Rebecca D. Considine Research Institute

# 2012 Annual Report

Akron Children's Hospital

*Research plays a vital role in the current and future health of children everywhere in the world. At Akron Children's Hospital, the Rebecca D. Considine Research Institute helps foster a culture of research and innovation at northern Ohio's largest pediatric healthcare provider.*

*By collaborating with hospital clinicians and researchers in their investigations, the institute's core team of professionals provides an integrated support system to translate new knowledge into improved outcomes for our patients, from treatment and prevention to patient care practices. Accompanying our methodologies is a dedication to education, providing unique training opportunities to students, physicians, nurses and all healthcare providers.*

*To secure the health of our patients, our communities and children worldwide, the Rebecca D. Considine Research Institute remains dedicated to assisting Akron Children's Hospital to pioneer leading-edge pediatric healthcare discoveries.*

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Stay up-to-date on the research activities at Akron Children's and the Rebecca D. Considine Research Institute by signing up for *Research Pursuits*, our monthly e-newsletter. Visit akronchildrens.org/research.

# from our founders

Dear Friends,

When we established the Rebecca D. Considine Research Institute in 2009, we shared a vision of creating a world-class research organization that would make life-changing advances in pediatric medicine through creativity and scientific discovery.

Over the years, we've watched this vision take shape and are proud of the progress achieved in 2012 through the efforts of the research institute and our hospital physicians, clinicians, nurses and staff in their scientific investigations.

It's rewarding to reflect on the extent of the institute's evolution since its founding. What began as an idea with a core team of research professionals has developed into a multifaceted center serving as the hub for research activities taking place throughout our hospital system – one that's experiencing continued growth and integration.

This growth brings benefits to our hospital and is helping our community and its children thrive. Research is an important priority for Akron Children's, and it's an essential component of our mission. In areas as varied as vision, cancer and mitochondrial disease, our staff is dedicated to fundamental research into the causes, treatments and cures for childhood illnesses and in finding ways to better care for children who are sick or injured.

we shared a vision of creating a world-class research organization

It's one of our goals to become the primary site for pediatric clinical, translational and outcomes research in northern Ohio. By creating opportunities and cultivating a climate of innovation, we showcase the expertise of our staff and value of our hospital, which helps us attract the best and brightest talents in our industry.

We also recognize the importance of the alignment of our strategic plan with the vision of transforming northern Ohio into a major biomedical research center, fostering local, regional, national and international collaborations to move this plan forward. We're proud partners of the Austen BioInnovation Institute in Akron, Kent State University, The University of Akron, Northeast Ohio Medical University, the Hattie Larlham organization, Summa Health System and Akron General Health System.

We encourage you to witness our work come to life in this report, and we hope you're inspired by the stories told by our investigators and the impressive milestones accomplished in 2012.

We feel privileged to be a part of the Rebecca D. Considine Research Institute and are grateful for the dedicated work underway on projects large and small – all focused on improving the lives of infants, children and teens.

**William H. Considine**
President and CEO,
Akron Children's Hospital

**Rebecca D. Considine**

# from our director

Dear Friends,

The Rebecca D. Considine Research Institute's priority is to answer one life-changing question: How can we provide better care for sick children?

We do this by helping convert ideas into reality – those that materialize at the bedside, within our communities or from the laboratory bench.

Whether it's supporting providers and healthcare professionals in individual investigations, managing large sponsored or multicenter studies, providing continuing education and training, or helping revolutionary medical devices reach the market, we support all of the investigators within our hospital system.

By several measures, 2012 led Akron Children's to new heights in research accomplishments. System-wide, the year concluded with 408 ongoing studies in more than 20 diverse clinical specialties. Results of studies by hospital investigators were disseminated around the world in more than 66 papers published in peer-reviewed journals. A range of local and national foundations provided financial support by funding major pediatric research initiatives as well as small-scale pilot studies.

In this report, you'll learn about these accomplishments and more, discovering how this collective body of work makes a significant impact on the way we approach patient care through our investigations in five core research models – basic science, comparative effectiveness research, translational science, clinical studies and registries, and clinical interventions.

how can we provide better care for sick children?

As we reflect on 2012, we also gain a firmer grasp on our vision for the future: expansion. From our surgical research portfolio and Nursing Research Center to internal innovations and our national and international partnerships, 2013 presents a great opportunity to expand the depth and breadth of the impact we're able to make in the health and wellness of children worldwide.

It's an exciting, stimulating time to be part of the Rebecca D. Considine Research Institute and Akron Children's Hospital. We are poised to build on our momentum by enhancing our capacity to advance healthcare for future generations of children and their families. The stories in this report illustrate the scope of our contributions to pediatric healthcare. I hope they will enlighten and inspire you.

**Michael D. Reed,** PharmD, FCCP, FCP
Director, Rebecca D. Considine Research Institute

**RICHARD HERTLE, MD**
**Director, Pediatric Ophthalmology**

Transferring questions from the bedside to the laboratory, and bringing answers back to the bedside

# translational science

For nearly 30 years, Richard W. Hertle, MD, FAAO, FACS, FAAP, has worked toward one important goal – a cure for infantile nystagmus syndrome (INS), an acquired developmental defect that impacts a child's visual functions by interfering with his or her ability to move the eyes voluntarily.

It's a purpose he brought to Akron Children's Hospital two years ago when he became director of pediatric ophthalmology and our Vision Center. Relying on the concept of translational science, he's made continuous progress toward achieving his goal.

"With translational science, we aren't taking on the role of theoretical scientists conducting basic research," said Dr. Hertle. "We begin with a very specific clinical goal."

Since beginning his investigations in 1985, his work has entailed countless days and a few sleepless nights collaborating to study INS, test and formulate treatments, and analyze results while relying on one crucial partner to help unlock the questions surrounding the condition – man's best friend.

we can never forget the bravery of the people and animals involved in our research

# translational science

## Finding the Answer: 'Why?'

Infantile nystagmus syndrome is among a group of disorders of rapid, uncontrollable eye movements or oscillations. Interfering with detail vision, depth and motion perception, and how fast one sees the world, it's a disabling condition that can lead to slow vision processing, awkward head postures and strabismus.

Each week, Dr. Hertle sees 15 to 20 children from around the world with INS. And each week he performs three to five surgical procedures on patients to help improve the beat of the oscillations.

"INS had been treated with surgery since the 1950s, but in the late 1980s my science partner, Louis Dell'Osso, and I wanted to know why it worked," said Dr. Hertle.

The first foray in his quest led Dr. Hertle and colleagues to use Achiasmatic Belgian Sheepdogs, found in the wild by a Cornell University specialist who then bred them for research.

"We studied them and found that they had the same nystagmus that represented the human condition," said Dr. Hertle. "Now, we had an animal model to test."

After performing a hypothesized tenotomy with reattachment procedure – in which they theorized that operating on the eye muscle itself changed the inherent characteristics of the abnormality – they found substantially reduced rates of INS in the canines. The successful outcomes led them to perform the same procedure in two National Institutes of Health-supported trials on humans – the first on 10 adults, the second on five children. They both reproduced the animal results.

After surgery, the eyes still appear to be in motion, but the brain increases the amount of time per beat that the eye can see by three to four times.

## The Ongoing Canine to Human Connection

The initial trials led to an expansion of the way scientists evaluate and treat INS, and it's now being studied much more intensely.

"It's flowered into a new and very large area of research," said Dr. Hertle. "Scientists have opened up new areas of the brain and found previously undiscovered sensory nerves. Further investigations will allow us to understand how the brain communicates in ways we never knew, allowing us to discover potential new ways to treat it."

One possible treatment includes gene transfer therapy, in which normal genes are introduced into cells that contain defective genes with the goal of reanimating the protein in the cell. Dr. Hertle and colleagues at the University of Pennsylvania once again brought dogs into this research study. This time, it was a group of puppies who experienced retinal degeneration and – as a side effect – also had INS. Favorable results were achieved, with persistent effect.

“Before the gene transfer therapy treatment, the puppies were very timid and shy,” said Dr. Hertle. “Now they’re sociable and running around a room instead of cowering in a corner.”

As this form of research has transferred to human trials, Dr. Hertle and his colleague, full-time researcher Dongsheng Yang, MD, PhD, have since joined Akron Children’s Vision Center. They are collaborating with research specialists from another local health system in a new venture: creating a topical medication that could replace or augment surgery. They’re using dogs again to study this new intervention. When the investigations are complete, their two canine test subjects will find forever homes with Dr. Hertle and another member of the research team.

“We can never forget the bravery of the people and animals involved in our research,” said Dr. Hertle. “Without the patients willing to try and the animals – which we treat with respect and dignity – we couldn’t advance science and improve health for humans or animals.”

*Learn more about Dr. Hertle’s work and other translational science research activities at Akron Children’s. Scan the tag or visit bit.ly/infantile-nystagmus.*

## Translational Science in Action

More than 1,000 patients have now undergone tenotomy with reattachment surgery with favorable results.

Dr. Hertle has been principal investigator on several research projects funded by the National Institutes of Health and has been the recipient of more than $1 million of research funding.


**LAURIE CELIK, BSN, RN, NCSN**
**School Health Registered Nurse**
**for Akron Public Schools**

# clinical interventions

## Evaluating, assessing and improving the health of an individual or community

In a recent study published in the July 2012 issue of *NASN School Nurse,* Laurie Celik, BSN, RN, NCSN, and her co-investigators demonstrated that an educational hand-washing intervention has the ability to create healthier behaviors throughout an entire school.

It's the result of a clinical intervention study Celik helped implement four years prior in a fifth-grade class at the Resnik Community Learning Center in the Akron Public School system.

"I think health professionals have to take the lead when teaching children about healthy behavior," said Celik, who serves as the School Health RN District Supervisor for Akron Children's School Health Services. "Collaboration is key – conducting clinical interventions with local partners like educators and school systems can make a significant impact on the health of our children and community."

The goal of Celik's study was twofold: to determine whether a 30-minute educational intervention on hand-washing instruction could help decrease the number of organisms found on the students' hands while simultaneously introducing them to the scientific method.

Celik's co-investigators included a fifth-grade science teacher at the elementary school and a senior International Baccalaureate student at Firestone High School. She also worked closely with the Akron Public School system and Akron Children's Center for Nursing Research. The nursing research center helped design the hand-washing lesson and study – ensuring it met state education criteria – and helped them gain approval by the hospital's Institutional Review Board and the school system's research review board.

With approvals, Celik and her co-investigators took their investigation to the classroom. During the single-day lesson, Celik and her

# clinical interventions

partners first explained the purpose of the study to the students before culturing each child's palm. Then, Celik provided a thorough instruction on proper hand-washing techniques. She also discussed how germs spread and how hand-washing can prevent the spread of germs. After receiving the instruction, the students washed their hands, and their palms were once again cultured.

The results: 41 percent of the students washed their hands more effectively after they learned proper washing techniques. The students also applied what they learned through a class project that ultimately led to more thorough cleaning practices and processes at their school. The investigation gained attention by students and the community alike, receiving local newspaper and television coverage.

"Not only did this study help children develop more efficient hand-washing habits, it also exposed them to the proper scientific process at an earlier age," said Celik. "It teaches them to ask questions, to find out what they know or don't know, and investigate further."

Celik continues to teach iterations of this lesson within the Akron Public School system. She also aims to develop new clinical interventions that can help improve the health of her school community.

"I have ideas and goals I want to accomplish," said Celik. "Research adds to our body of knowledge. And as general knowledge and understanding of our health continues to change and evolve, research will play an integral part in ensuring we evolve, as well."

## Clinical Interventions in Action

While the hand-washing study helped children develop more efficient hand-washing skills, it also exposed them to the proper scientific research process at an early age. Through a problem-based learning lesson, the students applied what they learned in the study to create more effective cleaning practices throughout the school.

Akron Children's established a Nursing Research Center in 2008. The center was integrated into the research institute in 2011 and is led by Aris Eliades, PhD, RN, CNS, director of nursing research and associate director of the Rebecca D. Considine Research Institute.

**Nursing Research Accomplishments for 2012 Included:**

- 55 studies with nurses as principal or co-principal investigators.
- Akron Children's nurses presented 78 posters and papers at local, regional, national and international conferences.
- 12 research papers by Akron Children's Hospital nurses were published in peer-reviewed journals.

*Scan the tag or visit bit.ly/nursing-research to learn more about Akron Children's Center for Nursing Research.*

# clinical studies and registries

## Unearthing new treatment paths

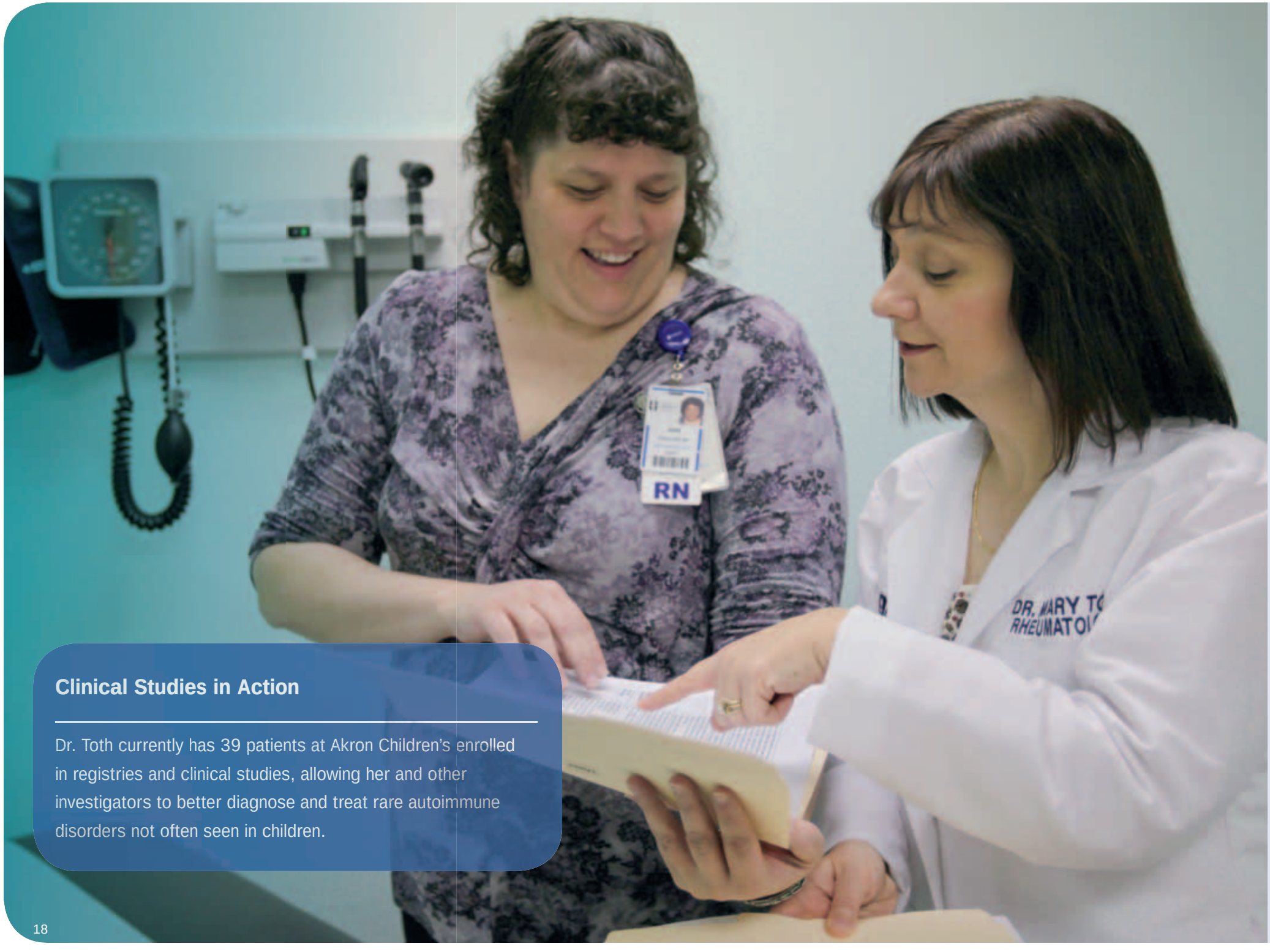
Patients and families look to Akron Children's Hospital for opportunities to receive the latest medications, treatments and procedures. Conducting clinical studies and contributing information to research registries help accomplish this. It's particularly vital in medical fields that treat illnesses not often seen in children.

As division director of Pediatric Rheumatology, Mary Bratovich Toth, MD, understands that involvement in these endeavors leads to better diagnosis and treatments for rare autoimmune disorders. While much is known about adult forms of these conditions, there's a limited amount of available information on their pediatric manifestations and how children respond to particular treatments.

"It's important to test medications and observe different treatments to see if they work as well in children as adults," said Dr. Toth. "We need to ensure that they're just as safe in the pediatric population, because kids aren't mini adults."

these endeavors lead to better diagnosis and treatments for rare autoimmune disorders


**MARY BRATOVICH TOTH, MD**
**Division Director,**
**Pediatric Rheumatology**




## Clinical Studies in Action

Dr. Toth currently has 39 patients at Akron Children's enrolled in registries and clinical studies, allowing her and other investigators to better diagnose and treat rare autoimmune disorders not often seen in children.

# clinical studies and registries

For the past two years, Dr. Toth has enrolled patients in clinical studies of new medications to treat juvenile fibromyalgia. She's also completed studies to evaluate efficacy and safety of new medications for conditions like juvenile idiopathic arthritis.

Yet clinical studies account for only part of Dr. Toth's investigations. She also contributes to several national and international registries. These registries contain collections of data and records submitted by participating rheumatologists around the world regarding a variety of disease manifestations and how they're treated. Data is collected over a specified time period, and eventually patient outcome information is generated. Registries are invaluable research and comparative study resources for physicians like Dr. Toth who are treating rare conditions.

"When you look at rare diseases and you don't know how kids will do, it's vital to have this information," said Dr. Toth. "There may be assumptions about a particular disorder that are wrong."

Currently, she participates in:

- CARRA (Childhood Arthritis and Rheumatology Research Alliance)
- ARCHIVE, a registry for children with vasculitis
- Brain Works, an international registry for central nervous system vasculitis
- A long-term, multicenter, observational registry of Humira (adalimumab) in children with juvenile idiopathic arthritis

**Dr. Toth works with Rheumatology staff, including Ann Pokelsek, RN, to evaluate research data and discoveries.**

Dr. Toth also contributed to the Rheumatology Therapeutics Working Group (2012) for the Best Pharmaceuticals for Children Act (BPCA) of the Eunice Kennedy Shriver National Institute of Child Health and Human Development. The BPCA works toward improving pediatric treatments and pharmaceutical labeling.

Dr. Toth looks to the Rebecca D. Considine Research Institute to support the work being done by her department. Staff at the institute assists with Institutional Review Board submissions, aids in collecting and entering data into the registries, and assists in the many logistics research studies require.

"They take care of all the administrative aspects so that I can place all my focus on patient care," Dr. Toth said.

*Scan the tag or visit bit.ly/clinical-studies to find out the latest information on Akron Children's clinical studies.*


**MICHAEL FORBES, MD, FAAP, FCCM**
**Director, Clinical Research & Outcomes Analysis,**
**Akron Children's Pediatric Intensive Care Unit**

# comparative effectiveness research

## Improving clinical care through real-world intervention comparisons

For Michael Forbes, MD, FAAP, FCCM, one of the things he finds most fulfilling is practicing the art of undoing.

“I love when things we’ve held on to for so long no longer stand up to scientific scrutiny,” said Dr. Forbes, director of clinical research & outcomes analysis at Akron Children’s Pediatric Intensive Care Unit (PICU). “It challenges people to move from non-evidence-based to evidence-based clinical care that makes a difference. I think that’s huge.”

Dr. Forbes brings this scrutiny to an emerging branch of science called comparative effectiveness research (CER). In contrast to traditional clinical studies, CER aims to identify the best clinical decisions by conducting head-to-head comparisons of the performance, cost and relative value of different medical devices, tests and treatments.

“CER involves real-world scientific studies that have more general applications than traditional clinical studies,” said Dr. Forbes. “We have a duty to our patients and the public to assess and prove the differential value of multiple types of medical interventions.”

In the PICU, Dr. Forbes focuses his CER studies on new pharmaceuticals and medical devices. They’re areas of particular importance, as many have limited testing histories on pediatric subjects.

“We have to ask ourselves whether or not they add value,” said Dr. Forbes. “If they do, then how, and who benefits? By uncovering the intrinsic values of each drug or device, we can customize their usages based on patients’ needs at the time.”

# comparative effectiveness research

In the past year, Dr. Forbes and his team performed approximately half a dozen pharmaceutical studies, and that number is growing in 2013. He also is testing five medical devices, working to uncover the value they could add to current treatments.

“From a scientific standpoint, we have to figure out how they help providers make the best decisions,” said Dr. Forbes. “They’ve already been approved by the FDA, so we know they’re safe. But we don’t know if they’re effective. Testing helps us define efficacy.”

One current subject includes a device that non-invasively measures the amount of oxygen left in the blood after it passes through the entire body. The ability to measure this data would provide invaluable insight into how well the body’s needs are being met, as it’s one of the most crucial pieces of information needed when treating a critically ill patient.

*Watch a video of Dr. Forbes describing his work in the PICU. Scan the tag or visit bit.ly/research-environment.*

“We’re comparing whether or not our clinical interventions are enhanced by the presence of this device,” said Dr. Forbes. “We blind the device and conduct our care as normal. Then, we compare the data we have against the blinded machine and see if it has more information than we already have.”

While uncovering this type of data can impact decisions on patient care, it also can help eliminate waste and improve operational efficiency. For Dr. Forbes, it’s this type of discovery that makes his role at Akron Children’s so rewarding.

“We do what’s right by the patient, for the patient. This approach not only helps the child in front of us in the bed; we’re helping scores and scores of patients down the road.”

## we do what’s right by the patient, for the patient

**Performing head-to-head comparisons helps Dr. Forbes and his team, including Laura Fairfax, BSN, RN, determine the efficacy of new medical devices.**


PHILIPS
160
96
Comparative Effectiveness Research in Action
The PICU performs CER studies on pharmaceuticals and medical devices.

# basic science

## Studying cellular and molecular mechanisms that underlie a disease

What if it was possible to reactivate a “turned off” gene that was linked to childhood cancer? Could it ultimately lead to future treatment breakthroughs?

That’s precisely what Steven Kuerbitz, MD, director of divisional research and the Stem Cell Transplantation Program, hopes to uncover.

In his current investigations, Dr. Kuerbitz performs cutting-edge epigenetic oncology investigations into treatments for pediatric leukemia and osteosarcoma.

Epigenetics encompasses an emerging branch of science that studies how the behavior of DNA within a cell can change over time without altering the actual DNA sequence. DNA encodes information that’s used by a cell to produce a protein, act as a protein-binding site, or produce a ribonucleic acid (RNA) molecule that’s active as RNA. While the epigenetic process doesn’t alter the DNA sequence itself, it does alter the availability of the information to the cell. Therefore, it can “turn off” the gene, deactivate the protein-binding site or degrade the RNA molecule.

Through his work, Dr. Kuerbitz is searching for new links between epigenetics and cancer. The ultimate goal is to increase the efficacy of cancer-treatment therapy while decreasing its subsequent short- and long-term toxicity.

“Basic science provides the knowledge that allows therapeutic discovery to advance in a rational manner,” said Dr. Kuerbitz. “It continues to identify the short circuits that drive cancer. These abnormal pathways then become the targets, the very specific molecules, for the chemotherapy of the future.”

Using several specimens, including tumor samples, high-throughput molecular analysis, animal models and bioinformatics, Dr. Kuerbitz and his team are identifying genes that are “turned off” by a type of abnormal epigenetic regulation that appears in bone tumors, particularly osteosarcomas. When team members identify genes that are “turned off,” they mark the ones that are most important relating to the cancer.

**STEVEN KUERBITZ, MD**
**Director, Divisional Research and**
**Director, Stem Cell Transplantation**

# basic science

After marking the most important genes relating to the cancer, they characterize the way in which the genes are inactivated and study what happens to the cell if they're reactivated. Dr. Kuerbitz and his team determine whether this reactivation could translate into a pharmacological treatment for patients.

His research team includes Christine Mella, MS, Haleema Saeed, MD, and Daniel Pettee, DO.

The first inactivated gene they've identified is called neuronatin. It's the first of many Dr. Kuerbitz and his team hope to identify in this ongoing investigation.

"We have a great deal of work to do yet," said Dr. Kuerbitz. "As we move through this process, we're looking to publish our findings and take advantage of collaborations that our cancer center is building with other institutions for early-phase clinical trials."

As he moves forward, he recognizes that it will be imperative to continue partnering with the Rebecca D. Considine Research Institute.

"They've already assisted us with acquiring laboratory equipment and developing grant applications," said Dr. Kuerbitz. "Moving ahead, coordination with the research institute will be critical as we develop more research programs."

**Dr. Kuerbitz works with team members including Christine Mella, MS, to study the relationship between epigenetics and finding new ways to treat pediatric leukemia and osteosarcoma.**


*Scan the tag or visit bit.ly/epigenetics-and-tumors to watch Dr. Kuerbitz describe how he uses epigenetics to study bone tumors in children and teens.*

## Basic Science in Action

More than 90 percent of children and adolescents diagnosed with cancer each year in the U.S. receive care from Children's Oncology Group (COG) member institutions such as Akron Children's Hospital. This esteemed collaborative effort provides the knowledge needed to answer important clinical questions in defeating pediatric cancer.

# making an impact

*From the number of studies to new collaborations, 2012 marked a year of growth and advancement for the Rebecca D. Considine Research Institute.*

## Clinical Research Study Activity

At the conclusion of 2012, there were 408 research studies in progress throughout the Akron Children's Hospital system.

## Contributing to National Multicenter Pediatric Research Initiatives

- Akron Children's Hospital is one of 72 therapeutic development research sites sponsored by the **Cystic Fibrosis Foundation.** This relationship allows us to treat patients in our Lewis H. Walker, MD, Cystic Fibrosis Center with investigational medications and nutritional supplements.
- Akron Children's Division of Pediatric Hematology-Oncology is an investigative site for the **Children's Oncology Group (COG),** the world's largest childhood cancer research organization. We enroll patients in COG clinical trials, and hospital physicians, nurses, pharmacists and other staff serve as members on various COG committees.
- Through the Division of Clinical Pharmacology and Toxicology, the hospital participates in the **Pediatric Trials Network (PTN),** a national initiative that provides infrastructure to study pediatric prescription medications for safety and optimal dosing. PTN is a collaboration between the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the Duke Clinical Research Institute.
- Akron Children's Hospital was selected as a research site for the **National Council of State Boards of Nursing** study *Expanding RN Scope of Practice: A Method for Introducing a New Competency into Nursing Practice (MINC).*

## Forging Regional, National and International Collaborations

- Akron Children's Hospital investigators oversaw three ongoing orthopedic projects with funding from the Austen BioInnovation Institute in Akron (ABIA).
  - Growth plate and cilia – Led by Dennis Weiner, MD, and William Landis, BS, SM, PhD.
  - Computational modeling of patella-femoral disorders – Collaboration between Akron Children's Hospital and Akron General Medical Center led by John Elias, BS, MS, PhD, and Kerwyn Jones, MD.
  - Growth hormone and polymer pegs – Collaboration between Akron Children's Hospital and The University of Akron led by Todd Ritzman, MD, and Matt Becker, BS, MA, PhD.
- After obtaining provisional patents, Todd Ritzman, MD, an Akron Children's pediatric orthopedic surgeon, and Stephen Fening, PhD, director of orthopedic devices for ABIA, formed a company to test and commercialize a magnetic device for treating scoliosis (curvature of the spine) in young children as an alternative to multiple surgeries.

- Partnering with the **ABIA,** we established systems to provide guidance and assistance in patent protection, product development and commercialization to any Akron Children's investigator proposing new healthcare product inventions or proprietary intellectual property.
- The research institute concluded Memorandums of Understanding with two prestigious Israeli technology transfer organizations to evaluate their product innovations for potential commercialization in the United States.

## Creating a Culture of Innovation Through Learning

### Summer Pediatric Research Scholars (SPRS)

- Thirteen college students completed the SPRS program in 2012.
- We expanded and enhanced our program curriculum with four new instructional presentations.
- A previous SPRS student's study abstract was accepted and presented at the American Burn Association's 44th Annual Meeting in Seattle, Wash.
- The 2012 participant survey garnered its highest scores to date, with all students responding that they would recommend the program to their peers.
- A record number of more than 116 students applied for the 12 positions available for the 2013 program.

### Translational Science Seminar Series

- At these seminars, Akron Children's researchers and invited guest speakers offer insight into their study findings and the research process.
- Those attending seminar lectures in 2012 earned CME credits.
- An archive of past presentations and slides is available for viewing by those unable to attend. This Translational Science Seminar archive also serves as an educational resource for anyone in the healthcare field. Visit bit.ly/translational-science.

### Research Methodology Seminar Series

- In September, research institute biostatistician Lillian Prince, MS, MSEd, led the first of these monthly classroom seminars to explain biostatistical research methods for Akron Children's investigators with limited formal training in statistics.

# making an impact

## Nurse Scholar Program

- Akron Children's Hospital designed the Nurse Scholar Program to further professional growth and development through a structured educational curriculum offering formal training in the field of pediatric research. Nurse Scholars then design and conduct a rigorous research study.
- Since the program's inception in 2009, 11 Nurse Scholars have contributed to the hospital's research mission by successfully completing their research study.
- Nurse Scholars also disseminate their new knowledge to advance professional nursing science and translate their innovations and improvements into nursing practice.
- Nurse Scholars have given more than 20 oral and poster presentations at local, regional and national conferences and authored or co-authored eight articles appearing in professional publications and peer-reviewed journals.

- The following Nurse Scholar investigators and their studies illustrate the broad scope of their research interests:

| Nurse Scholar | Study Title |
|---|---|
| **Class: 2009** | |
| Phyllis Mesko, RN, staff nurse, PACU, C.A.R.E. Ladder Level V | Use of Picture Communication Aids to Assess Pain Location in Pediatric Post-operative Patients |
| Carleeta Soltis, MSN, RN, CNP, staff nurse, Radiology, C.A.R.E. Ladder Level III | Perception of Anxiety, Fear, Distress and Pain by Families of Children Undergoing Voiding Cystourethrograms |
| Elaine Thompson, RN, staff nurse, Burn Center, C.A.R.E. Ladder Level I | A Comparison of Enteral Feeding Tubes: Relationship of Type and Location on Nutritional Status |
| **Class: 2010** | |
| Colette Benincasa, BSN, RN, staff nurse, Neonatal Transport and Neonatal Intensive Care Unit, C.A.R.E. Ladder Level IV | The Influence of Neonatal Intensive Care Unit Nursing Staff Age, Knowledge, Beliefs and Practice on Transitioning Premature Neonates to Safe Sleep Positions |
| Keri A. Speicher, BSN, RN, staff nurse, Emergency Department, Mahoning Valley and Radiology, Akron Campus, C.A.R.E. Ladder Level III | Identification of Occupational Stressors in the Pediatric Emergency Room Nurse |

| Nurse Scholar | Study Title |
|---|---|
| **Class: 2011** | |
| Fran Feesler, BSN, RN, staff nurse, Pediatric Intensive Care Unit, Akron Campus, C.A.R.E. Ladder Level III | Prevalence of Compassion Fatigue in the Pediatric Intensive Care Unit Nurse |
| Cami Goucher, BSN, RN, staff nurse, Pediatric Intensive Care Unit, Akron Campus, C.A.R.E. Ladder Level I | Pediatric Nurses' Knowledge and Attitudes About Pain Management |
| Jennifer Huth, BSN, RN, staff nurse, PACU and Craniofacial Clinic, Akron Campus, staff nurse, Pediatric Intensive Care Unit, Akron Campus, C.A.R.E. Ladder Level IV | Prevalence and Use of Arm Restraints After Cleft Palate Repair: A Multi-site Study |
| Jennifer Messenger, BSN, RN, staff nurse, School-age Unit, Akron Campus, C.A.R.E. Ladder Level III | Exploring the Relationship Between Stress and Obesity Among Pediatric Nurses |
| **Class: 2012** | |
| Linda Beilstein, MSN, RN, CPNP-PC, nurse practitioner acute, Neonatology at St. Elizabeth's | Impact of ANTI-VIRUS Principles and Values Curriculum on Conduct of Behavior on 6th and 8th Grade Students |
| Josh Dahlheimer, BSN, RN, staff nurse, Pediatric Intensive Care Unit | Nurses' Perceptions, Knowledge, and Attitudes Regarding Donation After Cardiac Death in a Pediatric Intensive Care Unit |

## Telling Akron Children's Hospital's Research Story

- *Research Pursuits,* an e-newsletter, communicates significant research activities and accomplishments of our hospital investigators. The newsletter is sent to the pediatric research community, partner organizations, donors, community and opinion leaders, and regional, national and international biomedical researchers.
- *Research Notes* is an internal communication distributed within the hospital system to inform staff members about Akron Children's research grant programs, awards and news from our investigators. The research institute also informs investigators of new government regulations, changes in certification requirements, ethical issues and similar information to make them aware of changing biomedical research practices.
- Visit Akron Children's website to view videos featuring hospital investigators describing their work at bit.ly/research-insights. Hear Richard Hertle, MD, explain an experimental device to assist blind children navigate their world. Or learn more about Michael Forbes, MD, and his comparative effectiveness research projects in the PICU.

Visit akronchildrens.org/research to sign up for our monthly e-newsletter *Research Pursuits.*

# 2012 research funding and sources

Fifty-three **industry sponsored studies** are generating total revenues of **$5,793,651.**

The Rebecca D. Considine Research Institute currently holds **10 National Institutes of Health subcontracts,** with total funding of **$868,996.** These include:

- Johns Hopkins University
- Arkansas Children's Hospital Research
- University of Rochester
- Cincinnati Children's Hospital*
- Duke University*
- Columbia University
- George Washington University
- Children's Hospital of Philadelphia

**Indicates two studies per institution.*

We received a **federally funded subcontract from the Center for Disease Control awarded through the ABIA** to principal investigator Norman Christopher, MD. Study: Summit Partners for Accountable Care Community Transformation (Summit PACCT). Total value: $25,000.

Grants awarded to Akron Children's investigators from foundations and other sources include:

- **Cortrak –** Awarded to Ann Marie Brown, RN, CPNP. Study: Evaluation of Efficacy and Efficiency of Cortrak™ Post Pyloric Nasal Tube Device in Reducing Radiation Exposure and Resource Utilization in the PICU. Total value: $5,000.
- **Margaret Clark Morgan Foundation –** Awarded to Akron Children's Hospital Division of Pediatric Psychiatry and Psychology – Stephen Cosby, MD, Georgette Constantinou, PhD, and Stefan Agamanolis, PhD. Study: Tele-Mental Health. Total value: $463,593.
- **Vision of Children Foundation –** Awarded to Richard Hertle, MD. Study: Safety and Efficacy of a Topical Solution in a Canine Model of Nystagmus. Total value: $18,000.
- **DAISY Foundation –** Awarded to Ann Stratton, CNP. Study: Effects of Nursing Interventions on Sleep Quality and Patterns in Pediatric Oncology Patients. Total value: $4,955.

- **American Academy of Pediatrics –** Awarded to P. Cooper White, MD. Study: Transforming Pediatric Residency Training to Improve Care for Underserved Children. Total value: $30,000.
- **Ohio Children's Hospital Research Consortium (Neonatal Working Group) –** Awarded to Jennifer Grow, MD. Study: Neonatal Abstinence Syndrome: Enhance Efficacy and Cost Effectiveness of Treatment. Total value: $180,000.
- **Seattle Children's Research Institute / Cystic Fibrosis Foundation –** Awarded to Nathan Kraynack, MD. Study: A Long Term Prospective Observational Study of the Incidence of and Risk Factors for Fibrosing Colonopathy in U.S. patients with Cystic Fibrosis treated with Pancreatic Enzymes Replacement Therapy: A Hormonized Protocol Across Sponsors. Total value: $148,000.
- **Delta Omega Chapter of Sigma Theta Tau International –** Awarded to Meghan M. Weese, MSN, RN, CPN, Louise D. Jakubik, PhD, RN-BC, Aris Eliades, PhD, RN, CNS, and Jeni Huth, BSN, RN, CPN. Study: The Relationship Between Mentoring Activities and Mentoring Benefits Among Pediatric Staff Nurse Protégés. Total value: $2,500.

2012 institutional funding sources include:

- We established the **Akron Children's Hospital and Kent State University Collaborative Research Awards** to facilitate interdisciplinary grant development and increase federal grant submissions. A total of $94,278 was distributed among 10 pilot projects in 2012. Additional awards will be granted to qualifying collaborative investigators in 2013.
- The **Akron Children's Hospital Foundation Research Fund** grants more than $100,000 annually to foster scientific endeavors by our clinician researchers. In 2012, several promising research study proposals received funding through this competitive review process.

# 2012 publications by Akron Children's investigators

The relentless acquisition of new medical knowledge and its dissemination drives pediatric healthcare progress. Publication is the culminating event in the research study life cycle. Journals and other medical publications represent the primary channel to identify a research question and convey study findings in relation to that question. In this way, clinicians across the nation and around the world can benefit directly from Akron Children's Hospital research studies.

In 2012, Akron Children's investigators published 66 papers in peer-reviewed journals, representing research from nearly 20 pediatric disciplines. The scope and quality of their work is reflected in a sampling of diverse pediatric and specialty journals that published Akron Children's authors.

*Air Medical Journal*

*American Journal of Hematology*

*BBA-Gene Regulatory Mechanisms*

*Brain Structure and Function*

*Burns*

*Congenital Heart Disease*

*Current Topics in Pharmacology*

*Developmental Medicine and Child Neurology*

*eJournal American College of Osteopathic Pediatricians*

*Investigative Ophthalmology & Visual Science*

*Journal of Bone and Joint Surgery*

*Journal of Burn Care Research*

*Journal of Child Neurology*

*Journal of Laparoendoscopic & Advanced Surgical Techniques*

*Journal of Medical Economics*

*Journal of Pediatric Nursing*

*Journal of Pediatric Orthopedics*

*Journal of PeriAnesthesia Nursing*

*Journal of American Association for Pediatric Ophthalmology and Strabismus*

*Palliative and Supportive Care*

*Pediatric Emergency Medicine*

*Pediatric Pulmonology*

*Pediatrics*

*Progress in Palliative Care*

A complete list of author citations beginning with 2010 is on the hospital website: bit.ly/published-authors.

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