

# James M. Anderson Center for Health Systems Excellence

## Division Details

### RESEARCH AND TRAINING DETAILS

Faculty	9
Joint Appointment Faculty	31
Total Annual Grant Award Dollars	\$14,609,913



Row 1: J Lail, P Margolis, S Iyer, A Carle, N Daraiseh, S Muething, E Alessandrini

Row 2: S Hanke, B Brinkman, M Seid, E Morgan

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## Division Highlights

### Health Services Research

Health services and outcomes research in the Division of James M. Anderson Center for Health Systems Excellence has advanced this year in a range of areas: developing and testing of health systems interventions, pragmatic trials, use of 'big data' and measurement, and implementation science. Our researchers provide outstanding faculty development, with countless faculty participating in research and quality improvement training, fellowship, and mentoring programs.

A major evolution is fostering of a stronger collaboration among all stakeholders to co-produce health care system design. This has included studies of how to collaborate with patients, families, clinicians and health system leaders to set research agendas for future work. The division also hosted a major conference on health care co-production. [Dr. Pat Brady, MD, MSc](#), led a team of researchers who received a Best Abstract award for "Partnering with families of children with medical complexity to better detect deterioration and improve hospital care."

### Learning Networks

[Learning Networks](#) are organizational structures that facilitate collaboration at scale to improve health, care, and cost. Over the past eight years, The James M. Anderson Center for Health Systems Excellence and affiliated faculty received more than \$50 million in federal research funding to develop and study Learning Networks; for clinical trials and other clinical and health services research that use the Learning Network infrastructure.

Learning Networks developed by the division have shown remarkable success in changing clinical outcomes: cutting serious safety events by 50%, decreasing mortality from hypoplastic left heart syndrome by 40% during the inter-surgery period, reducing elective preterm delivery by 75%, and increasing the proportion of children with inflammatory bowel disease in remission by 26%. Division Learning Networks are an object of study as well as a laboratory and platform (*The New England Journal of Medicine*) for researchers in the division, across Cincinnati Children's Hospital Medical Center, and across the country to collaborate with patients and clinicians on a wide range of

clinical issues that matter most to patients and clinicians. During this same time-period, researchers published over 80 scientific journal articles .

Our greatest accomplishment over the last eight years has been to develop the infrastructure for the science and practice of Learning Networks. We are now poised to scale these, further transforming pediatric outcomes and guaranteeing data and laboratory infrastructure that will be highly competitive for research funding streams from National Institutes of Health (NIH) and other federal health research funders; from the National Science Foundation (NSF) and other federal science funders; and from foundations and industry.

This year we have realized a long-standing goal. All division faculty have been able to work together as a team using the network data and laboratory to demonstrate the utility of Learning Networks for science. Faculty are using networks as a platform for randomized trials (e.g. PCORI COMBINE and PRODUCE trials) and network 'big data' for large-scale health services research (e.g. PCORI PEDSnet Benchmarking in quality and safety). They are using the network data for advanced methods in complexity science. The network model has become an acknowledged standard across the country for transforming healthcare research and practice, as evidenced by our \$9.3M award from PCORI to test how to scale up this model across disease networks within the PCORnet research transformation network.

## Safety Research

Research on patient and staff safety continues to thrive at Cincinnati Children's, through cross-divisional and interdisciplinary collaborations in many areas-patient engagement in safety, neonatal safety, and medication safety. Research in the outpatient safety includes visits to the homes of patients with chronic conditions to understand risk factors for errors in self-management, funded by AHRQ. In research funded by AHRQ, neonatal patient safety research includes the use of health IT to prevent administration errors, funded by the National Library of Medicine, and a study of clinician adherence to standardized care bundles, funded by NIH. Innovative research published by a team led by Dr. Nancy Daraiseh, PhD, explores types of injuries to hospital staff. Staff safety research also investigates the use of equipment to prevent injuries.

Research in medication safety is studying how to spread a novel intervention NINJA (Nephrotoxic Injury Negated with Just-In-Time Action) as part of the Solutions for Patient Safety (SPS) network. Observational studies are investigating the impact of antibiotics on hearing loss among children with cystic fibrosis and exploring types of injuries that occur among hospital staff.

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## Division Publications

1. Goldstein SL; Mottes T; Simpson K; Barclay C; Muething S; Haslam DB; Kirkendall ES. **A sustained quality improvement program reduces nephrotoxic medication-associated acute kidney injury.** *Kidney international.* 2016; 90:212-221.
2. Ramsey LB; Mizuno T; Vinks AA; Margolis PA. **Learning Health Systems as Facilitators of Precision Medicine.** *Clinical Pharmacology and Therapeutics.* 2017; 101:359-367.
3. Iams JD; Applegate MS; Marcotte MP; Rome M; Krew MA; Bailit JL; Kaplan HC; Poteet J; Nance M; McKenna DS. **A Statewide Progestogen Promotion Program in Ohio.** *Obstetrics and Gynecology.* 2017; 129:337-346.
4. Parast L; Burkhardt Q; Desai AD; Simon TD; Allshouse C; Britto MT; Leyenaar JK; Gidengil CA; Toomey SL; Elliott MN. **Validation of New Quality Measures for Transitions Between Sites of Care.** *Pediatrics.* 2017; 139:e20164178.
5. Dayan PS; Ballard DW; Tham E; Hoffman JM; Swietlik M; Deakyne SJ; Alessandrini EA; Tzimenatos L; Bajaj L; Vinson DR. **Use of Traumatic Brain Injury Prediction Rules With Clinical Decision Support.** *Pediatrics.* 2017; 139:e20162709.
6. Depinet H; von Allmen D; Towbin A; Hornung R; Ho M; Alessandrini E. **Risk Stratification to Decrease Unnecessary Diagnostic Imaging for Acute Appendicitis.** *Pediatrics.* 2016; 138:e20154031.

7. Statile AM; Schondelmeyer AC; Thomson JE; Brower LH; Davis B; Redel J; Hausfeld J; Tucker K; White DL; White CM. **Improving Discharge Efficiency in Medically Complex Pediatric Patients.** *Pediatrics*. 2016; 138:e20153832.
8. Leyenaar JK; Desai AD; Burkhart Q; Parast L; Roth CP; McGalliard J; Marmet J; Simon TD; Allshouse C; Britto MT. **Quality Measures to Assess Care Transitions for Hospitalized Children.** *Pediatrics*. 2016; 138:e20160906.
9. Dandoy CE; Hausfeld J; Flesch L; Hawkins D; Demmel K; Best D; Osterkamp E; Bracke T; Nagarajan R; Jodele S. **Rapid cycle development of a multifactorial intervention achieved sustained reductions in central line-associated bloodstream infections in haematology oncology units at a children's hospital: a time series analysis.** *BMJ Quality and Safety*. 2016; 25:633-643.
10. Batalden M; Batalden P; Margolis P; Seid M; Armstrong G; Opiari-Arrigan L; Hartung H. **Coproduction of healthcare service.** *BMJ Quality and Safety*. 2016; 25:509-517.
11. Frost JR; Cherry RK; Oyeku SO; Faro EZ; Crosby LE; Britto M; Tuchman LK; Horn IB; Homer CJ; Jain A. **Improving Sickle Cell Transitions of Care Through Health Information Technology.** *American Journal of Preventive Medicine*. 2016; 51:S17-S23.
12. Bornstein K; Hungerford L; Hartley D; Sorkin JD; Tapia MD; Sow SO; Onwuchekwa U; Simon R; Tennant SM; Levine MM. **Modeling the Potential for Vaccination to Diminish the Burden of Invasive Non-typhoidal Salmonella Disease in Young Children in Mali, West Africa.** *PLoS neglected tropical diseases*. 2017; 11:e0005283.
13. Crosby LE; Joffe NE; Peugh J; Ware RE; Britto MT. **Pilot of the Chronic Disease Self-Management Program for Adolescents and Young Adults With Sickle Cell Disease.** *Journal of Adolescent Health*. 2017; 60:120-123.
14. Carle AC; Mara CA. **Differential item functioning in patient reported outcomes research.** *Developmental Medicine and Child Neurology*. 2016; 58:1100-1101.
15. Jones JT; Carle AC; Wootton J; Liberio B; Lee J; Schanberg LE; Ying J; Morgan DeWitt E; Brunner HI. **Validation of Patient-Reported Outcomes Measurement Information System Short Forms for Use in Childhood-Onset Systemic Lupus Erythematosus.** *Arthritis Care and Research*. 2017; 69:133-142.
16. Walsh KE; Harik P; Mazor KM; Perfetto D; Anatchkova M; Biggins C; Wagner J; Schoettker PJ; Firreno C; Klugman R. **Measuring Harm in Health Care Optimizing Adverse Event Review.** *Medical Care*. 2017; 55:436-441.
17. Mayo C; Shelley C; MacLachlan NJ; Gardner I; Hartley D; Barker C. **A Deterministic Model to Quantify Risk and Guide Mitigation Strategies to Reduce Bluetongue Virus Transmission in California Dairy Cattle.** *PloS one*. 2016; 11:e0165806.
18. Martsolf GR; Carle AC; Scanlon DP. **Creating Unidimensional Global Measures of Physician Practice Quality Based on Health Insurance Claims Data.** *Health Services Research*. 2017; 52:1061 -1078.
19. Gittelman MA; Kincaid M; Denny S; Wervey Arnold M; FitzGerald M; Carle AC; Mara CA. **Evaluating the reliability of an injury prevention screening tool: Test-retest study.** *Journal of Trauma and Acute Care Surgery*. 2016; 81:s14-s19.
20. Crosby LE; Ware RE; Goldstein A; Walton A; Joffe NE; Vogel C; Britto MT. **Development and evaluation of iManage: A self-management app co-designed by adolescents with sickle cell disease.** *Pediatric Blood and Cancer*. 2017; 64:139-145.
21. Hibbert PD; Molloy CJ; Hooper TD; Wiles LK; Runciman WB; Lachman P; Muething SE; Braithwaite J. **The application of the Global Trigger Tool: a systematic review.** *International Journal for Quality in Health Care (Elsevier)*. 2016; 28:640-649.
22. Stockwell DC; Bisarya H; Classen DC; Kirkendall ES; Lachman PI; Matlow AG; Tham E; Hyman D; Lehman SM; Searles E. **Development of an Electronic Pediatric All-Cause Harm Measurement Tool Using a Modified Delphi Method.** *Journal of Patient Safety*. 2016; 12:180-189.
23. Desai AD; Burkhart Q; Parast L; Simon TD; Allshouse C; Britto MT; Leyenaar JK; Gidengil CA; Toomey SL; Elliott MN. **Development and Pilot Testing of Caregiver-Reported Pediatric Quality Measures for Transitions Between Sites of Care.** *Academic Pediatrics*. 2016; 16:760-769.

24. Morgan EM; Mara CA; Huang B; Barnett K; Carle AC; Farrell JE; Cook KF. **Establishing clinical meaning and defining important differences for Patient-Reported Outcomes Measurement Information System (PROMISA (R)) measures in juvenile idiopathic arthritis using standard setting with patients, parents, and providers.** *Quality of Life Research*. 2017; 26:565-586.
25. Lipstein EA; Lovell DJ; Denson LA; Kim SC; Spencer C; Ittenbach RF; Britto MT. **High Levels of Decisional Conflict and Decision Regret When Making Decisions About Biologics.** *Journal of Pediatric Gastroenterology and Nutrition*. 2016; 63:e176-e181.

## Grants, Contracts, and Industry Agreements

### Annual Grant Award Dollars

Investigator	Title	Sponsor	ID	Dates	Amount
Peter A Margolis, MD, PhD	A National Pediatric Learning Health System	Patient-Centered Outcome Research Inst. (Children's Hospital of Philadelphia)	CDRN-1306-01556	04/15/2014 - 10/14/2018	\$777,528
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	03/14/2014 - 09/12/2018	\$722,147.60
Carole M Lannon, MD	Help Me Grow Home Visiting Quality Improvement Learning Collaborative Project	Ohio Department of Health	CSP907014	04/14/2014 - 03/31/2018	\$205,000
Carole M Lannon, MD	Improving Child Health by Disseminating Patient Centered Outcomes Research	Department of Health and Human Services (American Board of Pediatrics Foundation)	R18 HS021935	09/01/2013 - 06/30/2017	\$41,829
David Hartley, PhD	Global Mapping of Antimicrobial Resistance	Department of Defense (Georgetown University Medical Center)	W81XWH-15-C-0170	09/30/2015 - 09/29/2017	\$19,704
Carole M Lannon, MD	State-based Perinatal Quality Collaboratives	Ctr for Disease Control and Prevention	NU38DP005361	09/30/2014 - 09/29/2017	\$199,411
Peter A Margolis, MD, PhD	Anti-TNF Monotherapy versus Combination Therapy with Low Dose Methotrexate in Pediatric Crohn's disease.	Patient-Centered Outcome Research Inst. (University of North Carolina)	PCS-1406-18643	11/01/2015 - 10/31/2020	\$2,133,034
Evaline A Alessandrini, MD	Methods and Measures of Improving Healthcare Value	Agcy for Healthcare Research and Quality	R13 HS024249	09/01/2015 - 08/31/2018	\$35,000
Carole M Lannon, MD	Autism Treatment Network	Health Resources & Services Admin	UA3MC11054	09/01/2015 - 08/31/2020	\$343,575

(Massachusetts General Hospital)

Kathleen Walsh	Human and System Factors Contributing to Pediatric Medication Error and Injury	Agcy for Healthcare Research and Quality	R01 HS024390	09/30/2015 - 09/29/2018	\$491,516
Adam C Carle, PhD	The Child-Centered Outcomes in Practice and Research (COPR) Center of Excellence: Strengthening the Clinical Validity Evidence Base for PROMIS Measures in Chronically Ill Children	National Institutes of Health (Children's Hospital of Philadelphia)	U19 AR069525	09/30/2015 - 09/29/2019	\$118,626
Carole M Lannon, MD	MEDTAPP Quality Improvement (QI) Science Project	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	07/01/2015 - 06/30/2017	\$151,885
Carole M Lannon, MD	MEDTAPP Perinatal Quality Project	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	07/01/2015 - 06/30/2017	\$79,060
Carole M Lannon, MD	MEDTAPP Quality Improvement Science Project	Ohio Department of Health (Ohio State University)	G-1617-05-003	09/05/2015 - 06/30/2017	\$98,115
Carole M Lannon, MD	MEDTAPP Progesterone Quality Improvement Collaborative	Ohio Department of Medicaid (ODM) (Ohio State University)	G-1617-05-0003	07/01/2015 - 06/30/2017	\$159,193
Carole M Lannon, MD	MEDTAPP Progesterone Quality Improvement Collaborative	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	07/01/2015 - 06/30/2017	\$723,891
Carole M Lannon, MD	MEDTAPP NICU Graduates Project	Ohio Department of Medicaid (ODM) (Ohio State University)	ODM201540	07/01/2015 - 06/30/2017	\$225,481
Carole M Lannon, MD	MEDTAPP NICU Graduates Project	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	07/01/2015 - 06/30/2017	\$495,000
Carole M Lannon, MD	Neonatal Abstinence Syndrome (NAS)	Ctr for Medicare/Medicaid Services (Ohio State University)	G-1617-05-0003	07/01/2015 - 06/30/2017	\$314,964
Carole M Lannon, MD	MEDTAPP Progesterone Quality Improvement Collaborative	Ohio Department of Health (Ohio State University)	G-1617-05-0003	09/05/2015 - 06/30/2017	\$375,857
Carole M Lannon, MD	Neonatal Abstinence Syndrome (NAS) Quality	Ohio Department of Medicaid (ODM) (Ohio	ODM201636	07/15/2015 -	\$148,220

	Improvement Collaborative	State University)		06/30/2017	
Carole M Lannon, MD	MEDTAPP Perinatal Quality Project	Ohio Department of Health (Ohio State University)	ODH WISE 1047	09/05/2015	\$35,519
				-	
				06/30/2017	
Heather Kaplan, MD	Using Single Subject (N-of-1) Designs to Answer Patient-Identified Research Questions	Patient-Centered Outcome Research Inst.	PPRND-1507-31321	01/01/2017	\$1,004,867
				-	
				12/31/2019	
Adam C Carle, PhD	Improving Methods for Conducting Patient-Centered Outcomes Research	Patient-Centered Outcome Research Inst. (Cambridge Health Alliance)	ME-1507-31469	08/01/2016	\$28,314
				-	
				07/31/2019	
Peter A Margolis, MD, PhD	ImproveCareNow Improvement Collaborative	ImproveCareNow, Inc.	ICN_SOW7_Margolis	07/01/2015	\$1,529,478
				-	
				06/30/2018	
Kathleen Walsh	Automating Quality and Safety Benchmarking for Children: Meeting the Needs of Health Systems and Patients	Patient-Centered Outcome Research Inst.	HSD-1604-35160	09/01/2016	\$670,898
				-	
				08/31/2017	
Peter A Margolis, MD, PhD	Descriptive Epidemiology to Maximize Impact of PPRNs	Patient-Centered Outcome Research Inst. (Genetic Alliance)	CHMC04-01	08/01/2016	\$122,042
				-	
				03/31/2017	
David Hartley, PhD	Big Data to Understand the Impact of Climate and Water Shocks	Skoll Global Threats Fund (University of Minnesota)	15-03024	03/01/2016	\$12,888
				-	
				11/30/2016	
Sandra C Fuller	MEDTAPP Quality Improvement Coordinators	Ohio Department of Health (Ohio State University)	ODM201602	08/01/2016	\$169,499
				-	
				06/30/2017	
Stephen E Muething, MD	Solutions for Patient Safety - National	Ohio Children's Hospitals' Solutions for	OCHSPS Muething	01/01/2017	\$3,021,791
				-	
				12/31/2017	
Carole M Lannon, MD	MEDTAPP Infant Mortality Reduction Project Phase I	Ohio Department of Medicaid (ODM) (Ohio State University)	ODM201751	12/12/2016	\$111,000
				-	
				12/31/2017	
Maria T Britto, MD, MPH	Design Phase: Quality Improvement Capacity Building for ODM and MCOs	Ohio Department of Medicaid (ODM)	C-1617-05-0031	05/15/2017	\$44,580
				-	
				06/30/2017	

**Total Annual Grant Award Dollars**

**\$14,609,912.60**