

Beth Israel Deaconess Medical Center
Department of Anesthesia, Critical Care and Pain Medicine

Education Research Publications (2009-present)

1. Bose R, Matyal R, Panzica P, Karthik S, Subramaniam B, Pawlowski J, Mitchell J, Mahmood F. Transesophageal Echocardiography Simulator: A New Learning Tool. *J Cardiothoracic Vasc Anesth.* 2009; 23(4): 544-8. PMID: 19303326
2. Bose RR, Matyal R, Warraich HJ, Summers J, Subramaniam B, Mitchell J, Panzica PJ, Shahul S, Mahmood F. Utility of a transesophageal echocardiographic simulator as a teaching tool. *J Cardiothoracic Vasc Anesth.* 2011; 25(2): 212-5. PMID: 20974542
3. Shakil O, Mahmood B, Matyal R, Jainandunsing JS, Mitchell J, Mahmood F. Simulation training in echocardiography: The evolution of metrics. *J Cardiothoracic Vasc Anesth.* 2013; 27(5): 1034-40. PMID: 23623888
4. Mitchell JD, Holak E, Tran HN, Muret-Wagstaff S, Jones SB, Brzezinski M. Are we closing the gap in faculty development needs for feedback training? *Journal of Clinical Anesthesia.* 2013; 25(7): 560-4. PMID: 24008192
5. Blum RH, Boulet JR, Cooper JB, Muret-Wagstaff SL; Harvard Assessment of Anesthesia Resident Performance Research Group. Simulation-based assessment to identify critical gaps in safe anesthesia resident performance. *Anesthesiology.* 2014; 120(1): 129-41. PMID: 24398731
6. Matyal R, Mitchell JD, Hess P, Chaudary B, Bose R, Jainandunsing J, Wong V, Mahmood. Simulator-based Transesophageal Echocardiographic Training with Motion Analysis - A Curriculum Based Approach. *Anesthesiology.* 2014; 121(2): 389-99. PMID: 24667829
7. Mitchell J, Mahmood F, Bose R, Hess P, Wong V, Matyal R. Novel multimodal approach for basic transesophageal echocardiographic teaching. *J Cardiothorac Vasc Anesth.* 2014; 28(3): 800-9. PMID: 24746594
8. Vinson A, Mitchell JD. Assessing levels of support for residents following adverse outcomes: A national survey of anesthesia residency programs in the United States. *Med Teach.* 2014; 36(10): 858-66. PMID: 24804917
9. Owais, K, Mitchell J. Con: Simulation training in transesophageal echocardiography. *J Cardiothoracic Vasc Anesth.* 2014; 28(5): 1412-3. PMID: 25281052
10. Mitchell JD, Mahmood F, Wong V, Bose R, Nicolai D, Wang A, Hess PE, Matyal R. Teaching concepts of Transesophageal Echocardiography via Web-based Modules. *J Cardiothorac Vasc Anesth.* 2015; 29(2): 402-409. PMID: 25440653
11. Mitchell JD, Montealegre-Gallegos M, Mahmood F, Owais K, Wong V, Ferla B, Chowdhury S, Nachashon A, Doshi R, Matyal R. Multimodal Perioperative Ultrasound Course for Interns Allows for Enhanced Acquisition and Retention of Skills and Knowledge. *A A Case Rep.* 2015; 5(7): 119-23. PMID: 26402024
12. Matyal R, Montealegre-Gallegos M, Mitchell JD, Kim H, Bergman R, Hawthorne K, O'Halloran D, Wong V, Hess PE, Mahmood F. Manual Skill Acquisition During Transesophageal Echocardiography Simulator Training of Cardiology Fellows - A Kinematic Assessment. *J Cardiothorac Vasc Anesth.* 2015; 29(6): 1504-10. PMID: 26341879
13. Mitchell JD, Ku C, Wong V, Fisher LJ, Muret-Wagstaff S, Ott Q, Shahul S, Bose R, Tibbles C, Jones SB. Impact of a Resident Communication Skills Curriculum on Patients' Experience of Care. *A A Case Rep.* 2016; 6(3): 65-75. PMID: 26669651

14. Montealegre-Gallegos M, Mahmood F, Kim H, Bergman R, Mitchell JD, Bose R, Hawthorne KM, O'Halloran TD, Wong V, Hess PE, Matyal R. Imaging skills for transthoracic echocardiography in cardiology fellows: The value of motion metrics. *Ann Card Anaesth.* 2016; 19: 245-50. PMID: 27052064
15. Mahmood F, Matyal R, Skubas N, Montealegre-Gallegos M, Swaminathan M, Denault A, Sniecinski R, Mitchell JD, Taylor M, Haskins S, Shahul S, Oren-Grinberg A, Wouters P, Shook D, Reeves ST. Perioperative Ultrasound Training in Anesthesiology: A Call to Action. *Anesth Analg.* 2016 Jun; 122(6): 1794-1804. PMID: 27195630
16. Yeh L, Montealegre-Gallegos M, Mahmood F, Hess PE, Shnider M, Mitchell JD, Jones SB, Mashari A, Wong V, Matyal R. Assessment of Perioperative Ultrasound Workflow Understanding: A Consensus. 2016 Jul 9. pii: S1053-0770(16)30272-5. PMID: 27686512
17. Mitchell JD, Jones SB. Faculty Development in Feedback Provision. *Int Anesthesiol Clin.* 2016 Summer; 54(3): 54-65. PMID: 27285072
18. Nachshon A, Mitchell JD, Mueller A, Banner-Goodspeed VM, McSparron JI. Expert Evaluation of a Chicken Tissue-based Model for Teaching Ultrasound-guided Central Venous Catheter Insertion. *JEPM.* 2017 Jul 1;19(1): E503. PMID: 28377943
19. Mitchell JD, Ku C, Diachun C, DiLorenzo A, Lee DE, Karan S, Wong V, Shell RM, Brzezinski M, Jones SB. Enhancing Feedback on Professionalism and Communication Skills in Anesthesia Residency Programs. *Anesth Analg.* 2017 Aug; 125(2): 620-631. PMID: 28598926
20. Martinelli SM, Chen F, DiLorenzo A, Mayer DC, Fiarbanks S, Moran K, Ku C, Mitchell JD, Bowe EA, Royal KD, Hendrickse A, VanDyke K, Trawicki MC, Rankin D, Guldan GJ, Hand W, Gallagher C, Jacob Z, Zvara DA, McEvoy MD, Schell RM. Results of a flipped classroom teaching approach in anesthesiology residents. *JGME.* 2017 August; 9(4): 485-490. PMID: 28824763
21. Al Ghofaily L, Mitchell JD, Woodworth G. Anesthesia Residency Training in Cardiac Anesthesia: Development of a Model Curricula and Educational Resources: The Anesthesia Toolbox. *J Cardiothorac Vasc Anesth.* 2017 Nov 23. PMID: 29306616
22. Blum RH, Muret-Wagstaff SL, Boulet JR, Cooper JB, Petrusa ER, Baker KH, Davidyuk G, Dearden JL, Feinstein DM, Jones SB, Kimball WR, Mitchell JD, Nadelberg RL, Wiser SH, Albrecht MA, Anastasi AK, Bose RR, Chang LY, Culley DJ, Fisher LJ, Grover M, Klainer SB, Kveraga R, Martel JP, McKenna SS, Minehart RD, Mitchell JD, Mountjoy JR, Pawlowski JB, Pilon RN, Shook DC, Silver DA, Warfield CA, Zaleski KL; Harvard Assessment of Anesthesia Resident Performance Research Group. Simulation-based Assessment to Reliably Identify Key Resident Performance Attributes. *Anesthesiology.* 2018 Jan 24. [Epub ahead of print] PMID: 29369062
23. Mitchell JD, Amir R, Montealegre-Gallegos M, Mahmood F, Shnider M, Mashari A, Yeh L, Bose R, Wong V, Hess P, Amador Y, Jeganathan J, Jones SB, Matyal R. Summative Objective Structured Clinical Examination Assessment at the End of Anesthesia Residency for Perioperative Ultrasound. *Anesth Analg.* 2018 June. 126(6):2065-2068. PMID: 29381519
24. Mahmood F, Mahmood E, Dorfman RG, Mitchell J, Mahmood FU, Jones SB, Matyal RM. Augmented Reality and Ultrasound Education: Initial Experience. *J Cardiothorac Vasc Anesth.* 2018 Jun;32(3):1363-1367. PMID: 29452879
25. Khan N, Mueller A, Mitchell JD, Bose S. Learning Beyond the Operating Room: A Call for Feedback on Postoperative Care. *Canadian Journal of Anesthesia.* 2018 May 9. PMID: 29744814

26. Matyal R, Mahmood F, Kino ZO, Jones S, Yeh L, Amir R, Bose R, Mitchell JD. Evaluation of the quality of transesophageal echocardiography images and verification of proficiency. *Echo Res Pract*. 2018 Sep 1;5(3):89-95. PMID: 29743181
27. Eosakul ST, Wong V, Ku CM, Mitchell JD. Learning Preferences of First-Year Anesthesiology Residents During Their Orientation Month: A Single-Institution Study. *A A Pract*. 2019 Feb 12(88-92). PMID: 30134254
28. Matyal R, Mahmood F, Bortman J, Mitchell J, Montealegre-Gallegos M, Amir R, Kent T, Wong V, Amador Y, Gao Z. Training Surgical Residents for Ultrasound Guided Assessment and Management of Unstable Patients. *J Surg Educ*. 2019 Mar-Apr;76(2):540-547. PMID: 30322694
29. Matyal R, Mitchell JD (Co-first author), Mahmood F, Oren-Grinberg A, Leibowitz A, Mador Y, Wong V, Khamooshian A, Mahmood F, Amir R, Bortman J, Jones SB. Faculty Focused Perioperative Ultrasound Training Program: A Single Center Experience. *J Cardiothorac Vasc Anesth*. 2019 Apr;33(4):1037-1043. PMID: 30638919
30. Mitchell JD, Ku C, Lutz B, Shahul S, Wong V, Jones SB. A Customizable Curriculum to Enhance Resident Communication Skills. *Anesth Analg*. 2019 Nov;129(5):e155-158. Accompanied by editorial. PMID: 30829671
31. Bortman J, Mahmood F, Mitchell J, Feng R, Baribeau Y, Wong V, Coolidge B, Bose R, Gao Z, Jones S, Matyal R. Ultrasound-guided Intravenous Line Placement Course for Certified Registered Nurse Anesthetists: A Necessary Next Step. *AANA J*. 2019 Aug;87(4):269-275. PMID: 31587710
32. Brzezinski M, Kukreja J, Mitchell JD. Time-Efficient, Goal-Directed, and Evidence-Based Teaching in the ICU. *Current Opinions in Anesthesiology*. 2019 Apr;32(2):136-143. PMID: 30817385
33. Martinelli SM, Isaak RS, Schell RM, Mitchell JD, McEvoy MD, Chen F. Learners and Luddites in the Twenty-first Century: Bringing Evidence-based Education to Anesthesiology. *Anesthesiology*. 2019 Oct;131(4):908-928. PMID: 31365369
34. Ryason A, Petrusa ER, Kruger U, Xia Z, Wong VT, Jones DB, De S, Jones SB. Development of an Endotracheal Intubation Formative Assessment Tool. *J Educ Perioper Med*. 2020 Jan-Mar;22(1):E635. PMID: 32432150
35. Walsh DP, Murugappan KR, Oren-Grinberg A, Wong VT, Mitchell JD, Matyal R. Tool to improve qualitative assessment of left ventricular systolic function. *Echo Res Pract*. 2020;7(1):1-8. PMID: 32190341
36. Walsh DP, Neves SE, Wong VT, Mitchell JD. Formation of an intraoperative educational curriculum for anesthesiology residents using a systematic approach. *A A Pract*. 2020 Oct;14(12):e01330. PMID: 33094949
37. Buhl LK, Nozari A. More Even Distribution of ACGME-mandated Cases Improves Residents' Perceptions of Fairness and Balance. *J Educ Perioper Med*. 2020 Oct 1;22(4):E649. PMID: 33447648
38. Brzezinski M, Sawatzki R, Tran HN, Price K, Gregersen M, Wong C, Feng CM, Kimatian S, Mizuguchi A, Kukreja J, Mitchell JD, Schlect KD. An Analysis of Successful Features of Anesthesiology Journal Clubs. *J Educ Perioper Med*. 2020 Oct 1;22(4):E648. PMID: 33447647
39. Ma H*, Ruan X*, Wong VT, Guo W, Huang Y, Mitchell JD. Identifying the Gap between Novices and Experts in Fiberoptic Scope Control. *J Educ Perioper Med*. 2021 Jan 1;23(1):E655. PMID: 33778100 *Co-first authors

40. Neves SE, Chen MJ, Ku CM, Karan S, Dilorenzo AN, Schell RM, Lee DE, Diachun CAB, Jones SB, Mitchell JD. Using Machine Learning to Evaluate Attending Feedback on Resident Performance. *Anesth Analg*. 2021 Feb;132(2):545-555. PMID: 33323789
41. Buhl LK. "Did I Ever Tell You?" On the Power of Shared Failure. *Med Teach*. 2021 Mar;43(3):356-357. PMID: 32503370
42. Martinelli SM, Chen F, Isaak RS, Huffmyer JL, Neves SE, Mitchell JD. Educating Anesthesiologists During the Coronavirus Disease 2019 Pandemic and Beyond. *Anesth Analg*. 2021 Mar 1;132(3):585-593. PMID: 33201006 (Selected as Article of the Month for the March 2021 edition of *Anesthesia and Analgesia*; accompanied by an online interview/podcast)
43. Buhl LK, Wong V, Jones SB. Teaching Medical Students to Create Anesthetic Plans Using a Branched-Chain Learning Module. *A A Pract*. 2021 Apr 1;15(4):e01446. PMID: 33793431
44. Martinelli SM, Chen F, Isaak R, Mitchell JD, Mahoney B, Diachun CA, Hendrickse A. Transitioning to virtual meetings: experiences from the Society for Education in Anesthesia Virtual Fall 2020 Meeting. *J Educ Perioper Med*. 2021 Jul 1;23(3):E667. PMID: 34631965
45. de Lima A, Chen M J, Abbas A, et al. Evaluating the Use of an Aerosol Box During Simulated Intubations. *Cureus*. 2021 Jul 13(7): e16507. doi:10.7759/cureus.16507
46. Ambardekar AP, Walker KK, McKenzie-Brown AM, Brennan K, Jackson C, Edgar L, Ellinas H, Long TR, Trombetta CE, Laskey MG, Wargo BW, Dainer RJ, Draconi CS, Mitchell JD. The Anesthesiology Milestones 2.0: An Improved Competency-Based Assessment for Residency Training. *Anesth Analg*. 2021 Aug 1;133(2):353-361. PMID: 33764340
47. Fatima H*, Kuppalli S*, Baribeau V, Wong VT, Chaudhary O, Sharkey A, Bordlee JW, Leibowitz A, Murugappan KR, Pannu A, Rubenstein LA, Walsh DP, Kunze LJ, Stiles JK, Weinstein J, Mahmood F, Matyal R, Lodico DN, Mitchell JD. Comprehensive Ultrasound Course for Special Operations Combat and Tactical Medics. *J Spec Oper Med*. Winter 2021;21(4):54-61. PMID: 34969127 *Co-first authors
48. Fatima H, Mahmood F, Mufarrih SH, Mitchell JD, Wong V, Amir R, Hai T, Montealegre M, Jones SB, Knio ZO, Matyal R. Preclinical Proficiency-Based Model of Ultrasound Training. *Anesth Analg*. 2022 Jan 1;134(1):178-187. PMID: 33844654
49. Baribeau V, Weinstein J, Wong VT, Sharkey A, Lodico DN, Matyal R, Mahmood F, Mitchell JD. Motion-Tracking Machines and Sensors: Advancing Education Technology. *J Cardiothorac Vasc Anesth*. 2022 Jan;36(1):303-308. PMID: 34551885
50. Baribeau V*, Sharkey A*, Murugappan KR, Walsh DP, Wong VT, Bose A, Chaudhary O, Weinstein J, Matyal R, Mahmood F, Mitchell JD. Assessing Skill Acquisition in Anesthesiology Interns Practicing Central Venous Catheter Placement through Advancements in Motion Analysis. *J Cardiothorac Vasc Anesth*. 2022 Aug;36(8 Pt B):3000-3007. doi: 10.1053/j.jvca.2022.01.039. Epub 2022 Feb 1. PMID: 35256242 *Co-first authors
51. Walsh DP*, Chen MJ*, Buhl LK, Neves, SE, Mitchell, JD. Assessing interrater reliability of a faculty-provided feedback rating system. *J Med Educ Curric Dev*. 2022 Jun 2;9:23821205221093205. doi: 10.1177/23821205221093205. eCollection 2022 Jan-Dec. PMID: 35677580 *Co-first authors
52. Baribeau V, Murugappan KR, Sharkey A, Lodico DN, Walsh DP, Lin DC, Wong VT, Weinstein J, Matyal R, Mahmood F, Mitchell JD. Motion Analysis: An Objective Assessment of Special Operations Forces and Tactical Medics Performing Point-of-Care Ultrasound. *J Spec Oper Med*. Accepted June 2022. In press.

53. Sharkey A*, Mitchell JD*, Fatima H, Bose RR, Quraishi I, Neves SE, Isaak R, Wong VT, Mahmood F, Matyal R. National Delphi Survey on Anesthesiology Resident Training in Perioperative Ultrasound. *J Cardiothorac Vasc Anesth.* 2022 Nov;36(11):4022-4031. Epub 2022 Jul 21. PMID: 35999114 *Co-first authors