

# 2014 Research Annual Report

## James M. Anderson Center for Health Systems Excellence



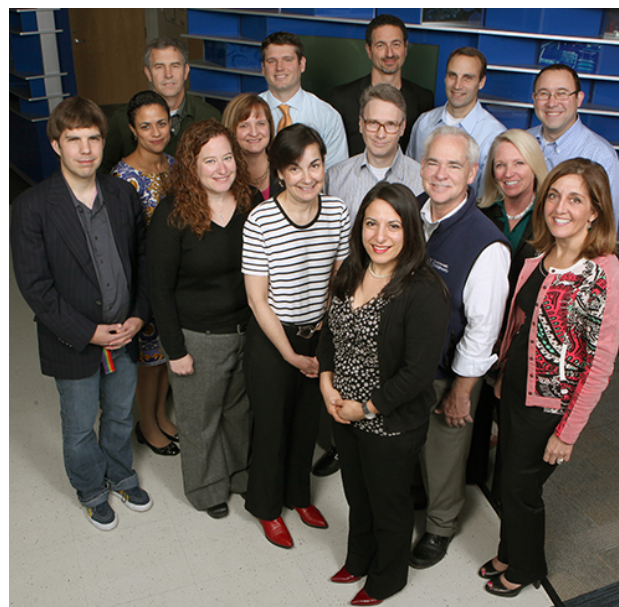
### Division Summary

#### RESEARCH AND TRAINING DETAILS

Number of Faculty	13
Number of Joint Appointment Faculty	11
Direct Annual Grant Support	\$11,420,428
Peer Reviewed Publications	46

#### CLINICAL ACTIVITIES AND TRAINING

### Division Photo



Row 1: A Carle, U Kotagal, H Kaplan, M Britto, N Daraiseh, S Muething, E Alessandrini  
Row 2: E Morgan-Dewitt, D White, D Hartley, J Lail, S Iyer  
Row 3: K Phelan, D Hooper, S Hanke, M Seid, B Brinkman, P Brady, P Margolis

## Significant Accomplishments

### Collaboration Key for Learning Health System

In a Learning Health System, patients and providers work together to choose care based on best evidence, and the process of discovery is driven as a natural outgrowth of patient care to ensure innovation, quality, safety and value in health care. The Anderson Center has developed and replicated the core elements of such a system on a large scale across multiple organizations. We support six networks involving 120 organizations and 390 sites of care in the US and the UK. These networks simultaneously improve care and outcomes and support clinical, comparative effectiveness and quality improvement research. As large scale “labs” they are reducing the time from knowledge generation to patient impact from years to months.

- The Pediatric Rheumatology Care and Outcomes Improvement Network has developed and implemented shared-decision making tools for beginning immune-modifying agents in patients with juvenile arthritis.
- The Ohio Perinatal Quality Collaborative’s expansion from 20 to 105 maternity hospitals in the state allowed the use of a stepped-wedge design to better understand effective dissemination strategies.
- The ImproveCareNow Network demonstrated the strength of a network database by using advanced comparative effectiveness methods to replicate a controlled trial.

- The National Pediatric Cardiology Quality Improvement Collaborative used mixed methods analysis to identify a growth bundle that improved outcomes in children with complex congenital heart disease.

Faculty leaders of networks include Jeffrey Anderson, MD, MPH, Bill Brinkman, MD, MEd, MSc, Esi Morgan DeWitt, MD, MSCE, David Hooper, MD, Heather Kaplan, MD, MSCE, Lisa Oipari, PhD, Michael Seid, PhD, and Carole Lannon, MD, MPH, who also leads the Learning Networks Core.

A key goal is to create more re-usable elements to support the expansion of networks to more conditions. This work is taking place, in part, with support from the Patient Centered Outcomes Research Institute (PCORI) \$100 million dollar PCORNet program. Peter Margolis, MD, PhD, is the co-PI of PEDSnet, a network linking eight large children's hospitals, and serves as Chair of the PCORNet Program's steering committee. Our ultimate vision is that a pediatric "network of networks" will transform clinical research by engaging patients, care providers, and health systems in collaborative partnerships to improve healthcare and explore the questions that matter most to patients and their families.

### **Partnerships Drive Children's Health**

In the past four years, we have achieved significant progress in partnering with many Cincinnati organizations to improve the health of children in our community, resulting in significant funding support, including a grant from Bethesda, Inc. for \$3.2 million. Below is a sampling of learnings and successes in first 4 years:

1. New models of primary care for kids with chronic conditions - We have successfully developed an effective new asthma care coordinator model including home health care and home delivery of medications.
2. School nurses – We have trained school RNs in Quality Improvement and connected them to the rest of the health care system so that no child with asthma discharged from the ICU shows up in school without the school RN ready for the handoff.
3. Cincinnati Public Schools – We developed a partnership that allows us to test incentives for healthy foods.
4. Cincinnati Health Department/Community Health Centers – We worked with the Health Department/Price Hill Health Center to develop same-day access to OB care for the highest risk women, and provided technical expertise to enable them to use their own EPIC data to drive improvement.
5. Neighborhoods – We learned how to build a trusted, effective community coalition that leaves the community in control and gets the work done. We moved from a situation where no relationship existed between Cincinnati Children's and Norwood to having an injury-prevention coalition gain access into one in four homes to help safety-proof them for young children.
6. Anchor neighborhood agencies – We partnered with Santa Maria in Price Hill to begin developing community-based campaigns to reach every patient and to work on healthy development such as school readiness at a neighborhood level.
7. We also worked with the University of Cincinnati/DAAP for waiting room efficiency, the United Way of Greater Cincinnati and the Health Impact Council, Every Child Succeeds and the StartStrong community work, and Cincinnati Works, Urban League, and Legal Aid to remove the barriers to parents' success.

In the Next Era, we will build upon these partnerships to make Cincinnati's kids the healthiest in the country through collaborative partnerships with community agencies by delivering quality care and improving the overall health and well-being of children through child-centered policy and advocacy.

Two critical components must exist to create and sustain a culture of quality improvement: Improvement Capability and Improvement Capacity. Improvement capability is an individual's knowledge and skill to design improvement initiatives to achieve measurable results and the ability to execute improvement efforts and sustain results. Improvement Capacity is an organization's resources which enable it to initiate and sustain a transformation effort. This includes capable individuals but also structures, processes, and infrastructure. Building improvement capability at Cincinnati Children's goes beyond acquisition of knowledge and skills to action-oriented improvement that achieves critical results and accelerates transformation. As an Academic Medical Center, the Cincinnati Children's strategy for building improvement capability focuses on engaging and developing faculty as improvement leaders, educating trainees and advancing the scholarship of health care improvement through rigorous methods and quality improvement research.

Different groups will have different levels of need for improvement knowledge and skill to achieve results. Therefore, the Anderson Center has implemented the following framework to build capacity and capability at all levels in the organization.

### **Intermediate Improvement Science Series (I2S2)**

The I2S2 program is designed to build a broader and deeper network of improvement leaders, bring about continued cultural transformation and develop skill and experience with all aspects of Deming's System of Profound Knowledge. It includes understanding variation, appreciation of the system, theory of knowledge/action-learning and psychology/change management. The program consists of a multidisciplinary cohort of 25-30 students that complete a project-based curriculum over a six-month period, allowing time for reflection and abstract conceptualization. Leadership topics such as the business case for quality, transformational leadership, chronic care improvement, patient safety, managing a portfolio of projects, implementation and sustainability as well as research and improvement are covered. To date, 496 Cincinnati Children's students have graduated from I2S2, and are applying their learnings to improve care for children.

### **Basic and Mid-Level Courses**

For those needing a basic or mid-level knowledge base, there are online modules to introduce basic measurement ideas including operational definitions and creating and interpreting run charts. The Rapid Cycle Improvement Collaboratives (RCIC) program is designed to achieve measurable improvement in a focused, narrow-scoped project in 120 days while developing the team leader's ability to lead a project utilizing the model for improvement and basic quality improvement tools. A total of 145 teams consisting of 820 individuals have completed the RCIC program.

### **Advanced Improvement Methods (AIM)**

The AIM program is a nine-month course consisting of small groups that conduct a simulation to teach planned experimentation. The participants also conduct project work, presentations, book reports, team-based problem sets, as well as didactic sessions. The goal of the program is to enhance the knowledge and skills to apply the science of improvement to the design, implementation, and study of quality improvement initiatives in clinical settings, and to apply improvement theory and methods to the leadership of projects involving research, clinical care, and operations. There are more than 134 graduates, 40 of whom are external to Cincinnati Children's.

The Quality Scholars Program seeks to build improvement capability in faculty who will transform health and the health care delivery systems for children as well as advance the scholarship of health care improvement at Cincinnati Children's and nationally. There are two training tracks: the "Independent Improvement Investigator" and the "System-Wide Improvement Leader."

Participants in the “Independent Improvement Investigator” Track lead research teams in complex, cross-functional projects using advanced research and quantitative tools and methods. They perform and lead QI / Health Services / Comparative Effectiveness research, serve as PI on federal and foundation funding for research, and teach and mentor others doing research. Quality Scholars in the “System-wide Improvement Leader” Track lead strategic improvement teams/complex/cross-functional projects using advanced improvement and quantitative tools and methods, engage in Quality Improvement research, and teach and coach others to do improvement. The curriculum includes formal coursework such as a Master’s in Clinical Research and Improvement methods (I2S2 and AIM), a series of mentored research / improvement projects, and leadership training and multi-disciplinary team work. All Quality Scholars publish QI articles in peer reviewed journals and present their work both locally and nationally, developing a national reputation. There are eight graduates and nine current scholars, with a combined total of 13 first author peer-reviewed publications, and 14 first author national venue presentations.

Capacity and capability building has been successful not only within Cincinnati Children’s, but externally as well. In FY 2014, we completed our first External I2S2 class, with 17 graduates from organizations such as Vanderbilt University Medical Center and the American Board of Pediatrics. Our second external class is scheduled to begin this fall, and our first offsite class in partnership with Dayton Children’s Hospital was set to begin in October. Additionally, several community organizations such as STRIVE and the Cincinnati Public School system have successfully completed improvement projects through our RCIC program. This program is expected to expand into other teams in these organizations in 2015.

## Research Highlights

**All the results reported here are achieved through partnership with clinical and operational leaders at Cincinnati Children’s.**

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

In 2014, funding for the Health Services Research Matrix supported a very rapidly growing portfolio encompassing HSR research by more than 30 faculty spanning numerous divisions. External Funding in Health Services Research has continued to grow, increasing to \$7.5M in FY14, an increase of 9%. 75% of grant submissions were funded. The Solutions for Patient Safety initiative, one of the national networks supported by the Anderson Center, received \$4 million in funding from CMMI. The Anderson Center research funding remains diversified with less than 50% federal funding, and this will better insulate it from federal research spending cuts. Areas of funded research focus in core and affiliate faculty include shared decision-making, Psychometric evaluation of patient experience, network sciences research, comparative effectiveness, adverse event detection, role of nursing staffing intensity, high reliability systems, utilization prediction, and determinants of health-related quality of life. Our faculty generated 46 publications last year, with an average impact factor of 3.97.

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

All five networks have achieved demonstrated the successful integration of improvement and research by achieving outcomes and generating new evidence.

### Outcomes Achieved:

- The **Solutions for Patient Safety** network achieved a 40% reduction in hospital-acquired conditions, a 20% reduction in readmissions, and a 25% reduction in serious safety events.
- The **ImproveCareNow (IBD)** network has increased remission rates from 60% to 79%. Twenty-five percent of sites have remission rates over 80% (up from 2% in 2007).

- The **National Pediatric Cardiology Quality Improvement Collaborative** network has 1) reduced intersite variation in infant growth and 2) reduced cumulative interstage mortality for infants with complex congenital heart disease by 25%.
- The **Pediatric Rheumatology Care and Outcomes Improvement Network** increased the number of patients experiencing six months' remission on medicines to 45%. This represents 147 more children in remission than a year ago.
- The **Ohio Perinatal Quality Collaborative** has engaged 105 (98%) of maternity hospitals in the state to reduce scheduled deliveries without medical indications < 39 weeks to 5% statewide, a reduction of 70%. The Nosocomial infections in 22-29 week gestation infants has been reduced by 39% to 7.5%.

#### **Networks allow 'collaborative laboratories' for research and the generation of new knowledge.**

- The **Solutions for Patient Safety** network is using reliability science and statistical process control methods to evaluate the impact of reliable implementation of bundles on outcomes.
- The **ImproveCareNow (IBD)** network has used registry data to simulate a sequence of non-randomized trials and demonstrate treatments that were effective in achieving clinical and corticosteroid free remission for patients who had Crohn disease.
- The **National Pediatric Cardiology Quality Improvement Collaborative** used mixed methods to identify a care bundle associated with increased growth in infants with complex congenital heart disease; implementation of the bundle reduced variation and improved center's growth outcomes.
- The **Pediatric Rheumatology Care and Outcomes Improvement Network** developed and is evaluating shared decision-making tools for use with patients with juvenile idiopathic arthritis.
- The **Ohio Perinatal Quality Collaborative** used a stepped-wedge design to implement an improvement intervention across 75 maternity hospitals in Ohio, identifying effective methods for successful scale.

#### **Safety (Stephen Muething, MD, Faculty Lead)**

Cincinnati Children's went **280** days without a serious safety event. We achieved the goals of 91% increase in handwashing, a 20% increase in reporting of injuries and near-miss events, and a 70% increase in supervisor/manager real-time analysis of these events. Blood-borne pathogen events were also reduced by 10%. (See also impact of Solutions for Patient Safety under networks.)

#### **Productivity/Flow (Fred Ryckman, MD, Faculty Lead)**

In 2014, version four of the Space Planning and Capacity Integration System (SPaCIS) was released, and now offers utilization data on a weekly timetable for Outpatient clinical space, including offsite locations. The next iteration of SPaCIS will include features to support more dynamic, real-time tracking of physical space; outpatient utilization management through the use of software that enables better access to patient data on mobile devices where the data could be visualized at the patient's bedside.

#### **Patient and Family Experience (Anne Boat, MD, Faculty Lead)**

Work on the inpatient units has produced improvement in the percent of patients and families rating Cincinnati Children's a 9-10. This improvement was due in large part to inpatient rounding with nursing leaders, and involvement of families. Through rapid prototyping, new whiteboards have been designed and implemented for the inpatient units. A portion of these whiteboards are devoted to patient and family input. The Patient and Family Experience team leveraged design thinking to improve patient experience and wait time in a pilot study in Orthopedic clinics with positive results. The Outpatient 0-6 rating met special cause with a reduction in 0-6 rating to an all-time low of 1.8%. The Emergency department has also demonstrated significant improvement in patient satisfaction through leadership rounding and nurse/physician bedside handoffs to improve communication with patients and families. The percent of 9-10 rating in the Burnet ED has surpassed the goal

for this year.

#### Care Coordination and Outcomes (Jennifer Lail, MD, Faculty Lead)

The Care Coordination and Outcomes initiative has resulted in at least a 20% improvement in clinical outcomes for eight conditions (Cystic Fibrosis, Asthma Innovation Lab, Kidney Transplant, OCD, ADHD, IBD, Multivisceral Transplant and Intestinal Rehabilitation). In 25 conditions, teams have implemented standard process and outcomes measures, and all of the components of the chronic care model, i.e. registries, self-management, care coordination, and pre-visit planning. Best in Class Analysis was completed for five teams.

#### Community/Population Health (Robert Kahn, MD, Faculty Lead)

The Asthma team achieved a 20% reduction in the use of the ED and inpatient services through care coordination. Significant progress has been made in infant mortality through StartStrong, a collaborative funded with \$3.2M from Bethesda, Inc. The Anderson Center is building community capability in quality improvement through collaboratives with STRIVE and the Cincinnati Public School system.

#### Community Care Delivery (Srikant Iyer, MD, MPH, Faculty Lead)

With the implementation of Urgent Care and open access for acute illness within the PPC, low acuity ED visits were reduced from 50% to 32.5%. The proportion of PPC patients now seen in the PPC vs. ED/Urgent Care has increased approximately 10%. Population-level registries were implemented for both General Pediatrics and Adolescent Medicine, and an internal collaborative was formed to reduce 30-day inpatient readmissions.

#### Evidence and Measures (Evie Alessandrini, MD, MSCE, Faculty Lead)

As a result of working closely with the Divisions to close existing gaps, Cincinnati Children's once again ranked #3 overall, with a #1 ranking in Cancer Care, and a total of six subspecialties ranked in the top three. There were 46 gaps, of which 25 (54%) were closed. Prospective tracking systems have been developed for the cross-cutting measures to allow us to predict our external rankings.

#### The Leadership Academy

The Anderson Center completed its first External I2S2 class, with 17 graduates from organizations such as Vanderbilt University Medical Center and the American Board of Pediatrics. At Cincinnati Children's, 96.3% of I2S2 projects are demonstrating improvement, while 93% of RCIC projects are demonstrating improvement.

## Division Publications

1. Alpern ER, Clark AE, Alessandrini EA, Gorelick MH, Kittick M, Stanley RM, Dean JM, Teach SJ, Chamberlain JM, Pediatric Emergency Care Applied Research N. **Recurrent and high-frequency use of the emergency department by pediatric patients.** *Acad Emerg Med.* 2014; 21:365-73.
2. Baker-Smith CM, Wilhelm CM, Neish SR, Klitzner TS, Beekman RH, 3rd, Kugler JD, Martin GR, Lannon C, Jenkins KJ, Rosenthal GL. **Predictors of prolonged length of intensive care unit stay after stage I palliation: a report from the National Pediatric Cardiology Quality Improvement Collaborative.** *Pediatr Cardiol.* 2014; 35:431-40.
3. 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.
4. 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.
5. Brady PW, Varadarajan K, Peterson LE, Lannon C, Gross T. **Prevalence and nature of adverse medical**



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6. 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.
  7. Brinkman WB, Hartl Majcher J, Poling LM, Shi G, Zender M, Sucharew H, Britto MT, Epstein JN. **Shared decision-making to improve attention-deficit hyperactivity disorder care.** *Patient Educ Couns.* 2013; 93:95-101.
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  13. Colbourn T, Nambiar B, Bondo A, Makwenda C, Tsetekani E, Makonda-Ridley A, Msukwa M, Barker P, Kotagal U, Williams C, Davies R, Webb D, Flatman D, Lewycka S, Rosato M, Kachale F, Mwansambo C, Costello A. **Effects of quality improvement in health facilities and community mobilization through women's groups on maternal, neonatal and perinatal mortality in three districts of Malawi: MaiKhanda, a cluster randomized controlled effectiveness trial.** *Int Health.* 2013; 5:180-95.
  14. 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.
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Pediatric Emergency Care Applied Research N. **Informing the design of clinical decision support services for evaluation of children with minor blunt head trauma in the emergency department: a sociotechnical analysis.** *J Biomed Inform.* 2013; 46:905-13.

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## Faculty, Staff, and Trainees

### Faculty Members

**Uma Kotagal, MBBS, MSc**, Professor

**Leadership** Director, Health Policy and Clinical Effectiveness; Senior Vice President, Quality and Transformation

**Research Interests** Using research methods and analysis to understand, diagnose and implement sustainable changes in care practices so as to meet all dimensions of the patients and families.

**Evaline Alessandrini, MD, MSCE**, Professor

**Leadership** Director, Quality Scholars Program in Health Care Transformation

**Research Interests** Outcomes and risk-adjustment in pediatric emergency care. Quality of ambulatory services for vulnerable children. Health system interventions for improvement.

**Adam Carle, MA, PhD**, Associate Professor

**Research Interests** Utilizing statistical methods to improve health outcomes measurement, focus on children with special health care needs

**Nancy Daraiseh, PhD**, Assistant Professor

**Research Interests** CPE Nursing Operations, environmental safety in healthcare and industrial engineering

**Linda Dynan, PhD**, Adjunct

**Research Interests** Racial disparities in health outcomes, hospital efficiency, and inpatient quality and safety

**David Hartley, MD**, Associate Professor

**Research Interests** Computationally intensive methods to understand and detect disease signals including safety events and infections; understanding the spread of ideas and innovations in health care delivery systems.

**Jennifer Lail, MD**, Associate Professor

**Research Interests** Chronic and complex care; coordination of care

**Carole Lannon, MD, MPH**, Professor

**Leadership** Co-Director, Center for Health Care Quality

**Research Interests** To learn what and how improvement science methods achieve best results in improving healthcare and outcomes. To understand what improvement science methods can help target specific practice segments.

**Peter Margolis, MD, PhD**, Professor

**Leadership** Co-Director, Center for Health Care Quality; Co-Director, Health Services Research Matrix; Acting Director, Quality Scholars Fellowship in Transforming Health Care

**Research Interests** Integrating public health and quality improvement methods to design, develop and test interventions to improve the outcomes of care for populations of children and adults.

**Steve Muething, MD**, Associate Professor

**Leadership** Co-leader for the Ohio Children's Hospital Solutions for Patient Safety

**Research Interests** Patient Safety, Reliability, Adverse Events

**Kieran J. Phelan, MD, MSc**, Associate Professor

**Leadership** Evidence-Based Clinical Practice Guidelines

**Research Interests** Effects of home visitation and housing on pediatric injury epidemiology and control, chronic disease management, and the psychology of parental supervision and health care decision making.

**Kathleen Walsh, MD, MSc**, Associate Professor

**Research Interests** Medication safety in children; safety of medication use in the ambulatory care and home settings among children with chronic conditions.

**Denise White, PhD**, Assistant Professor

**Research Interests** Space utilization, capacity, and flow

#### Joint Appointment Faculty Members

**Anne Boat, MD**, Associate Professor (Anesthesia)

**Research Interests** Patient and Family Experience

**Patrick Brady, MD**, Assistant Professor (General Pediatrics)

**Research Interests** Safety; risk prediction and mitigation

**Maria Britto, MD, MPH**, Professor (Adolescent Medicine)

**Research Interests** Health care quality, especially for adolescents with chronic illness

**Dennis Drotar, MD**, Professor (Behavioral Medicine and Clinical Psychology)

**Research Interests** Care coordination and self-management

**Craig Froehle, PhD**, Associate Professor (UC College of Business)

**Research Interests** Operational technologies, services management, healthcare (or health care) operations,

process improvement

**Srikant Iyer, MD, MPH**, Assistant Professor (Emergency Medicine)

**Research Interests** Organizing systems and processes in emergency medicine to deliver ideal care and improve patient outcomes.

**Robert Kahn, MD**, Associate Professor (General Pediatrics)

**Research Interests** Population health; infant mortality, asthma, obesity, injury prevention

**Heather Kaplan, MD, MSCE**, Assistant Professor (Neonatology)

**Research Interests** Identifying and examining strategies for improving the implementation of evidence into practice and studying quality improvement as a mechanism of promoting the uptake of research findings and improving patient outcomes.

**Esi Morgan Dewitt, MD, MSCE**, Assistant Professor (Rheumatology)

**Research Interests** Improving measurement of child health status using patient-reported outcomes, comparative effectiveness of therapeutics, application of quality improvement science

**Lisa Opipari-Arrigan, PhD**, Associate Professor (Behavioral Medicine and Clinical Psychology)

**Research Interests** Improving health outcomes and quality of life for pediatric patients with chronic illnesses

**Michael Seid, PhD**, Professor (Pulmonary Medicine)

**Research Interests** Measuring and improving pediatric health care quality and health-related quality of life for chronically ill children and understanding the interactions between vulnerable chronically ill children and the health care system, the barriers to care faced by these populations, and policies and programs to overcome these barriers to care.

## Grants, Contracts, and Industry Agreements

### Grant and Contract Awards

Annual Direct

#### GREENBERG, J

##### Best Babies Zone

The W.K. Kellogg Foundation(The Regents of the University of California)

09/01/12-02/28/15

\$184,074

#### LANNON, C

##### Improving Child Health by Disseminating Patient Centered Outcomes Research

Department of Health and Human Services(American Board of Pediatrics Foundation)

R18 HS 021935

09/01/13-06/30/16

\$9,308

##### MEDTAPP Neonatal Abstinence Syndrome (NAS) Project (ODM State GRF)

Ohio Department of Medicaid(Ohio State University)

G1415070060ODM201436

01/14/14-06/30/16

\$113,560

##### MEDTAPP Neonatal Abstinence Syndrome (NAS) Project (ODM Federal)

Ohio Department of Medicaid(Ohio State University)

01/14/14-06/30/16

\$271,381

##### MEDTAPP Statewide Quality Improvement Manager

Ohio Department of Jobs and Family Services(Ohio State University)

G-1213-07-0343

09/26/11-06/30/15

\$140,226

**MEDTAPP/BEACON Perinatal Quality Project (ODH-State GRF)**

Ohio Department of Health(Ohio State University)

FAM-32858-02	08/05/13-06/30/15	\$104,035
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**MEDTAPP/BEACON Progesterone Project**

Ohio Department of Medicaid (Ohio State University)

10/09/13-06/30/15	\$181,716
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**MEDTAPP/BEACON Progesterone Quality Improvement Collaborative**

Ohio Department of Health(Ohio State University)

60041794	10/09/13-06/30/15	\$413,521
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**MEDTAPP/BEACON QI Science Project**

Ohio Department of Health(Ohio State University)

FAM-32858-01	08/05/13-06/30/15	\$87,046
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**MEDTAPP-BEACON Perinatal Quality**

Ohio Department of Medicaid(Ohio State University)

G-1415-07-0060	11/16/11-06/30/15	\$208,917
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**Progesterone Quality Improvement Project**

Center for Medicare/Medicaid Services(Ohio State University)

60041796	10/09/13-06/30/15	\$779,874
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**Pursuing Perfection in Pediatric Therapeutics**

Agency for Healthcare Research and Quality

U19 HS 021114	09/30/11-08/31/16	\$556,643
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**State-Based Perinatal Quality Collaborative**

Ohio Department of Health(Centers for Disease Control and Prevention)

U38 DP 003787	12/01/11-09/30/14	\$191,795
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**Help Me Grow Home Visiting Quality Improvement Learning Collaborative Study**

Ohio Department of Health

04/14/14-10/31/15	\$205,000
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**MARGOLIS, P****Aligning Forces for Quality**

The American Board of Medical Specialties Research &amp; Education Foundation(George Washington University)

09/01/10-08/31/14	\$383,705
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**Enhancing the Sustainability of a Pediatric Learning Health System**

Agency for Healthcare Research and Quality

R01 HS 022974	09/30/13-03/31/15	\$537,609
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**ImproveCareNow Improvement Collaborative**

ImproveCareNow, Inc.

10/01/06-06/30/15	\$908,123
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**ImproveCareNow: A Learning Health System for Children with Crohn's Disease and Ulcerative Colitis**

Patient-Centered Outcome Research Institute

PPRN-1306-01754	03/14/14-09/14/15	\$328,659
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**Open Source Science: Transforming Chronic Illness Care**

National Institutes of Health

R01 DK 085719	09/30/09-08/31/14	\$947,014
<b>Quality Initiative Supplement Grant</b>		
ImproveCareNow, Inc.(Trustees of Dartmouth)		
	07/01/13-12/31/14	\$123,000
<b>A National Pediatric Learning Health System</b>		
Patient-Centered Outcomes Research Institute(Children's Hospital of Philadelphia)		
	04/15/14-10/14/15	\$391,747
<b>MUETHING, S</b>		
<b>Muething OCHSPS Consulting Agreements</b>		
Ohio Children's Hospitals' Solutions for Patient Safety - State		
	01/01/12-12/31/17	\$187,121
<b>Muething OCHSPS Consulting Agreements</b>		
Ohio Children's Hospitals Solutions for Patient Safety - Federal		
	12/08/12-12/09/15	\$3,580,425
<b>PHELAN, K</b>		
<b>Injury Prevention in a Home Visitation Population</b>		
National Institutes of Health		
R01 HD 066115	09/28/10-07/31/15	\$504,656
<b>WALSH, K</b>		
<b>Mini-Sentinel IV Iron Project</b>		
Food and Drug Administration(Harvard Pilgrim Health Care, Inc.)		
	05/01/13-06/30/15	\$81,273
<b>Current Year Direct</b>		<b>\$11,420,428</b>
<b>Total</b>		<b>\$11,420,428</b>