University of Louisville School of Medicine Department of Pediatrics

Paul Weber Award for Departmental Excellence Application: Phase 2

Section 1: Statement of Departmental Philosophy of Teaching and Learning

As pediatricians, we are trained to observe and be attuned to subtle growth and change in our patients. Is the nine month old sitting up yet; is the eighteen month old appropriately social; is the twelve year old beginning puberty? As educators, we remain tuned in and observant in this same process with our learners. Are they progressing; can they reason clinically; can they perform a good physical exam? Where are they on that milestone continuum toward an expert or master level physician? The Department of Pediatrics faces a unique challenge in the broad continuum our learners encompass. Imagine being a parent raising an infant, a toddler, and an adolescent at the same time while yourself adjusting to a constantly changing work and social environment along with rapidly evolving technology. The Department of Pediatrics faculty must be prepared to teach a new medical student who is just beginning to take their first steps into the clinical realm to the graduating senior resident who is ready to "move out" while themselves learning about rapidly evolving technology, generational changes in learners, and evolution of the country's healthcare system.

The educational mission of the department of pediatrics is to excel in the education of future and current physicians across this developmental continuum of medical teaching by providing ideal faculty, curriculum and clinical milieu. And, we continue to move the department forward by constant innovation in teaching and by motivating individuals to achieve their highest potential.

To achieve this mission, our department uses an experiential curriculum. Teaching literature has consistently shown that adult learners, regardless of their spot on the continuum, are most successful when focused learning occurs around clinical or life events. Medicine lends itself well to this model, with each patient encounter providing a short, specific learning session. We have taken advantage of this setting by incorporating teaching into our family-centered rounds and supplementing the patient care experience with simulation, small group workshops, and observed clinical interactions with debriefing sessions. These sessions also complement our traditional didactic curricula and allow our students to solidify their new knowledge through experiential learning.

As the word development implies, our department is constantly changing. To promote this growth, our departmental philosophy is to engage our learners by investing them in their educational process. We commit to frequently assessing and evaluating our curricula and programs. We respond to learner feedback with adjustments, explanations and, at times, complete remodeling of a curriculum. We involve our students, residents and faculty, not only by getting feedback, but by including them and, at times, having them lead educational changes, adaptations and evolution. By doing so, our learners become integrated into their learning process and invested in its success. Suddenly, they aren't just crawling or cruising, they are running and everyone grows.

Furthermore, our teaching is not just about knowledge. The Accreditation Council for Graduate Medical Education (ACGME) and the Association of American Medical Colleges (AAMC), along with licensing and credentialing bodies across the globe expect physicians to achieve and maintain competency not only in patient care and medical knowledge, but also in interpersonal communication skills, professionalism, practice-based learning and improvement, and systems-based practice. Our goal, as the leaders of this educational journey is to assure all our learners develop as a whole person. By progressing along the milestones of the competency continuum, a learner in our department, be they medical student, resident or faculty, will become a well-rounded and balanced professional with a deep commitment to their patients, their profession and life-long learning.

Section 2: Narrative Addressing Award Selection Criteria

The Department's commitment to teaching starts in the infancy of medical training: the pre-clinical years, typically the first two years, of medical school. In 2012, one of our neonatologists, a physician who cares for premature infants, became the course director for the Embryology course for first year medical students. After attending the course for the entire semester prior to assuming leadership, she realized the course lacked application to actual patient care. Under her guidance, the course was re-designed to provide the perspective of practicing physicians and also re-organized to teach each topic by body system. Each body system now has its own Anatomy lecture, continuing the existing collaboration with the Anatomy department, followed by interactive on-line activities, small group discussions, and clinical lectures taught by various members of the Department of Pediatrics. For example, when learning the Embryology of the heart and cardiovascular system, these students will get: 1) lectures on heart development; 2) lectures on the anatomy of the fully-developed heart; 3) an online interactive activity to demonstrate and test the information gleaned from these lectures; then 4) a small group discussion with pediatric cardiologists regarding how disorders in this developmental process lead to heart defects and how these are corrected and treated in a child. Pediatric faculty from the divisions of Pediatric Cardiology, Genetics, Pediatric Surgery, Child Neurology and Neonatology help teach didactic lectures or lead small group discussions. In 2013, the course was upgraded from two credits to three to give students more time with clinical faculty and Likert scale survey analysis revealed an improvement in student ratings of course quality from 3.9 to 4.39 **(Attachment 1)**. In 2014, the course will be piloting a new integrated hybrid curriculum within the University of Louisville School of Medicine (U of L SOM) where both Anatomy and Embryology will be taught in parallel in hopes of improving understanding, retention, and clinical application. If successful, this integrated model will be implemented in other courses within the pre-clinical medical school curriculum.

Medical students in these pre-clinical years often find themselves straddling the bridge between pedagogy and andragogy as learners, displaying characteristics of the young student and the adult learner simultaneously. The amount of information they need to master is vast. Students involved in early clinical experiences have reported: increased confidence; a feeling of inclusiveness with the medical care team; an appreciation of the patient as a whole; increased motivation; and improved understanding of their future career paths. The introduction of patient interaction during the preclinical years of medical education finds support in the principles of andragogy, creating a connection between the basic science instructions to the eventual practical usage.

The Pediatric Summer Externship Program at the U of L SOM Department of Pediatrics has been active since 1997. Annually, 20-26 rising second year medical students participate in a four-week clinical experience that exposes them to clinical work by engaging in a hospital ward, outpatient academic or private practice clinic, or subspecialist setting participating in the care of children. These students follow the schedules of the teaching physicians and participate in clinical work at their level of training and comfort level. This can include such varied settings as rounds in the neonatal ICU, seeing children in the outpatient clinic, or multidisciplinary oncology team rounds. Students are chosen from a pool of voluntary applicants using academic criteria and a brief personal statement that describes their desire to work in the pediatric department. For their

participation, they receive a stipend from the Department of Pediatrics and a pediatrics textbook focused at a junior medical student level of education.

The program was evaluated in 2007 and 2011 with subsequent publication in 2012. Students overwhelmingly identify the program as being enjoyable and worthwhile. The program is identified as one, which helps prepare them for their third-year clerkships, and ultimately influences their choice of specialties. Of 262 participants who had decided on a formal career choice at the time of the program evaluation, more than half chose pediatrics as a career field, many of whom chose to stay at U of L for their residency **(Attachment 2).** As of 2011, nine externship slots (up from 4 in 2008) involve pediatric rural rotations, a change made in response to the recommendations of the 2007 survey, which noted the externship's potential for expanding interest in rural medicine. Increasing interest in rural medicine also aligns with one of the missions of the U of L SOM to fill the current gap in the Commonwealth's primary care workforce crises. Currently, rotations exist throughout the state, from McCracken county, bordering Illinois, in the western region of the state to Pike county, nestled between the borders of Virginia and West Virginia, at the state's most eastwardly expanse. The program has played a significant role in influencing students to consider pediatrics as a specialty and is now also allowing students to gain first-hand experience with rural pediatric medicine.

The "toddler" stage of medical education is analogous to the clinical years of medical school. Medical students in this stage of their education are growing rapidly, being exposed to new situations daily, and begin to test the limits of their knowledge while still needing a secure foundation to refer back to. As teachers, we must balance this new exposure to patients with a healthy dose of didactic teaching to solidify that foundation. After receiving feedback from students regarding organization, consistency, and relevance of student didactic conferences during their clinical clerkship, one of our hospitalist faculty created a curriculum of concise, high-yield topics appropriate for the third-year medical student. The goal of this new curriculum, titled the Happy Half Hour, is to provide structured teaching of topics encountered frequently in patient care while referring back to the pre-clinical curriculum and preparing students for testing as well. The topics are creatively titled and presented and include: H and Ps and D/Cs Please, Fluids and Electrolytes on the Fly, Bugs and Drugs, and Pediatric Jeopardy. Student ratings of lecture quality improved from 2.7 to 5 on a 5-point Likert scale in just one year. In further survey comments, students asked for full, hour-long sessions and suggested more be added to the curriculum. Some described it as their favorite learning activity in their entire third year of medical school **(Attachment 3).**

To further augment this foundational knowledge, our department has creatively adapted a technique traditionally used in the pre-clinical years and applied it to the clinical setting. Peer assisted learning (PAL) is a process by which students at a similar level of training, who are not trained educators, aid each other in learning. The majority of reported applications of PAL have taken place in the pre-clinical years. However, due to growing evidence that this method can be equally effective during the clinical years of training, the PAL program was created for the pediatric clerkship to assist junior medical students in preparing for their National Board of Medical Examiners "shelf" exam. Four tutors are selected from rising fourth year medical students interested in a career in pediatric medicine. These tutors, with the aid of the clerkship director, identify several topics of interest that are not covered by the existing curriculum.

Tutors then compile a set of exam style questions on these topics in three one-hour long computer-based presentations. Attendees are separated into teams of three to four students with peer tutors as proctors, reading each question and providing time limits for response. Students discuss questions in teams and provide a consensus answer. After each question the peer tutors will discuss all answer choices, discuss related topics of interest, and answer any additional questions. The program was evaluated and the data was analyzed and disseminated in a peer-reviewed publication **(Attachment 4).** The success of this program led directly to the creation of a new senior elective called Medical Students as Teachers (MSATs) by the SOM's educational policy committee. The course has become an instant success, whereby nearly 40% of the senior medical students are enrolled in the elective and are designated as teachers. Peer-assisted learning is now being provided in the following additional areas of the SOM: obstetrics and gynecology, family medicine, surgery, anatomy, introduction to clinical medicine, standardized patient program, and the student-led free clinics.

Mentoring is widely acknowledged as an important facet of career development across numerous fields, and medicine is no exception. Interactions between mentors and mentees at most levels of medicine (faculty to faculty, faculty to resident, and faculty to medical student) are described in the literature, and in almost every setting, both mentors and mentees describe positive effects including career satisfaction, preparation for practice, and expansion of knowledge base. Despite the positive influence of mentorship, the number of formal mentorship programs with successful dyads remains low and almost no programs are described in the literature in which residents take up the role of mentor for students. Our medical education team began a pilot program in facilitated peer mentoring. This was initially instituted by our pediatric residency which used a group mentoring process involving both resident peers and faculty. These groups of six residents at all three levels of training and two to three faculty members meet five times a year in semi-structured sessions that are integrated into the core curriculum. There are established goals for each session and the groups work toward those common goals. The program has since expanded to another level in which residents serve as the facilitating mentors to medical students. We hope to prove that this is of significant benefit to both students as mentees and residents as mentees and mentors. We are in the process of evaluating the success of this program through an educational qualitative study including surveys and focus groups.

While peer mentoring has been very valuable for medical students, the Department of Pediatrics has also looked for creative ways to advise medical students as they move to the next developmental phase of their training. The Senior Medical Student Mock Interview Program was created to give our medical students the tools to be competitive residency applicants and represent the University of Louisville proudly. Senior medical students planning on pursuing residencies in Pediatrics, Internal Medicine-Pediatrics, Child Neurology, or Child Psychiatry are matched with experienced faculty interviewers. These faculty members then conduct a 20-minute interview, exactly as they would during the actual residency interview process, followed by a feedback session on non-verbal communication, verbal communication, and level of preparedness for the interview. Students are also given the opportunity to video their sessions. Student survey data after three years of the mock interview program have shown statistically

significant improvements in student confidence and comfort level with the actual residency interview and 100% of participants thus far would recommend to future students.

As our learners transition to their pediatric residency, they must cope with demands for rapid changes in their knowledge base and abilities, increased responsibility, and more independence with less supervision. Analogous to adolescents, these learners respond very well to experiential learning that provides a feeling of independence and autonomy while still providing a safe environment for learning and even a mistake or two. Our simulation program, Simulation for Pediatric Assessment, Resuscitation and Communication (SPARC), uses high-fidelity mannequins to simulate clinical crisis situations called "mock codes." These scenarios teach residents to manage a team, to use closed-loop communication, to appropriately manage a dying child, but with room for error. The simulation program was originally started by one faculty member in one division and took place, as most simulation experiences did and still do, in a lab. The lab was technologically sound with well-written cases, but engaging a "teenage" learner in an artificial environment proved difficult. To improve this experience, the SPARC leaders applied for and secured a generous grant that helped the SPARC program move from the lab to the hospital, the actual environment where our learners practice. It now includes 20 participating physician faculty members, 12 nursing leaders, and eight unit-based teams. In addition, SPARC has expanded to a multidisciplinary educational intervention that includes pharmacists, respiratory therapists, and outreach to other facilities. During these "mock codes" residents are confronted with a deteriorating patient; a mannequin with real heart and lung sounds, with vital signs that change with every intervention, in an actual hospital bed, with the nurses and ancillary staff they interact with daily. It feels, for lack of a better word, real. The SPARC program was one of the first simulation programs in the country to move out of the simulation lab and provide an "in-situ" experience. Research by our SPARC faculty of this novel approach revealed improved resident participation and engagement in crisis simulation and has been published and presented internationally. This innovative use of technology and resources has transformed the resident "mock code" experience. **(Attachment 5)**

A new curriculum intervention launched in 2012 is the procedure rotation. Duty hour limitations in resident training and the use of intravenous (IV) line and procedural sedation teams to enhance patient safety and satisfaction have decreased resident time and opportunity for procedural experience and subsequent proficiency across the country. This allowed development of a significant deficit in resident training and graduate feedback, as well as national studies confirmed the problem. We sought to fill this gap with a curriculum designed to enhance residents' knowledge base, experience, and confidence in pediatric procedures. A two week procedure rotation consisting of simulation-based didactics and dedicated time for patient encounters was developed. Three training days at the beginning of each rotation introduced 26 pediatric procedures using videos, demonstrations, and hands-on simulation. First year residents spent the remainder of the rotation in 10-hour hospital shifts performing supervised procedures with the goal of increasing resident exposure, comfort, and competence. At the end of the first year, interns on the procedure rotation were averaging 70 procedures in two weeks as compared to the cohort of 20 third year residents who had averaged 40 procedures in two years. More importantly, their confidence and knowledge had increased as compared to the cohort. This cohort's confidence in their ability to perform procedures was 2.5 on a Likert

scale of 1-5 whereas, first year residents who had completed the rotation's confidence increased to 3.2 on the same scale. Similarly, their procedural knowledge increased with the cohort getting 9.3 of 20 questions correct and first year residents, post rotation, getting 13 correct. These results have been shared at three different meetings nationally with overwhelming enthusiasm and the rotation is currently being developed by at least 3 other institutions as a direct result of dissemination of this information. The resources involved in initiating this rotation are significant and over 35 pediatric faculty, multiple staff members such as the IV team nurses and eight subspecialty training fellows are teachers. The simulators were also a significant expense but four different areas within our department, including leadership, the pediatric critical care division, the pediatric emergency medicine division and the office of medical education, contributed to the purchase of state of the art mannequins which allows for on site training prior to real patient experience. Now in its second year, in response to trainee and faculty feedback, we have added further experiences including participating in medical transport by helicopter and ambulance. This increases their understanding of how to stabilize and transport an ill child to the level of care that is required which is a skill all pediatricians should have. **(Attachment 6)**

Another area of development that we have focused on is language. The Resident Communication Curriculum (RCC) was developed by a multidisciplinary committee after a needs assessment confirmed a disparity between resident self-perception of communication skill and the perception of faculty physicians, nurses and ancillary staff. We address basic communication skills as well as the higher-level skills needed to approach difficult communication responsibilities such as delivering bad news and conflict resolution. The RCC has evolved into an 18-month rolling curriculum with nine core didactic topics, videotape review and discussion, a multi-setting simulated experience and observed real clinical encounters and patient handoffs

The culmination of the curriculum for each resident is an assessment in the Program for the Approach to Complex Encounters (PACE). These sessions use standardized patient actors to teach residents important skills in delivering difficult news to patients and their families as well as a conflict resolution section. It is followed by a video-assisted debriefing session to provide opportunities for reflection and feedback. We have incorporated a multi-step evaluative process that not only rates individual components but assesses the overall real-life impact of the RCC. Thus far our data show that core didactic lectures are highly rated (3.93/4 on a 4-point Likert scale). The simulated experience has demonstrated a statistically significant change in participants' self-perception of preparedness, skill, confidence and anxiety (each demonstrating a median 1-point change on a 5-point Likert scale with p-values <0.05). Sixty-seven percent of responding graduating residents agreed they provided better care and fifty-six percent agreed they had changed their practice as a result of the RCC, in our graduate surveys sent out at one and three years post graduation. These results and our curriculum have been shared in the form of oral and poster presentations at two International Conferences for Communication in Healthcare, and a workshop at the Southern Graduate Educational Association (SGEA) of the American Association of Medical Colleges (AAMC).

In pediatrics we watch and guide as patients gain milestones and progress along the development continuum. But that growth is not confined to the children, it is often seen in the

parents as well. As their children advance and grow, they become more adept at understanding what is needed and when it is needed. A parallel to that is the growth that we have had within our department in the educational realm. In response to the changing landscape of our learners, we have also evolved. In the last five years alone, our residency program has developed new curricula in advocacy, parenting, evidence-based medicine, communication, and quality improvement, as well as enhancing the existing "business side of medicine" curriculum. Multiple new clinical rotations, such as Poverty and Social Justice, International Pediatrics, and Child Advocacy have been created around resident interest and suggestions. Our curriculum committee reviews new and old rotation goals and objectives with quarterly review of rotation evaluations and stressors. This process identifies curricula that need improvements. One of the most recent projects of the curriculum committee is the development of an Individualized Curriculum(IC). With this curriculum, residents are given the opportunity to tailor their education to their future career goals. A new career exploration rotation was created to give interns, in their first year of residency, exposure to different primary care or pediatric subspecialties they have an interest in pursuing. As these learners progress to their second year of training, they choose one of six career-specific pathways, similar to choosing a major in college. Within these pathways, residents can devote six months of their training to this career-dedicated curriculum. In development of these pathways, our faculty in each division developed requirements and strongly recommended "menu-options" to guide residents as they choose their rotations **(Attachment 7).** Additional guidance is provided by an Individualized Curriculum mentor, who provides the learner with career counseling and scheduling guidance. Our experience and success in tailoring resident rotations to their career goals has been presented at national meetings. As we go forward, annual resident program reviews will inform us as we further enhance this program.

As our resident trainees progress from intern to more senior resident roles, the skills they must acquire become more complex and begin to involve others. Examples of these complex skills are critical appraisal of medical literature and its application to patient care, also called evidence-based medicine (EBM), and participation in scholarly activity. EBM is integrated into the resident didactic curriculum over their three years of training with additional supervised practice activities with expert faculty. The EBM curriculum is directed by six pediatric faculty members but also includes exceptional medical librarian collaborators from the Kornhauser Health Sciences Library. The curriculum covers ten topics that are repeated annually and each trainee, along with their faculty EBM mentor, presents a critically appraised article to a group of peers at least once during their residency. Additionally, both residents and sub-specialty fellows partner with one or more faculty members to pursue feasible research or other scholarly endeavors during their residency. The program culminates in a unique scholarly activity poster session as part of the graduation activities for our senior learners. This poster session gives residents and fellows the opportunity to proudly display their work in a format similar to that of an academic meeting, with the entire department invited. **(Attachment 8)** Encouragement of learner scholarly activity does not stop there. The department also provides monetary support for trainees to travel to and present their work at national meetings. In the last two years, our program supported 43 resident and fellow poster presentations at national academic meetings and had 13 trainee manuscripts accepted for publication in peer reviewed journals.

The maturing physician must also understand their commitment to altruism, advocacy and care for the underserved within our community and throughout the globe. In fact, a report in 2013 showed that fifty-eight percent of pediatric trainees entering residency have an interest in global health. In response to this interest, our program has developed robust complementary programs in global health and advocacy to engage the residents, and at times the medical students, in learning how to advocate for their patients and to increase awareness of the impact we may have as physicians on those with minimal resources. Our global health program has grown from fledgling international rotations in Tamale, Ghana and Quito, Ecuador to a full Global Health Certificate program that allows residents additional education in this important area. The residents engage in a robust on-line curriculum and quarterly evening sessions that include speakers, journal clubs, case presentations, and reflection. They participate in both our local global health elective, Poverty and Social Justice in Child Health, and our International rotation, and produce a scholarly activity around low resource healthcare. Our mission is to provide an understanding of global child health to all pediatric trainees and for residents with a broader interest in global health, a Certificate in Global Child Health will provide them with improved understanding of the major causes of the world's pediatric mortality, enhanced physical examination skills through exposure to different diseases not encountered in our country and a deeper appreciation of issues related to public health, professionalism, and cultural sensitivity. It will help maintain and foster passion for caring for populations with limited access to healthcare and healthcare resources.

This program includes one of our unique rotations, Poverty and Social Justice in Child Health which provides the resident much needed time to walk in the shoes of their patients with fewer resources. They spend time with our refugee population at Kentucky Refugee Ministries; try and take the bus to the clinic; work in community health center clinics with refugee and low resource patients; learn the challenges of feeding a family of four a nutritious diet on a week of food stamps; and spend time reading and reflecting one on one with senior physicians with global health experience. In fact, the rotation was featured in an article by the Leo Weekly newspaper last December.**(Attachment 9)** Another resident who experienced this rotation wrote in her final reflection piece:

"Already I'm inspired by the work that goes on in the various communities that I've visited, and the many initiatives that have started in the city. They are seeds of hope and change in a system that has seemingly failed the neediest of our patients and inspiration to residents like me to do all I can to take part in this effort to serve the underserved but equally deserving people on the other side of my stethoscope."

Given these amazing results, it is clear why our leadership so strongly supports this program that has allowed our trainees to grow to levels beyond expectations.

The other arm of this learning encompasses advocacy. P.U.S.H. (Pediatricians Urging Safety and Health) is a resident driven, faculty supported child advocacy initiative at the University of Louisville that was created to provide pediatric residents with a formal, "hands on" experience in addressing child health issues at the community and state level. Initially organized in 2006, P.U.S.H. is an advocacy group comprised of volunteer residents with the goal of promoting the advancement of child health through the empowering of residents to be voices for children and the establishment of lasting partnerships within our community and state. We meet monthly to participate in an eighteen-month rolling curriculum that addresses the multiple facets of advocacy. There are committees devoted to work on obesity, child abuse and community

outreach. The residents have participated in legislative work in Frankfort and with partners such as Kosair Children's Hospital and the Kentucky Chapter of the American Academy of Pediatrics to help educate legislators, the public, and healthcare givers about these very important issues. P.U.S.H. has been involved in the development of several projects that have favorably impacted the safety and health of our state's children. We have supported state legislation regarding a graduated license program, child booster seats, child abuse education, and exercise in schools. Child abuse recognition cards have been created and distributed to pediatricians across the state. Community outreach has more recently become a focus as requested by the learners who include both residents and third and fourth year medical students interested in pediatrics. We are partnering with the Neighborhood House in Portland to help provide education to their childcare workers and are now beginning work directed toward helping in the fight against food deserts in the city. Within this program, we consistently witness the maturation of new leaders each year who gain confidence and poise through experience. These same residents then form a new generation of pediatricians—new attending physicians skilled in the art of patient advocacy and prepared to assist the communities that house their respective future practices.

Our department recognizes that education is a continuum that encompasses mature practicing physicians as well as trainees. Our department's robust faculty development curriculum has grown over the past four years and now includes more than 50 topics on improving teaching skills, clinical skills, research skills, career development, and mentoring. There is substantial focus on helping faculty become more effective teachers, role models and mentors for our younger generations of physicians as a top-down method of improving education. We have recently enhanced this program to include repeated sessions on 12 areas of education such as assessment, giving feedback, curriculum design, and bedside teaching. As we develop and grow in the educational setting, we need to assure that our efforts are effective and meet the needs of the learner. To that end, we have five sessions on how to perform educational research for the faculty.**(Attachment 10)** Multiple educational research projects are now underway and are supported by the new Child and Adolescent Research Design and Support (CARDS) Unit. Department faculty, received Ruth Greenberg Awards for Research in Medical Education at Research!Louisville in 2011, 2012 and 2013. Through the faculty development program, departmental faculty have developed relationships with Delphi Center faculty and other education-specialist faculty in the School of Medicine to have them provide instructions on adult learning theory and teaching critical thinking and to begin explorations of educational collaboration along the continuum of learning from medical school through residency and into professional practice in academic and private settings.

The robust resident and fellow scholarly activity is made possible by this comprehensive faculty development that supports further skill development in research and scholarly activity. Faculty are supported in disseminating knowledge and encouraged to take their teaching skills to the national arena. Several are involved as teaching faculty in national continuing medical education programs within the American Academy of Pediatrics. Many are routinely invited to present in their areas of expertise at regional and national venues.

The annual faculty review process for the department uses forms and checklists that capture and recognize all types of teaching activities, so that any faculty members who have teaching duties have the opportunity to display the quality of their efforts. A menu of benchmarks of

excellence in teaching is provided both to remind faculty of these worthy goals and to acknowledge accomplishments in teaching when achieved. Teaching is considered on equal footing with clinical, scholarly, and other service activities in which faculty members may be engaged. Faculty members with leadership roles in teaching programs or oversight for specific curriculum areas generally are provided with protected time from other duties for these roles. Teaching time during clinical work is also broken out and accounted for in work assignments. The department honors its "Top Five" and "Top Ten" teaching faculty (out of 190+ faculty members) each year during our graduation ceremonies with a separate award for "Clinical Professor of the Year" for both full time and gratis faculty. Additionally, the "Top Two Teaching Divisions" (out of 21), "Faculty Peer Clinician-Teacher Excellence" and "Peer Mentoring Excellence" awards are offered annually to reward commitment to teaching. The departmental philosophy of honoring those who contribute to our educational mission is evident.

The University of Louisville Department of Pediatrics strives daily to prepare the complete pediatrician of tomorrow and enrich the practicing pediatrician of today by committing to engaging them as learners, listening to their needs, and integrating new knowledge with real-time experiences. By doing this, we allow our learners to incorporate their acquired knowledge into their everyday behavior and care of patients. We know we have succeeded when they become the master physician that they are striving to be.

Attachment 1: **Course Evaluation Summary: Human Embryology**
2012-2013 ACADEMIC YEAR

Total Respondents: 136 (out of 163) Prepared: January 4, 2013

3. The content was taught in a sequence that effectively supported learning.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	12-13 Avg	11-12 Avg	Difference
1	0	7	53	75	4.48	3.9	+0.58

7. Lectures were useful in meeting course learning objectives.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	12-13 Avg	11-12 Avg	Difference
1	1	5	59	70	4.44	4.0	+0.44

8. Educational methods other than lecture (lab, small groups, simulation exercises, etc.) were useful in meeting course learning objectives.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	12-13 Avg	11-12 Avg	Difference
4	9	23	64	36	3.88	3.6	+0.28

9. The clinical relevance of material was made clear.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	12-13 Avg	11-12 Avg	Difference
1	1	4	34	96	4.64	4.3	+0.34

10. There was an appropriate balance of lecture, lab, small group and other resources to promote learning.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	12-13 Avg	11-12 Avg	Difference
3	6	13	64	50	4.12	3.5	+0.62

13. Please rate the overall effectiveness of the teaching in the course.

Poor	Marginal	Good	Very Good	Excellent	12-13 Avg	11-12 Avg	Difference
0	1	20	52	63	4.30	3.5	+0.8

14. Computer-assisted instructional modules, CD-Roms, web-based and other multi-media materials were relevant, helpful, and enhanced understanding of course content.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	12-13 Avg	11-12 Avg	Difference
2	3	30	50	51	4.07	3.5	+0.57

18. Please rate the overall quality of the course.

Poor	Marginal	Good	Very Good	Excellent	12-13 Avg	11-12 Avg	Difference
0	1	22	51	63	4.28	3.4	+0.88

Ave. of all items (Questions 1-5,7,10-14)

AY 2012-2013	AY 2011-2012	Difference
4.39	3.9	+0.49

Attachment 2:

MEDICAL SCIENCE EDUCATOR
The Journal of the International Association of Medical Science Educators
Med Sci Educ 2012; 22(4): 198-207

SHORT COMMUNICATIONS

An Evaluation of the University of Louisville School of Medicine Pediatric Summer Externship Program

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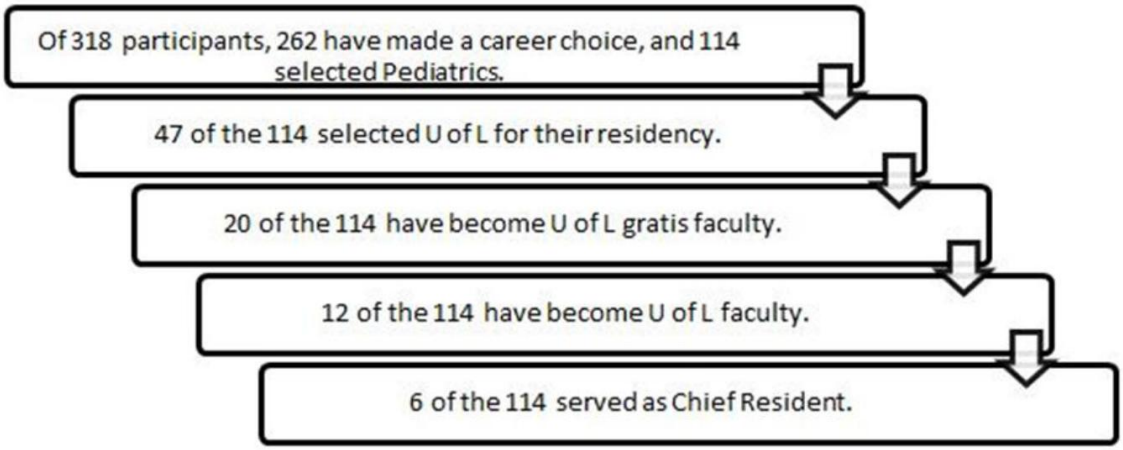
Abstract

Background: The Pediatric Summer Externship Program began in 1997. It is a unique program designed to give preclinical medical students early exposure to pediatrics. Rotations are available with subspecialists, general pediatricians, and in rural pediatric offices across the state. **Purpose**: A review of the program was undertaken to evaluate perceptions of the program among both students and faculty with the plan to disseminate a model of the program for use by other departments. **Methods**: A survey was sent to participants and faculty. Results were compared to a 2007 program review. **Results**: The externship was highly rated by both students and faculty. Both groups agreed the program prepared students for their clerkship years. Those rotating in rural locations stated they were more likely to consider rural medicine as a career. **Conclusions**: This study suggests the pediatric externship program is a unique, replicable, well-established model that has provided a consistently positive experience over the past 15 years.



Attachment 3: **Comparison of Medical Student Lecture Ratings Before and After Third Year Medical Student Happy Half Hour Implementation**

	Before	After
How well structured was the lecture series?	2.0588	4.95121951
How prepared were the attendings who were leading each session?	2.5	5
How interested/motivated did the attendings seem to be?	3.4118	4.97560976
How often did the attendings show up on time for the sessions?	2.2059	4.95121951
How interesting did you find the sessions?	2.7353	4.92682927
How would you rate the length of the sessions (8-8:30am)?	4.3235	4.63414634
How pertinent were the discussions for your level of training?	3.6765	4.95121951
How well did the topics correlate with your shelf-exam preparation?	2.3929	4.9
Please rate the quality of overall education provided during the sessions.	2.7353	5

Comments:

Would have appreciated more sessions. I benefitted more from this than from any other teaching.

Could be longer; very helpful; I wouldn't mind doing these more often especially since inpatient afternoons weren't significantly beneficial for my education.

Could be longer. These were fantastic and I'd almost like more and for them to be longer.

Excellent session! Covered many difficult topics in a stepwise manner. Helpful and interactive. My favorite learning session in 3rd year this far.

Loved it-very helpful, practical, informative. Loved jeopardy.

I actually wish we had 1 hour sessions instead of only 30 minutes

I think it would be good to lengthen the sessions to 45 min to 1 hour. They were extremely helpful and the 30 min went by very quickly.

Attachment 4:

Evaluating the Utility of Peer-Assisted Learning in Pediatrics

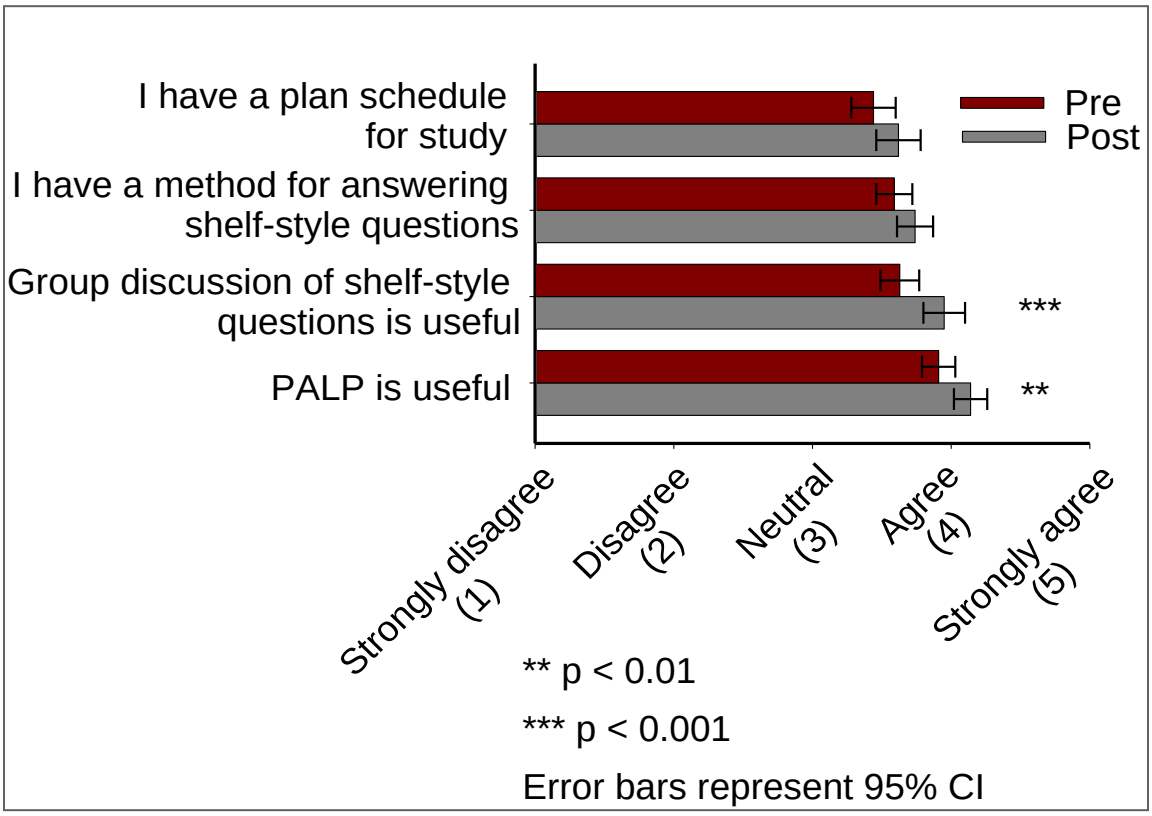
Pradip D. Patel, Dan B. Kischnick, Scott G. Bickel, Craig H. Ziegler & Karen Hughes Miller

University of Louisville School of Medicine, Louisville, KY, USA

Medical Science Educator Volume 21 : No. 4

Abstract

Peer-assisted learning (PAL) is the signature teaching/learning strategy for training young physicians. This study reports on a PAL program held during the third-year pediatric clerkship. Respondents felt PAL was useful. A senior elective incorporating PAL is now an official course. PAL is an effective adjunct to traditional teaching methods.



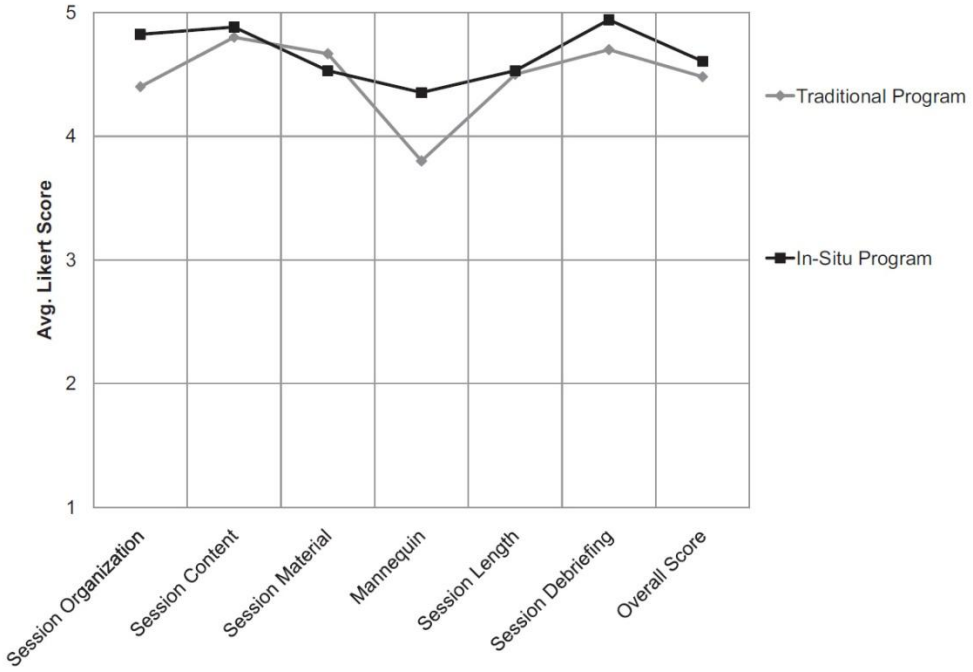
Attachment 5:

Simul Healthc. 2011 Dec;6(6):337-44. doi: 10.1097/SIH.0b013e318224bdde.

Integrated in-situ simulation using redirected faculty educational time to minimize costs: a feasibility study.

Calhoun AW, Boone MC, Peterson EB, Boland KA, Montgomery VL

INTRODUCTION: Simulation is an effective teaching tool, but many hospitals do not possess the space or finances to support traditional simulation centers. Our objective is to describe the feasibility of an in situ simulation program model that uses minimal permanent space and "redirected" cost-neutral faculty educational time to address these issues. METHODS: Two pediatric simulators and audiovisual equipment were purchased. Course faculty were derived from a group of physicians and nurses with a percentage work assignment apportioned to education. A portion of this was subsequently redirected toward simulation. After 2 years of operation, faculty were surveyed regarding time devoted to the program. Program growth and quality statistics were examined descriptively. RESULTS: The program supported 786 learner encounters in 166 sessions over 2 years. Simulation hours per month increased over sixfold during that period ($P < 0.001$). Program initiation cost was $128920.89, with subsequent yearly costs of $11,695. Mean program ratings ranged between 4.5/5 for Crisis Resource Management and 4.4/5 for communication skills training. Resident (2.6 h/y increase, P value <0.001) and nursing (2.2 h/y increase, $P < 0.001$) simulation hours increased significantly. Faculty involvement averaged between 3% and 32% of total work hours. CONCLUSION: This report demonstrates the feasibility of implementing an in situ simulation program using minimal permanent institutional space and cost-neutral redirected faculty time. This type of programmatic structure is conducive to short- and medium-term growth, is well received by participants, and allows for substantial cost savings. Future work will be needed to determine what growth limitations are inherent in this staffing and structural model.

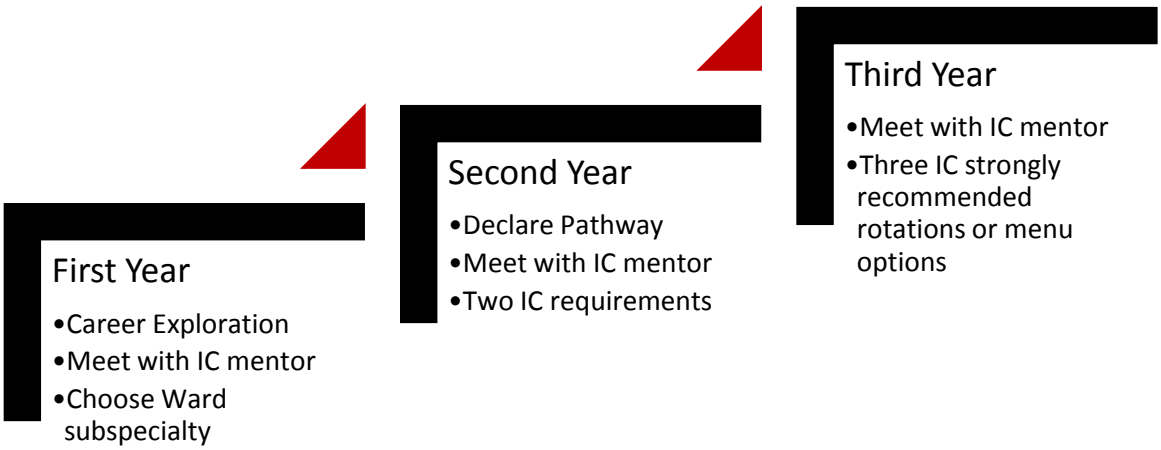


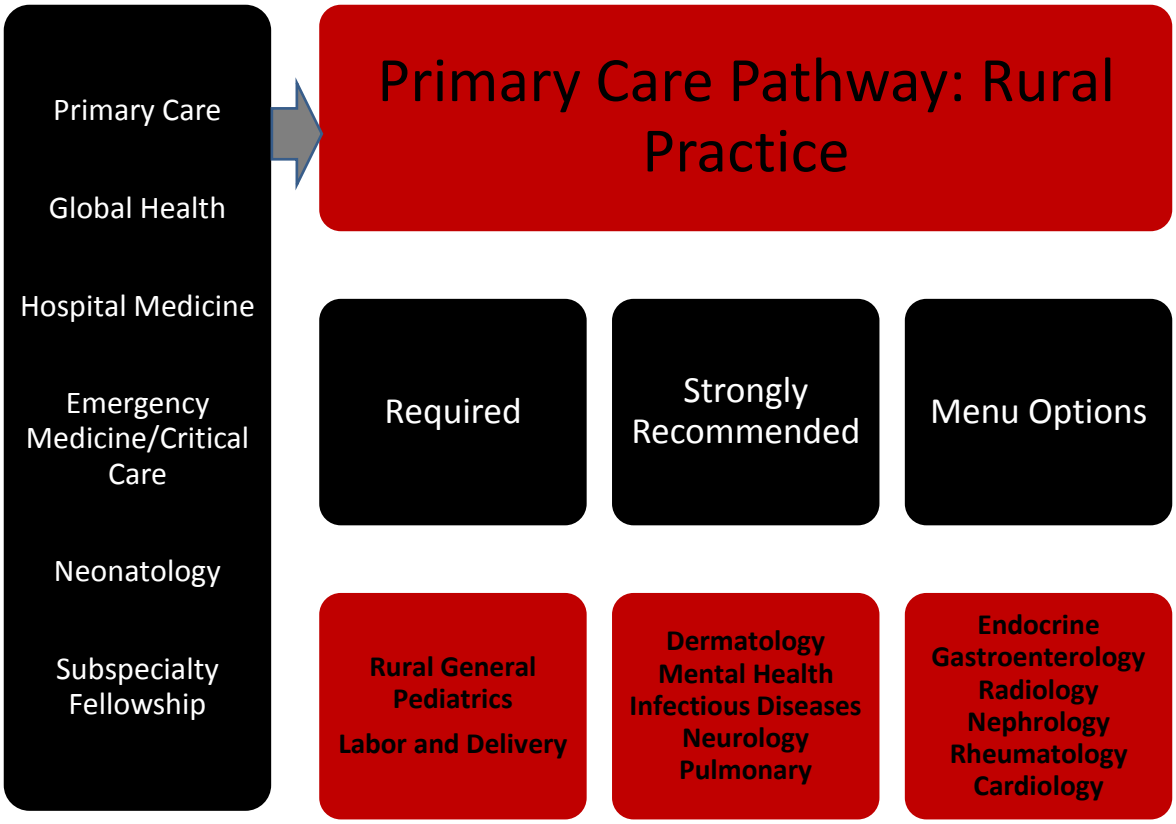
Attachment 6: Procedural Training for Pediatric Residents

Time	Day 1	Day 2	Day 3
8 am	Morning Report Rotation Orientation	Morning Report *Break*	Morning Report *Break*
9 am	Informed Consent Pain Management	Bag-Valve-Mask Airway Adjuncts	Central Venous Lines
10 am	IV's	ET Placement LMA Placement	Central Venous Lines Arterial Lines
11 am	IV's	Trach Changes Intraosseous Lines	Pediatric Transport
Noon	Conference	Conference	Conference
1 pm	NG Tubes Urethral Catheter	Lumbar Puncture	Arthrocentesis
2 pm	Clinical Photography *Break*	C-Spine Management *Break*	MSK Examination *Break*
3 pm	Umbilical Lines	Wound Repair	Defibrillation, Cardioversion
4 pm	Neonatal Airway	Incision and Drainage Splinting	Thoracentesis Procedural Sedation
5 pm	Chest Tubes Circumcision	Splinting	Procedural Sedation

Procedure	Average Number of Procedures Per Resident		
	Historical Controls (Class of 2011)		Class of 2015
	Entire Intern Year	Entire 3-Year Residency	Procedure Rotation Only (2 weeks)
LP's	5.4	14.3	4.2
Peripheral Access	3.9	6.8	19.8
Wound Repair	2.2	8.5	5.7
Umbilical Access	0.5	1.2	0.7
Sedation	0.0	0.3	5.8
Reduction/Splinting	0.4	1.8	6.4
GU Cath	1.0	6.3	5.0
All Procedures	24.7	69.3	65.9

Attachment 7: Individualized Curriculum Summary (IC)





Attachment 8:

Exhibit 2013: a poster presentation by graduating residents & fellows
(Mentors in parentheses)
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Attachment 9: Excerpts from an article in LEO Weekly

December 5, 2012

Real world rotation

U of L resident physicians absorb poverty, challenges many patients face
BY ANNE MARSHALL

Dr. Michelle Parchman, a tall, chipper brunette, strides across Jackson Street on a cold, overcast November morning, parking herself underneath a bus shelter. From beneath the 27-year-old's gold-hued winter coat, a white medical jacket fans out, its pockets packed with a stethoscope and a wad of stickers for little ones she'll encounter at the Iroquois Family Health Center.

A second-year general pediatrics resident at University of Louisville, she pulls out an orange post-it note. "We're waiting for No. 18!" Parchman proudly proclaims. This is her first time navigating TARC. And the first time she's ever ridden a bus. "We'll see how you do," says her supervisor, attending physician Dr. Faye Jones, who's bundled up in a puffy, dark coat. "We can't help you." Parchman's bus trip to the south Louisville clinic that serves many low-income, non-English speaking families is part of a new rotation the University of Louisville Department of Pediatrics is offering to residents. It's called "**Poverty and Social Justice in Children's Health."**

The month-long rotation delves into the social aspect of health care, exposing residents to the realities of poverty, food insecurity and housing instability. Studies indicate that these stresses are often associated with higher rates of behavioral, developmental and learning problems in children, as well as a greater likelihood of asthma. Residents must tackle public transportation to better understand the daily routine of many of their patients…..

Dr. Bill Allen, a pediatrician and assistant professor of pediatrics, created the poverty and social justice rotation. He hopes to round out the technical, scientific side of training during the three-year residency period in which newly minted physicians hone in on a specialty. "With medicine … it's like any other job. It becomes so routine that you forget to see the person there in front of you," Allen says. "And that's what I want them to see is the person there in front of them, and understand that they have dreams and goals and hurts."…..

Attachment 10: **2013-2014 Academic Year**

Faculty Development in Education and Teaching

Faculty Development in Education and Teaching	Leader	Timing
Mentoring, Role-Modeling and Letters of Recommendation	Boland/Patel	Annually
Assessment and Feedback	Boland/Patel	Annually
Teaching Clinical Reasoning	Boland/Multerer	Every other year
Effective Bedside Teaching	Boland	Annually
Adult Learning Theory	Miller/Rowland	Every other year
How to Lecture Effectively	Marshall	Annually
Curriculum Design and evaluation	Miller	Every other year
Milestones: How to use them	Multerer	Twice Yearly
Using Technology for Effective Teaching	Patel	Yearly
Competency Based Learning	Boland	Yearly
How to Mentor a Scholarly Project	Stevenson/Multerer	Yearly
Promoting On-Line Professionalism: Social Media and Education	Patel	Yearly

Faculty Development in Educational Research Methods	Leader	Timing
Introduction to Qualitative Research methods in Education	Rowland	Yearly
How to Design Questionnaires and Surveys- Basics	Rowland	Yearly
How to Design Questionnaires and Surveys- Advanced	Rowland	Yearly
How to Design Focus Group Research	Miller/Boland/Patel	Every other year
Funding and Publishing Educational Research	Calhoun/Patel/Miller	Every other year