

Curriculum Vitae Leo Kobayashi, MD

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EDUCATION

Undergraduate: **Brown University** - AB in Biology, 1994
Medical School: **Brown Medical School**, 1994 to 1998 - MD, 1998

POSTGRADUATE TRAINING

Residency: **Harvard-Affiliated Emergency Medicine Residency**
75 Francis St, Neville House, Boston, MA 02115
Brigham and Women's Hospital / Massachusetts General Hospital, 1998 to 2002

HONORS AND AWARDS

Medical Student Excellence in Emergency Medicine Award, Society for Academic Emergency Medicine 1998
Outstanding Reviewer, *Simulation in Healthcare* 2008
1st Place Research Abstract Award, International Meeting on Simulation in Healthcare 2009
Outstanding Reviewer, MedEdPortal 2009, 2011
Paul Calabresi Faculty Research Award, Dept. of Emerg. Med., Alpert Med. School of Brown University 2010
Editor's Choice manuscript, *BMJ Quality and Safety* 2013: 22(1) 2013
Editor's Choice manuscript, *AAMC MedEdPortal* Feb. 2013 2013
Outstanding Physician Award, Dept. of Emergency Medicine, Alpert Medical School of Brown University 2013
Research Abstract (Simmy) Award, International Meeting on Simulation in Healthcare 2014
Winner, NaloxBox+ Team, Opioid Use + Overdose COBRE Hackathon 2021 2021
Technology Innovation Award, Dept. of Emergency Medicine, Alpert Med. School of Brown Univ. 2017, 2022

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

Licenses: **Massachusetts Limited Medical License** July 1998 to June 2002 (residency)
Rhode Island Full Medical License July 2002 to Present

Certifications: **ACLS Instructor** Mar. 1997 to Mar. 1999; Apr. 2005 to 2007
American Board of Emerg. Medicine Board-certified May 2003; re-certified Sept. 2013
ATLS June 1998 to 2002
ACLS Aug. 1995 to 2003

ACADEMIC APPOINTMENTS

Clinical Fellow in Medicine – Harvard University July 1998 to June 2002
Clinical Instructor in Medicine – Brown University July 2002 to June 2004
Assistant Clinical Professor of Emergency Medicine – Brown University July 2004 to June 2006
Assistant Professor of Emergency Medicine – Brown University July 2006 to June 2011
Associate Professor of Emergency Medicine – Brown University July 2011 to June 2018
Professor of Emergency Medicine – Brown University July 2018 to Present

HOSPITAL APPOINTMENTS

Resident Physician – Dept. of Emerg. Medicine, Brigham and Women's Hospital July 1998 to June 2002

Attending Physician – Department of Emergency Medicine, Rhode Island Hospital Aug. 2002 to Present
Attending Physician – Department of Emergency Medicine, The Miriam Hospital Aug. 2002 to 2005
Assistant Director – Rhode Island Hospital Medical Simulation Center, Rhode Island Hospital
Jan. 2004 to May 2005
Operational Co-Director – Rhode Island Hospital Medical Simulation Center, Rhode Island Hospital
June 2005 to May 2006
Director, Adult Simulation – Rhode Island Hospital Medical Simulation Center, Rhode Island Hospital
June 2005 to May 2006
Co-Director – Lifespan Medical Simulation Center, Rhode Island Hospital (facility name change 2013)
June 2006 to Mar. 2014
Director, Research + Innovation – Lifespan Medical Simulation Center, Rhode Island Hospital
Apr. 2014 to Oct. 2020

OTHER APPOINTMENTS

Reviewer
Simulation in Healthcare 2006 to Present
Joint Commission Journal on Quality and Patient Safety 2008
AAMC MedEdPORTAL 2008 to 2012
BMJ Quality and Safety in Health Care 2008 to Present
Journal of Healthcare Engineering 2010
Healthcare Environments Research and Design 2015 to Present
PLOS One 2020 to Present
Contributor - Skill Stat, eMedicine.com June 2000
eMedicine.com-sponsored Palm PDA-based procedure handbook designed to be a concise reference for emergency physicians.
Content Advisor - eResidency.com Jan. 1999 to March 2001
Web-based Residency Management System allowing residents to track residency-related information.
Facilitator - Harvard Medical School Simulation Lab Jan. 2002 to June 2002
Emergent patient simulation with METI HPS for resident + student education in acute care medicine and pathophysiology.
Facilitator - Rhode Island Hospital / Lifespan Medical Simulation Center July 2002 to Present
Emergent patient simulation with SimMan for staff, resident + student education in acute care medicine and teamwork training / error reduction.
Program Investigator - Rhode Island Disaster Initiative Feb. 2003 to Aug. 2005 (program completed)
Consultant for high-fidelity medical simulation aspects of coordinated exercises involving local disaster, fire, prehospital, and hospital personnel.
Assistant Project Director, Investigator - SAFER project July 2004 to June 2006 (project completed)
Center for Medicare and Medicaid Services (CMS) project to create simulation curriculum for patient safety.
Program Leader, Investigator - SimCode program Apr. 2005 to Sept 2014 (program leadership transition)
Simulation-based program to assess and improve in-hospital cardiac arrest resuscitation performance.
Project Leader, Investigator - TESTPILOT project Mar. 2005 to Oct. 2005 (project completed)
Program to assess operational readiness of new Emergency Department.
Program Leader, Investigator - AETHER program May 2011 to Apr. 2016
Program lead for investigation of ED particular matter levels, source detection and mitigation.
Co-Primary Investigator - Resusc. Bay Research Initiative June 2006 to Sept. 2007 (project completed)
Collaboration between EM clinicians, industrial designers + hospital system to identify opportunities for ED Resuscitation Bay improvement.
Project Leader - Newport Hospital TeamSTEPPS project Oct. 2006 to Sept. 2007 (project completed)
Planning of phased hospital-wide simulation-enhanced Team Strategies and Tools to Enhance Performance and Safety (TeamSTEPPS) educational program.
Member - PETMAN Committee, National Academies Jan. 2007 to Mar. 2008 (committee concluded)
Feasibility investigation of articulated robotic manikin system to test personal protective equipment ensembles in chem-bio warfare agent environments.
Chair - Simulation Interest Group, Society for Acad. Emerg. Med. Aug. 2008 to May 2009 (-> Sim. Academy)
Interest group leader tasked with advancing simulation-related issues in academic emergency medicine.

Simulation Advisor - Community College of Rhode Island Sept. 2008 to May 2009 (consultation completed)
Simulation expert consultative role in nursing school simulation lab development.

Member, Reviewer – Soc. Sim. Healthcare Accreditation Committee Jan. 2009 to Oct. 2015
Development of international specialty society's accreditation standards and processes for simulation programs / facilities; program site reviewer.

Project Leader, Investigator - ASCENT AED project Feb. 2009 to May 2009 (project completed)
Program to assess in-hospital sudden cardiac arrest response models through simulated resuscitations; study-driven hospital-wide implementation of AED-supplemented response system.

Board Member - Simulation Academy, Society for Acad. Emerg. Med. May 2009 to May 2015 (end of term)
Inaugural panel member and executive committee member-at-large of Simulation Academy tasked with advancing simulation-related issues in academic emergency medicine.

Program Leader, Investigator - ARGUS program Sept. 2010 to Dec. 2022
Program to assess alarm fatigue and deficiencies in ED vital signs / arrhythmia monitoring telemetry system through system-probing simulations and human factors engineering; ED implementation of study-driven re-configuration and enhancements.

Consultant – SOON project / NARCAN study July 2011 to June 2014
Simulation-enabled study of layperson naloxone administration by substance-abusing community members after training intervention during incarceration.

Member – Integrated Medical Environment Decision Support (IMEDS) Consortium Apr. 2012 to Jan. 2014
Rhode Island Hospital Medical Simulation Center liaison and workgroup member for innovative clinical decision support system R+D program (Draper Laboratories, Cambridge MA).

Member – Northern New Engl. Sim. Education and Research Consortium June 2012 to June 2014
Rhode Island Hospital liaison and committee member to regional simulation education and research consortium.

Project Leader, Investigator – BIRDSS-I Project (Intel) Aug. 2013 to Sept. 2014 (project completed)
Industry collaboration to acquire, extract and review de-identified physiologic signals for healthcare / medical device development and research.

Program Leader, Investigator – PERSEUS program Oct. 2014 to Dec. 2022
Program lead for multi-site collaborative biomedical engineering, computer science, and clinical investigation into alarm fatigue mitigation.

HOSPITAL COMMITTEES

Member, Residency Advisory Committee, Dept. of Emergency Medicine, RIH Feb. 2003 to Feb. 2009

Member, Error Reduction Task Force, Department of Emergency Medicine, RIH
Oct. 2003 to June 2004 (task force concluded)

Co-Chair, Simulation Operations Committee, Lifespan Medical Simulation Center, RIH
Oct. 2003 to Dec. 2020

Member, MedHost Implementation Committee, Department of Emergency Medicine, RIH
Nov. 2004 to May 2005 (committee concluded)

Co-Chair, Simulation Academics + Research Committee, Lifespan Medical Simulation Center, RIH
Mar. 2006 to Oct. 2020

Member, Communications Equipment Committee, Department of Emergency Medicine, RIH
Dec. 2006 to Dec. 2007 (committee concluded)

Member, Simulation Advisory Workgroup, Lifespan June 2007 to July 2008 (workgroup concluded)

Member, Simulation Steering Committee-> Sim. Advisory Committee, Lifespan
July 2008 to 2014 (committee concluded)

Member, Internal Medicine Code Response Review Subcommittee, RIH July 2008 to July 2010

Member, In-hospital Cardiac Arrest Committee, RIH Aug. 2008 to July 2010

Member, Workspace Systems Improvement Comm.-> 5S Committee, Dept. of Emergency Medicine, RIH
Aug. 2008 to Dec. 2019

Member, Patient Safety Committee, Department of Emergency Medicine, RIH Feb. 2009 to Dec. 2022

Member, Electronic Health Record (PhysDoc) Workgroup Department of Emergency Medicine, RIH
Aug. 2011 to June 2012

Member, Emergency Medicine Research Committee , Department of Emergency Medicine, RIH	Jan. 2012 to Present
Member, Emerg. Digital Health Innovation Program , Dept. of Emerg. Med., Alpert Med. School, Brown Univ.	May 2014 to Present
Member, Predictive Analytics Governance Council , RIH	Sept. 2019 to Present
Member, Revenue Enhancement Team , Dept. of Emergency Medicine, RIH	Jan. 2020 to Dec. 2020
Member, Green Team, Department of Emergency Medicine, RIH	Jan. 2020 to Present

MEMBERSHIP IN SOCIETIES

American College of Emergency Physicians (ACEP) (1995-2020)
Fellow (FACEP) and Member, Rhode Island Chapter (1995-2020)

Massachusetts Medical Society (MMS) (1998-2020)

Rhode Island Medical Society (RIMS) (2002-2017)

Society for Academic Emergency Medicine (SAEM) (1994-2020)
Chair, Simulation Interest Group (2008-2009)
Inaugural Member, Board Member-at-Large, Simulation Academy (2009-2014)

Society for Simulation in Healthcare (SSiH) (2002-2020)
Member, Accreditations Council (2009-2020)
Program Site Reviewer, Accreditations Council (2009-2015)
Member, Healthcare Systems Modeling + Simulation IG (2013-2020)

Institute of Electrical and Electronics Engineers (IEEE) (2019-Present)

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

- Gady J, Boyan S, Jayaraman M, Kelly M, **Kobayashi L**, Lee P, Lynch, Minter M, Spooner A, Taylor J, Becker B, Jagminas L, Shapiro M. "HIV risk: No impact on medical student specialty choice." *RI Med* 1995; 78: 293-4.
- Kobayashi L**, Shapiro MJ, Suner S, Williams KA. "Disaster medicine education: The potential role of high fidelity medical simulation in mass casualty incident training." *Med Health RI* 2003; 86(7): 196-200.
- Woolard R, Lai M, Shapiro MJ, **Kobayashi L**, Jay G, Suner S, Williams K, Sullivan F. "Emergency department design after 9/11/2001." *Med Health RI* 2003; 86(7): 204-206.
- Kobayashi L**, Shapiro MJ, Sucov A, Woolard R, Boss RM, Dunbar J, Sciamacco R, Karpik K, Jay G. "Portable advanced medical simulation for new Emergency Department testing and orientation." *Acad Emerg Med* 2006, 13(6): 691-5.
- Kobayashi L**, Suner S, Shapiro MJ, Jay G, Sullivan F, Overly F, Seekell C, Hill A, Williams KA. "Designing multi-patient advanced medical simulation disaster scenarios for civilian pre-hospital medical response training and evaluation: a "dirty bomb" case study." *Sim Healthcare* 2006, 1(2): 72-8.
- Kobayashi L**, Shapiro MJ, Gutman DC, Jay G. "Multiple encounter simulation for high-acuity multi-patient environment training." *Acad Emerg Med* 2007, 14(12): 1141-8.
- Williams KA, Sullivan F, Suner S, Shapiro M, **Kobayashi L**, Woolard R, Hill W, Seekell C. "Rhode Island Disaster Initiative." *Int J Risk Assessment and Management* 2008; 9(4): 394-408.
- Shah HH, Gjelsvik A, **Kobayashi L**, Clyne B. "Views of Emergency Medicine trainees on adverse events and negligence: survey results from an Emergency Medicine training program in a regional healthcare system following the national standard of care." *Advances in patient safety: new directions and alternative approaches*. Vol 2, Culture and Redesign. AHRQ Publication No. 08-0034-2. Rockville, MD: Agency for Healthcare Research and Quality, August 2008.
- Kobayashi L**, Patterson MD, Overly FL, Shapiro MJ, Williams KA, Jay G. "Educational and research implications of portable human patient simulation in acute care medicine." *Acad Emerg Med* 2008; 15(11): 1166-74.
- Kaji A, Bair A, Okada H, **Kobayashi L**, Khare R, Vozenilek J. "Defining systems expertise: effective simulation at the organizational level- Implications for patient safety, disaster surge capacity, and facilitating the systems interface." *Acad Emerg Med* 2008; 15(11):1098-103.
- Kobayashi L**, Overly FL, Fairbanks RJ, Patterson M, Kaji AH, Bruno EC, Kirchhoff MA, Strother CG, Sucov A, Wears RL. "Advanced medical simulation applications for Emergency Medicine microsystems evaluation and training." *Acad Emerg Med* 2008; 15(11):1058-70.

12. Overly F, Sudikoff S, Duffy S, Anderson A, **Kobayashi L**. "Three scenarios to teach difficult discussions in pediatric emergency medicine- 1) sudden infant death, 2) child abuse with domestic violence, and 3) medication error." *Sim Healthcare* 2009; 4(2):114-130.
13. Tubbs RJ, Murphy B, Mainiero MB, Shapiro M, **Kobayashi L**, Lindquist D, Smith JL, Siegel N. "High-fidelity medical simulation as an assessment tool for radiology residents' acute contrast reaction management skills." *J Am Coll Radiol* 2009; 6(8): 582-7.
14. **Kobayashi L**, Lindquist D, Jenouri I, Dushay K, Haze D, Sutton E, Smith J, Tubbs R, Overly F, Foggie J, Dunbar-Viveiros J, Jones M, Marcotte S, Werner D, Cooper M, Martin P, Tammaro D, Jay G. "Comparison of sudden cardiac arrest resuscitation performance data obtained from in-hospital incident chart review and *in situ* high-fidelity medical simulation." *Resuscitation* 2010; 81(4): 463-71.
15. **Kobayashi L**, Dunbar-Viveiros JA, Sheahan BA, Rezendes MH, Devine J, Cooper MR, Martin PB, Jay GD. "In situ simulation comparing in-hospital first responder sudden cardiac arrest resuscitation with semi-automated defibrillators and automated external defibrillators." *Sim Healthcare* 2010; 5(2): 82-90.
16. **Kobayashi L**, Boss R, Gibbs F, Goldlust E, Hennedy M, Kestin A, Monti J, Siegel N. "Use of a color-coded chart binder system to improve patient safety characteristics of Emergency Department clinical paper documentation and materials." *Healthcare Environments Research and Design* 2011; 4(4): 79-88.
17. **Kobayashi L**, Sweeney LA, Cousins AC, Bertsch KS, Gardiner FG, Tomaselli NM, Boss RM, Gibbs FJ, Jay GD. "Web survey and intervention on Emergency Department personnel perceptions of role in patient experience." *Eur J Emerg Med*, 2012; 19(2):112-6.
18. **Kobayashi L**, Dunbar-Viveiros J, Devine J, Jones MS, Overly FL, Gosbee JW, Jay GD. "Pilot phase findings from high-fidelity *in situ* medical simulation investigation of emergency department procedural sedation." 2012; 7(2):81-94.
19. Schleicher SM, Hack JB, **Kobayashi L**, Sekelski J. "Diagnosis at a glance- a dye pack burn on the thigh." *Emergency Medicine*, 2012; 44(1):17-18.
20. **Kobayashi L**, Parchuri R, Gardiner FG, Tomaselli NM, Paolucci GA, Bertsch KS, Boss RM, Gibbs FJ, Goldlust E, Monti JE, O'Hearn B, Portelli DC, Siegel NA, Hemendinger D, Jay GD. "Use of *in situ* simulation and human factors engineering to assess and improve emergency department clinical systems for timely telemetry-based detection of life-threatening arrhythmias." *BMJ Quality and Safety*, 2013; 22(1):72-83
21. Al-Rasheed RS, Devine J, Dunbar-Viveiros JA, Jones MS, Dannecker M, Jay GD, **Kobayashi L**. "Development of simulated chest compression videos for objective evaluation and training of instructor / coordinators in CPR learner performance assessment." *J Contin Educ Nurs*, 2013; 44(2):59-63.
22. Al-Rasheed RS, Devine J, Dunbar-Viveiros JA, Jones MS, Dannecker M, Machan JT, Jay GD, **Kobayashi L**. "Simulation intervention with manikin-based objective metrics improves CPR instructor chest compression performance skills without improvement in chest compression assessment skills." *Sim Healthcare*, 2013; 8(4):242-52.
23. Siegel NA, **Kobayashi L**, Dunbar-Viveiros JA, Devine J, Al-Rasheed RS, Gardiner FG, Olsson K, Lai S, Jones MS, Dannecker M, Overly FL, Gosbee JW, Portelli DC, Jay GD. "High-fidelity *in situ* medical simulation investigation of emergency department procedural sedation and an experimental bedside informatics clinical process guidance intervention." *Sim Healthcare*, 2015; 10(3): 146-53.
24. Choi B, **Kobayashi L**, Pathania S, Miller CB, Locke ER, Stearns BC, Hudepohl N, Patefield SS, Suner S, Williams KA, Machan JT, Jay GD. "Detection and measurement of unhealthy, environment-derived aerosol materials in an emergency department." *Healthcare Environments Research and Design*, 2015; 9(1): 34-53.
25. Dedmon MM, Paddle PM, Phillips J, **Kobayashi L**, Franco RA, Song PC. "Development and validation of a high-fidelity porcine laryngeal surgical simulator." *Otolaryngol Head Neck Surg*, 2015, 153(3): 420-6.
26. Zhang XC, **Kobayashi L**, Berger M, Reddy PM, Chheng DB, Gorham SA, Pathania S, Stern SP, Icaza Milson E, Jay GD, Baruch JM. "Objective assessment and thematic categorization of patient-audible information in an Emergency Department." *Acad Emerg Med*, 2015, 22(10): 1222-5.
27. Choi B, Asselin N, Pettit CC, Machan JT, Merck DL, Merck LH, Suner S, Williams KA, Jay GD, **Kobayashi L**. "Simulation-based randomized comparative assessment of out-of-hospital cardiac arrest resuscitation bundle completion by emergency medical service teams using standard life support or an experimental automation-assisted approach." *Sim Healthc*, 2016, 11(6): 365-75.
28. **Kobayashi L**, Gosbee JW, Merck DL. "Development and application of a clinical microsystem simulation methodology for human factors-based research of alarm fatigue." *HERD* 2017 Jul;10(4):91-104. <https://doi.org/10.1177/1937586716673829>

29. **Kobayashi L**, Green TC, Bowman SE, Ray M, McKenzie MS, Rich JD. "Patient simulation for assessment and reinforcement of layperson management of opioid overdose with intra-nasal naloxone in a recently-released prison inmate cohort." *Sim Healthc*, 2017, 12(1): 22-27.
30. Zhang XC, Bermudez AM, Reddy PM, Sarpatwari RR, Chheng DB, Mezoian TJ, Schwartz VR, Simmons QJ, Jay GD, **Kobayashi L**. "Interdisciplinary development of an improved emergency department procedural work surface through iterative design and use testing in simulated and clinical environments." *Ann Emerg Med*, 2017, 69(3): 275-83.
31. Hayden EM, Wong AH, Ackerman J, Sande MK, Lei C, **Kobayashi L**, Cassara M, Cooper DD, Perry K, Lewandrowski B, Scerbo MW. "Human factors and simulation in emergency medicine." *Acad Emerg Med*, 2017, 25(2):221-9. <https://doi.org/10.1111/acem.13315>
32. Schoen J, Machan J, Dannecker M, **Kobayashi L**. "Comparison of compressor team size and stretching exercise effects on provider chest compression performance and workload during simulated cardiac resuscitation." *West J Emerg Med*, 2017, 18(6): 1025-34. <https://doi.org/10.5811/westjem.2017.8.34236>
33. **Kobayashi L**, Zhang XC, Collins SA, Karim N, Merck DL. "Exploratory application of off-the-shelf augmented reality / mixed reality devices during acute care invasive procedure simulation training. *West J Emerg Med*, December 2017, 19(1):158-64. <https://doi.org/10.5811/westjem.2017.10.35026>
34. Cummings C, Monti J, **Kobayashi L**, Potvin J, Williams K, Sullivan F. "Ghost attack: the 2016 East Providence carbon monoxide mass casualty incident." *R I Med J*, February 2018, 101(1):26-7.
35. Asselin N, Choi B, Pettit CC, Machan JT, Merck DL, Merck LH, Suner S, Williams KA, Jay GD, **Kobayashi L**. "Comparative analysis of emergency medical service provider workload during simulated out-of-hospital cardiac arrest resuscitation using standard versus experimental protocols and equipment." *Sim Healthc*, 2018; 13(6):376-86. <https://doi.org/10.1097/SIH.0000000000000339>
36. Capraro G, Etebari C, Luchette K, Mercurio L, Merck D, Kirenko I, van Zon K, Bartula M, Rocque M, **Kobayashi L**. "'No touch' vitals: a pilot study of non-contact vital signs acquisition in exercising volunteers." *Proceedings of the Biomedical Circuits and Systems Conference (BioCAS); 2018 Oct.17-19:1-4. Cleveland, OH: Piscataway: IEEE; c2018.* <https://doi.org/10.1109/BIOCAS.2018.8584713>
37. **Kobayashi L**, Oyalowo AC, Agrawal U, Chen S, Asaad W, Hu X, Loparo K, Jay G, Merck DL. "Development and deployment of an open, modular, near-real-time patient monitor datastream conduit toolkit to enable healthcare multi-modal data fusion in a live Emergency Department setting for experimental bedside clinical informatics research." *IEEE Sens Lett*, 2019, 3(1): article no. 7101204. <https://doi.org/10.1109/LENS.2018.2880140>
38. **Kobayashi L**, Asselin NP, Choi B, Pettit C, Dannecker M, Williams KA. "Comparison of EMS provider in-transit performance and exertion with standard and experimental resuscitation protocols during out-of-hospital cardiac arrest simulation." *RI Med J*, May 2019.
39. **Kobayashi L**, Chuck C, Kim C, Luchette KR, Oster A, Merck DL, Kirenko I, van Zon K, Bartula M, Rocque M, Wang H, Capraro GA. "Pilot study of emergency department patient vital signs acquisition using experimental video photoplethysmography and passive infrared thermography devices." *Proceedings of the 2019 IEEE 10th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON); 2019 Oct. 10-12. New York, NY: Piscataway: IEEE; c2019.* doi.: <https://10.1109/UEMCON47517.2019.8993087>
40. Golden A, Alaska YA, Levinson AT, Davignon KR, Lueckel SN, Lynch KA, Jay G, **Kobayashi L**. "Simulation-based examination of arterial line insertion method reveals inter-disciplinary practice differences." *Sim Healthc*, 2020; 15(2): 89-97.
41. Gurley AL, Tanch JE, Portelli DC, Priebe C, Berube JA, Dieffenbach A, Harris R, Jalal M, Sayles SL, Smulling AJ, Jay GD, **Kobayashi L**. "Baseline assessment, intervention, and interval reassessment of clinical information systems infrastructure in an academic regional referral emergency department." *Proceedings of the 2020 IEEE International IOT, Electronics, and Mechatronics Conference (IEMTRONICS); 2020 Sep. 9-12. Vancouver, Canada: IEEE; c2020.* doi.: 10.1109/IEMTRONICS51293.2020.9216436 <https://ieeexplore.ieee.org/document/9216436>
42. Zhang XC, Matson AM, Gil JA, Chiou D, Wing RD, **Kobayashi L**, Cruz AI Jr. "Wrist reduction instruction with simulation technology (WRIST) interdisciplinary emergency medicine and orthopedic surgery study." *SSH IMSH2021 Technical Proceedings*, March 21, 2021, available at SSRN: <http://dx.doi.org/10.2139/ssrn.3808897> doi.: 10.2139/ssrn.3808897
43. Moretti K, Karb R, Durand R, **Kobayashi L**, Hayward A. "Wasting no time: implementation and the climate impact of a solid waste stream process intervention in a large academic emergency department." *R I Med J* Nov. 2021, 104(9):34-7.

44. Capraro GA, Balmaekers B, den Brinker AC, Rocque M, DePina Y, Schiavo MW, Brennan K, **Kobayashi L**. "Contactless vital signs acquisition using video photoplethysmography, motion analysis, and passive infrared thermography devices during emergency department walk-in triage in pandemic conditions." *J Emerg Med*, Aug. 2022, 63(1):115-29. doi: <https://doi.org/10.1016/j.jemermed.2022.06.001>
45. Liu J, Varone FA, Volpe JK, **Kobayashi L**, Capraro GA. "Internet-of-things augmentation of public access naloxone containers to establish a distributed network for resource monitoring and utilization research (NaloxBox+)." Accepted for publication, *Proceedings of the 2023 IEEE 14th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)*, ?? 2023??.
46. **Kobayashi L**, Chuck CC, Kim CK, Luchette KR, Oster A, Merck DL, Kirenko I, van Zon K, Bartula M, Rocque M, Wang H, Baci C, Balmaekers B, Derx R, Capraro GA. "Comparison of video photoplethysmography, video motion analysis, and passive infrared thermography against traditional contact methods for acquiring vital signs in emergency department populations." Accepted for publication, *Proceedings of the 2023 IEEE 14th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)*, ?? 2023??.
47. Wang H, **Kobayashi L**, Capraro GA, van Zon K, Rocque M, Bonenfant SL, Brinkman MG, Cosgriff MP, Craft SB, Fried RS, Haynes A, Higgins DJ, Lee SH, Mozzone MR, Ortiz C, Oster A, Suarez E, Tremblay JL, Merck DL, Kirenko I. "Assessment of visual patient re-identification in a live emergency department waiting room." Accepted for publication, *Proceedings of the 2023 IEEE 14th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)*, ?? 2023??.

SCHOLARLY WORK PUBLISHED IN OTHER MEDIA

1. **Kobayashi L**. Civilian chemical weapon exposure case, Biological and Chemical Warfare Agents module, "Current concepts in emergency medicine" course. Harvard Online Continuing Medical Education (WebCME) Project, 2003.
2. **Kobayashi L**, Mermel L. Civilian bioweapon exposure case, Biological and Chemical Warfare Agents module, "Current concepts in emergency medicine" course. Harvard Online Continuing Medical Education (WebCME) Project, 2003.
3. **Kobayashi L**, Shapiro M. "Intentional clonidine overdose" case scenario. Society for Academic Emergency Medicine (SAEM) Simulation Interest Group (SIG) Emergency Medicine Simulation Resources Online-Simulation Case Library [2005]. MedEdPortal, 2006. Available at: mededportal.org/publication/525
4. **Kobayashi L**, Shapiro M, Gutman D. "Massive pulmonary embolus with pulseless electrical activity (ACLS cardiac arrest)" case scenario. Society for Academic Emergency Medicine (SAEM) Simulation Interest Group (SIG) Emergency Medicine Simulation Resources Online- Simulation Case Library, 2005. Available at: emedu.org/SimGroup/casedetail.asp?UploadID=91
5. **Kobayashi L**, Shapiro M, Williams K, Morey JC, Counihan T. "U.S. Army Reserve Component Medical Training Simulation Scenarios" package. Society for Academic Emergency Medicine (SAEM) Simulation Interest Group (SIG) Emergency Medicine Simulation Resources Online- Simulation Case Library, 2006. MedEdPortal, 2007. Available at: mededportal.org/publication/9155
6. Morey JC, Williams KA, **Kobayashi L**, Counihan T, Norman B, Holland JB, Langford V. "Skill sustainment for National Guard and Reserve medical personnel through Web-based training and human patient simulation." Deliverable for Telemedicine and Advanced Technology Research Center (TATRC) of the US Army Medical Research and Materiel Command (USAMRMC), Dec 2006.
7. Shapiro M, **Kobayashi L**, Overly F, Lindquist D, Croskerry P, Beach C, Behara R, Eisenberg E, Murphy L, Perry S, Vanderhoef M, Wears R, Hobgood C, Babu K. "CMS transportable simulation-based training curriculum in patient safety" package. MedEdPortal, 2009. Available at: mededportal.org/publication/592
8. Lozano S, **Kobayashi L**. "Altered mental status and hyperthermia in adult male" case scenario. Society for Academic Emergency Medicine (SAEM) Simulation Interest Group (SIG) Emergency Medicine Simulation Resources Online- Simulation Case Library [2008]. MedEdPortal, 2009. Available at: mededportal.org/publication/1752 or emedu.org/simlibrary/casedetail.aspx?UploadID=116
9. **Kobayashi L**, Shapiro M, Nagdev A, Gibbs F. "Emergency medicine ultrasound simulation (U/SS) case scenarios" package. MedEdPortal, 2010. Available at: mededportal.org/publication/531
10. Ragsdale L, Gutman D, **Kobayashi L**. "Geriatric emergency medicine curriculum using high-fidelity medical simulation." MedEdPortal, 2010. Available at: mededportal.org/publication/3168
11. **Kobayashi L**, Overly F, Gosbee J. "Emergency Department procedural sedation *in situ* simulation materials (SLIPSTREAM SD-R study scenarios A + B)." MedEdPortal, 2012. Available at: mededportal.org/publication/8220

12. Van Ness-Otunnu R, **Kobayashi L**, Ford S, Overly F. "28 day old male with non-obstructing supracardiac total anomalous pulmonary venous connection and atrial septal defect presenting with pulmonary overcirculation" case scenario. MedEdPortal, 2012. Available at: mededportal.org/publication/9155
13. Al-Rasheed RS, Devine J, Dunbar-Viveiros JA, Jones MS, Dannecker M, Jay GD, **Kobayashi L**. " Video library of objective verified simulated chest compression performances (CIRRUS research program materials)." MedEdPortal, 2013. Available at: mededportal.org/publication/9344
14. Collins SA, Merck DL, Leary OP, **Kobayashi L**. "3D anatomic holoimage repository." Brown Digital Repository, 2017. Available at: https://repository.library.brown.edu/studio/collections/id_753/
15. **Kobayashi L**, Oyalowo A, Agrawal U, Hu X, Loparo KA, Leary OP, Jay GD, Merck DL. "Push Electronic Relay for Smart Alarms for End User Situational Awareness (PERSEUS) research program full original .json files dataset." Brown Digital Repository, 2018. Available at: <https://doi.org/10.26300/1t2a-qm27>
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20. **Kobayashi L**, Oyalowo A, Agrawal U, Hu X, Loparo KA, Leary OP, Jay GD, Merck DL. "Adjudicated/Annotated Telemetry signals for Medically Important and Clinically Significant Events-CC (ATOMICS-CC) dataset." Brown Digital Repository, 2019. Available at: <https://doi.org/10.26300/m9pp-4m49>

OTHER PEER-REVIEWED PUBLICATIONS

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BOOKS AND CHAPTERS

1. Williams KA, **Kobayashi L**, Shapiro MJ. "Disaster education and research." In: Ciottone G et al, eds. *Disaster Medicine*. St.Louis, MO: Mosby, 2014.
2. **Kobayashi L**, Frund Z, Jan D et al. "Design Challenge: Simulation of Human Physiology." In: PETMAN Committee (Tomizuka M, Akeel HA, Atkeson C, Brosseau L, Frund Z, Jan D, Jayaraman S, Kobayashi L, Newman D, Sanderson A, Schaudies RP), National Academies. *Soldier protective clothing and equipment: feasibility of chemical testing using a fully articulated robotic mannequin*. Washington, DC: National Academies Press, 2007: 21-47.
3. **Kobayashi L**. "Vertebrobasilar insufficiency." Schaider J et al. (eds): *The 5 Minute Emergency Medicine Consult*, 4th edition, Philadelphia, PA: Lippincott Williams + Wilkins, 2010.
4. Golden A, Pasichow SH, **Kobayashi L**. "Simulation." In: Shafer K, ed. *Fellowship Guide- Opportunities for Emergency Physicians*. Dallas, TX: Emergency Medicine Residents' Association, 2016.

PUBLICATIONS SUBMITTED OR IN PREPARATION

1. **Kobayashi L**, Oyalowo AC, Agrawal U, Gosbee JW, Hu X, Loparo KA, Jay GD, Merck DL. "Comparison of experimental multi-parametric alert and standard single-parameter alarm patient monitoring approaches in a live emergency department patient cohort." In preparation for submission. (PERSEUS)

ABSTRACTS

1. Kulkarni RG, Adler J, **Kobayashi L**, Legome E. "An Internet-based academic residency management system." American College of Emergency Physicians Scientific Assembly 2000.
2. Shapiro M, Morchi R, **Kobayashi L**. "High-fidelity medical simulation and its role in evaluating Advanced Cardiac Life Support (ACLS) skills." Society for Academic Emergency Medicine Annual Meeting 2003. *Acad Emerg Med* 2003; 10(5): 488.

3. **Kobayashi L**, Shapiro M, Sullivan F, Clyne B, Morchi R, Jay G. "High fidelity medical simulation enhances housestaff satisfaction with ACLS certification and recertification training." Annual International Meeting on Medical Simulation 2004 and Society for Academic Emergency Medicine New England Regional Meeting 2004.
4. Shapiro M, **Kobayashi L**, Williams K, Sullivan F, Seekell CL, Suner S (Rhode Island Disaster Initiative Team). "Use of personal protective equipment does not impede airway management in an environment simulating a chemical weapons of mass destruction (WMD) attack." Annual International Meeting on Medical Simulation 2004.
5. Clyne B, Gutman D, Sutton E, **Kobayashi L**, Spitalnic S, Jay G, Shapiro M. "Oral board versus high fidelity simulation for competency assessment: Senior emergency medicine resident management of an acute coronary syndrome." Annual International Meeting on Medical Simulation 2004 and Society for Academic Emergency Medicine Annual National Meeting 2004. *Acad Emerg Med* 2004; **11**(5): 500.
6. Lee PH, **Kobayashi L**. "Evaluation of medical care and transportation issues at a simulated arctic Mars base." Aerospace Medical Association Annual Meeting 2004.
7. **Kobayashi L**, Shapiro M, Hill A, Jay G. "Creating a MESS for enhanced acute care medical education and medical error reduction: The multiple encounter simulation scenario." Innovation in Emergency Medicine Education, Society for Academic Emergency Medicine Annual National Meeting 2004. *Acad Emerg Med* 2004; **11**(8): 896.
8. Suner S, Williams K, Shapiro M, **Kobayashi L**, Woolard R, Sullivan F. "Effect of personal protective equipment (PPE) on rapid patient assessment and treatment during a simulated chemical weapons of mass destruction (WMD) attack." Society for Academic Emergency Medicine Annual National Meeting 2004. *Acad Emerg Med* 2004; **11**(5): 605
9. Williams KA, Sullivan F, Suner S, Shapiro M, **Kobayashi L**, Woolard R, Seekell, C. "Do first responders enter unsafe environments?" Society for Academic Emergency Medicine Annual National Meeting 2004. *Acad Emerg Med* 2004; **11**(5): 604.
10. Williams KA, Sullivan F, Suner S, Shapiro M, **Kobayashi L**, Woolard R, Seekell, C, Trespalacios F. "Triage behavior of first responders." Society for Academic Emergency Medicine Annual National Meeting 2004. *Acad Emerg Med* 2004; **11**(5): 588.
11. Shapiro M, Suner S, **Kobayashi L**, Williams K, Sullivan F, Jay G. "Simulation Training in Emergency Preparedness (STEP): A statewide Weapons of Mass Destruction (WMD) training program for hospital personnel." Annual International Meeting on Medical Simulation 2005.
12. **Kobayashi L**, Shapiro MJ, Sucov A, Woolard R, Jay G. "Transportable Enhanced Simulation Technologies for Pre-Implementation Limited Operations Testing (TESTPILOT) Program in new Emergency Departments." Society for Academic Emergency Medicine Annual National Meeting 2005.
13. Shapiro MJ, Williams KA, **Kobayashi L**, Morey JC, Counihan T, Overly F, Sullivan F, Suner S, Jay G. "Civilian medical simulation centers as a regional resource for training and skill sustainment of Reserve Component medical personnel in combat casualty care." Annual International Meeting on Medical Simulation 2006.
14. Shapiro MJ, **Kobayashi L**, Lindquist D, Overly F. "Development of a transportable modular simulation-based patient safety curriculum for graduate medical education." Annual International Meeting on Medical Simulation 2006.
15. **Kobayashi L**, Nagdev A, Clyne B, Gibbs F, Jay G. "Integration of Ultrasound Simulation (U/SS) into advanced medical simulation for emergency medicine resident training." Society for Academic Emergency Medicine Annual National Meeting 2006.
16. **Kobayashi L**, Babu K, Ganetsky M, Anderson A. "Curriculum in Simulated Pitfalls of Overdose Toxicology (C-SPOT) for emergency medicine resident training." Society for Academic Emergency Medicine Annual National Meeting 2006.
17. **Kobayashi L**, Overly F, Shapiro M, Jay G. "Simulation Proportional Effort Contribution Tracking (SPECTra) system for data-driven determination of individual personnel time and effort contribution to simulation center activity." Annual International Meeting on Medical Simulation 2007.
18. Shah HH, **Kobayashi L**, Gjelsvik A, Clyne B. "Emergency medicine residents' perception of medical negligence." Society for Academic Emergency Medicine New England Regional Meeting 2007.
19. Gutman DG, Ragsdale L, **Kobayashi L**. "High-fidelity medical simulation for geriatric emergency medicine training." Society for Academic Emergency Medicine Annual National Meeting 2007.

20. **Kobayashi L**, Williams KA, Jones M, Marcotte S, Jay G. "Mobile / Transitive Incident Operational Needs (MoTION) simulation." Lifespan Research Celebration 2007 and Annual International Meeting on Simulation in Healthcare 2008.
21. Jones M, Overly F, **Kobayashi L**, Dunbar J. "Use of re-purposed human patient simulator equipment for simulation of bedside patient monitors." Lifespan Research Celebration 2007 and Annual International Meeting on Simulation in Healthcare 2008 (syllabus).
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23. Overly FL, Lindquist D, Paglia MJ, Browning L, Choi K, **Kobayashi L**, Gard D, Shapiro MJ. "Expanding the use of hybrid simulators: Integrating a standardized patient and obstetrical manikin to provide teamwork training to multi-disciplinary labor and delivery room teams." Lifespan Research Celebration 2007 and Annual International Meeting on Simulation in Healthcare 2008.
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26. **Kobayashi L**, Shapiro MJ, Haze D, Jenouri IM, Lindquist DG, Sutton EM, Jones MS, Marcotte S, Martin P, Jay GD. "Preliminary analysis of in-hospital cardiopulmonary resuscitation simulation (SimCode) training program." American College of Emergency Physicians Research Forum 2008.
27. Dunbar J, Sheahan B, **Kobayashi L**. "Hospital code-cart equipment quality improvement in response to simulated resuscitation program findings." American College of Emergency Physicians Research Forum 2008 and Lifespan Research Celebration 2008.
28. **Kobayashi L**, Jernigan E, Suner S, Marcotte S, Jones M. "Use of medical simulation to satisfy National Registry paramedic student endotracheal intubation training requirement elements." Lifespan Research Celebration 2008, Mediterranean Emergency Medicine Conference V 2009.
29. **Kobayashi L**, Overly FL, Cooper M, Jay G. "Comparison of sudden cardiac arrest resuscitation performance data obtained from in-hospital incident chart review and *in situ* high-fidelity medical simulation." Annual International Meeting on Simulation in Healthcare 2009 (first place research abstract award, Patient Safety category).
30. **Kobayashi L**, Boss RM, Gibbs FJ, Hennedy MM, Monti, J, Jay GD. "Assessment of emergency department physical chart location, identification and differentiation characteristics." Mediterranean Emergency Medicine Conference V 2009.
31. **Kobayashi L**, Boss RM, Gibbs FJ, Goldlust EJ, Hennedy MM, Monti JE, Siegel NA, Jay GD. "Human factors engineering intervention to improve emergency department physical chart location, identification and differentiation for enhanced patient safety." Mediterranean Emergency Medicine Conference V 2009.
32. **Kobayashi L**, Dunbar-Viveiros JA, Sheahan BB, Rezendes MH, Devine J, Cooper MR, Martin PB, Jay GD. "*In situ* intermediate-fidelity medical simulation for comparison of in-hospital first responder sudden cardiac arrest resuscitation with semi-automated defibrillators and with automated external defibrillators." Mediterranean Emergency Medicine Conference V 2009.
33. **Kobayashi L**, Overly FL, Jay GD. "Medical simulation scenario visualization with a graphic diagram representation system." International Meeting on Simulation in Healthcare 2010.
34. **Kobayashi L**, Sweeney LA, Cousins AC, Bertsch KS, Gardiner FG, Tomaselli NM, Boss RM, Gibbs FJ, Jay GD. "Emergency Department personnel perception of their role in patient experience." American College of Emergency Physicians Research Forum 2010.
35. **Kobayashi L**, Dunbar-Viveiros J, Devine J, Jones M, Overly F, Jay G. "*In situ* medical simulation with experimental clinical guidance intervention for emergency department procedural sedation education and assessment." 6th European Congress on Emergency Medicine 2010.
36. **Kobayashi L**, Hemendinger D, Gibbs F, Boucher P, Bernier D, Palm E. "Emergency department bedside clinical informatics with virtualization-augmented handheld device." 6th European Congress on Emergency Medicine 2010.

37. **Kobayashi L**, Sweeney LA, Cousins AC, Bertsch KS, Gardiner FG, Tomaselli NM, Boss RM, Gibbs FJ, Jay GD. "Websurvey-embedded intervention to expand multi-disciplinary emergency department personnel perceptions of patient experience-related clinical responsibilities." 6th European Congress on Emergency Medicine 2010.
38. **Kobayashi L**, Olsson K, Siegel N, Bird E, Lane S, Petrie A, Portelli D, Zink B. "Acute care environment stand-alone situational awareness and process guidance system for *in situ* medical simulation-based education and clinical patient care." Annual International Meeting on Simulation in Healthcare 2011 and Lifespan Research Celebration 2010.
39. **Kobayashi L**, Dunbar-Viveiros J, Devine J, Jones M, Overly F, Jay G. "Pre-pilot findings of the Simulation Learning in Procedural Sedation Training for Routine Engagement of Anticipatory Maneuvers (SLIPSTREAM) Study- Shoulder Dislocation / Resident Phase." Annual International Meeting on Simulation in Healthcare 2011.
40. **Kobayashi L**, Dunbar-Viveiros J, Devine J, Jones MS, Overly FL, Gosbee JW, Jay GD. "Pilot phase findings from high-fidelity *in situ* medical simulation investigation of emergency department procedural sedation." Society for Academic Emergency Medicine Annual National Meeting 2011 and Mediterranean Emergency Medicine Conference VI 2011.
41. **Kobayashi L**, Parchuri R, Gardiner FG, Tomaselli NM, Boss RM, Siegel NA, Bertsch KS, Gibbs FG, Goldlust E, Monti JE, Portelli DC, Jay GD. "Baseline characterization and focused performance assessment of an Emergency Department patient monitor telemetry system." Mediterranean Emergency Medicine Conference VI 2011 and International Meeting on Simulation in Healthcare 2012.
42. **Kobayashi L**, Parchuri R, Gardiner FG, Tomaselli NM, Paolucci GA, Bertsch KS, Jay GD. "Interim assessment of the effect of human factors engineering interventions on Emergency Department patient monitor telemetry system detection of simulated arrhythmias." Mediterranean Emergency Medicine Conference VI 2011 and International Meeting on Simulation in Healthcare 2012.
43. **Kobayashi L**, Dunbar-Viveiros J, Siegel N, Devine J, Jones M, Overly F, Gosbee J, Jay G. "Interim analysis findings from high-fidelity *in situ* medical simulation investigation of Emergency Department Procedural Sedation." International Meeting on Simulation in Healthcare 2012.
44. Sweeney L, Lindquist DG, Rojek A, Dykstra L, **Kobayashi L**. "Combining CRM training and patient service education into one comprehensive, multidisciplinary, simulation-based communications training curriculum." International Meeting on Simulation in Healthcare 2012.
45. Al-Rasheed RS, Devine J, Dunbar-Viveiros JA, Jones MS, Dannecker M, Jay GD, **Kobayashi L**. "Development of manikin-based simulated chest compression videos for objective evaluation and training of instructor / coordinators in CPR learner performance assessment." Society for Academic Emergency Medicine New England Regional Meeting 2012.
46. Choi BY, Suner S, Williams KA, Jay GD, **Kobayashi L**. "Measurement and characterization of hazardous aerosolized particulate matter associated with ambulance exhaust in an Emergency Department environment." Society for Academic Emergency Medicine New England Regional Meeting 2012.
47. Al-Rasheed RS, Devine J, Dunbar-Viveiros JA, Jones MS, Dannecker M, Jay GD, **Kobayashi L**. "Application of manikin-based objective metrics to evaluate and improve cardiopulmonary resuscitation instructor-coordinator assessment of learner chest compression performance." American Heart Association Resuscitation Science Symposium (AHA ReSS) 2012.
48. **Kobayashi L**, Parchuri R, Gardiner FG, Paolucci G, Tomaselli NM, Al-Rasheed RS, Bertsch K, Devine J, Boss RM, Gibbs FG, Goldlust E, Monti JE, O'Hearn B, Portelli DC, Siegel NA, Hemendinger D, Jay GD. "Use of *in situ* simulation and human factors engineering to assess and improve emergency department clinical systems for timely telemetry-based detection of life-threatening arrhythmias." Lifespan Research Celebration 2012.
49. Green TC, Bowman SE, Ray MM, **Kobayashi L**, McKenzie M, Rich JD. "Patient simulation for assessment and reinforcement of layperson management of opioid overdose with intra-nasal naloxone in a recently-released prison inmate cohort." International Meeting on Simulation in Healthcare 2014.
50. **Kobayashi L**, Jay GD. "Low-cost thrombosed external hemorrhoid simulator for bedside hemorrhoid excision / thrombosis evacuation skill training." International Meeting on Simulation in Healthcare 2014.
51. Pettit C, Asselin N, Choi B, Jay GD, **Kobayashi L**. "Application of forearm remote heart rate monitoring and semi-automated signals analysis for *in-simulation* subject workload assessment." International Meeting on Simulation in Healthcare 2014.
52. Siegel NA, Dunbar-Viveiros J, Devine J, Al-Rasheed RS, Gardiner F, Olsson K, Lai S, Jones MS, Dannecker M, Overly FL, Gosbee JW, Portelli DC, Jay GD, **Kobayashi L**. "Findings from high-fidelity *in situ* medical

- simulation investigation and experimentation with clinical process guidance system for Emergency Department Procedural Sedation." International Meeting on Simulation in Healthcare 2014.
53. Choi BY, Hudepohl NJ, Locke ER, Stearns BC, Pathania S, Miller CB, Patefield SS, Suner S, Williams KA, Machan JT, Jay GD, **Kobayashi L**. "Detection, measurement and characterization of unhealthy, environment-derived aerosols in an emergency department: preliminary results from the AETHER2 study." Society for Academic Emergency Medicine Annual National Meeting 2014 and Society for Academic Emergency Medicine New England Regional Meeting 2014.
 54. Freelove SM, Moadel TJ, Alaska YA, Dannecker MG, Jay GD, **Kobayashi L**. "Characterization and assessment of hospital campus defibrillation capabilities for sudden cardiac arrest response." Society for Academic Emergency Medicine New England Regional Meeting 2014.
 55. Asselin N, Choi B, Pettit CC, Dannecker M, Jones MS, Merck L, Suner S, Williams K, Jay GD, **Kobayashi L**. "Interim results of pre-hospital provider workload assessment during simulation testing of experimental device-assisted cardiac arrest resuscitation." Lifespan Research Celebration 2014.
 56. Choi B, Asselin N, Pettit CC, Dannecker M, Jones MS, Merck L, Suner S, Williams K, Jay GD, **Kobayashi L**. "Interim Results of Randomized Controlled Simulation Testing of Standard and Automated Device-Assisted Pre-hospital Cardiac Arrest Resuscitation Approaches." International Meeting on Simulation in Healthcare 2015.
 57. Asselin N, Choi B, Pettit CC, Dannecker M, Jones MS, Merck L, Suner S, Williams K, Jay GD, **Kobayashi L**. "Interim results of provider workload assessment during simulated prehospital cardiac arrest resuscitation using an experimental device-assisted protocol." Society for Academic Emergency Medicine Northeast regional meeting 2015.
 58. Wright MC, Segall N, Patterson M, **Kobayashi L**, Barbeito A, Holtschneider M. "*In situ* simulations for identifying latent safety threats, training, and measuring performance: 'can they be too real?' and other innovations and challenges. Human Factors and Ergonomics Society Healthcare Symposium 2015.
 59. Zhang XC, **Kobayashi L**, Reddy SPM, Berger M, Milson EI, Jay GD, Baruch JM. "Objective assessment and thematic categorization of patient-audible information in an emergency department." American College of Emergency Physicians Scientific Assembly 2015.
 60. Zhang XC, **Kobayashi L**, Bermudez AM, Reddy PM, Sarpatwari R, Jay GD, Baruch JM. "Collaborative, multi-disciplinary design and testing of a portable procedural surface for use in the Emergency Department." American College of Emergency Physicians Scientific Assembly Research Forum 2015.
 61. Schoen J, **Kobayashi L**, Machan J, Dannecker M. "Assessment of the impact of chest compressor team size and rotation on objective performance and workload during simulated cardiopulmonary resuscitation." International Meeting on Simulation in Healthcare 2016.
 62. Zhang XC, Reddy SPM, Baird J, **Kobayashi L**. "Thematically categorizing and quantifying the protected health information audible to patients during emergency department provider sign-outs." Society for Academic Emergency Medicine Northeast Regional Meeting 2016.
 63. Golden A, Alaska Y, Levinson AT, Davignon KR, Lueckel SN, Lynch KA, Jay GD, **Kobayashi L**. "Simulation-based examination and comparison of arterial line insertion method and practice across and within disciplines." Brown University Emergency Medicine Residency Research Symposium 2016 and International Meeting on Simulation in Healthcare 2017.
 64. Zhang XC, Bermudez AM, Reddy PM, Sarpatwari RR, Chheng DB, Mezoian TJ, Schwartz VR, Simmons QJ, Jay GD, **Kobayashi L**. "Interim results from iterative revision and use-testing of an experimental procedural surface device in simulated and live clinical settings for final design specification." Brown University Emergency Medicine Residency Research Symposium 2016.
 65. Tanch JE, Smulling AJ, Berube JA, Sayles SL, Jalal M, Binder WD, Savitt DL, **Kobayashi L**. "Baseline assessment of clinical information systems infrastructure and functionality in an academic regional referral emergency department." Doctoral Consortium (oral, poster, and panel) presentation at IEEE International Conference on Healthcare Informatics 2016.
 66. **Kobayashi L**, Capraro GA, Etebari CA, Luchette KR, Mercurio LY, Merck DL. "Comparison of non-contact infrared thermography and traditional contact methods for acquisition of body temperature in healthy volunteers." Society for Academic Emergency Medicine Annual National Meeting 2017 and Northeast Regional Meeting 2017.
 67. Zhang XC, Icaza Milson E, Berger M, Reddy PM, Jay GD, Baruch JM, **Kobayashi L**. "Exploratory locative soundscape analysis in the critical care area of an academic emergency department." Society for Academic Emergency Medicine Annual National Meeting 2017 and Northeast Regional Meeting 2017.

68. Capraro GA, Etebari CA, Luchette KR, Mercurio LY, Merck DL, Kirenko I, Roque M, van Zon K, **Kobayashi L**. "Comparison of non-contact, video photoplethysmographic acquisition of heart rate and respiratory rate against traditional contact monitors in resting and exercising healthy volunteers." Society for Academic Emergency Medicine Northeast Regional Meeting 2017.
69. Kim K, Chuck C, Luchette K, **Kobayashi L**, Merck DL, Kirenko I, van Zon K, Bartula M, Rocque M, Capraro GA. "Pilot study of non-contact vital signs acquisition technologies in a pediatric emergency department." Pediatric Academic Societies Meeting 2018.
70. Matson AM, Gil JA, Zhang XC, Chiou D, Wing RD, **Kobayashi L**, Cruz AI Jr. "Preliminary results from the wrist reduction instruction with simulation technology (WRIST) interdisciplinary emergency medicine and orthopedic surgery study." Society for Academic Emergency Medicine Annual National Meeting 2018 and Council of Emergency Medicine Residency Directors Meeting 2018.
71. Chuck C, Kim K, Luchette K, Capraro GA, Merck DL, Kirenko I, van Zon K, Bartula M, Rocque M, **Kobayashi L**. "Pilot study of noncontact vital signs acquisition in emergency department patients." Society for Academic Emergency Medicine Annual National Meeting 2018.
72. Gurley A, Tanch J, **Kobayashi L**. "Intervention and interval reassessment of clinical information systems infrastructure and function in an academic regional referral emergency department." Institute for Healthcare Improvement 24th Annual International Scientific Symposium on Improving the Quality and Value of Health Care, 2018.
73. Halwani M, Wing R, **Kobayashi L**, Brown L. "Pilot-phase findings from the Simulation-based Performance and cOmpliance Testing for Age-appropriate Chest Compression in Kids (SPOTCheCK) study." International Meeting on Simulation in Healthcare 2019.
74. Huang L, Collins S, **Kobayashi L**, Merck D, Sgouros T. "Shared visualizations and guided procedure simulation in augmented reality with Microsoft HoloLens." International Society for Optics and Photonics (SPIE) Medical Imaging conference 2019.
75. **Kobayashi L**, Oyalowo AC, Agrawal U, Chen S, Asaad W, Hu X, Loparo K, Jay G, Merck DL. "Adjudicated/Annotated Telemetry signals for Medically Important and Clinically Significant Events [ATOMICS]." Society for Academic Emergency Medicine Northeast Regional Meeting 2019.
76. Capraro GA, Abrahams C, **Kobayashi L**. "Non-contact acquisition of vital signs for general assessment and triage operations research triage (NAVIGATOR-T1) study thermometry data analysis." Lifespan Research Celebration 2021.
77. Liu J, Varone F, Volpe JK, **Kobayashi L**, Capraro G. "NaloxBox+: Internet-of-Things (IoT) Augmentation of Public Access Naloxone Containers to Establish a Distributed Research Network" Alpert Medical School Summer Research Assistantship presentation 2022.
- xx. **Kobayashi L**, Devine J, Teeple E, Marcotte ST, Born CT, Gay JD. "Development of a re-usable lower extremity simulator model for tibial percutaneous traction pin insertion." In preparation for submission to International Meeting on Simulation in Healthcare 2019?

INVITED PRESENTATIONS

Local

1. **Trends in Appendicitis 1998.** Harvard-Affiliated Emergency Medicine Residency, Nov. 1998, Boston, MA.
2. **Traumatic Ophthalmologic Emergencies.** Harvard-Affiliated Emergency Medicine Residency, July 2000, Boston, MA.
3. **Anterior Cervical Trauma.** Harvard-Affiliated Emergency Medicine Residency, Aug. 2001, Boston, MA.
4. **Patient Simulation in Medical Education and Training.** Harvard-Affiliated Emergency Medicine Residency, June 2002, Boston, MA.
5. **Penetrating Neck Trauma.** Brown University Residency in Emergency Medicine, Aug. 16, 2004, Providence, RI.
6. **Traumatic Ophthalmologic Emergencies.** The Miriam Hospital Emergency Department Resident Rotation, May 13, 2005, Providence, RI.
7. **Puff tonometry skill station.** Alpert Medical School of Brown University Residency in Emergency Medicine conference, Feb 9, 2011, Providence, RI.
8. **EMPAD case presentation lecture.** November 23, 2011, Providence, RI.
9. **Simulation Academics + Research.** Alpert Medical School of Brown University Residency in Emergency Medicine, March 14, 2012, Providence, RI.

10. **Fishhook removal skill station.** Alpert Medical School of Brown University Residency in Emergency Medicine conference, April 11, 2012, Providence, RI.
11. **Lumbar puncture skill station.** Alpert Medical School of Brown University Residency in Emergency Medicine conference, July 21, 2015, Providence, RI.
12. **Augmented reality (AR) assisted central venous line skill station.** Alpert Medical School of Brown University Residency in Emergency Medicine conference, March 8, 2017, Providence, RI.
13. **Augmented reality (AR) assisted chest tube / thoracostomy skill station.** Alpert Medical School of Brown University Residency in Emergency Medicine conference, March 8, 2017, Providence, RI.
14. **Research Symposium** (panelist). Alpert Medical School of Brown University Residency in Emergency Medicine conference, April 9, 2014, Providence, RI.
15. **Oh the Things you can Think...with the Tools you can Tool! Faculty Retreat.** Department of Emergency Medicine, Alpert Medical School of Brown University, May 30, 2014, Providence, RI.
16. **Systems Testing Using Simulation.** Ponagansett High School Clinical Experience, Rhode Island Hospital, April 24-25, 2018, Providence, RI.
17. **Topics in Translational Research and Technology- Alarm Fatigue.** Emergency Digital Health Initiative, Brown University / Emergency Medicine, November 14, 2018, Providence, RI.
18. **Topics in Translational Research and Technology- Big Data De-identification.** Emergency Digital Health Initiative, Brown University / Emergency Medicine, May 29, 2019, Providence, RI.

Regional

1. **Interdisciplinary Medical Simulation.** Simulation in Medical Education- The Emergency Medicine Experience Conference, May 9, 2007, New York City, NY.
2. **Simulation Center Operations.** Rhode Island Hospital Medical Simulation Center / Laerdal Simulation Workshop, April 3, 2008, Providence, RI.
3. **Medical Simulation.** National Youth Leadership Forum on Medicine (NYLF) simulation session, July 18, 2008, Providence, RI.
4. **Simulation Academics + Research.** Rhode Island Hospital Founders Day, focus topic: simulation, October 2, 2008, Providence, RI.
5. **Simulation Center Operations.** Boston College School of Nursing Simulation Workshop, October 8, 2008, Boston, MA.
6. **Emergency Medicine Careers Panel** (panelist). Alpert Medical School of Brown University Emergency Medicine Interest Group, May 12, 2010, Providence, RI.
7. **Research with Simulation for Patient Safety / Systems Improvement.** RIHMSC Train-the-Trainer session, December 6, 2010, Providence, RI.
8. **Simulation in EMS: Academics, Innovation and Research** (speaker): Enhancing Your Training Utilizing Technology. Rhode Island EMS Expo 2011, April 26, 2011, Warwick, RI.
9. **Application of Advanced In Situ Medical Simulation to Assess Patient Safety Behaviors of Providers Performing Emergency Department Procedural Sedation.** Alpert Medical School of Brown University Residency in Emergency Medicine conference, May 1, 2013, Providence, RI.
10. **Research with Simulation for Patient Safety / Systems Improvement.** LMSC Train-the-Trainer session, June 18, 2013, Providence, RI.
11. **Hospital Soundscapes Workshop- Alarm Fatigue Mitigation** (panelist). Design + Health Elective, RISD / Alpert Medical School. September 25, 2013, Providence, RI.
12. **Oh the Things you can Think...with Scientific Visualization!** Department of Computer Science, Brown University, March 17, 2015, Providence, RI.
13. **Emergency Digital Health Roundtable** (facilitator). Department of Emergency Medicine, Alpert Medical School of Brown University, May 29, 2015, Providence, RI.
14. **Topics in Clinical Engineering- Alarm Fatigue.** Department of Biomedical Engineering, University of Connecticut. March 27, 2017, Providence, RI.
15. **Topics in Translational Research and Technology- Alarm Fatigue.** Department of Engineering, Brown University, April 21, 2017, Providence, RI.
16. **Topics in Translational Research and Technology- Alarm Fatigue.** Department of Engineering, Brown University, March 9, 2018, Providence, RI.
17. **Visualization of 3D Anatomy in Augmented Reality** (co-presenter with Owen Leary). Brown Technology Summit, April 27, 2018, Providence, RI.

18. **NaloxBox+: Internet-of-Opioid-Things.** Center for Digital Health, Brown University / Emergency Medicine, Oct. 19, 2022, Providence, RI.
19. **NaloxBox+ Program Findings.** Opioids and Overdose Center for Biomedical Research Excellence (COBRE), Brown University, Oct. 19 2023, Providence, RI.

National

1. **Digital health in the emergency department: an opportunity for innovation** (Panelist). The Patient, The Practitioner and the Computer Conference. March 18, 2017, Providence, RI.
2. **Application of Advanced In Situ Medical Simulation to Assess Patient Safety Behaviors of Providers Performing Emergency Department Procedural Sedation.** 2013 National Patient Safety Foundation Congress, May 9, 2013, New Orleans, LA.

International

1. **Advanced Medical Simulation in Emergency Medicine 2005.** Mediterranean Emergency Medicine Conference, Sept.2005, Nice, France.
2. **Systems Expertise: Effective Simulation at the Organizational Level- Microsystems** (Track 4 AM Lead). *Academic Emergency Medicine* Consensus Conference “The Science of Simulation in Healthcare: Defining and Developing Expertise.” May 28, 2008, Washington, DC.
3. **Systems Expertise: Effective Simulation at the Organizational Level- Macrosystems** (Track 4 PM Panelist). *Academic Emergency Medicine* Consensus Conference “The Science of Simulation in Healthcare: Defining and Developing Expertise.” May 28, 2008, Washington, DC.
4. **Comparison of sudden cardiac arrest resuscitation performance data obtained from in-hospital incident chart review and *in situ* high-fidelity medical simulation.** International Meeting on Simulation in Healthcare Research Abstract Award Oral Presentation Session, January 13, 2009, Orlando, FL.
5. **Multi-patient simulation: micro-disasters for acute care micro-systems.** Preparing for disaster: using simulation for pre-hospital + hospital disaster training (Panelist). Society for Simulation in Healthcare Annual International Meeting, January 13, 2009, Orlando, FL.
6. **Society for Simulation in Healthcare (SSH) Accreditation: what it can mean for your program** (panelist). Society for Simulation in Healthcare Annual International Meeting, January 25, 2010, Phoenix, AZ.
7. **TESTPILOT: Advanced Medical Simulation as a tool to assess new clinical settings and systems** (workshop panelist). International Meeting on Simulation in Healthcare, January 27, 2010, Phoenix, AZ.
8. **Patient Safety Workshop** (expert panelist). Society for Simulation in Healthcare Annual International Meeting, January 25, 2011, New Orleans, LA.
9. **From Issue and Idea to Investigation, Insight and Improvement (then Promotion): Academically productive and useful application of simulation in your clinical setting.** Society for Simulation in Healthcare Annual International Meeting 2015, New Orleans, LA.
10. **Systems Testing Using Simulation.** Academic Emergency Medicine Consensus Conference. Catalyzing System Change Through Healthcare Simulation: Systems, Competency, and Outcomes. May 16, 2017, Orlando, FL.
11. **Exploratory Applications of Augmented Reality for Patient Education in Emergency Medicine.** Annual Meeting, Society for Academic Emergency Medicine, May 18, 2017, Orlando, FL.
12. **Exploratory Applications of Augmented Reality for Provider Education in Emergency Medicine.** Annual Meeting, Society for Academic Emergency Medicine, May 18, 2017, Orlando, FL.
13. **Acute Care Patient Bedside Telemetry Monitor Datastream Processing, Visualization, and Querying with Splunk.** Splunk .conf2017, September 26, 2017, Washington, D.C.
14. **Pilot Study of emergency department patient vital signs acquisition using experimental video photoplethysmography and passive infrared thermography devices.** 10th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON); 2019 Oct. 10-12. New York, NY.
15. **Internet-of-things augmentation of public access naloxone containers to establish a distributed network for resource monitoring and utilization research (NaloxBox+).** 14h IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON); 2023 Oct. 12-14. New York, NY.
16. **Comparison of video photoplethysmography, video motion analysis, and passive infrared thermography against traditional contact methods for acquiring vital signs in emergency department populations..** 14h IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON); 2023 Oct. 12-14. New York, NY.

17. **Internet-of-things augmentation of public access naloxone containers to establish a distributed network for resource monitoring and utilization research (NaloxBox+).** 14th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON); 2023 Oct. 12-14. New York, NY.

MEDIA PRESENTATIONS

1. **Reserve Component Medical Simulation Training project discussion and demonstration with Senator Jack Reed (D-RI).** Feb. 4, 2006. Channel 6 (WLNE) + Channel 10 (WJAR) Providence RI, Associated Press coverage.
2. **Five Questions with: Dr. Leo Kobayashi.** Providence Business News. Nov 10,2008.
3. **Medical Simulation Center Highlight [Medical Simulation Improves Provider Detection of Life-Threatening Arrhythmias].** Lifespan Biannual Research Report, 2012.
4. **Augmented Reality / HoloLens.** Lifespan Biannual Research Report, 2017.

GRANTS

1. **Investigator. Rhode Island Disaster Initiative- Phase 2.** Health and Human Services, Office of Emergency Preparedness. Through Chemical and Biological Defense Information Analysis Center (CBIAC) Task #128; PO#171284. \$1,500,000. Aug. 2002 to Aug. 2003.
2. **Investigator. SAFER Project.** Centers for Medicare and Medicaid Services (CMS). \$98,000. Aug. 2004 to Aug. 2005.
3. **Co-investigator. Reserve Component Medical Skills Training Program (RCT).** Telemedicine and Advanced Technology Research Center (TATRC) and Dynamics Research Corporation. \$605,899. Aug. 2005 to Aug. 2006.
4. **Principal Investigator. Emergency Unit Chart Localization, Identification and Differentiation (EUCLID) Study.** Department of Emergency Medicine, Rhode Island Hospital + Research Committee, Department of Emergency Medicine, Brown University. \$3,000. Oct. 2008 to Mar. 2009.
5. **Principal Investigator. Arrhythmia Simulation / Cardiac Event Nursing Training AED (ASCENT AED) Study.** Rhode Island Hospital Medical Simulation Center nursing simulation development seed grant. \$40,423 (RIHMSC cost center internal funds). Jan. 2009 to Aug. 2009.
6. **Principal Investigator. Simulation Learning Initiative in Procedural Sedation Training for Routine Engagement of Anticipatory Maneuvers- Shoulder Dislocation-Resident phase (SLIPSTREAM SD-R) Study.** Junior Faculty Research Development Grant. Department of Emergency Medicine, Brown University. \$20,000. Dec. 2009 to Nov. 2010 (no cost extension ongoing through 2012).
7. **Principal Investigator. Provider Role in Patient Experience / Latent Lapses in Emergency caRe (PROPELLER) Study.** Department of Emergency Medicine, Rhode Island Hospital + Research Committee, Department of Emergency Medicine, Brown University. \$1,500. Oct. 2009 to Sept. 2010.
8. **Principal Investigator. Accessible Real-time clinical Guidance through Updated Signals (ARGUS) Study.** Department of Emergency Medicine, Rhode Island Hospital + Research Committee, Department of Emergency Medicine, Brown University. \$600. Oct. 2010 to Sept. 2011 (no-cost extension through 2012).
9. **Co-investigator. A Pharmacy-led intervention to optimize the use of pharmacologic thromboprophylaxis in hospitalized medical patients at RIH study.** Lifespan Risk Services. \$53,560+. Jan.2011 to Dec. 2011.
10. **Co-investigator. Improving Pediatric Resuscitation: A Simulation Program for the Community Emergency Department (PRECISE) study** (L.Brown PI). Agency for Healthcare Research and Quality (AHRQ). \$749,560. July 2011 to June 2014.
11. **Consultant. Naloxone Administration for overdose Reversal by Community Addiction Network (NARCAN) study** (J.Rich + T.Green PI's). National Institute on Drug Abuse (NIDA). July 2011 to Nov.2012.
12. **Co-investigator. CPR Instructor Real-time Review through Use of Simulation (CIRRUS) study** (R.Al-Rasheed PI). Rhode Island Hospital Medical Simulation Center fellowship simulation development seed grant. \$5,180 (RIHMSC cost center internal funds). Sept. 2011 to June 2012.
13. **Co-investigator. Ambulance Exhaust Toxicity in Healthcare-related Exposure and Risk (AETHER) study** (B.Choi PI). Department of Emergency Medicine, Rhode Island Hospital + Research Committee. Aug. 2011 to June 2013.
14. **Co-investigator. Standardized Treatment and Optimal Resuscitation through Mechanical Automation (STORM) study** (B.Choi PI). Rhode Island Hospital Medical Simulation Center fellowship simulation development seed grant. \$21,213 (RIHMSC cost center internal funds). Sept. 2012 to June 2016.

15. **Co-investigator. Aerosol Environmental Toxicity in Healthcare-related Exposure and Risk phase 2 (AETHER2) study** (B.Choi PI). Lifespan Risk Management. \$7,500. Jul. 2013 to June 2015.
16. **Co-investigator. Standardized Treatment and Optimal Resuscitation through Mechanical Automation (STORM) program, provider workload assessment substudy** (N.Asselin PI). Department of Emergency Medicine, Rhode Island Hospital + Research Committee. \$2,500. Jul. 2013 to June 2016.
17. **Co-investigator. Arterial Line Insertion Method Examination through Simulation (ĀLINES) study.** (Y.Alaska PI). Lifespan Medical Simulation Center fellowship simulation development seed grant. \$4,000 (LMSC cost center internal funds). Sept. 2013 to June 2016.
18. **Principal Investigator. Patient Environment Audibility and Perception (PEAP) study.** Brown-RISD Committee for Institutional Collaboration (BRCIC) \$5,000. 2.5% FTE for 3 months. June 2014 to June 2015.
19. **Investigator. IntelliSport project.** (L.Merck PI). Intel New Business Initiatives \$81,072 2.5% FTE for 6 months. September 2014- February 2015.
20. **Principal Investigator. PERSEUS study.** Agency for Healthcare Research and Quality (AHRQ) R18. \$747,604 15% FTE for 3 years. October 2014 to September 2018.
21. **Co-investigator. ED Procedural Surface development program.** (T.Zhang PI). Department of Emergency Medicine, Rhode Island Hospital + Research Committee. \$2,500. Oct. 2014 to Sep. 2015.
22. **Co-investigator. Compressor Rotation Efficacy and Workload (CREW) study.** (J.Schoen PI). Lifespan Medical Simulation Center fellowship simulation development seed grant. \$2,670 (LMSC cost center internal funds). Sept. 2014 to Aug 2015.
23. **Co-investigator. ED Procedural Surface development program part 2.** (T.Zhang PI). Department of Emergency Medicine, Rhode Island Hospital + Research Committee. \$1,000. Oct. 2015 to Sep. 2016.
24. **Principal Investigator. Emergency Medicine HoloLens (EMH) study.** Departments of Diagnostic Imaging and Emergency Medicine; Brown University Center for Computation and Visualization (CCV), in-kind (\$3,000 capital equipment). May 2016 to June 2020.
25. **Co-principal investigator. Non-contact Acquisition of partial Vital signs for General Assessment and Triage Operations Research (NAVIGATOR) study.** (G.Capraro PI). Summer Research Assistant program, Alpert Medical School, Brown University. \$ 1,000. June 2016 to Aug. 2016.
26. **Investigator. Simulation-based Performance and cOmpliance Testing for Age-appropriate Chest Compressions in Kids (SPOTCheCK).** Lifespan Medical Simulation Center fellowship simulation development grant, in-kind. March 2017 to December 2017.
27. **Co-investigator. Wrist Reduction Instruction with Simulation Technology (WRIST) study.** Departments of Emergency Medicine and Orthopedics, Alpert Medical School, Brown University. \$4,000. April 2017 to June 2018.
28. **Co-principal Investigator. Non-contact Acquisition of partial Vital signs for General Assessment and Triage Operations Research 2 (NAVIGATOR-2) study.** Philips Healthcare Research. \$45,916, 3.5% FTE for 12 months. Dec. 2017 to Nov. 2018.
29. **Co-principal Investigator. Non-contact Acquisition of partial Vital signs for General Assessment and Triage Operations Research Waiting Room 1 (NAVIGATOR-W1) study.** Philips Healthcare Research. \$46,730, 3.5% FTE for 12 months. Dec. 2017 to Nov. 2018.
30. **Co-investigator. Comparison of Open Versus Percutaneous Emergency Cricothyrotomy Using a Novel Obese Cricothyrotomy Task Trainer study.** (G.Petrone PI). Department of Emergency Medicine, Alpert Medical School, Brown University. \$7,000, in-kind. Oct. 2018 to Sept. 2019.
31. **Co-investigator. Non-contact Acquisition of partial Vital signs for General Assessment and Triage Operations Research User Interface / User Experience (NAVIGATOR-U(IX)) study.** (G.Capraro PI). Department of Emergency Medicine, Alpert Medical School, Brown University. \$7,000, in-kind. Oct. 2018 to Sept. 2019.
32. **Co-investigator. Objective Signals Evaluation for Remote Vehicle-based Rescue Reconnaissance (ObSERVeR) program.** (B. Choi PI -> S. Suner PI). IRB approved, sessions ongoing. 2019 to present.
33. **Co-principal Investigator. Non-contact Acquisition of partial Vital signs for General Assessment and Triage Operations Research– Triage (NAVIGATOR-T1) study.** Philips Healthcare Research. \$52,781, 11.5% FTE for 6 months. June 2020 to Dec. 2020.
34. **Investigator. Intuitap research program.** Vertouch. Feb. 2021 to Dec. 2021.

35. **Co-principal Investigator. Bedside Educational Display for Shared Insight and Decision-making in Emergency Care study.** Brown Emergency Medicine Academic Assessment grant. \$49,371, 6% FTE for 12 months. Oct. 2021 to Sept. 2022.
36. **Co-principal Investigator. NaloxBox+ pilot project.** Opioid + Overdose Center of Biomedical Research Excellence (COBRE). \$44,962, 6% FTE for 12 months. Apr. 2022 to Mar. 2023.

PATENTS AND COPYRIGHTS

1. **Kobayashi L.** "Graphic Link Information Distribution / Exchange for Provider Awareness + Teamwork in Healthcare (GLIDEPATH) Clinical Process Guidance System- Medical Resuscitation Module." U.S. Copyright # TX 7-214-282 (March 22, 2010).
2. **Kobayashi L.** "Graphic Link Information Distribution / Exchange for Provider Awareness + Teamwork in Healthcare (GLIDEPATH) Clinical Process Guidance System- Sedation Module." U.S. Copyright # TX 7-515-041 / rev. # TX 7-517-364 (March 10, 2010).
3. **Kobayashi L.** "Graphic Link Information Distribution / Exchange for Provider Awareness + Teamwork in Healthcare (GLIDEPATH) Clinical Process Guidance System- Sepsis Module." U.S. Copyright # TX 7-345-271 (2010).
4. **Kobayashi L, Merck DL.** "Test/Trainer- small unmanned aircraft system (TsUAS) / Drone backpack system." Provisional patent application filed Feb.12, 2020.
5. **Kobayashi L, Capraro GA.** "A Case for Medication." Design patent application filed Dec.29, 2022.

UNIVERSITY TEACHING ROLES

Advanced Cardiac Life Support – Warren Alpert Medical School July 2002 to Present
Facilitator and instructor in simulation case development and training for pre-clinical medical students (100 learners x 1 session / yr).

Brown University Residency in Emergency Medicine July 2002 to Present
Course, content, and equipment developer at RI Hospital Medical Simulation Center. Currently educating healthcare personnel in basic and advanced acute care medicine, difficult airway management, teamwork training, and medical error reduction. Teaching roles in following courses / sessions:
 -Acute Care Training Simulations (adult)
 -Advanced Airway Course
 -Intern Orientation Cadaver Lab (e.g., airway management, CVL)
 -Procedural Labs (e.g., fishhook removal, puff tonometry skill stations)
 -Ultrasound Simulation (U/SS) Program

Mammalian Physiology - Brown Medical School Fall 2002 to 2004
Developer and controller of laboratory exercises in cardiovascular physiology (BI / 0117) with human patient simulator (for students averse to canine lab; 3-4 learners x 1-2 sessions / yr).

Elective in Emerg. Medicine - Warren Alpert Med. School Dec. 2002 to Jan. 2006 (leadership transition)
Simulation specialist and content developer at RI Hospital Medical Simulation Center for medical students enrolled in one-month Emergency Medicine elective (BI / 0562). Training in acute care medicine, airway management, teamwork training and medical error reduction provided through high fidelity medical simulation scenarios (4 learners x 12 sessions / yr).

Medicine in Action Program - Warren Alpert Medical School Oct. 2003 to Sept. 2008, Apr. 2011
Coordinator of shadowing opportunities in Rhode Island Hospital Emergency Department for Brown pre-medical students (1-2 learners / yr).

Simulation Training for Emergency Preparedness (STEP) June 2004 to Nov. 2005 (project completed)
Developer and course facilitator of a high-fidelity medical simulation educational program for Weapons of Mass Destruction (WMD) and Mass Casualty Incident (MCI) preparedness in Rhode Island hospitals. Funded by Health Resources and Services Administration (HRSA). Participating hospitals (10 learners x 10 sessions / yr):

- | | |
|------------------------------------|---------------------------------|
| -Kent County Hospital | -South County Hospital |
| -Landmark Medical Center | -St. Joseph's / Fatima Hospital |
| -Memorial Hospital of Rhode Island | -The Miriam Hospital |
| -Newport Hospital | -Westerly Hospital |
| -Rhode Island Hospital | -Women + Infants' Hospital |
| -Roger Williams Medical Center | |

Medical Simulation Elective June 2005 to June 2012
Elective director, coordinator and instructor for month-long Brown University Residency in Emergency Medicine elective in medical simulation.

- Robert Tubbs MD (July 2005)
- Juan Vernon MD (Nov 2005)
- Christopher Zabbo MD (Oct 2007)
- Sara Lozano MD (Jan 2008)
- Anika Parab MD (Jan 2008)
- Amy Rasmussen MD (Sept 2009)
- Douglas Hartmann MD (Oct 2009)
- Ron Van Ness-Otunnu MD (Oct 2011)
- Paul Roszko MD (Apr 2012)
- Antoinette Golden MD (Sept 2014)

“Doctoring” Simulation - Warren Alpert Medical School Fall 2005 to Spring 2007
Simulation course organizer and curriculum developer for integrated Warren Alpert Medical School pre-clinical curriculum, designed to demonstrate and reinforce didactic teaching points with simulated clinical encounters (70 learners x 2 sessions / yr).

Technical Skills Training Session - Warren Alpert Medical School June 2006 to June 2009
Instructor for Warren Alpert Medical School 3rd year student clinical transition preparation (70 learners x 1 session / yr).

Emergency Medicine Student, Resident + Fellow Mentor - W. Alpert Med. School July 2006 to Present
Faculty mentor for Emergency Medicine learners for academic clinical and research programs and projects.

- Douglas Hartman MD (2006-2010; EM resident mentee)
- Nicholas Asselin DO (2011-2015; EM resident mentee, incl. STORM program)
- Bryan Choi MD (2011-2014; research AETHER project + STORM program)
- Xiaochi Tony Zhang MD (2014-2017; EM resident mentee, PEAP project, WRIST project)
- Elio Icaza Milson BFA(ID) (2014-2015; RISD student, PEAP project)
- Inna Baran MD (2015-2017; ED 5S/QA projects)
- James Tanch AMS MD'20 (2015-present; ED 5S/QA projects)
- Cameron Etebari BS'18 (2016 summer SRA; ED non-contact vital signs study)
- Katherine Luchette BS'18 (2016 summer SRA; ED non-contact vital signs study)
- Uday Agrawal BSc (2016; AHRQ PERSEUS system development work)
- Adewole Oyalowo PhD candidate (2016-2019; AHRQ PERSEUS system development work)
- Bessie Jiang BS'19 (2016; Emerg. Medicine holoimaging application exploration project)
- Yong Hyun Kwon BS'18 (2017; Emerg. Medicine holoimaging application exploration project)
- Carlin Chuck BS'19 (2017 summer SRA; ED non-contact vital signs study)
- Kyunghan (Chris) Kim BS'20 (2017 summer SRA; ED non-contact vital signs study)
- Samuel Weitzman ScB'18 (2017; Emerg. Medicine holoimaging application exploration project)
- Justin Vasquez BS'19 (2017 summer SRA; IVOR system development work)
- Daniel Chiou BA'16 MD'20 (2017-2019, joint EM-orthopedics WRIST simulation study)
- Owen Leary BS'18 MD'23 (2017-2019; Emerg. Med holoimaging application exploration; AHRQ PERSEUS dataset dissemination / curation work)
- Yu Xiang MSc'18 (2018; AHRQ PERSEUS data analysis work)
- Abhishek Dutta MSc'18 (2018; AHRQ PERSEUS data analysis work)
- Lawrence Huang BS'21 MD'26 (2018 summer SRA-2019; Emerg. Med. holoimaging application exploration)
- Cathlyn Medina BA'19 (2018 summer researcher; ED non-contact vital signs study)
- Murat Erduran BS'19 (2018; AHRQ PERSEUS data analysis work)
- Beril Erdogan BS'20 (2018; AHRQ PERSEUS data analysis work)
- Amelia Gurley MD'21 (2018; ED CIS work)
- Nelson Chou BS'18 (2018; ED clinical shadow)
- Casey Abrahams BA'19 MS'23 (2021; ED non-contact vital signs study)
- Derek Lubetkin MD (2021-present; EM resident mentee, BEDSIDE program)
- Frederick Varone MD (2021-2022; EM resident mentee, NaloxBox+ program)
- Kyle Volpe MD (2021-present; EM resident mentee, NaloxBox+ program)
- Oscar Capraro (2022 SSP, NaloxBox+ program)
- Joanne Liu (2022 + 2023 summer SRA-present; NaloxBox+ program)

Thesis Reader - Brown Univ. Program in Public Health Aug. 2006 to Sept. 2007 (mentee program complete)
Clinical faculty project mentor and thesis reader for MPH student.
-Hardeek Shah MPH (2006-7)

National Youth Leadership Forum on Medicine June 2007 to July 2015
Simulation instructor for interactive experiential education summer sessions for secondary school students (50 learners x 3 sessions / yr).

“Doctoring” Physician Mentor Oct. 2007 to June 2010
Mentor to Warren Alpert Medical School first-year student. Introduction to clinical patient care, acute care medical settings, simulation education (1 learner for 16 x 4 hr sessions / yr x 2 years, then longitudinal experience with 8 hrs / 2 wks x 6 months).

-Daniel Cho MD PhD candidate (2007-2010)

Emergency Medicine Interest Group Simulation Session Nov. 2007 to June 2012; Sept. 2020
Event organizer and simulation / skill station coordinator + instructor to expose Brown pre-med and medical students to the practice and procedures of Emergency Medicine (30 learners x 1-2 session / yr).

Medical Simulation Fellowship + Mentoring Feb. 2008 to June 2023
Co-director then director now mentor for non-ACGME medical simulation fellowship designed to provide training in sophisticated and innovative simulation, foster knowledge-able simulation experts, and encourage the development of healthcare education researchers.

- Fang Yuan (Franklin) Wei MD (Emergency Medicine observational fellowship, 2008)
- Anita Kestin MD (combined Lifespan Patient Safety + Medical Simulation fellow, 2008-2010)
- Rakan Al-Rasheed MBBS (2011-2012; Med. Simulation observational fellow, CIRRUS project)
- Catherine Pettit MD (2012-2013; Medical Simulation fellow, STORM program)
- Sami Yousif MBBS (2012-2013; Disaster Medicine observational fellow; sim. research)
- Yasser Al-Aska MBBS (2013-2014; Medical Simulation observational fellow, ALINES project)
- Jessica Schoen MD (2014-2015; Medical Simulation fellow, CREW project)
- Antoinette Golden MD (2015-2016; Medical Simulation fellow, ALINES project)
- Manal Halwani MBBS (2017; Medical Simulation observational fellow, SPOTCheCK project)
- Gianna Petrone DO (2018-2019; Medical Simulation fellow, bariatric airway simulation project)
- Keegan McNally MD (2021-2023); Medical Simulation fellow)

Medical Simulation Interest Group Oct. 2011 to June 2012
Interest group faculty mentor (with Dr. Frank Overly) to expose Brown pre-med and medical students to the methodology, practice, application and research of medical simulation (30 learners x 1-2 session / yr).

RISD Design and Health Elective (BIOL-6518) Sept. 2013 to 2018
Workshop facilitator for RISD / Alpert Medical School collaborative course on application of design to healthcare systems improvement. (50 learners x 1-2 sessions / yr).

Brown Digital Health Elective (BIOL-6677) Sept. 2016 to Present
Session facilitator for Alpert Medical School collaborative course on informatics application to healthcare at the personal, clinical and systems levels. (15 learners x 1-2 sessions / yr).

Brown Engineering (EN-291) Apr. 2017 to June 2019
Invited lecturer for undergraduate and graduate engineering department students on applied clinical engineering for healthcare systems improvement. (50 learners x 1 session / yr).

Brown Scholarly Concentration (Translational Research in Medicine) Oct. 2016 to 2019
Faculty member for longitudinal scholarly concentration program to engage Brown / Alpert Medical School students in applied clinical research across the university and hospital populations. (4 students / yr).

Brown Engineering (EN-2160) Sept. 2020 to May 2021
Invited lecturer and faculty sponsor for undergraduate and graduate engineering department students on applied clinical engineering (Business, Entrepreneurship, and Organizations [BEO]). (5 learners / yr).

- Jason Whang BA'21 (2020-2021; BEO)
- Maxwell Goldman BA/BA'21 (2020-2021; BEO)
- Zachary Jordan BA/BA'21 (2020-2021; BEO)
- Dominic Morganti BA'21 (2020-2021; BEO)
- Lucas Tesler BA'21 (2020-2021; BEO)

Brown Engineering (EN-0930L/EN-1930L) Sept. 2021 to Present
Invited lecturer for undergraduate and graduate engineering department students on applied clinical engineering (40 learners / yr).

HOSPITAL TEACHING ROLES

Rhode Island Hospital Advanced Cardiac Life Support July 2002 to July 2006
Simulation case developer, training facilitator, and course director (2005 on) for incoming housestaff (70 learners x 1 session / yr).

Rhode Island Hospital + Miriam Hospital MedTeams Nov. 2002 to June 2007 (leadership transition)
Course simulation facilitator for hospital and Emergency Department staff teamwork training course (15 learners x 2 sessions / yr).

Rhode Island Hospital Advanced Airway Course Dec. 2002 to Jan. 2006 (leadership transition)
Difficult airway management course simulation facilitator for hospital and Emergency Department staff (12 learners x 3 sessions / yr).

Rhode Island Hospital SimCode Program May 2004; Oct. 2005 to June 2014 (leadership transition)
Program director, case developer and simulation facilitator for in-hospital medical resuscitation simulation training and debriefing for internal medicine residents (15 learners x 7 sessions / yr).

Rhode Island Hospital Advanced Pediatric Life Support

July 2005

Simulation case developer + training facilitator for incoming housestaff (40 learners x 1 session / yr).

Rhode Island Hospital RadCodes Program

Aug. 2005 to Aug. 2006 (leadership transition)

Case developer and simulation facilitator for in-hospital contrast anaphylactoid reaction resuscitation simulation training and debriefing for radiology residents (15 learners x 3 sessions / yr).

Rhode Island Hospital Critical Care Difficult Airway Course

Dec. 2008 to 2011 (leadership transition)

Course developer and facilitator for difficult airway management course for critical care fellowship (8 learners x 2 session / yr).

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