

Pediatric Emergency Medicine Fellowship Overview 2021

Esther M. Sampayo, MD, MPH Kim Little-Wienert, MD, MEd Marideth Rus, MD, MEd





Welcome to Texas!









Pediatric Emergency Medicine Fellowship Program



Esther Sampayo, MD, MPH Co-Program Director



Kim Little-Wienert, MD, MEd Co-Program Director



Marideth Rus, MD, MEd
PEM- GH Combined Fellowship
Director
Associate Program Director

PEM at Baylor and Texas Children's

Fellowship began in 1992

51 PEM faculty, 6 POCUS faculty, GEMS, APPS

120 fellowship graduates across the country

Currently 18 fellows

EM and pediatrics trained

2021-Received 174 applications for 6 positions

Texas Children's Hospital

Main Campus

- 750-bed children's hospital
- 25,966 admissions in the most recent year
- 9,053 annual inpatient and 16,216 outpatient surgeries

Pavilion for Women

 Comprehensive obstetrics/gynecology facility focusing on high-risk births, fetal surgery

West Campus

· Community hospital in suburban West Houston

The Woodlands

· Community hospital in suburban North Houston

Legacy Tower

Critical care and surgical tower constructed in 2018



Feigin Center for Pediatric Research





Texas Children's - Main Campus

Main Fellowship Training Site

Emergency Center

- Level 1 pediatric trauma center
- Largest pediatric emergency center in the region
- 50+ beds (North, South)

Legacy Tower

High Acuity Operating Rooms

- 6 ORs for neurosurgery, orthopedics, plastic, transplant, general surgery
- Integrated MRI scanner
- Pediatric Intensive Care Units
 - 4 Pediatric ICU floors
 - Subspecialty PICUs including dedicated neuro-ICU and Surgical ICU
 - 84 large private PICU rooms
- Heart Center
 - 8 floors
 - 4 cardiac catheterization labs including integrated MRI scanner
 - 4 cardiovascular ORs
 - 3 cardiovascular ICU floors with 48 private rooms
 - 2 cardiac acute care floors with 42 private patient rooms
- Helistop
 - Enables transport of critically ill patients



Texas Children's – West Campus

Community Training Site

Emergency Center

24 beds

Pediatric Intensive Care Unit

22 beds

Inpatient

46 beds









Texas Children's – Woodlands

Community Site

Emergency Center

20 beds

Pediatric Intensive Care Unit

14 beds

Inpatient

• 32 beds



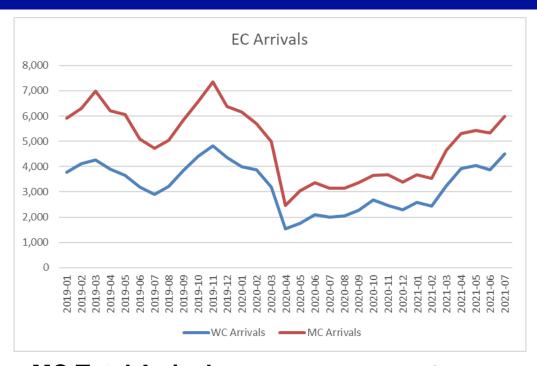
NICU Level 3

14





Medical Center Arrivals



MC Total Arrivals:

2016 75,009 2017 72,193 2018 69,851 2019 70,000

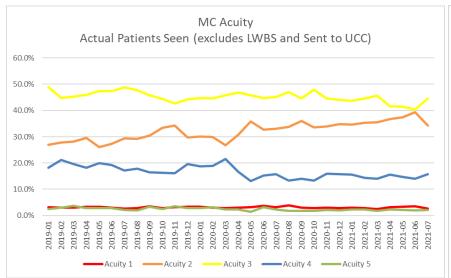
WC Total Arrivals:

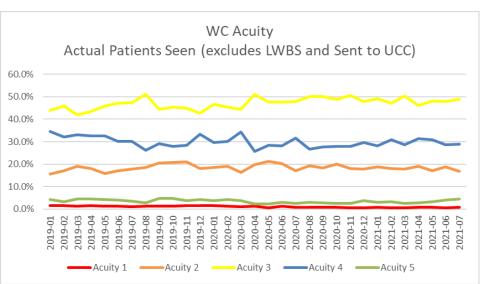
2016 45,355 2017 43,706 2018 43,250 2019 45,000

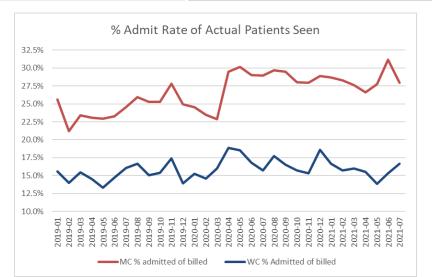




Patient Acuity







Goals & Objectives

Gain	proficiency in the clinical practice of pediatric emergency medicine (PEM)
Achieve	competency in educating other health care providers and families
Approach	everyday work in a scholarly way
Develop	familiarity with administrative issues
Prepare	for a career in PEM

PEM Fellowship Curriculum

Clinical practice

Teaching and consulting

Administrative training

Quality and performance improvement

Career development

Academics & Scholarship

Clinical practice



Provide ED evaluation and management of acutely ill or injured pediatric patients

- Perform patient evaluations quickly with stabilization of life threatening processes
- Develop competency in technical/procedural and resuscitation skills necessary to practice PEM
- Academic and community experience

Prioritize and simultaneously manage the emergency care of multiple patients

Use evidence based reasoning to guide clinical practice

Teaching and consulting

Achieve proficiency in teaching to different types of learners and in a variety of clinical settings

Teach at the bedside

- TCH main and WC (resident and med student supervision)
- Core medical student teaching shifts (1p-6p Tues)

EC rounds

Lead small and large group discussions

Prepare and present lectures

Become PALS instructors and/or simulation instructors

Administrative training

Acquire skills necessary for ED management

- Supervise physician trainees
- Manage personnel
- Serve as team lead during resuscitations
- Manage patient throughput



Dr. Deborah Hsu Section Chief, Pediatric Emergency Medicine

Practice appropriate medical record documentation

- Relay information regarding patient care delivered
- Document medical decision making processes
- Support billing for medical care provided

Gain exposure to financial management in health care

Develop leadership skills

Quality and Performance Improvement

Gain knowledge in quality improvement methods and data gathering

Conduct performance improvement review



Dr. Binita Patel, Medical Director Chief Quality Officer

Develop EBM guidelines

Identify patient safety or quality issues

Design and conduct a quality project





Career development



Create and revise individualized learning plan

Build on your CV

Receive & provide mentorship

Balance clinical and academic duties

Review principles of academic advancement

Create a 5 year plan

Gain awareness of job market demands

Get the job you want; choose the career path that's right for you

Fellowship Curriculum

Meets all requirements set forth by the American Board of Pediatrics and American Board of Emergency Medicine



First year curriculum – Peds trained

8.25 months PEM*

2 weeks pediatric anesthesia

1 week pediatric sedation

1 month PICU (Main and West Campus)

1 month adult emergency medicine- Memorial Hermann

1 month ultrasound

*Total ED Time at Texas Children's Hospital Main and West Campus = 950 Hours (approx 32 clinical hrs/week on PEM rotations)

First year curriculum – EM trained

7.75 months PEM*

2 weeks pediatric anesthesia

1 week pediatric sedation

2 weeks child development (with child life)

1 month PICU (Main or West Campus)

1 month NICU

1 month pediatric cardiology

*Total ED Time at Texas Children's Hospital Main and West Campus= 950 Hours (approx 32 clinical hrs/week on PEM rotations)

Second year curriculum – Peds trained

9 months PEM*

2 weeks orthopedics

2 weeks toxicology

2 weeks child protection

1 month trauma— Memorial Hermann

*Total ED Time at Texas Children's Hospital Main and West Campus= 1150-1200 Hours (approx 32 clinical hrs/week on PEM rotations)

Second year curriculum – EM trained

9.5 months PEM*

1 month pediatric infectious disease or neurology

1 month elective

2 weeks child protection

*Total ED Time at Texas Children's Hospital Main and West Campus= 1150 Hours (approx 32 clinical hrs/week on PEM rotations)

Third year curriculum – peds trained

8.25 months Research (Extra hours experience)*

2 weeks anesthesia

1 month elective

1 month EMS

1 month adult emergency medicine- Ben Taub General Hospital or Memorial Hermann

1 week radiology

Finish in July whatever required clinical hours not completed in years 1 and 2; otherwise no required ED shifts; Extra hours experience available to maintain clinical skills (approximately 60 clinical hours/month)

Extra hours experience

Clinical opportunity offered only to fellows in their 3rd year of training

Successful completion of all PEM ED clinical requirements

Opt to take this opportunity to maintain clinical skills during a primarily research year of their fellowship

Placed as second attending in TCH North/South and West Campus

Moonlighting rates apply

All Fellows

Complete 2136 clinical hours in the PEM ED setting in first 2 years of fellowship

TCH
Main EC

- Weekdays: 6a-2p, 2p-10p, 6p-2a, 10p-6a
- Tues medical student teaching shifts: 1p-6p
- Weekends and holidays: 6a-4p, 4p-2a, 8p-6a

TCH
West Campus

- Weekdays: 3pm-11pm
- Weekends and holidays: 3pm-1am

PEM Rotations

Combined clinical and research time for fellows, based on a 50 hour work week

Pediatric trained fellows

- 1st year & 2nd year 65% clinical and 35% research
- 3rd year 25% clinical and 75% research if they choose to take the Extra Hours Experience; 100% research if approved not to take the Extra Hours Experience.

Emergency medicine trained fellows

- 65% clinical and 35% research both years.
- Given the time constraints modifications to the requirement of scholarly activity during fellowship are made based on individual fellows' needs and interests.

PEM-Global Health Combined Fellowship



Fully integrated four year fellowship with 36 months PEM and 12 months GH

Fellows graduate both programs at the end of 4 years

Rotation schedule is modified to include 2-4 months per year of global health time

Some rotations will be delayed to the following academic year

Scholarly project focused on global health

PEM-Global Health Fellowship



Dr. Marideth Rus, Director, Global Health Fellowship



Diploma in Tropical Medicine & Hygiene (DTMH) +

Public Health Certificate

+
Master of Public Health
(MPH) Diploma
or
Other approved
advanced degree

DTMH

MPH Diploma or Other approved advanced degree

PEM-Global Health Combined Fellowship

PEM/GH Year	<u>Curriculum</u>
PEM/GH Year 1	6 months PEM *
	• 2 months GH
	 2 week anesthesia
	• 1 week sedation
	• 1 month PICU
	1 month adult EM
	 1 month POCUS
PEM/GH Year 2	• 6.5 months PEM/Research
	• 3 months GH
	• 2 weeks orthopedics
	2 weeks toxicology
	 2 weeks child protection
	• 1 month trauma
PEM/GH Year 3	 4.75 months PEM/Research
	•~1.25 months Research (EHE)
	• 3 months GH
	2 weeks anesthesia
	 1 month emergency medical systems
	• 1 month Adult EM
	• 2 weeks toxicology
PEM/GH Year 4	• 6.75 months Research (EHE) *
	• 4 months GH
	• 1 week radiology
	• 1 month elective

Electives

4 weeks of elective(s) required

- Administrative elective
- Adolescent medicine/gynecology
- Adolescent medicine/sports medicine
- Dermatology
- Global health- Malawi, Belize



- Neurosurgery
- Ophthalmology
- Otolaryngology
- Pediatric Dentistry
- Plastic/Hand Surgery
- Pediatric Injury
- Quality and Safety
- Simulation
- Create your own elective



Academics: Conferences and Lectures

PEM conference Thursday 9am-1pm

Clinical protection Wed overnight and Thurs morning

Conferences which you will present or require your preparation:

- Quality and Performance Improvement (M&M)
- Board Review
- Fellow lectures
- Fellow's follow-up rounds
- Radiology Rounds
- National conference presentations



Conferences Series-24 month Curriculum

- July core clinical lectures/workshops
- Administrative
- Allergy/Immunology
- Cardiology
- Child Protection -
- Endocrine
- EMS/Disaster medicine
- Ethics
- Hematology series















Conferences Series-24 month Curriculum

- Gastroenterology
- Global Health
- Neurology
- Obstetrics and gynecology
- **Orthopedics**
- **PEM Joint Conferences**
 - Critical Care Medicine
 - Hospital Medicine
 - CVICU

- Plastic Surgery
- Psychiatry
- Quality
- Radiology
- Renal
- Sports medicine
- Surgical
- Trauma
- Toxicology







PEM Domains of Interests

Information technology

Disaster preparedness









Observation medicine



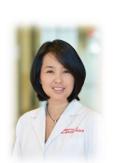
Sedation and pain management



Education



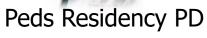
Simulation Director



PEM Chief

























PEM Domains of Interests

□ Airway



Customer Service and Communication









EMS











PEM Domains of Interest

□ Asthma



Diversity



Bronchiolitis

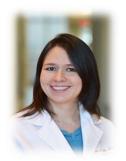


Ultrasound (Team Grayscale)



Handoffs, Technology







Global Health



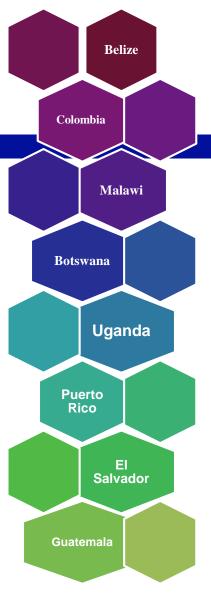
















PEM Point-of Care Ultrasound

One month Ultrasound rotation during first year

- PEM
- Adult EM
- Radiology
- Cardiology

Ultrasound during your core PEM shifts and adult EM shifts

Ultrasound research

Ultrasound fellowship





Dr. Kiyetta Alade, Director PEM POCUS



Dr. Stephanie Leung POCUS Fellowship Director

POCUS Training

- POCUS training required for PEM fellow graduation
 - 1) 150 scans by fellowship completion
 - 2) 10 proctored scans with ultrasound faculty
- POCUS training completion by March of 2nd year allows for ultrasound privileges as 3rd year "pretendings"





PEM simulation





Involving all fellows:

- PEM fellows simulation days
- RCDP for first years
- EC in-situ simulation
 - Full teams, 4/month, unannounced
- Procedural teaching
 - Central lines
 - Chest tubes
- SCOPE
 - July



Good to know about:

- Resident and nursing resuscitation/ PALS training
 - Thursdays after conferences
- Trauma simulations for first years
- Medical students
 - During core rotation, sim for procedural training
- Pre hospital training
 - Pediatric resuscitation for HFD providers, twice monthly for 2 years, trained over 1200 providers
- Global Health
 - Pre-departure training for residents and BIPAI physicians





PEM outreach and service







PEMPOCUS

American Academy of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN®

PEM Research



Scholarship

Critically assess scientific merit of research protocols & publications

Gain knowledge in basic clinical epidemiologic principles & biostatistics

Explore non-traditional avenues for demonstrating scholarship

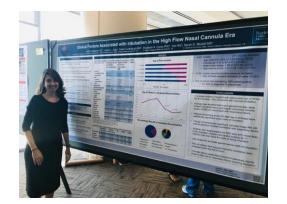
Design & conduct a hypothesis driven scholarly project

Analyze & interpret data

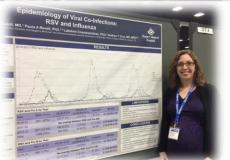
Acquire knowledge in grant funding mechanisms

Attain and hone writing skills

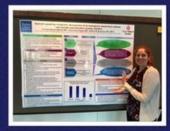
Baylor College of Medicine

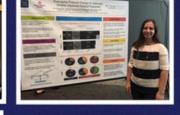


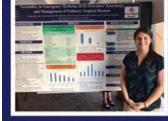


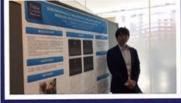








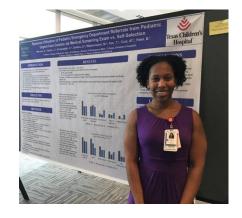


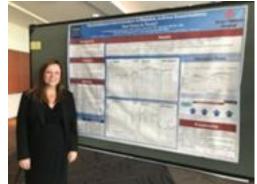












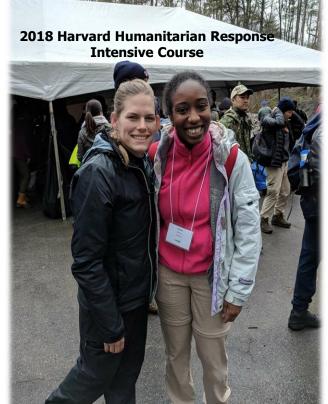


QI PROJECT IMPROVES PREHOSPITAL PROTOCOL COMPLIANCE











Micheal Arroyo:

Best original research award and platform presentation at the Injury Free Coalition for Kids Conference, December, 2019, Ft. Lauderdale, Florida



Asha Morrow 2019 Best and Outstanding Center of Excellence Clinical Fellow Scholar Award



Texas Pediatric Society E-Poster Contest Winners
Bryan Greenfield and Abhay Kulkarni

FIRST PLACE for your poster in the Evidence Based Medicine/QI category:

#60minutes: Improving Timeliness of Antibiotic Delivery to Patients with Febrile Neutropenia





How Are Academic Skills Developed in PEM Fellowship?

Meeting	Why	When
ACER	Project specific guidance from time of initiation	Thursdays year round
Journal club	In depth review of single recent article; fellow-led	1 st Thurs
Topics in Research	Rotating topics (q2-3 yrs) presented by faculty	1 st Thurs
Literature Review	Review of recent hot articles and historical PEM topics	Quarterly
Progress in Research	Updates on research progress, obstacles	Quarterly
Scholarly oversight committees (SOC)	Help fellow track progress, meet benchmarks	Semi- annually





The policy control deposed.

Topics in Research Series: 2020-2021 Schedule

Date (Time:12p- 1p)	Track 1 (Meeting Locations Listed Below)	Track 1 Presenter	Track 2 (PEM Large Conference Room)	Track 2 Presenter
Aug 6, 2020	Feigin Tower Conf Room FC 01A Question Development Workshop (Homework)	Singh/ Ashby	Stats III (Homework)	Meskill and Camp
Sep 10, 2020	Literature Search Workshop (Homework: Complete 2 CTIT training courses and turn in certificates) (Bring Laptop)	Chumpitazi	Abstract Workshop (Homework)	Singh (Lead) and faculty*
Oct 1, 2020	Pavilion for Women Conference Rm B/C Literature Appraisal	Shah	Navigating Rocky Research Waters	Sampayo
Nov 5, 2020	Pavilion for Women Conference Rm D/E IRB Navigation	Cruz Gonzalez	Writing Workshop #2 (Homework)	Shah (Lead) and faculty*
Dec 3, 2020	Feigin Tower Conf Room FC 01A Study Design/Stats I (Homework)	Meskill	Educational Research	Doughty
Jan 7, 2021	PEM Education Rm A210 Study Design/Stats II (Homework)	Meskill and Camp	Poster Preparation Workshop (Homework)	Bachim and faculty ⁴
Feb 4, 2021	PEM Education Rm A210 Scientific Presentation Skills Workshop	Cruz	Presenting at Conferences: Poster and Elevator Pitch Workshop (Homework)	Ashby and faculty®
Mar 4, 2021	PEM Education Rm A210 Qualitative Research Pt. 1	Sampayo	Writing Workshop #3 (Homework)	Cruz (Lead) and faculty
Apr 1, 2021	PEM Education Rm A210 Writing Workshop #1 (Homework)	Chumpitazi (Lead) and faculty*	Qualitative Research Pt. 2	Sampayo
May 6, 2021	PEM Education Rm A210 Survey Methodology	Sampayo	Writing Workshop #4 (Homework)	Doughty and faculty*
Jun 3, 2021	PEM Education Rm A210 Data Collection and Quality	Shenoi J Jones	Case Report Workshop (Homework)	Meskill (Lead) and faculty*





Advisory Committee on Excellence in Research (ACER)

Small group setting where faculty focus on thorough development of research projects

Faculty with expertise in quantitative and qualitative research, education, quality improvement, and global health

Receive written and verbal feedback on:

- Study question
- Study design
- Analysis plan

1st year fellows required to attend 4 sessions





Journal Club & Literature Review

Journal Club

- Purpose: To learn critical appraisal skills
- Review recent paper from past 2 years

Literature Review

- To review classic PEM articles
- To review recent 'hot off the press' articles that have been published within the past 6 months





Faculty & Research Mentor Roles

Mentor

- Attend journal club, fellow lecture, follow-up rounds and QPI presentation for mentee
- Give quarterly feedback to mentee on clinical/academic performance

Research Mentor

- Participate in ACER sessions with fellow
- Review the fellow's proposal prior to submission to ACER
- Review the fellow's IRB prior to submission
- Review abstracts and manuscripts prior to submission

Both

- Š
- Review posters and slides prior to presentations
- Attend 2 SOC meetings per year



Other Scholarly Activities

Case submissions (PEMPix, EmergiQuiz, Case Reports)

Participation in National PEM Fellows' Conference

Feedback on presentations for conferences

Career workshop in July

Final year career planning at orientation

BCM Fellows' Day abstract presentations

Other Activities (Optional)

Career dinners

Advanced degrees (MPH, MBA, MEd, Master's Clinical Research)

Writing book chapters or review articles

Teaching residents, medical students, paramedics

Evidence-Based Medicine course

Serving on section or hospital-wide committees











PEM RESEARCH STRUCTURE

Research Chief





Research Assistants

Academic Associates

PEM Section Support Staff

- Epidemiologist and database manager
- Biostatistician
- Accountant





PECARN



Conducting High Priority, High-Quality Research in Pediatric Emergency Care

National PEM research network, 18 sites

TCH is a member site

Enables multicenter studies:

- Decision rules for CTs after head injuries
- DKA
- Meningitis prediction rules
- Multiple publications





Research: ongoing studies

PECARN

- C-spine prediction (Rubalcava)
- Arginine for sickle cell VOC (Chumpitazi

 resubmission pending)
- Identification of pulmonary emboli (Chumpitazi – submission pending)
- Febrile baby study
- Screening for sexually transmitted infections in the ED
- Non-operative management of appendicitis (planning grant)
- Infections in solid organ transplant recipients (Cruz = study PI, nodal study)
- Interobserver agreement in historical and examination variables for headaches (Cruz = site PI)

PEM CRC

- Submersion (Shenoi = study PI)
- IBIs in acute otitis media (Cruz = senior PI)
- HUS (Cruz = site PI)
- HSV (Cruz = Study PI)
- Omphalitis/mastitis (Cruz = site PI)
- Short gut and CLABSI (Cruz = Co-I)
- Survey competition (quarterly)

PERN

- Medical errors (Lewis)
- Influenza (Meskill)

Industry

- New drug for sickle cell VOC (Chumpitazi)
- Smart cough (Sampayo)
- Bluetooth monitoring of vital signs
- New diagnostic platforms for rapid strep
- Salivary biomarkers for traumatic brain injury

Current Single-Center Studies (just a sampling)

Quality improvement projects: intubation, pain control in sickle cell patients, resuscitation/communication, appendicitis

Educational projects: ultrasound, simulation, rubrics, bad news delivery, e-learning

Global health: triage, resuscitation, simulation

Trauma: trampoline injuries, cognitive impact of mild traumatic brain injury, abuse in the NICU





Examples of Fellows' Studies 2016-current

Administration: Optimizing billing for procedural sedation in the ED

<u>Asthma:</u> Standing Delegation Orders and **Triage Steroids**, Evaluating the inter-rater reliability and validity of the CRS in asthma patients.

Bronchiolitis: High Flow Nasal Cannula and Intubation risk

Quality Improvement: Barriers to **Flu vaccination** Best practice advisory, MIXED METHODS, Sedation

<u>Disparities: RETROSPECTIVE</u> Pediatric submersions and safety violations in city swimming pools, Demographic Discordances Between Patient Reported and Electronic Medical Records

EMS: Prehospital administration of steroids, Mixed-methods study on adherence to **pediatric seizure protocols** QUALITATIVE, Weight Tools

<u>POCUS:</u> POCUS <u>inferior vena cava</u> (IVC) measurements to assess the severity of the patient's dehydration; "<u>Development and</u> Implementation of a Novel Point-of-Care Ultrasound Training for Pediatric Providers in Malawi" COVID and POCUS

<u>Global Health:</u> Pediatric tropical infectious diseases in emergency medicine utilizing the **MODIFIED DELPHI METHOD**, Healthcare Provider Attitudes Toward the **Emergency Triage System in Belize**

EDUCATION, SIMULATION- RCDP, Debriefing Tools, PEM Fellow Procedures; Essential components for debriefing pediatric residents returning from global health experiences

Infectious Disease: Neonatal FEVER, RRTs

Evaluations in PEM Fellowship

360 evaluations-peer, self, outside rotations, procedural, PEM

Progress monitored monthly, quarterly, and semi-annually

Evaluated on all core competencies for PEM

Moonlighting

1st years can start moonlighting after 2 quarterly evaluations cycles complete and competency ascertained

TX license, DEA and DPS numbers

Hospital credentialing papers and GME moonlighting approval must be obtained

Prior to completion of 2136 required clinical hours: moonlight only at non training sites

After completion of 2136 hours, moonlight anywhere

PEM Chief Fellows



Elizabeth Moran MD



Jeny Nirappil MD

PEMFellowChiefs@BCM.edu



CONTACT US

Pediatric Emergency Medicine Fellowship Program

Texas Children's Hospital

6621 Fannin Street, Ste. A2210 Houston, TX 77030



Esther Sampayo, MD MPH
Co-Program Director
emsampay@texaschildrens.org



Kim Little MD, MEd
Co- Program Director
kjlittle@texaschildrens.org



Marideth Rus MD, MEd
Associate Program Director
PEM-Global Combined Fellowship
Director
mcrus@texaschildrens.org





Margo LaTour mxlatour@texaschildrens.org 832-824-6309



Felecia Smith fasmith@texaschildrens.org 832-824-5399





