

PROGRAM INFRASTRUCTURE

FP.1.a The Simulation Program has an intentional and credible commitment to simulation specific fellowship activities

FP.1.a.i Describe how the fellowship activities link to the simulation program's mission and/or vision.

The vision and mission of the Center for Simulation and Research align with the purpose of having a Medical Simulation Fellowship. Our vision is "to be a center of excellence and innovation in simulation-based healthcare education, systems integration, and research." Our mission is to "promote quality patient care, enhance patient safety, improve multidisciplinary health care communication/teamwork, and advance the field of health care simulation through innovation and research" and goes on to say "the work of the center will draw from and positively influence the clinical environment, healthcare providers and patients." The fellowship heavily involves education of the fellow him/herself, while also requiring the fellow to become an educator within simulation, thus pushing us to excel and innovate (see example downloaded in FP.1.a.ii below). Additionally, one fellowship requirement is the development of a training and/or assessment project within their clinical discipline, thus positively influencing their environment, peers and patients they care for. Having a fellow "pushes us" to expand our training, education, systems and research courses, forces us to be better educators, and allows us to grow as a center. These benefits in turn impact our work with content experts, facilitators and participants in all of our courses, not just the ones involving the fellow.

FP.1.a.ii Provide an example of how you align the Fellowship Program activities to the fellowship and simulation program mission and/or vision. simulation educational activities.

[FP.1.a.ii example of alignment of the Fellowship Program activities to the simulation program mission and-or vision.pdf](#)

FP.1.b. The Fellowship Program has an established record of organizational support.

FP.1.b.i Describe how the governance structure including people or committees that provide oversight and/or advisory functions to the Fellowship Program.

This 1-year fellowship was conceived and developed in 2017, then approved by our institution's Graduate Medical Education office in 2018. Similar to other fellowships at our institution the Medical Simulation Fellowship falls under their infrastructure and guidance. The Fellowship has a dual governance structure, whereby the fellow's academic effort falls under the Center for Simulation and Research and the fellow's clinical effort falls under the clinical division the fellow works within.

Within the Center for Simulation and Research, there are four faculty members that provide oversight to the fellow. The main source of oversight and mentorship is provided by the Program Director. Additionally, the Senior Operations Director, the Research Director and one of our Education Consultants work within this faculty group. The Operations Director advises the fellow on the administrative tasks and responsibilities inherent with running a simulation center. She partners with our operations team, including an administrative assistant and two simulation technicians, to make sure the fellow has insight into daily and annual center operations (purchasing, equipment, budgeting, etc.). The Research Director meets with, advises, and (depending on the chosen project) mentors the fellow on research performed within both the center and the fellow's academic project. The Education Consult, as a Certified Healthcare Simulation Educator with a Master's Degree in Education, meets with and advises the fellow on educational and adult learning theories. That said, the Program Director is ultimately responsible for the fellows education, training, project development and evaluation. The Program Director also collaborates with the fellow's clinical division director, both in recruitment and in evaluation.

Within the fellows clinical specialty, the Division Director of that specialty provides direct oversight and evaluation of the fellow's clinical skills and patient care responsibilities. Please see the Organizational Chart uploaded below in section FP.1.b.iii.

FP.1.b.ii Describe how the lines of authority of the Fellowship Program link to the Simulation Program.

The overall structure of the Center for Simulation and Research is built by four working groups: operations team, education team, research team and digital experience team. The operations team is led by the Operations Director and includes our administrative assistant and simulation technicians. The education team is led by the Medical Director and includes our eleven four education consultants and seven education specialists. The research team is lead by the Research Director and includes a research associate, as well as the research infrastructure (research

manager, statisticians, data manager, and research coordinators) within the Division of Emergency Medicine. The digital experience team is led by our Associate Director of Digital Experience/Media Lab and includes six applications developers. Overall, these four directors make up the leadership team and meet monthly. Within the education team, leadership is made up of the four educational consultants, the Medical Director and the Operations Director. This group also meets monthly. As you can see, the four fellowship faculty members provide a direct link between authority within the Simulation Program and authority within the Fellowship.

FP.1.b.iii Provide the organizational chart that demonstrates the Fellowship Program's organization and structure including lines of authority within the program and within the organization.

[FP.1.b.iii Org Chart - Medical Simulation Fellowship.pdf](#)

FP.1.c The Fellowship Program is financially stable.

FP.1.c.i Describe the funding process for the Fellowship Program.

Funding for the fellow's salary and benefits comes from the clinical division where the fellow dedicates 50% FET to bedside care. The Center for Simulation provides funding for the fellow to attend an academic meeting (e.g., International Meeting for Simulation in Healthcare, International Pediatric Simulation Symposia and Workshops) during their 1-year fellowship. This funding mechanism directly benefits the fellowship and provides stability annually. It also benefits the clinical division, as the fellow fills a 0.5 FTE clinical role and is a billing provider within our institution. This funding structure was approved by our GME office, supported by the institution, and has been viable over our first three years offering this training opportunity, even within the constraints of the COVID-19 pandemic.

FP.1.d. The Fellowship Program has simulation fellowship specific policies and procedures.

FP.1.d.i Provide Fellowship Program specific policies. These should include at a minimum, the policies/procedures listed below:

The fellowship falls under the same policies and procedures that are applicable across the Center for Simulation and Research. However, there are additional policies and procedures required given the unique nature of this position as follows:

Fellowship Recruitment, Interviewing and Selection (uploaded as FP.1.d.i.1 below)

Training and Evaluation of Medical Simulation Fellow (uploaded as FP.1.d.i.2 below)

FP.1.d.i.1 Fellowship Program recruitment

[FP.1.d.i.1 Fellowship Recruitment, Interviewing and Selection.pdf](#)

FP.1.d.i.2 Fellowship Program outcome/expectations

[FP.1.d.i.2 Training and Evaluation of Medical Simulation Fellow.pdf](#)

2. PROGRAM RESOURCES

FP.2.a The Simulation Program has a designated individual responsible for providing oversight of the Fellowship Program.

FP.2.a.i Provide job description and/or other descriptive documents for the individual.

[FP.2.a.1 Job description Professor CCHMC.pdf](#)

FP.2.a.ii Provide the biosketch for the individual

[FP.2.a.ii NIH Biosketch Geis GL May 2021.pdf](#)

FP.2.a.iii Describe how the individual is qualified for oversight of the Fellowship Program.

The Fellowship Program Director is our current Medical Director. He has been actively involved with medical simulation since 2001. He has formally been part of the Center for Simulation and Research since its inception in 2009, where he was in the role of Assistant Medical Director. In 2011, he became the Medical Director and has led the Center since that time. He has been responsible for recruitment of the current Operations and Research Directors, the growth of the Center from 20-plus courses to now 100-plus courses, and is part of the leadership team as described above, meeting with the other directors monthly and the education team monthly. In 2014, he developed a 2-4 week elective rotation for residents and fellows, got it approved by our institution's GME office and has been the rotation director since that time. In 2018, he developed the fellowship including securing funding and faculty, got it approved by our institution's GME office and has been the Program Director since that time. He has successfully recruited one fellow per year over the last three academic/fiscal years and has secured a fellow

for FY '22 (July 2021-June 2022). Academically, he has personally developed over 30 simulation-based training and assessment courses, has been funded at the federal R-level three times on simulation-based investigations (twice as a Co-I, once as the PI) and received some amount of funding for more than 10 simulation-based projects, and now has over 20 publications on simulation-based training or assessment. He has mentored medical students, residents, fellows, faculty and nurses through multiple simulation projects, including being on the dissertation committee for a recent PhD graduate at the College of Nursing. Currently, he has 6 formal mentees across Emergency Medicine, Critical Care, and Anesthesiology, as well as collaborative research and quality improvement relationships with Endocrinology, Critical Care and Emergency Medicine. Finally, he is a PALS and ATLS instructor, as well as a former ACLS and HBB instructor. This collective 20 years of experience in medical simulation, proven track record in course and program development, and diverse skill set across education, research and quality improvement qualifies him for oversight of our Medical Simulation Fellowship program.

FP.2.a.iv Describe how the individual has dedicated time to meet the need of the program.

The Medical Director has 0.4 FTE supported by Medical Operations and 0.1 FTE supported by the Division of Emergency Medicine dedicated to the Center for Simulation and Research. This combined 0.5 FTE allows him to dedicate time to all of his simulation-related roles and responsibilities, including being the Fellowship Program Director. This amount of dedicated simulation effort has been shown effective over the first 3 years of the fellowship.

FP.2.b. The Fellowship Program has adequate faculty/educators/subject matter experts to support its mission/vision.

FP.2.b.i Describe the duties of the faculty/educators/subject matter experts roles and responsibilities

As noted above, within the Center for Simulation and Research, there are four faculty members that provide oversight to the fellow. The main source of oversight and mentorship is provided by the Program Director (Dr. Geis). Additionally, the Senior Operations Director, the Research Director and one of our Education Consultants work within this faculty group. The Operations Director (Ms. Gardner) advises the fellow on the administrative tasks and responsibilities inherent with running a simulation center. She partners with our operations team, including an administrative assistant and two simulation technicians, to make sure the fellow has insight into daily and annual center operations (purchasing, equipment, budgeting, etc.). The Research Director (Dr. Kerrey) meets with, advises, and (depending on the chosen project) mentors the fellow on research performed within both the center and the fellow's academic project. The Education Consultant (Ms. Marshall), as a Certified Healthcare Simulation Educator with a Master's Degree in Education, meets with and advises the fellow on educational and adult learning theories, and is a content-matter expert on debriefing. This 4-member faculty group is ultimately responsible for the fellow's education, training, project development and evaluation. Dr. Geis's biosketch is uploaded above, then Ms. Gardner, Dr. Kerrey and Ms. Marshall's biosketches are combined and uploaded below in FP.2.b.ii.

FP.2.b.ii Provide accreditation biosketches for all faculty/educators subject matter experts.

[FP.2.b.ii Combined biosketches for Sim Fellowship Faculty.pdf](#)

FP.2.b.iii Provide a brief narrative that describes how each is qualified for their position, including any applicable certifications, experience and expertise.

In addition to the Fellowship Director, Dr. Geis, the other three named faculty for the fellowship are Aimee Gardner, Benjamin Kerrey and Cheryl Marshall. Here is a brief description for each regarding background and qualifications:

2021 marks Aimee Gardner's 22nd year at Cincinnati Children's Hospital. Aimee began her career at Cincinnati Children's during her undergraduate studies. She was a research assistant in the Emergency Department. Upon completion of her perfusion boards (CCP), Aimee joined the Cardiothoracic Surgery Team. Areas of interest during this time were fetal surgery, ultrafiltration techniques, infection reduction and aortic arch reconstruction. In 2009, Aimee joined the I3 efforts (Intraoperative Improvement Initiative) focusing on patient safety in the operating room. With the pediatric increase use of mechanical assist devices in 2010, Aimee ventured into the creation of a ventricular assist device/artificial heart program as a Clinical Practice Leader. Her focus was on the program operation and patient management, including institutional and patient education. Aimee developed novel techniques to educate staff and patients. This included simulation. A passion for simulation and education developed, and Aimee was asked to be the director of the Center for Research and Simulation at Cincinnati Children's in 2015. Passionate about patient safety and spreading simulation education throughout Cincinnati

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

Benjamin Kerrey, MD, MS, is a Professor of Pediatrics through the University of Cincinnati College of Medicine and a faculty physician in the Division of Emergency Medicine at Cincinnati Children's Hospital Medical Center. He has been an attending physician in Pediatric Emergency Medicine since 2008. Over the last 13 years, he has precepted a large number of medical students, pediatric and emergency medicine residents and pediatric emergency medicine fellows. He has formally mentored 12 medical students, pediatric residents, or pediatric emergency medicine fellows, with all completing their scholarly projects and almost all both publishing a relevant paper and giving a presentation at a national meeting. He has been the Research Director at the Center for Simulation and Research since 2011. During that time, he has mentored/co-mentored numerous fellows on their scholarly work, including all of the Center's simulation fellows. He has helped to develop numerous simulation based training and assessment courses. He has been funded several times for research projects, including projects relevant to education and training. He has 50 peer-reviewed publications, with many focused on simulation, education and training, or both.

Cheryl Marshall, MSN, RN, CHSE is a consultant in simulation education and has been with Cincinnati Children's Hospital Center for Simulation and Research since January 2014. She earned her CHSE in 2016 and was the first team member at the center to do so. She currently supports the simulation program at CCHMC's satellite campus in Liberty Township, OH full time. In her role at CCHMC she collaborates with various hospital units to provide interprofessional simulation training, has partnered with local nursing schools and the University of Cincinnati Medical School to provide interprofessional TeamSTEPPS training and simulation experiences to student nurses and third year medical students, and leads STEAM classes for local high school students. In addition, she provides pediatric simulation training to the Liberty Township Fire Department first responders. She began her nursing career at The Lindner Center for HOPE in Mason, OH and then transitioned to the Cardiovascular Stepdown Unit at The Jewish Hospital, Cincinnati, OH. Her career in education began as a kindergarten teacher.

FP.2.b.iv Describe how the Fellowship Program has access to faculty/educators/subject matter experts to support the mission/vision of the Fellowship Program

The Center for Simulation and Research is mainly housed at the Oak Campus, with offices in both the Oak building and the MERC building. The fellow has dedicated office space in the MERC building, as does the Fellowship Program Director, Senior Operations Director and Research Director. The Education Consultant has her office space on the Liberty Campus, but is onsite at the Oak Campus monthly, including dedicated time for the monthly staff meeting. The fellowship has a dedicated meeting schedule providing direct access to faculty. Additionally, the fellow has access via Microsoft TEAMS, ZOOM, email, text and phone to all of the faculty.

FP.2.b.v Describe how the faculty/educators/subject matter experts are oriented to their roles

The fellowship's faculty roles pre-date the development of the formal fellowship in 2018. As noted in our job description document, since 2009 the Center for Simulation and Research has offered an informal training experience for subspecialty fellows in the divisions of critical care, emergency medicine and neonatology. This grew out of a combined interest from the individual fellows and the educators and directors at the Center. These eight physicians continued their clinical, educational and training requirements within their divisions, but as time allowed they spent time at the Center to develop educational and research interests in medical simulation. Additionally, one practicing pediatric emergency medicine physician from Brazil spent one year with us on a Proctor Scholarship to further develop his expertise in medical simulation, including the development, completion and publication of a research project. These informal relationships directly influenced the development of our current, formal fellowship and provided our faculty years of experience in their roles.

FP.2.b.vi Describe the ongoing evaluation and feedback process for Program faculty.

As part of the structured meeting schedule within the fellowship, the fellow has opportunity to give direct feedback to each faculty member. Additionally, as part of the biannual fellowship survey distributed to all Center staff members, they get a chance to both evaluate the fellow and the fellowship. The Fellowship Program Director organizes the survey feedback and uses it to iteratively improve the fellowship, including providing feedback to the faculty.

FP.2.c. The Fellowship Program has adequate staff to support its mission/vision

FP.2.c.i Describe the duties of the Program staff roles and responsibilities

As the fellowship is integrated into the Center for Simulation and Research, all of our staff participate in some facet of the fellow's 12-month training experience. An alphabetical listing of Center staff can be found on our website at the following IP address: <https://www.cincinnatichildrens.org/professional/support-services/simulation/about/team>. Currently we have 34 formal team members, including this current academic year's fellow. As noted above, the Center is organized into four main teams: operations, education, research and digital experience. Additionally we have an AHA Team led by one of our education consultants. This organizational structure allows the fellow access to simulation technicians, an administrative assistant, four education consultants, seven education specialists, a research associate and six applications developers specializing in virtual reality, augmented reality, artificial intelligence and 3D printing. Additionally, seven physicians have dedicated FTE at the Center representing Emergency Medicine, Critical Care, Cardiology and Hospital Medicine. The duties of our non-faculty staff include working with the fellow on a weekly basis within established simulation courses, supporting the fellow with equipment and supply needs, participation in the monthly journal club, providing informal and formal feedback to the fellow, and collaborating with the fellow in the development of new scenarios, sessions, courses and/or his/her chosen project. In FP.2.c.ii below is an uploaded document with bios based on our teams and leadership structure.

FP.2.c.ii Provide accreditation biosketches for all staff

[FP.2.c.ii Team Bios - Center for Simulation and Research.pdf](#)

FP.2.c.iii Describe how each staff is qualified to participate

As a member of the Center for Simulation and Research, each staff member has a defined job role and defined job responsibilities. Performance of these duties on a daily, weekly, monthly and yearly basis qualify each staff member to participate in the fellow's 12-month longitudinal training experience.

FP.2.c.iv Describe how program staff are oriented to their roles

Similar to the description above for faculty, a number of our staff were in place prior to development of the formal fellowship. For new staff members hired, we have a formal orientation process. Included in this process is spending dedicated time with the Medical Director to review topics such as introduction to medical simulation, scenario design, debriefing and course development. Part of each of these discussions is how these topics impact the fellowship and how the individual staff member can work with the fellow. These sessions are supplemented by the monthly journal club where all staff are invited to participate, both in the discussant role and the presenter role. Although integral to the fellowship, each month's session becomes a discussion relevant to all staff. These discussions further orient staff members to the academic portion of the fellowship and encourage them to partner with the fellow in exploring the use of simulation outside of our center.

FP.2.c.v Describe the ongoing evaluation and feedback process for program staff

As described in other sections of this application, each Center for Simulation and Research staff member is evaluated on an annual basis as required within our institution. This evaluation and feedback process is supervised by our Senior Operations Director, who is one of the faculty members of the fellowship. As part of the biannual fellowship survey distributed to all Center staff members, they get a chance to both evaluate the fellow and the fellowship. The Fellowship Program Director organizes the survey feedback and uses it to iteratively improve the fellowship, including providing feedback to the staff. Additionally, there is a placeholder on the monthly staff meeting agenda for "fellowship updates." This segment provides active discussion between the Fellowship Program Director and staff members.

FP.2.d The Fellowship Program provides access to a mentor(s) to support the fellow

FP.2.d.i Describe how the Fellowship Program has access to sufficient mentors to support the fellow

As described above, there is a formal mentorship infrastructure for the fellow provided by the Fellowship Program Director and Research Director. This infrastructure includes initial meetings with both directors, monthly meetings with the Program Director, quarterly meetings with the Research Director, and biannual and exit

meetings with the Program Director to review survey feedback. Also, as noted above, the fellow's office space is in the same building as both of these directors' offices. Additionally, as there are seven physicians with FTE at the Center, there is ample opportunity to establish mentorship outside of the directors. For example, during our 2nd fellow's training year she leveraged Dr. Matthew Zackoff's expertise in virtual and augmented reality platforms as a project mentor.

FP.2.d.ii Describe how mentors support the fellows

From an academic standpoint, the main mentorship provided by the directors and additional physicians surrounds the fellow's chosen longitudinal project. For our initial fellow (FY'19), Dr. Geis served as his main mentor on an IRB-approved project surrounding procedural training of prehospital providers on life-saving procedures of airway management and emergent intraosseous access. This project was awarded a Ohio State EMS grant, and was followed up just recently by a second institutional grant to expand the concept into remote training. For our second fellow (FY'20), Dr. Geis and Dr. Zackoff are serving as mentors on the IRB-approved project uploaded in FP.1.a.ii above. For our 3rd/current fellow, Dr. Kerrey and Dr. Geis are serving as mentors on a project involving in situ simulation to refine the rapid response process at Kentucky Children's Hospital/UK Healthcare. For the initial two fellows, this mentoring relationship extended well past the completion of their 12-month fellowship. This is one of the lessons we learned working with subspecialty fellows prior to advent of this fellowship: research projects are difficult to conceptualize, design, author, obtain approval and then complete within a 12-month time period. Thus, we expect to and have shown success in maintaining a mentoring relationship with our fellows after completion of their fellowship.

FP.2.d.iii Provide a list of the most active mentors (maximum of 10). Onsite reviewers will choose three (3) mentors to review.

As our fellowship is only 3 years since inception, the number of true mentors is limited at this time. Descriptions of the following three mentors for our past and current fellows is in the box above. A combined biosketch for all three is uploaded below in FP.2.d.iv.

Gary L. Geis, MD - Medical Director, Fellowship Program Director; Division of Emergency Medicine

Benjamin T. Kerrey, MD, MS - Research Director; Division of Emergency Medicine

Matthew Zackoff, MD, MED - Division of Critical Care

FP.2.d.iv Provide accreditation biosketches for your most active Fellowship Program mentors (maximum of 5)

[FP.2.d.iv Combined biosketches for Sim Fellowship Mentors.pdf](#)

FP.2.d.v Describe how each mentor is qualified as a content expert for their role, including any applicable certifications, experience and expertise

Each of the three physicians listed as fellowship mentors has an extensive history in research, medical education and mentorship of trainees and staff. Additionally, all three have collaborated on research projects as peers or in a mentor-mentee role. During Dr. Kerrey's emergency medicine fellowship and early in his years as an Assistant Professor, Dr. Geis was his primary mentor. During Dr. Zackoff's critical care medicine fellowship and now in his years as an Assistant Professor, Dr. Geis is filling a mentorship role. These ongoing mentoring relationships among productive academic physicians has built a great foundation for our fellowship's mentorship team.

FP.2.d.vi Describe how Fellowship Program mentors are oriented to their roles

The fellowship's mentoring roles pre-date the development of the formal fellowship in 2018. As noted in our job description document, since 2009 the Center for Simulation and Research has offered both training experiences and project mentorship for subspecialty fellows in the divisions of critical care, emergency medicine and neonatology. This grew out of a combined interest from the individual fellows and the Fellowship Program Director at the Center. The majority of these eight fellow-level physicians developed and implemented a simulation-based project during their time spent with the Center. Additionally, one practicing pediatric emergency medicine physician from Brazil spent one year with us on a Proctor Scholarship including the development, completion and publication of a research project. These mentorship relationships directly influenced the development of our current, formal fellowship and provided our faculty years of experience in this role working with trainees in pursuit of academic projects.

FP.2.d.vii The simulation program has a process to assure ongoing development and competence of its mentors, at least annually

As all three listed mentors are faculty within the Department of Pediatrics at the University of Cincinnati and Cincinnati Children's, it is an annual requirement that they are evaluated in the domains of (a) research and scholarly activities, (b) teaching and mentoring, (c) clinical activities, (d) service and citizenship, and (e) leadership and management. These evaluations are performed as part of the annual faculty evaluation process that

occurs each winter and are the responsibility of the division director for each faculty. As an example, in his 2020 annual evaluation Dr. Geis received a rating of "Exceptional Year" in teaching and mentoring.

FP.2.d.viii Document the ongoing evaluation and feedback process for program mentors

In addition to the formal evaluation of their mentorship within their clinical divisions, the Center for Simulation provides a feedback process for these mentors. As part of the structured meeting schedule within the fellowship, the fellow has opportunity to give direct feedback to the Program Director and the Research Director. Then, in the fellows exit interview in June of the training year, each fellow has the opportunity to reflect on his/her project and the guidance, advice and mentorship they received. Additionally, as part of the biannual fellowship survey distributed to all Center staff members, the fellows get a chance to evaluate the fellowship. The Fellowship Program Director organizes the survey feedback and uses it to iteratively improve the fellowship, including providing feedback to the other mentors. Finally, in academic medicine, one yardstick for effective project management and mentorship is scholarly output: abstract, invited presentation, manuscripts and grants. This will be important for us to use these outcomes as our fellowship matures. If we are falling short in academic output, it will give us a further chance to re-evaluate and revise our mentorship approach.

FP.3 EDUCATIONAL ACTIVITIES

FP.3.a The Fellowship Program is committed to providing high-quality learning activities according to simulation best practices

FP.3.a.i Provide the Fellowship Program curriculum

[FP.3.a.i Curriculum Medical Simulation Fellowship.pdf](#)

FP.3.a.ii Describe how the program links its simulation fellowship curriculum to the program's mission and vision.

The vision and mission of the Center for Simulation and Research align with the curriculum of the Medical Simulation Fellowship. Our vision is "to be a center of excellence and innovation in simulation-based healthcare education, systems integration, and research." All of these facets are included in the curriculum. Our mission is to "promote quality patient care, enhance patient safety, improve multidisciplinary health care communication/teamwork, and advance the field of health care simulation through innovation and research" and goes on to say "the work of the center will draw from and positively influence the clinical environment, healthcare providers and patients." Pertinent to the last line of the mission statement, our fellow's curriculum is tied to them working as a clinician for 50% of their effort and requiring them to focus their project within their area of clinical work. We find that including this requirement both allows and forces the fellow to positively influence their clinical unit, their peers and their patients, both within their project and in their future work as a simulationist after fellowship.

FP.3.a.iii Describe the process used to identify learning objectives/outcomes for the Fellowship program

As noted in the attachment uploaded in FP.3.a.i, our fellowship program has the following learning objectives. By the end of the training year, the fellow will independently be able to:

1. Demonstrate significant knowledge and skill in the application of varied high- and low-fidelity training manikins and supporting equipment
2. Develop, pilot and implement simulation-based medical education (SBME) scenarios within training and/or assessment courses
3. Demonstrate significant knowledge and skill in simulation facilitation, including verbal and video-based debriefing
4. Apply assessment tools and programs for procedural skill training, with a focus on deliberate practice to mastery learning
5. Evaluate the implementation and delivery of SBME courses at the learner and/or team level
6. Develop a SBME research question into a longitudinal project, ideally approved by the institution's review board, including assessment of the project's impact on learners and/or patients
7. Apply audiovisual recording and other technologies to enhance SBME training and/or research programs
8. Train, advise and evaluate educators in SBME principles, including resident and fellows during their 2-week rotation
9. Demonstrate baseline knowledge and skill in areas of simulation center operations, including course intake and evaluation, course scheduling, and SSIH accreditation process and requirements
10. Demonstrate the ability to advocate for and promote the use of SBME within the institution

These learning objectives were developed initially in 2018 and have been iteratively revised since that time based on feedback from fellows, our staff and our directors. They were initially selected based on a combination of our

years of experience in medical simulation, published literature, and feedback from experts in simulation outside of our Center. The Program Director has done benchmarking with other simulation fellowships, ones which are established and ones which are in development. We feel the learning objectives are feasible, impactful and reflect the needs of a simulationist at this level.

FP.3.a.iv Describe how the educational activities of the Fellowship Program are designed.

The educational activities of the fellowship fall into these main categories:

1 - Self-training: The fellow is expected to spend time on his/her own reading published manuscripts, texts and articles related to simulation-based training and assessment. A reading list is generated through the Program Director via 1-on-1 sessions and journal club, but the fellow is also expected to do a literature search specific to his/her identified project and any sessions they develop for learners.

2 - 1-on-1 training sessions: The fellow will have individual sessions provided by Center staff focused on topic areas identified in the learning objectives. Examples of this are 1-on-1 sessions with the Program Director on scenario design and course development, with the Education Consultant on debriefing and facilitation, and with the Research Director on outcomes and measures.

3 - Team-based training sessions: Each month the Center sets aside one protected day for scheduling, staff meeting, staff training and journal club. In addition, when sessions are available from vendors we have our fellow attend. Finally, the fellow is expected to attend our internal facilitator course.

4 - Direct involvement with simulation and debriefing sessions: This is the daily, "on the ground", foundational educational activity of the fellowship. As detailed in the curriculum document, the fellow is expected to advance from observation to partnership to leadership in the sessions over the course of the year. As we use with our learners during and after sessions, one key method of training for our fellowship is experiential learning. Continuing to experience, self-reflect, identify performance gaps, conceptualize, practice, experiment and improve through the development, implementation and delivery of simulation sessions allows our fellow to best learn simulation.

5 - External learning: We highly encourage, and financially support, each fellow attending a national simulation conference during their training year and pursuit of certification as a CHSE.

FP.3.a.v Provide documentation of simulation fellowship customized/individualized activities in any of the following areas: e.g., Education, Technology, Administration, Research (maximum of 3)

[FP.3.a.v Three fellowship educational activity examples.pdf](#)

FP.3.b There is a documented process for orienting new fellows.

FP.3.b.i Describe the orientation process for new fellows

The orientation process begins prior to July 1 each academic year through the execution of a Fellow Onboarding Checklist that, when completed, registers the fellow in MyHub, an online institutional HR system. This allows us to get all documentation for the fellow entered through the GME office, obtain a CCHMC employee badge, be entered in the payroll system, generate an email address, etc. Additionally, this enrolls the fellow into the orientation requirements, including a 2-day Fellow Orientation put on by the institution. Once the fellow has arrived and been through hospital orientation, the Program Director and administrative assistant (supported by the simulation technicians) onboard the fellow to office and lab space, office equipment, simulation equipment and wayfinding, including maps to the multiple training locations on the Oak, Burnet and Liberty campuses. The fellow then receives access to our internal drives, including Share Point, EMS database and Outlook scheduling calendar. The fellow has a dedicated office space with cubicle, desk, laptop, docking station, monitor, phone, whiteboard, locking cabinets and locking file drawers. By the end of the fellows initial week, he/she will have met in-person or virtually all staff members and be ready to start training.

FP.3.c. There is a documented process for assessing individual fellows

FP.3.c.i Describe the process for assessing individual fellows

As noted above, there is a process for fellow assessment/evaluation that (a) allows formative evaluation across the 12-month period, (b) ensures a summative evaluation occurs twice per year including an end-of-year exit interview and (c) allows every staff member of the Center to contribute to the assessment. The monthly meeting schedule (described in the uploaded curriculum document in FP.3.a.i above) allows the Program Director to continually assess how the fellow is feeling about the training, what areas of needs are identified by the fellow, and what performance gaps have been identified by the staff, faculty and mentors to date. Additionally, new in

FY22, the fellow will get feedback specific to debriefing skills using the OSAD in an iterative process by the Education Consult in the faculty group. Twice annually (late fall, late spring) the Program Director sends out a survey in REDCap to all staff members to prepare a summative evaluation and gain feedback across all domains in the Learning Objectives. After organizing the feedback, both quantitative and qualitative, the Program Director meets in person with the fellow and has the fellow self-evaluate in the same domains. They use the team eval and the self eval to identify training gaps and problem solve methods to close those gaps.

FP.4. Scholarship

FP.4.a. The Fellowship Program has a mechanism in place for the fellows to participate in scholarly activities that align with the mission and vision of the program.

FP.4.a.i Describe the process for fellows to participate in activities that demonstrate scholarship

As detailed in the job description, the fellow will have a project requirement during their 12 months of training. Specifically, the fellow is expected to develop an original project, including project conceptualization, protocol development, IRB submission (if indicated), enrollment of participants, measurement and analysis of outcomes, and manuscript development (if warranted). We recognize that this is difficult within a 1-year training program, however continued mentoring on our part after graduation should allow completion to manuscript. The fellow's research project will be mentored by Drs. Geis, Kerrey and/or Zackoff. The specific project will be chosen to maximize both feasibility and impact, as well as the educational value. As described in other sections of this accreditation application, in addition to our Research Director, Research Associate and Program Director, the fellow also has access to the research infrastructure within the Division of Emergency Medicine, including statistical support, research coordinators, the use of REDCap, a data manager and a research manager.

FP.4.a.ii Describe how the scholarship activities are evaluated in a systematic and routine manner

The fellow will meet at the beginning of the academic year with the Research Director to begin planning their scholarly project. Research meetings will then occur regularly throughout the year, with the Research Director reviewing all products of the scholarly project, including the study proposal/protocol, abstract, and manuscript. Additionally, the Program Director includes a "project update" section in each monthly meeting with the fellow to help assess progress and to help the fellow identify methods for improved efficiency and effectiveness, as needed.

FP.4.a.iii Provide a list of up to 5 scholarly/capstone projects completed by the fellows

FY19 fellow:

1. Internal project (mentor: Ms. Marshall) - In collaboration with one of our faculty members (Cheryl Marshall, education consultant) and one of our staff members (Brant Merkt, education specialist), the fellow, Dr. Sang Lee, developed, implemented and assessed a training process to evaluate debriefing skills within our own staff. They leveraged the monthly staff meetings to do a needs assessment of staff surrounding debriefing skills, introduced the OSAD tool, and trained the education team on video-based review of the OSAD to improve reliability in application of the tool. Ms. Marshall and Mr. Merkt, who are co-directors of our facilitator course, now use the OSAD as part of their course and to help continue facilitator training after the course. Additionally, the Program Director, Dr. Geis, has built on this project and formally uses their process to onboard and train facilitators within Emergency Medicine, Emergency Department and Resident Training courses.
2. External Project (mentors: Dr. Geis and Dr. Kerrey) - Dr. Lee authored a grant during his training year aimed at deliberate practice of airway management and intraosseous access with the targeted population being prehospital provided. The grant was awarded near the end of his training year by the Ohio State EMS Board. Since that time training has been completed with an urban, suburban and rural firehouse on the procedures of bag-mask ventilation, supraglottic airway placement and intraosseous catheter placement. Over 150 prehospital providers were enrolled across the three settings, generating almost 500 procedure videos which are currently being reviewed and data extracted.
3. External project (mentor: Dr. Geis) - Based on this initial project, Dr. Lee recently received an additional grant award from our institution to take his methodology and develop a "remote" training course for prehospital providers. That project will begin enrollment in summer 2021.

FY20 fellow:

4. Internal project (mentors: Dr. Geis and Dr. Zackoff) - Dr. Victoria Hartwell performed a needs assessment across clinical staff physicians, APRNs and senior pediatric residents surrounding minor procedural care in the Emergency Department setting. Based on that needs assessment, she developed, authored, gained approval for

and implemented a virtual-reality based training program to improve the performance of digital block anesthesia. Full study details are in the uploaded document in FP.1.a.ii above. Enrollment is complete, video reviewer training in compete and video review for data extraction is set to start in July 2021.

FY21 fellow:

5. External project (mentor: Dr. Kerrey) - Dr. Fredericks, our current fellow, spends his 50% clinical effort as a Critical Care Medicine attending physician at the University of Kentucky/Kentucky Children's Hospital. His project centers on the use of in situ simulation to evaluate and refine their Rapid Response Teams (RRT). This year, under the guidance of Dr. Kerrey and other faculty at Kentucky Children's, Dr. Fredericks used in situ simulation, a novel program this year at Kentucky Children's, to identify process, knowledge and skill deficits within the RRT process. To help, we have loaned Dr. Fredericks a Gaumard Simulator (Tory) and the supporting software, laptop and equipment to use at Kentucky Children's. One of the best outcomes to date has been his feedback about the use of this equipment "on his own" and how it has accelerated his learning in specific domains of simulation. This was a great lesson learned for our program. After completion of the needs assessment, a formal research project is being planned in FY22 at Kentucky Children's at which point Dr. Fredericks will assume the position of Pediatric Simulation Director in their institution.

FP.5 PROGRAM EVALUATION AND IMPROVEMENT

FP.5.a. The Simulation Fellowship Program has mechanisms in place for process improvement.

FP.5.a.i Document or describe the quality management and/or continuous improvement process

As described above in curriculum and evaluation portions of this application, we use a defined meeting schedule with faculty, the staff-wide survey-based evaluation, and staff meetings to continually evaluate, refine and augment the Medical Simulation Fellowship. Additionally, any course that has been developed by the fellows is placed into our course catalog and has a yearly quality assurance assessment as part of our Annual Review Process (ARP). An example is uploaded below in FP.5.a.ii. This is the ARP survey results for the EMS Curriculum Research course developed by Dr. Lee. This annual review and discussion was one of the driving forces for applying for the 2nd grant. Other examples of iterative changes in the fellowship include (a) revising the content of the annual journal club reading list, (b) adding the use of the OSAD to formally evaluate and improve the fellows debriefing skills and (c) providing the fellow with their own "in situ simulation" bin. This bin provides them with their own equipment, as well as guides for working all the computerized equipment and simulators from the various vendors. Most recently, we have benefited from loaning our current fellow a simulator (described above) towards advancement of his skills in setup, execution, problem solving and self-evaluation of sessions. We plan to incorporate this in the upcoming fellow's training.

FP.5.a.ii Provide examples of changes implemented based on the fellowship activity review process

[FP.5.a.ii ARP Survey FY22 SIMFELLOW01.pdf](#)

FP.5.a.iii Describe the process to address concerns and complaints

Similar to all Center for Simulation and Research staff, the fellow has an avenue to present, discuss and address any complaint/concern he/she has within the training year. If the fellow has a concern, he/she would discuss directly with the Fellowship Program Director. This can be ad hoc or within the monthly meeting. The Program Director will then follow up directly on the concern, assess for personal, team or systems issues and then close the loop with the fellow on assessment and mitigation plans. If the concern is with the Program Director, the fellow would then meet with the Senior Operations Director to address his/her concern. The Senior Operations Director would follow the same pathway by directly discussing this with the Program Director, assess the situation and develop mitigation plans. If needed, the Senior Operations Director would then discuss assessment with Medical Operations leadership. As noted in our organizational structure (see uploaded document in FP.1.b.iii above), the fellow has two outlets at any time for concerns or complaints: the Center for Simulation and Research's reporting lines and their Clinical Division's reporting lines. Outside of this internal process, the fellow can also access and leverage the Human Resources department to present concerns/complaints at any time.