

Division Details

Division Data Summary

Research and Training Details

Number of Faculty	17
Number of Joint Appointment Faculty	7
Number of Research Fellows	1
Number of Support Personnel	10
Direct Annual Grant Support	\$556,106
Peer Reviewed Publications	51

Clinical Activities and Training

Number of Clinical Staff	4
Number of Clinical Fellows	2
Number of Clinical Students	1
Inpatient Encounters	8,696

Division Photo



Row 1: N Goyle, S Shah, B Volck, S Riddle, A Beck, E Shaughnessy, J Thomson
Row 2: L Ambroggio, B Bolser, P Brady, D Warner, E Kirkendall, M Vossmeier, A Spooner, G Mussman, J O'Toole, J Schaffzin, J Simmons, K Meier

Significant Accomplishments

Clinical Innovation

The Division of Hospital Medicine, and its precursor the General Inpatient Service, have a long tradition of innovation and early adoption of innovations, including family-centered rounds and evidence-based guidelines. Over the past year the tradition has accelerated. Division physicians have led four projects to improve the adoption of emerging evidence in a timely manner. These include earlier transition to oral antibiotics for osteomyelitis, use of probiotics for gastroenteritis, elimination of overuse of voiding cystourethrograms for first-time urinary tract infection, and use of narrower-spectrum antibiotics for community-acquired pneumonia. In each case, baseline performance was less than 10 percent and current performance has been sustained above 90 percent. Key leaders of this body of work include Michael Vossmeier, MD, Joshua Schaffzin, MD, PhD, Michelle Parker, MD, Patrick Conway, MD, MSc, Karen Jerardi, MD, Dena Elkeeb, MD, Jeffrey Simmons, MD, MSc, Christine White, MD, MAT, Samir Shah, MD, MSCE, Amy Guiot, MD, Patrick Brady, MD, MSc, and Eric Kirkendall, MD.

In addition, and detailed further in the significant publications section, the Division has implemented and studied the impact of a novel bedside physician hand-off process at our Liberty campus where Division faculty and staff physicians provide direct care. Led by Craig Gosdin, MD, MSHA, this work has improved patient and nurse satisfaction and helped standardize clinical care.

Improving Pneumonia Care

Community-acquired pneumonia is the most common serious bacterial infection in children. Samir Shah, MD, Division director, co-authored the national pneumonia management guidelines (Clin Infect Dis 2011;53:e25-76).

These guidelines were sponsored by the Infectious Diseases Society of America and the Pediatric Infectious Diseases Society and endorsed by the American Academy of Pediatrics and other leading academic societies. These guidelines provide the first evidence-based recommendations for the diagnosis and treatment of children with pneumonia in the United States.

The guideline recommends ampicillin or amoxicillin as first-line treatment for pneumonia. Fewer than 10 percent of children at Cincinnati Children's had received these treatments when the guideline was published; children typically received "broad spectrum" antibiotics such as ceftriaxone, whose unnecessary use contributes to the development of antibiotic resistance. A team Cincinnati Children's and community physicians, nurses, and pharmacists, led by Christine White, MD, and Lilliam Ambroggio, PhD, from Hospital Medicine, implemented a series of interventions that resulted in 100 percent of children with pneumonia receiving the recommended treatments.

Notable Accomplishments

Jeffrey Simmons, MD, associate director of clinical operations and quality, received a Clinical Care Achievement Award for his exceptional commitment to patient- and family-centered care, mentoring junior faculty, and developing innovative models of clinical care. As an example, Simmons partnered with colleagues in Pulmonology, General Pediatrics and Allergy to reduce re-admissions for acute asthma.

Michelle Parker, MD, was recognized at the 17th International Scientific Symposium on Improving Quality and Value in Health Care for her work leading evidence adoption at Cincinnati Children's. Her project focused on increasing use of a probiotic, Lactobacillus, to treat acute gastroenteritis. In this study, Parker, Schaffzin, Conway, and Guiot used quality improvement methods to increase evidence-based prescribing from less than 1 percent to 100 percent for children hospitalized with acute gastroenteritis.

Samir Shah, Division director, was named inaugural Associate Editor of the *Journal of the Pediatric Infectious Diseases Society* and was promoted to Deputy Editor of the *Journal of Hospital Medicine*.

Division Highlights

PHIS+: Augmenting the Pediatric Health Information System with Clinical Data

This \$9 million project, funded by the Agency for Healthcare Research and Quality (AHRQ), links clinical data from 6 hospitals, including CCHMC, to a common administrative database to conduct comparative effectiveness studies. The project creates a new national data infrastructure for efficiently conducting clinical research. Study leaders include Hospital Medicine physicians Samir S. Shah, Jeffrey M. Simmons, and Eric Kirkendall. Accomplishments in the past year include successful merging of laboratory data from 2007-2011 for all 6 hospitals with the Pediatric Health Information Systems (PHIS). Merging of the microbiology and radiology data will be completed soon.

The study team will begin the first study to examine the comparative effectiveness of different antibiotics, including ampicillin, cephalosporins, and macrolides, in treating children with community-acquired pneumonia. This multicenter study will include approximately 10,000 children hospitalized with pneumonia. In preparation for this study, the group is using natural language processing to facilitate interpretation of the thousands of radiographs in an efficient manner. In this particular instance, a coded computer search can identify children with pneumonia by identifying key words or phrases in radiology reports that suggest a diagnosis of pneumonia. The search can be performed in minutes whereas this task might take human reviewers several weeks.

I-PASS: Accelerating Safer Sign-outs

The I-PASS study was initiated in response to mounting evidence that communication and handoff failures are root causes of two-thirds of “sentinel events” – serious, often fatal, preventable adverse events in hospitals. This study was designed to evaluate the effect of a residency handoff bundle- comprised of team training, verbal mnemonic, and structured printed tool- on medical errors, verbal and written miscommunications, and resident workflow and satisfaction. Hospital Medicine physicians Drs. Jennifer O’Toole and Lauren Solan are leading study implementation at CCHMC. Dr. O’Toole also serves as the co-chair of the faculty development subcommittee.

I-PASS (IIPE-PRIS Accelerating Safe Sign-outs) represents a cooperative effort of 11 North American hospitals, including CCHMC, the Initiative for Innovation in Pediatrics Education (IIPE) and the Pediatric Research in Inpatient Settings (PRIS). The U.S. Department of Health and Human Services granted \$3 million in funding, with additional support provided by member institutional and private foundations. The study has been so successful that the study team has received requests for study materials from over 200 institutions in 34 states and 6 countries.

Prioritization Project and Hospital-Specific Reports

Hospitals face the challenge of achieving the best outcomes for hospitalized children while minimizing unnecessary expenditure of resources. This study is being co-led by Dr. Samir S. Shah, Director of the Division of Hospital Medicine and an Executive Council member of the Pediatric Research in Inpatient Settings (PRIS) Network. PRIS is a hospital-based research network funded by the Department of Health and Human Services, the Agency for Healthcare Research and Quality, and the Children’s Hospital Association. This project uses administrative data from the Pediatric Health Information System (PHIS) and the Premier Perspectives database to identify hospital conditions that are prevalent, cumulatively expensive, and highly variable in terms of resource utilization. The overall goal of this “prioritization project” is to provide hospitals with a data-driven roadmap to prioritize conditions for quality improvement to improve outcomes and reduce unnecessary costs.

The initial findings were published in *Archives of Pediatrics & Adolescent Medicine*. In March, PRIS delivered hospital-specific reports to 39 children’s hospitals, including CCHMC, using data that each hospital submitted to PHIS over the last several years. The reports highlighted the tremendous variation in the costs of different tests across hospitals and the variation in resource utilization across these hospitals for common conditions. Each hospital was also presented with an individualized report that showed the hospital’s annual net savings or excess spending for the 50 most prevalent and/or costly conditions. These results can help each hospital’s clinical and administrative leadership identify conditions for which their hospital is spending more or less compared with other free-standing hospitals. The next step for the PRIS Network will be to focus on several common conditions to identify sources of inter-hospital variation in resource utilization, compare patient outcomes to this variation, and identify potential quality measures.

Significant Publications

Morse RB, Hall M, Fieldston ES, McGwire G, Anspacher M, Sills MR, Williams K, Oyemwense N, Mann KJ, Simon HK, **Shah SS**. **Hospital-level compliance with asthma care quality measures at children’s hospitals and subsequent asthma-related outcomes.** *JAMA*. 306(13):1454-1460. 2011.

Hospitals are required by the Joint Commission to collect data on the Children’s Asthma Care (CAC) process measures. These measures, the only Joint Commission mandated measures for pediatric care, include data on whether patients with asthma received reliever medications, steroids, and a home management plan of care.

Measurement is costly and burdensome. This study included over 37,000 children admitted with asthma at 30 hospitals. Dr. Shah and colleagues found that there was no association between CAC measure compliance and patient outcomes such as emergency department revisits or hospital readmissions. This study highlights the importance of ensuring that publicly reported “accountability measures” such as the CAC measures accurately reflect quality of care. This study has prompted a dialogue with the Joint Commission as to whether the CAC measures should be modified or withdrawn.

Mussman GM, Conway PH. Pediatric hospitalist systems versus traditional models of care: effect on quality and cost outcomes. *J Hosp Med.* 7(4):350-357. 2012.

This study demonstrated that hospital medicine physicians improve the quality and efficiency of care in the pediatric population. This study also proposed 4 components to improve quality and value in hospital medicine systems: 1) investment in comparative effectiveness research involving delivery system interventions; 2) development and implementation of pediatric quality measures; 3) better understanding of improvement mechanisms for hospital medicine systems; and 4) increased focus and quality and value delivered by hospital medicine groups and individuals. Dr. Conway, a faculty member in the Division of Hospital Medicine, is also the Chief Medical Officer of the Centers for Medicare and Medicaid Services.

White CM, Statile AM, Conway PH, Schoettker PH, Solan LG, Unaka NI, Vidwan N, Warrick SD, Yau C, Connelly BL. Utilizing improvement science methods to improve physician compliance with proper hand hygiene. *Pediatrics.* 129(4):e1042-1050. 2012.

In 2009, the Joint Commission challenged hospitals to reduce the risk of healthcare-associated infections through hand hygiene compliance. At CCHMC, as in most other institutions, physicians had lower compliance rates than other healthcare workers, just 68% on the hospital medicine wards. This study implemented a multifaceted intervention to successfully increase physician compliance with hand hygiene to over 95% over a period of 6 months. Instituting a hand-washing champion for immediate identification and mitigation of failures was a key in sustaining these outstanding results.

Cox ED, Schumacher JB, Young HN, Evans MD, Moreno MA, Sigrest TD. Medical student outcome after family-centered rounds. *Acad Pediatr.* 11(5):403-408. 2011.

Patient- and family-centered bedside rounds (FCBR) are an active process that facilitates open exchange of information and ideas among the patient, family, and all of the patient’s healthcare providers. CCHMC Division of Hospital Medicine physicians lead the way nationally in patient- and family-centered care, including our approach to bedside rounds. Despite concerns that medical students might respond negatively to the pressures of FCBR (i.e., presenting information in front of the family as opposed to the confines of a conference room), this study demonstrated that students had overall positive attitudes and gained appreciation of FCBR’s benefits for patients and families. This study also identified specific opportunities to enhance students’ FCBR experiences and support FCBR as a standard of care.

Hain PD, Daru J, Robbins E, Bode R, Brands C, Garber M, Gosdin C, Marks M, Percelay J, Terferi S, Tobey D. A proposed dashboard for pediatric hospital medicine groups. *Hospital Pediatrics.* 2:59-70. 2012.

Dr. Craig Gosdin, the Medical Director of the Hospital Medicine Liberty campus, was one of the hospital medicine leaders who created a “dashboard” intended to foster internal and external monitoring and comparison among Pediatric Hospital Medicine programs. The dashboard includes measures of illness severity, clinical quality data (e.g., the proportion of patients receiving evidence-based care), non-clinical quality data (e.g., patient and family satisfaction), productivity measures, resource utilization and faculty satisfaction and sustainability. This dashboard provides a critical step forward in benchmarking for national comparison and measuring and improving the care of the hospitalized child.

Division Publications

1. Ambroggio L, Tabb LP, O'Meara T, Sheffler-Collins S, McGowan KL, Shah SS. **Influence of antibiotic susceptibility patterns on empiric antibiotic prescribing for children hospitalized with community-acquired pneumonia.** *Pediatr Infect Dis J.* 2012; 31:331-6.
2. Aronson PL, Yan AC, Mittal MK, Mohamad Z, Shah SS. **Delayed acyclovir and outcomes of children hospitalized with eczema herpeticum.** *Pediatrics.* 2011; 128:1161-7.
3. Banerjee R, Hersh AL, Newland J, Beekmann SE, Polgreen PM, Bender J, Shaw J, Copelovitch L, Kaplan BS, Shah SS. **Streptococcus pneumoniae-associated hemolytic uremic syndrome among children in North America.** *Pediatr Infect Dis J.* 2011; 30:736-9.
4. Bradley JS, Byington CL, Shah SS. **Reply to Tamma and Cosgrove and Esposito.** *Clinical Infectious Diseases.* 2012; 54:885.
5. Bradley JS, Byington CL, Shah SS, Alverson B, Carter ER, Harrison C, Kaplan SL, Mace SE, McCracken GH, Jr., Moore MR, St Peter SD, Stockwell JA, Swanson JT, Pediatric Infectious Diseases S, the Infectious Diseases Society of A. **Executive summary: the management of community-acquired pneumonia in infants and children older than 3 months of age: clinical practice guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America.** *Clin Infect Dis.* 2011; 53:617-30.
6. Bradley JS, Byington CL, Shah SS, Alverson B, Carter ER, Harrison C, Kaplan SL, Mace SE, McCracken GH, Jr., Moore MR, St Peter SD, Stockwell JA, Swanson JT, Pediatric Infectious Diseases S, the Infectious Diseases Society of A. **The management of community-acquired pneumonia in infants and children older than 3 months of age: clinical practice guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America.** *Clin Infect Dis.* 2011; 53:e25-76.
7. Brizzi K, Hines EM, McGowan KL, Shah SS. **Diagnostic accuracy of cerebrospinal fluid gram stain in children with suspected bacterial meningitis.** *Pediatr Infect Dis J.* 2012; 31:195-7.
8. Burkhardt MC, Beck AF, Conway PH, Kahn RS, Klein MD. **Enhancing accurate identification of food insecurity using quality-improvement techniques.** *Pediatrics.* 2012; 129:e504-10.
9. Cohn KA, Thompson AD, Shah SS, Hines EM, Lyons TW, Welsh EJ, Nigrovic LE. **Validation of a clinical prediction rule to distinguish Lyme meningitis from aseptic meningitis.** *Pediatrics.* 2012; 129:e46-53.
10. Conway PH, Berwick DM. **Improving the rules for hospital participation in Medicare and Medicaid.** *JAMA.* 2011; 306:2256-7.
11. Cox ED, Schumacher JB, Young HN, Evans MD, Moreno MA, Sigrest TD. **Medical student outcomes after family-centered bedside rounds.** *Acad Pediatr.* 2011; 11:403-8.
12. Feudtner C, Berry JG, Parry G, Hain P, Morse RB, Slonim AD, Shah SS, Hall M. **Statistical uncertainty of mortality rates and rankings for children's hospitals.** *Pediatrics.* 2011; 128:e966-72.
13. Fieldston ES, Hall M, Shah SS, Hain PD, Sills MR, Slonim AD, Myers AL, Cannon C, Pati S. **Addressing inpatient crowding by smoothing occupancy at children's hospitals.** *J Hosp Med.* 2011; 6:462-8.
14. Florin TA, Shah SS. **Cluster Randomized Trials.** *AAP Grand Rounds.* 2011; 26:15.
15. Gollomp K, Rankin SC, White C, Mattei P, Harris MC, Kilpatrick LE, Sheffler-Collins S, McGowan KL, Shah SS. **Broad-range bacterial polymerase chain reaction in the microbiologic diagnosis of complicated pneumonia.** *J Hosp Med.* 2011; 7:8-13.
16. Goodman DM, Hall M, Levin A, Watson RS, Williams RG, Shah SS, Slonim AD. **Adults with chronic health conditions originating in childhood: inpatient experience in children's hospitals.** *Pediatrics.* 2011; 128:5-13.
17. Gosdin CH, Vaughn L. **Physician to Physician Bedside Handoff with Nurse and Family Involvement: A Qualitative Examination of Stakeholder Perceptions.** *Hospital Pediatrics.* 2012; 2:34-38.
18. Hain P, Daru J, Robbins E, Bode R, Brands C, Gosdin CH, Garber M, Marks M, Percelay J, Terferi S, Tobey D.

A Proposed Dashboard for Pediatric Hospital Medicine Group. *Hospital Pediatrics*. 2012; 2:59-70.

19. Hersh AL, Shapiro DJ, Pavia AT, Shah SS. **Antibiotic prescribing in ambulatory pediatrics in the United States.** *Pediatrics*. 2011; 128:1053-61.
20. Hines EM, Nigrovic LE, Neuman MI, Shah SS. **Adjustment of cerebrospinal fluid protein for red blood cells in neonates and young infants.** *J Hosp Med*. 2012; 7:325-8.
21. Macy ML, Hall M, Shah SS, Hronek C, Del Beccaro MA, Hain PD, Alpern ER. **Differences in designations of observation care in US freestanding children's hospitals: are they virtual or real?** *J Hosp Med*. 2012; 7:287-93.
22. Morse RB, Hall M, Fieldston ES, McGwire G, Anspacher M, Sills MR, Williams K, Oyemwense N, Mann KJ, Simon HK, Shah SS. **Hospital-level compliance with asthma care quality measures at children's hospitals and subsequent asthma-related outcomes.** *JAMA*. 2011; 306:1454-60.
23. Mussman GM, Conway PH. **Pediatric hospitalist systems versus traditional models of care: effect on quality and cost outcomes.** *J Hosp Med*. 2012; 7:350-7.
24. Narus SP, Srivastava R, Gouripeddi R, Livne OE, Mo P, Bickel JP, de Regt D, Hales JW, Kirkendall E, Stepanek RL, Toth J, Keren R. **Federating clinical data from six pediatric hospitals: process and initial results from the PHIS+ Consortium.** *AMIA Annu Symp Proc*. 2011; 2011:994-1003.
25. Nathanson J, Shah SS. **Gonococcal infections.** *The 5-Minute Pediatric Consult*. Philadelphia: Lippincott Williams and Wilkins; 2012:374-375.
26. Neuman MI, Lee EY, Bixby S, Diperna S, Hellinger J, Markowitz R, Servaes S, Monuteaux MC, Shah SS. **Variability in the interpretation of chest radiographs for the diagnosis of pneumonia in children.** *J Hosp Med*. 2012; 7:294-8.
27. Nigrovic LE, Kimia AA, Shah SS, Neuman MI. **Relationship between cerebrospinal fluid glucose and serum glucose.** *N Engl J Med*. 2012; 366:576-8.
28. Nigrovic LE, Shah SS, Neuman MI. **Correction of cerebrospinal fluid protein for the presence of red blood cells in children with a traumatic lumbar puncture.** *J Pediatr*. 2011; 159:158-9.
29. Pasquali SK, He X, Mohamad Z, McCrindle BW, Newburger JW, Li JS, Shah SS. **Trends in endocarditis hospitalizations at US children's hospitals: impact of the 2007 American Heart Association Antibiotic Prophylaxis Guidelines.** *Am Heart J*. 2012; 163:894-9.
30. Pasquali SK, Li JS, He X, Jacobs ML, O'Brien SM, Hall M, Jaquiss RD, Welke KF, Peterson ED, Shah SS, Gaynor JW, Jacobs JP. **Perioperative methylprednisolone and outcome in neonates undergoing heart surgery.** *Pediatrics*. 2012; 129:e385-91.
31. Pasquali SK, Li JS, He X, Jacobs ML, O'Brien SM, Hall M, Jaquiss RD, Welke KF, Peterson ED, Shah SS, Jacobs JP. **Comparative analysis of antifibrinolytic medications in pediatric heart surgery.** *J Thorac Cardiovasc Surg*. 2012; 143:550-7.
32. Pati S, Lorch SA, Lee GE, Sheffler-Collins S, Shah SS. **Health insurance and length of stay for children hospitalized with community-acquired pneumonia.** *J Hosp Med*. 2012; 7:304-10.
33. Rauch DA, Lye PS, Carlson D, Daru JA, Narang S, Srivastava R, Melzer S, Conway PH. **Pediatric hospital medicine: a strategic planning roundtable to chart the future.** *J Hosp Med*. 2012; 7:329-34.
34. Renuart AJ, Mistry RD, Avery RA, Licht DJ, Seiden JA, Huh JW, Boswinkel JP, Liu GT, Shah SS. **Reference range for cerebrospinal fluid protein concentration in children and adolescents.** *Arch Pediatr Adolesc Med*. 2011; 165:671-3.
35. Schaffzin JK, Coronado F, Dumas NB, Root TP, Halse TA, Schoonmaker-Bopp DJ, Lurie MM, Nicholas D, Gerzonich B, Johnson GS, Wallace BJ, Musser KA. **Public health approach to detection of non-O157 Shiga toxin-producing Escherichia coli: summary of two outbreaks and laboratory procedures.** *Epidemiol Infect*. 2012; 140:283-9.
36. Shah SS. **Cryptococcal infections.** *The 5-Minute Pediatric Consult*. Philadelphia: Lippincott Williams and

- Wilkins; 2012:240-241.
37. Shah SS. **Fever of unknown cause**. *The 5-Minute Pediatric Consult*. Philadelphia: Lippincott Williams and Wilkins; 2012:336-337.
 38. Shah SS. **Omphallitis**. *The 5-Minute Pediatric Consult*. Philadelphia: Lippincott Williams and Wilkins; 2012:600-601.
 39. Shah SS, Aronson PL, Mohamad Z, Lorch SA. **Delayed acyclovir therapy and death among neonates with herpes simplex virus infection**. *Pediatrics*. 2011; 128:1153-60.
 40. Shah SS, Byington CL, Bradley JS. **Reply to Zimmerman et al**. *Clin Infect Dis* . 2012; 54:1816-1817.
 41. Shah SS, Hines EM, McGowan KL. **Cerebrospinal fluid enrichment broth cultures rarely contribute to the diagnosis of bacterial meningitis**. *Pediatr Infect Dis J*. 2012; 31:318-20.
 42. Shah SS, Test M, Sheffler-Collins S, Weiss AK, Hall M. **Macrolide therapy and outcomes in a multicenter cohort of children hospitalized with *Mycoplasma pneumoniae* pneumonia**. *J Hosp Med*. 2012; 7:311-7.
 43. Sills MR, Hall M, Fieldston ES, Hain PD, Simon HK, Brogan TV, Fagbuyi DB, Mundorff MB, Shah SS. **Inpatient capacity at children's hospitals during pandemic (H1N1) 2009 outbreak, United States**. *Emerg Infect Dis*. 2011; 17:1685-91.
 44. Tamma PD, Cosgrove SE. **Duration of antibiotic therapy for community-acquired pneumonia in children**. *Clin Infect Dis*. 2012; 54:883-4; author reply 885.
 45. Tieder JS, Hall M, Auger KA, Hain PD, Jerardi KE, Myers AL, Rahman SS, Williams DJ, Shah SS. **Accuracy of administrative billing codes to detect urinary tract infection hospitalizations**. *Pediatrics*. 2011; 128:323-30.
 46. Toledo L, Shah SS. **Coccidioidomycosis**. *The 5-Minute Pediatric Consult*. Philadelphia: Lippincott Williams and Wilkins; 2012:202-203.
 47. VanLare JM, Moody-Williams J, Conway PH. **Value-based purchasing for hospitals**. *Health Aff (Millwood)*. 2012; 31:249; author reply 249.
 48. Vermaire D, Caruso MC, Lesko A, Kloppenborg E, Olivea J, Pruett R, Paul M, Schoettker PJ, Seid M, Varadarajan KR, Conway PH. **Quality improvement project to reduce perioperative opioid oversedation events in a paediatric hospital**. *BMJ Qual Saf*. 2011; 20:895-902.
 49. White CM, Statile AM, Conway PH, Schoettker PJ, Solan LG, Unaka NI, Vidwan N, Warrick SD, Yau C, Connelly BL. **Utilizing improvement science methods to improve physician compliance with proper hand hygiene**. *Pediatrics*. 2012; 129:e1042-50.
 50. Wilson KM, Shah SS, Simon TD, Srivastava R, Tieder JS. **The challenge of pediatric hospital medicine research**. *Hospital Pediatrics*. 2012; 2:8-9.
 51. Young HN, Schumacher JB, Moreno MA, Brown RL, Sigrest TD, McIntosh GK, Schumacher DJ, Kelly MM, Cox ED. **Medical student self-efficacy with family-centered care during bedside rounds**. *Acad Med*. 2012; 87:767-75.

Faculty, Staff, and Trainees

Faculty Members

Samir Shah, MD, MSCE, Assistant Professor

Leadership Division Director

Research Interests Pediatric infectious diseases and pediatric hospital medicine physician whose research focuses on improving the efficiency and quality of care of children hospitalized with common, serious infections such as pneumonia and meningitis. Ongoing projects include studying the comparative effectiveness of different

antibiotics in the treatment of community-acquired pneumonia and developing novel databases to conduct comparative effectiveness research.

Patrick Brady, MD, MSc, Assistant Professor

Research Interests To design and evaluate a highly reliable system to identify, predict, and intervene on hospitalized patients at risk of clinical deterioration.

Dena Elkeeb, MD, Adjunct

Craig Gosdin, MD, MSHA, Assistant Professor

Leadership Medical Director, Liberty Hospitalists

Research Interests Hospitalists workforce issues, identification of best practices and financial sustainability of hospitalist programs, and cost effectiveness.

Amy Guiot, MD, Adjunct

Karen Jeradi, MD, Instructor

Research Interests Primary research interests focuses on medical education research and the development of quality measures for management of children hospitalized with common infections such as urinary tract infection and pneumonia.

Eric Kirkendall, MD, MBI, Assistant Professor

Research Interests Using technology and the electronic health record to improve the quality and safety in care delivering.

Jennifer O'Toole, MD, MEd, Assistant Professor

Leadership Medical Director, Education

Research Interests In handoffs in care, educational innovation for bedside teaching, teaching residents to care for underserved populations and faculty development in medical education. She is the site PI for the I-PASS Handoff Study where she leads faculty development efforts and is a member of the educational team that developed the extensive curriculum for the study.

Michelle Parker, MD, Adjunct

Research Interests Translational research in the area of hospital medicine. Main area of interest surround education and application of evidence-based medicine and evidence-based guidelines, with a focus of utilizing quality improvement science to drive outcomes.

Joshua Schaffzin, MD, PhD, Assistant Professor

Research Interests The system and human factors influencing surgical site infection prevention. Using epidemiological and quality improvement methods. Currently, designing and implementing an enhanced SSI prevention bundle that is reliable across a patient's care continuum.

Ted Sigrest, MD, Assistant Professor

Research Interests Family Centered Care and medical rounds; studies in efficiency and effectiveness

Jeffrey Simmons, MD, MSc, Assistant Professor

Leadership Associate Director, Clinical Operations and Quality; Director Pediatric Hospital Medicine Fellowship

Research Interests Integrate classical clinical research methods and quality improvement science to accelerate the integration of research and research findings into the general inpatient wards.

Angela Statile, MD, Instructor

Research Interests Medical education and quality improvement. Currently implementing an innovative hospital medicine resident conference series. Also involved in several quality improvement initiatives, including projects to improve timely patient discharges and to improve timely patient discharges and to improve compliance with a

national pneumonia guideline.

Ndidi Unaka, MD, Instructor

Research Interests Research interests center around resident education, curriculum development and quality improvement.

Brian Volck, MD, Adjunct

Research Interests Focus includes global child health; Native American child health; medical education; cross-cultural medicine; medical ethics; poverty, justice and health.

Michael Vossmeier, MD, Assistant Professor

Leadership Director of Community Integration

Research Interests Family-centered care, situation awareness and clinical quality improvement.

Christine White, MD, MAT, Assistant Professor

Leadership Director Hospital Medicine Burnet Campsu

Research Interests Quality improvement; efforts to increase medication reconciliation completion. Currently leading institute-wide improvement projects on improving capacity management and the patient/family experience.

Joint Appointment Faculty Members

Beck Andrew, MD, PhD, Assistant Professor (General and Community Pediatrics)

Thomas Dewitt, MD, PhD, Professor (General and Community Pediatrics)

Neera Goyal, MD, PhD, Assistant Professor (Neonatology and Pulmonary Biology)

Melissa Klein, MD, PhD, Assistant Professor (General and Community Pediatrics)

Stephen Muething, MD, PhD, Associate Professor (James M. Anderson Center for Health System Excellence)

Sarah Riddle, MD, PhD, Adjunct (General and Community Pediatrics)

Andrew Spooner, MD, MS, Associate Professor (General and Community Pediatrics)

Clinical Staff Members

- **Talia Belmont-Monteverde, MD**
- **Ben Bolsner, MD**
- **Karla Hicks, MD**
- **Grant Mussman, MD**

Trainees

- **Lilliam Ambroggio, PhD, MPH**, Children's Hospital of Philadelphia
- **Lauren Solan, MD**, Cincinnati Children's Hospital Medical Center
- **Matthew Test**, Case Western, Cleveland Ohio
- **Joanna Thomson, MD**, Cincinnati Children's Hospital Medical Center

Division Collaboration

Allergy & Immunology » Neeru Hershey, MD, PhD and Melinda Butsch-Kovacic, MPH, PhD

Dr. Simmons is a co-investigator on a project investigating the change in RNA expression profiles overtime in patients admitted for asthma. He is responsible for the inpatient portion of the study. Dr. Simmons is collaborating with Dr. Butsch-Kovacic to improve recruitment for her exhaled breath condensate in children with asthma exacerbation study as well as in developing a new grant to study the impact of a discharge planning tool for families of low health-literacy.

James M. Anderson Center of Health Systems Excellence » Stuart Goldstein, MD, Stephen Muething, MD, PhD, and Uma Kotagal, MBBS, MSc

Dr. Kirkendall is working alongside leaders from the James M. Anderson Center for Health Systems Excellence and the Center for Acute Care Nephrology to develop an automated system for predicting and detecting nephrotoxic medication-associated acute kidney injury in the inpatient environment.

James M. Anderson Center of Health Systems Excellence » Linda Goldenhar, PhD, Uma Kotagal, MBBS, MSc, and Steve Muething, MD

Dr. Brady is a project primary investigator on a mixed methods study with Dr. Goldenhar and Muething on identifying modifiable system and human factors associated with mitigation and escalation of risk and then using the information to develop targeted interventions to improve situation awareness. Dr. Brady works with Dr. Lannon on this project as well as one describing the nature and prevalence of adverse medical device event in hospitalized children. Dr. Brady collaborates with Dr. Kotagal and Dr. Muething on improvement work on patient safety and situation awareness.

General & Community Pediatrics » Melissa Klein, MD

Dr. O'Toole is Associate Director of the General Pediatric Master Educator Fellowship funded through a HRSA grant directed by Dr. Melissa Klein. She is the lead inpatient mentor and has been responsible for developing the Observed Structured Teaching Evaluations and Individualized Learning Plan for the fellowship. Drs. O'Toole and Klein are also developing an innovative video simulation curriculum for residents that teaches the effects of and how to screen for social determinants of health.

General & Community Pediatrics » Camille Graham, MD

Drs. Ambroggio, White, Shah, and Statile are collaborating with Dr. Graham on a series of projects aimed at improving adherence to the recently published community-acquired pneumonia national guidelines. To date, they have improved adherence to first-line antibiotic prescribing from less than 50% to 100% for children evaluated in the emergency department and admitted to the Hospital Medicine service.

General and Community Pediatrics, Physician Health Organization (PHO), Asthma Center » Mona Mansour, MD, MS, Keith Mandel, MD, and Carolyn Kerckmar, MD

Dr. Simmons is a Co-PI on the Beacon Communities Grant, which was awarded to 17 communities around the country, and Cincinnati was selected to focus on pediatric asthma and adult diabetes outcomes. The pediatric asthma portion is focused on increasing the use of Health IT in quality improvement; specifically, the grant has provided notification to our three primary care practices that a patient utilized an outside ED or hospital, an asthma patient registry for our primary care patients, an asthma decision support tool created by the asthma center and piloted in the PHO, and increased the number of care coordinators working in our clinics.

General and Community Pediatrics, Biostatistics and Epidemiology, Allergy and Immunology » Robert Kahn, MD, MPH, Bin Huang, PhD, Terri Moncrief, MD, MS, and Andrew Beck, MD, PhD

Drs. Simmons is a co-investigator for the Greater Cincinnati Asthma Risks Study (GCARS), a study that seeks to identify biological, social, environmental and other risk factors for pediatric asthma readmission. The study has currently enrolled 774 participants, with over 600 having 12 months of follow-up. Early analyses of the data are positive, and manuscripts will be forthcoming.

General and Community Pediatrics, Allergy and Immunology, Pulmonary, Asthma Center, Social Work, Respiratory Therapy, Home Health, Nursing » Inpatient Asthma Working Group

Dr. Simmons is a co-leader of the Inpatient Asthma Working Group. This group is responsible for a number of quality improvement projects aimed at reducing the 30- and 90-day readmission rate for pediatric asthma patients. Since its inception in 2008, the group has implemented interventions, including medications in hand at the time of discharge, a standardized risk assessment and history and physical, and a targeted home health

program. These interventions have led to a decrease in the 30-day reutilization rate from a baseline of 11.1% to a current median of 5.6%. The 90-day rate has decreased from a baseline of 23.1% to a median of 17.3%.

General and Community Pediatrics » David Hall, MD

Dr. Thomson is under the mentorship of Dr. Hall in studying the impact of children with medical complexity on health resource utilization.

General and Community Pediatrics » David Hall, MD and Derek Fletcher, MD

Drs. Spooner and Thomson are collaborating with Drs. Hall and Fletcher on improving the accuracy of the home medication list in children with medical complexity admitted to the hospital.

Cardiology and the Heart Institute » Samuel Hanke, MD

Dr. Shah serves as co-mentor to Dr. Hanke for a multicenter study examining the impact of readmissions to the cardiac intensive care unit on costs and quality of care.

Critical Care » Carley Riley, MD

Dr. Shah and Dr. Brady serve as co-mentors to Dr. Riley for a multicenter study to identify the impact of the chronically critically ill pediatric population on health resource utilization.

Critical Care » Ken Tegtmeyer, MD and Derek Wheeler, MD

Dr. Brady is collaborating with Dr. Tegtmeyer and Dr. Wheeler on a series of improvement projects and studies aimed at evaluating and improvement the effectiveness of medical response teams and interventions that improve situation awareness of teams to predict, identify, and act on patients at risk of deterioration.

Emergency Medicine » Todd Florin, MD, MSCE

Dr. Shah serves as the primary research mentor to Dr. Florin. They are collaborating on a series of projects quantifying the impact of variation in care of children evaluated in the emergency department with pneumonia on clinical outcomes. To date, they have demonstrated that hospitals that perform more testing and admit a higher proportion of patients do not have better clinical outcomes than hospitals that have a more parsimonious approach to resource utilization for children with pneumonia.

Emergency Medicine » Srikant Iyer, MD and Eileen Murtagh-Kurowski, MD

Drs. Ambroggio, White, Shah, and Statile are collaborating with Dr. Graham on a series of projects aimed at improving adherence to the recently published community-acquired pneumonia national guidelines. To date, they have improved adherence to first-line antibiotic prescribing from less than 50% to 100%.

Emergency Medicine » Gary Geis, MD and Corinne Bria, MD

Drs. Brady and Statile are collaborating with Drs. Geis and Bria on an in-situ Medical Response Team simulation project aimed at increasing preparedness for acute escalation of care by Hospital Medicine teams.

General Surgery » Fred Ryckman, MD and Betsy Gerrein, MSN, CNP

Drs. White, Statile, and Elkeeb are collaborating with Dr. Ryckman and Ms. Gerrein on a project involving discharge efficiency for General Surgery patients. The project is part of the overall strategic goal for flow improvement and aims to improve the percentage of patients discharged within two hours of meeting physiologically ready goals for 6 identified surgical diagnoses from an unknown baseline (data currently being collected) to >80%.

Biostatistics & Epidemiology » Maurizio Macaluso, MD, DPH

Drs. Shah, Ambroggio, Simmons, Goyal, and Brady are collaborating with Dr. Macaluso on a series of multicenter studies aimed at examining the impact of medical response team on serious safety events in the hospital setting.

Biostatistics & Epidemiology » Maurizio Macaluso, MD, DPH

Drs. Ambroggio and Shah are collaborating with Dr. Macaluso on a series of multicenter studies aimed at comparing the effectiveness of different therapies for treatment of community-acquired pneumonia in both hospitalized children and children seen in the outpatient setting. Dr. Macaluso is also a co-mentor to Dr. Ambroggio.

Radiology » Brian Coley, MD, Sally O'Hara, MD, Mantosh Rattan, MD, Diane Babcock, MD, and Alan Brody, MD
Drs. Ambroggio and Shah are collaborating with Drs. Coley, O'Hara, Rattan, Babcock and Brody on a study investigating the diagnostic accuracy of chest ultrasonography in detecting pneumonia in children compared with chest radiographs.

Global Child Health Center » Mark Steinhoff, MD

Drs. Ambroggio and Shah are collaborating with Dr. Steinhoff on a study investigating the diagnostic accuracy of chest ultrasonography in detecting pneumonia in children compared with chest radiographs.

Global Child Health Center » Charles Schubert, MD

Dr. Volck collaborates with Dr. Schubert on the Global Child Health Residency Track, Global Child Health Resident Curriculum, and the annual Global Child Health Intern Boot Camp, held at CCHMC and the Gallup Indian Medical Center, Gallup, NM

Surgical Services »

Dr. Schaffzin serves on the Peri-operative SSI improvement team. He has coached an RCIC team collaborating with Orthopaedics and A3N to identify compartment syndrome in at-risk patients and to track identifications of post-operative complications in spine fusion patients.

Nephrology and Hypertension » Stuart Goldstein, MD and

Dr. Schaffzin is collaborating with Dr. Goldstein on a local and multicenter analysis of nephrotoxin-related acute kidney injury.

Infectious Diseases » Andrew Keppel, MD, MPH

Dr. Schaffzin serves as co-mentor on Dr. Kreppel's Scientific Oversight Committee working on quality improvement efforts to prevent healthcare-associated MRSA infection. Dr. Schaffzin plans to coach an RCIC team lead by Dr. Kreppel.

Orthopedics » Peter Sturm, MD

Dr. Schaffzin is collaborating with Dr. Sturm and others to examine post-operative hyponatremia and surgical site infection prevention in spine patients.

Neurosurgery » Charles Stevenson, MD

Dr. Schaffzin is collaborating with Dr. Stevenson and others to examine wound healing failures in neurosurgical patients.

Skin Sciences Institute » Marty Visscher, PhD

Dr. Schaffzin is collaborating with Dr. Visscher and others to examine wound healing failures in neurosurgical patients.

Biomedical Informatics & James M. Anderson Center of Excellence » Imre Solti, MD, PhD, Stephen Muething, MD, PhD, and Uma Kotagal, MBBS, MSc

Dr. Solti's collaboration efforts with Dr. Kirkendall include the submission of an NIH grant application (PI: Solti) to develop new modules for cTAKES and the submission of an internal Trustee grant application (PI: Solti) to develop clinical NLP infrastructure. Dr. Solti is collaborating with Drs. Kirkendall and Muething in preparing the EHR-based medication safety project.

Biomedical Informatics » Imre Solti, MD, PhD, Evaline Alessandrini, MD, MSCE, Holly Brodzinski, MD, MPH, Eric

Kirkendall, MD, MBI, and Judith Dexheimer, PhD

Dr. Solti collaborates with the members of the Anderson Center and Emergency Medicine in the appendicitis risk stratification project. The divisions are developing an automated system to determine the risk of appendicitis in abdominal pain patients

James M. Anderson Center of Health Systems Excellence; Nephrology (Center for Acute Care Nephrology) »

Stuart Goldstein, MD, Stephen Muething, MD, PhD, and Uma Kotagal, MBBS, MSc

Dr. Kirkendall is working alongside leaders from the James M. Anderson Center for Health Systems Excellence and the Center for Acute Care Nephrology to develop an automated system for predicting and detecting nephrotoxic medication-associated acute kidney injury in the inpatient environment.

Biomedical Informatics & Neonatology » Imre Solti, MD, PhD and Kristin Melton, MD

Dr. Solti and Dr. Kirkendall are working with Dr. Kristin Melton to automate adverse event detection in the Neonatal Intensive Care Unit by using electronic health record data and natural language processing techniques to find harm that is not usually identified by other means.

Neonatology » Kristin Melton, MD

Dr. O'Toole has worked with Dr. Kristin Melton from Neonatology on implementing the I-PASS handoff bundle for neonatal nurse practitioners in the NICU.

Grants, Contracts, and Industry Agreements

Grant and Contract Awards		Annual Direct
AMBROGGIO, L		
Diagnostic Tools for Detecting the Pneumonia in Children		
Thrasher Research Fund	2/01/2012-1/31/2014	\$25,000
O'TOOLE, J		
Bundling Effective Resident Handoff Practices to Improve Patient Safety		
Department of Health and Human Services(Children's Hospital Boston)		
R18 AE 000029	09/21/2010-09/20/2013	\$64,769
SHAH, S		
Predicting Adverse Outcomes in Children With Community Acquired Pneumonia		
Robert Wood Johnson Foundation	07/19/2011-01/31/2013	\$93,110
Predicting Adverse Outcomes in Children with Community Acquired Pneumonia		
National Institutes of Health		
K01 AI 073729	02/01/2008-01/31/2013	\$142,319
Pediatric Research in Inpatient Setting Network		
Child Health Corporation of America	01/01/2012-12/31/2012	\$33,634
SIMMONS, J		
PHIS+: Augmenting the Pediatric Health Information System with Clinical Data		
Agency for Healthcare Research and Quality(Children's Hospital of Philadelphia)		
R01 HS 019862	09/30/2010-09/29/2013	\$197,274
Current Year Direct		\$556,106
Total		\$556,106

