

ImPACTS

IMPROVING PEDIATRIC ACUTE CARE THROUGH SIMULATION

Manual of Operations

ImPACTS ED 2022

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I. Introduction & Background

Welcome to ImPACTS ED 3.0!

Our study aims to engage Pediatric Emergency Care Coordinators (PECCs) at community emergency departments (CEDs) in more pediatric educational activities via a 12-week simulation and asynchronous educational intervention. We aim to create an “off the shelf” prescribed PECC-facilitated intervention that can be implemented by PECCs and is associated with improvements in CEDs providers' education and competency caring for acutely ill and injured children.

We plan to measure educational activities completion by PECCs and improve provider level knowledge/attitudes (measured by surveys) and in the quality of clinical care provided by the ED teams (measured during simulation).

Collaboration between many of the top US Children’s Hospitals/Academic Medical Centers (Regional Centers or Hubs) allows for open sharing of knowledge, experiences, and resources in their collaborative work with community hospitals (Spokes). ImPACTS has applied the hub and spoke model to community Emergency Departments and outpatient offices.

Adopting this hub and spoke model, we propose a prescribed intervention between a group of ImPACTS AMCs and CEDs. ImPACTS AMCs (Hubs) will identify a principal investigator (PI) to lead participation in the ImPACTS collaborative, who will then identify pediatric emergency care coordinators (PECC) at interested community sites. Subsequently, designated PECCs will receive a toolkit of resources to enhance and promote PECCs activities at CEDs and improve pediatric emergency readiness and processes of care in a simulated setting. PIs will facilitate demographic and knowledge survey administration and help lead/facilitate the simulations and be available for questions regarding weekly educational interventions.

This collaborative involves PECCs from CEDs working directly with their AMCs/Hubs and is supported by the ImPACTS core study group.

This manual is intended as a guide to help your team understand the intended structure of the collaborative, serving as an explanation and reference for you while planning and conducting this project. We recognize that each site has individual needs and that one size may not fit all.

We ask that if you have questions or feedback on this document, please notify the core team. If you encounter difficulties and/or deviate from the intended structure described here, please contact Erin Montgomery as soon as possible (white20@iu.edu).

As an improvement collaborative, we have the opportunity to adapt our methodology based on your experiences and feedback. Again, thank you for joining this project and for taking an interest in improving the care of acutely ill children, no matter where they are.

II. IRB Approval

- The study was IRB reviewed and approved at Riley Children’s, but this is at the discretion of your institution

III. Recruitment

Flyer to share with Spokes:

[Click here to download](#)

Recruitment Tips

Multiple approaches can be used to recruit CEDs to participate in this collaboration. There is no one-size-fits-all strategy, and it often boils down to relationships, persistence, and good communication with the ED team (emails, phone calls, and conference calls).

Engage PECCs and CED leadership in understanding what they are committing to and the rationale behind the program. Many children's hospitals within the ImPACTS network already have an existing relationship with various CEDs, which will facilitate collaboration. We have drafted a *recruitment* flyer that briefly summarizes the project to facilitate this collaboration.

Here are some of the approaches that ImPACTS collaborative has employed:

- Working directly with the medical director and/or nurse manager
- Relying on pre-existing relationships with transport center leadership or educators with whom that academic centers may already be collaborating
- Personal connections and colleagues

The Meeting

This meeting can be scheduled in person or via web/phone conference. It is important to discuss the program's specifics, including goals, objectives, staff, space, and equipment needed for simulation sessions. You may also want to include a copy of your IRB to share in this meeting. We have included a *One-page proposal* (see appendix) for more project details. Please adapt this to fit the needs of your institution. The appendix includes specific details, including the *format for simulation day* scenario documents (please see appendix).

Key points:

- Identify a Pediatric Emergency Care Coordinator (PECC) to serve as a liaison for the team; this is a requirement for a site to participate. This person is the individual you will be in direct contact with to ensure all the logistics of both simulation days are in order and weekly educational interventions. You should obtain this person's email address and direct phone number.
- Staff expected to participate in the curriculum and simulations should include at least one provider (APP or physician) and 1-3 nurses. Simulations occur at the start of the intervention and the conclusion (week

one and week 12) and ten weekly educational interventions (choose your own adventure module, podcast, and online module)

- There is an option for simulation to be remote; participants can participate from home or their workplace for telesimulations if in situ is not an option and for the asynchronous weekly curriculum.
- Duration of Sim Day: Approximately 2.5 hours. Introductions, pre-brief, three simulations plus 20-30 min debriefs for each scenario and post-simulation survey.
- Duration of weekly education: Approximately 20 min each week x 10 weeks to be sent via email to participants by PECC.
- Finally, it is important to solidify simulation session dates for both simulation dates (pre and post) during this initial meeting, including start and stop times for the ImpACTS sessions.

IV. Materials Simulations

You have the option to choose between multiple simulation modalities depending on logistics and preference:

- **In Situ**, In-person simulation on a mannequin, with the Hub representative being present in the ED room with spoke ED team.
- **Fully virtual over Virtual Resus Room (VRR)** (see below)
- **Hybrid approach**, the CED team can run the simulation on the mannequin in the ED. The Hub representative will provide support and guide the simulation remotely through monitoring software that may be installed on a tablet or computer.

Mannequins need not be of high technology (e.g., there is no need for the mannequin to be connected to the monitoring software). Please get in touch with our team if you are unable to procure a mannequin or the gear necessary for the hybrid simulation, and we will do our best to provide you with what is necessary to run the simulation.

- If your site chooses the virtual option please have all learners visit the website for VRR for orientation on how to utilize: <https://virtualresusroom.com/demo/>
- ImPACTS will provide all cases (including VRR) on the [ImPACTS website](#). This can be located on the ImPACTS ED Tab-->Resources for Hubs (Password: ImPACTSsim)

V. Schedule/Prep Simulations

- An online “train-the-trainer” session will be organized between the core ImPACTS team and the lead at the Hub site. The session's goal is to educate the Hub lead on the project and answer any questions they may have. This session will be conducted after the Hub lead team is thoroughly familiar with the study protocol, scenarios and checklists, and the manual of operations.
- Schedule the simulations with plenty of time in advance (early planning is the key). Please schedule the initial simulation and 3-month follow-up simulations all at the same time.
- Schedule teams of at least one provider (APP or physician) and 1-3 nurses (whatever their typical team would be who would respond to a critically ill child in the ED).

Prep for Simulation Day

Preparation for simulation day takes time and organization. Ensure good communication with the PECC to confirm participants will be in attendance OR if running virtually have access to a reliable internet connection and google slides for the scenarios to occur. If running virtually, send participants the [VRR demo to review](#) prior to the sim day. Familiarize yourself with the scenarios and reach out to the ImPACTS group if you have questions about running the simulations. All scenarios and guides can be found on the [ImPACTS Website](#) under ED → Resources for Hubs (Password: ImPACTSsim) and in the appendix of this document. This includes equipment and supply lists for the PECCs, which should be shared when scheduling the simulations.

VI. Run Simulations

Right before simulation

- Orientation forms and the Format of the simulation are in the [appendix](#) to help guide you.
- Cases, data collection sheets, and all documents needed for sim day are all available under the “Resources for Hubs” section of the ImPACTS website <https://www.impactscollaborative.com>,
Password: ImPACTSsim

Orientation/Pre-Brief

- The simulation summary document below has an outline regarding the day’s timeline and important points to cover. (This can be found on the ImPACTS website)
- Have participants introduce themselves, their roles, and their levels of experience.
- We will not review your individual performance beyond assessing how the team performs expected tasks within the simulations.
- Be sure to remind participants that this is a learning environment and that they will not be judged. This is a test of the system to inform improvement and ensure that we achieve the highest quality care for all children.
- Reiterate that the participants can use all the tools that they would normally use. **Encourage the PECC to send out resources or have them available during the VRR they typically have available in the ED if participants are joining from home.**
- Review format: The simulation day will consist of three scenarios; each simulation lasts approximately 10 min followed by a 20 min debrief.
- Mention the importance of “suspending disbelief.” Simulation has limitations, but the more the participants put into the scenario and care for the simulator, the more they will get out of the training.
- Remind that they are expected to utilize equipment and supplies (or for VRR drag items) and also SAY what they want. For example, for VRR, if they want a 20cc/kg bolus, a team member needs to drag and place an IV or IO, drag the fluid and place it in the medications given box.

AGENDA (Total time 90 minutes)

1. Introductions (0-10 minutes)

- a. Who we are: A team from the Children's Hospital working with pediatric emergency care coordinators to assess and describe the care they provide critically ill children. Our group is part of a national collaborative, ImPACTS, aiming to improve pediatric acute care. Introduce yourself and your team.
- b. Who you are: names/experience
- c. The learning objectives are that after this session you will be able to:
 - i. Describe the initial stabilization and care for a critically ill child.
 - ii. Recognize the equipment required for the care of a critically ill child.
 - iii. Demonstrate skill in the use of the emergency equipment available.

2. **Agenda/overview (10-15 minutes).** We will start with an orientation to the environment and simulation mannequins. Next, we will conduct the simulation. During the simulation, your team will use available equipment, guidelines, and resources to simulate caring for a critically ill child in the ED. Each simulation will be followed by a debriefing discussion facilitated by our team. We will end with a feedback survey about the experience and simulations. Please see the [pre-brief script](#) on the resources page.

3. Simulation Anaphylaxis (15 min – 40 min) - see below for details
4. Simulation Status Epilepticus (40-70 min) – see below for details
5. Simulation Neonatal Delivery (70-100 min) – see below for details
6. Group wrap-up

- a. Answer any questions or concerns about the overall experience
- b. Reiterate completing asynchronous weekly education that will be sent out via email

VII. Data Collection Before and During Simulations

In-person data capture focuses on any important variables. Timing of events and interventions are also important to note.

The following data will be collected anytime before the simulation:

1. **PECC baseline survey**
2. **Individual baseline knowledge and comfort survey**
3. **Pediatric Readiness Score**

The following data will be collected during/following the simulation sessions:

1. **Teams' performance using case checklists (data collection form)**

The following data will be collected after the last stimulation session within 14 days:

1. **PECC follow-up survey**
2. **Individual follow-up knowledge and comfort survey**
3. **Pediatric Readiness Score**

- Team performance will be collected among participating teams using paper forms or entered directly into Qualtrics during the simulation. Please ensure all simulation data is entered within 5-7 days of the simulation.

[ImPACTS ED](#) Password: ImPACTSsim

VIII. Data Submission

- Before simulations, please have participants complete pre-knowledge and comfort surveys and the PECC complete the pre-PECC survey. Please place the pre-survey document from the simulation guide out before the simulations for a final opportunity for participants to complete. [Learner Pre Survey](#)
- The survey for the simulation checklist is built using the same items from the scenario performance checklists. It is important to complete this step as soon as possible (**ideally later that day or the day after**) but within a maximum of 7 days so that the data can be accurately collected and a report can be generated. [ImPACTS ED Sim and PRS Data Submission](#)
- After the follow-up simulations are complete, please complete the PECC survey and ensure all participants complete the post-survey within seven days of the follow-up simulation. Please place the post-survey document from the simulation guide out following the simulations for an opportunity for participants to complete. [Learner Post Survey](#)

IX. Report Out

- Once data is entered in Qualtrics, a customized summary will be generated for the hub site to share with the spoke site in 7-10 days, reviewing the Peds Ready Score.
- This will be shared and reviewed with the spoke site PECC, outline the simulations, share the pediatric readiness score, and review any latent safety threats identified. This meeting can be completed virtually or in person.
- After the follow-up simulation on week 12, a customized full report out will be generated 7-10 days after simulation completion detailing the pre/post simulations, Peds Ready Score, and any latent safety threats identified and those that were addressed.

X. Curriculum

Week	Activities	Link ***
1	Baseline simulations (3 cases) – WPRS	
2	Status epilepticus Pathophysiology Video	Week 2
3	Status epilepticus Video and Algorithm	Week 3
4	Status epilepticus podcast	Week 4
5	Status epilepticus choose your own adventure	Week 5
6	BREAK	
7	Neonatal Pathophysiology Video	Week 7
8	Neonatal Video and NRP Algorithm	
9	Neonatal podcast	Week 9
10	Neonatal choose your own adventure	
11	BREAK	
12	Follow-up simulation (3 cases) – WPRS	

XI. Appendix:

- A. Recruitment Flyer
- B. Tips for Recruitment
- C. One Page Proposal
- D. ImPACTS Orientation Sheet
- E. Hub and PECC Program Guide
- F. PECC Surveys
- G. Participant Pre Survey
- H. IRB Form

A. Recruitment Flyer

[Click here to download](#)

B. ImPACTS ED 2022 One Page Proposal

Hypothesis:

We hypothesize that designating a PECC in CEDs who are supported by a facilitator from the AMC/ImPACTS and resources toolkit will be associated with activities completion by designated PECCs and improvement in CED providers knowledge /attitudes and the process of care in a simulated setting.

Aim:

Primary aim: To measure and improve activity completion by Nurse PECCs following a prescribed collaborative intervention with the AMC.

Secondary aim: To measure improvements in individual provider level knowledge/attitudes (measured by surveys) and in the quality of clinical care provided by the GED teams (measured during simulation)

Design:

PECCs in participating Community EDs are to be trained by the AMC on the toolkit's content (pediatric status epilepticus and newborn delivery) to be disseminated to their nursing staff. Once completed, this will be followed by an in-person or remote Pediatric Readiness Survey (PRS) and (tele)simulation assessment facilitated by a study team member of the academic medical center and the PECC with the community ED team with a minimum of 1 nurse and one physician. This assessment will serve as a *baseline* evaluation of knowledge and the PRS. A report of the baseline simulation and PRS will be compiled by the ImPACTS core team and sent to the Hub, who will subsequently share it with the CED. The PECC will then disseminate educational material to participating staff via email weekly over 12 weeks. The educational material will tackle two topics: status epilepticus and neonatal delivery in the ED. The PECC will check in with the Hub every other week to track the completion of education activities. Once completed, a *follow-up* PRS and (tele)simulation assessment will be completed with the community ED staff facilitated by the PECC and a member of the academic medical. During the simulations, PECCs or AMC facilitators are to complete a critical action checklist reflecting team performance. Additionally, participating staff will complete baseline (pre-) and follow-up (post-) knowledge assessment multiple choice questions and a self-reported evaluation of comfort, confidence, and knowledge.

Inclusion Criteria:

Academic Medical Center within the ImPACTS network serving as Hubs

Community EDs with PECCs recruited by their AMCs

Outcome Measures:

- 1- Completion of PECC activities
- 2- Provider knowledge and attitudes
- 3- Simulation-based performance and WPRS
- 4- Implementation Outcome Measure

C. ImPACTS Orientation Sheet

Ground rules/safety/consent:

Welcome! In this session, you and a team of your peers will serve as the ED team caring for an acutely ill pediatric patient that presents to your emergency department. The session will last approximately 2.5 hours in duration. This session is an opportunity for us to practice patient care, teamwork, and communication in a safe and supportive environment using simulated patients.

The introduction will discuss the ground rules and the session's format and orient you to the simulator.

I would like to introduce our ImPACTS team:

1. Project/research

- a. This simulation-based longitudinal curriculum is part of an ongoing study assessing the benefit of the study. You may ask questions before deciding whether you wish to participate or at any time during the study.
- b. If you feel uncomfortable and would like to stop participating during the session, please let me know.

2. Safe environment

- a. Basic assumption: we believe that as a participant, you are intelligent, well trained, want to do your best, and want to improve.
- b. Cardinal rule of simulation: What happens in sim stays in sim. Please do not discuss the performance of your peers or these cases outside of this session.
- c. Let us know if you need a bathroom or water.

Any questions?

I am going to turn things over to _____ to orient you to the format for the day.

D. Format for Simulation Day 1

All simulations, data collection sheets, facilitator guides, and VRR links can be found on the [ImPACTS Website](#) under the ED Tab, resources for hubs (Password: ImPACTSsim)

You will participate in three pediatric scenarios in your ED (or Virtual Resus Room) today.

- a. You will receive an initial report of a pediatric patient coming into your hospital and may assemble your team of providers and nursing staff.
- b. A facilitator will provide more information when needed.
- c. You CAN USE cognitive aids, codebooks, internet for information.
- d. The simulator has limitations- do your best to “suspend disbelief” and act as you would with a real patient and family. We expect you to respond to auditory and visual cues as well as information on the patient monitor.
- e. ___ will orient you to the simulator and medications before starting.
- f. The initial vital signs will be displayed on the patient monitor AFTER you attach leads and monitors to the patient.
- g. These values may change over time, just like with a real patient, and your team should monitor for status changes.
- h. If you want to perform an intervention, such as providing oxygen or placing an IV line, you need to do it- not just say it.
- i. **Only for VRR:** This means dragging equipment out of the designated slide and working together as a team to care for the patient. If you can't find a piece of equipment, please state what you are looking for, and we can help you locate it.
- j. This includes calculating the doses of medications and fluids and stating that you are pushing them into the IV line.

3. Post-simulation debrief:

- a. After each simulation we will guide your group through reflection on performance or debriefing.
- b. This is an opportunity to reflect on performance and hone your pediatric knowledge and skills. Please ask questions and explain your thoughts.
- c. Consider this as a rehearsal to prepare you for future experiences that you may encounter. If you are going to make a mistake, it is better to do it here with the simulator than with a real patient.

Any questions?

Now turn it over to _____ for orientation to simulation

E. Hub and PECC Program Guide



Hub and PECC Guide ImpACTS ED 3.0 Program Guide

Phase I

- Recruit/identify PECC for ED
- Schedule informational meeting between Hub site and Spoke site
- Spoke site to sign and submit collaboration letter to Hub site
- PECC to begin recruiting at least 1 nurse and 1 physician to participate in 12-week pediatric program
- PECC to collaborate with Hub site to schedule week 1 **AND** week 12 sims

Phase II

- PECC to collaborate with Hub team to plan simulation day running three cases (anaphylaxis, status epilepticus, and precipitous delivery in the ED)
- PECC will distribute learner knowledge and comfort survey to learners **PRIOR** to the simulation.
- PECC will complete PECC Survey prior to the simulation and complete Peds Ready Score with hub site (in person or virtually over video conferencing platform)
- PECC will work with Hub team to execute simulation day
- A simulation day summary will be shared with the PECC 7-10 days after the simulation day

Phase III

- PECC will disseminate weekly distance learning to learner group in the ED. The schedule can be found below, as well as the PECC website (insert link here)
- PECC will meet bi-weekly with Hub site to check in, outline of meeting can be found below
- While not required there will be several additional educational opportunities for the PECC to provide to ED learner group. This will include content such as Virtual Resuscitation

Room, and additional online modules and videos. This will all be available on the PECC website. (insert link here)

PECC will receive a weekly report of learners who completed education and will follow up with those unable to complete

Phase IV

PECC to collaborate with Hub team to plan simulation day running three cases (anaphylaxis, status epilepticus, and precipitous delivery in the ED)

PECC will distribute learner knowledge and comfort survey to learners **AFTER** the final simulation.

PECC will complete PECC Survey after the simulation and complete Peds Ready Score with hub site (in person or virtually over video conferencing platform)

A comprehensive report out will be shared with the PECC by Hub site to share with team and leadership team

Schedule

Week	Activities	Link ***
1	Baseline simulations (3 cases) – WPRS	
2	Status epilepticus Pathophysiology Video	Week 2
3	Status epilepticus Video and Algorithm	Week 3
4	Status epilepticus podcast	Week 4
5	Status epilepticus choose your own adventure	Week 5
6	BREAK	
7	Neonatal Pathophysiology Video	Week 7
8	Neonatal Video and NRP Algorithm	
9	Neonatal podcast	Week 9
10	Neonatal choose your own adventure	
11	BREAK	
12	Follow-up simulation (3 cases) – WPRS	

PECC and Hub Site Bi-Weekly Check In

This is meant to be an approximately 15 minute check in every other week between the Hub site and PECC. Please use the guide below for the check in.

Hub Site:

Spoke Site:

PECC:

1. What are any facilitators you experienced this week related to the education provided?
2. What are any barriers you experienced this week related to the education provided?
3. How many hours last week were spent on PECC activities? If able please break down below.
 - a. Education/Competency:
 - b. QI:
 - c. Patient Safety:
 - d. Policies/Procedures:
 - e. Equipment:
4. Any feedback to share from the learners?

J. IRB Approval Letter IU Expedited

11/11/21, 10:01 AM

Protocols

PROTOCOLS



APPROVAL LETTER

To: Abulebda, Kamal

Protocol #: 13250

Protocol Title: ImPACTS 3.0

Type of Submission: Initial

Level of Review: Expedited

Approval Date: Thursday, November 11th 2021

Expiration Date: no date provided

**If Expiration Date = "No date provided," this research does not require annual renewal; thus there is no expiration date.*

IRB-04 approved the above-referenced submission. Conduct of this study is subject to the IU HRPP Policies, as applicable.

Additional Notes:

This research is approved under the following expedited category:

- Category 7

Documents approved with this submission:

Attachments

Other	ImPACTS 3.0 Protocol for IRB (2).docx
Data Collection Instrument	Distance_Learning_Peds Ready Score PRS (1).docx
Data Collection Instrument	Distance_Learning_Knowledge_and_Comfort_Survey (1).docx
Data Collection Instrument	Pediatric_Emergency_Care_Coordinator_Survey (5).docx
Data Collection Instrument	Pediatric_Emergency_Care_Coordinator_Survey_Follow_UP (3).docx
Other	ImPACTS Study Orientation Sheet.docx
Study Information Sheet	ImPACTS 3.0 SIS 11.11.2021.docx

You should retain a copy of this letter and all associated approved study documents in your research records.

If you have any questions or require further information, please contact the HRPP via email at irb@iu.edu or via phone at (317) 274-8289.