

Aimee Gardner
Biosketch 2021

A. Education

University of Cincinnati, Cincinnati, OH	B.S.	12/1998	Biology/Pre Med
Christ Hospital School of Perfusion	Certificate	06/2001	Perfusion Science
American Board of Clinical Perfusion	CCP	06/2002	Clinical Perfusion

B. Personal Statement

2021 marks Aimee Gardner's 22nd year at Cincinnati Children's Hospital. Aimee began her career at Cincinnati Children's during her undergraduate studies. She was a research assistant in the Emergency Department. Upon completion of her perfusion boards (CCP), Aimee joined the Cardiothoracic Surgery Team. Areas of interest during this time were fetal surgery, ultrafiltration techniques, infection reduction and aortic arch reconstruction. In 2009, Aimee joined the I3 efforts (Intraoperative Improvement Initiative) focusing on patient safety in the operating room.

With the pediatric increase use of mechanical assist devices in 2010, Aimee ventured into the creation of a ventricular assist device/artificial heart program, with Angela Lorts MD and David Morales MD, as a Clinical Practice Leader. Her focus was on the program operation and patient management, including institutional and patient education. Aimee developed novel techniques to educate staff and patients. This included simulation. A passion for simulation and education developed, and Aimee was asked to be the director of the Center for Research and Simulation at Cincinnati Children's in 2015.

Passionate about patient safety and spreading simulation education throughout Cincinnati Children's Hospital, simulation offerings grew by over 100% and the staff doubled in size. Included in this growth was the creation patient and caregiver simulations. Soon, a natural partnership developed between the Simulation Center and the Virtual Reality Team. To further enhance this innovative work and allow simulation the fidelity and scale it needed, the virtual reality transitioned under Aimee's leadership in April of 2018. Driven towards efficiency and education advancement, CME, Pratt Library and GME were also added to Aimee's team in July 2018. This led to Aimee's promotion to Senior Director of Medical Operations. The Digital Experience Education Team joined Aimee's team in 2017 and is currently her fastest growing education modality with 200% growth in the last two years.

Presently, Aimee strives to enhance the safety and experience of the Cincinnati Children's patient through education by developing the great teams and talents of simulation, Digital Experience, CME and GME.

C. Positions and Honors

Senior Director, Medical Operations. Cincinnati Children's Hospital

Cincinnati, Ohio

September 2018 –present

Responsibilities: leadership and management of the vision, mission and staff of the Center for Simulation and Research, Virtual/Augmented Reality Team, CME/Pratt Library and GME.

Director, Center for Simulation and Research. Cincinnati Children's Hospital

Cincinnati, Ohio

March 2015 – September 2018

Responsibilities: leadership and management of the vision, mission, course structure/content, finance and staff of the Simulation Center.

Clinical Practice Leader, Mechanical Assist Program. *Cincinnati Children's Hospital Medical Center, Department of Heart Failure*

Cincinnati, Ohio

October 2011 to March 2015

Responsibilities: program management, purchase and implementation of mechanical assist devices, staff training, family and patient education and care, policy development, research and data collection.

Perfusionist. *Cincinnati Children's Hospital Medical Center, Department of Cardiothoracic Surgery*

Cincinnati, Ohio

July 2003 to Jan 2016

Responsibilities: performing cardiopulmonary bypass and ECMO on children, adults and in research animal labs; ECMO representative, data analysis/design for OR safety initiative; perfusion research.

Perfusionist. *Hemapulse, Inc., Deaconess and Mercy Fairfield Hospitals*

Cincinnati, Ohio

July 2001 to July 2003

Responsibilities: performing cardiopulmonary bypass operations for open-heart procedures, including intra-aortic balloon pumping.

Research Coordinator III. *Cincinnati Children's Hospital Medical Center, Division of Emergency Medicine*

Cincinnati, Ohio

January 1998 to July 2003

Responsibilities: patient recruitment for research studies, monitoring patients during studies, data base design/entry/analysis (including statistical analysis), literature searches and assisting staff and patients within the Emergency Department.

Memberships

June 2001 – present	American Board of Clinical Perfusion
October 2015 –present	Society for Simulation in Healthcare
August 2016 – present	Beech Acres, Board of Directors
August 2019 – present	Organization of Healthcare Executives

Honors

2012 Cincinnati Children's CARES Award Recipient

D. Contribution to Science

- 1.) Implantation of the Heartmate II and Heartware left ventricular assist devices in patients with Duchenne muscular dystrophy: lessons learned and first applications. Ryan TD, Jefferies JL, Sawnani H, Wong BL, Gardner A, Del Corral M, Lorts A, Morales D. ASAIO. 2014 Mar-Apr; 60(2): 246-8.
- 2.) Left ventricular noncompaction cardiomyopathy in Barth syndrome: an example of an undulating cardiac phenotype necessitating mechanical circulatory support as a bridge to transplantation. Hanke SP, Gardner AB, Lombardi JP, Manning PB, Nelson DP, Towbin JA, Jefferies JL, Lorts A. Pediatric Cardiology. 2012 Dec; 33 (8): 1430-4
- 3.) Infant arch reconstruction during total system perfusion. Gardner AB, Eghtesady P. J Thorac Cardiovasc Surg. 2007 Apr;133(4): 1096-8.
- 4.) Cardiopulmonary bypass in the immature fetus through novel use of a mini-centrifugal pump. Lombardi J, Sedgwick J, Schenbeck J, Lubbers W, Gardner A, Eghtesady et al. Perfusion. 2006 May; 21 (3): 185-91.
- 5.) Maternal-fetal interactions in fetal cardiac surgery. Eghtesady P, Sedgwick JA, Schenbeck JL, Lam C, Lombardi J, Ferguson R, Gardner A et al. Ann Thorac Surg. 2006 Jan; 81(1): 249-55.
- 6.) Vacuum-assisted venous drainage during fetal cardiopulmonary bypass. Lubbers WC, Baker RS, Sedgwick JA, Lam CT, Gardner A et al. ASAIO J. 2005 Sep-Oct; 51 (5): 644-8.
- 7.) Depression in mothers of children presenting for emergency and primary care: impact on mothers' perceptions of caring for their children. Grupp-Phelan J, Whitaker RC, Naish (Gardner) AB. Ambul Pediatr. 2003 May-Jun;3 (3):142-6.

Abstracts

- 1.) From the OR table to the playset: how simulation built the foundation for the MCS program at Cincinnati Children's Hospital. Cincinnati Children's 2014 Regional Simulation Conference; 2014 Sept 22; Cincinnati, OH.
- 2.) MCS simulation in a pediatric institution. ASAIO; 2013 June 15; Chicago, IL

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Kerrey, Benjamin T.

eRA COMMONS USER NAME (credential, e.g., agency login): BKERREY

POSITION TITLE: Professor of Pediatrics

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Creighton University, Omaha, NE	BS	05/1997	Mathematics
University of Nebraska, Omaha, NE	MD	06/2002	
Cincinnati Children's Hospital, Cincinnati, OH		06/2005	Residency, Pediatrics
Cincinnati Children's Hospital, Cincinnati, OH		06/2008	Fellowship, Pediatric Emergency Medicine
University of Cincinnati, Cincinnati, OH	MS	12/2011	Clinical & Translational Research

A. Personal Statement

I have the necessary expertise, leadership experience, and motivation to support completion of Dr. Zackoff's proposed research. **Expertise:** Over the last decade, I have developed expertise in several areas essential to successful completion of the proposed study, including simulation-based research of resuscitative care. I have lead and participated in numerous successful simulation-based investigations of resuscitative care, with a focus on emergency airway management. My previous airway and simulation-based research spans the full spectrum of investigation, from knowledge generation to clinical translation and quality improvement. I am currently leading teams at Cincinnati Children's working to improve rapid sequence intubation, management of high risk airways, and CPR quality and patient survival. We have received extramural and intramural funding for numerous airway-related research projects, including several that are directly relevant to Dr. Zackoff's proposal. **Leadership:** From 2007-09, I served as the site principal investigator for a multicenter study through the Pediatric Emergency Care Applied Research Network, the aim of which was to identify low-risk criteria for serious intra-abdominal injury in children after blunt trauma. Our enrollment percentage and protocol adherence was the highest among 20 participating centers, and I gained invaluable experience with successful participation in a multicenter study. In 2012 I became the Research Director for the Center for Simulation and Research at Cincinnati Children's, a nationally-recognized leader in simulation-based research. In this position, I gained experience designing and leading successful grant-funded research. Since 2018 I have been the director of the Medical Resuscitation Committee in the Division of Emergency Medicine at Cincinnati Children's. This committee has gained national recognition for its highly refined process of video-based peer review and quality assurance activities, clinical research, development of cognitive aids, and in situ simulation program. I am also a co-founder of the Videography In Pediatric Emergency Research collaborative, through which I have gained expertise in multicenter resuscitation research. **Motivation:** I am highly motivated to help Dr. Zackoff complete the

proposed research. As a clinician in the PED, I have committed myself to providing the best care possible to our sickest patients; as an investigator and leader in Pediatric Emergency Medicine, I have committed myself to determining what best care means. We have a proven track record studying and improving the care of critically ill patients in the PED. Because of my expertise, leadership, and motivation, I am well-positioned to support Dr. Zackoff in completing the proposed research.

B. Positions, Scientific Appointments, and Honors

Positions

2002-2005	Resident in Pediatrics, Cincinnati Children's Hospital
2005-2008	Fellow, Pediatric Emergency Medicine, Cincinnati Children's Hospital
2005-present	Staff Physician, Pediatric Emergency Medicine, Cincinnati Children's Hospital
2008-2015	Assistant Professor, Pediatrics, Cincinnati Children's Hospital, University of Cincinnati
2015-present	Associate Professor, Pediatrics, Cincinnati Children's Hospital, University of Cincinnati
2021-present	Professor, Pediatrics, Cincinnati Children's Hospital, University of Cincinnati

Other Experience and Professional Memberships

2008-present	Medical Resuscitation Committee, Cincinnati Children's Hospital (co-director
2018-present)	
2008-present	American Academy of Pediatrics, Fellow
2011-present	Society of Simulation in Healthcare
2018-present	Society of Pediatric Research

Honors

2012-present	Annals of Emergency Medicine, Top 50 peer reviewers
2013-present	Annals of Emergency Medicine, Senior Reviewer
2018-present	Annals of Emergency Medicine, Distinguished Senior Reviewer

C. Contributions to Science

1. **Airway management** - Mainstem intubation is common following emergency tracheal intubation in children, and the risk of mainstem intubation exacerbating critical illness is real. Confirming an endotracheal tube is not in a mainstem bronchus is challenging in children, especially under emergent conditions and for the smallest patients. During my fellowship, I was the principal investigator of a prospective study of diaphragmatic ultrasound to confirm endotracheal tube position after emergency tracheal intubation in children. We found ultrasound was not equivalent to chest radiograph, but was much faster and could be a helpful adjunct to the challenging confirmatory process. This study was innovative in design and represents an important contribution to the relevant literature, as it is one of the higher quality, prospective studies of ultrasound-based confirmation of tracheal intubation.

a) Kerrey BT, Geis GL, Quinn AM, Hornung RT, Ruddy RM. A Prospective Study Comparing Ultrasound to Chest Radiography to Confirm Correct Endotracheal Tube Placement in a Pediatric Emergency Department. *Pediatrics*. June 2009; 123; 6:e1039-1044. (PMCID 19414520)

2. **Rapid Sequence Intubation** - In my first faculty appointment I developed an expertise in the performance and improvement of pediatric rapid sequence intubation (RSI). RSI is the cornerstone of definitive airway management in the pediatric emergency department (PED). Children are at higher risk of both failed and prolonged attempts and complications. In four consecutive publications from 2012-2015, I led a team that demonstrated: (1) suboptimal performance of RSI in our PED, (2) that RSI and other critical procedures were too uncommon for providers to achieve competency based on clinical experience alone, (3) that prolonged attempts and young age were most strongly associated with

complications, and (4) that a checklist-based quality improvement intervention could improve both the performance and safety of RSI without airway skills training. We have since published several additional studies on RSI. We used video-based data collection for most of this work, helping to pioneer the use of video recording for data collection during PED resuscitations. The first two RSI publications below were accompanied by editorials, and our initial publication was considered a landmark study. We have published 8 studies related to emergency airway management in children. Our most important contribution to pediatrics and emergency medicine is that poor performance of pediatric RSI may be common, but that improvement is possible through standardization without increasing clinical experience or provider skill.

- a) Kerrey BT, Rinderknecht A, Geis G, Nigrovic LE, Mittiga M. Rapid Sequence Intubation for Pediatric Emergency Patients: Higher Frequency of Failed Attempts and Adverse Effects Found by Video Review. *Annals of Emergency Medicine*. 2012, Sept, 60(3): 251-9. PMID: 22424653
- b) Mittiga MM, Rinderknecht A, Kerrey BT, Geis G. The Spectrum and Frequency of Critical Procedures Performed in a Pediatric Emergency Department- Implications of a Provider Level View. *Annals of Emergency Medicine*. 2013 Mar;61(3):263-70. PMID: 22841174
- c) Rinderknecht AS, Mittiga MR, Meinen-Derr J, Geis G, Kerrey B. "Factors Associated with Oxyhemoglobin Desaturation during Rapid Sequence Intubation in a Pediatric Emergency Department: Findings from Multivariable Analyses of Video Review Data". *Academic Emergency Medicine*. 2015 Apr;22(4):431-40. PMID: 25779855
- d) Kerrey B, Rinderknecht A, Mittiga M, Varadarajan K, Dyas J, Geis G, Luria J, Frey M, Jablonski T, Iyer S. Reducing the incidence of oxyhaemoglobin desaturation during rapid sequence intubation in a paediatric emergency department. *BMJ Quality and Safety*. 2015 Nov;24(11):709-17. PMID: 26183713
- e) Rinderknecht AS, Dyas JR, Kerrey BT, Geis GL, Ho MH, Mittiga MR. Studying the Safety and Performance of Rapid Sequence Intubation: Data Collection Method Matters. *Acad Emerg Med*. 2016 Dec 15. (Epub ahead of print; PMID: 27976450).

3. **Multidisciplinary systems of care** – I am led or participated in two other airway-related projects, both of which involved the creation of multidisciplinary systems of care to improve the care of children with high acuity, low frequency airway emergencies. Early in my career, I co-lead the development of a novel system of care for children with critical airway events in a pediatric center. Children at risk for critical airway obstruction and respiratory failure are common in an academic center, and a coordinated, multidisciplinary system of care may be necessary to optimize evaluation and management. Collaborating with a physician from otolaryngology at my institution, we used in situ simulation to design and test a critical airway team (CAT). The CAT consisted of a paging system, multidisciplinary response (otolaryngology and anesthesiology), and a dedicated advanced airway cart maintained and transported by an airway respiratory therapist. For simulated cases, the CAT had significantly faster response times and fewer simulated patient deaths. The CAT has been active in our institution since 2012, serving more than 100 patients a year. The publications below describes our simulation-based study and the first several years of CAT activations. The second project was the development of a PICU-ED Team (PET) for emergency department patients at risk of peri-intubation cardiac arrest. The first study describes the multidisciplinary development of the PET and the second the initial validation of six high risk criteria for PET activation. These projects have both been multidisciplinary and highly innovative, in their use of in situ simulation in particular.

- a) Johnson K, Geis G, Oehler J, Meinen-Derr J, Bauer J, Meyer III C, Kerrey BT. Simulation to implement a novel system of care for pediatric critical airway obstruction. *Archives of Pediatric Otolaryngology and Head and Neck Surgery*. 2012; 138(10): 907-11. (PMCID 23069820)

- b) Sterrett EC, Myer CM, Oehler J, Das B, Kerrey BT. Critical Airway Team: A Retrospective Study of an Airway Response System in a Pediatric Hospital. *Otolaryngol Head Neck Surg.* 2017 Aug 1. (PMCID: 28849711)
- c) Hoehn E, Lautz A, Dean P, Geis G, Vukovic A, Stalets E, Zackoff M, Pham T, Maxwell A, Cabrera-Thurman M, Kerrey BT. Peri-Intubation Cardiac Arrest in the Pediatric Emergency Department: A Novel System of Care for High-Risk Patients. *Pediatric Quality and Safety*, 2020 Oct 26;5(6):e365. (PMCID 33134763).
- d) Dean P, Hoehn E, Lautz A, Geis G, Vukovic A, Stalets E, Zackoff M, Pham T, Maxwell A, Cabrera-Thurman M, Kerrey BT. Identification of the Physiologically Difficult Airway in the Pediatric Emergency Department. *Academic Emergency Medicine.* 7 September 2020 (PMCID 32896033).

Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/1fCFiFi37ckj/bibliography/43831499/public/?sort=date&direction=ascending>

Cheryl Marshall, MSN, RN, CHSE
Biosketch 2021

A. Education

University of Saint Francis (2002), Joliet, IL. BA, major in elementary education
The Christ College of Nursing and Health Sciences, (2009), Cincinnati, OH. ASN
Xavier University (2013), Cincinnati, OH. MSN, educator concentration

B. Personal Statement

I am a consultant in simulation education and have been with Cincinnati Children's Hospital Center for Simulation and Research since January 2014. I earned my CHSE in 2016 and was the first team member at the center to do so. I currently support the simulation program at CCHMC's satellite campus in Liberty Township, OH full time. In this role at CCHMC, I collaborate with various hospital units to provide interprofessional simulation training, partner with local nursing schools and the University of Cincinnati Medical School to provide interprofessional TeamSTEPPS training and simulation experiences to student nurses and third year medical students, and lead STEAM classes for local high school students. In addition, I provide pediatric simulation training to the Liberty Township Fire Department first responders. I began my nursing career at The Lindner Center for HOPE in Mason, OH and then transitioned to the Cardiovascular Stepdown Unit at The Jewish Hospital, Cincinnati, OH. My career in education began as a kindergarten teacher.

C. Position and Honors

Positions:

08/2002 – 05/2007. Kindergarten Teacher. Mason City Schools and Little Schoolhouse Preschool, Mason, OH

09/2009 – 04/2012. Registered Nurse. The Lindner Center of HOPE, Mason, OH

04/2012 – 12/2013. Registered Nurse. CVSU: The Jewish Hospital of Mercy Health Partners, Kenwood, OH

01/2014 – present. Consultant – Simulation Education. Center for Simulation and Research at Cincinnati Children's Hospital and Medical Center, Cincinnati, OH.

Honors:

2016. Peer awarded Cat Award recognizing teamwork, personal accountability, and dedication to my courses

2012–2013. Numerous patient awarded Star Awards recognizing excellent care

2009. Dean's list recipient, The Christ College of Nursing & Health Sciences

2009. The Most Courteous and Dependable by classmates

2002. Summa Cum Laude, University of Saint Francis

D. Contributions to Science

Publications

Timm, N., Farra, S., Miller, E. T., Gneuh, M., Brady, W., Marshall, C., Simon, A. (2017) Effectiveness of positive pressure ventilation during newborn care unit evacuation using high fidelity simulation. Journal of Neonatal Nursing, 23(March, 2017): 234-237.

Rule, A., Snider J, Marshall, C., Kramer, K., Geis, G., Gosdin, C. (2017) Using Simulation to Develop Care Models for Rapid Response and Code Teams at a Satellite Facility. Hospital Pediatrics, 7(12): special articles.

Abstracts

Hutchinson, P., Cooper, R., Guiot, A., Marshall, C., Lehmann, C. Feasibility of TeamSTEPPS® communication training in an interprofessional education simulation with nursing and medical students. Poster presentation: Agency for Healthcare Research and Quality TeamSTEPPS national conference, 2017 June 14-16; Cleveland, OH.

Marshall, C., Merkt, B. Creating a Standardized Facilitator Training Program for Simulation-based Medical Education. INACSL Virtual Conference 2021, June 16.