

James M Anderson Center for Health Systems Excellence

Division Details

RESEARCH AND TRAINING DETAILS

Faculty	10
Joint Appointment Faculty	25
Research Fellows and Post Docs	1
Total Annual Grant Award Dollars	\$14,183,916
Total Publications	33



Row 1: S Corathers, A Schondelmeyer, N Daraiseh, M Britto, P Margolis, S Muething

Row 2: A Carle, J Lail, E Morgan DeWitt, E Alessandrini, P Brady, B Brinkman

Row 3: T Sitzman, D Hooper, M Seid

Research Highlights

Learning Networks (Carole Lannon, MD, MPH, Faculty Lead)

[Learning Networks](#) are multisite collaborations that engage patients, families, clinicians and researchers to improve care and outcomes for children. The five networks supported by Cincinnati Children's Hospital Medical Center connect 412 clinical teams from 271 pediatric and maternity hospitals, including 43 states and three countries. Additional networks are in the design or early implementation phase. These Learning Networks provide collaborative laboratories that have identified effective clinical bundles, developed and tested shared decision-making tools, assessed dissemination and implementation strategies, used comparative effectiveness design to understand effective therapies, analyzed social network and used factorial design to identify dose-response of effective therapies. The five networks have over 60 publications to date. Specific research efforts and results include:

- The Children's Hospitals' Solutions for Patient Safety (SPS) Network has found that when hospitals reliably implement recommended care bundle elements, there are significant reductions in hospital acquired conditions (HACs). Therefore, evidence-based best practices have now identified and created for six pediatric HACs as well as Readmissions. The SPS Network is working with hospitals to spread and implement these bundles in care delivery in order to accelerate the pace of harm reduction.

The SPS Network highlights the SPS SSI Prevention Bundle in a recent Pediatrics publication titled, "Surgical Site Infection Reduction by the Solutions for Patient Safety Hospital Engagement Network." The publication shows how adoption of a SSI prevention bundle, with concomitant reliability measurement, reduced the SPS Network's SSI rate, and how linking reliability measurement to standardization at an institutional level may lead to safer care ([Schaffzin, et al., Pediatrics, 2015 136\(5\):e1353-60](#)).

The SPS Network receives funding in part from the [Cardinal Health Foundation](#) and [Children's Hospital Association](#).

- The Ohio Perinatal Quality Collaborative's ([OPQC](#)) Neonatal Abstinence Syndrome (NAS) Project focuses on reducing preterm births and improving perinatal and preterm newborn outcomes in Ohio. Specifically, this quality improvement collaborative across 54 NICUs in Ohio has applied a factorial design approach in the project's second phase to further reduce the length of stay for babies with Neonatal Abstinence Syndrome (NAS). The "factorial design of non-pharmacologic interventions for opioid addicted infants" is work produced from the NAS Project.
- The ImproveCareNow ([ICN](#)) learning health system is currently engaged in over 15 studies on such research questions as:
 - Impact of patient-reported outcomes on treatment management
 - Healthcare disparities in pediatric Crohn's disease
 - Pediatric uveitis in the IBD population
 - Anti-TNF monotherapy and other therapies

Perhaps most significantly, ICN awarded its largest clinical research award ever in April 2015, and kicked off the study in 2016: a \$7.9 million Patient Centered Outcomes Research Institute ([PCORI](#)) grant for a five-year pragmatic clinical trial to compare Anti-TNF Monotherapy versus Combination Therapy with Low Dose Methotrexate in Pediatric Crohn's Disease. The study is known as COMBINE (Clinical Outcomes of Methotrexate Binary treatment with INfliximab or adalimumab in practicE).

- During this past year, the National Pediatric Quality Improvement Collaborative ([NPC-QIC](#)) has realized several important accomplishments:
 - Cumulative interstage mortality has decreased from 9.5% to 5.1%, a relative reduction of 46%.
 - The percentage of infants experiencing growth failure has decreased from 18.6% to 13.1%, a relative reduction of 28%.
 - Significant reduction in infants readmittance to the hospital for serious medical problems across the collaborative.

The hard work of the now 60 centers has resulted in a wealth of knowledge about the best way to care for these complex infants, and to achieve better outcomes. To summarize the outcomes, we created an infographic documenting the collaborative's success updated and published quarterly on our website; and to synthesize the identified best practices, we have created an Interstage Change Package document, available to assist teams in improving their care and outcomes.

- With support from a Center for Education and Research in Therapeutics ([CERTs](#)) mini-grant from [AHRQ](#), and in collaboration with the Cincinnati Children's [Center for Adherence & Self Management](#), the care centers of the Pediatric Rheumatology Care and Outcomes Improvement Network ([PR-COIN](#)) developed and tested a patient self-management support toolkit and training program. PR-COIN plans to develop a self-management handbook for JIA, as well as a pediatric self-management change package and self-management video.

The Anderson Center Learning Networks Core has external collaborations with the [American Board of Pediatrics](#), the [Autism Treatment Network](#), the national Children's Hospital Association, the [Ohio Children's Hospital Association](#), the [Ohio Hospital Association](#), the [Ohio Department of Health](#), and the [Ohio Department of Medicaid](#).

Within Cincinnati Children's, network partnerships connect the Anderson Center Learning Networks Core with the Divisions of [Developmental and Behavioral Pediatrics](#); [Endocrinology](#); [Gastroenterology, Hepatology and Nutrition](#); [General and Community Pediatrics](#); [Nephrology and Hypertension](#); [Pulmonary Medicine](#); [Rheumatology](#); and the [Cancer and Blood Diseases Institute](#); the [Heart Institute](#); and the [Perinatal Institute](#).

Funding for the networks comes from the Agency for Healthcare Research and Quality, the Centers for Education and Research on Therapeutics, the Centers for Disease Control and Prevention ([CDC](#)), the [Children's Heart Association of Cincinnati](#), Ohio Department of Health, Ohio Department of Medicaid, PICORI and fees from participating institutions. The Learning Networks Core project received a

FY16 Cincinnati Children's Academic and Research Committee award to further develop the infrastructure to support existing and emergent networks.

Health Services Research (Peter Margolis, MD, PhD, Faculty Lead)

Faculty in the James M. Anderson Center for Health Systems Excellence do research across a broad range of health services research topics, but the emphasis tilts towards interventions—the design, implementation and testing of complex interventions to improve health and care delivery. Our focus is on developing a community of well-trained health services researchers who work together with patients and clinicians to answer their most important questions, embedding research into care delivery and creating efficient health services research infrastructure. Over the past year, research revenue has continued to grow, with a diversity of funding sources including federal, foundation and state support. Research includes large scale studies including the [Ohio Perinatal Quality Collaborative](#) (funded by [Ohio Medicaid](#)); [Solutions for Patient Safety](#) (CMS); developing a national research infrastructure through the Patient Centered Outcomes Research Institute (PCORI) Patient Powered Research Networks ([ImproveCareNow](#) and [PR-COIN/PARTNERS](#)); and a [PCORI Clinical Data Research Network](#) (PEDSnet). These networks are resulting in multiple studies focused on improvement science and the creation of important data sharing capability across multiple institutions. There are also numerous health services research projects taking place at Cincinnati Children's focused on a diverse range of topics and engaging investigators from more than 15 divisions. Topics include hospital and ambulatory safety, formal studies of dissemination and implementation approaches, technology enabled tools to promote patient engagement, methods to support N of 1 studies, data visualization and situational awareness. Robust faculty development support continues with over 15 faculty participating, and quality scholars from a diverse range of divisions. New areas of emphasis are the use of formal design methods to support the development of learning health systems.

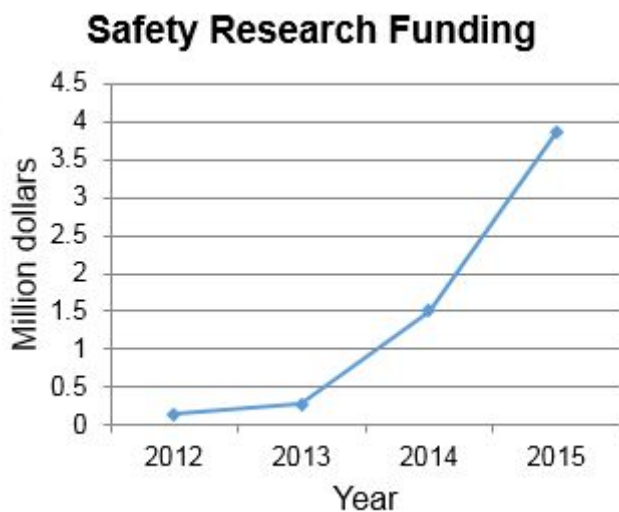
Safety Research (Kathleen Walsh, MD, Research Lead; Stephen Muething, MD, Operational Lead)

Research on patient and staff safety has had tremendous growth over the past four years, fueled by successful cross-divisional and interdisciplinary collaborations. Safety research proposal have been funded to investigators in nephrology, neonatology, hospital medicine, patient services, biomedical informatics, and the James M. Anderson Center for Health Systems Excellence. Investigators obtained funding from a variety of federal sources including the [National Library of Medicine](#), the [Eunice Kennedy Shriver National Institute of Child Health Development](#), and the [Agency for Healthcare Research and Quality](#).

Several projects have focused on patient and family engagement in patient safety. [Patrick Brady, MD, MSc, Division of Hospital Medicine](#), was awarded a K08 award entitled “Family Clinician Partnerships to Improve Child Safety in the Hospital”. In a collaboration between the James M. Anderson Center for Health Systems Excellence, the [Center for Adherence Center and Self-Management, CBDI](#), and [Research in Patient Services](#), Drs. [Kathleen Walsh](#), [Ahna Pai](#), [Nancy Daraiseh](#), and [John Perentesis](#) were awarded an R01 to use home visits to study factors associated with medication errors and adherence in children with cancer. In a collaboration with hematology, Drs. [Lori Crosby](#) in the Center for Adherence Center and Self-Management, and Kathleen Walsh are developing and testing interventions to support hydroxyurea use at home, supported by a [Place Outcomes Award](#).

Several other projects focus on neonatal patient safety. Drs. [Eric Kirkendall](#) and [Kristin Melton](#) are co-PIs on an R01 which brings together the Divisions of Hospital Medicine, [Biomedical Informatics](#) ([Yizhao Ni, PhD](#)), [Neonatology](#), the James M. Anderson Center for Health Systems Excellence (Kathleen Walsh, MD, MSc), and the [University of Cincinnati](#) (name co-I), entitled “Improving Intensive Care Patient Safety Through EHR-based Algorithms”.

Finally, in a collaboration between quality improvement, topic experts, and health services research, Drs. [Stuart Goldstein](#), [Steve Muething](#), and Kathleen Walsh received and R18 from [AHRQ](#) to study the spread of NINJA to eight other hospitals nationally. “While there was more up-front work to think through how to use our different backgrounds in basic science research, quality improvement, and health services research together, this project which is will to advance nephrology and patient safety would not



have been possible without such collaboration.” The safety research program is an excellent example of success that comes through multidisciplinary collaboration.

Significant Publications

Schaffzin JK, Harte L, Marquette S, Zieker K, Wooton S, **Walsh K**, Newland JG. **Surgical Site Infection Reduction by the Solutions for Patient Safety Hospital Engagement Network**. *Pediatrics*. 2015 Nov;136(5):e1353-60.

National standards for surgical site prevention do not exist in pediatric settings. We sought to reduce harm due to surgical site infections by implementation a prevention bundle through the Children’s Hospitals Solutions for Patient Safety Network (SPS). SPS is a network of over 100 children’s hospitals working together to eliminate harm to children caused by healthcare. The recommended bundle elements encompassed proper preoperative bathing, intraoperative skin antisepsis, and antibiotic delivery; hospitals measured and reported reliability of adherence to bundle elements. We focused our improvement work on spinal fusion, neurosurgical ventricular shunt, or cardiothoracic surgery in which the chest was fully closed in the operating room. Reports of a statistically significant 21% reduction in SSI rates across network hospitals, from a mean baseline rate of 2.5 surgical site infections per 100 procedures to a mean rate of 1.8 surgical site infections per 100 procedures. There was a reduced rate sustained for 15 months. Adoption of a SSI prevention bundle with concomitant reliability measurement reduced the network surgical site infection rate. Linking reliability measurement to standardization at an institutional level may lead to safer care.

Goudie A, Dynan L, Brady PW, Fieldston E, Brilli RJ, **Walsh KE**. **Costs of Venous Thromboembolism, Catheter-Associated Urinary Tract Infection, and Pressure Ulcer**. *Pediatrics*. 2015 Sep;136(3):432-9.

Before this publication, there was no published data to estimate costs of venous thromboembolism, catheter associated urinary tract infection, and pressure ulcer for children. We found that patients with venous thromboembolism had eight more inpatient days and \$27,686 excess costs compared to matched controls. Patients with catheter associated urinary tract infection had two more inpatient days and \$7,200 excess costs compared to matched controls. For both of these conditions these differences from matched controls were statistically significant. We were unable to find an adequate number of matches for our pressure ulcer population to identify statistically significant differences in these patients. The extended lengths of stay for these patients highlights the substantial morbidity of these potentially preventable events. Accurate cost data are critical to health systems seeking to create a business case for initiatives to reduce these harms in hospitalized children.

Marsolo K, **Margolis PA**, Forrest CB, Colletti RB, Hutton JJ. **A Digital Architecture for a Network-Based Learning Health System: Integrating Chronic Care Management, Quality Improvement, and Research**. *EGEMS (Wash DC)*. 2015 Aug 17;3(1):1168.

The use data from the EHR to inform the cycle of clinical care, improvement and research is a goal of learning health systems. However, the concept of a broadly distributed EHR-based Learning Health System remains aspirational. This stems in part from two technical challenges: designing information systems that need to support clinical care, research, and QI activities concurrently, and having to fulfill the needs of users dispersed geographically and across multiple organizations. In addition to the technical challenges, there are numerous societal and scientific barriers to overcome, such as achieving alignment among stakeholders and handling the difference in operational time scales. As a result, most efforts have focused on optimizing systems to support the use of EHR data either for research or for clinical care and QI. This article describes how the vision of a learning health system is achieved in a ‘proof of concept’ project with the ImproveCareNow Network to automate analytic and chronic care reports, create an application for storing protected health information and tracking patient consent, and deploy a cohort identification tool to support the use of data to support the development of studies and hypothesis generation.

Kashikar-Zuck S, **Carle A**, Barnett K, Goldschneider KR, Sherry DD, Mara CA, Cunningham N, Farrell J, Tress J, DeWitt EM. **Longitudinal evaluation of patient-reported outcomes measurement information systems measures in pediatric chronic pain**. *Pain*. 2016 Feb;157(2):339-47.

Patient centered research depends in part on successfully including the patient’s voice and perspective on their own health and health related outcomes. Scientifically established patient reported outcomes (PRO) measures are one of the key methods for

meeting this need. Our paper established the construct validity and responsiveness to change for seven Patient-Reported Outcomes Measurement Information System (PROMIS) measures among children with pediatric chronic pain. We used parallel process longitudinal growth models, a type of structural equation model, to examine responsiveness to change and construct validity across PROMIS and “legacy” measures simultaneously. This was the first application of parallel process longitudinal growth models in the academic medicine literature and allowed us to demonstrate responsiveness to change and construct validity in ways that more traditional methods don’t allow.

Johnson DP, Lind C, Parker SE, Beuschel C, VanVliet S, Nichols J, Rauch CA, Lee B, **Muething SE. Toward High-Value Care: A Quality Improvement Initiative to Reduce Unnecessary Repeat Complete Blood Counts and Basic Metabolic Panels on a Pediatric Hospitalist Service.** *Hosp Pediatr.* 2016 Jan;6(1):1-8.

This work is a direct result of the lead author participating in Cincinnati Children's Hospital Medical Center's external I2S2 class. Cincinnati Children's faculty mentored Dr. Johnson's class project. The improvement work occurred at Vanderbilt, and demonstrated how standardization resulted in decreased cost to the patient without deterioration in other quality outcomes. This work is generalizable across inpatient care, and expected to accelerate appropriate standardization to reduce unwarranted variation. This is an excellent example of inter-organization collaboration.

Division Publications

1. Adler J, Saeed SA, Eslick IS, Provost L, Margolis PA, Kaplan HC. **Appreciating the Nuance of Daily Symptom Variation to Individualize Patient Care.** *EGEMS (Wash DC).* 2016; 4:1247.
2. Anderson J, Beekman R, Martin G, Lannon C. **Quality Improvement in Pediatric Cardiology: The National Pediatric Cardiology Quality Improvement Collaborative.** In: P Barach, JP Jacobs, S Lipshultz, P Laussen, eds. *Pediatric and Congenital Cardiac Care: Volume 2: Quality Improvement and Patient Safety.* New York: Springer; 2015.
3. Anderson JB, Beekman RH, 3rd, Kugler JD, Rosenthal GL, Jenkins KJ, Klitzner TS, Martin GR, Neish SR, Brown DW, Mangeot C, King E, Peterson LE, Provost L, Lannon C, National Pediatric Cardiology Quality Improvement C. **Improvement in Interstage Survival in a National Pediatric Cardiology Learning Network.** *Circ Cardiovasc Qual Outcomes.* 2015; 8:428-36.
4. Aronson PL, Williams DJ, Thurm C, Tieder JS, Alpern ER, Nigrovic LE, Schondelmeyer AC, Balamuth F, Myers AL, McCulloh RJ, Alessandrini EA, Shah SS, Browning WL, Hayes KL, Feldman EA, Neuman MI, Collaborative FYIR. **Accuracy of Diagnosis Codes to Identify Febrile Young Infants Using Administrative Data.** *J Hosp Med.* 2015; 10:787-93.
5. Bartman T, Carroll B, Alessandrini E, Payne N. **Transparency in Pediatric Outcomes Reporting—Reducing Knowledge Asymmetries in Pediatric Healthcare.** *Curr Treat Options Pediatr.* 2015; 1:320.
6. Brown DW, Mangeot C, Anderson JB, Peterson LE, King EC, Lihn SL, Neish SR, Fleishman C, Phelps C, Hanke S, Beekman RH, Lannon CM, National Pediatric Cardiology Quality Improvement Collaborative. **Digoxin Use Is Associated with Reduced Interstage Mortality in Patients with No History of Arrhythmia after Stage I Palliation for Single Ventricle Heart Disease.** *J Am Heart Assoc.* 2016; 5:e002376
7. Byczkowski TL, Gillespie GL, Kennebeck SS, Fitzgerald MR, Downing KA, Alessandrini EA. **Family-Centered Pediatric Emergency Care: A Framework for Measuring What Parents Want and Value.** *Acad Pediatr.* 2016; 16:327-35.
8. Carle AC, Mara CA. **Differential Item Functioning in Patient Reported Outcomes Research.** *Dev Med Child Neurol.* 2016.
9. Carle AC, Riley W, Hays RD, Cella D. **Confirmatory Factor Analysis of the Patient Reported Outcomes Measurement Information System (Promis) Adult Domain Framework Using Item Response Theory Scores.** *Med Care.* 2015; 53:894-900.
10. Chi DL, Dinh MA, da Fonseca MA, Scott JM, Carle AC. **Dietary Research to Reduce Children's Oral Health Disparities: An Exploratory Cross-Sectional Analysis of Socioeconomic Status, Food Insecurity, and Fast-Food Consumption.** *J Acad Nutr Diet.* 2015; 115:1599-604.

11. Clauss SB, Anderson JB, Lannon C, Lihn S, Beekman RH, Kugler JD, Martin GR. **Quality Improvement through Collaboration: The National Pediatric Quality Improvement Collaborative Initiative.** *Curr Opin Pediatr.* 2015; 27:555-62.
12. Dandoy CE, Hariharan S, Weiss B, Demmel K, Timm N, Chiarenzelli J, Dewald MK, Kennebeck S, Langworthy S, Pomaes J, Rineair S, Sandfoss E, Volz-Noe P, Nagarajan R, Alessandrini E. **Sustained Reductions in Time to Antibiotic Delivery in Febrile Immunocompromised Children: Results of a Quality Improvement Collaborative.** *BMJ Qual Saf.* 2016; 25:100-9.
13. Deakyne SJ, Bajaj L, Hoffman J, Alessandrini E, Ballard DW, Norris R, Tzimenatos L, Swietlik M, Tham E, Grundmeier RW, Kuppermann N, Dayan PS, Pediatric Emergency Care Applied Research N. **Development, Evaluation and Implementation of Chief Complaint Groupings to Activate Data Collection: A Multi-Center Study of Clinical Decision Support for Children with Head Trauma.** *Appl Clin Inform.* 2015; 6:521-35.
14. Goudie A, Dynan L, Brady PW, Fieldston E, Brilll RJ, Walsh KE. **Costs of Venous Thromboembolism, Catheter-Associated Urinary Tract Infection, and Pressure Ulcer.** *Pediatrics.* 2015; 136:432-9.
15. Hart C, Ishman S, Alessandrini E. **Surgical Measurement Framework: A New Framework for Quality Care in Surgical Specialties.** *Perioper Care Oper Room Manag.* 2016; 2:28-33.
16. Johnson DP, Lind C, Parker SE, Beuschel C, VanVliet S, Nichols J, Rauch CA, Lee B, Muething SE. **Toward High-Value Care: A Quality Improvement Initiative to Reduce Unnecessary Repeat Complete Blood Counts and Basic Metabolic Panels on a Pediatric Hospitalist Service.** *Hosp Pediatr.* 2016; 6:1-8.
17. Jones J, Carle A, Wootton J, Liberio B, Lee J, Schanberg L, Ying J, DeWitt E, Brunner H. **Validation of Patient-Reported Outcomes Measurement Information System (Promis®) Short Forms for Use in Childhood-Onset Systemic Lupus Erythematosus.** *Arthritis Care Res (Hoboken).* 2016.
18. Kaplan HC, Sherman SN, Cleveland C, Goldenhar LM, Lannon CM, Bailit JL. **Reliable Implementation of Evidence: A Qualitative Study of Antenatal Corticosteroid Administration in Ohio Hospitals.** *BMJ Qual Saf.* 2016; 25:173-81.
19. Kashikar-Zuck S, Carle A, Barnett K, Goldschneider KR, Sherry DD, Mara CA, Cunningham N, Farrell J, Tress J, DeWitt EM. **Longitudinal Evaluation of Patient-Reported Outcomes Measurement Information Systems Measures in Pediatric Chronic Pain.** *Pain.* 2016; 157:339-47.
20. Kerrey BT, Mittiga MR, Rinderknecht AS, Varadarajan KR, Dyas JR, Geis GL, Luria JW, Frey ME, Jablonski TE, Iyer SB. **Reducing the Incidence of Oxyhaemoglobin Desaturation During Rapid Sequence Intubation in a Paediatric Emergency Department.** *BMJ Qual Saf.* 2015; 24:709-17.
21. Klugman R, Gitkind MJ, Walsh KE. **The Physician Quality Officer Model: 5-Year Follow-Up.** *Am J Med Qual.* 2015; 30:454-8.
22. Kurowski EM, Shah SS, Thomson J, Statile A, Iyer S, White C, Ambroggio L. **Improvement without Value Response.** *Pediatrics.* 2015; 136:E549.
23. Lihn SL, Kugler JD, Peterson LE, Lannon CM, Pickles D, Beekman RH, 3rd. **Transparency in a Pediatric Quality Improvement Collaborative: A Passionate Journey by Npc-Qic Clinicians and Parents.** *Congenit Heart Dis.* 2015; 10:572-80.
24. Marsolo K, Margolis PA, Forrest CB, Colletti RB, Hutton JJ. **A Digital Architecture for a Network-Based Learning Health System: Integrating Chronic Care Management, Quality Improvement, and Research.** *EGEMS (Wash DC).* 2015; 3:1168.
25. McCarthy JJ, Alessandrini EA, Schoettker PJ. **Posna Quality, Safety, Value Initiative 3 Years Old and Growing Strong. Posna Precourse 2014.** *J Pediatr Orthop.* 2015; 35:S5-8.
26. McManus BM, Chi D, Carle A. **State Medicaid Eligibility Criteria and Unmet Preventive Dental Care Need for Cshcn.** *Matern Child Health J.* 2016; 20:456-65.
27. Reed J, Huppert J, Taylor R, Gillespie G, Alessandrini E, Kahn J. **The Impact of Post-Visit Emergency Department Follow-up on Sexually Transmitted Infection Related Return Visits.** *Ann Public Health Res.* 2015; 2:1026.

28. Schaffzin JK, Harte L, Marquette S, Zieker K, Wooton S, Walsh K, Newland JG. **Surgical Site Infection Reduction by the Solutions for Patient Safety Hospital Engagement Network.** *Pediatrics*. 2015; 136:e1353-60.
29. Schroeder LL, Alpern ER, Blecher SM, Peska PA, White ML, Shaw JA, Hronek C, Thurm CW, Alessandrini EA. **Assessing Structural Quality Elements of Pediatric Emergency Care.** *Pediatr Emerg Care*. 2016; 32:63-8.
30. Sitzman TJ, Mara CA, Long RE, Jr., Daskalogiannakis J, Russell KA, Mercado AM, Hathaway RR, Carle AC, Semb G, Shaw WC. **The Americleft Project: Burden of Care from Secondary Surgery.** *Plast Reconstr Surg Glob Open*. 2015; 3:e442.
31. Slight S, Berner E, Galanter W, Huff S, Lambert B, Lannon C, Lehmann C, McCourt B, McNamara M, Menachemi N. **Meaningful Use of Electronic Health Records: Experiences from the Field and Future Opportunities.** pmc/PMC4704893. *JMIR Med Inform*. 2015; 3:e30.
32. Tham E, Swietlik M, Deakyne S, Hoffman JM, Grundmeier RW, Paterno MD, Rocha BH, Schaeffer MH, Pabbathi D, Alessandrini E, Ballard D, Goldberg HS, Kuppermann N, Dayan PS, Pediatric Emergency Care Applied Research N. **Clinical Decision Support for a Multicenter Trial of Pediatric Head Trauma: Development, Implementation, and Lessons Learned.** *Appl Clin Inform*. 2016; 7:534-42.
33. Van Cleave J, Okumura MJ, Swigonski N, O'Connor KG, Mann M, Lail JL. **Medical Homes for Children with Special Health Care Needs: Primary Care or Subspecialty Service?** *Acad Pediatr*. 2016; 16:366-72.

Grants, Contracts, and Industry Agreements

Annual Grant Award Dollars

Investigator	Title	Sponsor	ID	Dates	Amount
Evaline A Alessandrini, MD	Methods and Measures of Improving Healthcare Value	Agcy for Healthcare Research and Quality	R13 HS024249	9/1/2015 - 8/31/2018	\$35,000
Adam C Carle, PHD	Study to Evaluate the Validity and Reliability of Ohio's Comprehensive Assessment and Planning Model	Ohio Depart of Jobs and Family Services (University of Cincinnati)	C-1617-06-0051	7/1/2015 - 1/31/2017	\$83,271
David Hartley, PHD	Using Big Data to Improve Delivery of Medical Countermeasures and Public Health Supplies During Disease Outbreaks	The Paul G. Allen Foundation (University of Minnesota)	11988	10/1/2015 - 9/30/2016	\$80,708
David Hartley, PHD	Global Mapping of Antimicrobial Resistance	Department of Defense (Georgetown University Medical Center)	W81XWH-15-C-0170	9/30/2015 - 9/29/2017	\$19,358
Carole M Lannon, MD	MEDTAPP Perinatal Project	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	7/1/2015 - 6/30/2017	\$79,060
Carole M Lannon, MD	MedTapp Progesterone (OPQC)	Ohio Department of Medicaid (ODM) (Ohio State University)	G-1617-05-0003	7/1/2015 - 6/30/2017	\$246,859

Carole M Lannon, MD	MedTapp Progesterone	Ohio Department of Health (Ohio State University)	G-1617-05-0003	9/5/2015 - 6/30/2017	\$327,405
Carole M Lannon, MD	MedTapp QI Science Project	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	7/1/2015 - 6/30/2017	\$158,000
Carole M Lannon, MD	Neonatal Abstinence Syndrome	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	7/1/2015 - 6/30/2017	\$377,938
Carole M Lannon, MD	MedTapp NICU Graduates Project	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	7/1/2015 - 6/30/2017	\$495,000
Carole M Lannon, MD	MEDTAPP Progesterone	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	7/1/2015 - 6/30/2017	\$953,033
Carole M Lannon, MD	Medtapp Quality Improvement Science Project	Ohio Department of Health (Ohio State University)	G-1617-05-003	9/5/2015 - 6/30/2017	\$92,000
Carole M Lannon, MD	Help Me Grow Home Visiting Quality Improvement Learning	Ohio Department of Health	CSP907014	4/14/2014 - 10/31/2016	\$205,000
Carole M Lannon, MD	State-based Perinatal Quality Collaboratives	Ctr for Disease Control and Prevention	NU38DP005361	9/30/2014 - 9/29/2017	\$199,447
Carole M Lannon, MD	MedTapp OPQC Perinatal	Ohio Department of Health (Ohio State University)	ODH WISE 1047	9/5/2015 - 6/30/2017	\$35,519
Carole M Lannon, MD	MedTapp NICU Graduates	Ohio Department of Medicaid (ODM) (Ohio State University)	ODM201540	7/1/2015 - 6/30/2017	\$214,150
Carole M Lannon, MD	NAS State - OPQC	Ohio Department of Medicaid (ODM) (Ohio State University)	ODM201636	7/15/2015 - 6/30/2017	\$161,973
Carole M Lannon, MD	Improving Child Health by Disseminating Patient Centered Outcomes Research	Department of Health and Human Services (American Board of Pediatrics Foundation)	PCOR (R18HS021935)	9/1/2013 - 6/30/2016	\$43,680
Carole M Lannon, MD	Pursuing Perfection in Pediatric Therapeutics	Agcy for Healthcare Research and Quality	U19 HS021114	9/1/2015 - 8/31/2016	\$844,692
Carole M Lannon, MD	Autism Treatment Network	Health Resources & Services Admin (Massachusetts General Hospital)	UA3MC11054	9/1/2015 - 8/31/2020	\$293,174
Peter A Margolis, MD- PHD	ImproveCareNow Improvement Collaborative	ImproveCareNow, Inc.	ICN_SOW7_Margolis	7/1/2015 - 6/30/2016	\$1,361,585

Peter A Margolis, MD- PHD	A National Pediatric Learning Health System	Patient-Centered Outcome Research Inst. (Children's Hospital of Philadelphia)	CDRN-1306-01556	4/15/2014 - \$261,506 4/15/2018
Peter A Margolis, MD- PHD	ImproveCareNow: A Learning Health System for Children with Crohn's Disease and Ulcerative Colitis	Patient-Centered Outcome Research Inst.	PPRN-1306-01754	3/14/2014 - \$866,153 9/12/2018
Stephen E Muething, MD	Solutions for Patient Safety - National	Ohio Children's Hospitals' Solutions for	OCHSPS Muething	12/10/2014 \$6,250,256 - 12/9/2019
Kathleen Walsh	Human And System Factors Contributing to Pediatric Medication Error and Injury	Agcy for Healthcare Research and Quality	R01 HS024390	9/30/2015 - \$499,149 9/29/2018
Total Annual Grant Award Dollars				\$14,183,916