

CURRICULUM VITAE
The Johns Hopkins University School of Medicine

(Signature)



(Typed Name) Sapna R. Kudchadkar, MD, PhD

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DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

University

- 2018-present Associate Professor, Department of Anesthesiology & Critical Care Medicine (ACCM), Johns Hopkins University (JHU) School of Medicine (SOM)
- 2018-present Associate Professor, Department of Pediatrics, Johns Hopkins University School of Medicine
- 2018-present Associate Professor, Department of Physical Medicine & Rehabilitation, Johns Hopkins University School of Medicine
- 2022-present Vice Chair for Pediatric Anesthesiology and Critical Care Medicine, Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine

Hospital

- 2018-present Pediatric Intensivist, Johns Hopkins Hospital
- 2018-present Pediatric Anesthesiologist, Johns Hopkins Hospital
- 2022-present Anesthesiologist-in-Chief, Johns Hopkins Charlotte R. Bloomberg Children's Center

Personal Data

Division of Pediatric Anesthesiology
Division of Pediatric Critical Care Medicine
Department of Anesthesiology & Critical Care Medicine
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Education and Training

Undergraduate

- 1999 B.A., Washington University, St. Louis, MO; graduated magna cum laude

Doctoral/graduate

- 2003 M.D., University of Chicago Pritzker School of Medicine, Chicago, IL
- 2018 Ph.D., Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD
- 2021-present M.B.A candidate, Johns Hopkins Carey Business School, *Concentration in Health Care Management, Innovation and Technology*

Postdoctoral

- 2003-2006 Resident, Pediatrics, Johns Hopkins Hospital, Baltimore, MD
- 2006-2009 Resident, Anesthesiology, Johns Hopkins Hospital, Baltimore, MD
- 2009-2011 Fellowship, Pediatric Anesthesiology and Pediatric Critical Care Medicine, Johns Hopkins Hospital, Baltimore, MD

Professional Experience

- 1997-1999 Research Assistant, Division of Reproductive Endocrinology, Washington University School of Medicine, St. Louis, MO
- 2011-2018 Assistant Professor, Department of Anesthesiology & Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD

2013-2018	Assistant Professor, Department of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD
2014-2015	Co-director, Johns Hopkins Pediatric Critical Care Clinical Research Program, Baltimore, MD
2015-present	Director, Johns Hopkins Pediatric Critical Care Clinical Research Program, Baltimore, MD
2015-present	Director, Johns Hopkins PICU Up! Program, Baltimore, MD
2017-2018	Assistant Professor, Department of Physical Medicine & Rehabilitation, Johns Hopkins University School of Medicine, Baltimore, MD
2018-2021	Associate Vice Chair for Research, Anesthesiology & Critical Care Medicine, Baltimore, MD
2022-present	Vice Chair for Pediatric Anesthesiology and Critical Care Medicine, Department of Anesthesiology & Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD

PUBLICATIONS: Full bibliography available at:

<https://www.ncbi.nlm.nih.gov/myncbi/sapna.kudchadkar.1/bibliography/public/>

Total Publications (ncbi): 149; Total citations= 2766; h-index= 28; Google scholar

Original Research [OR]

1. Jablonka-Shariff A, **Ravi S**, Beltsos AN, Murphy LL, Olson LM. Abnormal estrous cyclicity after disruption of endothelial and inducible nitric oxide synthase in mice. *Biol Reprod.* 1999;61(1):171-177. PMID: 10377046.
2. **Kudchadkar SR**, Yaster M, Punjabi NM. Sedation, sleep promotion, and delirium screening practices in the care of mechanically ventilated children: a wake-up call for the pediatric critical care community. *Crit Care Med.* 2014;42(7):1592-600. PMID: 24717461; PMCID: PMC4061156. *Feature Article; Editorial PMID: 24933046*
3. **Kudchadkar SR**, Aljohani OA, Punjabi NM. Sleep of critically ill children in the pediatric intensive care unit: a systematic review. *Sleep Med Rev.* 2014;18(2):103-10. PMID: 23702219; PMCID: PMC3883975. *Editorial PMID 24360611*
4. Maxwell LG, Buckley GM, **Kudchadkar SR**, Ely E, Stebbins EL, Dube C, Morad A, Jastaniah EA, Sethna NF, Yaster M. Pain management following major intracranial surgery in pediatric patients: a prospective cohort study in three academic children's hospitals. *Paediatr Anaesth.* 2014;24(11):1132-1140. PMID: 25069627; PMCID: PMC4184973.
5. Wieczorek B, Burke C, Al-harbi A, **Kudchadkar SR**. Early mobilization in the pediatric intensive care unit: a systematic review. *J Pediatr Intensive Care.* 2015:129-170. PMID 26380147.
6. Miller KM, Kim AY, Yaster M, **Kudchadkar SR**, White E, Fackler J, Monitto CL. Long-term tolerability of capnography and respiratory inductance plethysmography for respiratory monitoring in pediatric patients treated with patient-controlled analgesia. *Paediatr Anaesth.* 2015;25(10):1054-1059. PMID 26040512.
7. **Kudchadkar SR**, Yaster M, Quan SF, Goodwin J, Punjabi AN, Easley RB, Punjabi NM. Temporal characteristics of the sleep EEG power spectrum in critically ill children. *J Clin Sleep Med.* 2015;11(12):1449-1454. PMID 26194730.
8. Cooper-Flaigle M, Ascenzi J, **Kudchadkar SR**. Identifying barriers to delirium screening and prevention in the pediatric ICU: evaluation of PICU staff knowledge. *J Pediatr Nurs.* 2016;31(1):81-4. PMID 26362671.
9. **Kudchadkar SR**, Beers C, Ascenzi J, Jastaniah E, Punjabi NM. Nurses' perceptions of the pediatric ICU environment before and after a transition to single-patient rooms. *Am J Crit Care.* 2016;25:e98-e107. PMID: 27587429.
10. Wieczorek B, Ascenzi J, Kim Y, Lenker H, Potter C, Shata NJ, Mitchell L, Haut C, Berkowitz I, Pidcock F, Hoch J, Malamed M, Kravitz T, **Kudchadkar SR**. PICU Up!: impact of a quality improvement program to promote early mobilization in critically ill children. *Pediatr Crit Care Med.* 2016;17(12):e559-e566. PMID: 27759596. [SI/QI]
11. Noje C, Bernier ML, Costabile PM, Klein BL, **Kudchadkar SR**. Pediatric critical care transport as a conduit to terminal extubation at home: a case series. *Pediatr Crit Care Med.* 2017;18(1):e4-e8. PMID 27801708.
12. **Kudchadkar SR**, Barnes S, Anton B, Gergen D, Shata NJ, Punjabi NM. Non-pharmacological interventions for sleep promotion in hospitalized children (Protocol). *Cochrane Database of Systematic Reviews.* 2017;12: CD012908.
13. Traube C, Silver G, Reeder RW, Doyle H, Hegel E, Wolfe HA, Schneller C, Chung MG, Dervan LA, DiGennaro JL, Buttram SDW, **Kudchadkar SR**, Madden K, Hartman ME, deAlmeida ML, Walson K, Ista E, Baarslag MA, Salonia R, Beca J, Long D, Kawai Y, Cheifetz IM, Gelvez J, Truemper EJ, Smith RL, Peters ME,

- Iqbal O'Meara AM, Murphy S, Bokhary A, Greenwald BM, Bell MJ. Pediatric delirium in critically-ill children: an international point prevalence study. *Crit Care Med* 2017;45(4):584-590. PMID: 28079605.
14. Willson DF, Hoot M, Khemani R, Carrol C, Kirby A, Schwarz A, Gedeit R, Nett ST, Erickson S, Flori H, Hays S, Hall M; **Ventilator-Associated Infection (VAIN) Investigators** (Site PI). Pediatric ventilator-associated infections: the Ventilator-Associated INfection Study. *Pediatr Crit Care Med* 2017;18(1):e24-e34. PMID: 27828898.
15. Herrup EA, Wieczorek B, **Kudchadkar SR**. Characteristics of post-intensive care syndrome in survivors of pediatric critical illness: a systematic review. *World J Crit Care Med* 2017;6(2):124-134. PMID:28529914.
16. Kannan G, Kambhampati SP, **Kudchadkar SR**. Effects of anesthetics on microglial activation and nanoparticle uptake: implications for drug delivery in traumatic brain delivery. *J Control Release*. 2017;263:192-199. PMID: 28336376
17. Shapiro MC, Donohue PK, **Kudchadkar SR**, Hutton N, Boss RD. Professional responsibility, consensus and conflict: physician decisions for the chronically critically ill in neonatal and pediatric ICUs. *Pediatr Crit Care Med*. 2017;18(9):e415-e422. PMID: 28658198
18. Hamrick JT, Hamrick JL, Bhalala U, Armstrong JS, Lee JH, Kulikowicz E, Lee JK, **Kudchadkar SR**, Hunt EA, Shaffner DH. End-tidal carbon dioxide-guided chest compression delivery improves survival in a neonatal asphyxial cardiac arrest model. *Pediatr Crit Care Med*. 2017;18(11):e575-e584. PMID: 24113478
19. Caprarola SD, **Kudchadkar SR**, Bembea MM. Neurologic outcomes following care in the pediatric intensive care unit. *Curr Treat Options Pediatr*. 2017;3(3):193-207. PMID: 29218262
20. Sibilla A, Nydahl P, Greco N, Mungo G, Ott N, Unger I, Rezek S, Gemperle S, Needham DM, **Kudchadkar SR**. Mobilization of mechanically ventilated patients in Switzerland. *J Intensive Care Med*. 2020;35(1):55-62. PMID: 28847238
21. Miura S, Wieczorek B, Lenker H, **Kudchadkar SR**. Normal baseline function is associated with delayed rehabilitation in critically ill children. *J Intensive Care Med*. 2020;35(4):405-410. PMID: 29357778
22. Ichord R, Silverstein FS, Slomine BS, Telford R, Christensen J, Holubkov R, Dean JM, Moler FW; **THAPCA Trial Group**. Neurologic outcomes in pediatric cardiac arrest survivors enrolled in the THAPCA trials *Neurology* 2018;91(2):e123-e131. PMID: 29884735.
23. Barnes SS, Grados MA, **Kudchadkar SR**. Child psychiatry engagement in the management of delirium in critically ill children. *Crit Care Res Pract*. 2018;2018:9135618. PMID: 29854450
24. O'Brien CE, Reyes M, Santos PT, Heitmiller SE, Kulikowicz E, **Kudchadkar SR**, Lee JK, Hunt EA, Koehler RC, Shaffner DH. Pilot study to compare the use of end-tidal carbon dioxide-guided and diastolic blood pressure-guided chest compression delivery in a swine model of neonatal asphyxial cardiac arrest. *J Am Heart Assoc*. 2018;7(19):e009728. PMID: 30371318
25. Herrup EA, Wieczorek B, **Kudchadkar SR**. Feasibility and perceptions of PICU diaries. *Pediatr Crit Care Med*. 2019;20(2):e83-e90. PMID: 30461580
26. Kamat PP, Sulton C, **Kudchadkar SR**, McCracken CE, Nguyen KM, Simoneaux SF, Mallory MD, Simon HK. Procedural sedation outside the operating room and potential neurotoxicity: analysis of an at-risk pediatric population. *Acad Pediatr*. 2019;19(8):978-984. PMID: 30858081
27. **Kudchadkar SR**, Aljohani O, Johns J, Leroux A, Alsafi E, Jastaniah E, Gottschalk A, Shata NJ, Al-Harbi A, Gergen D, Nadkarni A, Craniceanu C. Day-night activity in hospitalized children after major surgery: an analysis of 2271 hospital days. *J Pediatr*. 2019;209:190-197.e1. PMID: 30885646. *Editorial PMID 31128725*
28. Dalesio NM, Diaz-Rodriguez N, Koka R, **Kudchadkar S**, Mark LJ, Cover R, Pandian V, Tunkel D, Brown R. Development of a multidisciplinary Pediatric Airway Program: an institutional experience. *Hosp Pediatr*. 2019;9(6):468-475. PMID: 31088891
29. Hamrick JL, Hamrick JT, O'Brien CE, Reyes M, Santos PT, Heitmiller SE, Kulikowicz E, Lee JK, **Kudchadkar SR**, Koehler RC, Hunt EA, Shaffner DH. The effect of asphyxia arrest duration on a pediatric end-tidal CO₂-guided chest compression delivery model. *Pediatr Crit Care Med*. 2019;20(7):e352-e361. PMID: 31149967
30. Cohen JL, Klyce W, **Kudchadkar SR**, Kotian RN, Sponseller PD. Respiratory complications after posterior spinal fusion for neuromuscular scoliosis: children with Rett syndrome at greater risk than those with cerebral palsy. *Spine (Phila Pa 1976)*. 2019;44(19):1396-1402. PMID: 31261282
31. O'Brien CE, Santos PT, Reyes M, Adams S, Hopkins CD, Kulikowicz E, Hamrick JL, Hamrick JT, Lee JK, **Kudchadkar SR**, Hunt EA, Koehler RC, Shaffner DH. Association of diastolic blood pressure with survival during paediatric cardiopulmonary resuscitation. *Resuscitation*. 2019;143:50-56. PMCID: PMC6769417

32. Lapid FM, O'Brien CE, **Kudchadkar SR**, Lee JK, Hunt EA, Koehler RC, Shaffner DH. The use of pressure-controlled mechanical ventilation in a swine model of intraoperative pediatric cardiac arrest. *Paediatr Anaesth*. 2020;30(4):462-468. PMID: 31900987; PMCID: PMC7182496.
33. Bertrand SJ, Zhang Zhi, Patel R, O'Ferrell C, Punjabi NM, **Kudchadkar SR***, Kannan S (*co-corresponding author). Transient neonatal sleep fragmentation results in long-term neuroinflammation and cognitive impairment in a rabbit model. *Exp Neurol*. 2020;327:113212. PMID: 31987835.
34. **Kudchadkar SR**, Nelliot A, Awojoodu R, Vaidya D, Traube C, Walker T, Needham DM. Physical rehabilitation in critically ill children: a multicenter point prevalence study in the United States. *Crit Care Med*. 2020;48(5):634-644. PMID: 32168030. *Feature Article & Editor's Choice. Editorial PMID: 33528199*
35. Procaccini D, Lobner K, Anton B, **Kudchadkar SR**. Melatonin use in hospitalized children for non-anesthetic indications: a systematic review. *Pharmacotherapy*. 2020;40(7):692-703. PMID: 32342515.
36. Ista E, Scholefield BR, Manning JC, Harth I, Gawronski O, Bartkowska-Śniatkowska A, Ramelet AS, **Kudchadkar SR**, & EU PARK-PICU Collaborators. Mobilization practices in critically ill children: a European point prevalence study (EU PARK-PICU). *Crit Care* 2020. 24(1), 368. PMID: 32576273; PMCID: PMC7311184.
37. **Kudchadkar SR**, Carroll C. Utilizing social media for rapid information dissemination in a pandemic: #PedsICU and COVID-19. *Pediatr Crit Care Med*. 2020;21(8):e538-e546. PMCID: PMC7255404.
38. Procaccini D, Rapaport R, Moore D, Lee D, Petty B, **Kudchadkar SR**. Design and implementation of an analgesia, sedation, and paralysis order set to enhance compliance of pro re nata medication orders with The Joint Commission Medication Management standards in a pediatric intensive care unit. *Jt Comm J Qual Patient Saf*. 2020;46(12):706-714. PMID 32653365. *Featured in AHRQ PSNet Updates, 2020*
<https://psnet.ahrq.gov/issue/design-and-implementation-analgesia-sedation-and-paralysis-order-set-enhance-compliance-pro>
39. Traube C, Rosenberg L, Thau F, Gerber LM, Mauer EA, Seghini T, Taylor D, Silver G, **Kudchadkar SR**. Sleep in hospitalized children with cancer: a cross-sectional study. *Hosp Pediatr*. 2020;10(11):969-976. PMID: 33122175.
40. Procaccini D, Lobner K, Azamfirei R, **Kudchadkar SR**. Melatonin for anaesthetic indications in paediatric patients: a systematic review. *Anaesthesia*. 76:837-849. PMID: 32935858.
41. Bjornstad EC, Krallman KA, Askenazi D, Zappitelli M, Goldstein SL, Basu RK; **SPARC Investigators**. Preliminary assessment of acute kidney injury in critically ill children associated with SARS-CoV-2 infection: a multicenter cross-sectional analysis. *Clin J Am Soc Nephrol*. 2021;16(3):446-448. PMID: 33144276.
42. Maddux AB, Pinto N, Fink EL, et al; **Pediatric Outcomes Studies after PICU (POST-PICU) and PICU-COS Investigators** of the Pediatric Acute Lung Injury and Sepsis Investigators and the Eunice Kennedy Shriver National Institute of Child Health and Human Development Collaborative Pediatric Critical Care Research Networks. Postdischarge outcome domains in pediatric critical care and the instruments used to evaluate them: a scoping review. *Crit Care Med*. 2020;48(12):e1313-e1321. PMID: 33009099.
43. Carroll CL, Szakmany T, Dangayach NS, DePriest A, Duprey MS, Kaul V, Kleinpell R, Tegtmeyer K, **Kudchadkar SR**. Growth of the digital footprint of the Society of Critical Care Medicine Annual Congress: 2014-2020. *Crit Care Explor*. 2020;2(11):e0252. PMID: 33205047; PMCID: PMC7665246.
44. Serra JA, Díaz F, Cruces P, Carvajal C, Nuñez MJ, Donoso A, Bravo-Serrano JA, Carbonell M, Courtie C, Fernández A, Martínez-Arroyo L, Martínez J, Menta S, Pedrozo-Ortiz L, Wegner A, Monteverde-Fernández N, Jaramillo-Bustamante JC, Jabornisky R, González-Dambrauskas S, **Kudchadkar SR**, Vásquez-Hoyos P. Characteristics of medically transported critically ill children with respiratory failure in Latin America: implications for outcomes. *J Pediatr Intensive Care*. 2022;11(3):201-208. doi: 10.1055/s-0040-1722204. eCollection 2022 Sep. PMCID: PMC9381436.
45. Choong K, Zorko DJ, Awojoodu R, Ducharme-Crevier L, Fontela PS, Lee LA, Guergierian M, Guerra G, Krmpotic K, McKelvie B, Menon K, Murthy S, Sehgal A, Weiss MJ, **Kudchadkar SR**. Prevalence of Acute Rehabilitation for Kids in the PICU: a Canadian multicenter point prevalence study (PARK-PICU CANADA). *Pediatr Crit Care Med*. 2021;22(2):181-193. PMID: 33116069.
46. Young D, **SR Kudchadkar**, M Friedman, A Lavezza, S Kumble, K Daley, E Flanagan, E Hoyer. Using systematic functional measurements in the acute hospital setting to combat the immobility harm. *Arch Phys Med Rehabil*. 2022;103(5S):S162-S167. PMID: 33373600.
47. Liu K, Nakamura K, Katsukawa H, Elhadi M, Nydahl P, Ely EW, **Kudchadkar SR**, Takahashi K, Inoue S, Lefor AK, Kesecioglu J, Nishida O. ABCDEF bundle and supportive ICU practices for patients with

- coronavirus disease 2019 infection: an international point prevalence study. *Crit Care Explor.* 2021;3(3):e0353. PMID: 33786432; PMCID: PMC7994035.
48. Patel RV, Redivo J, Nelliott A, Eakin MN, Wieczorek B, Quinn J, Gurses AP, Balas MC, Needham DM, **Kudchadkar SR**. Early mobilization in a PICU: a qualitative sustainability analysis of PICU Up! *Pediatr Crit Care Med.* 2021;22(4):e233-e242. PMID: 33315754; PMCID: PMC8016701. *Editorial PMID 33790214*
 49. Dalesio NM, Burgunder L, Diaz-Rodriguez NM, Jones S, Duval-Arnould J, Lester LC, Tunkel DE, **Kudchadkar SR**. Factors associated with pediatric emergency airway management by the difficult airway response team. *Cureus* 13(7): e16118. PMID: 34367755.
 50. Zanin A, García-Salido A, Rodríguez-Rubio M, Camporesi A, Ulloa-Gutierrez R, Villar ME, González-Dambrauskas S, **Kudchadkar SR**, Carroll CL. Live tweeting the discovery of a new coronavirus disease 2019-related syndrome in children. *Pediatr Crit Care Med.* 2021;22(6):e373-e375. PMID: 33606475; PMCID: PMC8168931.
 51. Denlinger K, Young DL, Beier M, Friedman M, Quinn J, **Kudchadkar SR**. Psychometric testing of the activity measure for post-acute care (AM-PAC) in the pediatric acute care setting. *Pediatr Phys Ther.* 2021;33(3):149-154. PMID: 34086622.
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 53. Gregory J, Brown A, **Kudchadkar SR**. Characterizing sleep disruption and delirium incidence in children after cardiac surgery: a feasibility study. *Pediatr Crit Care Med.* 2021;22(11):988-992. PMID: 34028374
 54. Liu K, Nakamura K, Katsukawa H, Nydahl P, Ely EW, **Kudchadkar SR**, Takahashi K, Elhadi M, Gurjar M, Leong BK, Chung CR, Balachandran J, Inoue S, Lefor AK, Nishida O. Implementation of the ABCDEF bundle for critically ill ICU patients during the COVID-19 pandemic: a multi-national 1-day point prevalence study. *Front Med (Lausanne).* 2021;8:735860. PMID: 34778298
 55. Pande CK, Stayer K, Rappold T, Alvin M, Koszela K, **Kudchadkar SR**. Is provider training level associated with first pass success of endotracheal intubation in the pediatric intensive care unit? *J Pediatr Intensive Care.* 2021. Online ahead of print. doi: 10.1055/s-0041-1731024.
 56. Serra JA, Diaz F, Carvajal C, Nunez MJ, Donoso A, Bravo-Serrano J, Carbonell M, Courtie C, Fernandez A, Martinez-Arroyo L, Martinez J, Menta S, Pedrozo-Ortiz L, Wegner A, Monteverde-Fernandez N, Jaramillo-Bustamante JC, Jabornisky R, Gonzalez-Dambrauskas S, **Kudchadkar SR**, Vasquez-Hoyos P. Characteristics of medically transported critically ill children with respiratory failure in Latin America: implications for outcomes. *J Pediatr Intensive Care.* 2021; 201-208. PMID: 35990878
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 58. Ista E, Redivo J, Kananur P, Choong K, Colleti J, Needham DM, Awojoodu R, **Kudchadkar SR**. Assessing pain, both spontaneous awakening and breathing trials, choice of sedation, delirium monitoring/management, early exercise/mobility, and family engagement/empowerment bundle practices for critically ill children: an international survey of 161 PICUs in 18 countries. *Crit Care Med.* 2022;50(1):114-125. PMID: 34259659
 59. Perry, MA, Dawkins-Henry, O, Awojoodu R., Blumenthal J, Asaro, LA, Wypij D, **Kudchadkar SR**, Zuppa AF, Curley MAQ. Study protocol for a two-center test of a nurse-implemented chronotherapeutic restoring bundle in critically ill children: RESTORE Resilience (R2). *Contemp Clin Trials Commun.* 2021;23:100840. PMID: 34466711
 60. Nakamura K, Liu K, Katsukawa H, Nydahl P, Ely EW, **Kudchadkar SR**, Inoue S, Kawarai Lefor A, Nishida O. Nutrition therapy in the intensive care unit during the COVID-19 pandemic: findings from the ISIIC point prevalence study. *Clin Nutr.* 2022;41(12):2947-2954. PMID: 34656370
 61. Rowan CM, Smith LS, Sharron MP, Loftis L, **Kudchadkar S**, Duncan C, Pike F, Carpenter PA, Jacobsohn DA, Bollard CM, Cruz CRY, Malatpure A, Farag SS, Renbarger J, Little MR, Gafken PR, Krance R, Cooke KR, Paczesny S. A biomarker panel for risk of early respiratory failure following hematopoietic cell transplantation. *Blood Adv.* 2022;6(6):1866-1878. PMID: 35139145.
 62. Cho J, Park H, Kang D, Park E, Chung CR, Cho J, **Kudchadkar SR**. Rehabilitation in critically ill children: findings from the Korean National Health Insurance database. *PLoS One.* 2022;17(3):e0266360. PMID: 35358288

63. Patel S, Carter G, Minton D, Hunsberger JB, Koka R, Collins R, Shoemaker L, Toy S, **Kudchadkar SR**. Feasibility, implementation, and outcomes of in situ simulation-based curriculum to manage common emergencies in the pediatric post-anesthesia care unit. *J Pediatr Nurs*. 2022;64:84-90. PMID: 35245814.
64. Procaccini D, **Kudchadkar SR**. Melatonin administration patterns for pediatric inpatients in a tertiary children's hospital. *Hosp Pediatr*. 2021;11(11):e308-e312. PMID: 34706877
65. Liu K, Nakamura K, **Kudchadkar SR**, Katsukawa H, Nydahl, P, Ely EW, Takahashi K, Inoue S, Nishida O. Mobilization and rehabilitation practice in ICUs during the COVID-19 pandemic. *J Intensive Care Med*. 2022;37(9):1256-1264. PMID: 35473451.
66. LaRosa JM, Nelliott A, Zaidi M, Vaidya D, Awojoodu R, **Kudchadkar SR**. Mobilization safety of critically ill children. *Pediatrics*. 2022 Apr 1;149(4):e2021053432. doi: 10.1542/peds.2021-053432. PMID: 35352118. *Feature Article and Video Abstract- distributed across American Academy of Pediatrics platforms*
67. Hickey E, Johnson T, **Kudchadkar SR**, Hoehn KS. Persistence matters! Hurdles and high points of PICU follow-up clinic. *Pediatr Crit Care Med*. 2022;23(8):e397-e399. PMID: 36165946.
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69. **Kudchadkar SR**, Berger J, Patel R, Barnes S, Twose C, Walker T, Mitchell R, Song J, Anton B, Punjabi NM. Non-pharmacological interventions for sleep promotion in hospitalized children. *Cochrane Database Syst Rev*. 2022;6(6):CD012908. PMID: 35703367; PMCID: PMC9199068.
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71. McSherry ML, Rissman L, Mitchell R, Ali-Thompson S, Madrigal VN, Lobner K, **Kudchadkar SR**. Prognostic and goals-of-care communication in the PICU: a systematic review. *Pediatr Crit Care Med*. 2023;24(1):e28-e43. PMID: 36066595
72. Malone S, Newland J, **Kudchadkar SR**, Prewitt K, Prusaczyk B, Proctor E, Brownson R, Luke D. Sustaining the implementation of evidence-based interventions in clinical and community settings. *Front Health Serv*. 2022;2:1005802. PMID: 36925889
73. Martinez EE, Bechard LJ, Brown AM, Coss-Bu JA, **Kudchadkar SR**, Mikhailov TA, Srinivasan V, Staffa SJ, Verbruggen SSCAT, Zurakowski D, Mehta NM. Intermittent versus continuous enteral nutrition in critically ill children: a pre-planned secondary analysis of an international prospective cohort study. *Clin Nutr*. 2022;41(12):2621-2627. PMID 36306567.
74. Dodds E, **Kudchadkar SR**, Choong K, Manning JC. A realist review of the effective implementation of the ICU Liberation Bundle in the paediatric intensive care unit setting. *Aust Crit Care*. 2022 Dec. Online ahead of print. PMID: 36581506.
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[Guidelines/Protocols, Consensus Statement, Expert Opinion, Consortium Articles \[GL\]](#)

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 - Noninvasive respiratory support for pediatric acute respiratory distress syndrome. PMID: 36661442
 - Extracorporeal membrane oxygenation in pediatric acute respiratory distress syndrome. PMID 36661441
 - Monitoring in pediatric acute respiratory distress syndrome. PMID 36661441
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 - Methodology of the second pediatric acute lung injury consensus conference. PMID 36661437
 - Invasive ventilatory support in patients with pediatric acute respiratory distress syndrome. PMID 36661436
 - Outcomes of children surviving pediatric acute respiratory distress syndrome. PMID 36661434
 - Pathobiology, severity, and risk stratification of pediatric acute respiratory distress syndrome. PMID 36661433
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16. Ista E, **Kudchadkar SR.** Pain and sedation management in the critically ill child. In: Shaffner DH (ed.) Rogers' Textbook of Pediatric Intensive Care. Philadelphia: Lippincott Williams and Wilkins, 2023; In press
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18. Sanchez-Pinto N, Dewan M, Dziorny A, **Kudchadkar SR.** Clinical informatics and communication technology in pediatric critical care. In: Shaffner DH (ed.) Rogers' Textbook of Pediatric Intensive Care. Philadelphia: Lippincott Williams and Wilkins, 2023; In press.

Books, Textbooks [BK]

1. Zimmerman JJ, Rotta A, Clark RS, Fuhrman BP, **Kudchadkar SR,** Relvas MS, Tobias JD. Fuhrman & Zimmerman's Pediatric Critical Care. Elsevier 2021. Print and Online. ISBN-10 : 0323672698. *I was the Associate Editor responsible for Sections I-III of the book encompassing 22 chapters. These sections were 1) "Pediatric Critical Care: The Discipline; 2) "Pediatric Critical Care Tools and Procedures," and 3) "Patient and Family-Centered Care in the Pediatric Intensive Care Unit." I invited all authors and reviewed and edited all chapters prior to publication. This textbook is one of 2 main textbooks used globally in pediatric critical care, The Rogers' textbook being #2 (below).*
2. Shaffner DH. .Rogers' Textbook of Pediatric Intensive Care. *I am the Section Editor for the section focused on ethics, palliative care, sedation and pain management, and rehabilitation.* In press.

Editorials [ED]

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15. Hosey MM, Needham DM, **Kudchadkar SR.** Fatigue in critical care survivors: multidisciplinary and self-management strategies. *Anaesthesia.* 2021;76(9):1163-1166. PMID: 33878209.
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Letters, Correspondence [LT]

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9. Behrens D, Miller J, Bulut Y, **Kudchadkar SR**, Mack E, Maue D, Hoops K. Commentary: An urgent plea from the last line of defense for our children. *Tribune News Service*. Published in *Newsday* and several other newspapers around the country. <https://www.newsday.com/opinion/commentary/covid-19-vaccine-1.50351613>
10. Lanziotti VS, Dewan M, Behrens D, Bulut Y, Miller J, Ong JS, **Kudchadkar SR**. Gender equity and diversity in pediatric critical care medicine: we must do better. *J Pediatr Intensive Care*. 2021. doi: 10.1055/s-0041-1735871.
11. Azamfirei R, **Kudchadkar SR**, Fackler JC. Large language models and the perils of their hallucinations. *Crit Care*. 2023;27(1):120. PMID: 36945051.

Media Releases or Interviews [MR]: Videos available at <http://bit.ly/sapnakudchadkar>

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|---------|---|
| 1/27/13 | Interviewed by Reporter Juliet Farmer for the Student Doctor Network “20 Questions with Sapna Kudchadkar, MD- Anesthesiology”: www.studentdoctor.net/2013/.../20-questions-sapna-kudchadkar-md/ |
| 7/22/14 | Media Release from European Society of Intensive Care Medicine: “A Wake-up Call for the Paediatric Critical Care Community” reviewing findings from 2014 Crit Care Med publication. http://www.esicm.org/news-article/ARTICLE-REVIEW-NEXT-paediatric-study-LUTZ-WEISS |
| 1/29/15 | Interviewed by Reporter Rebecca Akkermans for the News section of the <i>Lancet Respiratory Medicine</i> re: the RESTORE Clinical Trial, titled “Sedation in Children with Acute Respiratory Failure”: http://www.thelancet.com/pdfs/journals/lanres/PIIS2213-2600(15)00034-X.pdf |
| 2/23/15 | Interviewed by Lavinia Edmunds for “Better Zzzs, Less Delirium for Young Patients,” <i>Hopkins Medicine Magazine</i> .
http://www.hopkinsmedicine.org/news/publications/hopkins_medicine_magazine/features/delirium |
| 3/1/15 | Interviewed by Rebecca Akkermans and quoted in “Sedation in Children with Acute Respiratory Failure” in <i>Lancet Respiratory Medicine</i> in a commentary reviewing the RESTORE trial.
https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(15)00034-X/fulltext |
| 4/29/15 | Interviewed by writer Mat Edelson for Johns Hopkins Children’s Center Magazine, “Asleep or Not, in the PICU”: http://www.hopkinsmedicine.org/news/articles/asleep-or-not |
| 5/19/15 | Interviewed by writer Judith Minkove for Johns Hopkins “Restore” Newsletter, “Mission Possible: Moving Kids in the ICU”:
http://www.hopkinsmedicine.org/news/publications/restore/restore_spring_2015/mission_possible_moving_kids_in_the_icu |
| 6/2/16 | Interviewed by Reporter Shefali Luthra, “Bright Lights, Big Hassles for Children in the Hospital.” Article published by NPR, Kaiser News, USA Today, Associated Press.
http://www.npr.org/sections/health-shots/2016/06/02/480432053/bright-lights-big-hassles-for-children-in-the-hospital |
| 6/24/16 | Interviewed by host Piya Chattopadya on Canadian Broadcast Radio’s “The Current”—Live and podcast, “Sleep is Crucial to Hospitalized Children’s Healing: But They’re Not Getting Enough”: |

- <http://www.cbc.ca/radio/thecurrent/the-current-for-june-24-2016-1.3650616/sleep-crucial-to-hospitalized-children-s-healing-and-they-re-not-getting-enough-1.3650670>
- 10/13/16 Interviewed by reporter Chanapa Tantibanchachai for Hopkins Medicine News on publication of PICU Up! QI Study, "Hopping Around Johns Hopkins: New Early Mobilization Program, PICU Up!, Gets Pediatrics Patients Moving,"
http://www.hopkinsmedicine.org/news/media/releases/hopping_around_johns_hopkins_new_early_mobilization_program_picu_up_gets_pediatrics_patients_moving
- 11/4/16 Interviewed by reporter Carrie Wells for Baltimore Sun Medicine and Science feature article on PICU Up! Initiative, "New program at Hopkins pediatric ICU gets children moving sooner,"
<http://www.baltimoresun.com/health/bs-hs-picu-up-20161103-story.html>
- 1/26/17 Interviewed by reporter Lisa Fields for Johns Hopkins Medicine International's Magazine *Leader* on PICU Up! Initiative and QI work. <https://www.hopkinsmedicine.org/international/leader/>
- 3/1/17 Interviewed by Evelyn Zuberbuhler for WFPICCS newsletter on #PedsICU initiative and new Associate Editor position: <http://www.wfpiccs.org/qa-with-sapna-kudchadkar-md/>
- 5/2/18 Interviewed by Sukanya Charuchandra for Johns Hopkins Hub on new early mobilization device, "Souped-up Walker Helps Get Pediatric ICU Patients Back on Their Feet":
<https://hub.jhu.edu/2018/05/02/ambumate-helps-icu-patients/>
- 5/24/18 Interviewed by Gary Logan for Johns Hopkins Children's Center on PICU Up! Early Mobilization Program including patient/family interview, "Accelerating Recovery in the Pediatric ICU":
<https://www.hopkinsmedicine.org/news/articles/accelerating-recovery-in-the-pediatric-icu>
- 9/18 Interviewed for PICU Up! program to be included in "20 Top Children's Hospitals in Innovation and Technology" <https://www.parents.com/health/doctors/10-best-childrens-hospitals/>
- 9/18 Authored Cover Article for Society of Critical Care Medicine Critical Connections Newsletter "Letting Kids be Kids: A Tale of Transforming PICU Immobility Culture":
<http://www.sccm.org/Communications/Critical-Connections/Archives/2018/Letting-Kids-Be-Kids-A-Tale-of-Transforming-PICU>
- 9/18 Podcast with Jed Wolpaw for Anesthesia and Critical Care Research and Commentary, "Early Mobility in the PICU with Sapna Kudchadkar" <http://accrac.com/episode-92-early-mobility-in-the-picu-with-sapna-kudchadkar/>
- 7/19 Interviewed by Jules Morgan for the Lancet Child and Adolescent Health. "Life Beyond the PICU is Picking Up": [https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642\(19\)30155-5/fulltext](https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(19)30155-5/fulltext)
- 9/19 Interviewed by Kristina Fiore from MedPage Today:
<https://www.medpagetoday.com/hospitalbasedmedicine/graduatemedicaleducation/81610>
- 1/20 Interviewed by Amitha Kalaichandran for Undark Magazine. "When Exercise Comes to the Hospital's Intensive Care Unit. <https://undark.org/2020/01/22/exercise-hospital-icu/>
- 4/20 Interviewed by Rachel Cardin from WJZ CBS Baltimore. "Coronavirus Cases: Johns Hopkins Doctor Fighting COVID-19 After Recovering from Virus".
<https://baltimore.cbslocal.com/2020/04/14/coronavirus-cases-johns-hopkins-doctor-sapna-kudchadkar-fighting-covid-19-after-recovery/>
- 4/20 Interviewed by Kristina Fiore from MedPageToday. "Hopkins Doc Beats COVID, Rejoins Front Lines. Techniques from the pediatric ICU valuable in treating COVID patients".
<https://www.medpagetoday.com/infectiousdisease/covid19/85886>
- 4/20 Interviewed by Kristina Fiore from MedPage Today. "COVID-19: Not your Typical ARDS? Experts weigh in on popular theories about HAPE, PEEP & clotting".
<https://www.medpagetoday.com/infectiousdisease/covid19/86046>
- 4/20 Podcast with Students Against COVID and 971 Podcast, "From Doctor to Patient, A Story of Hope within Uncertainty". youtu.be/xisFMijkac
- 5/20 Interviewed by Abby Isaacs from WMAR-ABC Baltimore. "Johns Hopkins doctor shares experience as COVID-19 survivor". <https://www.wmar2news.com/news/coronavirus/johns-hopkins-doctor-shares-experience-as-covid-19-survivor>
- 6/20 Media Release for publication from Hopkins Medicine. "Many children in intensive care may not be getting rehabilitation therapy, study shows". https://www.eurekalert.org/pub_releases/2020-06/jhm-mci061020.php
- 6/20 Media Release for publication from Hopkins Medicine. "Study says Twitter effectively communicates pediatric critical care info during a pandemic".

- https://www.newswise.com/coronavirus/story-tips-from-johns-hopkins-experts-on-covid-1911/?article_id=734620
- 8/20 Interviewed by Society of Critical Care Medicine Team for “Profiles in Courage” (Page 17-18)
https://view.flipdocs.com/?ID=10025610_435608
- 12/20 Interviewed by Amanda d’Ambrosio for MedPage Today. “Should Docs Who Had COVID-19 still get the vaccine?” <https://www.medpagetoday.com/infectiousdisease/covid19/90000>
- 2/21 Podcast for PicPod’s 50th Recording: “Dissemination of medical knowledge in the modern world”
<https://picpod.net/2021/02/04/picpod-50-knowledge-vs-information-twitter-vs-journals-with-deanna-behrens-sapna-kudchadkar-and-robert-tasker/>
- 4/21 Podcast for *Pediatrica Intensiva: The Art of Critical Care*: “Rehabilitation in the Pediatric ICU”
<https://podcasts.apple.com/us/podcast/early-mobilization-in-the-pedsicu-feat-sapna-kudchadkar/id1502496721?i=1000521116643>
- 5/21 Podcast for *Walking Home from the ICU* “PICU Up!”: <https://podcasts.apple.com/us/podcast/episode-68-picu-up/id1497431005?i=1000521040144>
- 10/21 Interviewed by Gary Logan for Hopkins Medicine, broadcasted by WMAR: From sick newborn to aspiring med student; Baltimore woman's life comes full circle at Johns Hopkins.
<https://www.wmar2news.com/goodtoknow/from-sick-newborn-to-aspiring-med-student-baltimore-womans-life-comes-full-circle-at-johns-hopkins>
- 6/22 Podcast for *Pediatric Critical Care Society PIC-Pod* “Sleep in the PICU”
<https://picpod.net/2022/09/16/picpod-63-2022-pccs-conference-sleep-on-picu-with-mike-farquhar-and-sapna-kudchadkar/>
- 11/22 Interviewed for *The Atlantic* by Katherine Yu for article entitled “The Worst Pediatric-Care Crisis in Decades”: <https://www.theatlantic.com/health/archive/2022/10/rise-of-rsv-flu-covid-infections-kids/671947/>
- 1/23 Featured in January by *The Lancet* for their 200th Anniversary with spotlight on Child and Adolescent Health: <https://t.co/MB5rqE09Jn>

Other Media [OM] (Videos, Websites, Blogs, Social Media, etc.): Videos available at <http://bit.ly/sapnakudchadkar>

- 2015 **Kudchadkar SR.** Social media: www.twitter.com/SapnaKmd. Twitter account creator and manager.
- 2015 **Kudchadkar SR.** Social media: www.twitter.com/picu_up. Twitter account creator and manager for the Hopkins PICU Up! Program. Dissemination of ICU Rehab content relevant to pediatrics.
- 2015 **Kudchadkar SR.** Social media: www.twitter.com/HopkinsPICU. Twitter account creator and manager for the Johns Hopkins PICU. Dissemination of content and announcements relevant to pediatric critical care medicine and PICU staff.
- 2016 **Kudchadkar SR** on behalf of PICU Up! Working Group. “PICU Up!: Promoting Early Rehabilitation for Pediatric Patients, Johns Hopkins Healthcare Solutions website: <https://www.johnshopkinssolutions.com/solution/picu-up/>
- 2017 **Kudchadkar SR.** Social media: www.twitter.com/PedCritCareMed. Twitter account manager for the journal *Pediatric Critical Care Medicine*.
- 2018 **Kudchadkar SR.** Social media: www.twitter.com/PALISInet. Twitter account creator and manager.
- 3/10/18 TEDxJHU Talk: “Illness Shouldn’t Mean Stillness: Let’s PICU Up!”
<https://www.youtube.com/watch?v=Fv6tP8KYMdw>
- 5/24/18 Facebook Live Interview in honor of National Critical Care Awareness and Recognition Month: Johns Hopkins Children’s Center Facebook Page:
<https://www.facebook.com/hopkinschildrens/videos/10157344635285278/>
- 2020 Wikipedia page: https://en.wikipedia.org/wiki/Sapna_Kudchadkar

FUNDING

EXTRAMURAL Funding

Research Extramural Funding – Current

- 5/1/19-4/30/24 Targeted Therapies for Rett Syndrome
R01 NS113140-01
NIH/NINDS
\$2,016,629

PI: Kannan

Role: Co-I, 3%- To evaluate the role of microglial dysfunction in Rett syndrome by targeting glutamate pathways with novel dendrimer drug conjugates.

- 6/8/21-5/31/26 Clinical Effectiveness of the “PICU Up” Multifaceted Early Mobility Intervention in Critically Ill Children: A pragmatic, Stepped-Wedge Trial
R01HD103811
NIH/NICHHD
\$2,038,203
Role: PI, 40%-The overall objective of this trial is to evaluate the clinical effectiveness and delivery of the PICU Up! intervention across a range of PICU patients and health systems.
- 4/15/22-1/31/25 Protein Optimization with Exercise to Improve Muscle Mass and Functional Outcomes (PROXIMUS)
R01DK132348
NIH/NIDDK
\$732,849
Role: PI, 10% (MPI w/Mehta)- The overall objective of the PProtein Optimization with eExercise to Improve MUscle mass and functional outcomeS (PROXIMUS) trial is to examine the effect of high protein delivery coupled with individualized rehabilitation team-delivered exercise on patient-centered outcomes in mechanically ventilated children, ages 1 year to <18 years, in the PICU.
- Research Extramural Funding – Previous
- 6/1/10-6/1/11 The Impact of Pain and Pain Management on Sleep in Mechanically Ventilated, Critically Ill Children
RFG-02/15/2010-Kudchadkar (Sapna)
\$75,000
Role: PI, 75%-- In this study, polysomnography was used to characterize sleep disturbances in the PICU and develop analysis techniques for EEG in mechanically ventilated, critically ill children
- 7/1/11-6/30/13 Impact of Opioids and Sedatives on Sleep in Intubated Children
L40 HL110231-01
NIH/NHLBI
Role: PI, 75%-- Loan repayment support during period of clinical research training.
- 2/1/13-2/1/14 Measuring and Optimizing Sleep in Mechanically Ventilated, Critically Ill Children
Sleep Services of America/Sleep Research Training Advancement Award
\$50,000
Role: PI, 10%-- The objective of this study was to measure sleep fragmentation in children after major surgery using actigraphy in the PICU and after transfer to the floor to determine the circadian activity ratio (CAR) of children admitted to the hospital.
- 1/1/15-05/31/17 The Role of Sleep Disturbances on Neuroinflammation in the Developing Brain
Society for Anesthesia and Sleep Medicine
\$20,000
Role: PI, 10%-- This study investigated associations between sleep fragmentation and both short- and long-term neuroinflammation in a neonatal rabbit model.
- 1/31/16-1/31/18 Alterations in Temporal Sleep-Wake Patterns of Critically Ill Children
Outstanding Early Career Investigator Award
American Thoracic Society Foundation
\$40,000

Role: PI, 75%-- The objective of this career development grant was to obtain pilot data for the development of an R01 proposal investigating the impact of the PICU environment and sedative medications on the sleep-delirium pathway.

- 7/1/17-6/30/21 RESTORE resilience (R^2) in Critically Ill Children (MPI)
R21HD093369
NIH/NICHHD
\$70,410
Role: MPI, 3%- The overall objective of this study was to pilot-test the effect of a 7-item individualized circadian rhythm-restoring bundle on the critically ill child's circadian activity pattern.
- 1/1/19-12/31/21 Impact of a Multifaceted Early Mobility Intervention on Clinical Outcomes and ICU-acquired Morbidities in Critically Ill Children
Donaghue Foundation Greater Value Portfolio Grant
\$440,000
Role: PI, 25%-- The overall objective of this study was to determine the feasibility of conducting a multicenter stepped-wedge trial of an early mobility program in critically ill children.

Educational Extramural Funding – Previous

- 9/1/16-9/9/17 Impact of a Targeted Educational Program for Delirium Screening and Prevention in Critically Ill Children
American Academy of Pediatrics Section on Critical Care
\$3,000
Role: PI/Mentor (Sean Barnes, MD, awardee), 2%--The objective of this proposal was to investigate the effectiveness of an online learning module about pediatric delirium for PICU staff that incorporates the psCAM-ICU (preschool confusion assessment method-ICU).

INTRAMURAL Funding

Research Intramural Funding – Current

- 2/1/21-1/31/24 President's Frontier Award Finalist
Johns Hopkins University
\$80,000
Role: PI
President's Frontier Award recipients are selected via an annual university-wide competition for demonstrating significant scholarly achievement and showing exceptional promise for important future work. This funding will be an instrumental mechanism for establishing a center of excellence for acute rehabilitation in the hospitalized child.
- 7/1/23-6/30/24 Automated Sedation State Assessment for Improved Sedation Decisions Using Machine Learning and Low-cost Accelerometry
Johns Hopkins Discovery Award
\$100,000
Role: PI, 5%
The overall objective of this collaborative project with the Johns Hopkins University School of Engineering and the School of Nursing is to apply machine learning to provide continuous and quantitative sedation state inference in the PICU by integrating multimodal accelerometry and vital sign waveform measurements.
- 7/1/23-6/30/24 Quantitative Electromyography train-of-four monitoring in children: A pilot randomized controlled trial
Stimulating and Advancing Anesthesia Research Mentored Award, Johns Hopkins ACCM
\$30,000
Role: Mentor for Lori-Ann Edwards, MD (PI)

The objective of this pilot randomized trial is to compare EMG TOF to peripheral nerve stimulation in children undergoing surgery requiring NMB.

Research Intramural Funding – Previous

- 7/1/11-6/30/13 Sleep, Sedation, and Delirium in the Pediatric Intensive Care Unit
5KL2RR025006
NIH/NCRR KL2/Johns Hopkins Clinical Research Scholars Award
\$80,000/year
Role: PI, 75%-- This grant provided funding for clinical research training through the Johns Hopkins Bloomberg School of Public Health and the Graduate Training Program in Clinical Investigation PhD track to provide the foundation for ongoing research and new projects in pediatric anesthesia and critical care medicine.
- 7/1/13-6/30/16 Sommer Scholar Award for PhD Candidates
Johns Hopkins University Bloomberg School of Public Health/Sommer Scholar Fund
Role: PI, 75%-- This grant provided ongoing funding for PhD coursework through the GTPCI program.
- 7/1/16-6/30/18 Alterations in Temporal Sleep-Wake Patterns of Critically Ill Children
Ross Physician Scientist Endowment
Johns Hopkins Clinician Scientist Award
\$80,000/year
Role: PI, 75%-- The objective of this career development grant was to obtain pilot data for the development of an R01 proposal investigating the impact of the PICU environment and sedative medications on the sleep-delirium pathway.
- 6/1/17-5/30/18 Prevalence of Acute Rehabilitation for Kids in the PICU
Stimulating and Advancing Research in ACCM Award
\$20,000
Role: PI—The objective of this study was to determine the prevalence and characteristics of acute rehabilitation for children admitted to pediatric intensive care units in the U.S.
- 7/1/21-6/30/22 Evaluation of a Simulation Curriculum to Improve Frequency and Safety of Nursing-Led Early Physical Rehabilitation of Critically Ill Children
Johns Hopkins Children's Center Innovation Grant
\$25,000
Role: PI, Mentor to Jessica LaRosa, MD (PICU Fellow)
The overall objective of this project was to determine whether a nurse-targeted, simulation-based early mobility curricular intervention using the framework of the PICU Up! Early Mobility Program improves knowledge and comfort with early mobility and to deploy the curriculum PICU-wide.

CLINICAL ACTIVITIES

Clinical Focus

As a pediatric intensivist and anesthesiologist, I am devoted in my clinical practice to the care of critically ill children in the pediatric intensive care unit (PICU) and to the perioperative care of children undergoing surgery, including those receiving general anesthesia. In my leadership as Vice Chair of Pediatric ACCM, I model continuous quality improvement in my clinical care and provide the necessary tools for my teams to deliver the most outstanding evidence-based care to every child, every day. I am dedicated to improving PICU and pediatric anesthesia care through a multidisciplinary approach to ICU liberation, with special emphasis on optimizing sleep and sedation, preventing delirium, and increasing early rehabilitation. As the Director of the Pediatric ACCM Clinical Research Program and creator of the “PICU Up!” Program, I am focused on translating the complementary knowledge obtained from translational, human subject, and quality-improvement studies to advance care of the pediatric patient.

Certification

Medical, other state/government licensure

2009-present Maryland Medical License, D69587

Boards, other specialty certification

10/06 Diplomate, American Board of Pediatrics (#669241)
10/10 Diplomate, American Board of Anesthesiology
10/12 Pediatric Critical Care Board Certification, American Board of Pediatrics
10/14 Pediatric Anesthesiology Board Certification, American Board of Anesthesiology

Clinical (Service) Responsibilities

2011-present Attending Physician, Pediatric Intensive Care Unit (40 beds), 6-7 weeks/year and 15 in-house calls/year
2011-present Attending Physician, Pediatric Anesthesiology/operating room, 1-2 days/week and 20 in-house calls/year

Clinical Productivity

My targeted clinical effort assignment is 30%, with my actual clinical effort averaging 40%-45% over the last 3 years divided between PICU and pediatric anesthesia.

- PICU: Approximately 2,500 patients between the ages of 1 day and 22 years are admitted annually to the Johns Hopkins PICU. As PICU faculty, I supervise and direct teams of residents, fellows, medical students, and nurse practitioners in the care of critically ill pediatric patients with life-threatening medical and surgical conditions. My responsibilities also include medical direction for pediatric critical care transport. I also provide consultation, direction, and airway management for pediatric traumas and oversee pediatric rapid response team activations and medical emergencies throughout the hospital.
- Pediatric Anesthesiology: Approximately 14,000 anesthetics are performed by the pediatric anesthesiology team at Johns Hopkins annually. I supervise and direct residents, fellows, medical students, and nurse anesthetists in the provision of general anesthesia in the operating room and remote locations, including the oncology suite, MRI, and interventional radiology. I provide in-house coverage as the pediatric anesthesiologist on-call ~40 nights/weekend days per year, in addition to serving as the peds anesthesia coordinator in the general operating rooms ~1-2 days per week.

Clinical Program Building / Leadership

2013-present I founded, developed, and implemented the internationally renowned PICU Up! Early Mobilization Program in collaboration with the PICU Up! Working Group, an interprofessional taskforce I created to initiate the quality improvement process and promote acute rehabilitation for *all* critically ill children admitted to the PICU. The PICU Clinical Program impacts approximately 2,500 children per year in the Johns Hopkins PICU and is a direct conduit to the physical and occupational therapy program (see System Innovation section). In addition, we created a streamlined process for the diagnosis and treatment of pediatric delirium using the pediatric CAM-ICU. Under my leadership, the PICU Up! Working Group was nominated for and awarded the 2016 Johns Hopkins Health System Clinical Teamwork & Collaboration Award and has been licensed and implemented at numerous other children's hospitals in the United States and internationally including but not limited to:

- Boston Children's Hospital
- Lucile Packard Children's Hospital Stanford
- Cincinnati Children's Hospital
- University of Virginia Health System
- Vidant Medical Center
- Lurie Children's Hospital Northwestern
- St. Jude Children's Hospital
- Advocate Health System
- Our Lady of the Lake Children's Hospital

- Cardinal Glennon Children's Hospital
- Riley Children's Hospital

The success of the PICU Up! program at Johns Hopkins and internationally has led to our recent NICHD R01 Award to conduct a stepped-cluster randomized trial of the PICU Up! Intervention in 10 hospital systems across the United States, including a mixed-methods dissemination and implementation study, as well as a collaboration with Boston Children's to investigate the combination of high-protein nutrition and high-dose exercise on outcomes in an NIDDK-funded clinical trial.

2013-present Collaborated with Nick Dalesio, MD (Chair, Pediatric DART program), as a co-chair in planning and implementing the Pediatric Difficult Airway Program, which subsequently led to development of the Pediatric Airway Consultation Service.

Clinical Demonstration Activities

2016-present Johns Hopkins Health Care Solutions, PICU Up! Train the Trainer Program. Through this program, physicians, therapists, and nurses have the opportunity to be trained in group sessions on specific early mobilization interventions. I am the Director of this program, and we currently have three tertiary-care children's hospitals scheduled for training sessions either at Johns Hopkins or at their own sites in the next 12 months. PICU Up! has been adapted worldwide across North America, South America, Europe, and Asia.

2020-present ICU Mobility Lead, Johns Hopkins Activity and Mobility Promotion. *Please see System Innovations section below.*

EDUCATIONAL ACTIVITIES

Educational Focus

My educational focus includes the topics of ICU liberation for the pediatric population, specifically pediatric sedation, sleep promotion, pediatric delirium, and early rehabilitation. I am also passionate about difficult airway management as it relates to the pediatric patient. Finally, a major educational focus is clinical research design, biostatistics, and ethics in human subjects research. I have been core faculty for the MS1-2 Scholarly Concentrations Course in the Clinical Research Focus.

Teaching

Classroom instruction

JHMI/Regional

2011-present Resident lecture for pediatric, anesthesiology, and emergency medicine residents during PICU rotation, lecture ~2X/month

2011-present "Sedation and Airway Management in the PICU: Practical Applications"- PICU fellow annual orientation and quarterly lecture series

2011-present "Scoliosis and the Pediatric Patient: Anesthetic Considerations"- Pedi-20 lecture series, ~5X/year

2011-present PICU fellow lecture series- core topics: ~8X/year

2012-present Anesthesia Resident College Day- One-day lecture and workshops ~ 6X/year (intraosseous access, standardized patient interviews, resuscitation)

2013-2015 Instructor, Clinical Epidemiology- Johns Hopkins University School of Medicine

2014-2016 Faculty Preceptor, Semester Medical Tutorials- Johns Hopkins University School of Medicine

2015-2021 Course Leader, Introduction to Clinical Research (ME.800.274), Cell and Molecular Medicine Graduate Program/Johns Hopkins ICTR

2015-present Biostatistics and Epidemiology for PICU Fellows: Designed and implemented an educational curriculum around core biostatistics and epidemiology concepts including evidence-based medicine. I facilitate and/or teach 10 sessions per year.

2015-present Lecturer, Professional Goals and Objectives- JHSPH GTPCI Program

2017 Lecturer, Neuromuscular Blockade and Local Anesthetics- JHU SOM first-year medical students

2019-present Core Faculty for Clinical Research, Johns Hopkins School of Medicine Scholarly Concentrations Course

- 2020 Guest Lecturer, Culture in Medicine Course, JHU Homewood
 2021-present Lecturer, Neuromuscular Blockade and Local Anesthetics- JHU SOM first-year medical students

Clinical instruction

JHMI/Regional

- 2011-present Pediatric Resident Clinical Rotation, supervise/teach residents (pediatrics, anesthesiology, adult emergency medicine) during PICU rotation (~4 residents per month)
 2011-present Pediatric Critical Care Fellows, supervise/teach subspecialty fellows during clinical service in PICU (~3 fellows/week)
 2011-present Pediatric Anesthesia Fellows, supervise/teach in the operating room
 2012-2016 Transition to Wards: Clinical Skills, second-year medical student instruction/mentoring in the history and physical

Workshops / seminars

JHMI/Regional

- 2011-2015 Speaker, Sadie Abell Annual Senior PICU fellow boot camp: Advanced Airway Workshop
 2014-2015 Speaker and Organizer, Johns Hopkins Annual Pediatric Multidisciplinary Airway Workshop

National

- 2017 Organizer and Faculty, Research Workshop, 2017 Society for Pediatric Pain Medicine Annual Meeting; Houston, TX

Mentoring

Pre-doctoral Advisees /Mentees

- 2015-2018 Gokul Kannan [high school student], currently chemical engineering graduate student at Stanford. Mentored research investigating interactions between dendrimers, glia, and anesthetics as potential therapy for traumatic brain injury. Awarded American Academy of Neurology Neuroscience Research Prize, Finalist in Regeneron Science Talent Search. First author on OR 16.
 2017-2019 Katerina Lin [JHU medical student], currently pediatrics resident at Boston Children's, awarded William Walker Award from Department of Psychiatry.
 2017-present Ruchit Patel [JHU undergraduate student, graduated 1/17/20], currently third-year medical student at Harvard. Mentored research project qualitatively assessing the sustainability of early mobilization programs in the PICU. Awarded a Provost's Undergraduate Research Award (PURA) 11/17. Matriculated to medical school in 2020. First-author on OR 48, co-author on OR 33.
 2018-2020 Irene Halferty [JHU undergraduate student, graduated 5/21], currently Masters student at Johns Hopkins Bloomberg School of Public Health in Health Education and Communication. Co-authored article RA 11.
 2018-2021 Harini Kannan [high school and undergraduate student]. Currently a junior undergraduate at Harvard University. Mentored research testing a novel approach to mobilization in the PICU using customized ride-on cars. Finalist in Regeneron Science Talent Search. Analyzed PARK-PICU Brazil dataset, co-authored OR 82.
 2019-present Razvan Azamfirei [JHU medical student, PhD student]. Mentoring pediatric delirium research as part of PICU Up! trial. Awarded the William Walker Award from the Department of Psychiatry at JHUSOM and oral presentation at American Delirium Society Conference 2021. Currently completing a Dean's Research Year for his MD and PhD under my mentorship. First author on OR 78, 79, 80; LT 11, co-author article OR 40.
 2021-2022 Janey Song [JHU undergraduate student]. Mentoring pediatric rehabilitation research focused on healthcare disparities. Co-authored article OR 69 and OR 76.
 2021-2022 Riley Mitchell [JHU undergraduate student]. Mentoring pediatric sleep and rehabilitation research focused on healthcare disparities. Co-authored article OR 69 and OR 76.

Post-doctoral Advisees /Mentees

- 2011-2013 Othman Aljohani, MBBS [Research Fellow], currently Director of Pediatric Heart Transplant at UCSF, mentored his research in determining sleep quality of postoperative pediatric cardiac surgery

- patients with actigraphy. Two oral presentations at World Pediatric Critical Care Congress in Istanbul, Turkey (2012). Co-authored articles OR 3, 27.
- 2013-2014 Ebba Jastaniah, MBBS, MPH [Research Fellow], currently pediatric emergency medicine physician at Arkansas Children's. Investigated role of environment, opioids, and sedatives on sleep patterns in the PICU. Oral presentation at AAP 2016 in San Diego, CA. Co-authored articles OR 4, 9, 27.
- 2013-2015 Melanie Cooper, DO [PICU Fellow], currently PICU attending at Pediatrix Medical Group, Spokane, WA. Investigated barriers to delirium screening in the PICU. Co-authored article OR 8.
- 2013-present Beth Wiecek, NP, DNP [PICU nurse practitioner]. Developed and implemented a systematic approach to early mobilization for critically ill children. First author on OR 5, 10. Co-author on 15, 21, 25, 48, 77; GL 1; BC 13
- 2015-present Sean Barnes, MD, MBA [PICU/Pediatric Anesthesia fellow], currently Assistant Professor of Anesthesiology and Critical Care Medicine at Johns Hopkins. Mentoring research in risk factors for delirium in the PICU and strategies for delirium education. Awarded AAP Section on Critical Care Small Projects Grant and American Thoracic Society Travel Award (2016). Awarded SCCM Gold Abstract Award and Anesthesiology Travel Award (2019). First author for articles RA 5, BC 10, ED 3, LT 3. Co-authored articles OR 12, 23, 69, LT5.
- 2015-2017 Nehal Shata, MBBS [Research Fellow], currently third-year pediatric resident at McGill University. Investigated sleep-wake patterns in postoperative patients and worked on PICU Up! QI. Abstract presentation at PICC 2016 in Toronto, Co-authored articles OR 10, 12, 27.
- 2015-2019 Sarah Bertrand, PhD [Postdoctoral Fellow], currently Scientist at Longevity Biotech, completed multi-institutional T32 for sleep research; mentored her translational research on sleep fragmentation-induced neuroinflammation in a pediatric rabbit model. First-authored OR 33.
- 2015-2019 Elizabeth Herrup, MD [PICU fellow], currently pediatric CICU attending at Children's Hospital of Philadelphia. Mentored research on post-intensive care syndrome in PICU patients. First authored OR 15, 25, co-authored ED 18.
- 2015-present Anisha Nadkarni, MD [medical student, resident, and fellow], currently pediatric critical care fellow at Johns Hopkins; mentored research investigating sleep-wake patterns in postoperative PICU patients while she was in medical school and intubation QI project as a pediatrics-anesthesia resident. Co-authored article OR 27.
- 2016-present Tracie Walker, MD [PICU fellow], currently Assistant Professor of Pediatrics at University of North Carolina. Mentoring research on PICU ambulation tracking using infrared sensor technology. Co-authored articles OR 34, 69; 1st author on RA 9, 10; ED 8. UNC Site PI for PICU Up! Trial.
- 2016-2018 Meghan Shackelford, CRNP [PICU nurse practitioner]; Mentored QI work on sedation scoring in mechanically ventilated PICU patients. First author for BC 9.
- 2017-present Krista Hajnik, RRT [Respiratory Therapist]; Mentoring QI research on extubation readiness trials in critically ill children. Presented abstract at AARC 2018. Co-authored article OR 77.
- 2018-present Jessica Berger, MD [Pediatrics-Anesthesia Resident/Pediatric Anesthesia Fellow]; Mentoring research on the interactions between pain and sleep in cardiac ICU patients. Abstracts presented at Pediatric Cardiac Intensive Care Society and Society for Pediatric Anesthesia. Joined pediatric anesthesiology faculty at Children's Hospital of Philadelphia in 11/2020. First author on BC 11, RA 11, Co-authored article OR 69.
- 2018-2021 Ronke Awojodu, RN, MPH [Research Nurse]; Mentoring research focused on family engagement to optimize early mobility in the PICU. Robert Wood Johnson Foundation Future of Nursing Scholar. Co-authored articles OR 34, 45, 58, 59, 66.
- 2018-present Dave Procaccini, PharmD, MPH [Clinical Pharmacist]; Mentoring research on melatonin safety and efficacy in hospitalized pediatric patients and quality and safety research focused on PICU sedation. Co-author LT 8. Won the 2020 Maryland Society of Health-System Pharmacy Medication Safety Award for OR 38 and Departmental Research Award for Melatonin QI project. First-authored OR 35, 38, 40, 64. Co-authored OR 80, LT 8.
- 2019-present Jessica LaRosa, MD [PICU Fellow, Faculty]; Mentoring research on safety of early mobility in the PICU. Awarded the Johns Hopkins KL2 Clinical Research Scholars Award. Recipient of Johns Hopkins Children's Center Innovation Award. First author on OR 66, ED 2, ED 17, co-author RA 13.

- 2020-present Anjali Garg [PICU Fellow and JHSPH PhD Candidate]; Mentoring research on social determinants of health and PICU outcomes. Awarded a Pediatric Cardiopulmonary and Critical Care T32 in July 2022. Awarded STAR Research Award at 2023 SCCM Congress. Editorial Fellow for *Pediatrics*. First author on OR 77.
- 2020-present Shivani Patel, MD [Pediatric Anesthesia Faculty]; Mentoring research on quality and safety dashboard for pediatric anesthesiologists. Received ACCM StAARter Core Research Award. First author on OR 63.
- 2020-present Megan McSherry [Pediatric Resident], currently PICU Fellow at Children's Hospital of Philadelphia. Mentoring research on PICU intubation safety and palliative care and prognostic communication in the PICU. First author on OR 71 and ED 16.
- 2021-present Mallory Perry, PhD, RN [post-doctoral fellow], currently Assistant Professor at University of Connecticut]. Mentoring research on sleep and post-discharge outcomes in critically ill children. Awarded K99/R00. First author on OR 59.

Thesis committees

- 2015 Beth Wieczorek, DNP; "Impact of an Early Mobilization Program for Critically Ill Children," DNP Research Mentor
- 2016 Shinya Miura, MPH "Barriers to Early Mobilization in Critically Ill Children," Capstone Research Mentor
- 2017 Marjorie Birdsong, RN, "Prevention of Pressure Ulcers in Critically Ill Children," DNP Research Mentor
- 2018 Dave Procaccini, PharmD, MPH, "Safety and Efficacy of Melatonin Use in Hospitalized Pediatric Patients." Capstone Research Mentor
- 2020 Ronke Awojodu, RN, MPH, "Family Engagement in Pediatric ICU Mobility," PhD Research Mentor
- 2020 Razvan Azamfirei, BS, "Delirium in Critically Ill Children," PhD Research Mentor
- 2023 Nicholas Reed, AuD, "Association of Hearing Loss and Patient-centered Outcomes," Committee Member

Educational Program Building / Leadership

- 2015 Designed two myLearning modules in collaboration with Hopkins myLearning on Pediatric Delirium and PICU Early Mobilization. These modules are taken by all PICU staff and are now being disseminated nationally through a collaboration with Johns Hopkins Health Care Solutions and the Armstrong Institute.
- 2020-present I have established an internationally recognized repository of literature for Neonatal and Pediatric ICU Liberation with over 1100 articles. This central website, which I curate daily, has over 2200 unique page visits. bit.ly/pedsliberationliterature

RESEARCH ACTIVITIES

Research Focus

My primary research focus as a clinical trialist is the role of sleep disturbances as a modulator of outcomes in critically ill children and the effects of sedation optimization, delirium prevention, and early rehabilitation in the management of children in the PICU. My projects as PI include investigations of sleep in mechanically ventilated children using quantitative techniques and describing the evolution of sleep-wake cycles after critical illness as evidenced by long-term actigraphic monitoring. Additionally, I collaborate on translational work to study the role of sleep fragmentation on neuroinflammation in a neonatal rabbit model. Finally I am the Lead PI for the international PARK-PICU (**P**revalence of **A**cute **R**ehab for **K**ids in the **P**ICU) study, which includes >200 sites in the US, Canada, Brazil, Europe, Middle East, Australia, and New Zealand and recently was awarded an R01 for a 10-hospital stepped-wedge cluster randomized controlled trial of the PICU Up! intervention developed here at Johns Hopkins. I was also most recently awarded an R01 from the NIDDK to build on my acute rehabilitation work to understand how the dose and duration of exercise and protein in critically ill children affects functional outcomes. I have methodological expertise in clinical trials and statistical expertise in the time-series analysis of bio-signal data,

including accelerometry and electroencephalography (EEG). I have devoted my career as a clinician-scientist to advancing science in pediatric critical care through rigorous clinical research.

Research Program Building / Leadership

- 2015-present Director, Pediatric ACCM Clinical Research Program. I am responsible for oversight of all human subjects research conducted in the Johns Hopkins PICU, PCICU, Pediatric Anesthesia, and Pain Medicine. I also act as a resource for PIs conducting this research to ensure that studies are implemented smoothly and that multicenter trial requirements are being met. My roles include (a) increasing participation of the Johns Hopkins Pediatric ACCM in national collaborative network studies (i.e., PALISI, CPPCRN, PNCRG, SPA); (b) guiding fellows and faculty in study methodology and statistical analysis approaches and securing specific resources; (c) centralizing screening for sponsored and nonsponsored single-center and multicenter studies; and (d) hiring and supervising full-time clinical research coordinators and pediatric research nurses.
- 2018-2021 Associate Vice Chair for Research, ACCM. Work in close collaboration with Dr. Sujatha Kannan (vice chair) to create and maintain infrastructure for basic, translational, QI, educational, and clinical research in the Department of Anesthesiology & Critical Care Medicine. Allocate resources (coordinator support, statistical support, database management) of ACCM staff after review of applications from ACCM faculty and fellows. Work closely with ACCM Grants Management to streamline financing of studies and staff salaries while providing needed support for ACCM faculty seeking pilot funding for new studies or preliminary data. Develop workshops to advance research training across all staff in ACCM including, most recently, a dissemination and implementation science curriculum for ACCM faculty.
- 2022-present Vice Chair for Pediatric Anesthesiology and Critical Care Medicine, ACCM. Continue as Director of Clinical Research for all of Pediatric Anesthesiology and Critical Care Medicine and oversee research infrastructure and staffing.

Inventions, Patents, Copyrights

- 7/26/16 Trademark: "PICU Up" [Kudchadkar SR, Wieczorek B, Berkowitz I]. #86736071. Notice of Allowance Issued.

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

System Innovation Focus

For system innovation, I use multicomponent approaches to early mobilization for the critically ill child. Through the PICU Up! Working Group at Johns Hopkins, I have led a multidisciplinary team of PICU staff in creating a standardized and streamlined approach to early mobilization and progressive rehabilitation for all PICU patients, changing the traditional paradigm of immobility and sedation to a culture of mobility. As such, improving family engagement to create healing environments in the PICU with augmentation of patient communication is a natural progression of this work.

System Innovation and Quality Improvement efforts within JHMI:

- 2013-present Founder and Director, PICU Up! Early Mobilization Program, Johns Hopkins PICU. In this QI project, data were collected and analyzed from July to August 2014 (preimplementation phase) and July to August 2015 (post-implementation). The study sample included 200 children aged 1 day through 17 years who were admitted to the PICU and had a length of stay of at least 3 days. PICU Up! implementation led to an increase in occupational therapy consultations (44% vs 59%; $p=0.034$) and physical therapy consultations (54% vs 66%; $p=0.08$) by PICU day 3. The median number of mobilizations per patient by PICU day 3 increased from 3 to 6 ($p<0.001$). More children engaged in mobilization activities after the PICU Up! intervention by PICU day 3, including active bed positioning ($p<0.001$) and ambulation ($p=0.04$). No adverse events occurred as a result of early mobilization activities. In summary, implementation of a structured and stratified early mobilization program in the PICU was feasible and resulted in no adverse events. PICU Up! increased physical therapy and occupational therapy involvement in the children's care and increased early mobilization activities, including ambulation. The PICU Up! Program has now expanded to include all elements of the "ABCDEF" bundle with a streamlined approached and continuous process improvement focused

on analgesia, sedation, delirium prevention, early mobility, and family engagement. We have developed a comprehensive augmentative and assistive communication (AAC) program for children of all ages and decreased pressure ulcer incidence to 0% with our PICU Up! initiatives.

System Innovation and Quality Improvement efforts outside of JHMI:

2015-present Pediatric ICU Social Media Initiative. As the social media ambassador for the American Academy of Pediatrics Section on Critical Care, I have led an initiative for system innovation in social media use within the pediatric critical care, anesthesiology, and pain medicine communities. Through the creation of #PedsICU, #PedsAnes, and #PedsPain, I have created and maintained an international online community for research collaboration, dissemination, and education. My work to build these social media communities in medicine has led to over 1 billion impressions since January 2016 for #PedsICU. I currently have >16,000 Twitter followers on my own professional account, and the @HopkinsPICU and @PICU_Up! pages that I manage have >3,600 followers each and are growing. Based on my success with these social media initiatives and history of scholarly productivity in research, I was appointed the Associate Editor of *Pediatric Critical Care Medicine* (PCCM) in February 2017. PCCM is the specialty's primary journal and is the official pediatric journal of the Society of Critical Care Medicine and of the World Federation of Pediatric and Intensive Critical Care Societies. Since I started in this role, PCCM has increased its Twitter followers from 700 to >15,000, and the number of unique visitors to the PCCM web page per month has quadrupled.

Given the results of my tenure with PCCM, I was appointed the Senior Associate Editor of *Pediatric Critical Care Medicine*, the youngest editorial board member ever to assume this role.

2016-2018 Site Lead, 3%; Society of Critical Care Medicine Pediatric ICU Liberation Initiative. This national quality improvement collaborative, which includes the Johns Hopkins PICU, aims to implement the ABCDEF bundle as part of a multisite quality improvement initiative. The ABCDEF bundle is a multimodal approach for liberating the ICU patient that incorporates analgesia (A), ventilator weaning (B), sedation coordination (C), delirium prevention (D), early mobilization (E), and family engagement (F). This collaborative has completed the baseline and intervention data collection phase, and a manuscript is in final revisions.

2019-2022 Hospital Activity and Mobility Promotion (AMP) Consultant. Given my expertise in critical care rehabilitation, I was the ICU Lead for the Johns Hopkins AMP program, which is being implemented nationally, including at Brooke Army Medical Center and Queens Medical Center (Honolulu). I work closely with the interprofessional adult ICU teams to implement early mobility in the critical care setting and conduct monthly leadership calls with stakeholders to optimize process and outcomes. This work has now translated to the adaptation of my stepped-wedge cluster randomized controlled trial in PICUs to adult hospital mobility, including Intermountain Healthcare, University of Colorado, and Christiana Care Health System.

2020-present In September 2020 I recognized a critical need to build a publicly accessible repository of women in pediatric critical care medicine and their areas of expertise to facilitate invitations to be panelists, moderators, speakers and collaborators for projects. I deployed the "PICU Women Speakers List" (bit.ly/picuwomenspeakers) and within just 2 months the list had grown to over 200 interprofessional pediatric critical care clinicians from across the world. The list itself has been accessed >2000 times since its inception and continues to grow (currently >500). It has been used by the Society of Critical Care Medicine Congress Planning Committee, WFPICCS, and several other organizations to identify talented women with unique expertise. This initiative led to the creation of a pediatric anesthesia women speakers list as well as lists for other professions based on its success.

System Innovation and Quality Improvement Program Building/Leadership:

2016-present Leading collaboration with Johns Hopkins Health Care Solutions and the Armstrong Institute to provide early rehabilitation quality improvement tools to other institutions internationally, including online modules and bedside tools. <https://www.johnshopkinssolutions.com/solution/picu-up/>

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

2013-2016	Co-Chair, Pediatric Difficult Airway Taskforce
2013-present	Pediatrics-Anesthesia Combined Training Liaison
2013-present	Director, PICU UP! Early Mobilization Team
2014-present	Director, Johns Hopkins Pediatric ACCM Clinical Research Program
2015-2018	Departmental representative, Johns Hopkins Faculty Senate
2015-present	Associate Fellowship Director (Research), PICU Fellowship Program
2016-2018	Associate Director, ACCM Clinical Research Core
2016-present	Member, Johns Hopkins Anesthesia & Analgesia Pharmacy Specialty Panel
2017-present	Member, ACCM Research Committee, Co-chair ACCM Resident Research Committee
2018-2022	Associate Vice Chair of ACCM Research
2021-present	Member, Advisory Council, Johns Hopkins Bloomberg School of Public Health Graduate Training Program in Clinical Investigation
2022-present	Vice Chair for Pediatric Anesthesiology and Critical Care Medicine
2022-present	Anesthesiologist-in-Chief, Johns Hopkins Children's Center
2022-present	Acting Division Chief, Pediatric Anesthesiology and Pain Medicine

Editorial Activities

Editorial Board Appointments

2017-2020	Associate Editor, <i>Pediatric Critical Care Medicine</i>
2018-2020	Senior Associate Editor, <i>Critical Care Explorations</i>
2018-2020	<i>Translational Pediatrics</i>
2019-present	<i>Lancet Child and Adolescent Health</i> (International Advisory Board)
2021-present	Senior Associate Editor, <i>Pediatric Critical Care Medicine</i>

Journal peer review activities

2012-present	<i>Pediatric Critical Care Medicine</i>
2012-present	<i>Sleep</i>
2014-present	<i>Journal of Clinical Anesthesia</i>
2014-present	<i>Lancet Neurology</i>
2015-present	<i>Pediatrics</i>
2015-present	<i>Pediatric Drugs</i>
2015-present	<i>Pediatric Transplantation</i>
2015-present	<i>Journal of Neurotrauma</i>
2016-present	<i>Critical Care Nurse</i>
2016-present	<i>Hospital Medicine</i>
2016-present	<i>Critical Care Medicine</i>
2016-present	<i>Journal of Intensive Care Medicine</i>
2017-present	<i>Patient Centered Outcomes Institute (PCORI)</i>
2018-present	<i>Intensive Care Medicine</i>
2020-present	<i>Pediatric Anesthesia</i>
2021-present	<i>Anaesthesia</i>
2021-present	<i>JAMA Network Open</i>
2022-present	<i>New England Journal of Medicine</i>

Advisory Committees, Review groups/Study Sections

3/17	Ad hoc reviewer, National Institutes of Health NINDS/NSD-K Study Section
4/19	NINDS Special Emphasis Panel, ZNS1 SRB-G (23)
6/19	NINDS NST-2
4/21	NIH Post-Acute Sequelae of SARS-CoV-2 Infection (PASC) Reviewer
9/21	NINDS Special Emphasis Panel, ZNS1 SRB-G (41)
2/23	NCCIH ZAT1 MH (03) Loan Repayment Program (LRP) review panel

Professional Societies

2009-present	Society of Critical Care Medicine (SCCM)
	2009-present Pediatric section member
	2016-2018 Member, ICU Liberation Task Force
	2019-2020 Chair, SCCM Social Media Committee
2009-present	Society of Pediatric Anesthesia (SPA)
2010-present	American Academy of Pediatrics (AAP)
	2010-present Member
	2010-present Social Media Ambassador, Section on Critical Care (Appointed)
2011-present	American Thoracic Society (ATS)
	2011-present Member
	2011-present Sleep & Respiratory Neurobiology Assembly Member
2012-present	American Delirium Society
	2012-2018 Member
	2012-2018 Member, Research Committee (Appointed)
2014-2017	Society for Pediatric Pain Medicine
	2014-2017 Member
	2014-2017 Chair, Research Committee
2018-2022	Member, Pediatric Critical Care Colloquium Steering Committee
2019-2021	Member, Foundation for Anesthesia Education and Research, Development Committee (Appointed)
2019-present	Member, Society for Pediatric Research (Nominated and Selected)
2020-2023	Member, Pediatric Acute Lung Injury and Sepsis Investigators (PALISI) Executive Committee (Elected)

Conference Organizer

JHMI/Regional

11/14	Conference Organizing Committee, Johns Hopkins Multidisciplinary Pediatric Airway Course
11/16-present	Activity Planning Committee and Chair and Organizer for Pediatric Critical Care Track, Johns Hopkins Annual Critical Care Rehabilitation Conference (annual)
10/18	Activity Co-Director, 2018 Pediatric Critical Care Colloquium

Session Chair/Facilitator

JHMI/Regional

12/15	Co-chair, ACCM Research Day, Baltimore, MD
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National

1/17	Session Chair, Society for Critical Care Medicine Annual Meeting, "From Toxic to Healing PICU Environments," Honolulu, HI
5/16	Thematic Poster Session Facilitator, American Thoracic Society Meeting, San Francisco, CA
4/17	Session Chair, Society for Pediatric Pain Medicine Annual Meeting, "Pediatric Pain Research: Year in Review," Austin, TX
5/17	Thematic Poster Session Facilitator, American Thoracic Society Meeting, Washington, D.C.
2/18	Session Chair, Society of Critical Care Medicine Annual Congress, "Social Media in Critical Care," San Antonio, TX
1/23	Session Chair, Society of Critical Care Medicine Annual Congress, "Professional Social Media and You: Where to Begin," San Francisco, CA
6/23	Session Chair, American Delirium Society Annual Meeting, "Electrical and Neurofunctional Imaging in Adult and Pediatric Delirium," Providence, RI

International

6/16	Session Chair, World Federation of Pediatric Intensive and Critical Care Societies Congress, "PICU Outcomes and Rehabilitation," Toronto, Canada
6/18	Session Chair, World Federation of Pediatric Intensive and Critical Care Societies Congress, "Delirium in the PICU," Singapore

6/18	Session Chair, World Federation of Pediatric Intensive and Critical Care Societies Congress, "Social Media and App Technology in the PICU," Singapore
6/19	Session Chair, European Society of Pediatric and Neonatal Intensive Care Congress, "Does Measuring the Quality of Resuscitation Improve Outcome?" Salzburg, Austria
12/20	European Society of Intensive Care Medicine LIVES 2020, "Dinosaurs becoming birds- Intensivist evolution or path to extinction," Virtual
12/20	Session Chair, World Federation of Pediatric Intensive and Critical Care Societies, "Sedation and Analgesia in the PICU," Virtual
6/21	Moderator, European Delirium Association Webinar, "Pediatric Delirium," Virtual
10/22	Session Chair, Sedation, Sleep and Delirium Award Abstracts, European Academy of Pediatric Societies Congress, Barcelona, Spain

RECOGNITION

Awards, Honors

1999	William Greenleaf Eliot Distinguished Leadership and Service Award, Washington University in St. Louis
2001	Soros Foundation Open Society Fellowship Award
2003	American College of Physicians (ACP) National Medical Student Poster Winner
2003	American Medical Women's Association Leadership Award
2010	Foundation for Anesthesia Education and Research (FAER) Research Fellowship Grant
2010	Best Poster- 12 th Annual Anesthesiology and Critical Care Medicine Research Day
2011	American Thoracic Society Fellow Travel Award
2011	Johns Hopkins KL2 Clinical Research Scholars Award
2011	NIH Extramural Pediatric Loan Repayment Program (LRP) Award
2013	Alfred Sommer Scholar Award-Graduate Training Program in Clinical Investigation, Johns Hopkins Bloomberg School of Public Health
2015	Ross Physician Scientist Endowment Award
2016	American Thoracic Society Outstanding Early Career Investigator Recognition Award
2016	Johns Hopkins Health System Clinical Teamwork and Collaboration Award
2017	Baltimore Magazine "Top Doctor" in Pediatric Anesthesiology
2018	SCCM Presidential Citation
2018	Resident Research Mentor Award, Anesthesiology and Critical Care Medicine
2019	SCCM Presidential Citation
2020	Fellow, American College of Critical Care Medicine
2021	Johns Hopkins President's Frontier Award Finalist

Invited Talks

JHMI/Regional

4/12	Speaker, Pediatric Resident Case Conference, "Pediatric Anesthesia Pearls: IV access," Baltimore, MD
10/12	Speaker, Pediatric Critical Care Lecture Series for Visiting Professor Dr. Pat Kochanek, "Sleep in the Pediatric Intensive Care Unit," Baltimore, MD
11/12	Speaker, PICU Research Series for Visiting Professor Dr. Carol Nicholson (NIH), "Sleep Research in Pediatric Critical Care," Baltimore, MD
3/13	Keynote Speaker, Johns Hopkins Delirium Consortium, "Diagnosis and Management of Delirium in the Pediatric ICU," Baltimore, MD
3/13	Guest Speaker, Pediatric Cardiology, "Sleep-Wake Cycles of Children After Cardiac Surgery," Baltimore, MD
10/13	Keynote speaker, Johns Hopkins Sleep Medicine Lecture Series, "Characterizing Sleep in the PICU: Applications of the Fast Fourier Transform," Baltimore, MD
4/14	Guest speaker, Johns Hopkins Pediatric Pulmonary Divisional Conference, "Sleep Disturbances in the PICU," Baltimore, MD
8/14	Speaker, Johns Hopkins Hospital Bench-to-Bedside Research Training Course, "Hypothesis and Rationale Building in Clinical Research," Baltimore, MD

10/14 Speaker, Johns Hopkins Critical Care Rehabilitation Conference, “The PICU UP! Early Mobilization Initiative,” Baltimore, MD

11/14 Speaker, Johns Hopkins Neurocritical Care Seminar, “To Sleep or Not to Sleep in the PICU: Characterizing the Sleep EEG in Critically Ill Children,” Baltimore, MD

4/15 Speaker, Johns Hopkins Sleep Medicine Seminar, “Sleep, Critical Illness and the Developing Brain,” Baltimore, MD

11/15 Speaker, Johns Hopkins Critical Care Rehabilitation Conference, “Pediatric ICU Mobility: Case Studies,” Baltimore, MD

3/16 Speaker, University of Maryland Department of Pediatrics Grand Rounds, “Sleep, Sedation, Delirium and the Hospitalized Child,” Baltimore, MD

4/16 Speaker, Johns Hopkins Department of Anesthesiology & Critical Care Medicine Grand Rounds, “Sedation, Sleep, Delirium and the Critically Ill Child: We DID start the fire!” Baltimore, MD

6/16 Speaker, JHSPH Centennial Celebration introducing guest of honor Michael Bloomberg, Baltimore, MD

11/16 Speaker, Johns Hopkins Critical Care Rehabilitation Conference, “PICU Early Mobilization: Where We’ve Come and Where We’re Headed,” Baltimore, MD

4/17 Speaker, Johns Hopkins Sleep Research Seminar, “Sleep and the Inpatient: More Than Meets the Eye?” Baltimore, MD

6/17 Speaker, ACCM 39th Biennial Meeting, “Lessons Learned from PICU Up!: Successfully Educating Patients, Families and Colleagues to Implement a Paradigm Changing Program” Baltimore, MD

10/17 Speaker, ACCM Discovery Rounds, “The Quest to Liberate the Critically Ill Child,” Baltimore, MD

2/18 Speaker, City-wide Neonatal Conference, “Sleep and the Critically Ill Child: From Bench to Bedside,” Baltimore, MD

3/18 Speaker, TEDxJHU Talk, “Illness Shouldn’t Mean Stillness: Time to PICU Up!” Baltimore, MD

6/18 Speaker, 125th Anniversary of Johns Hopkins Physical Medicine & Rehabilitation, “Social Media in Academic Medicine: Time to Jump In!” Baltimore, MD

7/18 Speaker, Johns Hopkins Department of Orthopedic Surgery Faculty Meeting, “Social Media in Academic Medicine: Time for Orthopedic Surgeons to Take the Plunge?” Baltimore, MD

2/19 Keynote Speaker, Johns Hopkins Department of Pediatrics Resident/Medical Student Research Fair, “The Yin to Your Yang: Cultivating the Mentor-Mentee Relationship,” Baltimore, MD

2/19 Speaker, Johns Hopkins Pediatric Chronic Critical Illness Series, “Optimizing Neurodevelopmental Care for the Chronically Critically Ill Child,” Baltimore, MD

9/19 Speaker, Johns Hopkins Pain Symposium, “Pediatric Mobility, Hurt or Help?” Baltimore, MD

9/20 Speaker, Johns Hopkins Department of Anesthesiology & Critical Care Medicine Grand Rounds, “Social Media, ACCM, and You: Leveraging Twitter for Professional Development,” Baltimore, MD

11/20 Panelist, Johns Hopkins Department of Medicine and Surgery Social Work Grand Rounds, “Exploring the Clinical Challenges of Providing Patient-centered Care During a New Pandemic,” Baltimore, MD

1/21 Guest Speaker, Johns Hopkins University Leadership in Times of Crisis Course, Baltimore, MD

6/21 Speaker, The Zamierowski Pediatric Critical Care & Resuscitation (PCCR) APN Simulation Boot Camp

6/22 Speaker, Pediatric Radiology Educational Seminar Series, “Multi-D Approaches to Promote a Culture of Mobility for Critically Ill Children,” Baltimore, MD

National

2/12 Speaker, Problem Based Learning Discussion, Society of Pediatric Anesthesia Annual Conference, “Factor VII Deficiency and Craniofacial Reconstruction,” Tampa, FL

2/12 Panel Speaker, Society of Pediatric Anesthesia Annual Conference, “Trends in Pediatric Anesthesia,” Tampa, FL

2/14 Speaker, University of Pennsylvania Anesthesia Research Seminar, “To Sleep or Not to Sleep in the Pediatric ICU,” Philadelphia, PA

3/15 Keynote Speaker, Society for Pediatric Pain Medicine Annual Conference, “Opioids and Sleep,” Phoenix, AZ

4/15 Guest Speaker, Children’s National Medical Center PICU Research Series, “Sedation, Sleep, and Delirium: Friends or Foes?” Washington, DC

6/15 Invited speaker/panelist, American Delirium Society Annual Meeting, "Sleep Promotion for Delirium Prevention in Children," Baltimore, MD

6/15 Invited plenary speaker, American Delirium Society Annual Meeting, "Year in Review- Pediatric Delirium," Baltimore, MD

10/15 Invited speaker, Society for Anesthesia and Sleep Medicine, "Sleep and Neuroinflammation in the Developing Brain," San Diego, CA

2/16 Speaker, St. Joseph's Medical Center Grand Rounds, "PICU Up!: Early Mobilization and the Critically Ill Child," Paterson, NJ

2/16 Speaker, Cornell University Department of Pediatrics Grand Rounds, "Sleep and Hospitalized Children—Paradox?" New York, NY

5/16 Speaker, American Thoracic Society Meeting postgraduate course, "Sleep, Critical Illness and the Developing Brain," San Francisco, CA

6/16 Invited speaker, American Delirium Society Meeting symposium, "Delirium Prevention in the PICU: Where Does Sleep Fit In?" Nashville, TN

6/16 Speaker, American Delirium Society Meeting Keynote Panel, "Pediatric Delirium: Year in Review," Nashville, TN

6/16 Speaker, Medical College of Wisconsin Departments of Physical Medicine & Rehabilitation and Pediatrics Grand Rounds, "PICU Up!: Promoting a Culture of Mobility for Critically Ill Children," Milwaukee, WI

9/16 Speaker, Pediatric Neurocritical Care Research Group Meeting, "Sleep Disturbances in Traumatic Brain Injury," Washington, DC

9/16 Speaker, Pediatric Acute Lung Injury Network Conference, "Early Mobilization in the PICU: A Point-Prevalence Study," Washington, DC

11/16 Speaker, Annual Pediatric Critical Care Colloquium, "Early Mobilization in the PICU: But First a Good Night's Sleep!" New York, NY

1/17 Speaker, Society for Critical Care Medicine Congress, "Sleep, Delirium, and the ABCDEF Bundle," Honolulu, HI

1/17 Speaker, Society for Critical Care Medicine Congress and Session Chair, "From Toxic to Healing PICU Environments—Sleep Promotion in the PICU," Honolulu, HI

3/17 Speaker, Pediatric Acute Lung Injury & Sepsis Investigators Meeting, "PARK-PICU: Prevalence of Acute Rehab for Kids in the PICU," Park City, UT

3/17 Speaker, the Northwell Health ABCDEF Bundle Collaborative Meeting, "PICU Up! and the ABCDEF Bundle," Lake Success, NY (web conferencing)

4/17 Speaker, SUNY Stonybrook Department of Pediatrics Grand Rounds, "Promoting a Culture of Mobility for Critically Ill Children," Stonybrook, NY

4/17 Speaker, University of Virginia Department of Pediatrics Grand Rounds, "To Sleep or not to Sleep in the PICU," Charlottesville, VA

5/17 Speaker, Nationwide Children's Hospital Department of Anesthesia Grand Rounds, "Delirium: We Did Start the Fire," Columbus, OH

9/17 Keynote Speaker, Richard and Coral A. Tegley Memorial Lecture, LLUCH Pediatric Critical Care Symposium, "PICU UP! Teaming up and Transforming to a Culture of Mobility for the Critically Ill Child," Loma Linda, California

12/17 Speaker, Emory University Department of Pediatrics Grand Rounds, Children's Healthcare of Atlanta: Children's at Egleston

12/17 Speaker, Emory University Department of Pediatrics Grand Rounds, Children's Healthcare of Atlanta: Children's at Scottish Rite

1/18 Speaker, Case Western University/Rainbow Babies and Children's Hospital Grand Rounds, Cleveland, OH

2/18 Invited Speaker, SCCM Pediatric Critical Concepts Course, "Sleep in the PICU," San Antonio, TX

3/18 Speaker, University of Iowa Department of Pediatrics Grand Rounds, Iowa City, IA

3/18 Speaker, Connecticut Children's Medical Center Grand Rounds, Hartford, CT

4/18 Speaker, Children's Hospital of Philadelphia/University of Pennsylvania Grand Rounds, Philadelphia, PA

5/18 Speaker, Children's Hospital of Los Angeles/University of California-Los Angeles Grand Rounds, Los Angeles, CA

8/18 Invited Lecturer, Pediatric Acute Lung Injury and Sepsis Investigators Network Fall meeting, "Social Media, #PedsICU and You," Boston, MA

8/18 Faculty Speaker, SCCM Multiprofessional Critical Care Review Course, "Sedation, Analgesia and Neuromuscular Blockade," Chicago, IL

9/18 Visiting Professor, Texas Children's Hospital, "Creating a Culture of Mobility for Critically Ill Children," Houston, TX

10/18 Keynote Speaker, Child Neurology Society Meeting, "Sleep and Delirium in Critically Ill Children," Chicago, IL

10/18 Speaker, 32nd Annual Meeting of the Society for Pediatric Anesthesia, "Progressive Mobility in the Perioperative Period," San Francisco, CA

12/18 Keynote Speaker, American Association of Respiratory Care Congress, "Delirium in the Critical Care Setting: Reality or Dream?" and "Challenging the Status Quo: Mechanically ventilated children Should be Awake," Las Vegas, NV

12/18 Speaker, University of Pittsburgh Department of Critical Care Grand Rounds, Pittsburgh, PA

2/19 Guest Speaker, 57th Clinical Conference in Pediatric Anesthesiology, "Can We Really Use Social Media for Our CMEs?" and "Emergence Delirium," Los Angeles, CA

2/19 Invited Speaker, Society of Critical Care Medicine Annual Congress, Current Concepts in Pediatric Critical Care Course, "THRIVE: ABCDEF Bundle" and "Move, Don't Sedate," San Diego, CA

3/19 Speaker, Children's National Medical Center Grand Rounds, "Transforming a Culture of Immobility for Critically Ill Children," Washington, DC

5/19 Speaker, Phoenix Children's Hospital Grand Rounds, "To Move or Not to Move in the PICU," Phoenix, AZ

5/19 Keynote Speaker, Pediatric Critical Care Regional Meeting, University of Wisconsin, "Illness Doesn't Mean Stillness: Creating a Culture of Mobility With the ABCDEF Bundle," Madison, WI

6/19 Invited Speaker, American Delirium Society Meeting, "Sleep and Delirium in Critically Ill Children," Boston, MA

8/19 Speaker, Le Bonheur Children's Hospital Grand Rounds, University of Tennessee Health Sciences Center, "Illness Doesn't Mean Stillness, Teaming up to Create a Culture of Mobility for Hospitalized Children," Memphis, TN

8/19 Grand Rounds Speaker, St. Jude Children's Hospital, "Creating a Culture of Mobility for the Pediatric Oncology Patient," Memphis, TN

9/19 Special Lecturer, Boston Children's Hospital, "Illness Doesn't Mean Stillness: Let the PICU Up! Journey Begin!" Boston, MA

10/19 Visiting Professor and Research Seminar, Stanford University, "From Sleep to Mobility: How Did We Get Here?" Palo Alto, CA

2/20 Speaker, Montefiore Medical Center Grand Rounds, "Creating Healing Environments for Critically Ill Children: Time to PICU Up!" Bronx, NY

3/20 Speaker, Indiana University Health, Riley Children's Hospital Grand Rounds, "The Riley PICU Up! Journey Begins!" *Zoom Grand Rounds w/191 viewers.

4/20 Speaker, SSM Health/Cardinal Glennon Children's Hospital Grand Rounds, "The Cardinal Glennon PICU Up! Journey Begins!" *Zoom Grand Rounds.

4/20 Invited Speaker, Pediatric Academic Societies Annual Meeting, "ROSC Is Just the Beginning: Preventing Secondary Injury After Successful CPR," Philadelphia, PA. *Postponed due to COVID-19

4/20 Speaker, Nicklaus Children's Hospital Grand Rounds, "Teaming up to Create a Culture of Mobility for Critically Ill Children," Miami, FL. *Zoom Grand Rounds.

5/20 Speaker and Panelist, "Leveraging New Models in Addressing Hospital Deconditioning and Physical Impairment to Establish a COVID-19 Throughput Framework," American Physical Therapy Association Webinar

5/20 Speaker and Panelist, "Care of the COVID-19 Patient: From Home to the ICU," American Thoracic Society Critical Care Training Forum, Webinar

6/20 Invited Speaker, "Professional Social Media, #PedsICU and the PICU APP," Society of Critical Care Medicine Advanced Practice Section Meeting, Virtual

6/20 Invited Speaker, "Pediatric COVID-19," nCoV Therapeutics Coordination Call for BARDA/HHS/NIH, Virtual

8/20 Invited Speaker, "Pediatric Early Mobility," SCCM Midwest Conference, Virtual

9/20 Faculty Speaker, SCCM Multiprofessional Critical Care Review Course, "Sedation, Analgesia and Neuromuscular Blockade," Virtual

1/21 Visiting Professor, Stanford University School of Medicine, "Illness Doesn't Mean Stillness: The Stanford PICU Up! Journey Begins," Virtual

1/21 Invited Faculty, Society of Critical Care Medicine Congress, "Choosing Wisely in Critical Care: How to Succeed in Implementing Less Is More- Early Mobilization"

2/21 Invited Faculty, Society of Critical Care Medicine Congress, "Evidence and Research: Navigating Dissemination Then and Now, During a Pandemic"

3/21 Speaker, University of Chicago Pritzker School of Medicine Grand Rounds, "Illness Doesn't Mean Stillness: Teaming up to Create a Culture of Mobility for the Hospitalized Child," Virtual, Chicago, IL

3/21 Speaker, Atlantic Health System Grand Rounds, "Illness Doesn't Mean Stillness: Teaming up to Create a Culture of Mobility for the Hospitalized Child," Virtual, Morristown, NJ

3/21 Invited Faculty, American Speech-Language Hearing Association Convention, "Post-intensive Care Syndrome in Critically Ill Children"

4/21 Panel Speaker, Pediatric Academic Societies Annual Meeting, "ROSC Is Just the Beginning- Preventing Secondary Injury After Successful Resuscitation," Virtual

5/21 Speaker, MD Anderson Children's Cancer Hospital Grand Rounds, "Creating a Culture of Mobility for the Critically Ill Child With Cancer," Virtual

5/21 Speaker, Children's Hospital of Los Angeles Grand Rounds, "The Journey to Creating a PICU Mobility Culture," Virtual

5/21 Invited Speaker, Annual Safar Symposium, "The Future of Rehabilitation in Neurocritical Care," Virtual, Pittsburgh, PA *Rescheduled from 4/20 due to COVID-19

6/21 Speaker, Children's Hospital of San Antonio Grand Rounds, "Teaming up to Create a Mobility Culture for the Hospitalized Child," Virtual, San Antonio, TX

8/21 Plenary Speaker, Society of Critical Care Medicine Critical Impact Conference, Chicago, IL "Information Whiplash During the Pandemic"- *transitioned to virtual due to Delta Variant

10/21 Invited Speaker, Pediatric Neurocritical Care Research Group Fall Meeting, Chicago, IL. "PICU Up! Trial Update" – transitioned to virtual due to COVID-19

11/21 Speaker, University of Michigan Department of Pediatrics Grand Rounds. "Creating a Culture of Mobility for Hospitalized Children"

12/21 Invited Speaker, Pennsylvania Association of Respiratory Care, "Illness Doesn't Mean Stillness: Respiratory Therapists as Mobility Champions"

2/22 Invited Speaker, Society of Critical Care Medicine 51st Critical Care Congress, "Early Mobility and Exercise Illness Doesn't Mean Stillness," San Juan, Puerto Rico

7/22 Invited Speaker, California Society of Anesthesiologists Summer Conference, Oahu, Hawaii. "Perioperative Quality Improvement- A Primer"
 "Optimizing Rehabilitation after Major Surgery: How Can We Help?"
 "Pediatric Emergence Delirium: What's New?"
 "Anesthesia and Neurocognitive Outcomes"
 "Professional Social Media for the Anesthesiologist"

11/22 Invited Speaker, Women's Empowerment and Leadership Initiative for the Society of Pediatric Anesthesia, "Quality Improvement as a Career Builder," virtual

12/22 Invited Speaker, Duke Graduate Medical Education Interprofessional Grand Rounds, "Professional Social Media & You: Taking #MedEd to the Next Level," Virtual, Durham, NC

1/23 Invited Speaker, Society of Critical Care Medicine Congress, "A Need for Change: The Current State of A-F in Pediatrics," San Francisco, CA

2/23 Invited Speaker, Virtual PICU Data Science Collaborative Meeting, "Thriving in and After the PICU," Los Angeles, CA

3/23 Invited Speaker, Neurocritical Care Educational Seminar, "Illness Doesn't Mean Stillness: Empowering Your Team to Create a Culture of Mobility," Virtual; 217 attendees from 27 countries.

5/23 Speaker, University of California-San Diego/Rady Children's Hospital Grand Rounds, "Illness Doesn't Mean Stillness: Liberating the Hospitalized Child Together," San Diego, CA

International Talks

- 6/16 Speaker, World Pediatric Intensive and Critical Care (PICC) Congress, “Early Rehabilitation in the PICU: Practical Applications,” Toronto, Canada
- 6/16 Speaker, World Pediatric Intensive and Critical Care (PICC) Congress “ABCDE in the PICU: Ready for Prime-Time?” Toronto, Canada
- 6/18 Speaker, World Pediatric Intensive and Critical Care (PICC) Congress pre-conference workshop, “Current Concepts in Pediatric Sedation Outside the Operating Room,” Singapore
- 6/18 Speaker, World Pediatric Intensive and Critical Care (PICC) Congress, “Optimizing Outcomes With PICU Rehabilitation,” Singapore
- 6/18 Speaker and Session Chair, World Pediatric Intensive and Critical Care (PICC) Congress, “Social Media Use in Pediatric Critical Care,” Singapore
- 6/18 Speaker, *Pediatric Critical Care Medicine* Editorial Board Meeting, “Taking PCCM Engagement to the Next Level,” Singapore
- 6/19 Keynote Speaker, Glasgow Early Mobility Conference, “Liberating the Critically Ill Child,” Glasgow, Scotland
- 6/19 Invited Speaker, European Society of Pediatric and Neonatal Intensive Care (ESPNIC) Congress, “Early Rehabilitation: How Early Is Too Early?” Salzburg, Austria
- 6/19 Invited Speaker, European Society of Pediatric and Neonatal Intensive Care (ESPNIC) Congress, “Social Media in the NICU and PICU,” Salzburg, Austria
- 6/19 Speaker, Royal Hospital for Sick Children Grand Rounds, “Transforming PICU Immobility Culture,” Edinburgh, Scotland
- 6/19 Speaker, Birmingham Children’s Hospital Grand Rounds, “Illness Doesn’t Mean Stillness,” Birmingham, England
- 9/19 Speaker, PALISI Network Meeting, “#PedsICU and PCCM/CCE Updates,” Vancouver, Canada
- 9/19 Speaker, PALISI Network Meeting, “PICU Up! and PARK-PICU Update Blitz,” Vancouver, Canada
- 9/19 Speaker, International Webinar, Canadian Transplant and Donation Research Program, “Social Media, Research and You”
- 10/19 Invited Faculty, Society for Critical Care Medicine Current Concepts Course, “Move, Don’t Sedate” and “ABCDEF in the PICU,” Abu Dhabi, United Arab Emirates
- 6/20 Speaker, Great Ormond Street Hospital for Children Grand Rounds, “Social Media for Medical Education: Ready to Be a #Tweiatrician?” London, England, Virtual
- 7/20 Invited Speaker, The Aga Khan University, COVID-19 in Critically Ill Children Series, “Illness Doesn’t Mean Stillness,” Karachi, Pakistan, Virtual
- 8/20 Speaker, World Federation of Pediatric Intensive and Critical Care Societies Webinar- “Taking Stock of Pediatric Intensive Care Research During a Global Public Health Emergency,” Virtual
- 9/20 Invited Speaker, Intensive Care Society Webinar, “Social Media and COVID-19: The Good, Bad and Ugly,” Virtual
- 10/20 Plenary Speaker, Society for Pediatric Sedation Annual Conference, “Looking in the Mirror – Studying Sedation While Performing ICU Sedations,” Virtual
- 12/20 Invited Faculty, American Association of Respiratory Care Congress Live! “Early Mobility in the PICU,” Virtual
- 12/20 Plenary Speaker, World Federation of Pediatric Intensive and Critical Care Societies Congress, “#SoMe Is So YOU! Fueling the Future of Pediatric Critical Care Medicine Through Social Media,” Virtual, Mexico City, Mexico
- 12/20 Invited Speaker, World Federation of Pediatric Intensive and Critical Care Societies Congress, “Environmental Factors and Their Impact on Critical Illness,” Virtual, Mexico City, Mexico
- 12/20 Invited Faculty, Indian Pediatric Intensive Care Chapter Meeting, Nagpur, India—“Sedation, Sleep, Delirium and Rehabilitation in the PICU- How Do We Move Forward?” *Canceled due to COVID-19
- 4/21 Plenary Speaker, Chilean Society of Pediatrics Congress, “Early Mobilization and Circadian Rhythm in the Hospitalized Child,” Virtual
- 4/21 Invited Speaker, Asklepian Medical Society, “Careers in Pediatrics and Anesthesia,” Virtual, Hong Kong
- 5/21 Plenary Speaker, Columbian Association of Critical Medicine and Intensive Care Congress, “Social Media in Pediatric Critical Care” and “Rehabilitation in the PICU,” Virtual

7/21	Invited Faculty, 58 th Annual Convention of the Philippine Pediatric Society, “Cultivating Resilience in Times of Adversity: Let’s PICU Up!” Virtual
9/21	Invited Faculty, British Association of Critical Care Nurses Conference, “Play Therapy in the Paediatric Intensive Care Unit,” Virtual
10/21	Invited Faculty, Korean Association of Pediatric Allergy and Respiratory Diseases Annual Congress, “PICU Rehabilitation Care: Present and Future,” Virtual
3/22	Plenary Speaker, Argentina Pediatric Intensive Care Conference, “The ABCDEFGH Bundle in the PICU,” Virtual
5/22	Plenary Speaker, Australia and New Zealand Intensive Care Society Annual Congress, Sydney, Australia, “‘Moving’ to the Next Frontier of Pediatric Critical Care” *Rescheduled from 10/20 due to COVID-19
7/22	Invited Faculty, Neurocritical Care Conference, Kuala Lumpur, Malaysia, “Early Mobility in the Pediatric Neurocritical Care Patient,” Virtual
9/22	Invited Faculty, Pediatric Critical Care Society Meeting, Leicester, UK, “Rehabilitation in the PICU”
10/22	Invited Faculty, 9 th Congress of the European Academy of Paediatric Societies, “Time to Abandon Benzodiazepines in the PICU?” and “Implementing Early Mobility in the PICU,” Barcelona, Spain
11/23	Invited Faculty, 16 th Latin American Congress and 18 th Chilean Congress on Pediatric Critical Care Medicine, Santiago, Chile
6/24	Invited Faculty, European Society of Pediatric and Neonatal Intensive Care Congress, Rome, Italy