

2014 Research Annual Report

Hospital Medicine



Division Summary

RESEARCH AND TRAINING DETAILS

Number of Faculty	31
Number of Joint Appointment Faculty	6
Number of Research Fellows	3
Number of Support Personnel	14
Direct Annual Grant Support	\$612,103
Peer Reviewed Publications	119

CLINICAL ACTIVITIES AND TRAINING

Number of Staff Physicians	3
Number of Clinical Fellows	2
Inpatient Encounters	13,157

Division Photo



Row 1: C Schuler, K Auger, A Schondelmeyer, K Forester, K Jerardi, A Guiot
Row 2: L Herbst, M Mallory, B Volck, E Shaughnessy, K Meier, A Patel, A Shah, L Benz, S Shah, L Brower, L Ambroggio
Row 3: M Klein, C White, P Brady, E Conway E Kirkendall, G Mussman, P Hagedorn, B Hubbell, N Unaka, A Spooner, B Kinnear J O'Toole, J Schaffzin, A Antommara, B Herbst, B Simpson

Significant Accomplishments

Hospital Medicine Complex Care Team

The care of patients with complex medical needs requires multidisciplinary care coordination due to frequent admissions, involvement of multiple subspecialties, and need for multiple medications. In July 2013, the complex care team (also known as the Yellow team) was created in partnership with the Division of General and Community Pediatrics and the Complex Care Center to provide comprehensive inpatient care to these medically fragile patients. Patients admitted to this inpatient team include those with developmental disabilities or technology dependence (eg, require a feeding tube). In addition to a core group of Hospital Medicine attending and fellow physicians, this team also includes Complex Care clinic physicians, social workers, pharmacists, care managers, residents, nurses, and advanced nurse practitioners. Goals of the team include providing safe, coordinated family-centered care, developing clinical expertise in the inpatient care of complex patients, and advancing the care of medically complex patients through research focused on their unique needs.

Hospital Medicine Adult Care

Survival into adulthood is now common for many diseases that were historically fatal in childhood, such as congenital heart disease, extreme prematurity, and childhood cancer. As adults, these patients require care from specialists with expertise in caring for their "pediatric" condition as well as those with expertise in adult medical issues. In July our division launched the Hospital Medicine Adult Care (HMAC) service to provide high quality consultative care to adult patients admitted to Cincinnati Children's. Physicians who have training and experience in the care of both hospitalized children and adults will staff this service. Under the leadership of

Jennifer O'Toole, MD, MEd, four new faculty members (Erin Conway, MD; Brian Herbst, MD; Lori Herbst, MD; and Benjamin Kinnear, MD) will develop this service in partnership with Cincinnati Children's Adult Transition clinic faculty. The HMAc faculty members will also practice at the University of Cincinnati Medical Center and Cincinnati Children's to maintain exceptional skills in both internal medicine and pediatrics. Major goals for the HMAc service are to enhance clinical expertise in the care of this specialized population, improve patient experience, improve access to care, and improve safety for adult patients admitted to Cincinnati Children's while establishing a reputation as national leaders in this area.

Partnership with Community Pediatricians to Improve Care

Timely and efficient transitions of care are important to ensure patient safety at the time of hospital discharge. Review of our data revealed that telephone calls to discuss hospital course and determine the follow-up plan of care occurred for only 52 percent of discharged patients. A multidisciplinary team implemented systematic improvements, including mandatory use of Physician Priority Link, tying signing of the discharge order with initiation of the call, and batching outgoing calls to minimize work disruption to primary care physicians. These improvements led to 96 percent of calls successfully completed.

At Cincinnati Children's, some community physicians admit and manage their own patients. Having those patients assigned to the correct attending physician and resident team is important to facilitate communication between the community physician and resident as well as to expedite the rounding process. Baseline data indicated that 50 percent of community physician patients were being incorrectly assigned. A multidisciplinary team, which included community physicians, implemented improvements and decreased incorrect service assignment to less than 5 percent.

Research Highlights

Pediatric Hospital Medicine Fellowship Program

The division is proud to support one of the country's top Pediatric Hospital Medicine fellowships under the leadership of **Jeffrey Simmons, MD, MS, and Karen Jerardi, MD, MEd**. The fellowship aims to train the future leaders and independent investigators. Six fellows are currently enrolled in the 3-year fellowship-training program. Our first two fellows, **Lauren Solan, MD, MEd, and Joanna Thomson, MD**, graduated in June 2014. **Dr. Solan** received the Academic Pediatric Association (APA) Region V Trainee Abstract Award for her qualitative study examining inpatient to outpatient transitions. **Dr. Thomson** received an Academic Pediatric Association's Young Investigator grant for her study of pneumonia in patients with neurologic impairment. Additionally, senior fellow **Amanda Schondelmeyer, MD**, received the Dr. Arnold Strauss Fellow Award for her project to evaluate the use of medical device alarms on the inpatient units.

Society of Hospital Medicine Teamwork in Quality Improvement Award

The Division of Hospital Medicine faculty and fellows received the Society of Hospital Medicine's prestigious 2014 Teamwork in Quality Improvement Award. Division faculty, including **Drs. Lilliam Ambroggio, Patrick Brady, Craig Gosdin, Karen Jerardi, Michelle Parker, Michael Vossmeier, and Samir S. Shah**, led a multidisciplinary team of 60 members including faculty and staff from the Divisions of Infectious Diseases, General and Community Pediatrics, Emergency Medicine, Pharmacy, as well as the Anderson Center, Information Services, Human Resources, Patient Services, and Decision Support. The series of projects, titled "Improving Adherence to Evidence-Based Recommendations for Common Serious Childhood Infections," tackled conditions with the highest potential for impacting patient safety and clinical outcomes by implementing actionable evidence.

Children's Hospital Association Pediatric Quality Award

Division of Hospital Medicine faculty won the Children's Hospital Association 2013 Pediatric Overall Quality Award for their project titled "Using Quality Improvement to Optimize Pediatric Discharge Efficiency". **Drs. Christine White and Angela Statile** led the multidisciplinary team to develop medically-ready discharge criteria for 11 common inpatient diagnoses. Interventions focused on 1) key stakeholder buy-in and shared ownership; 2) pharmacy process redesign; 3) improving the timeliness of subspecialty consults; and 4) identification and mitigation of failures with data transparency. As a result, the percentage of patients discharged within two hours of meeting their discharge goals from 42% at study start to 80% currently. These interventions were associated with a 10% decrease in length of hospital stay without any increase in readmission.

Publications

Division faculty served as authors or editors for three books:

- **Volck B.** *Flesh Becomes Word*. Loveland: Dos Madres Press, 2013;
- **Shah SS**, Luwig S (eds). *Symptom-Based Diagnosis in Pediatrics*. New York: McGraw-Hill Professional, 2014;
- **Shah SS**, Ronan JC, Alverson B. *Step-Up to Pediatrics*. Philadelphia: Lippincott, Williams, & Wilkins, 2014.

Dr. Brian Volck

Dr. Brian Volck, assistant professor of Pediatrics, received the Faculty Teaching Award from the graduating senior resident class for his exceptional teaching ability and commitment to resident education. Dr. Volck's teaching interests include cross-cultural medical communication, social determinants of health, and narrative medicine. He is co-founder of the Initiative on Poverty, Justice and Health, which introduces primary-care residents to the challenges, strengths, and medical concerns of persons in poverty, and the Global Child Health Boot Camp, a cultural and medical immersion on the Navajo Nation for pediatric interns from Cincinnati Children's.

Dr. Andrew Beck

Dr. Andrew Beck, assistant professor of Pediatrics, received the Cincinnati Children's 2014 Junior Faculty Service and Advocacy Award for his commitment to being a strong advocate for improving the health of children. Dr. Beck was instrumental in creating an innovative partnership with the Cincinnati Health Department to link children admitted to the hospital with asthma to resources to address housing issues which impact the severity and frequency of asthma exacerbations.

Dr. Katherine Auger

Dr. Katherine Auger, assistant professor of Clinical Pediatrics, received the 2014 Presidential Scholarship for New Health Services Researchers from AcademyHealth, a leading national organization in health policy and healthcare financing.

Dr. Jeffrey M. Simmons

Dr. Jeffrey M. Simmons, associate professor of Pediatrics and associate director of Clinical Operations and Quality in the Division of Hospital Medicine, was appointed as the Cincinnati Children's associate safety officer.

Dr. Eric Kirkendall

Dr. Eric Kirkendall, assistant professor of Pediatrics, was named as associate chief medical information officer.

Dr. Patrick Conway

Dr. Patrick Conway, associate professor of Pediatrics and Chief Medical Office for the Centers for Medicare and Medicaid Services, was named a master in Hospital Medicine, the highest honor bestowed by the Society of Hospital Medicine.

The Hospital-to-Home Outcomes Study (H2O): Improving the Fluidity of Patient Transitions

The transition from hospital to home is a vulnerable time for patients and their families. One out of every five families reports major problems with the transition that, in turn, may place the child at risk of poor outcomes. This \$2 million dollar grant, funded by the Patient-Centered Outcomes Research Institute (PCORI), aims to identify and eliminate barriers for families as they leave the hospital and return home.

The overall goal study goal is to assess if a nurse home visit program, involving a home health nurse visiting the patient at home 24-48 hours after discharge, improves patient outcomes by addressing challenges that patients and families face as they return home. Novel aspects of this study include a partnership with parents to identify meaningful outcome measures from the family rather than health system perspective and the use of a randomized trial design to determine whether a home nurse visit can improve those outcomes. The study will include over 1200 Cincinnati area families. The study, which is led by **Drs. Samir S. Shah and Jeffrey M. Simmons**, involves a team approach with involvement from faculty and staff in the Divisions of Hospital Medicine and Biostatistics and Epidemiology as well as Neurosciences and Patient Services at Cincinnati Children's, and the Linder School of Business at the University of Cincinnati.

Reducing Variability in the Outpatient Management of Community-Acquired Pneumonia

Community-acquired pneumonia (CAP) ranks among the most common serious infections in childhood with over 1.5 million cases each year. There is significant variability in the management of children with CAP. Recently, Pediatric Infectious Diseases Society and the Infectious Diseases Society of America, with **Dr. Samir S. Shah** a lead author, published a guideline for the management of children diagnosed with CAP. Our study, funded by a Cincinnati Children's Place Outcomes Research Award and an Academic Pediatric Association Young Investigator Award, evaluates the effect of this guideline in the outpatient setting and determines the benefits as well as the unintended consequences of guideline implementation throughout the continuum of care from outpatient clinic to emergency department to the hospital ward. The study team, including **Drs. Samir S. Shah, Lilliam Ambroggio and William Brinkman** have partnered with five community pediatric practices to develop strategies to implement the guidelines and assess their impact on patient outcomes. Accomplishments in the past year include increasing performance of guideline recommendations such as pulse oximetry from a median of 10% to 70% and narrow-spectrum antibiotic prescribing (i.e. amoxicillin) from a median of 25% to 65%.

Improving Communication to Reduce Medical Errors and Enhance the Patient Experience

Dr. Jennifer O'Toole and her colleagues in the IPE-PRIS Accelerating Safe Signouts (I-PASS) Study Group received several grants to spread their ground-breaking work in improving communication within the hospital. Their prior studies demonstrated that improving the quality of physician-to-physician communication in the hospital led to fewer medical errors. In spring 2014 study investigators received a \$1.9 million grant from the Agency for Healthcare Research and Quality (AHRQ) to implement the I-PASS handoff program for use in small and large adult and pediatric hospitals. This program will be executed in collaboration with the Society of Hospital Medicine (SHM) and the Pediatric Research in Inpatient Settings (PRIS) network. **Dr. Jennifer O'Toole** is chair of the Educational Executive Committee for this project, and will lead effort to adapt the tools for caregivers at outside of Pediatrics.

The importance of family engagement in medical decision-making is an increasingly recognized aspect of

hospital care. However, the manner in which physicians, nurses, and families interact on medical rounds and during the course of the day is not well structured. Furthermore, communication is not usually tailored to the preferences of diverse families and patients. The I-PASS Study Group, funded by \$2 million grant from the Patient Centered Outcomes Research Institute (PCORI), will determine whether improving communication among physicians, nurses, and families, and integrating families into all aspects of decision making in the hospital will improve patient safety and family experience during hospitalization. **Drs. Jennifer O'Toole and Aarti Patel** will serve as the site investigators for this project and will lead the implementation of these innovative interventions at Cincinnati Children's.

Top Articles in Pediatric Hospital Medicine

The following three articles by division faculty were recognized among the top 10 articles published in the field of pediatric hospital medicine in 2013-2014 at the Pediatric Hospital Medicine and Society of Hospital Medicine annual meetings:

- **Mussman GM, Parker MW, Statile A**, Sucharew H, **Brady PW**. Suctioning and length of stay in infants hospitalized with bronchiolitis. *JAMA Pediatr.* 2013 167(5):414-21.
- Myers AL, Hall M, Williams DJ, **Auger K**, Tieder JS, **Statile A, Jerardi K**, McClain L, **Shah SS**. Prevalence of bacteremia in hospitalized pediatric patients with community-acquired pneumonia. *Pediatr Infect Dis J.* 2013 32(7):736-40.
- Morse RB, Hall M, Fieldston ES, Goodman DM, Berry JG, Gay JC, Sills MR, Srivastava R, Frank G, Hain PD, **Shah SS**. Children's hospitals with shorter lengths of stay do not have higher readmission rates. *J Pediatr.* 2013 163(4):1034-38.

Significant Publications

Brady PW, Brinkman WB, Simmons JM, Yau C, White CM, Kirkendall ES, Schaffzin JK, Conway PH, Vossmeier MT. Oral antibiotics at discharge for children with acute osteomyelitis: a rapid cycle improvement project. *BMJ Qual Saf.* 2014 23(6):499-507.

Reducing cost and risks of medical care: Osteomyelitis, a common bone infection, requires a long course of antibiotic treatment. Historically, these infections were treated with antibiotics administered through an intravenous (IV) catheter, an approach that is inconvenient in the home setting and places the child at risk for IV catheter dislodgment or infection. Recent studies have found that oral antibiotics are as effective at treating bone infections as IV antibiotics, but prior to our project most patients at Cincinnati Children's still received IV antibiotics. We improved the median percentage of patients discharged from the hospital on oral antibiotics from 0% to 100%. **This work was part of the portfolio of improvement projects honored with the Society for Hospital Medicine's 2014 Teamwork in Quality Improvement award.**

White CM, Statile AM, White DL, **Elkeeb D**, Tucker K, Herzog D, Warrick SD, Warrick DM, Hausfeld J, **Schondelmeyer A**, Schoettker PJ, Kiessling P, Farrell M, Kotagal U, Ryckman FC. **Using quality improvement to optimise paediatric discharge efficiency.** *BMJ Qual Saf.* 2014 May;23(5):428-36.

Optimizing flow through timely discharge: Optimizing how patients are discharged can alleviate hospital crowding by improving patient throughput or "flow." Many hospitals emphasize a "hotel" model with a goal of discharging patients from the hospital as early in the day as possible, ideally before noon. In contrast, Cincinnati Children's has taken a different approach by emphasizing discharging patients as soon as they are medically ready to leave rather than focusing on a set time of day. A variety of interventions, including innovative pharmacy redesign and subspecialty consult timeliness, resulted in an improvement in the percentage of patients discharged within two hours of meeting goals from 42% to 80%. Timely discharge

resulted in shorter hospital lengths of stay. The team is now spreading this approach of discharging patients when medically ready to other units. **This study was nationally recognized as the Children's Hospital Association Quality Award overall winner and category winner for waste reduction in 2013.**

Jerardi KE, Elkeeb D, Weiser J, Brinkman WB. Rapid implementation of evidence-based guidelines for imaging after first urinary tract infection. *Pediatrics*. 2013 132(3):e749-55.

Eliminating unnecessary testing: The American Academy of Pediatrics published a new guideline for management of first urinary tract infection (UTI) in children age two to 24 months. The guideline recommended a different approach to evaluation than conventional practice with a goal of reducing unnecessary radiology studies. The multidisciplinary study team, including community physicians, undertook a project to rapidly adopt the guideline using implementation science. The team was able to increase guideline adherence from 8% to 100% for inpatients and 0% to 60% for patients initially diagnosed in the ED. **This study developed an approach for rapid evidence implementation in inpatient and outpatient care settings that can serve as a model for other healthcare systems.**

Auger KA, Kenyon CC, Feudtner C, Davis MM. Pediatric hospital discharge interventions to reduce subsequent utilization: A systematic review. *J Hosp Med*. 2014 9(4):251-60.

Strategies to reduce readmissions: When children are discharged from the hospital, they often return for either emergency department evaluation or hospital readmission. Reducing such revisits is a major focus for Cincinnati Children's and other hospitals nationally. The team reviewed 1,296 studies that focused on interventions to prevent patient return to the hospital after discharge. They found that the most successful interventions to reduce hospital readmissions were those where a specific individual or team of individuals assumed responsibility for a patient's transition and offered ongoing support to the family via telephone or home visitation following discharge. **These principles are being tested and refined in the Division of Hospital Medicine's H2O Study.**

Florin TA, French B, Zorc JJ, Alpern ER, Shah SS. Variation in emergency department diagnostic testing and disposition outcomes in pneumonia. *Pediatrics*. 2013 132(2):237-44.

Less is more: This study examined diagnostic testing for over 100,000 children with community-acquired pneumonia evaluated in the emergency department of 36 children's hospitals. There was substantial variation in diagnostic testing for pneumonia across hospitals. Hospitals that performed more tests were also more likely to admit children to the hospital after emergency department evaluation. Although it might be expected that hospitals which perform fewer diagnostic tests might "miss" severe cases of pneumonia and thus have a higher rate of emergency department revisits, this study demonstrated that low test utilization was not associated with increased emergency department revisit rates. **This finding suggests that high-utilizing hospitals may be able to perform fewer tests and hospitalize fewer children without overlooking children who warrant hospital admission.**

Division Publications

1. Antommarchia AH. **Pubertal suppression and professional obligations: may a pediatric endocrinologist refuse to treat an adolescent with gender dysphoria?** *Am J Bioeth*. 2014; 14:43-6.
2. Antommarchia AH. **An ethical analysis of mandatory influenza vaccination of health care personnel: implementing fairly and balancing benefits and burdens.** *Am J Bioeth*. 2013; 13:30-7.
3. Auger KA, Kenyon CC, Feudtner C, Davis MM. **Pediatric hospital discharge interventions to reduce subsequent utilization: a systematic review.** *J Hosp Med*. 2014; 9:251-60.
4. Auger KA, Patrick SW, Davis MM. **Infant hospitalizations for pertussis before and after Tdap recommendations for adolescents.** *Pediatrics*. 2013; 132:e1149-55.

5. Beck AF, Huang B, Simmons JM, Moncrief T, Sauers HS, Chen C, Ryan PH, Newman NC, Kahn RS. **Role of financial and social hardships in asthma racial disparities.** *Pediatrics*. 2014; 133:431-9.
6. Beck AF, Moncrief T, Huang B, Simmons JM, Sauers H, Chen C, Kahn RS. **Inequalities in neighborhood child asthma admission rates and underlying community characteristics in one US county.** *J Pediatr*. 2013; 163:574-80.
7. Beck AF, Simmons JM, Sauers HS, Sharkey K, Alam M, Jones C, Kahn RS. **Connecting at-risk inpatient asthmatics to a community-based program to reduce home environmental risks: care system redesign using quality improvement methods.** *Hosp Pediatr*. 2013; 3:326-34.
8. Binenbam G, Shah SS. **Sarcoidosis.** In: SS Shah, S Ludwig, eds. *Symptom-Based Diagnosis in Pediatrics*. New York, NY: McGraw-Hill Education; 2014:466-470.
9. Brady PW, Brinkman WB, Simmons JM, Yau C, White CM, Kirkendall ES, Schaffzin JK, Conway PH, Vossmeier MT. **Oral antibiotics at discharge for children with acute osteomyelitis: a rapid cycle improvement project.** *BMJ Qual Saf*. 2014; 23:499-507.
10. Brady PW, Goldenhar LM. **A qualitative study examining the influences on situation awareness and the identification, mitigation and escalation of recognised patient risk.** *BMJ Qual Saf*. 2014; 23:153-61.
11. Brady PW, Varadarajan K, Peterson LE, Lannon C, Gross T. **Prevalence and nature of adverse medical device events in hospitalized children.** *J Hosp Med*. 2013; 8:390-3.
12. Brady PW, Wheeler DS, Muething SE, Kotagal UR. **Situation awareness: a new model for predicting and preventing patient deterioration.** *Hosp Pediatr*. 2014; 4:143-6.
13. Burke W, Matheny Antommara AH, Bennett R, Botkin J, Clayton EW, Henderson GE, Holm IA, Jarvik GP, Khoury MJ, Knoppers BM, Press NA, Ross LF, Rothstein MA, Saal H, Uhlmann WR, Wilfond B, Wolf SM, Zimmern R. **Recommendations for returning genomic incidental findings? We need to talk!** *Genet Med*. 2013; 15:854-9.
14. Calaman S, Spector N, Starmer A, O'Toole J, Allen A, Tse L, Bale J, Bismilla Z, Coffey M, Cole F, Destino L, Everhart J, Jepps J, Kahana M, McGregor R, Patel S, Rosenbluth G, Patel S, Rosenbluth G, Srivastava R, Stevenson A, West D, Sectish T, Landrigan C, Yu C, Lopreiato J. (2013) **I-PASS Handoff Curriculum: Computer Module** . MedEdPORTAL; 2013..
15. Chirdkiatgumchai V, Xiao H, Fredstrom BK, Adams RE, Epstein JN, Shah SS, Brinkman WB, Kahn RS, Froehlich TE. **National trends in psychotropic medication use in young children: 1994-2009.** *Pediatrics*. 2013; 132:615-23.
16. Daughtridge GW, Archibald T, Conway PH. **Quality improvement of care transitions and the trend of composite hospital care.** *JAMA*. 2014; 311:1013-4.
17. Deleger L, Brodzinski H, Zhai H, Li Q, Lingren T, Kirkendall ES, Alessandrini E, Solti I. **Developing and evaluating an automated appendicitis risk stratification algorithm for pediatric patients in the emergency department.** *J Am Med Inform Assoc*. 2013; 20:e212-20.
18. DeMartini TL, Beck AF, Kahn RS, Klein MD. **Food insecure families: description of access and barriers to food from one pediatric primary care center.** *J Community Health*. 2013; 38:1182-7.
19. Demartini TL, Beck AF, Klein MD, Kahn RS. **Access to digital technology among families coming to urban pediatric primary care clinics.** *Pediatrics*. 2013; 132:e142-8.
20. Fieldston ES, Zaniletti I, Hall M, Colvin JD, Gottlieb L, Macy ML, Alpern ER, Morse RB, Hain PD, Sills MR, Frank G, Shah SS. **Community household income and resource utilization for common inpatient pediatric conditions.** *Pediatrics*. 2013; 132:e1592-601.
21. Florin TA, French B, Zorc JJ, Alpern ER, Shah SS. **Variation in emergency department diagnostic testing and disposition outcomes in pneumonia.** *Pediatrics*. 2013; 132:237-44.
22. Freedman SB, Hall M, Shah SS, Kharbanda AB, Aronson PL, Florin TA, Mistry RD, Macias CG, Neuman

- MI. **Impact of increasing ondansetron use on clinical outcomes in children with gastroenteritis.** *JAMA Pediatr.* 2014; 168:321-9.
23. Glatz AC, Shah SS, McCarthy AL, Geisser D, Daniels K, Xie D, Hanna BD, Grundmeier RW, Gillespie MJ, Rome JJ. **Prevalence of and risk factors for acute occlusive arterial injury following pediatric cardiac catheterization: a large single-center cohort study.** *Catheter Cardiovasc Interv.* 2013; 82:454-62.
24. Goldenhar LM, Brady PW, Sutcliffe KM, Muething SE. **Huddling for high reliability and situation awareness.** *BMJ Qual Saf.* 2013; 22:899-906.
25. Goldstein SL, Kirkendall E, Nguyen H, Schaffzin JK, Bucuvalas J, Bracke T, Seid M, Ashby M, Foertmeyer N, Brunner L, Lesko A, Barclay C, Lannon C, Muething S. **Electronic health record identification of nephrotoxin exposure and associated acute kidney injury.** *Pediatrics.* 2013; 132:e756-67.
26. Goudie A, Dynan L, Brady PW, Rettiganti M. **Attributable cost and length of stay for central line-associated bloodstream infections.** *Pediatrics.* 2014; 133:e1525-32.
27. Guiot A, FitzGerald M, Lehmann C. **Reducing the Dosage: Decreasing Pediatric Clerkship Didactics.** *Age.* 2014; 18:23-25.
28. Howrylak JA, Spanier AJ, Huang B, Peake RW, Kellogg MD, Sauers H, Kahn RS. **Cotinine in children admitted for asthma and readmission.** *Pediatrics.* 2014; 133:e355-62.
29. Hufnagel SB, Antommara AH. **Laboratory policies on reporting secondary findings in clinical whole exome sequencing: initial uptake of the ACMG's recommendations.** *Am J Med Genet A.* 2014; 164A:1328-31.
30. Imhoff S, Harris M, Weiser J, Reynolds B. **Delay discounting by depressed and non-depressed adolescent smokers and non-smokers.** *Drug Alcohol Depend.* 2014; 135:152-5.
31. Jantzen DW, He X, Jacobs JP, Jacobs ML, Gaies MG, Hall M, Mayer JE, Shah SS, Hirsch-Romano J, Gaynor JW, Peterson ED, Pasquali SK. **The Impact of Differential Case Ascertainment in Clinical Registry Versus Administrative Data on Assessment of Resource Utilization in Pediatric Heart Surgery.** *World J Pediatr Congenit Heart Surg.* 2014; 5:398-405.
32. Jerardi K, O'Toole J, Klein M. **Evaluating Resident Screening for Social Determinants of Health: The Development and Assessment of a Structured Direct Observation Tool.** *Open Medical Education Journal* . 2013; :29-34.
33. Jerardi K, Solan L, Deblasio D, O'Toole J, White C, Yau C, Sucharew H, Klein MD. **Evaluating the impact of interactive and entertaining educational conferences.** *Perspect Med Educ.* 2013; 2:349-55.
34. Jerardi KE, Elkeeb D, Weiser J, Brinkman WB. **Rapid implementation of evidence-based guidelines for imaging after first urinary tract infection.** *Pediatrics.* 2013; 132:e749-55.
35. Kharbanda AB, Hall M, Shah SS, Freedman SB, Mistry RD, Macias CG, Bonsu B, Dayan PS, Alessandrini EA, Neuman MI. **Variation in resource utilization across a national sample of pediatric emergency departments.** *J Pediatr.* 2013; 163:230-6.
36. Kirkendall ES, Goldenhar LM, Simon JL, Wheeler DS, Andrew Spooner S. **Transitioning from a computerized provider order entry and paper documentation system to an electronic health record: expectations and experiences of hospital staff.** *Int J Med Inform.* 2013; 82:1037-45.
37. Kirkendall ES, Guiot AB. **Torsed pulmonary sequestration presenting with gastrointestinal manifestations.** *Clin Pediatr (Phila).* 2013; 52:981-4.
38. Kirkendall ES, Kouril M, Minich T, Spooner SA. **Analysis of electronic medication orders with large overdoses: opportunities for mitigating dosing errors.** *Appl Clin Inform.* 2014; 5:25-45.
39. Kirkendall ES, Spooner SA, Logan JR. **Evaluating the accuracy of electronic pediatric drug dosing rules.** *J Am Med Inform Assoc.* 2014; 21:e43-9.
40. Klein M. **Nephrotic syndrome.** In: SS Shah, B Alverson, J Ronan, eds. *Step-up to pediatrics* . Philadelphia,

PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2014:192-193.

41. Klein M. **Phimosis and paraphimosis**. In: SS Shah, B Alverson, J Ronan, eds. *Step-up to pediatrics*. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2014:209.
42. Klein M. **Priapism**. In: SS Shah, B Alverson, J Ronan, eds. *Step-up to pediatrics*. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2014:209-210.
43. Klein M. **Testicular torsion**. In: SS Shah, B Alverson, J Ronan, eds. *Step-up to pediatrics*. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2014:210-211.
44. Klein M. **Undescended testes**. In: SS Shah, B Alverson, J Ronan, eds. *Step-up to pediatrics*. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2014:211.
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Faculty, Staff, and Trainees

Faculty Members

Samir Shah, MD, MSCE, Professor

Leadership Division Director; CCRF Endowed Chair in Hospital Medicine

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, Assistant Professor

Craig Gosdin, MD, MSHA, Assistant Professor

Leadership Medical Director, Hospital Medicine Liberty Campus

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

Amy Guiot, MD, Assistant Professor

Leadership Associate Director of Medical Student Education

Research Interests Actively involved with the Council of Medical Students of Education in Pediatrics where she serves as a member of the curriculum task force.

Karen Jeradi, MD, Assistant Professor

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

Leadership Medical Director of Clinical Decision Support; Associate Chief Medical Information Officer

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; Associate Director, Internal Medicine Pediatrics Residency Program

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, Assistant Professor

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.

Erin Shaughnessy, MD, Assistant Professor

Leadership Medical Director of Hospital Medicine Surgical Services

Research Interests Resident Education, Quality Improvement, Handovers, Family Centered Care, and Evidence Based Medicine

Patricia O'Brien, MD, Instructor

Jeffrey Simmons, MD, MSc, Associate 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, Assistant Professor

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, Assistant Professor

Leadership Associate Director, Pediatrics Residency Program

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

Brian Volck, MD, Assistant Professor

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 Medical Director Hospital Medicine Community Integration

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

Christine White, MD, MAT, Assistant Professor

Leadership Medical Director Hospital Medicine Burnet Campus

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.

Lilliam Ambroggio, PhD, Assistant Professor

Research Interests Focus on the study of pneumonia.

Katie Meier, MD, Instructor

Research Interests Pediatric hospital medicine physician who cares for general pediatric and surgical patients. Research interests focus on venous thromboembolism (VTE) prophylaxis and surgical co-management. Ongoing projects include quality improvement initiative to implement VTE prophylaxis in hospitalized patients.

Grant Mussman, MD, Assistant Professor

Katherine Auger, MD, Assistant Professor

Research Interests Pediatric Hospitalist whose research focuses on pediatric readmission risk and improving discharge processes to prevent unplanned readmission. Ongoing projects include understanding discharge complexity and the association with readmission as well as developing a readmission risk prediction algorithm.

Mia Mallory, , Associate Professor

Leadership Associate Dean of Diversity and Inclusion, University of Cincinnati College of Medicine

Research Interests Leadership: Associate Dean of Diversity and Inclusion, University of Cincinnati College of Medicine, Associate Professor of Pediatrics, Division of Hospital Medicine Interests: Recruitment, retention and support of underrepresented students, residents and faculty. Career development for trainees from students to residents. Mentorship and outreach to local middle and high school students. Promote and support women's faculty initiatives.

Christine Schuler, MD, Assistant Professor

Research Interests Research- Pediatric Hospital Medicine physician with an interest in both vaccine preventable diseases as well as the role of weight (i.e. Underweight, overweight, obese) in hospitalized patients. Ongoing projects include examining parent survey data related to HPV vaccine, and examining obesity in the context of asthma.

Armand Antommaria, MD, PhD, FAAP, Associate Professor

Leadership Director of the Ethics Center

Research Interests Leadership Center Director [or Director, Ethics Center]; Lee Ault Carter Chair of Pediatric Ethics Research Interests Pediatric hospital medicine physician and bioethicist whose research focuses on analyzing issues of institutional relevance and disseminating best practices. Ongoing projects include analyzing the ethical issues entailed in the use of ventricular assist devices and whole exome sequencing in pediatric and young adult patients.

Andrew Spooner, MD, MS, FAAP, Associate Professor

Leadership Chief Medical Information Officer

Research Interests Leadership: Chief Medical Information Officer Research interests: Factors that promote or inhibit the salience of computerized decision support in pediatrics. Diffusion of child-health specific electronic health record functionality. Computation of quality and performance measures in pediatric care.

Joint Appointment Faculty Members

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

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

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

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

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

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

Trainees

- **Lauren Solan, MD**, Cincinnati Children's Hospital Medical Center
- **Joanna Thomson, MD**, Cincinnati Children's Hospital Medical Center
- **Amanda Schondelmeyer, MD**, Cincinnati Children's Hospital Medical Center
- **Laura Brower, MD**, Cincinnati Children's Hospital Medical Center
- **Aarti Patel, MD**, Cincinnati Children's Hospital Medical Center

Grants, Contracts, and Industry Agreements

Grant and Contract Awards

Annual Direct

SHAH, S

Comparative Effectiveness of Prolonged Intravenous Therapy vs Early Transition to Oral Antimicrobial Therapy for Serious Bacterial Infections in Children

Patient-Centered Outcome Research Institute(Children's Hospital of Philadelphia)

03/01/13-08/31/15

\$79,856

Improving Post-Discharge Outcomes by Facilitating Family-Centered Transitions from Hospital to Home

Patient-Centered Outcome Research Institute

05/01/14-04/30/17

\$467,817

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

Agency For Healthcare Research and Quality(Children's Hospital of Philadelphia)

R01 HS 019862

09/10/2010-09/30/2014

\$54,430

THOMSON, J

Pneumonia in Children with Neurologic Impairment

Academic Pediatric Association

03/03/14-03/02/15

\$10,000

Current Year Direct

\$612,103

Total

\$612,103