

CURRICULUM VITAE
The Johns Hopkins University School of Medicine

7/13/2023

Sung-Min Cho, D.O., M.H.S.

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

University

2020-2023 Assistant Professor, Departments of Neurology, Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine

2021-2023 Assistant Professor, Division of Cardiac Surgery, Departments of Surgery, Johns Hopkins University School of Medicine

2023-present Associate Professor, Departments of Neurology, Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine

2023-present Associate Professor, Division of Cardiac Surgery, Departments of Surgery, Johns Hopkins University School of Medicine

Hospital

2019-present Attending Physician, Neuroscience Critical Care Unit, Johns Hopkins Hospital

Other

2020-present Director of Adult ECMO Research, Division of Cardiac Surgery, Johns Hopkins Hospital

2022-present Co-Director of the HERALD (Hopkins Exploration, Research, and Advancement in Life support Devices) Program, Johns Hopkins Hospital

Personal Data

Division of Neuroscience Critical Care
Departments of Neurology, Surgery, Neurosurgery, Anesthesiology and Critical Care Medicine
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Education and Training

Undergraduate

2002-2004 Physics, Yonsei University, Seoul, South Korea

2004-2008 B.S., University of Cincinnati, Cincinnati, OH

Doctoral/Graduate

2009-2013 D.O., Ohio University, Athens, OH

2019-2020 M.H.S., Johns Hopkins University, Baltimore, MD

Postdoctoral

2013-2014 Intern, Internal Medicine, Cleveland Clinic Foundation, Cleveland, OH

2014-2017 Resident, Neurology, Cleveland Clinic Foundation, Cleveland, OH

2017-2019 Fellowship, Neurocritical Care, Johns Hopkins Hospital, Johns Hopkins University School of Medicine, Baltimore, MD

Professional Experience

2019-2020 Instructor, Departments of Neurology, Neurosurgery, Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD

2020-present Director of Adult ECMO Research, Division of Cardiac Surgery, Johns Hopkins Hospital

2020-present Assistant Professor, Departments of Neurology, Neurosurgery, Anesthesiology and Critical Care

PUBLICATIONS

* First and senior author papers

Original Research [OR]

1. Cerejo R, John S, Buletco AB, Taqui A, Itrat A, Organek N, **Cho SM**, Sheikhi L, Uchino K, Briggs F, Reimer AP, Winners S, Toth G, Rasmussen P, Hussain MS. Impact of mobile stroke treatment unit in early triage of patients with acute ischemic stroke for intra-arterial therapy. *J Neuroimaging*. 2015;25(6):940-945. *Subject recruitment, patient data gathering, manuscript revision*
2. Itrat A, Taqui A, Cerejo R, Briggs F, **Cho SM**, Organek N, Reimer AP, Winners S, Rasmussen P, Hussain MS, Uchino K; On Behalf of the Cleveland Pre-Hospital Acute Stroke Treatment (PHAST) Group. Telemedicine in prehospital stroke evaluation and thrombolysis: Taking stroke treatment to the doorsteps. *JAMA Neurol*. 2016;73(2):162-168. *Subject recruitment, patient data gathering, manuscript revision*
3. Taqui A, Cerejo R, Itrat A, Briggs FB, Reimer AP, Winners S, Organek N, Buletco AB, Sheikhi L, **Cho SM**, Buttrick M, Donohue MM, Khawaja Z, Wisco D, Frontera JA, Russman AN, Hustey FM, Kralovic DM, Rasmussen P, Uchino K, Hussain MS; On Behalf of the Cleveland Pre-Hospital Acute Stroke Treatment (PHAST) Group. Reduction in time to treatment in prehospital telemedicine evaluation and thrombolysis. *Neurology*. 2017;88(14):1305-1312. *Subject recruitment, patient data gathering, manuscript revision*
4. **Cho SM**, Moazami N, Frontera JA. Stroke and intracranial hemorrhage in HeartMate II and HeartWare left ventricular assist devices: A systematic review. *Neurocrit Care*. 2017;27(1):17-25.
5. Frontera JA, Starling R, **Cho SM**, Nowacki AS, Uchino K, Hussain MS, Mountis M, Moazami N. Risk factors, mortality, and timing of ischemic and hemorrhagic stroke with left ventricular assist devices. *J Heart Lung Transplant*. 2017;36(6):673-683. *Patient data gathering, data analysis, manuscript writing and revision*
6. **Cho SM**, Deshpande A, Pasupuleti V, Hernandez AV, Uchino K. Radiographic and symptomatic brain ischemia in CEA and CAS: A systematic review and meta-analysis. *Neurology*. 2017;89(19):1977-1984.
7. **Cho SM**, Deshpande A, Pasupuleti V, Hernandez AV, Uchino K. Radiographic and clinical brain infarcts in cardiac and diagnostic procedures: A systematic review and meta-analysis. *Stroke*. 2017;48(10):2753-2759.
8. **Cho SM**, Rice C, Marquardt RJ, Zhang LQ, Khoury J, Thatikunta P, Buletco AB, Harman J, Uchino K, Wisco D. Magnetic resonance imaging susceptibility-weighted imaging lesion and contrast enhancement may represent infectious intracranial aneurysm in infective endocarditis. *Cerebrovasc Dis*. 2017;44(3-4):210-216.
9. **Cho SM**, Marquardt RJ, Rice CJ, Buletco AB, Zhang LQ, Khoury J, Thatikunta P, Hardman J, Wisco D, Uchino K. Cerebral microbleeds predict infectious intracranial aneurysm in infective endocarditis. *Eur J Neurol*. 2018;25(7):970-975.
10. Buletco AB, Thacker T, **Cho SM**, Mathew J, Thompson NR, Organek N, Frontera JA, Uchino K. Cerebral ischemia and deterioration with lower blood pressure target in intracerebral hemorrhage. *Neurology*. 2018;91(11):e1058-e1066. *Patient data gathering, data analysis, manuscript revision*
11. **Cho SM**, Lee T, Starling R, Thompson NR, Uchino K. The impact of infection and elevated INR in LVAD-associated intracranial hemorrhage: A case-crossover study. *ASAIO J*. 2019;65(6):545-549. Selected as the Editor's Pick and "Meet the Authors" Highlight.
12. Rice CJ, **Cho SM**, Taqui A, Moore NZ, Witek AM, Bain MD, Uchino K. Early versus delayed extracranial-intracranial bypass surgery in symptomatic atherosclerotic occlusion. *neurosurgery*. 2019;85(5):656-663. *Patient data gathering, data analysis, manuscript revision*
13. Farrokh S, **Cho SM**, Lefebvre AT, Zink EK, Schiavi A, Puttgen HA. Use of intraosseous hypertonic saline in critically ill patients. *J Vasc Access*. 2019;20(4):427-432. *Patient data gathering, data analysis, manuscript revision*
14. **Cho SM**, Hassett C, Rice CJ, Starling R, Katzan I, Uchino K. What causes LVAD-associated ischemic stroke? Surgery, pump thrombosis, antithrombotics, and infection. *ASAIO J*. 2019;65(8):775-780.
15. Migdady I, Rice CJ, Hassett C, Zhang LQ, Wisco D, Uchino K, **Cho SM**. MRI presentation of infectious intracranial aneurysms in infective endocarditis. *Neurocrit Care*. 2019;30(3):658-665.
16. Rice CJ, **Cho SM**, Marquardt RJ, Zhang LQ, Khoury J, Hardman J, Wisco D, Hussain MS, Uchino K. Clinical course of infectious intracranial aneurysm undergoing antibiotic treatment. *J Neurol Sci*. 2019;403:50-55. *Patient data gathering, data analysis, manuscript revision*
17. **Cho SM**, Moazami N, Katz S, Starling R, Frontera JA. Reversal and resumption of antithrombotic therapy in LVAD-associated intracranial hemorrhage. *Ann Thorac Surg*. 2019;108(1):52-58.
18. **Cho SM**, Moazami N, Katz S, Bhimraj A, Shrestha NK, Frontera JA. Stroke risk following infection in patients with continuous-flow left ventricular assist device. *Neurocrit Care*. 2019;31(1):72-80.

19. ***Cho SM**, Ziai W, Mayasi Y, Gusdon AM, Creed J, Sharrock M, Stephens RS, Choi CW, Ritzl EK, Suarez J, Whitman G, Geocadin RG. Noninvasive neurological monitoring in extracorporeal membrane oxygenation. *ASAIO J.* 2020;66(4):388-393.
20. Marquardt RJ, **Cho SM**, Thatikunta P, Deshpande A, Wisco D, Uchino K. Acute ischemic stroke therapy in infective endocarditis: Case series and systematic review. *J Stroke Cerebrovasc Dis.* 2019;28(8):2207-2212. *Data analysis, manuscript revision*
21. Dionisio S, Mayoglou L, **Cho SM**, Prime D, Flanigan PM, Lega B, Mosher J, Leahy R, Gonzalez-Martinez J, Nair D. Connectivity of the human insula: A cortico-cortical evoked potential (CCEP) study. *Cortex.* 2019;120:419-442.
22. Lee T, Buletko AB, Matthew J, ***Cho SM**. Bloodstream infection is associated with subarachnoid hemorrhage and infectious intracranial aneurysm in left ventricular assist device. *Perfusion.* 2020;35(2):117-120. *Patient data gathering, data analysis, manuscript revision*
23. ***Cho SM**, Choi CW, Whitman G, Suarez JI, Martinez NC, Geocadin RG, Ritzl EK. Neurophysiologic findings and brain injury pattern in patients on ECMO. *Clin EEG Neurosci.* 2021;52(6):462-469.
24. Rice CJ, **Cho SM**, Strohm T, Raber L, Katzan IL, Hussain MS, Uchino K. Ultrasound criteria for assessment of vertebral artery origins. *J Neuroimaging.* 2020; 30(1):45-49. *Patient data gathering, data analysis, manuscript revision*
25. ***Cho SM**, Geocadin RG, White B, Chen LL. Neuropathological findings in comatose patients with venoarterial extracorporeal membrane oxygenation. *Int J Artif Organs.* 2020; 391398820901829.
26. Hassett CE, **Cho SM**, Hasan S, Rice C, Migdady I, Starling C, Soltesz E, Uchino K. Ischemic stroke and intracranial hemorrhages during Impella cardiac support. *ASAIO J.* 2020; 66(8):e105-e109. *Patient data gathering, data analysis, manuscript revision*
27. ***Cho SM**, Starling RC, Teuteberg J, Rogers J, Pagani F, Shah P, Uchino K, Hiivala N. Understanding risk factors and predictors for stroke subtypes in the ENDURANCE trials. *J Heart Lung Transplant.* 2020;39(7):639-647.
28. Hassett CE, **Cho SM**, Rice CJ, Migdady I, Starling RC, Uchino K, Katzan IL. Cerebral microembolization in left ventricular assist device associated ischemic events. *J Stroke Cerebrovasc Dis.* 2020;29(4):104660. *Data analysis, manuscript revision*
29. ***Cho SM**, Geocadin RG, Caturegli G, Chan V, White B, Dodd-o J, Kim BS, Sussman M, Choi CW, Whitman GR, Chen LL. Understanding characteristics of acute brain injury in adult ECMO: An autopsy study. *Crit Care Med.* 2020;48(6)e532-e536.
30. Migdady I, Stephens RS, Price C, Geocadin RG, Whitman G, ***Cho SM**. The use of apnea test and brain death determination in patients on extracorporeal membrane oxygenation: a systematic review. *J Thorac Cardiovasc Surg.* 2021;162(3):867-877.e1.
31. Migdady I, Rice C, Deshpande A, Hernandez AV, Price C, Whitman GJ, Geocadin RG, ***Cho SM**. Brain injury and neurologic outcome in patients undergoing extracorporeal cardiopulmonary resuscitation: A systematic review and meta-analysis. *Crit Care Med.* 2020; 48:e611-e619.
32. Fan TH, Hassett CE, Migdady I, Price C, Choi CW, Katzan I, ***Cho SM**. How are we monitoring brain injuries in patients with left ventricular assist device? A systematic review of the literature. *ASAIO J.* 2021; 67:149-156.
33. Murthy SB, **Cho SM**, Gupta A, Shoamanesh A, Navi BB, Avadhani R, Gruber J, Li Y, Greige T, Lioutas VA, Norton C, Zhang C, Mandava P, Iadecola C, Falcone GJ, Sheth KN, Biffi A, Rosand J, Qureshi AI, Goldstein JN, Kidwell C, Selim M, Hanley DF, Woo D, Kamel H, Ziai WC. A pooled analysis of diffusion-weighted imaging lesions in patients with acute intracerebral hemorrhage. *JAMA Neurol.* 2020;77(11):1390-1397. *Patient data gathering, data analysis, manuscript revision*
34. ***Cho SM**, Canner J, Chiarini G, Calligy K, Caturegli G, Rycus P, Barbaro RP, Tonna J, Lorusso R, Kilic A, Choi CW, Ziai W, Geocadin R, Whitman G. Modifiable risk factors and mortality from ischemic and hemorrhagic strokes in patients receiving venoarterial extracorporeal membrane oxygenation: results from the Extracorporeal Life Support Organization Registry. *Crit Care Med.* 2020; 48:e897-e905.
35. Shoskes A, Migdady I, Rice C, Hassett C, Deshpande A, Price C, Hernandez AV, ***Cho SM**. Brain injury is more common in venoarterial extracorporeal membrane oxygenation than venovenous extracorporeal membrane oxygenation: a systematic review and meta-analysis. *Crit.Care Med.* 2020; 48:1799-1808.
36. Caturegli G, **Cho SM**, White B, Chen LL. Acute brain injury in infant venoarterial extracorporeal membrane oxygenation: an autopsy study. *Pediatr Crit Care Med.* 2021; 22:297-302. *Patient data analysis, manuscript revision*
37. Wei Z, Wang Q, Modi HR, **Cho SM**, Geocadin R, Thakor NV, Lu H. Acute-stage MRI cerebral oxygen consumption biomarkers predict 24-hour neurological outcome in a rat cardiac arrest model. *NMR Biomed.* 2020; 33:e4377. *Patient data analysis, manuscript revision*

38. Zhang LQ, **Cho SM**, Rice CJ, Khoury J, Marquardt RJ, Buletko AB, Hardman J, Wisco D, Uchino K. Valve surgery for infective endocarditis complicated by stroke: surgical timing and perioperative neurologic complications. *Eur J Neurol*. 2020; 27:2430-2438. *Patient data gathering, data analysis, manuscript revision*
39. Kannapadi NV, White B, Woo CC, Chen LL, ***Cho SM**. Clinically silent brain injury and perioperative neurological events in patients with left ventricular assist device: a brain autopsy study. *ASAIO J*. 2021;67(8):917-922.
40. Ong BA, Geocadin R, Choi CW, Whitman G, ***Cho SM**. Brain magnetic resonance imaging in adult survivors of extracorporeal membrane oxygenation. *Perfusion*. 2021;36(8):814-824.
41. Hunt MF, Clark KT, Whitman G, Choi CW, Geocadin RG, ***Cho SM**. The use of cerebral NIRS monitoring to identify acute brain injury in patients with VA-ECMO. *J Intensive Care Med*. 2020; 36:1403-1409.
42. Hunt MF, Clark KT, Grant MC, Choi CW, Whitman G, **Cho SM**, Farrokh S. Therapeutic drug monitoring of valproic acid in extracorporeal membrane oxygenation. *Perfusion*. 2021;36(8):868-872.
43. ***Cho SM**, Canner J, Caturegli G, Choi CW, Etchill E, Giuliano K, Chiarini G, Calligy K, Rycus P, Lorusso R, Kim BS, Sussman M, Suarez JI, Geocadin R, Bush EL, Ziai W, Whitman G. Risk factors of ischemic and hemorrhagic strokes during venovenous extracorporeal membrane oxygenation: analysis of data from the Extracorporeal Life Support Organization Registry. *Crit Care Med*. 2021; 49:91-101.
44. Mayer K, Jolley S, Etchill EW, Fakhri S, Hoffman J, Sevin CM, Zwischenberger, JB, Rove JY. *ORACLE Group Authors: Whitman GJ, Parker A, Mart MF, Hippensteel, JA, Bartels K, Montgomery-Yates, AA, **Cho SM**, Kim, BS, Ramani C, Kadl A, Enfield K. Long-term recovery of survivors of coronavirus disease (COVID-19) treated with extracorporeal membrane oxygenation: The next imperative. *JTCVS Open*. 2021;5:163-168. *Manuscript revision*
45. Fan TH, Khoury J, **Cho SM**, Bhimraj A, Shoskes A, Uchino K. Cerebrovascular complications and vasculopathy in patients with herpes simplex virus central nervous system infection. *J Neurol.Sci*. 2020; 419:117200. *Patient data analysis, manuscript revision*
46. Murthy SB, Zhang C, Gupta A, **Cho SM**, Rivera-Lara L, Avadhani R, Gruber J, Iadecola C, Falcone GJ, Sheth KN, Qureshi AI, Goldstein JN, Hanley DF, Kamel H, Ziai WC. Diffusion-weighted imaging lesions after intracerebral hemorrhage and risk of stroke: a MISTIE III and ATACH-2 analysis. *Stroke*. 2021; 52:595-602. *Patient data gathering, data analysis, manuscript revision*
47. Migdady I, Shoskes A, Hasan LZ, Hassett C, George P, Newey C, **Cho SM**, Rae-Grant A, Uchino K. Timing of acute stroke in COVID-19--a health system registry study. *Neurohospitalist*. 2021 Oct;11(4):285-294. *Patient data analysis, manuscript revision*
48. Wilcox C, Etchill E, Giuliano K, Mayasi Y, Gusdon AM, Choi CW, Kim BS, Bush EL, Geocadin RG, Whitman GJ, ***Cho SM**. Acute brain injury in postcardiotomy shock treated with venoarterial extracorporeal membrane oxygenation. *J Cardiothorac Vasc Anesth*. 2021;35(7):1989-1996.
49. Migdady I, Amin M, Shoskes A, Hassett C, **Cho SM**, George P, Rae-Grant A. The effect of incorporating an arterial pH target during apnea test for brain death determination. *J Intensive Care*. 021 Jan 20;9(1):13. *Patient data analysis, manuscript revision*
50. Hwang J, Caturegli G, White B, Chen L, ***Cho SM**. Cerebral microbleeds and intracranial hemorrhages in adult patients on extracorporeal membrane oxygenation-autopsy study. *Crit Care Explor*. 2021; 3:e0358.
51. Kannapadi NV, Alomari SO, Caturegli G, Bydon A, ***Cho SM**. Management of syringomyelia associated with tuberculous meningitis: a case report and systematic review of the literature. *J Clin Neurosci*. 2021; 87:20-25.
52. Migdady I, Amin M, Shoskes A, Hassett C, Rae-Grant A, Snider SB, Greer DM, **Cho SM**, George P. Outcomes, time-trends, and factors associated with ancillary study use for the determination of brain death. *Crit Care Med*. 2021;49(9):e840-e848. *Patient data analysis, manuscript revision*
53. Al-Kawaz MN, Canner J, Caturegli G, Kannapadi N, Balucani C, Shelley L, Kim BS, Choi CW, Geocadin RG, Whitman G, ***Cho SM**. Duration of hyperoxia and neurologic outcomes in patients undergoing extracorporeal membrane oxygenation. *Crit Care Med*. 2021;49(10):e968-e977.
54. Swetlik C, Migdady I, Hasan LZ, Buletko AB, Price C, ***Cho SM**. Cannabis use and stroke: does a risk exist? *J Addict Med* . 2022 Mar-Apr;16(2):208-215.
55. Li Bassi G, Suen JY, Dalton HJ, White N, Shrapnel S, Fanning JP, Liqueur B, Hinton S, Vuorinen A, Booth G, Millar JE, Forsyth S, Panigada M, Laffey J, Brodie D, Fan E, Torres A, Chiumello D, Corley A, Elhazmi A, Hodgson C, Ichiba S, Luna C, Murthy S, Nichol A, Ng PY, Ogino M, Pesenti A, Trieu HT, Fraser JF; **COVID-19 Critical Care Consortium**. An appraisal of respiratory system compliance in mechanically ventilated covid-19 patients. *Crit Care*. 2021;25(1):199. *Manuscript revision*
56. Carlson JM, Etchill EW, Enriquez CAG, Peeler A, Whitman GJ, Choi CW, Geocadin RG, ***Cho SM**. Population characteristics and markers for withdrawal of life-sustaining therapy in patients on extracorporeal membrane oxygenation. *J Cardiothorac Vasc Anesth*. 2022 Mar;36(3):833-839.

57. Ziai WC, **Cho SM**, Johansen MC, Ergin B, Bahouth MN. Transcranial Doppler in acute COVID-19 infection: unexpected associations. *Stroke*. 2021; 52(7):2422-2426. *Patient data analysis, manuscript revision*
58. Minhas AS, Shade JK, **Cho SM**, Michos ED, Metkus T, Gilotra NA, Sharma G, Trayanova N, Hays AG. The role of sex and inflammation in cardiovascular outcomes and mortality in COVID-19. *Int J Cardiol*. 2021;337:127-131. *Patient data gathering, data analysis, manuscript revision*
59. Huang M, Shoskes A, Migdady I, Amin M, Hasan L, Price C, Uchino K, Choi CW, Hernandez AV, ***Cho SM**. Does targeted temperature management improve neurological outcome in extracorporeal cardiopulmonary resuscitation (ECPR)? *J Intensive Care Med*. 2022 Feb;37(2):157-167.
60. Kannapadi NV, Jami M, Premraj L, Etchill EW, Giuliano K, Bush EL, Kim BS, Seal S, Whitman G, ***Cho SM**. Neurologic injury in patients with COVID-19 who receive VV-ECMO therapy: a cohort study. *J Cardiothorac Vasc Anesth*. 2021; 35:3456-3461.
61. ***Cho SM**, Premraj L, Fanning J, Huth S, Barnett A, Whitman G, Arora RC, Battaglini D, Porto DB, Choi H, Suen J, Bassi GL, Fraser JF, Robba C, Griffiee M. Ischemic and hemorrhagic stroke among critically ill patients with coronavirus disease 2019: an international multicenter Coronavirus Disease 2019 Critical Care Consortium Study. *Crit Care Med*. 2021 Dec 1;49(12):e1223-e1233.
62. Garcia MA, Barreras PV, Lewis A, Pinilla G, Sokoll LJ, Kickler T, Mostafa H, Caturegli M, Moghekar A, Fitzgerald KC, **Hopkins Neuro-COVID-19 Group**, Pardo CA. Cerebrospinal fluid in COVID-19 neurological complications: Neuroaxonal damage, anti-SARS-Cov2 antibodies but no evidence of cytokine storm. *J Neurol Sci*. 2021;427:117517. *Data contribution and manuscript revision*
63. Giuliano K, Bigelow BF, Etchill EW, Velez AK, Ong CS, Choi CW, Bush E, **Cho SM**, Whitman GJR. Extracorporeal membrane oxygenation complications in heparin- and bivalirudin-treated patients. *Crit Care Explor*. 2021; 3:e0485. *Data analysis and manuscript revision*
64. Huth SF, **Cho SM**, Robba C, Highton D, Battaglini D, Bellapart J, Suen JY, Li Bassi G, Taccone FS, Arora RC, Whitman G, Fraser JF, Fanning JP. Neurological manifestations of coronavirus disease 2019: a comprehensive review and meta-analysis of the first 6 months of pandemic reporting. *Front Neurol*. 2021; 12:664599. *Study concept, design, data analysis and manuscript revision*
65. **ISARIC Clinical Characterisation Group**. COVID-19 symptoms at hospital admission vary with age and sex: results from the ISARIC prospective multinational observational study. *Infection*. 2021;49(5):889-905. *Data contribution and manuscript revision*
66. Migdady I, Shoskes A, Amin M, **Cho SM**, Rae-Grant A, George P. Determination of brain death in patients undergoing short-term mechanical circulatory support devices. *Heart Lung Circ*. 2022 Feb;31(2):239-245. *Data analysis and manuscript revision*
67. Li Bassi G, Suen JY, Dalton HJ, White N, Shrapnel S, Fanning JP, Liqueet B, Hinton S, Vuorinen A, Booth G, Millar JE, Forsyth S, Panigada M, Laffey J, Brodie D, Fan E, Torres A, Chiumello D, Corley A, Elhazmi A, Hodgson C, Ichiba S, Luna C, Murthy S, Nichol A, Ng PY, Ogino M, Pesenti A, Trieu HT, Fraser JF; **COVID-19 Critical Care Consortium**. An appraisal of respiratory system compliance in mechanically ventilated covid-19 patients. *Crit Care*. 2021;25(1):199. *Data contribution and manuscript revision*
68. ***Cho SM**, Floden D, Wallace K, Hiivala N, Joseph S, Teuteberg J, Rogers JG, Pagani FD, Mokadam N, Tirschwell D, Li S, Starling RC, Mahr C, Uchino K. Long-term neurocognitive outcome in patients with continuous flow left ventricular assist device. *JACC: Heart Fail*. 2021;9(11):839-851.
69. ***Cho SM**, Mehaffey JH, Meyers SL, Cantor RS, Starling RC, Kirklin JK, Jacobs JP, Kern J, Uchino K, Yarboro LT. Cerebrovascular events in patients with centrifugal-flow left ventricular assist devices: propensity score-matched analysis from the intermac registry. *Circulation*. 2021; 144:763-772.
70. Fan TH, **Cho SM**, Prayson RA, Hassett CE, Starling RC, Uchino K. Cerebral microvascular injury in patients with left ventricular assist device: a neuropathological study. *Transl Stroke Res*. 2022 Apr;13(2):257-264. *Data analysis and manuscript revision*
71. Wildi K, Li Bassi G, Barnett A, Panigada M, Colombo SM, Bandera A, Muscatello A, McNicholas B, Laffey JG, Battaglini D, Robba C, Torres A, Motos A, Luna CM, Rainieri F, Hodgson C, Burrell AJC, Buscher H, Dalton H, **Cho SM**, Choi H, Thomson D, Suen J, Fraser JF. Design and rationale of a prospective international follow-up study on intensive care survivors of COVID-19: The Long-Term Impact in Intensive Care Survivors of Coronavirus Disease-19-AFTERCOR. *Front Med (Lausanne)*. 2021; 8:738086. *Data contribution and manuscript revision*
72. Kannapadi NV, Jami M, Premraj L, Etchill EW, Giuliano K, Bush EL, Kim BS, Seal S, Whitman G, ***Cho SM**. Neurological complications in COVID-19 patients with ECMO support: a systematic review and meta-analysis. *Heart Lung Circ*. 2022 Feb;31(2):292-298.

73. Kannapadi NV, Jami M, Premraj L, Etchill EW, Giuliano K, Bush EL, Kim BS, Seal S, Whitman G, ***Cho SM**. Neurologic injury in patients with COVID-19 who receive VV-ECMO therapy: a cohort study. *J Cardiothorac Vasc Anesth*. 2021; 35:3456-3461.
74. Ong CS, Etchill E, Dong J, Shou BL, Shelley L, Giuliano K, Al-Kawaz M, Ritzl EK, Geocadin RG, Kim BS, Bush EL, Choi CW, Whitman G, ***Cho SM**. Neuromonitoring detects brain injury in patients receiving extracorporeal membrane oxygenation support. *J Thorac Cardiovasc Surg* . 2021 Oct 30;S0022-5223(21)01508-7.
75. Savarraj JP, Burkett AB, Hinds SN, Paz AS, Assing A, Juneja S, Colpo GD, Torres LF, **Cho SM**, Gusdon AM, McCullough LD, Choi HA. Pain and other neurological symptoms are present at 3 months after hospitalization in COVID-19 patients. *Front Pain Res*. 2021;2(92). *Data analysis and manuscript revision*
76. Fan TH, Huang M, Gedansky A, Price C, Robba C, Hernandez AV, ***Cho SM**. Prevalence and outcome of acute respiratory distress syndrome in traumatic brain injury: a systematic review and meta-analysis. *Lung*. 2021; 199:603-610.
77. **ISARIC Clinical Characterisation Group**. Ten months of temporal variation in the clinical journey of hospitalized patients with COVID-19: An observational cohort ISARIC. *Elife*. 2021 Nov 23;10:e70970. *Data contribution and manuscript revision*
78. Magid-Bernstein JR, Li Y, **Cho SM**, Piran PJ., Roh DJ, Gupta A, Shoamanesh A, Merkler A, Zhang C, Avadhani R, Montano N, Iadecola C, Falcone G, Sheth K, Qureshi A, Rosand J, Goldstein J, Awad I, Hanley D, Kamel H, Ziai WC, Murthy SB. Cerebral microbleeds and acute hematoma characteristics in the ATACH-2 and MISTIE III trials. *Neurology* . 2022 Mar 8;98(10):e1013-e1020. *Data / neuroimaging collection, analysis and manuscript revision*
79. Savarraj JP, Park ES, Colpo GD, Hinds SN, Morales D, Ahnstedt H, Paz AS, Assing A, Liu F, Juneja S, Kim E, **Cho SM**, Gusdon AM, Dash P, McCullough LD, Choi HA. Brain injury, endothelial injury and inflammatory markers are elevated and express sex-specific alterations after COVID-19. *Journal of Neuroinflammation*. 2021; 18(1):277. *Data analysis and manuscript revision*
80. Al-Kawaz MN, Shou Ben, Whitman G, Geocadin RG, ***Cho SM**. Mild Hypothermia and Neurologic Outcomes in Patients undergoing Venoarterial Extracorporeal Membrane Oxygenation. *Journal of Cardiac Surgery*. 2022.
81. ****Yu Guo, **Cho SM, Wei Z, Wang Q, Modi H, Gharibani P, Thakor N, Geocadin R**. Early Thalamocortical Reperfusion Leads to Neurologic Recovery in a Rodent Cardiac Arrest Model. *Neurocritical Care*. 2022. ****Contributed as co-first authors.**
82. **ISARIC Clinical Characterisation Group**. Association of body mass index with COVID-19 related in-hospital death. *lin Nutr*. 2022 Jan 29:S0261-5614(22)00026-7. doi: 10.1016/j.clnu.2022.01.017. *Data collection/contribution and manuscript revision*
83. Shou B, Al-Kawaz MN, Ong CS, Zhou AL, Dong J, Etchill E, Giuliano K, Choi CW, Kim BS, Bush E, Whitman G, ***Cho SM**. Arterial Carbon Dioxide and Acute Brain Injury in Venoarterial Extracorporeal Membrane Oxygenation. *ASAIO J*. 2022.
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3. Rando H, **Cho SM**, Camboni D, Mazzeffi M. Complications, Follow-up, and Outcomes of Adults with Cardiac Failure. *The ELSO Redbook 6th Edition*, 2022. *Study concept, outline, and manuscript revision*
4. Premraj L, Arora RC, ***Cho SM**. The Neuropathogenesis and Neurological Manifestations of SARS-CoV-2. *COVID-19 Critical and Intensive Care Medicine Essentials*. 2022.
5. Hwang J, Kim BS, Terhani A, ***Cho SM**. Management of neurological complications. *Critical and Intensive Care Medicine Essentials*. 2022.
6. Migdady I, Gusdon A, Everett A, ***Cho SM**. Blood and CSF biomarkers in DoC. *Handbook of Clinical Neurology*. 2023. *In Press*.

Books, Textbooks [BK] None

Editorials [ED]

1. ***Cho SM**, Ritzl EK. Neurological prognostication using electroencephalogram in adult veno-arterial extracorporeal membrane oxygenation: Limitations and recommendations. *Neurocrit Care*. 2020;33(3):652-654.
2. Geocadin R, ***Cho SM**. Is neuromonitoring the key for better outcome in post-cardiac arrest syndrome? *Crit Care Med*. 2021;49(8):1369-1371.

Guidelines/Protocols, Consensus Statement, Expert Opinion, Consortium Articles [GL] None

Letters, Correspondence [LT]

3. ***Cho SM**, Mulder M, Geocadin RG. Early electroencephalogram for neurologic prognostication: A self-fulfilling prophecy? *Ann Neurol*. 2019;86(3):473-474.
4. ***Cho SM**, Di Lorenzo R, Myles JL, Uchino K. Author response: Severe hyperhomocysteinemia manifesting as moyamoya vasculopathy and Henoch-Schonlein purpura. *Neurology*. 2019;92(23):1120.
5. ***Cho SM**, Farrokh S, Whitman G, Bleck TP, Geocadin RG. Determination of brain death in patients on ECMO. *Crit Care Med*. 2020.
6. Rice CJ, Moore NZ, Bain MD, **Cho SM**, Witek AM, Uchino K. In reply: Early versus delayed extracranial-intracranial bypass surgery in symptomatic atherosclerotic occlusion. *Neurosurgery*. 2020;87(1):E87. *Manuscript revision*
7. Uchino K, ***Cho SM**. Letter by Uchino and Cho regarding article, "Infarction of the splenium of the corpus callosum in the age of COVID-19: A snapshot in time". *Stroke*. 2020;51(12):e380.
8. Shoskes A, Migdady I, Rice C, Hassett C, Deshpande A, Price C, Hernandez AV, ***Cho SM**. Authors Reply: Brain injury is more common in venoarterial extracorporeal membrane oxygenation than venovenous extracorporeal membrane oxygenation: A systematic review and meta-analysis. *Crit Care Med*. 2021;49(3):e344-e345.
9. ***Cho SM**, Farrokh S, Whitman G, Bleck TP, Geocadin RG. What do we really know about the timing and mechanism of intracranial hemorrhage in patients with VV-ECMO? *Crit Care Med*. 2020.
10. Hwang J, Geocadin R, Ritzl E, ***Cho SM**. Continuous EEG in patients with extracorporeal membrane oxygenation support: clinical need in multidisciplinary collaboration and standardized monitoring. *J Neurol*. 2022. *Manuscript revision*

11. Crow J, Lindsley J, **Cho SM**, Wang J, Lantry JH, Kim BS, Tashsili-Fahadan P. Analgosedation in Critically Ill Adults Receiving Extracorporeal Membrane Oxygenation Support – Response to the Letter. *ASAIO J.* 2022. *Manuscript revision*
12. ***Cho SM**, Geocadin RG, Whitman G. Lessons learned from the INCEPTION trial. *N Engl J Med.* 2023.
13. Premraj L, Camarda C, Pelosi P, ****Cho SM**, ****Battaglini D**. The Stroke Care Puzzle: Does Tracheostomy Timing Fit? *Crit Care.* 2023.

Research Letters/White Papers/Brief Reports [RL]

1. ***Cho SM**, Ziai W, Geocadin R, Choi C, Whitman G. Arterial-sided oxygenator clot and transcranial Doppler ultrasound emboli in venoarterial extracorporeal membrane oxygenation. *Ann Thorac Surg.* 2019;107(1):326-327.
2. Zawar I, **Cho SM**, Prayson R, Levin K. Primary central nervous system lymphoma mimicking herpes encephalitis. *Neurooncol Pract.* 2021;8(5):620-622. *Manuscript revision*
3. Peeler A, Gleason KT, Ferrell B, Battista V, Klinedinst R, **Cho SM**, Davidson PM. Extracorporeal membrane oxygenation: opportunities for expanding nurses' roles. *AACN Adv Crit Care.* 2021;32(3):341-345. *Manuscript revision*

FUNDING

EXTRAMURAL Funding

Research Extramural Funding

Current

12/1/20–12/31/22	Long-term Impact in Intensive Care Survivors of Coronavirus Disease-19 (AFTERCOR) Study Gilead Grant \$250,000 Role: PI (2%)
9/19/19–8/31/23	Plasma Biomarker of Brain Injury in ECMO Extracorporeal Life Support Organization Annual Grant \$5,000 Role: PI (no salary support)
9/19/19–8/31/24	Influence of Cooling Duration on Efficacy in Cardiac Arrest (ICECAP trial) 1UG3HL145269-01A1 NIH/NLHBI \$4,438,938 PI: Romer Geocadin Role: ICU Site PI for JHH (2%)
7/1/21–5/31/24	SAfety and FEasibility of portable Magnetic Resonance Imaging in ECMO (SAFE MRI) Hyperfine Grant \$140,000 Role: PI (4%)
1/1/22–12/31/26	CLots and Oxygen in Va-Extracorporeal membrane oxygenation (CLOVER) Study NIH NHLBI 1K23HL157610 \$880,419 Role: PI (75%)
7/1/22–6/30/24	CLots and Oxygen in Va-Extracorporeal membrane oxygenation (CLOVER) Study NHLBI Loan Repayment Program L30HL165486 \$100,000 Role: PI (no salary support)

Pending

10/1/23–9/30/25	DELTA ECMO ABI study
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NIH NHLBI
1R21NS135045-01
\$450,312
Role: PI (10%)

Previous

7/1/20–6/30/22 Non-invasive Neurological Monitoring of Patients With ECMO
NINDS Loan Repayment Program
L30NS119233
\$100,000
Role: PI (no salary support)

INTRAMURAL Funding

Research Intramural Funding

Current

8/1/21–12/31/22 Multidisciplinary ECMO Research
COVID-19 Bridge Grant
\$50,000
Role: PI (no salary support; salary for post-doctoral fellow)

9/1/21–12/31/22 Long-term Impact in Intensive Care Survivors of Coronavirus Disease-19 (AFTERCOR)
Johns Hopkins BOOST
\$15,000 (Clinical Research Unit Expenses)
Role: PI (no salary support)

7/1/22–6/30/23 Cerebral Autoregulation and Brain Tissue Oxygenation in ECPR
Johns Hopkins INSPIRE Award
\$20,000
Role: co-PI (PI: Bo Soo Kim, no salary support)

Pending

7/1/23–6/30/24 A Novel Method to Determine Individualized Energy Expenditure in ECMO
Johns Hopkins Discovery Grant
\$100,000
Role: co-PI (PI: Glenn Whitman, no salary support)

Previous

6/1/19–5/31/20 Transcranial Doppler Ultrasound Microembolic Signal and ECMO Circuit Clots
“Sower” Johns Hopkins Neuroscience Critical Care Grant
\$5,000
Role: PI (no salary support)

6/1/19–5/31/20 Johns Hopkins Anesthesia and Critical Care Medicine T32 Institutional Grant
5T32GM075774-14 NIH
\$60,000
PI: Allan Gottschalk
Role: Fellow

1/1/20–12/31/21 Cerebral Autoregulation and Brain Injury in ECPR – Swine Model
Magic That Matters Johns Hopkins Cardiac Surgery Grant
\$71,410
Role: PI (no salary support)

1/1/21–12/31/21 Brain Autopsy in COVID-19 ARDS - Multicenter Study

“Sower” Johns Hopkins Neuroscience Critical Care Grant
\$5,000
Role: PI (no salary support)

1/1/22–7/31/22 CLots and Oxygen in Va-Extracorporeal membrane oxygenation (CLOVER) Study
Johns Hopkins Clinician Scientist Award
\$80,000
Role: PI (75%)

CLINICAL ACTIVITIES

Clinical Focus

1. Neurocritical Care, Stroke, Acute Brain Injury, Mechanical Circulatory Support Devices, Neurocardiology
2. I am extensively involved in neurologic outcomes reporting for patients with left ventricular assist device (LVAD) and extracorporeal membrane oxygenation (ECMO). I run neurocritical care consultation of ECMO patients at the Johns Hopkins Hospital (JHH). I run morbidity and mortality with Dr. Bo Soo Kim, an intensivist in the CVISCU. I lead ECMO research efforts as Director of Adult ECMO Research in the Division of Cardiac Surgery at JHH. I am the JHH intensive care unit PI of the ICECAP trial. I was involved with the ENDURANCE trials for analyzing risk factors, mechanisms, and long-term cognition outcome with Medtronic. My effort in studying different stroke risk for HVAD vs. HM3 through the INTERMACS registry analysis led to a cessation of HVAD production in the market by the FDA (June 2021).

Certification

Medical, other state/government licensure

6/17–present Maryland (#H83673)

Boards, other specialty certification

2017–present Board Certified, American Board of Psychiatry and Neurology #60646

Clinical (Service) Responsibilities

2018–2019 Neurology residents’ lumbar puncture clinic, Preceptor, monthly, Johns Hopkins Neurology Outpatient Center

2019–present Inpatient Neurocritical Care Service, Attending Physician, 8-10 weeks each year, Johns Hopkins Hospital

2019–present Inpatient Neurocritical Care Service, Attending Physician, 2-4 weeks each year, Johns Hopkins Bayview Hospital

Clinical Productivity

2019–present My clinical effort assignment is 15%.

Clinical Draw from outside local/regional area None

Membership in or examiner for specialty board None

Clinical Program Building / Leadership None

Clinical Demonstration Activities to external audience, on or off campus None

Development of nationally/internationally recognized clinical standard of care None

EDUCATIONAL ACTIVITIES

Educational Focus

My educational focus is on acute brain injury and its management. In particular, I am interested in educating clinicians on how to manage acute brain injury in patients with mechanical circulatory device support.

Teaching

Classroom instruction

JHMI/Regional

2015-2017	Lecturer, Neurology resident lecture series, given yearly to neurology house staff, “Intracerebral Hemorrhage,” “Anticoagulation Reversal Agents,” “Silent Cerebral Infarcts and Cognitive Outcome,” Cleveland Clinic, OH
2016-2017	Lecturer, Internal Medicine resident lecture series, “Acute Ischemic Stroke Management,” given yearly to neurology house staff, Cleveland Clinic, OH
2018-present	Lecturer, Neurology resident lecture series, given yearly to neurology house staff, “Acute Brain Injury and Neurologic Complication in Patients with LVAD,” “Acute Brain Injury in Patients with ECMO,” 2019-present “Intracerebral Hemorrhage,” Johns Hopkins Hospital, Baltimore, MD
2019-present	Lecturer, Neurocritical fellow lecture series, “Current Practice of ARDS: An Update,” “Brain Injury with Patients with Cardiac Devices,” “Anticoagulation Reversal Agents,” “Neurological Complications of ECMO,” given Johns Hopkins Hospital, Baltimore, MD
National	None
International	None

Clinical instruction
JHMI/Regional

2018-2019	Preceptor, Neurology residents’ lumbar puncture clinic, monthly, Johns Hopkins Neurology Outpatient Center, Baltimore, MD
2019-present	Attending Physician, Inpatient Neurocritical Care Service, 8-12 weeks each year, Johns Hopkins Hospital, Baltimore, MD
2019-present	Attending Physician, Inpatient Neurocritical Care Service, 2-4 weeks each year, Johns Hopkins Bayview Hospital, Baltimore, MD
National	None
International	None

CME instruction None
Workshops / seminars None

Mentoring

Pre-doctoral Advisees / Mentees

2018-present	Giorgio Caturegli, MD candidate, medical student. Current position: General surgery resident, Yale University School of Medicine, Baltimore, MD. OR 29, 34, 36, 43, 50, 51, 53, 62, 99, 103, 106, 110, 122, 129; CR 11
2018-present	Megan Hunt, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. Coauthored articles OR 41, 42
2018-present	Nivedha Kannapadi, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. Coauthored articles OR 39, 51, 53, 60, 72, 73, 105, 106; RA 11, 13
2020-present	Benjamin Shou, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. Coauthored article OR 74, 80, 83, 96, 103, 107, 113, 117, 120, 121, 122
2020-present	Rochelle Prokupets, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. OR 106
2020-present	Lavienraj Premraj, MD PhD candidate, medical student. Current position: medical student, Griffin University Medicine, Queensland, Australia. Coauthored articles OR 60, 61, 72, 73, 85, 93, 97, 101, 107, 116; RA 11, 13, 17, 19, 21. LT 13.
2021-present	John Ma, BS candidate. Current position: undergraduate student in computer engineering, New York University, New York, NY.
2021-present	David Zhao, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. OR 113, 120, 129
2021-present	Jacob Roberts, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD.
2022-present	Shrey Kapoor, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD.
2022-present	Henry Su, MD candidate, medical student. Current position: medical student, Johns Hopkins

University, Baltimore, MD. OR 121

2022-present Albert Leng, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. RA 19.

2022-present Arjun Menta, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. RA 23.

2022-present Andrew Karla, MD candidate, medical student. Current position: medical student, Thomas Jefferson, Philadelphia, PA. OR 104, 113. RA 23.

2022-present Manuj Shah, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. RA 19.

2022-present Syed Ameen Ahmad, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. RA 19, 23.

2022-present Armaan Akbar, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD. OR 120

2022-present Olivia Liu, MD candidate, medical student. Current position: medical student, Johns Hopkins University, Baltimore, MD.

Post-doctoral Advisees / Mentees

2016-2018 Cory Rice, MD, neurology resident. Current position: vascular neurologist, University of Tennessee, Chattanooga, TN. Coauthored articles OR 8, 9, 12, 14-16, 24, 26, 28, 31, 35, 38; LT 4, 8

2017-2019 Tiffany Lee, MD, neurology resident. Current position: neuromuscular neurologist, Walter Reed National Military Medical Center, MD. Coauthored articles OR 11, 22

2017-present Ibrahim Migdady, MD, neurology resident. Current position: Assistant Professor, Albert Einstein College of Medicine. Coauthored articles OR 15, 26, 28, 30-32, 35, 47, 49, 52, 54, 59, 66; BC 6; LT 8

2017-present Tracy Fan, DO, neurology resident. Current position: Neurointensivist at University of Chicago. Coauthored articles OR 32, 45, 70, 76; RA 7, 10, 13, 18;

2017-present Catherine Hassett, DO, neurology resident. Current position: Faculty at the Cleveland Clinic, Cleveland, OH. Coauthored articles OR 14, 15, 26, 28, 32, 35, 47, 49, 52, 70, 118; RA 4, 7; LT 8

2018-present Lucy Q. Zhang, MD, neurology resident and neurocritical care fellow. Current position: Attending Physician at INOVA, Fairfax, VA. OR 8, 9, 15, 16, 38, 103, 105; BC 1

2019-present Julia Carlson, MD, neurology resident. Current position: Assistant Professor at University of North Carolina. Coauthored article OR 56, 100

2019-present Aaron Shoskes, DO, neurology resident. Current position: vascular neurologist, University of Utah. Coauthored articles OR 35, 45, 47, 49, 52, 59, 66, 87, 98, 118; RA 6, 18; BK 8

2020-present Jaeho Hwang, MD, MPH, neurology resident, Current position: epilepsy fellow, Johns Hopkins, Baltimore, MD. Coauthored article OR 50, 84; RA 15; BC 5; LT 10

2020-present Clotilde Balucani, MD, PhD, neurocritical care fellow. Current position: Neurointensivist at NYU. Coauthored article OR 53

2020-present Mais Al-Kawaz, MD, neurocritical care fellow. Current position: Neurosurgical Interventionalist, University of Kentucky. OR 53, 74, 80, 83; RA 12

2020-present Lindsay Law, MD, neurocritical care fellow. Current position: Neurointensivist, Swedish Health Services, Swedish Neuroscience Institute, Seattle, WA.

2020-present Veronika Solnick, MD, neurocritical care fellow. Current position: epilepsy fellow, University of Maryland, MD. RA 10

2020-present Merry Huang, MD, neurology resident. Current position: vascular neurology fellow, Cleveland Clinic, Cleveland, OH. Coauthored articles OR 59, 76, 118; RA 7

2020-present Aron Gedansky, MD, neurology resident. Current position: vascular neurology fellow, Cleveland Clinic, Cleveland, OH. Coauthored articles OR 76; RA 4, 7

2020-present Eric Etchill, MD, MPH, surgery resident. Current position: cardiac surgery fellow, University of Colorado. Coauthored articles OR 43, 44, 48, 56, 60, 63, 72-74, 114; CR 11

2020-present Kate Giuliano, MD, surgery resident. Current position: cardiac surgery fellow, University of Colorado. Coauthored articles OR 43, 48, 60, 63, 72-74; CR 11

2020-present Chin Siang Ong, MD, PhD, post-doctoral fellow. Current position: research associate, Yale University School of Medicine, New Haven, CT. Coauthored articles OR 63, 74, 83, 96, 107

2020-present	Christopher Wilcox, DO, MS, post-doctoral fellow. Current position: Intensivist, University of Buffalo, Buffalo, NY. Coauthored articles OR 48, 91, 96, 108, 129; RA 8
2020-present	Anna Peeler, RN, PhD candidate. Current position: Postdoctoral fellow, King's College London, London, UK. Coauthored articles OR 56, 125; RL 3
2021-present	Yucheng Shen, MS, PhD candidate. Current position: PhD's student, University of Pittsburgh, PA.
2021-present	Henry Chang, MD, PhD, neurocritical care fellow. Current position: Neurointensivist, TriHealth, Cincinnati, OH. OR 106
2021-present	Alex Feng, MD, PhD, neurocritical care fellow. Current position: Neurointensivist, TriHealth, Cincinnati, OH. OR 120; RA 22.
2021-present	Mariyam Humayun, MD, neurocritical care fellow. Current position: Neurointensivist, University of Illinois, Chicago, IL. RA 17.
2021-present	Hannah Rando, MD, MPH, post-doctoral cardiac surgery fellow. Current position: post-doctoral cardiac surgery fellow, Johns Hopkins, Baltimore, MD. OR 102, 108, 114, 128. RA 23.
2022-present	Luke Kang, MD, post-doctoral cardiac surgery fellow. Current position: post-doctoral cardiac surgery fellow, Johns Hopkins, Baltimore, MD. OR 109, 119. RA 22, 23.
2022-present	Ifeanyi David Chinedozi, MD, post-doctoral cardiac surgery fellow. Current position: post-doctoral cardiac surgery fellow, Johns Hopkins, Baltimore, MD. RA 23.
2022-present	Zachary Darby, MD, post-doctoral cardiac surgery fellow. Current position: post-doctoral cardiac surgery fellow, Johns Hopkins, Baltimore, MD. RA 23.
2022-present	Shivalika Khanduja, MBBS, research fellow. Current position: research postdoctoral fellow for the HERALD group, Johns Hopkins, Baltimore, MD. RA 22.
2022-present	Jiah Kim, MD, research postdoctoral fellow. Current position: research postdoctoral fellow for the HERALD group, Johns Hopkins, Baltimore, MD. RA 22.
2021-present	Harry Flaster, MD, emergency medicine resident. Current position: emergency medicine resident, Johns Hopkins, Baltimore, MD.
2021-present	Jace Bradshaw, MD, emergency medicine resident. Current position: emergency medicine resident, Johns Hopkins, Baltimore, MD.
2021-present	Philip Sun, MD, neurocritical care fellow. Current position: neurocritical care fellow, Johns Hopkins, Baltimore, MD. OR 122.

Thesis committees

2020-2022	Anna Peeler, RN, PhD – thesis committee for palliative care in patients with ECMO.
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Educational Program Building / Leadership None

Educational Demonstration Activities to external audience on or off campus

2021-2023	Faculty Judge, Annual Medical Student Research Symposium, Johns Hopkins University School of Medicine.
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RESEARCH ACTIVITIES

Research Focus

- Acute brain injury in cardiovascular diseases
- Stroke in patients with a left ventricular assist device (LVAD)
- Acute brain injury in patients receiving extracorporeal membrane oxygenation (ECMO)
- Cerebral autoregulation in swine ECPR (co-PI with Steve Keller)
- Neurological complications and outcomes of patients with COVID-19
- Neurological complications and outcomes of patients with ARDS
- Long-term neurological outcome in ECMO patients
- Subarachnoid hemorrhage
- Intracerebral hemorrhage
- Multicenter Observational Study on Practice of Ventilation in Brain Injured Patients (VENTIBRAIN) – JHH Site PI (2022-2023)
- Outcome Prognostication of Acute Brain Injury using the Neurological Pupil Index (ORANGE) study: protocol

for a prospective, observational, multicentre, international cohort study – JHH Site PI (2022-2023)

Research Program Building / Leadership

1/20–present Director of ECMO research in Cardiac Surgery, Johns Hopkins University School of Medicine.
I am responsible for monthly ECMO research meetings and monthly ECMO M&M.

Research Demonstration Activities to external audience, on or off campus None

Inventions, Patents, Copyrights None

Technology Transfer Activities None

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

None

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

2020–present Co-chair, Neurological Sub-study of International COVID-19 Critical Care Consortium, Critical Care Research Group
2021-2022 Member, Compensation Plan Committee, Johns Hopkins Anesthesiology and Critical Care Medicine (ACCM)
2022-present Member, Neuro “Just Say Yes” – Lifeline Response workforce – JHH Neurology, Neurosurgery, and Neuroscience Critical Care Triage

Editorial Activities

Editorial board appointments

11/20 Guest Editor, Seminars in Neurology “Neurology of Cardiovascular Disease”
3/21 Review Editor, Frontiers in Physiology “Clinical and Translational Physiology”

Journal peer review activities

2016-present Stroke
2016-present Journal of the American Heart Association
2017-present Neurocritical Care
2017-present Cerebrovascular Diseases
2018-present Critical Care
2018-present Neurosurgery
2018-present ASAIO Journal
2018-present International Journal of Artificial Organs
2018-present Journal of Heart and Lung Transplantation
2018-present Journal of Critical Care
2019-present Critical Care Medicine
2019-present Journal of Neurology
2019-present Circulation
2020-present Journal of Neurology and Neurosurgery
2020-present Nature
2020-present Translational Stroke Research
2020-present Journal of Viral Hepatitis
2020-present PLOS One
2021-present JACC
2023-present Nature Medicine
2023-present Clinical EEG and Neuroscience

Other peer review activities *[non medico-legal]*

2019-present Abstract reviewer, International Heart and Lung Transplantation Meeting
2022-present Grant Reviewer, Johns Hopkins ACCM StAAR

Advisory Committees, Review Groups / Study Sections

- 2019-present Examiner, Johns Hopkins Neurosurgery Mock Board Exam.
- 2020-present Co-Chair, Neurological Sub-study of Global COVID-19 Critical Care Consortium (CCCC) (Co-Chair: Chiara Robba), Critical Care Research Group
- 2020-present Member, Study steering committee, Long-term impAct in inTEnsive caRe survivors of CORonavirus Disease-19 (AFTERCOR), Critical Care Research Group
- 2020-present Chair, Neurological Study of COVID-19 in the ISARIC (International Severe Acute Respiratory and Emerging Infections Consortium) (Co-Chairs: David Thomson, Tom Solomon)
- 2022-2022 Reviewer for Study Section, University of California Irvine, Institute for Clinical and Translational Science (ICTS)
- 2022-present Member, Scientific Oversight Committee, Extracorporeal Life Support Organization (ELSO)

Professional Societies

- 2013-present Member, American Academy of Neurology
- 2014-present Member, American Stroke Association/ American Heart Association
- 2015-present Member, Neurocritical Care Society
- 2018-present Member, International Heart and Lung Transplantation Society

Conference Organizer None

Session Chair

- 2/9/23 “Cerebrovascular Complications of Cardiac Devices and Procedures,” International Stroke Conference, Dallas, TX.

Consultantships None

RECOGNITION

Awards, Honors

- 2004-2008 Dean’s List all quarters
- 2005 Outstanding sophomore, Department of Physics, University of Cincinnati
- 2005-2007 Scholarship, McMicken College of Arts and Science
- 2008 Magna cum laude in Physics (BS)
- 2008 Member, Phi Beta Kappa
- 2008 Member, Sigma Pi Sigma
- 2009-2013 OUCOM (Ohio University Medical School) Institutional Scholarship
- 2016 Clinical Poster Winner, 36th Annual Research Day, Cleveland Clinic
- 2016, 2017 Excellence in Teaching Award, Cleveland Clinic
- 2016-2017 Neurological Institute Education Chair
- 2017 Resident Teacher of the Year in Neurology, Cleveland Clinic
- 2018-2019 Chief Fellow, Johns Hopkins Neurocritical Care Division

Invited Talks

JHMI/Regional

- 9/4/18 “Brain Injury in ECMO,” Cardiovascular Surgical ICU Conference, Johns Hopkins, Baltimore, MD
- 5/14/19 “Transcranial Doppler Microembolic Signal and Brain Injury in ECMO,” Van Praag Lecture at Johns Hopkins Cardiothoracic Annual Meeting, Baltimore, MD
- 10/20/20 “Neurological Complications in Continuous Flow Pumps: Translational and Clinical Research,” NCCU Faculty Research Presentation, Johns Hopkins, Baltimore, MD
- 10/20/20 “Updates on Therapeutic Hypothermia and Neurologic Prognostication in Cardiac Arrest Survivor: The ICECAP Trial,” Emergency Medicine Grand Rounds at the JHH, Baltimore, MD
- 10/22/20 “Updates on Therapeutic Hypothermia and Neurologic Prognostication in Cardiac Arrest survivor: The ICECAP Trial,” Neurology Grand Rounds at the JHH, Baltimore, MD
- 11/19/20 “Neurological Complications in Patients with LVAD and ECMO,” Neurology Grand Rounds at the JHH, Baltimore, MD
- 4/15/21 “The ICECAP Trial,” Emergency Medicine Grand Rounds at the JHH, Baltimore, MD
- 9/16/21 “Therapeutic Hypothermia and the ICECAP Trial in Cardiac Arrest,” ACCM Discovery Grand Rounds

at the JHH, Baltimore, MD

- 11/7/22 “Neurology of ECMO,” Johns Hopkins, Neurology Research Retreat, Baltimore, MD
- 2/28/23 “Successful K grant writing,” Neuroscience Critical Care Fellow Lecture, Baltimore, MD

National

- 5/9/17 “Neurological Complications in LVAD,” Grand Rounds at the Cleveland Clinic, Cleveland, OH
- 4/27/20 “Neurologic Monitoring of Cardiac Surgery Patients,” 100th American Association for Thoracic Surgery, New York, NY
- 9/23/20 “Continuous EEG for Neurological Monitoring of ECMO,” Annual Neurocritical Care Society Meeting (Virtual), Chicago, IL.
- 11/2/20 “Neurological Complications in Patients on ECMO,” Grand Rounds at the INOVA, Fairfax, VA.
- 4/20/21 “Neurological Complications and Management of Patients on ECMO” Neurology Grand Rounds at the Boston University
- 4/30/21 “Mitigating Neurological Complication in Patients on ECMO,” 101st American Association for Thoracic Surgery, (Virtual), New York, NY
- 1/29/22 “Brain Injury in ECMO: Cardinal considerations for initiation and management,” 58th Society of Thoracic Surgeons Conference, Miami, FL.
- 5/4/22 “ECMO-associated ischemic and hemorrhagic strokes,” Neuroscience Grand Rounds, Stony Brook Medical Center, Stony Brook, NY
- 5/16/22 Keynote Speaker, “The Role of Neurologists in Management of ECMO-associated Stroke,” The Parkview Health Stroke Annual Symposium, Fort Wayne, IN
- 5/18/22 “Long-term Neuropsychiatric Outcome in COVID-19,” Loma Linda Internal Medicine Grand Rounds, Loma Linda, CA.
- 7/14/22 “Neuroimaging and Acute Brain Injury in Patients with ECMO,” UT Houston Advanced Heart Failure Grand Rounds, Houston, TX.
- 5/7/23 “Composition and Building of a Multi-Disciplinary Stroke Team,” The 103rd Annual American Association for Thoracic Surgery, Los Angeles, CA.
- 5/11/23 “Neurological Complications, Monitoring, and Prognostication in ECPR,” The 10th ICU Symposium, UTHealth, Houston, TX.
- 8/15/23 “Bedside systems for ICU systems: What is the evidence?” The 21st Annual Meeting of the Neurocritical Care Society Conference, Phoenix, AZ.
- 8/17/23 “Extracorporeal life support and brain injury- is this cause and effect, and is it preventable?” The 21st Annual Meeting of the Neurocritical Care Society Conference, Phoenix, AZ.
- 10/19/23 “Neurological Complications of Mechanical Circulatory Support,” Maryland Critical Care Conference, University of Maryland, Baltimore, MD.

International

- 2/23/17 “Silent Infarcts in Carotid Interventions: CEA and CAS International Stroke Conference,” Houston, TX.
- 1/24/18 “MRI Features of Infective Intracranial Aneurysms,” International Stroke Conference, Los Angeles, CA.
- 4/12/19 “Understanding Risk Factors of Stroke in Patients with HVAD,” International Society of Heart and Lung Transplantation, Orlando, FL.
- 7/23/19 “Brain Injury in Patients with Continuous Flow Pump,” University of Charité, Berlin, Germany
- 7/24/19 “Neuromonitoring in Patients with ECMO Support,” IEEE Engineering in Medicine and Biology Society Meeting, Berlin, Germany
- 2/20/20 “How Do We Improve Neurologic Outcome in Patients With ECMO?,” International Stroke Conference, Los Angeles, CA.
- 4/28/20 “Neurocognitive Outcome in Patients with LVAD,” International Society of Heart and Lung Transplantation, Montreal, Canada
- 10/15/20 “Long-term Neurological Effect of COVID-19 Infection,” European Society of Intensive Care Medicine (ESICM), Webinar, based out of Europe
- 11/2020 “Neurological Complications of COVID-19 in ECMO Patients,” Korean Neurocritical Care Society Annual Conference (Virtual), Seoul, South Korea
- 11/29/20 “Strokes in COVID-19,” European Society of Anesthesiology Annual Conference (Virtual), Belgium.
- 5/7/21 “Acute Brain Injury and Neurological Complications of ECMO Patients,” Korean Critical Care Society Annual Conference, Seoul, South Korea

- 9/3/21 “Management of Cerebral Edema in Ischemic Stroke,” ESICM – European Society of Care Intensive Medicine, Webinar.
- 10/8/21 “Challenges in ECMO Nutrition,” Samsung Medical Center ICU Grand Rounds (Virtual), Seoul, South Korea.
- 11/18/21 “Neuropathology of COVID-19,” Neuro Lil 2021 Conference (Virtual), Colombia.
- 12/17/21 “Management of Neurological Injury in VA-ECMO,” The 8th Annual Korean ECMO Symposium, Chonnam National University Hospital, Jeonbuk, South Korea.
- 2/11/22 Invited Symposium, “Neurocritical Care of Patients on Extra-Corporeal Membrane Oxygenation (ECMO),” International Stroke Conference, New Orleans, LA.
- 4/21/22 “Neurological Complications in COVID- 19 Patients with ECMO Support,” Panama International Critical Care Congress 2022, Panama City, Panama
- 4/22/22 “Management of ECMO Patients,” Panama International Critical Care Congress 2022, Panama City, Panama.
- 4/23/22 “Multimodality monitoring in Neurocritical care,” Panama International Critical Care Congress 2022, Panama City, Panama.
- 5/21/22 “Neurological Assessment and Care in Cardiogenic Shock,” Korea Cardiogenic Shock Annual Symposium 2022, Seoul, S. Korea.
- 9/9/22 “Neurological Complications in Patients with ECMO Support,” Chile Neurocritical Care Society Meeting 2022, Santiago, Chile.
- 9/9/22 “Hemodynamic Management of VSP and DCI in Subarachnoid Hemorrhage,” Chile Neurocritical Care Society Meeting 2022, Santiago, Chile.
- 9/9/22 “Use of IABP and ECMO in Subarachnoid Hemorrhage,” Chile Neurocritical Care Society Meeting 2022, Santiago, Chile.
- 10/18/22 “Neuroimaging in ECMO – Innovative Approach,” Critical Care Medicine Discovery Rounds, Hospital for Sick Children “SickKids”, Toronto, Canada.
- 11/12/22 “Neuromonitoring and management of ECMO”, Korea ECMO Symposium, Ewha Women University School of Medicine, Seoul, South Korea.
- 3/10/23 “Neurological Manifestations and Complications of COVID-19,” Biological Research Information Center (BRIC) Webinar.
- 4/20/23 “Neurology of ECMO,” Chung-Ang University Hospital Neurology Grand Rounds, Seoul, South Korea.
- 4/21/23 “Neurological Outcomes after ECPR,” The Korean Society of Cardiology Conference, Gwangju, South Korea.
- 11/2/23 “Portable MRI Brain in Patients with ECMO – The Results of SAFE MRI ECMO Study,” Plenary Session, Asia-Pacific ELSO (APELSO), Seoul, South Korea.
- 11/4/23 “Neurocritical Care of ECMO,” Annual Korean Neurocritical Care Society Meeting, Seoul, South Korea.

Visiting Professorships None