.2CM
NIH/NIDDK \$44,989 DC

Identifying Personalized Risk of Acute Kidney Injury with Machine Learning

The proposed project is to develop machine-learning algorithms to better understand risk factors for hospital acquired acute kidney injury (AKI). In this application, we propose to develop machine learning algorithms to (1) discover novel predictors for early in-hospital AKI prediction;(2) discover population-wide modifiable risk factors that cause in-hospital AKI; and (3) determine patient-specific risk profiles of modifiable and causal factors for in-hospital AKI.

R01DK125015-01 (Ho and Sims-Lucas) 03/02/2020 – 01/31/2024 0.5CM
NIH/NIDDK \$11,097 DC

Endothelial Tie2,miR-17~92 Protects Against Acute Kidney Injury

The goal of this project is to define the role of the miR-17~92 cluster in protection against acute kidney injury.

Industry

Corporate Research Agreement (Kellum) 07/29/2019 – 07/28/2021 0.6CM
Cytosorbents \$49,037 DC

Natural History of Cardiac Surgery-Associated Acute Kidney Injury (CSI-AKI)

The aim of this project is to describe, characterize and quantify the natural history and outcomes of CSA-AKI. Understand the temporal development of AKI after cardiovascular surgery; identify the severity of AKI manifesting at different times (early versus late).

Corporate Research Agreement (Kellum) 08/01/2019 – 07/31/2020 0.3CM
bioMérieux \$69,316 DC

Exploring EHR based big data phenotypes in sepsis associated advanced AKI

Goals: Assess proportion of patients with no AKI or stage 1 AKI at the time sepsis is identified (target population); determine availability of baseline data such as serum creatinine; determine proportion of subjects meeting various exclusions.

Corporate Research Agreement (Kellum) 11/10/2010 – 11/30/2020 0.6CM
Astute Medical Inc. \$74,575 DC

Sapphire I, Sapphire II, and Dialysis Recovery Clinical Study

Conduct a series of clinical trials (Sapphire I, Sapphire II and a Dialysis Recovery clinical study) that will be used to support development and commercialization of diagnostic assays for the early detection and risk stratification of acute kidney injury.

Corporate Research Agreement (Kellum) 04/04/2018 – 04/03/2021 0.12CM
RenalSense \$52,730 DC

Automated urine flow Detection to Reduce errors and Nursing workload (AiDe-RN)

AiDe-RN is a prospective, two-arm group trial comparing the use of the Clarity RMS® electronic urine monitoring system to manual nursing data recording of a hospitalized patient’s hourly urine output. The clinical management team and patient will be blinded to the treatment assignment. This study will focus on 3-6 ICU units at 1 institution.

Corporate Research Agreement (Kellum) 11/27/2017 – 5/31/2020 0.24CM
Baxter \$148,603 DC

Effects of Alternate Decision Making for Renal Replacement Therapy

To determine the consequences (patient outcomes, costs) associated with alternative decisions for the initiation of renal replacement therapy for AKI.

Corporate Research Agreement (Kellum) 12/18/2018 – 06/17/2020 0.36CM
AtoxBio \$87,439 DC

Relationship between short-term Recovery and long-term clinical outcomes

The primary objective is to determine accuracy and predictive ability of assessing recovery from sepsis-associated AKI using baseline covariates.

2. Seminars and invited lectures

Local/Regional/National/International (last 2 years)

- 03/18 “Sepsis Induced AKI: Does the Basic Science Match the Clinical Spectrum,” “Pathophysiology of AKI in Sepsis,” “Personalized Care for AKI: Do Biomarkers Help?” “Viewpoints: Nephrologists Should be Consulted for all Cases of AKI in the ICU - No it is not required,” and “How do I Implement a KDIGO Bundle in my ICU.” The 23rd International Conference on Advances in Critical Care Nephrology (AKI & CRRT), San Diego, CA.
- 03/18 “The first step is acute kidney stress - The first stages of renal failure,” “Fluids are drugs Ongoing fluid debates,” “I can prevent renal failure - Preventing renal failure,” “Don’t be fooled by ‘transient’ renal dysfunction - The time course of critical illness.” 38th International Symposium on Intensive Care and Emergency Medicine, Brussels, Belgium
- 03/18 “News on Biomarkers in AKI.” Advance in Renal Replacement Therapy, Bari, Italy.
- 04/18 “Multimodal Approaches to Reduce Postoperative AKI.” 2nd Annual Enhanced Recovery After Cardiac Surgery (ERAS) Cardiac Surgery International Symposium, San Diego, CA.
- 04/18 “Pathophysiology of AKI.” International Anesthesia Research Society (IARS) 2018 Annual Meeting and International Science Symposium. Chicago, IL.
- 05/18 “Early Biomarkers of AKI,” “Basic interpretation of the acid base balance,” “How to read the blood gases and the electrolytes together.” 29th Smart Meeting Anesthesia Resuscitation inTensive care (SMART) Meeting Milan. Milan, Italy.
- 05/18 “AKI Epidemiology” and “CRRT Prescription Considerations.” Continuous Renal Replacement Therapy (CRRT), University of Cincinnati Children’s Hospital, Cincinnati, OH.

- 06/18 “AKI in different settings: Clinical case presentation,” with R. Bellomo; “Major CCN papers of 2016/2017: The AM Pharma trial results,” “Prevention and Recovery (Joint ADQI/ IRRIV session): Patterns of renal recovery after AKI,” “Precision medicine in AKI and sepsis (Joint CCCN/IRRIV): Precision medicine and Critical Care Nephrology,” “Sepsis: Sepsis in 2018,” and “AKI BIOMARKERS (Mayo Clinic/IRRIV Joint Session): Biomarkers for clinical trials.” 36th Vicenza Course on AKI. Vicenza, Italy.
- 06/18 “How can we prevent AKI,” “Timing of CRRT: when to start?” “Sepsis and AKI.” XIV Central American and Caribbean Congress of Nephrology and the 11th Dominican Congress of Nephrology. Punta Cana, Dominican Republic.
- 08/18 “Acute Kidney Injury: Diagnosis and Management,” “Cases you must know how to Manage,” and “Cutting Edge: Renal Replacement Therapy: Timing, Dosing, Duration and other Controversies.” SCCM 2018 Adult Multiprofessional Critical Care Course. Chicago, IL.
- 09/18 “The Impact of Adsorption on Cytokine Removal” and “Acute Kidney Injury in Sepsis.” Sichuan University West China Hospital CRRT AKI summit. Chengdu, China.
- 09/18 “Acute Kidney Injury in Sepsis.” 4th LuoJia Critical Care Forum. Wuhan, China.
- 09/18 “Meet the Expert 1: How Do I Implement A KDIGO Bundle in My ICU?” “AKI in Sepsis,” “Nephrologists Should Be Consulted for All Cases of AKI in the ICU - No, It Is Not Required,” “Fluids and Solutions in AKI Management: Crystalloids and Colloids: When and How to Use - Techniques, Applications, Monitoring and Practical issues for Implementation,” and “The Impact of Adsorption on Cytokine Removal and Immune Response.” 2nd Asia Pacific AKI CRRT. Taipei, Taiwan.
- 10/18 “Is it possible to prevent acute renal injury in the ICU?” “Resuscitation in the ICU: Fluids are drugs!” and “Why does sepsis cause acute kidney injury?” Chilean Society of Nephrology. Pucon, Chile.
- 10/18 “Shock Therapy: Vasopressors and Inotropes.” ASN Kidney Week, San Diego, CA.
- 11/18 “Predictive biomarkers of AKI.” AKI and CRRT Advisory Group of the Italian Society of Nephrology. Novara, Italy.
- 11/18 “RRT and sepsis: State-of-the-Art in 2018,” and “Fluids therapy in sepsis - is it possible to define?” 3rd Congress of the Polish Society of Anesthesiology and Intensive Therapy. Karpacz, Poland.
- 12/18 “Renal recovery after septic AKI,” “Blood purification in septic AKI,” and “Use renal biomarker for AKI diagnosis, follow up and prognostication.” 20th Congress of Asia Pacific Association of Critical Care Medicine (APACCM) and Hong Kong Society of Critical Care Medicine (HKSCCM) 2018, Hong Kong.
- 01/19 “What do we really know about fluid resuscitation?” and “Perioperative Acute Kidney Injury: Even worse than we thought.” Stony Brook Medicine Department of Anesthesiology Grand Rounds. Stony Brook, NY.
- 01/19 “The When and How of Renal Replacement Therapy in the ICU.” Internal Medicine Grand Rounds at New York Medical College/Westchester Medical Center. Valhalla, NY.
- 02/19 “Balanced Crystalloids versus Saline in Sepsis.” 24th International Symposium on Infections in the Critically Ill Patient. Seville, Spain.
- 02/19 “Limitations of the Current Consensus AKI Definition” and “Renal Recovery After Acute Kidney Injury.” Society of Critical Care Medicine (SCCM) Annual Congress, San Diego, CA.
- 02/19 “Cell-cycle arrest biomarkers –what do they mean?” Cardio Renal Society of America (CRSA) Symposium Dinner at SCCM Annual Congress, San Diego, CA.

- 03/19 “HDAC inhibition for prevention of fibrosis following sepsis-induced AKI,” “Sorbent based toxin removal,” “Is atypical HUS masquerading as sepsis-induced AKI?” “Translating Mechanisms to Management Award Challenges and Opportunities in AKI Diagnostics,” “Can we be precise for critical care?” “Why are some people resistant to AKI?” “Predicting AKI Recovery: The RUBY Trial.” 24th International Conference on Advances in Critical Care Nephrology (AKI & CRRT), San Diego, CA.
- 03/19 “What blood pressure do I target in my ICU patients?” Meet the Experts, 24th International Conference on Advances in Critical Care Nephrology (AKI & CRRT), San Diego, CA.
- 03/19 “Time to revisit the clinical definitions,” “Sepsis and renal failure: a bidirectional relationship,” “They can help to detect kidney failure in sepsis.” 39th International Symposium on Intensive Care and Emergency Medicine (ISICEM), Brussels, Belgium.
- 04/19 Co-chair, KDIGO Controversies Conference on Acute Kidney Injury, Rome, Italy
- 04/19 “Use of Biomarkers in AKI.” The Fifth International Renal Meeting with Mayo Clinic in Sardinia. Cagliari, Italy.
- 05/19 “Is AKI preventable?” Pulmonary & Critical Care Medicine Grand Rounds, Cleveland Clinic, Cleveland, OH.
- 05/19 “Timing of the RRT initiation in ICU patients with AKI.” Cleveland Clinic Renal Education Day, Cleveland Clinic, Cleveland, OH.
- 05/19 “Pathophysiology of AKI.” Anesthesiology and Perioperative Medicine Grand Rounds, University of Texas MD Anderson Cancer Center, Houston, TX.
- 05/19 “Endophenotypes of AKI,” “What’s next?” “FAQS on AKI Biomarkers,” and “Immunomodulation by cytokine hemoadsorption.” 37th Vicenza Course on AKI. Vicenza, Italy.
- 06/19 “Do we need diuretics?” ESICM Lives Forum 2019, Nice, France.
- 06/19 “Mortality rates associated with emergent versus elective RRT for AKI in the ICU,” “How big is AKI in the United States?” The 64th Annual Meeting of the Japanese Society for Dialysis Therapy, Yokohama, Japan.
- 07/19 “Drug development for AKI – Biomarkers of Acute Kidney Injury.” FASEB The Acute Kidney Injury Conference: From Bench to Bedside (and Back Again). Pacific Grove, CA.
- 08/19 “Integrating Acute Kidney Injury Biomarkers in our clinical management of AKI.” University of Rochester Medical Center Grand Rounds. Rochester, NY.
- 08/19 “Acute Kidney Injury: Diagnosis and Management,” and “Cases You Must Know How to Manage.” SCCM 2019 Multi-professional Critical Care Review Course. Chicago, IL.
- 09/19 “Extracorporeal techniques for blood purification: promises and pitfalls.” Weimar Sepsis Update 2019. Weimar, Germany.
- 09/19 “Sepsis and acute kidney injury: from pathophysiology to treatment,” “Fluids for the critically ill after SMART and SALT-ED,” “Use of diuretics in the ICU,” and “Recovery of renal function after septic shock.” XVI Sao Paulo Critical Care Congress. Sao Paulo, Brazil.
- 09/19 “Acute kidney injury,” “Harmful effects of fluids on the kidney,” “When and how do I start RRT?” “Long term outcome after AKI,” and “John Kellum Unplugged: Setting up research in my department.” European Society of Intensive Care Medicine (ESICM), Berlin, Germany.
- 10/19 “Pathophysiology of Septic AKI,” “Management of Septic AKI,” “Fluids and Solutions in AKI Management: Crystalloids and Colloids: When and How to Use,” “How do I Manage the Fluid Overloaded Patient?” and “Why Are Some People Resistant to AKI?” 3rd Asia Pacific AKI CRRT. Kuala Lumpur, Malaysia.

- 10/19 “Management of Septic AKI,” “Using Kidney Biomarkers for AKI: Risk Assessment, Diagnosis and Staging Practical Issues for Use of Kidney Biomarkers for Assessing Risk and for Early Recognition and Interventions in AKI,” “Extracorporeal Organ support (ECOS) for Multi Organ Failure and Sepsis,” and “Renal Functional reserve: a target for intervention?” 4th Annual Selections from AKI & CRRT 2019. Hyderabad, India.
- 10/19 “New Biomarkers for “Pre-AKI” and “Persistent AKI”.” The 9th Annual AKI symposium, Moderator, Dr. Carl Bates, University of Pittsburgh, Pittsburgh, PA.
- 11/19 “Shock Therapy: Vasopressors and Inotropes,” and “Classic vs. Stewart Method: Principles and Case Discussions.” ASN Kidney Week 2019, Washington, DC.
- 11/19 “Fluid Management in AKI,” “Acute Kidney Injury in Sepsis,” “Diagnosis and prevention of AKI Inside and Outside the ICU,” and “Current state of Renal Replacement Therapies.” Ecuadorian Intensive Care Congress 2019. Quito, Ecuador.
- 12/19 “Kidney Attack-Are we doing enough?” WVU Heart and Vascular Institute Grand Rounds, West Virginia University, Morgantown, WV.
- 01/20 “Inconvenient Truths about Acute Kidney Injury.” Division of Pulmonary and Critical Care Medicine 34th Annual George R. Meneely and Ronald B. George Grand Rounds, LSU Health Shreveport, Shreveport, LA.
- 02/20 “TIMP-2 is a Therapeutic Target in Sepsis-associated AKI,” “Clinical Phenotypes of Sepsis,” “Which Fluids Should We Use?” “The Patient with Septic Shock.” 25th International Conference on Advances in Critical Care Nephrology (AKI & CRRT), San Diego, CA.
- 02/20 “Meet the Experts: How I Use AKI Biomarkers in My Practice.” 25th International Conference on Advances in Critical Care Nephrology (AKI & CRRT), San Diego, CA.
- 04/20 “Live Virtual Lecture, Covid-19.” Okayama University Special Lecture by John Kellum.
- 04/20 “Can Existing Biomarkers Help?” The International Renal Research Institute of Vicenza (IRRIV) Live Webinar: AKI Biomarkers, Results from the ADQI 23 conference.
- 04/20 “Virtual Lecture, Sepsis-Associated Acute Kidney Injury: Pathophysiology and Treatment.” 47th Annual Meeting of the Japanese Society of Intensive Care Medicine.
- 04/20 “Virtual Lecture, Blood purification in Sepsis and Septic AKI.” 47th Annual Meeting of the Japanese Society of Intensive Care Medicine.
- 05/20 “Why hemoadsorption seems to be a useful treatment option.” Webinar- Cytokine adsorption by blood purification in severely ill COVID-19 patients – rationale and clinical experience.
- 07/20 “Covid-19 and AKI.” Virtual Grand Rounds, University of Pittsburgh Critical Care Medicine Grand Rounds.
- 09/20 “The Inconvenient Truth About Acute Kidney Injury.” Virtual Grand Rounds, Massachusetts General Hospital Anesthesia, Critical Care, and Pain Medicine Grand Rounds.

3. Journal Editorships and Refereeing

Journal Editorships (selected)

| | |
|--------------|--|
| 2002-present | Critical Care Member, Editorial Board |
| 2008-present | Theme Editor, Translational Research |
| 2009-present | Theme Editor, Renal Replacement Therapy |
| 2006-present | Clinical Journal of the American Society of Nephrology |

| | |
|--------------|---|
| | Member, Editorial Board |
| 2007-present | Nephrology Dialysis Transplantation Subject Editor, Acute Kidney Injury/Electrolyte Disturbances |
| 2008-present | Blood Purification Journal Associate Editor |
| 2019-present | Nature Reviews Nephrology Member, Advisory Board |

Journal Refereeing

- Anesthesiology
- Chest
- JAMA
- American Journal of Physiology
- Critical Care
- American Journal of Respiratory and Critical Care Medicine
- Shock
- Blood Purification
- Intensive Care Medicine
- New England Journal of Medicine
- Critical Care Medicine
- Journal of Critical Care
- Intensive Care Medicine
- The Lancet
- Kidney International
- American Journal of Kidney Disease
- Journal of American Society of Nephrology
- Nephrology Dialysis Transplantation

4. Research Grant and Thesis Review

National

- National Institutes of Health (NIH)
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
- National Heart, Lung, and Blood Institute (NHLBI)
- National Institute of Allergy and Infectious Diseases (NIAID) ZRG1 IDM-M Study Section
- National Institutes of Health Reengineering the Clinical Research Enterprise review panel (NIH ZRG1IDM-M11B)
- STTR/SBIR (ZRG1DKUS-L11) Special Emphasis Panel
- Pathobiology of Kidney Disease (PBKD) Study Section
- National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK) ZDK1 GRB-D(M1) Review Panel "Ancillary Studies to ASSESS-AKI".
- National Institutes of Health (2014 ZRG1DKUL11B) Small Business Nephrology Review Panel
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) GRB-J M1 CKD Chronic Kidney Disease Biomarkers Consortium Review Panel
- National Institute of Digestive Kidney and Urological System (DKUS), ZRG1 DKUS-L 55. Clinical Studies in Kidney Diseases, October 2017

International

- National Medical Research Council (NMRC), Singapore and Australia
- University of Melbourne, Australia
- University of Gent, Belgium

Foundations

- Renal Research Institute, New York
- U.S. Civilian Research & Development Foundation (CRDF)

SERVICE

1. University/Medical School/Hospital

- | | |
|--------------|---|
| 1994-2004 | Member, Ethics Committee, UPMC |
| 1995 | Course Director, University of Pittsburgh Medical Center (UPMC) “Controversies in Medical Ethics” “12th Annual Ira Messer Lecture” |
| 1997-present | Advisor, Pharmacy Drug Use and Disease State Management Program “Fluid Resuscitation Guidelines” “Neuromuscular Blocking Agents in the ICU” “ICU Sedation Practice Guidelines” “Use of Activated Protein C in Severe Sepsis?” |
| 2002-present | Member, Promotions and Reappointments Committee, Department of Critical Care Medicine, University of Pittsburgh Medical Center (UPMC) |
| 2002-present | Member, Scientific and Advisory Committee, Department of Critical Care Medicine, University of Pittsburgh Medical Center (UPMC) |
| 2011-2018 | Director, Center for Assistance in Research using eRecord (CARE) |

2. Community Activities

- | | |
|--------------|---|
| 1988 | Student-to-Student Program, Medical College of Ohio |
| 1989-1990 | Volunteers of America, Health Clinic Physicians |
| 2000 | Career Day, Frick School of International Studies |
| 2001-present | Guest Lecturer, Undergraduate Physiology, Annually |

3. National/International Consensus Conferences

- | | |
|--------------|---|
| 2000-present | Acute Dialysis Quality Initiative (ADQI) Member, Executive Committee |
| 2002-2003 | President |
| 2001-2003 | Strategies for Resuscitation in Military and Civilian Trauma (STORMACT) Member |
| 2002-present | International Conference on Continuous Renal Replacement Therapies (CRRT) Organizing Committee |
| 2005-2008 | Resident On-Line ICU Task Force, Society of Critical Care Medicine (SCCM) |
| 2006-present | Acute Kidney Injury Network (AKIN) Member, Steering Committee |
| 2008-2011 | Kidney Disease Improving Global Outcomes (KDIGO) Co-Chair, Acute Kidney Injury Guideline |
| 2010-present | International Vicenza Course on Critical Care Nephrology, Vicenza, Italy International Course Director |