



A BIG YEAR

Building the next generation of our pediatric research program

REBECCA D. CONSIDINE RESEARCH INSTITUTE UPDATE



Akron Children's Hospital

The Rebecca D. Considine Research Institute

The Rebecca D. Considine Research Institute is the hub for research and innovation activity at Akron Children's Hospital. The institute facilitates sponsored clinical studies and supports internal investigator-initiated research programs across a spectrum of research subjects. The institute also offers research-oriented educational opportunities for fellows, students and faculty from around the globe.

Our mission

Unlocking the power of research to advance knowledge and improve lives.

Our vision

Develop an outstanding research institute that transforms pediatric care, improves health and outcomes, advances our educational programs, and cultivates and attracts eminent researchers.



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From our founders

Dear friends,

Nobel Prize winner Albert Szent-Györgyi once said, “Discovery consists of seeing what everybody has seen and thinking what nobody has thought.”

Every day, we’re privileged to witness this spirit of discovery at Akron Children’s, both in the work of our hospital investigators and the staff of the Rebecca D. Considine Research Institute, as we seek to answer childhood diseases’ toughest questions.

Through this ongoing pursuit, we want to ensure a purposeful way to focus our efforts in support of our researchers by growing Akron Children’s research programs to best position us with excellence in clinical care, success in a value-based environment, recruitment of top talent and expansion of education.

The past year has been a big one for our hospital investigators and our institute as we created the blueprint to build the next generation of Akron Children’s pediatric research program.

Through the ongoing efforts of a comprehensive research steering committee, we developed a plan to transform the strategic direction of our hospital’s research program – one to cast a new vision for the research institute and our many clinical investigators – by defining targeted goals within thematic focus areas to support our efforts today and for years to come.

In this report, you'll read more about this strategic plan and the many ways it evaluates and elevates research initiatives throughout Akron Children's. You'll also learn about our investigators' 2015 accomplishments, as well as how we're applying the benefits of research accomplishments to improve the health of our patients.

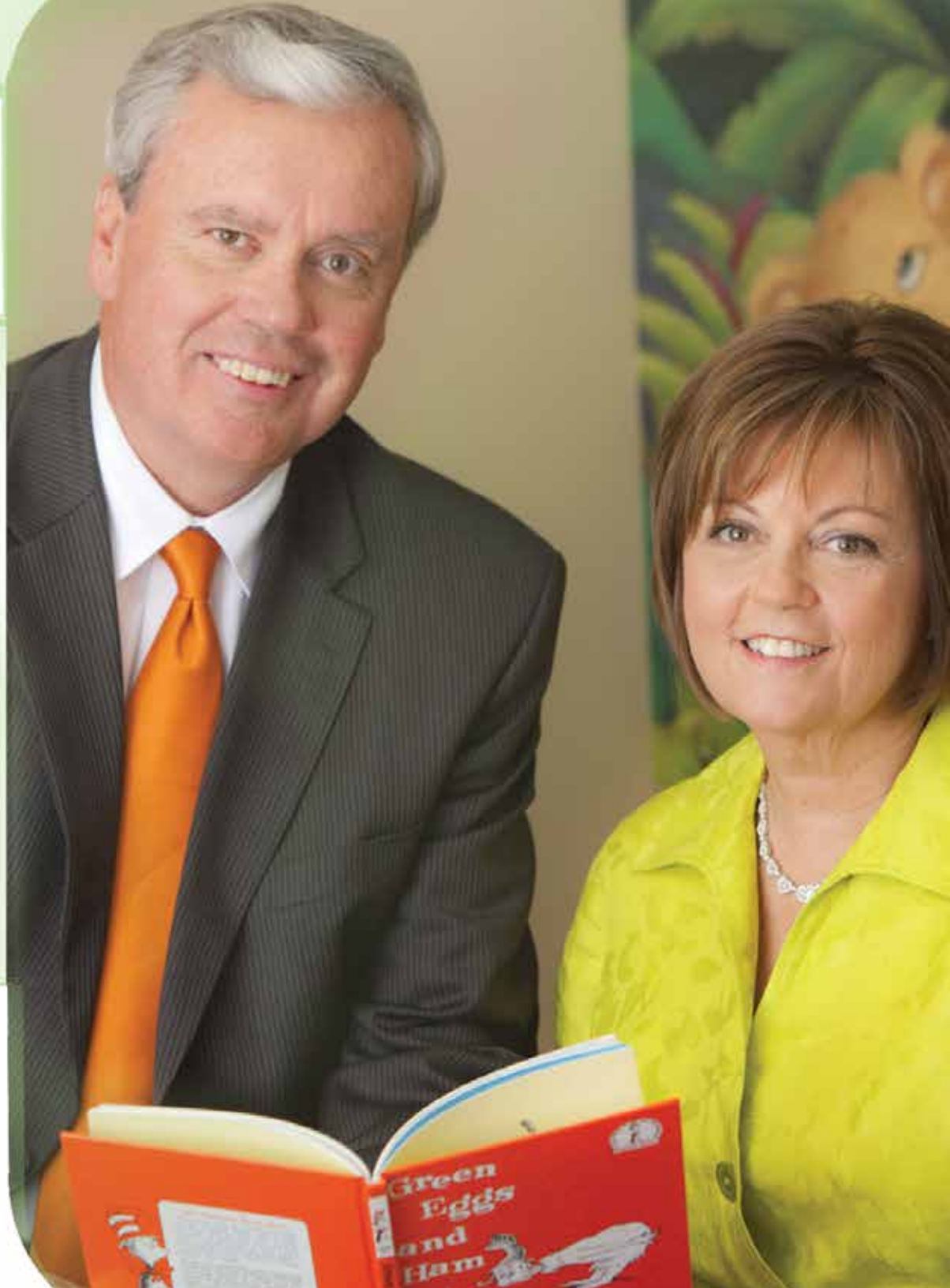
We're proud to be part of this institute and look forward to the future, one that will find innovative and targeted ways to improve the lives of children in northern Ohio – and beyond.

William H. Considine

President and CEO
Akron Children's Hospital



Rebecca D. Considine



From our directors

Dear friends,

What should the next generation of pediatric research look like at Akron Children's Hospital?

In 2015, a team of physicians, nurses, therapists, administrators and research institute staff members set out to formulate an answer.

Our work resulted in a 5-year strategic plan to leverage Akron Children's current strengths and pursue research opportunities offering the most potential to impact the health of children, families and communities in northern Ohio.

To implement this plan, the hospital is focusing initial efforts on 4 thematic priority areas:

- Center for Vision Research
- Center for Mitochondrial Research
- Center for Healthcare Services Delivery Research and Innovation
- Center for Childhood Lifestyle and Population Health Research

By supporting investigations to improve childhood lifestyle and population health, as well as how we deliver these health services, we hope to make significant strides in discovering new clinical and care practices to benefit entire communities. Such work aligns well with Akron Children's overarching strategic plan.

The focused investigations in mitochondrial medicine and vision science leverage demonstrated success and leadership in existing research, further positioning our investigators in the forefront of these fields.

In the next 5 years, we'll invest significantly in support services, data and analytics, and other administrative initiatives to build each priority thematic area and assist investigators conducting research in those fields. At the same time, our hospital will continue support for existing, ongoing innovation resulting from research in a host of pediatric disciplines – all while fostering a culture of research throughout our system and continuing to educate the investigators of today and tomorrow.

The future is bright for Akron Children's investigators and the Rebecca D. Considine Research Institute. Thank you for your support of our clinical researchers, our work and – most importantly – the children and families we're privileged to serve.

Aris Eliades, PhD, RN, CNS

Director of Operations and Nursing Research,
Rebecca D. Considine Research Institute

Mary Toth, MD

Interim Clinical and Scientific Director,
Rebecca D. Considine Research Institute
Director, Pediatric Rheumatology



Aris Eliades, PhD, RN, CNS



Mary Toth, MD

Making an impact on communities

Center for Childhood Lifestyle and Population Health Research

In the race toward the healthiest county in Ohio, Summit County ranks 52nd out of 88.

The statistic, reported by the *County Health Rankings & Roadmaps* program, is a startling one for Akron Children's Hospital's home county. The region also faces dangerously high infant mortality rates, an increase in chronic diseases and other factors that affect the health of the children living here.

"Two healthy babies can be born at the same hospital at the same time but have drastically different health outcomes," says Mark Redding, MD. "Changing those outcomes relies on assessing and addressing risk factors in a comprehensive approach addressing health, social and future behavioral health issues." Dr. Redding, a population health researcher and pediatrician, focuses on evidence-based community care coordination.

The Rebecca D. Considine Research Institute hopes to improve these numbers by discovering new clinical and care practices with the establishment of the Center for Childhood Lifestyle and Population Health Research, which will dedicate financial and personnel resources to support hospital investigators working to solve these and other health issues.

"Akron Children's is uniquely poised among other children's hospitals to explore population health interventions and outcomes," says Robert McGregor, MD, chief medical officer at Akron Children's Hospital. "With a large primary care network and other networks within our communities and schools, we can more readily standardize care, collect data and then trial interventions to track and refine our interventions to get our desired outcomes."

"Akron Children's is uniquely poised among other children's hospitals to explore population health interventions and outcomes."



Combating infant mortality



Ohio has one of the worst infant mortality rates in the country. According to the Ohio Department of Health, there are more than 7 infant deaths in every 1,000 live births. The Summit County Child and Family Health Services program reports central Akron's rate is 14.3, more than double the national average. Statewide, prematurity and preterm birth caused more than 46 percent of these deaths.

"Premature births put a strain on the social, emotional and financial well-being of a family," says Elena Rossi, MD, MMM, FAAP, associate chair of the department of pediatrics in the Mahoning Valley. "If we can help a pregnant woman make it to 28 weeks, the child has a 95 percent or better survival rate with fewer risks for other problems."

In 2014, Dr. Rossi, Dr. Stephen Crane and Dr. Aris Eliades launched an investigation to determine if premature birth recurrence could be prevented by involving providers in the Akron and Youngstown areas in education of moms about progesterone usage.

The first study revealed that there was a widespread lack of understanding by providers on proper usage of the hormone and its effectiveness.

"We collaborated with representatives from health departments, hospitals and other social service programs, making targeted efforts to spread the word about progesterone usage and birth spacing," says Dr. Rossi. "We spoke with home health nurses, home visiting agencies, and state and community agencies. We made thousands of touches in the community. I have no doubt that when we resurvey our original provider group, we'll see a significant improvement in their ability to effectively talk to their patients about progesterone usage."

Research yielding solutions to lower high rates of infant mortality represents the initial step in the pursuit of good health for the region's youngest residents. But that journey is just beginning. As toddlers reach school age, new health concerns can arise, motivating Akron Children's cadre of school nurses to conduct research to keep kids on the track to good health.

Using the classroom to stay ahead of chronic diseases

Akron Children's provides school health services as a means of access to care and a method of managing chronic diseases in children.

"Our school nurses are strong investigators," says Michele Wilmoth, director of school health services. "There's much more chronic disease management in schools today, particularly for asthma, allergies, diabetes and seizure disorders."

Akron Children's pediatric registered nurses work closely with 168 schools serving more than 76,000 students. The new center will provide Wilmoth and her staff with the resources they need to move forward with investigations that can improve health, wellness and chronic disease management of students.

"We need the data that lets us embed health and wellness in the school environment to make a difference," Wilmoth notes.

School nurses also are recognizing patient populations that fit existing hospital studies. Most recently, during routine vision screenings, they identified children exhibiting symptoms of convergence insufficiency and referred them to Akron Children's Vision Center, where researchers were studying the disorder.

"It was a first for us. It went well," says Wilmoth. "There's ample opportunity for this type of collaboration moving forward."

Natalie Bilinovich, BSN, RN



Affecting change in unique patient populations

Children from unique populations can face especially challenging healthcare needs.

For Joel Davidson, MD, pediatrician at the Locust Pediatric Care Group, the focus on population healthcare research is a perfect fit for his desire to answer questions affecting the refugee populations Akron Children's serves.

Dr. Davidson and his team have conducted 7 studies targeting issues affecting these groups, including dental disease, diet and lead exposure. He plans to begin a new investigation studying the risk of jaundice for infants born to refugee families.

"For our refugee populations, research helps us generate emphasis on the fact that these identified issues are important," says Dr. Davidson. "When these communities understand the significance of these health factors, it makes educating them easier because they now have a foundation." By focusing his research on patient-centered care that's directly tied to health outcomes, he hopes to add support around educational efforts for these groups.



Proving there's a safer way to play

Participating in youth sports helps kids achieve a level of fitness to avoid problems associated with obesity and other chronic disease conditions. Sports also offer psychological benefits by fostering teamwork, sportsmanship and leadership skills. The downside is the potential for injuries. Joseph Congeni, MD, director of sports medicine, uses research to increase education and injury prevention for budding athletes.

"We're moving from treating an illness or injury to teaching wellness and injury prevention," says Dr. Congeni. "Research is instrumental in this, because we need to prove that a new technique, rule change or practice is the best way to prevent an injury."

Currently, Dr. Congeni and his team are conducting 3 investigations on treating and managing concussions in youth athletes. They are studying if early physical therapy interventions can improve patient outcomes, and are partnering with the division of behavioral health on whether or not early interventions with neuro psychologists could prove beneficial to combat concussion-related mood disorders. They're also testing if a groundbreaking non-invasive device could diagnose concussions more sensitively and help physicians understand when the brain recovers fully.

"Akron Children's aims to be a leader in researching future injury prevention and wellness treatments," says Dr. Congeni, who has 4 new investigations on the horizon.

These investigations and others conducted at Akron Children's new Center for Childhood Lifestyle and Population Health Research will provide the much needed financial and personnel resources to make communities healthier, stronger and safer for generations to come.

Joseph Congeni, MD





Investigating new ways to deliver the best care

Center for Healthcare Services Delivery Research and Innovation

Through the new Center for Healthcare Services Delivery Research and Innovation, the Rebecca D. Considine Research Institute will support investigations that advance Akron Children's clinical practices and procedures. The goal: enhance patient care, improve outcomes and enrich the family experience.

Instituting best practices in an emerging discipline

More than 400,000 U.S. children live with a life-limiting illness. And multiple accredited organizations recommend having early conversations about end-of-life treatment decisions to improve a patient's quality of care.

In a new study sponsored by the National Institute of Nursing Research (NINR), Akron Children's division of pediatric palliative care is collaborating with Children's National Medical Center in Washington, D.C., and St. Jude Children's Research Hospital in Memphis, Tenn., to investigate the efficacy of FAMily-CEntered Advance Care Planning for Teens Living with Cancer (FACE-TC). The study – the first NINR-funded investigation at Akron Children's – ultimately aims to create an international model of structured pediatric advanced care planning as a part of pediatric palliative care and end-of-life care.

"Our goal is to evaluate the effects of FACE-TC on patient-family congruence in treatment preferences, patient quality of life, and early completion of advance care planning goals and directives," says Sarah Friebert, MD, director of Akron Children's pediatric palliative care division. "We're responsible for recruiting half of the overall enrollment goal of the study and will be a major contributing center for the data analysis and outcomes."

This study is one of 15 current IRB-approved investigations in various stages of development in Akron Children's palliative care division. Under the oversight of Dr. Friebert and the support of research coordinator Kristine Allmendinger-Goertz, the studies' focuses range from safety practices to grief and bereavement services.

Dr. Friebert, who founded the hospital's palliative care program in 2002, explains that research is crucial to her field.

"When you create something new, you have to build an evidence base alongside it," she says. "We have to ensure that how we're caring for chronically and seriously ill patients is succeeding, replicable and scalable. There's a lot of work to be done."

Dr. Friebert notes that the additional support from the research institute will allow the hospital's palliative care program to continue defining best practices around its services and emerging models of efficient, effective and value-driven care.

"By investing in our work, the hospital is solidifying its commitment to providing the very best treatment to the most critically ill children."

Studying a new way to help the tiniest patients breathe easier

A neonate breathes with the assistance of a mechanical ventilator – the lifeline of a fragile newborn.

As his chest rises and falls, an onlooker may not realize that the child is actually customizing every breath he takes – how fast, how deep, how long – thanks to a cutting-edge ventilation technology called Neurally Adjusted Ventilator Assist (NAVA®).

“With typical ventilation, the caregiver and machine determine volume and rate of breath. With NAVA, the patient is in control,” says Kimberly Firestone, MSc, RTT, who cares for patients in Akron Children’s Neonatal Intensive Care Unit (NICU). “It uses a signal from the brain that goes to the diaphragm and activates the diaphragm to connect to and allow the ventilator to synchronize with the patient.”

Firestone says that while the system works well in infant, pediatric and adult patients, there’s minimal research on its effectiveness and impact on long-term outcomes in neonates.

That’s why Firestone led an initiative in the NICU to partner with Toledo ProMedica in 2012 to study the system’s effect on NICU patients. Their results, published in 2015, confirmed its potential. Now, Firestone and Akron Children’s are part of an international, multi-center group designing a trial to test the efficacy of NAVA in a larger patient population.

“With the new research strategy, it’s empowering to know that we have the backing we need to continue transforming patient care delivery,” says Firestone.



Measuring the effect of transitioning from open wards to private rooms

In 2014, Akron Children's opened a new Neonatal Intensive Care Unit (NICU) and a renovated Special Care Nursery (SCN) in the Mahoning Valley. In 2015, the NICU on the hospital's Akron campus relocated to the new Kay Jewelers Pavilion. All 3 locations transitioned to private rooms.



Nursing leadership wondered how the new layouts would impact the way care would be delivered to patients and families, as well as any changes they made for the nursing staff. To measure and study these points, they assembled a research team and launched an investigation before the transitions took place, with the objective to collect the same data points before and after the moves.

Research team members began comparing patient care delivery metrics like length of stays, infection rates, unplanned device removals and medication errors. They also monitored number of breastfeeding days and more to see if these factors also contributed to patient outcomes.

To measure family satisfaction and engagement, they surveyed parents and guardians before and after the moves. The team also asked NICU and SCN nurses to report the number of steps they took, as well as fatigue and energy levels at the beginning and end of each shift. The research team also compared work-related injuries and turn-over rates.

The investigations on family satisfaction and patient outcomes remain ongoing in 2016. Dr. Nancy Mosca, director of nursing professional practice at Akron Children's, says the team hopes to see positive feedback on quality of care.

"We hope to contribute to standards of care for neonates cared for in single patient rooms. We're anxious to see what the research tells us."

The new Center for Healthcare Services Delivery Research and Innovation will add much-needed support and connectivity to these and other similar investigations throughout Akron Children's.

A clear focus

Centers for Vision and Mitochondrial Research

On the surface, mitochondrial medicine and vision science may not appear to have many similarities. One studies mitochondria, which on a cellular level produce a body's essential energy. The other specializes in diagnosing and treating eye diseases and visual system disorders.

However, research in both fields shares a common goal: to answer the inexplicable.

"We're trying to understand and treat genetic, inherited and developmental diseases that we had no knowledge of 10 years ago," says Richard Hertle, MD, FAAO, FACS, FAAP, director of Akron Children's Vision Center. "Our methodologies have drastically changed. We're using gene transfer therapy, stem cell treatment and genetic manipulation. What was once science fiction is now science fact."

In his work to uncover new treatments for patients suffering from mitochondrial diseases, Bruce Cohen, MD, FAAN, director of Akron Children's NeuroDevelopmental Science Center, cites the unique challenge to his field.

"The variable nature of mitochondrial diseases makes them difficult to diagnose, and especially challenging to treat and define outcomes," says Dr. Cohen. "There are no approved therapies for the treatment of mitochondrial diseases, and since entering the field 30 years ago there had been, until recently, no controlled clinical trials performed on new medications. Because of new interests in orphan diseases as well as potential widespread application to common disorders such as diabetes and dementia, clinical trials for new medications for the treatment of mitochondrial diseases are now available. Akron Children's Hospital's research institute has been one of the true leaders in these clinical trials."

Unlocking the challenges of both vision and mitochondrial disorders holds enormous potential in making an early impact on patient care and outcomes. To support this work, the Rebecca D. Considine Research Institute established the Center for Vision Research and the Center for Mitochondrial Research as a part of the hospital's new strategic research plan.





Uncovering treatments, defining outcomes

Akron Children's Hospital is one of 15 mitochondrial centers across America researching treatments through the North American Mitochondrial Disease Consortium.

Dr. Cohen and his research team are participating in 4 scientific collaborations involving medications that could potentially help children with genetically confirmed inherited mitochondrial diseases, including Leigh Syndrome and mitochondrial myopathy. They're also involved in a collaborative project with William Chilian, PhD, at Northeast Ohio Medical University involving the use of cardiac stem cells.

"We're discovering that mitochondrial disease is the basis of numerous common diseases," says Dr. Cohen. "If we can understand it better, we can potentially find new ways to treat some of the biggest health risks our kids face, like childhood diabetes."

Dr. Hertle and his team have worked to create a culture supporting clinical research inside Akron Children's Vision Center. Investigators are in the midst of several notable studies, one of which involves testing a new eye drop medication to help treat nystagmus. Another focuses on developing a visual sensory substitution device that would allow blind children to navigate their way through the world with the help of a new device attached to their tongues.

"Our hospital is investing in our work, and that support and guidance makes our discoveries possible," says Dr. Hertle. "With the new research strategy, Akron Children's will soon be one of the few pediatric hospitals in the country that has a center solely dedicated to vision science research."



Separate centers, connected results

Both the Center for Vision Research and the Center for Mitochondrial Research will add personnel to support research activities. Dr. Hertle notes that this adds another necessary component to the hospital's new strategy: collaboration.

"We'll be able to uncover innovative ways to integrate our research," says Dr. Hertle. "For example, if we're studying a metabolic condition, there could be cause to involve Dr. Cohen and his team, because some metabolic conditions are linked to mitochondrial disease. Our scientists can work with their scientists to determine how the study intersects and benefits both teams."

In addition to making new scientific discoveries, both physicians hope the establishment of the new research centers will help attract emerging and established scientists to Akron Children's.

"Our hospital will become a place where scientists can come and fulfill their research ambitions and be supported in a private environment," says Dr. Hertle. "We need to attract young, bright minds to our center, as well as investigators who are at the top of their games and want to make an even larger contribution to their fields. This will make the new strategic approach sustainable into the future."

"I'm thrilled that we're moving in this direction," says Dr. Cohen. "I want our work to uncover how we can help kids right here in our community."



Richard Hertle,
MD, FAAO, FACS, FAAP

2015 research institute accomplishments



Open clinical studies

530 IRB-approved open studies
as of December 31, 2015.

Publications and presentations

Peer-reviewed journal publication is considered the final phase of the research process. Since 2012, the number of peer-reviewed publications authored by Akron Children's clinical investigators shows consistent growth. This reflects continued progress in the overall scale, productivity and significance of the research enterprise.

Akron Children's clinician researchers were equally well-represented at professional conferences as speakers or poster presenters.

Year	Peer-Reviewed Publications
2015	104 peer-reviewed publications
2014	99 peer-reviewed publications
2013	85 peer-reviewed publications
2012	66 peer-reviewed publications

Our investigators also authored 2 books and 9 book chapters in 2015.

2015 Conference Presentations	
Invited and selected national and international presentations	95
Total presentations including regional and local	231

Research institute offers educational enrichment opportunities

Education enriches the fount of knowledge and stimulates the curiosity vital to building a culture of research. The research institute delivers a range of learning opportunities focused on early and mid-career investigators, students and hospital clinicians.

Educational Opportunity	Attendees
Translational Science Research Seminars	169
Making Sense of Statistics	12
Research “Hot Topics”	77
Pediatric Emergency Medicine Fellows	9
Fellows/Residents Medical Writing Seminars	30
Research Staff Educational Experiences	129
TOTAL	426

Translational Science Research Seminar Series

In 2015, the research institute’s Translational Science Research Seminars provided clinicians and students opportunities to hear about healthcare innovations at Akron Children’s and throughout northeast Ohio. Presenters included hospital investigators and guest speakers.

In 2016, these monthly seminars will present topics on Building a Culture of Research to reflect our new strategic plan direction.

2015 Translational Science Research Seminars	
January Erika Fraundorf, MD	Sickle Cell Disease: Pain Assessment
February Joel Davidson, MD	Lost in Translation: Understanding Refugees Through Research
March William M. Chilian, PhD NEOMED	The Requisite Role of Mitochondria in Vascular Regulation
April Melissa Walter, MSN, CPNP-AC/PC	Objectifying the Pupillary Light Exam in Critically Ill & Injured Children: The Role of the Automated Pupillometer
May Sajani Raman, MD	Social Emotional Development and Screen Exposure in Young Children: Are they Related?
September Heather Anthony, RN Kelly Culp, BSN, RN Kathy Stoner, MSN, RN Mary Toth, MD	Skin, Tongue, Brain: Medical Device Research
October Jennifer Ruppert, BSAS, RRT, CNPT Diane K. Dunn, BS, RRT, NPS	The Value of Using Bench Research to Facilitate Changes at the Bedside

Making Sense of Statistics and Research “Hot Topics” Seminars

In spring 2015, research institute biostatisticians offered instructional talks on fundamental statistical concepts.

Making Sense of Statistics

March	Parametric Testing
April	Non-Parametric Testing
May	Categorical Outcome Testing

We also launched a series of 30-minute seminars covering research concepts and principles for clinicians seeking an overview of the clinical research process.

Research “Hot Topics”

September	Fundamentals of Research
October	How to Write a Protocol: Getting Started “From Belmont to the IRB”
November	Institutional Review Board Overview

Resident and fellows research education

During their training, Akron Children's residents and fellows complete a scholarly project. Mentored by an experienced hospital investigator, each fellow or resident pursues a stimulating research question with potential to advance pediatric medicine. The research institute provides these fellows and residents biostatistical expertise and other support services as needed.

In early June, these fellow and resident investigators display posters summarizing study results at the Postgraduate Day Scientific Presentations. Many fellows and residents have presented their findings at national and regional conferences and published peer-reviewed journal articles.

In 2015, research institute professional staff members provided several seminars specifically designed for fellow and resident investigators.

Pediatric Emergency Medicine Fellows Biostatistics Lecture Series

March	Principles of Epidemiology and Clinical Research Design I
May	Principles of Epidemiology and Clinical Research Design II
September	Applying Research in Clinical Practice I
December	Applying Research in Clinical Practice II

Medical Writing Seminars for Fellows and Residents

February	How to Write an Abstract
March	Write and Create a Research Poster

Research institute staff continuing education opportunities

Clinical research nurses and coordinators are trained and certified to care for research study participants and their families. They support the investigators and study team members. Based on study needs, they coordinate conduct of studies in accordance with the protocol.

To meet the educational challenges of a constantly changing medical research landscape, the research institute presented seminars on varied topics for our clinical and research professional staff.

Research Staff Educational Experiences

The Anatomy of a Monitor Visit

Confidentiality Agreements and Research Study Budgets

Data Analysis and Pivot Tables in Excel

Creating Charts in Excel

Good Clinical Practice: Review and Application

Standardizing PI Delegation Records

Preparing for an FDA Audit

Research Consenting: Do's, Don'ts and Challenges

Investigational Pharmacist: Function and Federal Guidelines

The Evolution and Myths of Work/Life Balance

Patient Experience Workshop

Team Interview Skills

Teach-Back Method



Summer Pediatric Research Scholars (SPRS) program approaches 10th anniversary

In 2006, the department of pediatrics offered 5 college students summer research internships. Since then, more than 100 students have participated in the SPRS program. The 10-week internship is for undergraduate sophomores and juniors planning careers in healthcare professions. An experienced Akron Children's investigator mentors each student.

Before returning to their campuses, research scholars present study findings to peers, hospital clinicians, family and friends. A scholarship is awarded to help with the students' educational expenses.

2015 SPRS students, mentors and research projects

Student Name	Breanna Beltz
College/University	Hiram College
Study Title	Risk Factors for Hospital Readmission Within 30 Days: A Quality Measure for Children with Rheumatic Diseases
Mentor	Moussa El-hallak, MD

Student Name	Laura Brewer
College/University	The University of Akron
Study Title	Burn Center's Compliance in Meeting Federal and State Law Governing Advance Directive Policy and Procedures
Mentors	John Crow, MD; Mary Mondozi, MSN, BSN, RN; and Chris Sadie, BSN, RN

Student Name	Olivia Millsap
College/University	Youngstown State University
Study Title	Retrospective Comparison of Two Existing Approaches for Management of Hyperbilirubinemia in Extremely Low Birth Weight Infants
Mentors	Elena Rossi, MD, and Jennifer Grow, MD

Student Name	Jordan Stefko
College/University	Wake Forest University
Study Title	Retrospective Comparison of Two Existing Approaches for Management of Hyperbilirubinemia in Extremely Low Birth Weight Infants
Mentors	Elena Rossi, MD, and Jennifer Grow, MD

Student Name	Allison Kumnick
College/University	Miami University
Study Title	Treatment Outcomes in Children Diagnosed with Tourette's Syndrome
Mentors	Poonam Bhatia, MD, and Sarah Ostrowski, PhD

Student Name	Jessica Mulvany
College/University	Kent State University
Study Title	Does the Diagnosis of Neonatal RSV Bronchiolitis Obviate the Complete Sepsis Evaluation?
Mentor	Michael Forbes, MD

Student Name	Destiny Kaznoch
College/University	Kent State University
Study Title	Evaluation of Portable Ventilators Used for Pediatric Home Ventilation
Mentor	Terry Volsko, MHHS, RRT, FAARC

Student Name	Catherine Culp
College/University	Case Western Reserve University
Study Title	Transitioning from Open Ward to Single-Patient Room Neonatal Intensive Care Units: Effect of NICU Design on Staff, Neonates and Families
Mentor	Nancy Mosca, PhD, RN

Student Name	Maggie Caswell
College/University	Bowling Green State University
Study Title	Distress Reaction in Children During Office Pin Removal: Do Patient and Family Suggested Interventions Help (Phase II)?
Mentor	Mark Adamczyk, MD

Student Name	Alexa Stammier
College/University	Gannon University
Study Title	Retrospective Analysis on the Diagnostic Yield of Ultrasound of the Head in Infants with Macrocephaly (Large Head)
Mentor	Lena Naffaa, MD

Student Name	Jordan Gase
College/University	Baldwin Wallace University
Study Title	Pathways to Receiving a Formal Autism Diagnosis in Young Children
Mentor	Marilyn Espe-Scherwindt, PhD

Student Name	Nicole Stevens
College/University	Kent State University
Study Title	Retrospective Review of the Medication Source(s) Following Adolescent Intentional Drug Injections for Self-harm
Mentors	Michelle Bestic, PharmD, and Martha Blackford, PharmD

2015 nursing research activity and accomplishments

- Nurses initiated 22 new research studies as the principal investigator.
- There were a total of 85 open studies with nurses as the principal investigator.
- Akron Children's nurses authored 16 peer-reviewed journal publications, book chapters and books.

Nursing Research Council

The Nursing Research Council encourages and supports all Akron Children's nurses interested in conducting an investigation or gaining knowledge of research principles and practices. In 2015, council accomplishments included:

- Revised Akron Children's Hospital's Nurse Scholar Program into a dual-track model reflecting research strategic plan thematic priorities.
- Participated in a multisite study to test the concurrent and predictive validity of the Pediatric Pressure Ulcer Prediction and Evaluation Tool (PPUPET).
- Produced C.A.R.E. Learning online training focused on research.

Presenting a Research Poster:

- o 15 individuals completed the module in 2015.

Writing a Successful Abstract:

- o 11 individuals completed the module in 2015.

Akron Children's nurse investigator awards and honors

- Jennifer Huth received a Neuman Systems Model Practice Center Fellow Award.
- Second-Annual Akron Children's Nurse Research Awards:
 - o Excellence in Nursing – Mary Modozzi, MSN, BSN, RN.
 - o Novice Researcher – Nancy DeInay, RN, MSN, CNP.
 - o Patient Services Researcher – Diane Dunn, RRT.
- Aris Eliades, PhD, RN, CNS
 - o Named March of Dimes Ohio Nurse of the Year in Research. Earned declarations of excellence from the Ohio Senate and the Ohio House of Representatives.

2015 Research Institute-Sponsored Seminars Attended by Nurses

Translational Science Research Seminar Series	113
Making Sense of Statistics Seminar Series	10
Research "Hot Topics" Seminar Series	14
TOTAL	137

Akron Children's Hospital's Nurse Scholar Program

Our Nurse Scholars advance nursing science through discovery, fostering nursing practice innovations and improvements. In 2015, the program evolved to incorporate 2 new tracks:

- Track 1 supports new nurse research, where nurses act as principal investigators for clinical studies.
- Track 2 supports nurse researchers as co-investigators on research teams with senior nurse researchers.

2015 Nurse Scholar Program Accolades and Accomplishments

Poster presentation at an international conference awarded first place in the research category	1
Poster presentations at national conferences	2
Podium presentation at international conference	1
Podium presentation at national conference	1
Podium presentations at local conferences	2
Manuscripts submitted	2



2015 Research Grant Awards

Government and Non-Profit Foundations

Akron Children's Hospital Research Foundation Grant Awards

Principal Investigator	Sponsor	Type	Amount
Michael Bigham, MD	Laerdal Foundation for Acute Medicine	Non-profit Foundation	\$ 20,000
	MedEvac Foundation International	Non-profit Foundation	\$ 20,000
Sarah Friebert, MD	National Institutes of Health through Children's Research Institute	Federal	\$110,655
Aaron Garrison, MD	National Institutes of Health through Vanderbilt University	Federal	\$ 2,075
Richard Hertle, MD	National Institutes of Health	Federal	\$139,116
	National Institutes of Health through Salus University	Federal	\$ 19,920
Kerwyn Jones, MD	Pediatric Orthopaedic Society of North America	Professional Society	\$ 30,000
John Mellville, MD, MS	Ohio Children's Hospital Association through Nationwide Children's Hospital	State	\$121,105
Tawna Roberts, PhD	National Institutes of Health	Federal	\$133,437
Total			\$596,308

Principal Investigator	Study Title	Amount Awarded
Michael Bigham, MD	Waveform Capnography in Neonatal/Pediatric Critical Care Transport	\$15,000
Joel Davidson, MD	The Neighborhood Context of Elevated Blood Lead Levels in Summit County, Ohio Using a Fine-Scale Geospatial Approach-Year 2	\$15,000
Jyoti Krishna, MD, FAAP, FAASM	Application of Motion Magnification Technology for Remote Monitoring of Pulse and Respiratory Rates in Infants and Children	\$15,000
Todd Ponsky, MD, FACS	A Computer Simulation of Intestinal Malrotation and Midgut Volvulus	\$15,000
	Development of Bifurcated Esophagus Porcine Model to Simulate Esophageal Atresia	\$15,000
Dalin Pulsipher, PhD, ABPP/CN	Cognitive Effects of Commonly Prescribed Antiepileptic Drugs in Children with New-Onset Seizures: A Prospective Longitudinal Study	\$15,000
Elena Rossi, MD, MMM, FAAP	The Effect of Standardized Feeding Practices in Very Low Birth Weight (VLBW) Infants	\$500
Kathryn Mosher, MD, and Nicole Swain, PsyD	Investigation of Quality of Life, Functional Outcome, and Family Experience Following Participation in a Multidisciplinary Spasticity Clinic	\$2,500
Travis Thompson, MD	Inactivation of Bacterial Isolates to Copper	\$1,800
Total		\$94,800

Research institute staff

Clinical staff members

Kristine Allmendinger-Goertz, BA
Research Study Coordinator

Heather Anthony, RN
Clinical Research Nurse

Kari Barkey, BSN, RN
Clinical Research Nurse

Elaine Churney, RN
Clinical Research Nurse

Kelly Culp, BSN, RN
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Samantha Formica, BSN, RN, CPN
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Victoria Parker
Department Secretary

Lisa Smiley
Billing Clerk

Mary Toth, MD
Interim Scientific and Clinical Director

Bill Van Nostran, BS
Medical Communications Specialist

2015 major awards and recognition

Hospital investigators and study teams

National multicenter pediatric research initiatives

Akron Children's Hospital investigators actively participate in research studies sponsored by leading national pediatric foundations and organizations focused on advancing the treatment and quality of life for children afflicted by these conditions.

Cystic Fibrosis Foundation

- The Cystic Fibrosis Foundation sponsors several clinical trials of therapies that treat the underlying cause of cystic fibrosis. It's dedicated to treating key symptoms of the condition and improving patients' quality of life.
- Akron Children's is 1 of 82 clinical research centers known as the Cystic Fibrosis Therapeutics Development Centers.
- As an active foundation participant, Akron Children's conducts numerous clinical studies to treat lung infections and inflammation, as well as treatments to improve nutrition and digestion.

Children's Oncology Group (COG)

- The COG is a National Cancer Institute-supported clinical trials group and the world's largest childhood and adolescent cancer research organization.
- It unites 9,000-plus childhood cancer experts at more than 200 leading children's hospitals, universities and cancer centers across North America, Australia, New Zealand and Europe.
- As an active COG member, Akron Children's division of pediatric hematology-oncology conducts COG-sponsored clinical trials to accelerate new cancer treatments.

Pediatric Trials Network (PTN)

- The PTN is a national initiative providing infrastructure to study the formulation, dosing, efficacy and safety of drugs – and the development of medical devices – used in pediatric patients.
- It's composed of an alliance of clinical research sites and sponsored by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD).
- PTN research provides evidence for optimal dosing of commonly used medications in infants and children, improving healthcare for these patients.

Division and department accomplishments

Department of pediatrics

- Michael T. Bigham, MD, medical director, transport services, received grants from MedEvac Foundation International and Laerdal Foundation for Acute Medicine to support the continued development, validation and spread of the Akron Children's-originating database. This database has been vital in driving standardization and clinical improvement nationwide in the area of pediatric inter-facility transport through the Ground and Air Medical qQuality Transport (GAMUT) collaborative.



Michael T. Bigham, MD

- Department investigators are actively engaged in and supportive of collaborative projects sponsored by:
 - Ohio Children's Hospital Association Research Collaborative, including the Ohio Pediatric Asthma Registry (OPAR) project.
 - o Kathryn Mansel, MD, associate pediatric residency program director, hospital medicine co-director, EBM and Journal Club pediatric hospitalist – Site principal investigator.
 - The Timely Recognition of Abuse Injuries (TRAIN) project.
 - o John Melville, MS, MD, child protection and abuse prevention – Site principal investigator.
 - The NAS project.
 - o Jennifer Grow, MD, neonatologist – Site principal investigator.
- Akron Children's Emergency Medicine fellows are involved as principal investigators in the following clinical research studies:
 - "Effect of Written Educational Materials on Parental Expectations of a Pediatric ED Visit" – Danielle Paulin, MD.
 - "What is the Most Effective Method of Feedback for Pediatric Residents in the ED Setting?" – Natasha Collia, MD.
 - "The Effects of Normal Saline Bolus Prior to Ketamine Sedation for Orthopedic Procedures in the Pediatric ED" – Stephanie Moses, DO.
 - "Peripheral IV Placement by Nursing with Ultrasonography in the Pediatric Emergency Room" – Alia Hamad, DO.

Department of orthopedics

The orthopedic department features a number of investigations in collaboration with other hospitals and institutions. Department residents and students come from other institutions to fulfill and pursue their research requirements. Akron Children's Foundation funded many of these collaborative projects. External grants also were awarded to the department's research activities.

Ongoing noteworthy collaborations:

- Kerwyn Jones, MD, chairman, department of orthopedics, and John J. Elias, PhD, senior research scientist at Cleveland Clinic Akron General. Dr. Jones and Dr. Elias are working on multiple studies that have patellofemoral projects.
- **Akron Growth Plate Study Group:** A recent collaboration between Akron Children's, the University of Akron and Northeast Ohio Medical University (NEOMED), this study group identifies basic science questions and then recruits and collaborates with PhDs with knowledge of these areas to pursue research in these projects.
- **Sports Medicine Center:** The department of orthopedics and the sports medicine center created a survey project related to sports injuries. This collaboration will help both areas further research in pediatric-specific sports injury and highlight the clinical work performed in both departments.
- **Publications and Grants:** The department authored 10 peer-reviewed research publications in 2015 and received a \$35,000 external grant from the Pediatric Orthopedic Society of North America.



Mark
Adamczyk,
MD



Heart center

- The heart center is participating in 2 research studies evaluating devices used in Akron Children's cardiac catheterization lab.
- Dr. Clark and Amee Bigelow, MD, co-wrote "Catheter ablation of supraventricular tachycardia without fluoroscopy during pregnancy," for Obstetrics and Gynecology.



General surgery

- In 2015, the general surgery department authored 12 publications.
- The department offered 6 national presentations and 9 Global Cast Web Symposiums to international audiences.
- There are 13 active ongoing research studies.



NeuroDevelopmental Science Center (NDSC) Infusion Center

- Jonathan Winkelman, RN; Tami Cieplinski, RN; and Mackenzie Feathers, RN, are working on a study examining patient satisfaction with headache patients treated in the NDSC infusion center.

Patient services

- In 2015, patient services activated 22 new research studies with nurses acting as the principal investigators. Patient services now has 85 open studies with nurses acting in this role.
- Patient services also initiated 10 new research studies with respiratory therapists acting as principal investigator.
- Patient services published 3 respiratory therapy scholarly papers and 8 abstracts in peer-reviewed journals, book chapters and books.
- In 2015, the trauma center enrolled 4 patients in a multi-institutional study, "Massive Transfusion Epidemiology and Outcomes in Children (MATIC)."
- The department is an active participant in a multisite study to test the concurrent and predictive validity of the Pediatric Pressure Ulcer Prediction and Evaluation Tool (PPUPET).





Paul and Carol David Foundation Burn Institute

- Poster presentation at the 47th Annual Meeting of the American Burn Association:
 - o “Effectiveness of a Burn Unit’s Fluid Resuscitation Protocol in Severe Burn Wound Treatment” – Kevin McMahon; Timothy Pittinger, MD, FACS; Mary Mondozi, MSN, BSN; and Christine Sadie, BSN, RN.
- Poster presentations at the 43rd Annual Eastern Great Lakes Burn Care Conference:
 - o “A Burn Center’s Compliance in Meeting Federal and State Governing Advance Directive Policy and Procedure” – Laura Brewer; Mary Mondozi, MSN, BSN; Christine Sadie, BSN, RN; and John Crow, MD.
 - o “Procedural Pain Management in Burn Patients: Sedation and Analgesia Algorithm” – Rosalee L. Unwin, MSN, FNP-C, CPN; John Crow, MD; and Cheryl Christ-Libertin, DNP, CPNP-PC, RN-BC, NE-BC.

Individual accomplishments

Maria Cristina Victorio, MD

Director of Akron Children’s headache program and pediatric neurologist

- Member of an American Academy of Neurology subgroup that’s involved in developing a clinical database for headache quality measures (AXON registry).
- Member of the American Academy of Neurology Safety Subcommittee. Also the facilitator of a group formed by the Child Neurology Society and the American Academy of Neurology that’s tasked with developing child neurology outcome measures.
- Active participant in the Childhood and Adolescent Migraine Prevention (CHAMP) study, which recently published its findings.

Kristine Woods, PsyD, BCB

Pediatric psychologist

- Member of Akron Children’s NeuroDevelopmental Science Center headache team and actively conducts research on validating psychosocial measures for the pediatric headache population.



Akron Children's Hospital

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