COVER

Project Title:
Development of an Interprofessional Pediatric Resuscitation Curriculum in the Emergency Department Utilizing In-Situ Simulation

Primary Investigator:
Lauren Cooke-Sporing, DO
Co-Investigator:
William Apterbach, MD

Collaborators:
Jennifer Fermin, MD

Affiliated Department:
Department of Emergency Medicine
South Shore University Hospital
Northwell Health

Section of Focus:
Interprofessional Education

Primary Contact:
Email: Lcooke@northwell.edu
Phone: (516) 582-9157

PROPOSAL ABSTRACT:

Problem/Educational Issue: The frequency of critically ill children presenting to the emergency department (ED) is much lower than that of critically ill adults. These low-frequency, high-risk events are extremely stressful to the entire patient team. This discomfort is due to factors such as case infrequency, emotional toll of caring for sick children, and existing pediatric quality and safety deficits within the department. Recent studies have shown that current training methodologies surrounding pediatric resuscitations are insufficient. The study site has seen an increase in the number of pediatric volume and with it, an increase in the number of pediatric emergencies.

Goal: We aim to create a longitudinal multidisciplinary pediatric resuscitation curriculum using in-situ simulation. The goal of this curriculum is to improve medical knowledge, clinical skills, team dynamics, and pediatric readiness scores (PRS) at the study site. We also aim to identify systems issues during pediatric resuscitations within the ED.

Approach: Through a staff-generated needs assessment, we will develop learning objectives upon which simulated pediatric resuscitation cases will be based. The cases will occur in the ED at the study site using a mid-fidelity pediatric manikin operated by simulation-trained faculty. Cases will be debriefed by simulation-trained faculty and a pediatric hospitalist. Medical knowledge, provider comfort, PRS, and learning gaps will be assessed before and after the intervention. A validated checklist will be utilized during each simulated case and monitored longitudinally. Each case will be evaluated using a modified Delphi panel.

Predicted Outcomes: We expect the interdisciplinary pediatric in-situ simulation curriculum will improve PRS, medical knowledge, clinical skills, team dynamics, and provider comfort during simulated pediatric emergencies.

Anticipated Impact/Dissemination Plan: It is our hope that implementation of the pediatric in-situ simulation curriculum will improve pediatric patient outcomes. If successful, the curriculum can be applied to other hospitals within Northwell.

PROPOSAL NARRATIVE:

Rational/Statement of the problem:

South Shore University Hospital (SSUH) has had an increase in the number of annual pediatric visits from 8% in 2020 to 11% in 2021. This is an overall larger increase than experienced across the Northwell Health System (6% in 2020 to 7% in 2021). In parallel with the increased number of pediatric visits, the number of pediatric emergencies (i.e. code whites)- including cardiac, respiratory, and traumatic arrests- have also increased. These pediatric resuscitations are low-frequency, high-risk events that often end with poor outcomes and prove to be extremely stressful to the entire patient team (including attending physicians, residents, advanced care providers, nurses, nursing assistants, respiratory therapists, pharmacists, medical interpreters, and medical and physician assistant students). Recent studies show that there is variable adherence to pediatric cardiac arrest guidelines across a spectrum of emergency departments (ED) during simulated pediatric resuscitations, demonstrating that current approaches in training emergency providers in pediatric resuscitations may insufficient.[1] A proposed solution is to institute an in-situ simulated multidisciplinary pediatric resuscitation curriculum at SSUH. The goal of this curriculum is to improve medical knowledge, clinical skills, pediatric readiness, and team dynamics amongst the patient care team. We also aim to identify any systems and quality deficits in the department by implementing this curriculum

Background/Theoretical Framework:

Although the majority of pediatric emergency medicine knowledge, quality improvement work, and clinical training occurs in children's hospitals, 90% of pediatric emergency care is provided in community ED's that care for both adults and children. Emergency medicine providers perceive that caring for pediatric patients is challenging due to a multitude of reasons- including case infrequency, the emotional toll of caring for sick children, and pediatric quality and safety deficits in their system.[2]

High-fidelity simulation is an effective method used in medical education across a multitude of disciplines. Simulation has been shown to increase procedural competence, improve medical knowledge, and increase provider comfort in procedures, while maintaining the gains made during retesting in simulated scenarios. It has been shown to be a reliable tool for assessing learners and teaching topics such as teamwork and communication.[3] Through experiential learning, simulation allows learners to practice medicine in a container that is psychologically and physically safe. Learners are able to practice high-morbidity, yet low-frequency cases and skills without causing harm to patients[4].

Multiple studies have demonstrated that in-situ simulation enhances teamwork,[5] improves pediatric readiness scores (PRS) in community EDs[6,] and improves nursing competence and self-efficacy during pediatric resuscitations.[7] Multidisciplinary, in-situ simulation improves experienced ED caregivers' confidence with pediatric emergencies in the ED.[8]

To meet the need for our growing critically ill pediatric population at SSUH, we propose a pediatric in-situ simulated resuscitation curriculum, designed to involve all members of the interdisciplinary team. There are several desired goals and outcomes of this program- 1. It will serve as an educational tool to allow all members of the interdisciplinary team to engage in the technical skills of high-risk, low-frequency pediatric resuscitations while maintaining psychological and patient safety, 2. Identify learning and knowledge gaps amongst ED patient care team, 3. Highlight quality and systems-based issues relating to pediatric resuscitation in the ED, and 4. Improve SSUH's PRS. The curriculum will be evaluated using a modified Delphi panel, as well as utilizing Kirpatrick's model for evaluation. If successful, we anticipate that this

approach to curriculum development may be applied to several other non-children's hospitals within Northwell.

Approach:

- Setting and Participants:
    - The simulation curriculum will occur in a designated critical care bay at SSUH ED. Participants will include emergency medicine attendings, resident physicians, advanced care providers, nurses, students, respiratory therapists, nursing assistants, pharmacists, interpreters, and pediatric hospitalists. Participants will be asked to participate in the in-situ simulated pediatric resuscitation as part of an already established ED team while on shift.
- Faculty:
    - Dr. Lauren-Cooke-Sporing is the Director of Emergency Medicine Simulation at SSUH and is fellowship trained in Health Professions Education and Simulation. She will be the primary investigator of this program. Dr. William Apterbach, Vice-Chairperson at SSUH, is a seasoned educator who regularly participates in the simulation portion of the Zucker School of Medicine entrustable professional activities (EPA) exercise and has both facilitated and developed numerous simulation-based learning opportunities across Northwell for attendings, residents, students, nurses, advanced care providers, respiratory therapists, and emergency medical services. He will serve as the co-investigator of this initiative. Their responsibilities will include:
        - Assigning pediatric readiness scores before and after intervention
        - Disseminating and interpreting needs assessment
        - Writing and developing simulated cases based on needs assessment
        - Developing and disseminating pre- and post-tests to participants
        - Organizing and debriefing biweekly in-situ simulated pediatric resuscitations
        - Training staff members in validated checklist
    - The pediatric hospitalist team at SSUH will also be participating in the simulated case as well as the debrief. It is our belief that the pediatric hospitalists can provide valuable insight into managing pediatric emergencies, as well as resources available within our facility.
- Description of Intervention:
    - *Step 1: Initial pediatric readiness assessment*
        - We will evaluate SSUH's PRS using a checklist described by Remick et al. The PRS assesses EDs across six domains: 1) Coordination of care, 2) physician/nurse staffing, 3) quality improvement, 4) patient safety, 5) policies/procedures, and 6) equipment and supplies.[9] A recent study demonstrated that increased pediatric readiness is associated with decreased mortality in critically ill children.[10]
    - *Step 2: Needs assessment and case development*
        - A needs assessment will be performed in the ED by administering an anonymous redcap survey to emergency medicine faculty and staff- including attending physicians, advanced care providers, resident physicians, nurses, respiratory therapists, nursing assistants, social work, and interpreters. The survey will inquire about specific self-identified learning gaps as well as confidence during pediatric resuscitations (appendix 2). From this needs assessment, specific learning objectives will be created and a pilot case will be designed by simulation-trained emergency medicine faculty as well as input from the pediatric hospitalist team, nursing, and respiratory therapy. A list of critical actions will be developed for the

pilot case, specifically including actions relevant to each discipline for participants (nursing, respiratory therapy, etc.)

- *Step 3*: *Checklist training and pre-test administration*
  - A staff member will be trained to identify the resuscitation team's ability to perform actions described on a validated checklist (appendix 3), which will be modified from the pediatric resuscitation checklist developed by Brett-Fleegler et al.[11] An anonymous pre-test (appendix 4) will be sent to all ED faculty and staff testing medical knowledge for their specific role within the ED based on the pilot case learning objectives.
- *Step 4: Pilot case initiation*
  - Using a mid-fidelity pediatric manikin operated by simulation-trained faculty, the pilot case will be enacted biweekly over the course of six weeks, during variable times of the day to ensure that ED faculty and staff from different shifts are able to participate. We anticipate that the play of the pilot case will last approximately 10 minutes. A staff member will be trained to observe participants' ability to complete items on the resuscitation checklist. Following the simulation, a simulation-trained emergency medicine faculty member, as well as the pediatric hospitalist, will debrief the case. The debrief will be performed using a hybrid of debriefing with good judgement (advocacy and inquiry technique) as described by Rudolph et al,[12] as well as plus/delta technique (facilitator has participants identify areas of strength as well as areas for improvement). The debrief will last approximately 20 minutes.
- *Step 5*: *Post-test administration and review of systems issues*
  - After the initial pilot case has been administered over the course of six weeks (approximately 12 simulations), participants will be asked to fill out a post-test regarding their experience (appendix 5). The post-test will contain the same medical knowledge questions listed in the pre-test, with some additional questions asking learners to identify key learning points of the case as well as any systems difficulties encountered. We are hopeful that in addition to improving medical knowledge, clinical skills, and provider comfort, the simulation curriculum will also serve as a quality improvement initiative to highlight systems issues - such as medication availability, access to adequate equipment, and variability of resources during different times of the day.
- *Step 6: Incorporation of remainder of in-situ simulated pediatric resuscitation curriculum*
  - Evaluation feedback will be reviewed and used to create four additional pediatric cases to incorporate into the in-situ simulation pediatric resuscitation curriculum. The remainder of the curriculum will be introduced over the course of twelve months. The pretest mentioned in appendix 4 will occur prior to the introduction of each new pediatric simulated case. Following each simulation, we will administer the surveys as mentioned in appendix 5.
- *Step 7: Evaluation of post-test results, repeat pediatric readiness assessment*
  - After twelve months, we will administer the same needs assessment survey as mentioned in step 2 (appendix 2) and compare the results to pre-intervention. We will reevaluate SSUH's PRS and compare this score to pre-intervention. We will also track the ability of participants to complete the checklist mentioned in appendix 2. Our prediction is that the institution of our in-situ pediatric resuscitation curriculum will improve medical knowledge, provider comfort, clinical skills and SSUH's PRS. We also anticipate that the curriculum will identify faults within the ED at SSUH when

managing critically ill pediatric patients, and lay the groundwork for unified policies and procedures to be put forth.

- *Step 8: Expansion of program to other Northwell hospitals*
  - After the initial twelve-month period, we will look to expand the carefully curated pediatric in-situ simulation curriculum into other hospitals within the Northwell system that do not contain a pediatric ED. We hope that our approach to developing this pediatric resuscitation curriculum can be applied and expanded to other Northwell facilities.

Anticipated Limitations and Required Resources:

1. Cost of the manikin simulator. The manikin proposed in the budget is a mid-fidelity manikin that will allow us to intubate, perform chest compressions, obtain vascular access, and place on a cardiac monitor. Although this manikin is not as realistic as the Laerdal manikins used by Northwell's Center for Learning and Innovation (CLI), it is significantly less expensive. The one-time cost of this manikin will allow us to carry out this curriculum with increased frequency than utilizing the manikins at CLI.
2. Protected time for faculty to construct and carry out the simulated curriculum
3. The simulated cases will occur in the ED at SSUH, which will provided at no cost. One anticipated limitation is that time, space, and participation may be compromised in times of increased patient volume and acuity.
4. Training staff members to complete validated checklist
5. Space to securely store manikins

Outcomes and Evaluation Plan:

We will implement the four-level Kirpatrick model and utilize a modified Delphi panel to evaluate our simulation curriculum

- *Level 1: Reaction*
  - Following each simulation, simulation-trained faculty will debrief participants on each simulation. By utilizing advocacy and inquiry technique, we can identify learning gaps, emotions, and frames of reference while ensuring psychological safety of our participants. We will also evaluate our ED team's reactions by applying the post-test (appendix 5). We can use this information to identify areas for improvement both within the ED as well as within the simulation curriculum.
- *Level 2: Learning*
  - We will again utilize appendix 5 (post-test) evaluate learning following the simulated pediatric resuscitation. Results from the test will be compared to appendix 4 (pre-test) as well as our initial needs assessment survey (appendix 2). Differences will be assessed using appropriate statistical analysis technique as recommended by our statistician.
- *Level 3: Behavior*
  - We will use our modified checklist as initially described by Brett-Fleegler et al (appendix 3) to track our ED team's ability to complete critical actions during each simulated pediatric resuscitation. We anticipate that participants will be able to complete more items on the checklist as the simulation curriculum progresses, thus demonstrating that behavior has been changed.

- *Level 4: Results*
    - We hope that our in-situ, interdisciplinary pediatric resuscitation program will positively impact pediatric care in the SSUH ED as well as the Northwell health system in several ways:
        1. Increasing provider confidence in simulated pediatric resuscitations will positively impact patient outcomes.
        2. Improving medical knowledge and clinical skills within the patient care team will also positively impact patient care.
        3. Identifying any systems and quality issues within our ED will allow us to remedy them.
        4. Improving the SSUH PRS, which we hope to translate into decreased mortality in critically ill children presenting to our department.

Plan for dissemination of project outcomes regionally and nationally:

We hope that the implementation of this longitudinal in-situ simulated interdisciplinary pediatric resuscitation curriculum will improve medical knowledge, confidence, and clinical skills in participants. We also anticipate that the simulation curriculum will simultaneously serve as a quality improvement initiative in our hospital. Because the curriculum is being developed using continuous feedback and needs assessments from our learners, it will be a unique process for our institution. It is our hope that the approach outlined in our curriculum development plan can be expanded to the remainder of the hospitals within the Northwell system that do not possess a pediatric ED.

We intend to present our findings at an Academy of Medical Educators sponsored event, as well as well as other medical education conferences when accepted. This may include Society for Academic Emergency Medicine, New York American College of Emergency Physicians and Society for Simulation in Healthcare. It is our plan to submit a manuscript to a medical journal once the project is complete. We anticipate that this project may lay the groundwork for additional simulation-based educational and quality improvement initiatives within the Northwell system.

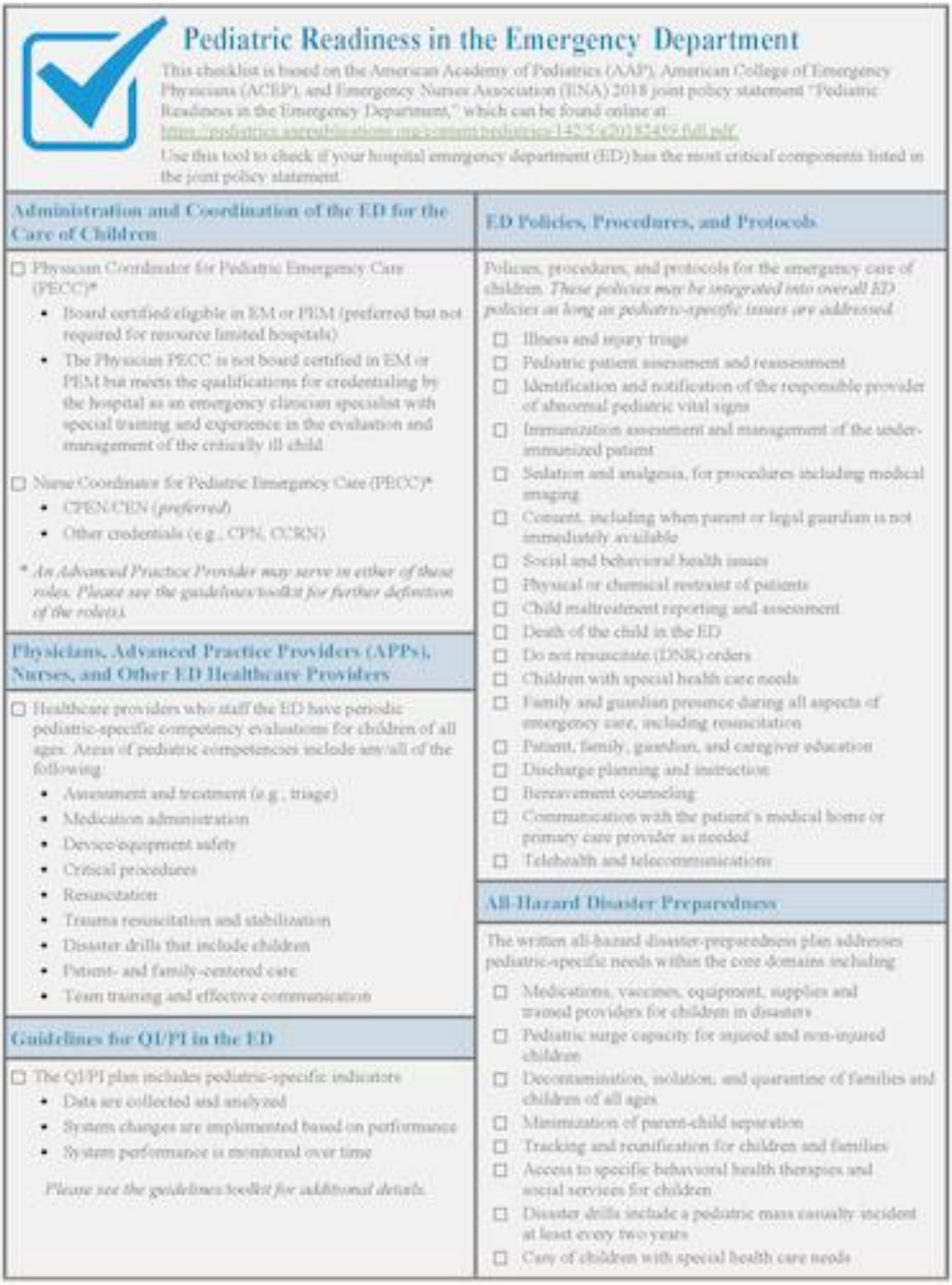
References:

1. Auerbach M, Brown L, Whitfill T, et al. Adherence to Pediatric Cardiac Arrest Guidelines Across a Spectrum of Fifty Emergency Departments: A Prospective, In Situ, Simulation-based Study. *Acad Emerg Med*. 2018;25(12):1396-1408. doi:10.1111/acem.13564
2. Goldman MP, Wong AH, Bhatnagar A, Emerson BL, Brown LL, Auerbach MA. Providers' Perceptions of Caring for Pediatric Patients in Community Hospital Emergency Departments: A Mixed-methods Analysis. *Acad Emerg Med*. 2018;25(12):1385-1395. doi:10.1111/acem.13509
3. Okuda Y, Bryson EO, DeMaria S Jr, et al. The utility of simulation in medical education: what is the evidence?. *Mt Sinai J Med*. 2009;76(4):330-343. doi:10.1002/msj.20127
4. Binstadt ES, Dahms RA, Carlson AJ, Hegarty CB, Nelson JG. When the Learner Is the Expert: A Simulation-Based Curriculum for Emergency Medicine Faculty. *West J Emerg Med*. 2019;21(1):141-144. doi:10.5811/westjem.2019.11.45513
5. Sharara-Chami R, Lakissian Z, Farha R, Tamim H, Batley N. In-Situ simulation for enhancing teamwork in the emergency department. *Am J Emerg Med*. 2020;38(4):833-834. doi:10.1016/j.ajem.2019.158452
6. Abulebda K, Lutfi R, Whitfill T, et al. A Collaborative In Situ Simulation-based Pediatric Readiness Improvement Program for Community Emergency Departments. *Acad Emerg Med*. 2018;25(2):177-185. doi:10.1111/acem.13329

7. Saqe-Rockoff A, Ciardiello AV, Schubert FD. Low-Fidelity, In-Situ Pediatric Resuscitation Simulation Improves RN Competence and Self-Efficacy. *J Emerg Nurs*. 2019;45(5):538-544.e1. doi:10.1016/j.jen.2019.02.003
8. Cristallo T, Walters M, Scanlan J, Doten I, Demeter T, Colvin D. Multidisciplinary, In Situ Simulation Improves Experienced Caregiver Confidence With High-Risk Pediatric Emergencies. *Pediatr Emerg Care*. 2021;37(9):451-455. doi:10.1097/PEC.0000000000001623
9. Remick K, Gausche-Hill M, Joseph MM, et al. Pediatric Readiness in the Emergency Department. *Ann Emerg Med*. 2018;72(6):e123-e136. doi:10.1016/j.annemergmed.2018.08.431
10. Ames SG, Davis BS, Marin JR, et al. Emergency department pediatric readiness and mortality in critically ill children. American Academy of Pediatrics. https://publications.aap.org/pediatrics/article/144/3/e20190568/76984/Emergency-Department-Pediatric-Readiness-and?autologincheck=redirected. Published September 1, 2019. Accessed November 12, 2021.
11. Brett-Fleegler MB, Vinci RJ, Weiner DL, Harris SK, Shih MC, Kleinman ME. A simulator-based tool that assesses pediatric resident resuscitation competency. *Pediatrics*. 2008;121(3):e597-e603. doi:10.1542/peds.2005-1259
12. Rudolph JW, Simon R, Dufresne RL, Raemer DB. There's no such thing as "nonjudgmental" debriefing: a theory and method for debriefing with good judgment. *Simul Healthc*. 2006;1(1):49-55. doi:10.1097/01266021-200600110-00006

Appendices

Appendix 1: Pediatric Readiness in the Emergency Department



Pediatric Readiness in the Emergency Department

This checklist is based on the American Academy of Pediatrics (AAP), American College of Emergency Physicians (ACEP), and Emergency Nurses Association (ENA) 2018 joint policy statement "Pediatric Readiness in the Emergency Department," which can be found online at https://pediatrics.aappublications.org/content/pediatrics/142/5/e20185459.full.pdf.

Use this tool to check if your hospital emergency department (ED) has the most critical components listed in the joint policy statement.

Administration and Coordination of the ED for the Care of Children

☐ Physician Coordinator for Pediatric Emergency Care (PECC)*
- Board certified/eligible in EM or PEM (preferred but not required for resource limited hospitals)
- The Physician PECC is not board certified in EM or PEM but meets the qualifications for credentialing by the hospital as an emergency clinician specialist with special training and experience in the evaluation and management of the critically ill child

☐ Nurse Coordinator for Pediatric Emergency Care (PECC)*
- CPEN/CEN (*preferred*)
- Other credentials (e.g., CPN, CCRN)

* *An Advanced Practice Provider may serve in either of these roles. Please see the guidelines toolkit for further definition of the role(s).*

Physicians, Advanced Practice Providers (APPs), Nurses, and Other ED Healthcare Providers

☐ Healthcare providers who staff the ED have periodic pediatric-specific competency evaluations for children of all ages. Areas of pediatric competencies include any/all of the following:
- Assessment and treatment (e.g., triage)
- Medication administration
- Device/equipment safety
- Critical procedures
- Resuscitation
- Trauma resuscitation and stabilization
- Disaster drills that include children
- Patient- and family-centered care
- Team training and effective communication

Guidelines for QI/PI in the ED

☐ The QI/PI plan includes pediatric-specific indicators
- Data are collected and analyzed
- System changes are implemented based on performance
- System performance is monitored over time

Please see the guidelines toolkit for additional details.

ED Policies, Procedures, and Protocols

Policies, procedures, and protocols for the emergency care of children. *These policies may be integrated into overall ED policies as long as pediatric-specific issues are addressed.*

☐ Illness and injury triage
☐ Pediatric patient assessment and reassessment
☐ Identification and notification of the responsible provider of abnormal pediatric vital signs
☐ Immunization assessment and management of the under-immunized patient
☐ Sedation and analgesia, for procedures including medical imaging
☐ Consent, including when parent or legal guardian is not immediately available
☐ Social and behavioral health issues
☐ Physical or chemical restraint of patients
☐ Child maltreatment reporting and assessment
☐ Death of the child in the ED
☐ Do not resuscitate (DNR) orders
☐ Children with special health care needs
☐ Family and guardian presence during all aspects of emergency care, including resuscitation
☐ Patient, family, guardian, and caregiver education
☐ Discharge planning and instruction
☐ Bereavement counseling
☐ Communication with the patient's medical home or primary care provider as needed
☐ Telehealth and telecommunications

All-Hazard Disaster Preparedness

The written all-hazard disaster-preparedness plan addresses pediatric-specific needs within the core domains including:

☐ Medications, vaccines, equipment, supplies and trained providers for children in disasters
☐ Pediatric surge capacity for injured and non-injured children
☐ Decontamination, isolation, and quarantine of families and children of all ages
☐ Minimization of parent-child separation
☐ Tracking and reunification for children and families
☐ Access to specific behavioral health therapies and social services for children
☐ Disaster drills include a pediatric mass casualty incident at least every two years
☐ Care of children with special health care needs

Appendix 2: Sample Initial Needs Assessment (Needs assessment may be tailored to different roles in the emergency department)

	Question
1	What is your current role in the emergency department?
2	What is your level of comfort in recognizing abnormal pediatric vital signs? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
3	What is your level of comfort in interpreting pediatric EKGs? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
4	What is your level of comfort in managing pediatric respiratory emergencies? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
5	What is your level of comfort in obtaining vascular access in pediatric patients? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
6	What is your level of comfort in managing cardiac arrest in pediatric patients? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
7	What is your level of comfort in finding pediatric airway equipment in the emergency department? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
8	What is your level of comfort in administering pediatric-dosed medications in the emergency department? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
9	What is your level of comfort in managing sepsis in pediatric patients in the emergency department? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
10	What is your level of comfort in managing diabetic ketoacidosis in pediatric patients in the emergency department? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
11	What is your level of comfort in managing cardiac arrest in pediatric patients in the emergency department? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
12	What is your level of comfort in managing pediatric traumas in the emergency department? Please rate your answer on a scale of 1 to 7, with 1 being not comfortable at all and 7 being extremely comfortable, n/a if this does not pertain to your current role.
13	Please list some areas for improvement within the ED that pertain to pediatric resuscitation
14	Please list any equipment or medications that you feel SSUH is missing from its ED in order to manage pediatric emergencies.
15	What is your emotional response when you are called to a pediatric resuscitation? Why do you think you respond this way?
16	Please list pediatric emergencies that you feel uncomfortable managing in the ED at SSUH.
17	Please list any technical skills that you feel uncomfortable managing in the ED at SSUH.
18	On a scale of 1-7, with 1 being very unhelpful and 7 being extremely helpful, how helpful do you think in-situ simulation of pediatric emergencies will be at SSUH?
19	Please state your thoughts and emotions on utilizing in-situ simulation as an educational initiative.
20	Please state your thoughts and emotions on utilizing in-situ simulation as a quality improvement initiative.
21	Please list pediatric emergencies that you would like to see addressed using in-situ simulation.

Appendix 3: TRACS: Tool for Resuscitation Assessment Using Computerized Simulation (Brett-Fleegler et al)

TRACS: Tool for Resuscitation Assessment Using Computerized Simulation			
BASICS			
TASK GROUP	**TASK**		
H&P	Elicits essential information about patient and situation (attends to age, inciting event, signs/symptoms provided); solicits additional basic information such as PMH/medications	Y	N
	Performs/directs pertinent PE	Y	N
Monitors	Ensures cardiorespiratory and O_2 saturation monitors placed within one minute	Y	N
Access	Attempts IV access/directs team member to attempt IV access	Y	N
Labs	Orders appropriate laboratory testing	Y	N
	Asks for lab results	Y	N
AIRWAY			
TASK GROUP	**TASK**		
Assessment	Assesses airway	Y	N
	Assesses breathing	Y	N
Basic interventions	Performs general airway maneuvers - positions patient	Y	N
	Provides any oxygen support	Y	N
	Provides optimal level of oxygen	Y	N
Bag-valve mask ventilation	Initiates positive-pressure ventilation in timely manner	Y	N
	Selects correct mask and bag size[a]	Y	N
	Correctly connects to oxygen source	Y	N
	Bags at appropriate rate[a]	Y	N
	Adequate chest rise (seal and bagging technique)	Y	N
	Confirms efficacy by auscultation or looking at chest wall (self or directs team member)	Y	N
Endotracheal intubation	Initiates team efforts for endotracheal intubation in timely manner	Y	N
	Preoxygenates patient	Y	N
	Selects appropriate size endotracheal tube	Y	N
	Selects appropriate size laryngoscope blade	Y	N
	Places stylet correctly (if stylet is used; use not required)[a]	Y	N
	Ensures suction available[a]		
	Asks for cricoid pressure	Y	N
	Appropriate endotracheal tube insertion technique (patient position, avoids teeth)	Y	N
	Places endotracheal tube in trachea	Y	N
	Secures tube/directs team member to secure tube	Y	N
	Time to intubation less than 8 minutes from start **(see log)**[b]	Y	N
Intubation assessment	Auscultates patient/ asks team member to auscultate patient	Y	N
	Assesses oxygenation	Y	N
	Checks end-tidal CO_2	Y	N
	Asks for portable chest x-ray to confirm tube placement	Y	N
Airway RSI	Selects premedication(s) appropriately[a]	Y	N
	Doses premedication(s) appropriately[a]	Y	N
	Selects sedative/hypnotic agent(s) appropriately	Y	N
	Doses sedative/hypnotic agent(s) appropriately	Y	N
	Selects paralytic appropriately	Y	N
	Doses paralytic appropriately	Y	N
CIRCULATION AND ARRHYTHMIAS			
TASK GROUP	**TASK**		
Basics	Assesses blood pressure (asks/looks for reading)	Y	N
	Palpates central pulses	Y	N
CPR	Initiates appropriately	Y	N
	Correct hand placement[a]	Y	N
	Correct compression to ventilation rate[a]	Y	N
	Time to initiation of CPR less than 1 minute **(see log)**[b]	Y	N
Management	Initiates IV fluids appropriately	Y	N
	Selects isotonic fluid	Y	N
Arrhythmias	Recognizes presence of abnormal (non-sinus) rhythm on initial presentation	Y	N
	Identifies first abnormal rhythm correctly (wide-complex SVT)	Y	N
	Identifies second abnormal rhythm correctly (ventricular fibrillation)	Y	N
	Recognizes indication to defibrillate	Y	N
	Doses energy correctly (may be PALS or ACLS based dose)	Y	N
	Charges defibrillator	Y	N
	Places paddles correctly	Y	N
	Confirms personnel clear before charging	Y	N
	Releases charge	Y	N
	Administers 3 shocks before proceeding	Y	N
	Time to deliver defibrillation (x3) less than 4 minutes from onset of ventricular fibrillation **(see log)**[b]	Y	N
	Administers shock before medications	Y	N
	Recognizes indication for first line medication (epinephrine)	Y	N
	Uses correct concentration of epinephrine (1:10 000)	Y	N
	Uses correct dose of epinephrine (0.1 cc/kg or 1mg)	Y	N
	Repeats shock after medication	Y	N
	Repeats pulse check after CPR/resuscitation medications	Y	N
BEHAVIOR			
Professionalism	Has professional attitude toward patient	Y	N
	Has professional attitude towards team members	Y	N
Leadership	Assumes leadership of code	Y	N
	Assigns roles	Y	N
	Utilizes personnel effectively	Y	N
	Communicates effectively with team	Y	N
	Assumes adequate responsibility when in non-leader roles (airway, circulation)	Y	N
Management	Performs tasks in appropriate sequence/prioritizes well	Y	N
	Intermittently summarizes/ maintains global view	Y	N

Appendix 4: Sample Pre-test

1.	Please state your role in the emergency department.	
2.	Please identify the rhythm as demonstrated in the following rhythm strip: 	
3.	A 4-year-old female arrives to the emergency department in cardiac arrest. The decision is made to intubate the patient. Please select the correct airway equipment required for endotracheal intubation.	a. Size 2 laryngoscope, size 4.0 uncuffed ETT b. Size 2 laryngoscope, size 3.5 cuffed ETT c. Size 2 laryngoscope, size 4.5 cuffed ETT d. Size 2 laryngoscope, size 4.5 uncuffed ETT e. Size 3 laryngoscope, size 4.0 uncuffed ETT f. Size 3 laryngoscope, size 3.5 cuffed ETT g. Size 3 laryngoscope, size 4.5 cuffed ETT h. Size 3 laryngoscope, size 4.5 uncuffed ET
4.	A 2-month-old female presents to the emergency department in cardiac arrest. You are preparing to intubate the patient. What is the correct ratio of chest compression to ventilation breaths in 2-person CPR in a patient who is not intubated?	a. 30 chest compressions to 2 breaths b. 30 chest compressions to 1 breath c. 15 chest compressions to 1 breath d. 15 chest compressions to 2 breaths e. Continuous chest compressions with continuous breaths.
5.	A 4-month-old female presents in respiratory distress, nasal congestion, and cough. The patient's vital signs are as follows: HR 200 RR 70 SpO2 91% RA T 103.5F The patient has moderate suprasternal, intercostal, and supraclavicular retractions. She has expiratory wheezing in all lung fields. What is her respiratory severity score?	a. 5 b. 6 c. 7 d. 8 e. 9 f. 10
6.	A 4-month-old female presents in respiratory distress, nasal congestion, and cough After initial treatment the patient's vital signs are as follows: HR 200 RR 70 SpO2 91% RA T 103.5F The patient has moderate suprasternal, intercostal, and supraclavicular retractions. She has expiratory wheezing in all lung fields. You suspect that the patient has bronchiolitis. What is the next best step in management?	a. Suction the patient b. Apply supplemental oxygen c. Give nebulized albuterol d. Give nebulized racemic epinephrine e. Administer tylenol f. Place an IV in the patient and start 20cc/kg of IV fluids g. Initiate sepsis protocol by drawing labs, cultures, administering broad-spectrum antibiotics, 20cc/kg of IV fluids and tylenol
7.	Please name as many forms of non-invasive oxygen delivery available to pediatric patients in respiratory distress.	
8.	What size intraosseous needle is appropriate for a 6-month-old patient in respiratory distress?	a. 5mm b. 10mm c. 15mm e. 25mm f. 40mm g. 45mm
9.	A 15-day-old female presents to the emergency department with lethargy, decreased PO intake and grunting. What is the maximum expected heart rate if you suspect this patient to have sinus tachycardia?	a. 250 b.240 c. 230 d. 220 e. 190 f. 180
10.	A 1-year-old female patient arrives to your emergency department with lethargy. A fingerstick shows that the patient's blood sugar is 40. What is the correct way to administer IV dextrose to this patient? Weight: 9kg	a. 9cc of D50 b. 25cc of D50 c. 45cc of D10 d. 18cc of D10 f. 9cc of D25

Appendix 5: Sample Post-test (may contain similar questions as appendix 2 & 4, plus the following questions)

1	What is your role in the emergency department?	
2	Describe what you learned after participating in the simulation.	
3	After participating in the in-situ simulation, please list some areas for improvement within the ED at SSUH when managing pediatric emergencies.	
4	Please list some systems failures that were uncovered during the simulated resuscitation	
5	Please list some personal knowledge gaps that were uncovered during the simulation	
6	What was your emotional response to the simulation? Why do you think you felt this way?	
7	Do you feel that in-situ simulation improved medical knowledge?	
8	Do you feel that the in-situ simulation can improve patient care?	Yes No
9	Would you like to see more simulated pediatric resuscitations in the ED at SSUH?	Yes No
10	Please list some suggestions for improving the quality of our pediatric resuscitation simulation curriculum?	

Appendix 6: Sample Learning objectives

1	Identify signs and symptoms of impending respiratory failure in a pediatric patient
2	Discuss differential diagnosis of respiratory arrest in a pediatric patient
3	Resuscitate a patient in respiratory arrest by utilizing bag-valve-mask-ventilation and ultimately endotracheal intubation
4	Discuss pediatric considerations of airway management
5	Interpret vital sign changes including bradycardia as a sign of cardiopulmonary arrest
6	Demonstrate resuscitation of a pediatric patient in cardiac arrest per PALS algorithm
7	Review reversible causes of cardiac arrest in pediatric patients
8	Discuss post-cardiac arrest management including pharmacotherapy and utility of therapeutic hypothermia
9	Demonstrate closed loop communication with team members
10	Explain diagnosis and management to caregivers
11	Demonstrate adequate handoff to pediatric transport team

Project Timeline:

February 2022	Perform pediatric readiness assessment at SSUH and assign PRS. Administer needs assessment to ED faculty and staff.
March 2022	Based on results of needs assessment, construct learning objectives for pilot simulated case. Administer pre-test to ED faculty and staff. Test and troubleshoot simulated case prior to going live with in-situ simulation.
April 2022-June 2022	Pilot case rollout. Initiate biweekly in-situ simulations in the ED at SSUH.
June 2022	Administer pilot case post-test. Analyze results. Use results to develop additional simulated pediatric emergency cases for curriculum
July 2022-February 2023	Remainder of pediatric in-situ simulation cases initiated at SSUH. The cases will continue to cycle through until February 2023.
March 2023	Administer post-test for remaining cases. Assess SSUH PRS. Evaluate results and compare pre- and post-intervention
June 2023	Initiate pediatric in-situ resuscitation curriculum at other Northwell sites
October 2023	Present results at national conference, such as SAEM, ACEP, or SSH.
November 2023	Submit manuscript to academic journal.

Budget:

Item	Rationale	Cost
STAT Baby Infant Manikin (Simulaids)	Although Northwell's Center for Learning and Innovation is well-versed in providing manikins and simulation technologists for in-situ simulations at various Northwell facilities, owning our own manikin would allow us to increase the frequency of simulated resuscitations at our program. Multiple studies have demonstrated that mid-fidelity manikins have similar efficacy in terms of acquisition of medical knowledge and non-technical skills. This infant manikin would allow participants to intubate, perform chest compressions, and interpret and manage dysrhythmias.	$4598
5-Year Mike® Michelle® Pediatric Care Simulator	The addition of a pediatric manikin would be valuable to the institution of the pediatric resuscitation in-situ simulation curriculum. The ECG simulator included with STAT Baby manikin may be used with this manikin to teach learners how to interpret and manage dysrhythmias.	$788
	Total:	$5386

IRB Approval:

This proposal has been submitted to the Northwell Heatlh Institutional Review Board and is under current review.

Collaborators:

Dr. Jennifer Fermin is fellow in Health Professions Education and Simulation at Zucker School of Medicine. She is residency-trained in emergency medicine and has a passion for medical education. Dr. Fermin will be assisting with development of learning objectives and cases, as well as debriefing in-situ pediatric resuscitation simulations.

BIOGRAPHICAL SKETCH

NAME: Lauren Cooke-Sporing

POSITION TITLE: Director of Emergency Medicine Simulation and Attending Physician, Department of Emergency Medicine, South Shore University Hospital, Assistant Professor of Emergency Medicine, Donald and Barbara Zucker School of Medicine

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Binghamton University, Binghamton, NY	BS	0/52011	Integrative Neuroscience
New York Institute of Technology College of Osteopathic Medicine, Old Westbury, NY	DO	05/2016	Osteopathic Medicine
New York Institute of Technology College of Osteopathic Medicine, Old Westbury, NY	MS	05/2016	Neuromusculoskeletal Sciences
Zucker School of Medicine at Hofstra/Northwell- North Shore University Hospital and Long Island Jewish Medical Center, Manhasset, NY	Resident	06/2019	Emergency Medicine
Northwell Health Emergency Medicine Service Line Health Professions Education and Simulation Fellowship, New Hyde Park, NY	Fellow	03/2020	Health Professions Simulation

A. Personal Statement

My experiences in medical education as well as simulation have put me in a unique position to perform as principal investigator for the project, "Development of an Interprofessional Pediatric Resuscitation Curriculum in the Emergency Department Utilizing In-Situ Simulation" As I progress through the early years of my career in emergency medicine, I continuously find myself gravitating toward developing new techniques for medical and interprofessional education. The proposed project seeks to develop an interdisciplinary pediatric resuscitation curriculum using in-situ simulation as a learning tool and quality initiative. As the Director of Emergency Medicine Simulation at South Shore University Hospital (SSUH), I believe that I have the resources, support, and mentorship necessary to carry this study through to completion.

My passion for medical education began as a medical student at NYIT College of Osteopathic Medicine when I was selected for the academic medicine scholars program. This year-long program awarded me a full academic scholarship for my final three years of medical school, and allowed me to train in various aspects of academic medicine, such as teaching and research. My early research career was neuroscience-based. I focused on ways to integrate technology to identify early signs of two degenerative neurological diseases, Parkinson's disease and Huntington's disease.

I continued to partake in educational activities as a resident physician at North Shore/LIJ. I completed the "Simulation Instructor Course" at Northwell Health's Center for Learning and Innovation (CLI), which inspired me to pursue a fellowship in Health Professions Education and Simulation at Northwell. My fellowship trained me in numerous techniques in education and simulation- including methods for debriefing simulations, delivering learner feedback, case design, learner assessment, research, and curriculum development. Under the mentorship of passionate medical educators, I participated in weekly didactics, as well as weekly simulation-based activities, with the emergency medicine residents and medical students. I was tasked with writing, coordinating, and debriefing all mannequin-based simulation cases as well as task training events at CLI for the inaugural class of SSUH's emergency medicine residency program. One highlight of my fellowship was the opportunity to complete the "Comprehensive Simulation Instructor Course" at Harvard's Center for Medical Simulation in Boston. This course is an intensive, week-long workshop that teaches educators how to use the art of simulation to uncover learners' framework to understand their actions and correct them during debriefing. Being able to network with educators from around the world who are also passionate about simulation was an amazing and rewarding experience, and improved my skills as a teacher. Unfortunately, my development as an education researcher and scholar, and overall academic productivity were adversely affected and profoundly curtailed by the emergence of the COVID-19 pandemic. The pandemic brought my simulation fellowship to an abrupt, premature end when I graduated three months early in March 2020.

Upon graduation of my fellowship, I became the Director of Emergency Medicine Simulation at SSUH. I developed a simulation curriculum for SSUH's emergency medicine residency program, including the creation of multiple "hybrid" simulation days

that allowed learners to participate in simulation despite closure and subsequent limited access to CLI secondary to the COVID-19 pandemic. I have organized, debriefed, and written all simulations for the emergency medicine residents at SSUH. My experience in simulation has given me to the tools to become an effective educator across multiple modalities, such as giving effective feedback, developing assessment tools, and creating curricula.

Although I am a relatively new educator, researcher, and clinician, I am fortunate to have the mentorship and guidance of several faculty who are well versed in medical education, simulation, and research. My experiences in simulation, as well as medical education, have prepared me to carry this project to completion. I have received full support from my department to perform the duties as described in this proposal.

B. Positions, Scientific Appointments, and Honors

Positions

2019 - Attending Physician, Emergency Medicine, Northwell Health, South Shore University Hospital, Bay Shore, NY

2020 - Director of Emergency Medicine Simulation, Northwell Health, South Shore University Hospital Bay Shore, NY

Honors

2014-2016 Academic Medicine Scholarship, NYIT College of Osteopathic Medicine, Old Westbury, NY

2019 Excellence in Emergency Ultrasound Award, Zucker School of Medicine at Hofstra/Northwell Emergency Medicine Residency Program, Manhasset, NY

2021- Emerging Female Physicians Program, Northwell Health, New Hyde Park, NY

C. Contributions to Medical Education

2016- Member, American College of Emergency Physicians

2020- Member, Society for Academic Emergency Medicine
Simulation Academy, Research Committee, and Education Committee Member

2020- Member, Clinical Competency Committee, Emergency Medicine Residency Program, South Shore University Hospital

2020- Member, Society for Simulation in Healthcare

D. Additional Information: Research Support and/or Scholastic Performance

1. Toxicology

    a. Bellis, Mitchell; Cooke, Lauren; Nogar, Joshua. Ketamine-induced cholangiopathy and uropathy: a case report [abstract]. Medical Toxicology. 2019 Mar; 15 (2): 53-107

2. Neuroscience

    a. Fischer, Corinne; Cooke, Lauren; Hyatt, Sara; Young, Jocelyn; Grant, Cydney; Rabin, Ely. The relationship between hand-eye coordination and micrographia in people with Parkinson's disease. [Abstract]. Program No. 309.08 2014 Neuroscience Meeting Planner, Washington, DC: Society for Neuroscience, 2014.

    b. Cooke, Lauren; Muratori, Lisa; Beers, Kelly; Fischer, Corinne; Rabin, Ely. The influence of gaze on static postural control in individuals with Huntington's disease [Abstract]. Program No. 45.12 2014 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2014.

    c. Cooke, Lauren; Fischer, Corinne; Young, Jocelyn; Hyatt, Sarah; Rostholder, Tracy; Rabin, Ely. Motorized walker reduces variance of gait in people with Parkinson's disease [Abstract]. Journal of the American Osteopathic Association. 2014 Dec; 114 (12): 124 - 167

    d. Fischer, Corinne; Cooke, Lauren; Zeng, Haibo; Gu, Huanying; Dong, Ziqian; Rabin, Ely . Remote assessment of rehabilitation in Parkinson's disease patients [Abstract]. Journal of the American Osteopathic Association. 2014 Dec; 114 (12): 124 - 167

BIOGRAPHICAL SKETCH

NAME: William Apterbach

POSITION TITLE: Vice-Chairperson of Emergency Medicine, South Shore University Hospital

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Louisiana State University Shreveport, Shreveport, LA	Master of Education	**expected graduation date:* 8/2022	Curriculum and Instruction/Educational Technology Leadership
Louisiana State University Shreveport, Shreveport, LA	Master of Business Administration	12/2019	Business Administration
New York Presbyterian Queens, Queens, NY	Administrative Fellowship	6/2014	Emergency Medicine Administration
New York Presbyterian Queens, Queens, NY	Residency in Emergency Medicine	6/2013	Emergency Medicine
University of Miami Miller School of Medicine, Miami, FL	Doctorate of Medicine	5/2010	Medicine
SUNY, College of Technology at Delhi, Delhi, NY	Associate of Applied Science	5/1997	Liberal Arts
Florida International University, Miami, FL	Bachelor of Science	12/2001	Biology Education

A. Personal Statement

Over the past decade in medicine, I have sought to build upon, blend, and implement my operational, educational, and investigative skillsets. Since completing an Administrative Fellowship at New York Presbyterian Queens, I joined the Northwell Health system and took over departmental leadership positions including Chairperson of the Department of Emergency Medicine at Long Island Jewish Valley Stream, a smaller community hospital, and my current position as Vice-Chairperson of the Department of Emergency Medicine at South Shore University Hospital, a large academic tertiary hospital. As Chairperson of Emergency Medicine at LIJ Valley Stream, I oversaw a multi-million dollar department budget while improving the quality and timeliness of care delivered to patients. In 2019, with an opportunity to combine my experiences as an educator, administrator, and clinician, I transferred to South Shore University Hospital (SSUH) as Vice-Chairperson of Emergency Medicine, to oversee operations of the emergency department as well as the development of the newly approved emergency medicine residency program. Since joining SSUH, we have been able to improve our departmental metrics, recruit a highly competitive cohort of residents, and develop a multi-disciplinary, hospital-wide airway response team which garnered national recognition through an abstract presentation for the American College of Surgeons. While balancing my duties as physician and administrator, I have pursued my research interests, often as the principal investigator, on multiple studies, resulting in seventeen, published, peer-reviewed abstracts, ten posters, and two manuscripts in the past four years alone.

I am excited to fully support Dr. Cooke's interdisciplinary, pediatric, simulation project at South Shore University Hospital. I currently serve as a simulation instructor for a monthly, CME accredited,

attending-level, skill retention course, for over 250 attending physicians in the Northwell Health system, as well as a skills and simulation instructor for the Northwell Center for Emergency Medical Services and Skyhealth. I believe my leadership experience and background in education and simulation will ensure Dr. Cooke has all of the resources and support necessary to complete the proposed project.

B. Positions and Honors

Positions and Employment

2019 – Present	Vice-Chairperson, Department of Emergency Medicine, South Shore University Hospital, Bay Shore, NY
2019 – Present	Core Faculty Member, Emergency Medicine Residency Program, South Shore University Hospital, Bay Shore, NY
2018 – 2019	Site Director, Emergency Medicine Resident Community Rotation, Long Island Jewish Valley Stream Hospital, Valley Steam, NY
2016 – Present	Clinical Preceptor, Nurse Practitioner program, Hofstra Northwell School of Graduate Nursing and Physician Assistant Studies, Hempstead, NY
2015 – 2019	Site Director, Physician Assistant Emergency Medicine Rotation, Long Island Jewish Valley Stream Hospital, Valley Steam, NY
2015 – 2019	Chairperson, Department of Emergency Medicine, Long Island Jewish Valley Stream Hospital, Valley Steam, NY
2015 – Present	Clinical Assistant Professor, Department of Emergency Medicine, Hofstra Northwell School of Graduate Nursing and Physician Assistant Studies, Hempstead, NY
2014 – Present	Assistant Professor, Department of Emergency Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY
2013 – 2014	Attending Physician, Department of Emergency Medicine, New York Presbyterian Queens/Weill Cornell Medical Center, Queens, NY

Honors

2020 Teacher of the Year, Northwell Health, New Hyde Park,, NY
2013 Resident Teacher of the Year, New York Presbyterian Queens, Queens, NY

C. Contributions to Medical Education

1. Apterbach, W., Alazar, S., Baranchuk, N., Mastanduono, A., Apterbach, G., Frank, D., Garra, G., Gupta, S. (2021). The Impact of a New Emergency Medicine Residency on the Performance of Procedures by Attending Physicians. Acad Emerg Med, 28: S9-S398. https://doi.org/10.1111/acem.14249.
2. Apterbach, W., Mastanduono, A., Baranchuk, N., Apterbach, G., Frank, D., Alazar, S., Garra, G., Gupta, S. (2021). A Multicenter Evaluation of the Differences in Procedural Practice Amongst Tertiary and Community Emergency Physicians. Acad Emerg Med, 28: S9-S398. https://doi.org/10.1111/acem.14249.
3. Apterbach, W., Gadaleta, D., Zilberstein, J., Decrosta, D., & Huang, T. (2020). The Critical Airway Team: A Collaborative and Simplified Algorithm and Airway Box Addressing Patient Needs During Emergent Advanced Airway Management. Virtual poster presentation session at the American College of Surgeons Quality and Safety Conference.
4. Apterbach, W., & David, J. (2020). Improving the Accuracy of Critical Care Coding Using an Educational Intervention and Electronic Medical Record. Academic Emergency Medicine, 27(S1), S90.

11/14/2021

Dear Dr. Cooke-Sporing,

I was very excited to read your proposal *"Development of an Interprofessional Pediatric Resuscitation Curriculum in the Emergency Department Utilizing In-Situ Simulation."* As this project is expected to be conducted in the emergency department at South Shore University Hospital, I would like to speak on behalf of my department and offer my full and unwavering support of this project.

You have identified a significant area of need in terms of curricular development for pediatric resuscitation for a non-pediatric specific emergency department. South Shore University Hospital is uniquely situated in having escalating pediatric visits to the emergency department from a vulnerable patient population rife with several barriers to access to care, including high rates of limited English proficiency, economic factors, and other social determinants that may affect the health of children in the community. In 2019, our last full pre-pandemic year, our department unfortunately experienced seven pediatric patients who expired despite resuscitation attempts and about 70 transfers to CCMC for ill pediatric patients who had outstripped our internal resources. Providing for interdisciplinary education with in-situ simulations education will enhance teamwork, improve clinical competence, and will facilitate continuous states of readiness for all care-givers involved in pediatric resuscitation.

It is guaranteed that you will be provided adequate time, resources, and opportunity to implement this project within our department. This project fulfills our department mission of promoting excellence in education, research, and clinical care for all of the different types of care-givers of emergency department patients. I look forward to seeing this project come to fruition.

Sincerely,

Sanjey Gupta, MD MBA
Chairperson of Emergency Medicine
South Shore University Hospital
Professor of Emergency Medicine
Zucker School of Medicine at Hofstra/Northwell

11/14/2021

Dear Dr. Apterbach,

I was very excited to read the proposal *"Development of an Interprofessional Pediatric Resuscitation Curriculum in the Emergency Department Utilizing In-Situ Simulation,"* that has you listed as a co-investigator. As this project is expected to be conducted in the emergency department at South Shore University Hospital, I would like to speak on behalf of my department and offer my full and unwavering support of this project.

You have identified a significant area of need in terms of curricular development for pediatric resuscitation for a non-pediatric specific emergency department. South Shore University Hospital is uniquely situated in having escalating pediatric visits to the emergency department from a vulnerable patient community rife with social, economic, and health related hazards. In 2019, our last full pre-pandemic year, our department unfortunately experienced seven pediatric patients who expired despite resuscitation attempts and about 70 transfers to CCMC for ill pediatric patients who had outstripped our internal resources. With your expertise in educational theory gained from an undergraduate and currently matriculating graduate degree in education, and your pedagogical leadership in resuscitation education for emergency medicine residents and attendings, medical students, and paramedics at Bioskills, you provide an excellent complement to Dr. Cooke-Sporing's expertise in simulations education. Providing for interdisciplinary education with in-situ simulations education will enhance teamwork, improve clinical competence, and will facilitate continuous states of readiness for our department.

It is guaranteed that you will be provided adequate time, resources, and opportunity to implement this project within our department. This project fulfills our department mission of promoting excellence in education, research, and clinical care for all of the different types of care-givers of emergency department patients. I look forward to seeing this project come to fruition.

Sincerely,

Sanjey Gupta, MD MBA
Chairperson of Emergency Medicine
South Shore University Hospital
Professor of Emergency Medicine
Zucker School of Medicine at Hofstra/Northwell

☐ **COVER PAGE**
- ☑ Project title
- ☑ Name and degree of primary investigator (PI)
- ☑ Name and degrees of co-investigators/collaborators
- ☑ Name of affiliated department(s)
- ☑ Section(s) that grant focuses on: *UGME, GME, CME, IPE*
- ☑ Contact information for primary investigator

☐ **PROPOSAL ABSTRACT**
- ☑ 12-point font and 1-inch margins, no more than 300 words.
- ☑ Format: Problem/Educational Issue, Goal, Approach, Predicted Outcomes, and Anticipated Impact including dissemination plan.

☐ **PROPOSAL NARRATIVE**
- ☑ Does not exceed five, single-spaced pages, 12-point font; 1-inch margins
- ☑ **Rationale & Statement of the Problem**
- ☑ **Background & Theoretical Framework**
- ☑ **Approach**
- ☑ **Outcomes and Evaluation Plan**
- ☑ **Plan for dissemination of project outcomes regionally and nationally**
- ☑ **References** *(not included in the 5-page limit)*
- ☑ **Necessary addendums / appendices** (*not included in 5-page limit*)

☑ **PROJECT TIMELINE**

☐ **BUDGET**
- ☑ Itemized costs
- ☑ Statement of justification for each budget line item

☐ **BIOGRAPHICAL SKETCHES**
- ☑ Template provided in guidelines has been used for each biosketch

☐ **LETTERS OF SUPPORT**
- ☑ One letter of support for each study applicant (PI and Co-PI[s])

☐ **INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL**
- ☑ If this is a research project involving human subjects, documentation that the proposal has been submitted to the Institutional Review Board (IRB) for review must be included in the application

I have reviewed the proposal and verify that the items listed above are included.

PI Signature:  _____