Welcome from Our President and CEO

Brave New World
Transformational programs give clinicians the tools to explore new frontiers of medicine — and offer new hope to patients.

Embracing Our Neighbors
Unique South Philadelphia facility is a shining example of community partnerships.

Free to Be Me
CHOP helps youth be their happy, healthy, true selves.

Employees. Entrepreneurs.
Children’s Hospital encourages staff to turn health improvement ideas into marketable products and services.

On Board the Cancer Moonshot
Representatives of Children’s Hospital participated in the ambitious presidential initiative.

Explaining an Epidemic
Kidney stones are on the rise in kids — and Children’s Hospital researchers are discovering why.

Dedicated to Diversity
At CHOP, a commitment to diversity and inclusion means ensuring everyone feels heard, valued and at home.

Faster Answers
Children’s Hospital is a national leader for research networks that accelerate and broaden research.

Generosity in Action
The big — and small — reasons philanthropy is essential.

Relentless Search for Breakthroughs
New collaborations highlight our Research Institute’s year.

Meet Our Breakthrough-Makers
Breakthroughs at Children’s Hospital wouldn’t be possible without stellar leadership. We highlight 13 who were recognized last year.

Leadership
Board of Trustees
Foundation Board of Overseers
Endowed Chairs
Our Year by the Numbers

View the Annual Report online at chop.edu/ar.
2016 was an extraordinary year at Children’s Hospital of Philadelphia (CHOP). We created new clinical programs to meet the diverse needs of the children we serve. We launched a first-of-its-kind partnership with the city of Philadelphia that has inspired similar projects in other cities. We made breakthroughs of all shapes and sizes, in every area of CHOP. I hope you enjoy reading more about them in this report.

Madeline Bell
President and CEO
TRANSFORMATIONAL PROGRAMS GIVE CLINICIANS THE TOOLS TO EXPLORE NEW FRONTIERS OF MEDICINE — AND OFFER NEW HOPE TO PATIENTS.
At 5 months old, Boston Dewald was a very sick little boy. Diagnosed with inflammatory bowel disease (IBD), Boston’s doctors in Kansas were struggling with how to best manage the baby’s delicate condition. They asked experts at Children’s Hospital of Philadelphia (CHOP) for help.

After a battery of medical and genetic tests, CHOP doctors discovered Boston had a rare gene defect that was causing his IBD — a defect that could lead to a life-threatening condition called hemophagocytic lymphohistiocytosis (HLH).

A multidisciplinary team from the divisions of Gastroenterology, Genetics, Immunology, Oncology and Rheumatology at CHOP worked together to create a customized treatment plan to address Boston’s diagnosis and specific gene defect.

Today, the 2-year-old is back home and symptom-free. Boston is just one of thousands of children with complex disorders who have a brighter future after coming to CHOP — thanks to innovative programs like the Center for Pediatric Inflammatory Bowel Disease at CHOP.

THE NEXT FRONTIER

To build upon its 162-year history of pioneering care for children, CHOP has committed to giving 10 successful multidisciplinary programs — dubbed Frontier Programs — the additional support they need to forge important new discoveries, create novel therapies, and deliver hope to more families.

“Frontier Programs are involved in delivering extraordinary care that is transformational for the children involved,” says Joseph W. St. Geme III, MD, Physician-in-Chief at CHOP. “In some cases, this care is available no other place in the world.”

Opposite page: When Liam Bolan was 5 years old, he was diagnosed with ulcerative colitis, a form of inflammatory bowel disease. The past year has been a whirlwind of doctor visits, hospitalizations and new medications. Here, the 6-year-old cuts loose after a routine checkup at CHOP.

So far, four programs have been identified as Frontier Programs. The Cancer Immunotherapy Program and the Center for Lymphatic Imaging and Intervention were named in 2015. 2016’s selections are the Center for Pediatric IBD and the Center for Thoracic Insufficiency Syndrome (TIS).

To be chosen for three years of Frontier Program funding, programs need three essential components:

• A distinctive clinical program delivering extraordinary care for children with complex conditions
• An associated translational research program that allows continued advancement of care
• The potential to provide a return on investment that could support ongoing innovation

“These programs will continue to distinguish CHOP and attract patients from all over the world,” St. Geme says. “We are literally changing the face of healthcare for children.”

SPARK OF INSPIRATION

Physicians and scientists at Children’s Hospital of Philadelphia have been on the front lines of discovery for decades.

In the case of Robert M. Campbell Jr., MD, now Director of CHOP’s Center for TIS, it was a sick baby in the late 1980s who sparked his desire to better understand complex spine and chest wall deformities that affected the baby’s breathing and to find a solution to fix them.

Campbell’s research led to the naming of a new condition — thoracic insufficiency syndrome — and the creation of the vertical expandable prosthetic titanium rib (VEPTR), an adjustable, implanted device that takes the place of a child’s missing ribs, corrects severe spinal curves and helps stabilize the spine. What was an experimental treatment in 1995 is now the only FDA-approved treatment for TIS.
“Our understanding of thoracic insufficiency has changed a great deal in the past 25 years,” Campbell says. “Thousands of children — who had life-threatening illnesses — are now living into adulthood thanks to VEPTR and improved medical care. But there is more work to do.”

Today, Campbell and his expanding team continue to learn more about the underlying diseases that cause TIS, develop new diagnostic tools and create new treatments.

“We’ve just started the nation’s first basic science lab dedicated to TIS,” says Campbell. “We’re working with the University of Pennsylvania to develop new dynamic imaging studies to better view and measure a child’s lung capacity before and after treatment.”

Frontier Program funding has accelerated the pace of discovery — and is allowing the Center to serve more patients. Campbell is anxious to put his “inventor’s cap” back on.

“We’re really in a unique position to develop new devices beyond VEPTR — devices that can address more components of thoracic insufficiency syndrome and help more children,” Campbell says.

EVER-CHANGING WORLD

In the past 30 years, inflammatory bowel disease — especially in young children like Boston — has gone from rare to relatively common.

“IBD is the fastest-growing pediatric autoimmune disorder in children younger than 5,” says Judith R. Kelsen, MD, Director of CHOP’s Very Early Onset Inflammatory Bowel Disease Clinic, which was created to treat the youngest patients with IBD.

“In the past few years, there’s been an explosion in our knowledge of the genetics of IBD and in our treatment options,” says Robert N. Baldassano, MD, Director of CHOP’s Center for Pediatric IBD. To date, genome-wide association studies have implicated more than 200 distinct locations on chromosomes where gene mutations causing IBD may be found.

At one time, the only therapy to treat IBD was steroids. It wasn’t until new medications were developed that treatment options improved. Today, there are about a half-dozen medications used to treat IBD in children. Knowing a child’s genetics and microbiome helps determine which medication will work best: true personalized medicine.

That’s why the IBD team is working to standardize genetic and microbiome testing, as well as determining the best way to share that knowledge with the world. It is also looking to partner with industry to develop new therapies for IBD, so CHOP’s expertise is included early in the drug-development process.

When CHOP researchers identified DC3R, a genetic mutation that affects about 10 percent of its IBD patients, the Hospital approached Aevi Genomic Medicine, a private pharmaceutical company, about collaborating on a new medication to block the pathway that causes inflammation in so many children.

“If it’s successful,” Baldassano says, “CHOP will have helped create an entirely new drug for kids with IBD — which is pretty amazing.”
“THOUSANDS OF CHILDREN — WHO HAD LIFE-THREATENING ILLNESSES — ARE NOW LIVING INTO ADULTHOOD THANKS TO VEPTR AND IMPROVED MEDICAL CARE. BUT THERE IS MORE WORK TO DO.”

ROBERT M. CAMPBELL JR., MD, DIRECTOR, CENTER FOR THORACIC INSUFFICIENCY SYNDROME

When doctors in Saudi Arabia couldn’t agree on the best treatment for Arwa Alqahtani’s complex condition, her family found answers at Children’s Hospital of Philadelphia. Arwa gives Dr. Campbell her highest nonverbal praise — a thumbs-up.
EMBRACING OUR NEIGHBORS

UNIQUE SOUTH PHILADELPHIA FACILITY IS A SHINING EXAMPLE OF COMMUNITY PARTNERSHIPS.
When Children's Hospital of Philadelphia’s South Philadelphia primary care practice was exploring how to expand, staff first considered renting a larger space somewhere in the neighborhood.

Instead, the Hospital pursued a much more creative option: CHOP elected to partner with the city of Philadelphia to design and build the South Philadelphia Community Health and Literacy Center, a first-of-its-kind facility that houses the pediatric primary care practice, the Philadelphia Health Center 2, a branch of the Free Library of Philadelphia and the city’s DiSilvestro Recreation Center.

“At all accounts, a public-private partnership like this is unprecedented,” says Peter Grollman, CHOP’s Senior Vice President, Public Affairs, who was one of several CHOP leaders who helped guide the project. “Integrating health, literacy and wellness will do remarkable things for the well-being of families.”

AWARD-WINNING COMMUNITY PROGRAMS

Keeping families and kids healthy is the focus of more than 100 varied outreach programs Children’s Hospital has in the many Southeastern Pennsylvania and New Jersey communities it serves. CHOP’s commitment to improving the lives of children beyond the walls of the Hospital was recognized nationally by the Association of American Medical Colleges with its 2015 Spencer Foreman Award for Outstanding Community Service.

“Aaiti Tamany brings her son, Hansel, 23 months, to see his CHOP pediatrician at the South Philadelphia Community Health and Literacy Center. There’s a convenient subway stop steps from the front door.

“We’re changing the face of healthcare in the community in breakthrough ways,” says President and CEO Madeline Bell. “These novel approaches allow us to bring our expertise into neighborhoods and collaborate with local groups to tackle specific needs.”

To take advantage of the unique synergy of the South Philadelphia Community Health and Literacy Center, CHOP and Health Center 2 patients will receive “prescriptions for health” that draw upon the resources at hand. For a child who is obese or an adult with diabetes, for example, the prescriptions may include researching healthy recipes on a library computer or checking out organized fitness activities at the rec center.

Health fairs are envisioned that combine information from the library, advice from pediatric and adult healthcare specialists, and activities from the rec center. To reach neighborhood teens, CHOP has hired an adolescent health outreach coordinator who will work with all four entities at the center to engage with the youth who are served by them. Just as the facility design included feedback from neighbors, programming will be responsive to community needs. Opportunities are limitless.

THE KARABOTS MODEL

The Nicholas and Athena Karabots Pediatric Care Center, a CHOP Care Network primary care location in West Philadelphia, is a dynamic model of caring for kids inside the building and caring for the whole community outside it.

CONTINUED →
In partnership with The Enterprise Center (TEC), which provides business education and economic development opportunities to high-potential, minority entrepreneurs, families that have children enrolled in CHOP’s Early Head Start program based at Karabots can attend “Home Plate” healthy cooking classes at TEC’s industrial kitchen. Aramark chefs provide the culinary know-how. CHOP sought help from TEC’s Walnut Hill Community Farm, located nearby on Market Street, to design, plant and maintain a new Health and Wellness Garden at Karabots. Fresh produce from the garden is shared with neighborhood families, helping them provide their children well-balanced meals.

Teens at West Philadelphia High School, a few blocks away, can visit a CHOP nurse for information on pregnancy and sexually transmitted infection prevention. Students are referred for follow-up appointments at Karabots, which is also a location for several evidence-based programs, such as I MATTER from the Centers for Disease Control and Prevention, that focus on teen health.

“InTEGRATING HEALTH, LITERACY AND WELLNESS WILL DO REMARKABLE THINGS FOR THE WELL-BEING OF FAMILIES.”

PETER GROLLMAN, SENIOR VICE PRESIDENT, PUBLIC AFFAIRS

BUILDING SYNERGY

More than 100 Hospital employees have tapped into the CHOP Cares Community Fund and Grants to support their health and wellness projects since the grants were launched in 2013. Frequently, grant projects work hand-in-hand with existing community outreach, leveraging CHOP’s expertise and extending its influence to a broader audience.

For example, staff from the Healthy Weight Program used a grant to fund a West Philadelphia site of the Healthy Kids Running Series, which provides neighborhood children with an educational and fun introduction to the world of running. Children living in local shelters served by CHOP’s Homeless Health Initiative were specifically invited to participate, and several did.

“Children’s Hospital goes beyond providing excellent patient care,” says Grollman. “We are committed to using our knowledge and passion in the community to help kids be all they can be.”

Above right: The Barbara Brodsky Healing Garden offers respite and relaxation just outside the Main Food Court.

Right: The Health and Wellness Garden at the Nicholas and Athena Karabots Pediatric Care Center offers programs to patient families and West Philadelphia neighbors that incorporate healthy eating, reading and recreation.

Above: Anastasia, 2, enjoys the water feature in the DiSilvestro Recreation Center park, located behind the South Philadelphia Community Health and Literacy Center. The park has play equipment, a basketball court and plenty of room to run.
THE GREEN CONNECTION

One stunning aspect of the South Philadelphia Community Health and Literacy Center is the DiSilvestro Recreation Center’s park behind the center, with its ample playground, grassy areas and rain garden.

CHOP has long made the connection between green spaces and fostering health and healing — and, increasingly, building community.

In addition to the DiSilvestro Park, two other CHOP gardens came to fruition last year: the Health and Wellness Garden at the Nicholas and Athena Karabots Pediatric Care Center in West Philadelphia and the Barbara Brodsky Healing Garden located outside the Main Food Court.

At Karabots, the community vegetable garden — launched with help from Credit Union National Association, the Pennsylvania Credit Union Association, RealClearPolitics and the Democratic National Convention Committee — shares the bounty from its 1,200 square feet of raised beds with neighborhood families.

The garden hosts educational activities and community events, including CHOP’s Garden Books and Cooks series, which features story hours for children and healthy food preparation demonstrations using the garden’s produce.

The Healing Garden offers a beautiful place for families to unwind next to the Hospital’s Main Building. Or they can cross Civic Center Boulevard to the 2.6-acre garden on the Raymond G. Perelman Campus, next to the Buerger Center for Advanced Pediatric Care, which has grown into a lush retreat. The Sea Garden, off the third floor of Children’s Seashore House, is a scenic spot for occupational therapy, child life activities and renewal for children who’ve been cooped up in the Hospital.

CHOP’s gardens give children and their families the opportunity to connect with nature — and with each other.
CHOP HELPS YOUTH BE THEIR HAPPY, HEALTHY, TRUE SELVES.

FREE TO BE ME
When Shawn was born, his parents were told they had a new, healthy baby girl.

But as far back as Shawn can remember, he always felt different from other girls. As a high school freshman, feeling pressure to fit in, Shawn tried to dress and act more like other girls. The experience left him angry and depressed.

“I felt like I wasn’t going to make it to see another year,” he says. “I’d be walking my dog and hope that a car would hit me.”

Sophomore year, Shawn decided to play drums in jazz band. The first time he wore the band uniform — a shirt and tie — something clicked.

“When I put on the uniform, I thought: ‘If I was a boy, how would I look in this outfit?’ And I realized that I had been doing that my whole life,” he recalls. “I was positive that I was a boy from that moment.”

At first, awareness of his gender identity freaked him out. But after talking to a therapist for a few months, he got up the courage to tell his family. He wrote a note to his mom — “I see myself as a boy” — and braced for the worst. What he got instead were text messages from his parents expressing unconditional love.

In search of guidance on how to support Shawn, his parents discovered the Gender and Sexuality Development Clinic at Children’s Hospital of Philadelphia, one of only four pediatric programs of its kind in the country.

LIFESAVING SUPPORT
For most people, biological sex and gender identity and expression are aligned in the way society expects (called cisgender). However, for some, like Shawn, gender identity and/or expression is different from the sex on their birth certificates.

Transgender or gender-nonconforming individuals often experience rejection, isolation, discrimination and victimization from family members, peers, school officials and others. Getting support and acceptance can mean the difference between life and death. According to two recent studies out of Canada, transgender youth rejected by their parents were 13 times more likely to attempt suicide than those whose parents were supportive, while transgender youth who had support were 82 percent less likely to attempt suicide than those without.

The Gender and Sexuality Development Clinic is a safe and affirming space where children and their families can get medical and psychosocial support. Since its inception three years ago, the clinic has served more than 400 children, youth and their families from as far north as New York and as far south as Texas.

When children come to the clinic, they first meet with Co-director Linda Hawkins, PhD, MSEd, LPC, and undergo a mental health/gender assessment. Regular follow-up appointments then allow the clinic team — which includes specialists in adolescent medicine, endocrinology, mental health and social work — to develop a comprehensive picture of a child’s gender identity over time and determine the most appropriate next steps in terms of medical support.

“With just a snapshot of a kid, we don’t know who they are going to grow up to be,” says clinic Co-director Nadia Dowshen, MD. “When

CHILDREN DESERVE TO GROW UP TO BE HAPPY, HEALTHY AND PRODUCTIVE ADULTS WHO CAN BE THEIR TRUE GENDER SELVES, LIVE WITHOUT FEAR, AND FEEL THEIR IDENTITY IS NOT ONLY SUPPORTED, BUT CELEBRATED. IT’S AN EXTREME PRIVILEGE TO BE A PART OF THIS TIME IN THEIR LIVES.”

NADIA DOWSHEN, MD, CO-DIRECTOR, GENDER AND SEXUALITY DEVELOPMENT CLINIC
we watch them over time, we start to get a better idea of whether they are just going through a period of gender exploration or are really committed to transitioning.”

Transitioning is the process of beginning to live as the gender with which a person identifies, rather than the sex assigned to them at birth. The clinic offers different levels of transitioning support depending on a child’s age and the trajectory of their gender identity. This can range from support through a child’s social transition — such as changing their name, adjusting to new pronouns, dressing the way they want, navigating which bathroom to use and getting support at school — to more permanent medical interventions like hormone therapy and referral for gender-affirming surgeries.

There’s not just one way to transition, so the clinic works closely with youth to see what is best for their specific gender journey, and then determine the healthiest options to support their goals. The clinic is currently working with centers across the nation to develop a patient registry to study different treatment approaches, develop best practices and get a better understanding of the long-term impact of certain interventions.

**AN EVOLUTION OF SUPPORT**

When Hawkins and Dowshen began caring for gender-nonconforming youth, years before the clinic opened, patients were predominantly older adolescents who often were homeless and had no support from their families or communities. Today, while most of the clinic’s patients are still around age 15 or 16, their families are much more likely to be supportive, and it isn’t uncommon for the team to see children as young as age 5.

“It’s great to see so many families that are ready to love their kid no matter what,” says Dowshen. “When these kids are supported earlier, it can make a huge difference in their development and sense of identity, as well as their future health, wellness and happiness.”

Still, coming out as trans can be very isolating for kids and their families. To help, the clinic created monthly support groups for youth, as well as parents and siblings.

“Families have told us the single most effective support is talking to other parents — not coming to clinic, not reading a book,” says Hawkins. “Dads, especially, tell us the group is like medicine to them.”

**A NEW START FOR SHAWN**

With the help of his parents, the clinic, school administrators and his peers, Shawn successfully transitioned during his junior year.

“The clinic made everything easy for me,” he says. “I already had a lot of things going well, but it was nice to have someone confirm what I was feeling.”

Shawn is now a college freshman studying graphic design. He says though he’s still getting comfortable with himself, he is happy and excited for the future.

“Before I transitioned, it felt like I was getting pushed against a wall,” he says. “When I realized I was trans, the wall came down and everything was open. And I’ve just been feeling more and more happy with myself ever since.”

*Opposite page: Shawn plays his drums in his parents’ home just outside Philadelphia. The tattoo shown on his left arm includes the phrase “the T is not silent,” which he says speaks to the need for greater inclusion of transgender issues in the lesbian, gay, bisexual and transgender (LGBT) community.*
“WHEN I REALIZED I WAS TRANS, THE WALL CAME DOWN AND EVERYTHING WAS OPEN. AND I’VE JUST BEEN FEELING MORE AND MORE HAPPY WITH MYSELF EVER SINCE.”

— SHAWN
CHILDREN’S HOSPITAL ENCOURAGES STAFF TO TURN HEALTH IMPROVEMENT IDEAS INTO MARKETABLE PRODUCTS AND SERVICES.

EMPLOYEES.
ENTREPRENEURS.
Each time Michele Davey, RN, a CHOP nurse for more than 20 years, needs to check a child’s IV line for safety reasons, she winces as she remove the protective, rigid arm board. If the child is sleeping, the ripping sound of the Velcro fastener inevitably wakes him.

Many times she has thought, “There has to be a better way.”

Children’s Hospital of Philadelphia created the Office of Entrepreneurship and Innovation (OEI) to empower Davey, and other employees, to find “a better way” and foster an entrepreneurial spirit. In the case of Davey, the better way was to design the “See-IV,” a protective device with a clear window that gives care providers a quick, unobtrusive view of IV sites.

**A ROBUST PIPELINE OF IDEAS**

With the help of OEI, other entrepreneurs-in-the-making are tackling issues related to medication pump safety, patient confidentiality, long waits for Dermatology appointments, vehicle accidents, fluid infusions in the Emergency Department and tracking emerging illnesses.

These advances, and the nearly 50 others currently in the pipeline, will help children at CHOP and beyond. “In our first year, we’ve been able to accelerate the Hospital’s reputation as a leader for entrepreneurship in pediatric medicine,” says OEI’s leader, Patrick FitzGerald, Vice President for Entrepreneurship & Innovation.

Nurses like Davey must frequently check the spot where the IV goes into a child’s arm to ensure it is still in place and no fluid has leaked out of the vein. The current protector was actually created to keep an elbow straight, but is pressed into service more than 11,000 times a year at Children’s Hospital because no other product is available to keep curious little fingers away from the IV area. Because it is fabric, it has to be removed for each IV check, and then replaced.

When the OEI issued a call for ideas, Davey and her See-IV collaborators — Cheryl Gebeline-Myers, MS, of CHOP’s Enterprise Improvement Office, and Jacqueline Anzalone, BSN, BSE, a Neonatology nurse — submitted their proposal.

**COMING TO A HOSPITAL NEAR YOU**

The See-IV team surveyed nurses for their suggestions and, working with design and engineering firm Likuma Labs, created a prototype that has a large, clear window and “quiet release” technology. Now, after reviewing the prototype in focus groups with nurses and making a few design tweaks, CHOP has licensed the design and patents to a manufacturer. The See-IV will then go through a formal medical trial before being rolled out to hospitals everywhere.

Sarah, 10, can’t wait. After trying a prototype during an inpatient stay, she wanted to keep it on. “It’s much lighter,” she says. “It’s softer to touch, too.”

That’s good feedback for Davey, who has worked as a surgical and bedside nurse during her two decades at the Hospital. “This has brought a whole new spark to my career. It’s exciting to identify a problem and see the institution make a commitment to support you to fix it. It makes me proud to be at CHOP.”

As it did with the See-IV team, OEI works with all project teams to explore the commercial viability of their ideas and connect them with outside partners, such as designers, software developers or prototype fabricators, to advance their products.

*Opposite page: Michele Davey, RN, who had the idea for the See-IV, checks a prototype on Sarah, 10.*
“WE’VE BEEN ABLE TO ACCELERATE THE HOSPITAL’S REPUTATION AS A LEADER FOR ENTREPRENEURSHIP IN PEDIATRIC MEDICINE.”

PATRICK FITZGERALD, VICE PRESIDENT FOR ENTREPRENEURSHIP & INNOVATION
Two OEI projects were spun out into standalone companies during the program’s first year, and others are well on their way.

Bainbridge Health, software that makes using medication pumps safer, sprung from the minds of a trio of CHOP pharmacists and medication safety specialists. It has already signed up two customers and is in advanced discussions with 10 others.

Diagnostic Driving grew out of 20 years of research on motor vehicle accidents by Flaura Winston, MD, PhD, scientific director of CHOP’s Center for Injury Research and Prevention. The company helps businesses with vehicle fleets diagnose their drivers’ potential problems and coach them to improve — making everyone safer.

“For more than 160 years, CHOP has been on the forefront of discovering innovative ways to improve the lives of children and their families,” says President and CEO Madeline Bell. “The Office of Entrepreneurship and Innovation is capturing ideas from all over the institution and providing the encouragement and direction staff need to bring them to fruition. It’s a great way for employees to combine their creativity and expertise to advance children’s health.”

Above: Patrick FitzGerald, Vice President for Entrepreneurship & Innovation, connects creative CHOP employees with outside experts who help turn their great ideas into marketable products, services and therapies.

**NEW PROGRAM CULTIVATING NEXT GENERATION OF ENTREPRENEURIAL RESEARCHERS**

Early-career physician-scientists with entrepreneurial aspirations have a new path to further their research and enhance the viability of their ideas.

CHOP’s Entrepreneurial Science Scholars Program gives doctors working on research with commercial potential the time and training to bring those ideas to fruition.

Selected participants — seven so far — spend 80 percent of their time doing research and earning a master’s in Translational Research (Entrepreneurial Science Track) (MTR-EntSci) at the Perelman School of Medicine at the University of Pennsylvania. The “TR” side aims to produce investigators adept in translational research; the “EntSci” component prepares them to market their research.

“This is an exciting new channel to cultivate the next generation of innovators in pediatric research,” says CHOP’s Physician-in-Chief Joseph W. St. Geme III, MD, who heads up the program.

Researchers are tackling an array of topics, including designing a device to extract bone marrow with less pain, developing a genetic approach to flu vaccines, creating a beta cell line to treat diabetes and using children’s electronic medical records to help parents stop smoking.

When their research is ripe for commercialization, they will connect with CHOP’s Office of Entrepreneurship and Innovation and the Philadelphia Pediatric Medical Device Consortium for assistance.
ON BOARD THE CANCER MOONSHOT

REPRESENTATIVES OF CHILDREN’S HOSPITAL PARTICIPATED IN THE AMBITIOUS PRESIDENTIAL INITIATIVE.
The Obama administration consistently displayed a commitment to accelerating cancer research and making more therapies available to more patients. Those efforts benefited from the expertise of a Children’s Hospital of Philadelphia pediatric oncologist. Peter C. Adamson, MD, was selected as one of the advisers for the national Cancer Moonshot initiative, led by Vice President Joe Biden. Adamson was named to the National Cancer Institute’s Blue Ribbon Panel of scientific experts, cancer leaders and patient advocates who were tasked with informing the initiative’s scientific direction and goals.

The panel ultimately released recommendations for speeding progress against the disease, and among them were an emphasis on curing pediatric cancers and the creation of a national data-sharing network. The panel also served as a working group of the presidentially appointed National Cancer Advisory Board (NCAB). Adamson, who is chair of the international Children’s Oncology Group, was previously named to the NCAB in 2015 by President Obama.

A MOMENTOUS MEETING

Shortly after Adamson’s appointment to the Blue Ribbon Panel, CHOP President and CEO Madeline Bell; Phillip B. “Jay” Storm, MD, chief of the Division of Neurosurgery; John Maris, MD, pediatric oncologist, neuroblastoma researcher and co-leader of the Pediatric Cancer Dream Team; and Peter Grollman, Senior Vice President of Public Affairs, met with Vice President Biden and his senior staff at the White House about the Cancer Moonshot and stressed the need to emphasize pediatric research within the initiative.

BIDEN AND THE CHOP TEAM DISCUSSED THE FEDERAL GOVERNMENT’S ROLE IN FACILITATING RESEARCH COLLABORATION VIA DATA SHARING.

Storm grew up in Wilmington, Del., and his family was acquainted with Biden’s. “When he realized who I was, he asked if I had known his son Beau,” says the CHOP clinician. Indeed, Storm and Beau Biden — whose death in 2015 was the result of brain cancer — were a year apart in the same high school.

Biden and the CHOP team discussed the federal government’s role in facilitating research collaboration via data sharing. “We’ve been sharing data for years,” Storm says of CHOP, “but some of the top institutions are resistant to it. I think the administration’s initiative has highlighted the situation and put pressure on people to share data.” The group also discussed increasing research into secondary conditions resulting from cancer treatment and ensuring that the nursing workforce meets the needs of patients.

Storm reports Biden saying he could talk to them all day — and indeed, Biden’s secretary came in several times during the 45-minute meeting to remind him of other appointments. “The third time she came in,” says Storm, “she said, ‘Sir, you really need to go. The President is waiting for you!’”
KIDNEY STONES ARE ON THE RISE IN KIDS — AND CHILDREN’S HOSPITAL RESEARCHERS ARE DISCOVERING WHY.

The team at CHOP’s Pediatric Kidney Stone Center has evaluated and treated more than 1,660 children. Farrah, 10, shown here with Gregory Tasian, MD, MSc, MSCE, is one of them.
“Your child has kidney stones.”

It’s shocking news — and Gregory Tasian, MD, MSc, MSCE, a urologist and researcher at Children’s Hospital of Philadelphia (CHOP), has delivered it to hundreds of parents.

Even more shocking, Tasian says, is the fact that over the last 20 years, the likelihood that a child will develop a kidney stone has doubled.

That dramatic rise prompted the Hospital to create the Pediatric Kidney Stone Center, where a multidisciplinary team of clinicians cares for children with this painful, often lifelong condition — and conducts research that strives to answer the questions families ask every day: Why is this happening? What can I do?

SEARCHING FOR ANSWERS

It’s a field that’s ripe for breakthroughs. “When you have such a dramatic change over such a short period of time, there's a gap in the knowledge base of how to treat these patients effectively,” Tasian says.

Some researchers believe that dietary changes over the past two decades are the main reason for the increase in pediatric kidney stones, but Tasian, for one, is not convinced.

“I’m not saying diet is not part of it, but I think we need to look beyond that,” he says. “For example, the rise in the incidence of stones far outpaces the rise of obesity in the population. Presumably a lot of the dietary choices that would affect stone risk also affect obesity risk, but we’re seeing different rates of rise, so to me that suggests there's something else going on.”

AS TEMPERATURES RISE, SO DOES STONE RISK

With funding from the National Institutes of Health and other sources, Tasian and his colleagues are leading a number of studies to better understand kidney stones and find new treatments and prevention strategies. A well-received study the team published in 2014 found that the risk of presenting with kidney stones peaked within just a few days of exposure to hot temperatures.

Building on this work, the team is exploring different strategies for getting kids to increase their water intake, some of which they are currently piloting in Philadelphia public schools. The team is also looking at whether the amount of zinc in children’s diets affects their risk of developing stones and exploring a possible link between stones and antibiotic use.

In recognition of his work, Tasian received the 2016 Young Physician-Scientist Award from the American Society for Clinical Investigation.

He has also received something even more meaningful: the unwavering support of his patients, almost all of whom are enrolled in one of his team’s research studies.

“These studies are going to help us define the treatments of the future,” says Tasian. “Our families feel like they’re part of something that will hopefully help their child — and will almost certainly help other children.”

“OUR FAMILIES FEEL LIKE THEY’RE PART OF SOMETHING THAT WILL HOPEFULLY HELP THEIR CHILD — AND WILL ALMOST CERTAINLY HELP OTHER CHILDREN.”

GREGORY TASIAN, MD, MSc, MSCE, PEDIATRIC KIDNEY STONE CENTER
The halls of Children’s Hospital of Philadelphia are rich in diversity, comprising people of all education levels, socioeconomic statuses, races, ethnicities, religions, cultures, languages, nationalities, ability levels, ages, sexes, sexual orientations and gender identities. CHOP has long been committed to creating an environment where all of those voices are heard and valued and where everyone — patients, families and employees — feels welcomed, accepted and treated equitably.

No one has been a stronger advocate for these efforts than President and CEO Madeline Bell, who believes that “by embracing and celebrating our differences, we can move the dial on important issues and create an environment where every person who walks through our doors will feel at home.”

CULTIVATING A KALEIDOSCOPE
A key component of the Hospital’s diversity and inclusion efforts is building a team that reflects the diverse communities we serve — across all levels of the organization. With the help of the Diversity Council, Bell created the Advancing Diverse Leaders Program (ADLP), designed to build a pipeline of diverse senior leaders within the institution.

Another initiative — the Postdoctoral Research Fellowship for Academic Diversity, developed by the Research Institute’s Office of Postdoctoral Affairs in partnership with the University of Pennsylvania — engages promising researchers from diverse backgrounds in cutting-edge pediatric research programs. Bell has also been a driving force behind the Hospital’s Employee Resource Groups and Physician Affinity Groups, which provide support and opportunities for personal and professional growth for employees from different races, generations, sexual orientations and abilities, and those who’ve served in the military.

These efforts, among others, have led to an increase in hiring of minorities to leadership roles by more than 20 percent for external candidates and 14 percent for internal candidates over the previous three years. Nearly 20 percent of ADLP participants have already been promoted, including one to an assistant vice president role.

Partnerships with local organizations provide additional employment opportunities to disadvantaged individuals in the surrounding community and help grow tomorrow’s leaders. In the last five years, CHOP has hired more than 50 people through a partnership with the West Philadelphia Skills Initiative.
CREATING CULTURALLY COMPETENT CARE

A culturally diverse team is just one step. CHOP’s diversity initiatives also include courses and workshops on equality and diversity; engagement efforts with employees and the community; and diversity recruitment. For three years in a row, the Hospital has been recognized as an LGBT Healthcare Equality Leader by the Human Rights Campaign Foundation, the country’s largest lesbian, gay, bisexual and transgender civil rights organization, for its leading role in providing care for LGBTQ patients. Thousands of staff members have participated in trainings led by our Gender and Sexuality Development Clinic on how to better support our LGBTQ patients and families. And nearly 1,800 employees participated in voluntary diversity and cultural competency trainings led by our Office of Diversity & Inclusion.

Another series of sessions, led by our Leadership Education in Neurodevelopmental and Related Disabilities (LEND) Program, enables CHOP fellows to explore the roles and responsibilities of healthcare professionals in enhancing service delivery for children and families from diverse backgrounds. And our Language Services program offers interpreter services in more than 75 languages, ensuring that families from all over the world feel welcomed and respected at CHOP and are able to receive medical information in their preferred language. This year, the Hospital processed 96,000 interpreter requests.

ACCESS FOR ALL

Creating an inclusive environment for the children in our community also means ensuring they are all able to achieve good health regardless of their ethnicity, sexual identity, national origin, disability or socioeconomic status. Such is the mission of our Center for Perinatal and Pediatric Health Disparities Research, which researches the underlying causes of health disparities in our community, including those related to premature birth, behavioral health and access to mental health services.

EFFORTS EXTEND TO VENDORS AND CONTRACTORS

Children’s Hospital’s diversity and inclusion efforts extend to the suppliers and vendors we work with. We offer opportunities to small and disadvantaged businesses, women-, minority- and veteran-owned small businesses, and small companies located in historically underutilized business zones. CHOP selected Perryman Building and Construction Services, a minority-owned firm, to head up the building of the South Philadelphia Community Health and Literacy Center (see story on Page 8).

In FY16, total purchase order spend on disadvantaged business enterprises was $151 million, and CHOP’s total spend with disadvantaged business enterprises grew from 23 percent in FY14 to 29 percent of our total purchase orders in FY16.
FASTER ANSWERS

CHILDREN’S HOSPITAL IS A NATIONAL LEADER FOR RESEARCH NETWORKS THAT ACCELERATE AND BROADEN RESEARCH.
For McKenzie, 3, research that indicates which treatment is the best to keep her kidney disease from progressing can’t come soon enough. McKenzie has steroid-resistant nephrotic syndrome, so her kidneys don’t properly filter protein, which could lead to loss of function or even kidney failure over time. A new medication is keeping it in check — for now — and she’s home in East Windsor, N.J., playing with dolls and coloring like before her diagnosis.

It’s for children like McKenzie that Children’s Hospital of Philadelphia (CHOP) has taken a national leadership role in research that focuses on identifying the medications, therapies and procedures that work best — especially from the patients’ and families’ perspective — and that finds answers much more quickly than in the past.

Christopher Forrest, MD, PhD, an academic investigator at CHOP, has led the creation of the national research network of pediatric hospitals, known as PEDSnet, that was established to provide information that will help families make the best decisions possible about their children’s care.

FROM YEARS TO MONTHS
In traditional multi-institution research, it can take several years to get a study off the ground. Studies under the umbrella of PEDSnet, however, have all participating hospitals agree ahead of time to the precise details of data collection, protocols and institutional review board approval, so they can move from idea to enrolling the first patient in just a few months. It’s also a much less expensive way to do research.

Opposite page: When patient families are involved in research as studies are taking shape, children like McKenzie, 3, shown with her mother, Kelly, will benefit because family concerns will be part of the outcomes that are measured.

Because PEDSnet includes 5.3 million children in 23 states from eight pediatric hospitals, its studies can enroll many more patients than any single institution could on its own — which is critical for studying rare diseases like McKenzie’s.

Last year, Forrest was also appointed chair of the research committee for PCORnet, a national patient-centered clinical research network. In this role, he will help shape research studies that include a participant population of up to 80 million Americans.

“Big data is changing the face of clinical research,” says Forrest. “This approach includes millions of people — the scale is unprecedented — and it fully honors the patient perspective. Research will be faster, cheaper, better.”

PCORnet is the flagship program of the Patient-Centered Outcomes Research Institute (PCORI), an independent nonprofit that was congressionally authorized by the Affordable Care Act. PEDSnet is one of 13 clinical data research networks under PCORnet.

MINING ELECTRONIC HEALTH RECORDS
The networks rely on hospitals’ electronic health records (EHRs) to gather data. Each time patients visit the doctor, their diagnosis and any procedures they receive are recorded in their EHR under a special code. Researchers can sort and analyze the data by patient demographics such as age, gender, code and outcome — without names attached. That information is combined with answers patients and families report to get the full picture of which treatment is most effective.

Within PEDSnet is a CHOP-led research network dedicated to pediatric kidney disease, headed by two of McKenzie’s nephrologists, Michelle Denburg, MD, MSCE, and Susan Furth, MD, PhD, chief of the Division of Nephrology, and in collaboration with doctors from the seven other PEDSnet institutions.

CONTINUED →
“By establishing the Glomerular Disease Learning Network, which we call GLEAN, our goal is to discover what treatments have been the most successful in real-world settings to prevent the progression of kidney disease,” says Denburg. “Because we can capture data on millions of children, the potential is powerful.”

For GLEAN research, only medical information on children with certain diagnoses, as identified by diagnosis codes, would be included — no names or personal information. GLEAN is also partnering with another kidney-disease network, the NephCure Kidney Network, which includes patients of all ages, to further broaden its reach.

One proposed study is to compare fractures and other musculoskeletal outcomes in children with kidney disease against the experience of healthy children. Kidney disease is associated with multiple disturbances in calcium, phosphate and vitamin D metabolism that can affect growth and lifelong bone health. Before, a typical single-center study of children with glomerular disease might enroll 20 patients; GLEAN hopes to represent more than 2,000 patients and, as a result, the findings will have a higher degree of validity and impact.

MORE CHOP-LED EFFORTS

This type of scale is being replicated in other disease areas. Kathleen Sullivan, MD, PhD, Chief of the Division of Allergy and Immunology, leads a network focused on immunodeficiency. Gastroenterologist Andrew Grossman, MD, is the site leader for a study on Crohn’s disease. And oncologist Richard Aplenc, MD, PhD, MSCE, heads a study looking at whether it’s better to recover from treatment for acute myeloid leukemia at home or in a hospital.

A key component of PEDSnet, and other networks under PCORnet, is patient and family involvement. Amy Kratchman, a family consultant at Children’s Hospital, was selected to represent caregivers and parents of pediatric patients on PCORI’s Advisory Panel on Patient Engagement. The panel ensures PCORI engages patients and other healthcare stakeholders in research and maintains a patient-centered culture in all its work.

That means patients — and, for children, their family members — are involved in deciding research priorities. While a physician might be keenly interested in how a particular medication affects a patient’s cholesterol levels or kidney function, for example, families may be more concerned about quality-of-life issues: Does a treatment allow my child to go to school, play with friends, sleep through the night?

“It will be a trusted resource for families, ours included, to learn about what our kids are facing,” says McKenzie’s mother, Kelly Carella. “I appreciate the feeling of not being alone. We’d be happy to contribute to this kind of research.”
PCORI HAS BEEN A MAJOR, NATIONAL SPONSOR FOR ELECTRONIC HEALTH RECORD-FUELED RESEARCH THAT ALSO INVOLVES PATIENT AND FAMILY INPUT. PCORNET COVERS DOZENS OF RESEARCH NETWORKS THAT STUDY SPECIFIC POPULATIONS AND DISEASES. PEDSNET, WHICH ALSO RECEIVES FUNDING FROM THE NATIONAL INSTITUTES OF HEALTH AND OTHER ENTITIES, FOCUSES ON CHILDHOOD DISEASES. GLEAN WILL STUDY PEDIATRIC KIDNEY DISEASE, USING DATA FROM PEDSNET AND NEPHCURE.
In the 2016 fiscal year, donors gave and pledged $134.5 million to Children’s Hospital of Philadelphia. From schoolchildren holding a bake sale, to thousands of Parkway Run attendees asking friends and family members to pitch in, to a major philanthropic family donating $25 million, our donors inspire us with their commitment to helping all children reach their potential.

Here are just a few examples of the numerous advances made possible by our donors. This year, philanthropy enabled us to:

- Treat more than 88,000 patients and dedicate 1,949 supporter inscriptions in the new Buerger Center for Advanced Pediatric Care, located on the Raymond G. Perelman campus
- Endow a fund to support young scientists investigating type 1 and type 2 pediatric diabetes
- Provide meal, transportation and lodging assistance to patient families in need
- Fund study and educational opportunities for faculty and staff researching epidemiology in the Division of Infectious Diseases
- Support investigators researching neuroblastoma, a cancerous tumor most often found in infants
- Fund a special line of research into Alexander disease, a rare, inherited disease, in CHOP’s Leukodystrophy Center
- Expand CHOP’s Integrative Health Program, offering auxiliary therapies to patients including nutrition counseling, acupuncture and therapeutic massage
- Support professional development for clinical nurses at CHOP
- Fund a new full-time art therapist in our Child Life, Education and Creative Arts Therapy Department
The Roberts Collaborative for Genetics and Individualized Medicine positions the Hospital at the forefront of pediatric genetic research.

Children’s Hospital of Philadelphia is ushering in a new era in genetics and broadening the scope of genetic medicine across all clinical areas of the Hospital through the creation of the Roberts Collaborative for Genetics and Individualized Medicine. With a $25 million gift, the Roberts family is the principal external funder of this $50 million initiative.

In recognition of the family’s generosity, the first research building (artist’s rendering below) on the Hospital’s new Schuylkill Avenue Campus will be known as the Roberts Center for Pediatric Research.

“The Roberts family is honored to be able to contribute to CHOP’s efforts to create a world-class collaborative and clinical center for genetic and individualized medicine in pediatrics,” says Aileen Roberts, a former member of the Hospital’s Board of Trustees. “We are gratified to be able to help children the world over and for generations to come.”

Core components of the Roberts Collaborative for Genetics and Individualized Medicine include:

- Genetic diagnostics — through the efforts of the Division of Genomic Diagnostics.
- Clinical support and counseling — by the newly established Roberts Individualized Medical Genetics Center at CHOP’s Buerger Center for Advanced Pediatric Care, located on the Raymond G. Perelman Campus.
- Education — for patients, families and clinicians on genetic diagnostics.
- Training — of residents and medical students about individualized pediatric care.
- Informatics — developing innovative solutions to healthcare informatics needs through CHOP’s Department of Biomedical and Health Informatics.
- Therapeutics — identifying targeted therapeutic options based on an individual’s genetic information.
- Research and development — the creation of a data repository that will help fuel discovery of rare and complex traits, transforming them into novel diagnostic and therapeutic solutions.

“We are gratified to be able to help children the world over and for generations to come.”

AILEEN ROBERTS
Children’s Hospital of Philadelphia’s dedication to research has grown from a single room set aside for research in 1922 to the nearly 800,000 square feet now dedicated to the CHOP Research Institute and our commitment to improving child health through basic, translational and clinical research. Last year saw numerous advances and innovations at the Research Institute. We highlight some here. Read more in the Research Institute Annual Report at annualreport2016.research.chop.edu.

NEW RESEARCH AFFINITY GROUPS CREATE STRONG TIES, PATTERNS FOR SUCCESS

Two new Research Affinity Groups (RAGs) launched by the Research Institute this year — the Global Health RAG and the mHealth RAG — assemble investigators from varied disciplines with common research interests to form strong ties and intertwine novel ideas and approaches that are the fabric of pediatric research.

Investigators who join the Global Health RAG can learn from their own backyard about the challenges unique to international pediatric research. Projects are underway in at least 14 countries, many of them in low-income communities with huge populations of children who are suffering from treatable, preventable illnesses.

Members of the mHealth, or mobile health, RAG are exploring how an array of technologies — from basic text messages, apps and social media, to more complex wearable devices that link to electronic health records — can be applied to advancing pediatric health and behavior.

CENTER FOR APPLIED GENOMICS MARKS A DECADE OF DISCOVERIES

When CHOP established the Center for Applied Genomics (CAG) in 2006 with a $40 million commitment, it was one of the largest single investments in a research program in the Hospital’s history. Spearheaded by the efforts of CAG’s founder and director, Hakon Hakonarson, MD, PhD, and supported by hundreds of other investigators and research staff, CAG has established the world’s largest pediatric genomics biobank and used its vast quantity of genetic data to discover the causes of disease and disability hidden within a population’s genes.
A decade later, CAG’s considerable influence is poised to grow as more of the center’s genomic discoveries lead to improved therapies and possibly cures for some of the most complex and devastating conditions affecting children. The CHOP biobank includes samples from more than 400,000 people, including about 100,000 CHOP patients and their family members, giving CHOP investigators great statistical power to detect genetic variations of underlying diseases.

They have made numerous landmark discoveries in a wide range of conditions, including asthma, cancers and type 1 diabetes; their breakthroughs have been published in more than 500 papers in scientific journals. CAG investigators and their collaborators also have helped hundreds of families resolve the underlying genetic causes of their extremely rare diseases. More recently, they have begun to translate genomic discoveries into novel therapies.

INNOVATORS HARNESS ‘BIG DATA’ TO HELP LITTLE PATIENTS

Making sense of the glut of data created while trying to solve challenging pediatric health problems may be one of the most dominant challenges in the 21st century. Newer genetic sequencing tools result in huge amounts of data, and understanding it requires vast computational power. Millions of patient histories are captured in electronic health records. At the same time, rules govern how clinical and research data can be shared and used while still preserving patient privacy. Fortunately, innovators at CHOP are deftly navigating these emerging roadblocks.

For example, a novel, award-winning population health project spearheaded by two CHOP clinical informatics fellows helps information flow between clinicians and public health agencies via electronic health records. Such a flow could be especially useful in the event of evolving public health situations, such as the outbreak of the Zika virus.

Another recent CHOP-led effort aims to strengthen and speed discovery of new biomedical approaches to pediatric disease. The Center for Data-Driven Discovery in Biomedicine (D3b) was established in December 2015 as a way to break down silos that keep data separate. With the launch of D3b’s open-access pediatric genomic data cloud, Cavatica, clinicians and scientists can access big data about pediatric diseases that is empowered for secure, collaborative analysis.
Breakthroughs at Children’s Hospital wouldn’t be possible without stellar leadership — in our administration, clinics and research laboratories. We highlight 13 of those leaders who have been recognized for a national or international honor or for stepping into a new leadership role at CHOP.
DORENE BALMER, PHD
DIRECTOR OF RESEARCH ON PEDIATRIC EDUCATION

Balmer, who had spent 15 years at CHOP as a clinical neonatal nutritionist, returned to assume this new role that supports and strengthens the education mission of Children’s Hospital. She will study the most effective ways to educate pediatricians-in-training and work to share CHOP’s education successes nationally. Our Department of Pediatrics has been ranked the No. 1 by *U.S. News & World Report* in its last five surveys of U.S. medical schools.

BREAKTHROUGH MOMENT:
“In doing research into narrative medicine, an approach to care that honors the stories of patients and providers, I came across physicians who were talking about how stories — fiction such as *Out Stealing Horses* and *Push*, or books by Toni Morrison and Henry James — worked on them, how stories animated their lives as doctors. Before doing this research, I had never read fiction because, in my mind, it wasn’t real. But since that introduction, I’ve voraciously consumed stories! Narrative medicine changed how I do my work as a researcher in medical education — honoring everyone’s story.”
Eichenwald came to Children’s Hospital from the University of Texas Health Science Center, Houston, where he was Chair of the Department of Pediatrics and Chief of the Division of Neonatal-Perinatal Medicine. His spent his undergraduate years in the Philadelphia area, graduating from Swarthmore before attending medical school at Harvard. He is an accomplished researcher and author, with a focus on clinical trials and health services research and a particular interest in the area of chronic lung disease.

BREAKTHROUGH MOMENT:
“I recently received a high school graduation photo from a patient I cared for in the NICU at Boston Children’s Hospital [where he was on staff for 26 years]. It reminded me of the magical nature of neonatology. In addition to caring for very sick babies, we provide primary care in the NICU for many preemies. I never get tired of the thrill, at the end of a hospitalization, of watching parents walk out with their baby. We provide a happy ending that a child might not otherwise have.”
Fiks was appointed director of the Pediatric Research in Office Settings (PROS) network of the American Academy of Pediatrics, which strives to improve children’s health through collaborative research in primary care practices across the United States. PROS’ mission is an excellent match with Fiks’ research focus on how health information technology can be used to improve health and healthcare decision-making. Fiks’ goals include broadening the range of PROS studies to include large clinical trials, secondary analyses of electronic health record (EHR) data and longitudinal surveys of practitioners, each complementing the others in demonstrating how to improve pediatric primary care practice and outcomes.

BREAKTHROUGH MOMENT:
“After I finished my residency and started as a full-time practitioner at what was then CHOP’s primary care practice at 39th St. and Chestnut, I wanted to perform research to improve how primary care is delivered. Specifically, I was curious if reminders to clinicians, delivered through the EHR, could improve vaccination rates. Drs. Trude Haecker and Cheryl Hausman, my supervisors at the time, accepted that a primary care pediatrician could both practice and conduct research. Their mentorship and flexibility helped launch my research career. The answer was, yes, vaccine reminders can be a potent tool to foster vaccination.”
PETER M. GROLLMAN
SENIOR VICE PRESIDENT
OF PUBLIC AFFAIRS

Grollman, who came to Children’s Hospital in 2007, was promoted from VP of Government Affairs, Community Relations and Advocacy to his current role. His expanded responsibilities also include the Marketing & Public Relations Department and the Office of Diversity & Inclusion. Earlier in his career, he served as an aide in the U.S. Senate before joining a public affairs firm specializing in healthcare advocacy. Grollman holds a Master of Government Administration from the University of Pennsylvania. His vision for Public Affairs recognizes the role of outstanding communications, effective public policy, and an environment that is diverse and inclusive in securing the support, trust and loyalty of our consumers, donors and the communities CHOP serves.

BREAKTHROUGH MOMENT:
“For me, it was the South Philadelphia Community Health and Literacy Center ribbon-cutting. The team representing CHOP, the City of Philadelphia and the Free Library of Philadelphia had to work collaboratively to realize that vision. We needed to understand our different cultures, work through challenges and involve the people in the neighborhood impacted by this landmark project, and it all came together to create something that had never been done before in Philadelphia. The opening of the center demonstrated the value of collaboration and bringing together a diverse set of strengths to really innovate in healthcare.”
Since Hawthorne came to CHOP in 2009, she has taken on increased responsibility in the Information Systems Department, and was elevated from interim CIO to her current position in April 2016. She oversees 550 full-time-equivalent employees who support more than 250 applications and manage 12,000 employee and 18,000 active directory accounts. She is responsible for directing the information technology platforms and data integrity for CHOP and ensuring compliance with all regulatory and information security practices.

**BREAKTHROUGH MOMENT:**

“When I was at Springfield, Ill., Memorial Medical Center managing patient access, the Memorial Health System moved from a legacy DOS-based computer platform to a new electronic medical record system. I headed up the implementation at our location. That was my breakthrough moment, when I got the information technology bug. IT is here to stay in healthcare and research. It’s the future of how we can make the lives of our patients and their families, and our employees and clinicians, easier.”
DOUGLAS G. HOCK
EXECUTIVE VICE PRESIDENT AND
CHIEF OPERATING OFFICER

Hock joined CHOP in February 2016, coming from Children’s Health, Dallas, where he was President and Chief Operating Officer. As COO, he managed two hospitals totaling 428 beds and combined revenue of $1.1 billion. While he has been in Texas the last 34 years, this is a return home. Hock is a native of Mount Airy in Philadelphia and graduated from Germantown Friends School. He received his bachelor’s in business and economics from Lehigh University in Bethlehem, Pa., and a Master of Business Administration from Rice University. He is also a certified public accountant.

BREAKTHROUGH MOMENT:
“In 1990 I attended a conference on continuous quality improvement, and it was one of those rare moments when you realize the potential of an idea. Ever since that day, I’ve been really excited about how we can use quality improvement strategies and tools to drive organizational performance. It’s been a key element of my leadership platform ever since.”
Kurth’s appointment marks a homecoming. He completed his pediatric residency and pediatric anesthesia and pediatric cardiac anesthesia fellowships at CHOP, and served as a CHOP attending physician from 1989 to 2002. For the past 13 years, Kurth has been the Anesthesiologist-in-Chief and Anesthesia Department Chair at Cincinnati Children’s Hospital Medical Center. His research focuses on neuro-protection during anesthesia and cardiopulmonary bypass, the fetal effects of anesthesia, and, more recently, quality improvement in perioperative care.

BREAKTHROUGH MOMENT:
“Two years ago, I was invited to CHOP to present Grand Rounds as a visiting professor. The people in Critical Care and Anesthesiology really impressed me with their dedication to children’s health, their professionalism with each other, and the talent they had in medical education and research. I thought it would be a privilege and a lot of fun to come back here and work with them as a leader. That was before the recruiting process even began. Visiting professorships are an important way to exchange ideas and learn from each other. And for me, it planted a seed that led to my eventual return to Philadelphia.”
MONICA TAYLOR LOTTY
EXECUTIVE VICE PRESIDENT
AND CHIEF DEVELOPMENT OFFICER

Lotty comes to CHOP from the University of Delaware, where she was Vice President for Development and Alumni Relations. Earlier, she served as Executive Director of external affairs at the University of Pennsylvania’s Wharton School, managing overall direction and strategy for development initiatives and alumni engagement. Lotty, a Philadelphia area native, is a graduate of the James E. Beasley School of Law at Temple University and Georgetown University. She will oversee the CHOP Foundation staff of 74 while balancing strategic leadership with her own frontline fundraising activity to secure maximum philanthropic support.

BREAKTHROUGH MOMENT:
“I was a scholarship recipient at Georgetown University, and I wouldn’t have been able to fulfill my dream of a college education without it. Someone who I never met believed in me and donated to fund scholarships. That stuck with me. I’ve always wanted to give back in the way someone gave to me. It is my privilege at this time in my career to use my talents and passion to work closely with people who believe in making a difference in children’s health and connect them to CHOP.”
Ohene-Frempong, who chose CHOP for his pediatric hematology fellowship in 1977 because the Hospital had the first comprehensive sickle cell disease (SCD) program in Pennsylvania, received a Millennium Excellence Award in Ghana, his home country. In September, he shifted three-quarters of his time to Ghana, where he will supervise the opening of a new, much larger sickle cell clinic. His goal is to bring the same life-saving, pain-reducing treatments used at CHOP to children with sickle cell disease in Ghana and other sub-Saharan Africa countries, where one in 50 children have SCD.

**BREAKTHROUGH MOMENT:**

“An enlarged spleen is a completely manageable complication of sickle cell disease — providing the child gets IV fluids quickly. If diagnosis and treatment are delayed, they go into shock and die. In 1978, we began teaching parents how to feel for an enlarged spleen, and if they feel it, to call the ambulance to bring their child to the Emergency Department. Now, probably 15 to 20 times a year, children come to CHOP with an enlarged spleen that their parents felt, saving all those lives.”
DANIEL J. RADER, MD
CHIEF, DIVISION OF HUMAN GENETICS

Rader heads up this new division, which marks the merger of CHOP’s former divisions of Genetics and Metabolism. He retains his positions at the University of Pennsylvania, where he has served as Chief of the Division of Translational Medicine and Human Genetics since 2011 and as Chair of the Department of Genetics since 2014. His unique dual role puts him in the perfect position to guide enhanced collaborations between the genetics programs across the Penn and CHOP communities. Earlier in his career, Rader was a staff scientist in the Molecular Disease Branch of the National Heart, Lung, and Blood Institute at the National Institutes of Health (NIH).

BREAKTHROUGH MOMENT:
“Early on during my time at the NIH, I got to know a wonderful 4-year-old girl who had homozygous familial hypercholesterolemia (HoFH). Her cholesterol level was about 1,000 (normal is less than 180), and she already had plaque buildup in her heart. Her sister had died of a heart attack at age 2. I knew then that it would be a disease I would spend a lot of time studying and trying to develop new treatments for. Fast-forward: A medicine for HoFH I played the lead role in developing was approved by FDA a few years ago and is on the market; and this year we initiated a gene therapy trial to treat HoFH. As Chief Scientific Adviser for the Familial Hypercholesterolemia Foundation, I am determined to identify and effectively treat all children with FH.”
Schmidt was recruited to come to CHOP in 2007 from McMaster University in Hamilton, Ontario, Canada, where she had built a stellar reputation in researching the most effective treatments for newborns. Last year, she was given the Order of Canada — the highest civilian award in that country — in recognition of her decades of “advancing the care of critically ill newborn infants in Canada and abroad.” For example, she led the Caffeine for Apnea of Prematurity (CAP) trial, an international, multicenter, placebo-controlled randomized study that showed short- and long-term benefits of giving premature infants caffeine.

BREAKTHROUGH MOMENT:
“Neonatologists used caffeine to treat apnea of prematurity since small and short-term studies had shown that it improved the regularity of breathing. But when I looked for a systematic review, I saw how flimsy the evidence really was. It had not been studied for safety in the NICU and beyond, and there was growing evidence of adverse side effects on the developing brain in animal studies. I felt it was important to design a large trial to prove the safety of the drug.”
Stanley, a world-renowned expert on disorders of insulin regulation in children, received the Judson J. Van Wyk Prize, the Pediatric Endocrine Society’s most prestigious award for outstanding career achievement. He has helped define the various types of congenital hyperinsulinism (HI) and pioneered best practices for diagnosis and treatment of HI. Early diagnosis and treatment help prevent seizures and potential brain damage from dangerously low levels of glycemia. Determining the type of HI guides treatment, including a surgical cure for many children with the focal type.

BREAKTHROUGH MOMENT:
“In about 1998, we had figured out the genetics for focal HI, but locating the lesions was difficult. One day I saw [Surgeon-in-Chief] Scott Adzick in the cafeteria, and the answer just came out: ‘I know how we can find focal lesions.’ I had read that doctors in Finland were using 18F-DOPA PET scans to find insulinomas; I figured it would work for HI, too. That led to a collaboration between Endocrinology and Radiology that has resulted in the HI Center performing more than 250 diagnostic PET scans and curing more than 150 patients with focal HI.”
ELAINE H. ZACKAI, MD
DIRECTOR, SECTION OF CLINICAL GENETICS
LETITIA B. AND ALICE SCOTT ENDOWED CHAIR IN HUMAN GENETICS AND MOLECULAR BIOLOGY

Zackai’s stellar track record of training the next generation of clinical geneticists was recognized when she was honored with the American Society of Human Genetics’ first-ever Mentorship Award. In her 45 years at Children’s Hospital, while the field of genetics advanced at breakneck speed, Zackai made sure that the 91 fellows she mentored learned not only the science but also the human side of treating children with genetic conditions and their families. Zackai calls the field “stimulating, interesting, challenging and gratifying,” especially when she helps parents understand their child’s condition, even when it’s a difficult diagnosis.

BREAKTHROUGH MOMENT:
“We had a family with two children who had an extra 22nd chromosome. We looked at the parents’ chromosomes, and initially they looked normal. Then Dr. Beverly Emanuel, the director of the lab, and I saw that one of the mother’s 22s was a little smaller. It ended up that the mother had an exchange of material from the bottoms of her 22nd chromosome and her 11th chromosome — a translocation, which led to the extra chromosome in her children. It was the first time that had been seen, and it opened up a whole new area of study. It was definitely an aha moment.”
President and Chief Executive Officer
Madeline Bell

Executive Vice President and Chief Operating Officer
Douglas G. Hock

Executive Vice President and General Counsel
Jeffrey D. Kahn, Esq.

Executive Vice President and Chief Development Officer
Monica Taylor Lotty

Executive Vice President and Chief Financial Officer
Thomas J. Todorow

Executive Vice President and Chief Scientific Officer
Bryan Wolf, MD, PhD

Senior Vice President and Chief Nursing Officer
Paula Agosto, RN, MHA

Senior Vice President and Chief Strategy Officer
Matthew Bayley, MD

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Douglas E. Carney, AIA, MBA, LEED AP

Senior Vice President, Human Resources
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Senior Vice President, Outpatient & Clinical Services
Thomas Dole

Senior Vice President, Public Affairs
Peter M. Grollman

Senior Vice President and Chief Information Officer
Kisha Hortman Hawthorne

Senior Vice President, Clinical Support Services
Charles S. Hough Jr.

Senior Vice President, CHOP Care Network
Amy J. Lambert

Senior Vice President and Chief Investment Officer
Nicholas P. Procyk

Vice President, Revenue Cycle & Reimbursement Strategy
Edward Bleacher

Vice President, Medical Operations and Chief Safety Officer
Jan P. Boswinkel, MD

Associate Chief Investment Officer
Andrew Deitch

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Patricia DeRusso, MD, MS

Vice President, Entrepreneurship & Innovation
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Joseph Hediger

Vice President and Chief Compliance & Privacy Officer
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Vice President and Chief Quality Officer
Ron Keren, MD, MPH

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Spencer Kowal

Vice President, Supply Chain
Joni Rittler

Vice President and Chief Audit Officer
David Small

Vice President, Office of Technology Transfer, Commercialization & Innovation
Zev Sunleaf
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Daniel M. Tabas Endowed Chair in Pediatric Cardiac Surgery
J. William Gaynor, MD

Alice Langdon Warner Endowed Chair in Pediatric Cardiac Surgery
Pending appointment

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Tami D. Benton, MD

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Susan E. Levy, MD, MPH

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Mark Fishman Endowed Chair in Genomics and Computational Science
Joseph Zorc, MD, MSCE

Edmond F. Notebaert Endowed Chair in Pediatric Research
Bryan Wolf, MD, PhD
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Endowed Chair in Pediatric Genomic Research
Pending appointment
Mai and Harry F. West
Endowed Chair in Pediatric Research
Pending appointment

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Daniel B. Burke Endowed Chair for Diabetes Research
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Thomas Moshang Endowed Chair in Endocrinology
Craig Alter, MD

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Fred and Suzanne Biesecker Endowed Chair in Pediatric Liver Disease
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Irma and Norman Braman Endowed Chair for Research in GI Motility Disorders
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Ann and Richard Frankel Endowed Chair in Gastroenterology Research
Pending appointment
Suzi and Scott Lustgarten Endowed Chair for Clinical Care of GI Motility Disorders
Ritu Verma, MBChB

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David Cornfeld Endowed Chair in Pediatrics
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Pending appointment

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Pending appointment
Children’s Hospital of Philadelphia Endowed Chair in Pediatric Hematology
Rodney M. Camire, PhD
Jane Fishman Grinberg Endowed Chair in Stem Cell Research
Mortimer Poncz, MD
Kwame Ohene-Frempong Endowed Chair in Pediatric Hematology
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Kim Smith-Whitley, MD
Frank E. Weise III Endowed Chair in Pediatric Hematology
Gerd Blobel, MD, PhD

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Ian Krantz, MD
Letitia B. and Alice Scott Endowed Chair in Human Genetics and Molecular Biology
Elaine H. Zackai, MD
Charles E.H. Upham Endowed Chair in Pediatric Medicine
Beverly S. Emanuel, PhD

**IMMUNOLOGY AND INFECTIOUS DISEASES**
Werner and Gertrude Henle Endowed Chair
*Theoklis Zaoutis, MD, MSCE*
Maurice R. Hilleman Endowed Chair in Vaccinology
*Paul Offit, MD*
Jeffrey Modell Endowed Chair in Pediatric Immunology Research
*Neil Romberg, MD*
Stanley Plotkin Endowed Chair in Pediatric Infectious Diseases
*Jeffrey M. Bergelson, MD*
Frank R. Wallace Endowed Chair in Infectious Diseases
*Kathleen Sullivan, MD, PhD*

**INTERNATIONAL ADOPTION**
Wawa Endowed Chair in International Adoption
*Susan Friedman, MD*

**MEDICAL ETHICS**
Steven D. Handler Endowed Chair in Medical Ethics
*Chris Feudtner, MD, PhD, MPH*

**METABOLIC DISEASE**
Michael and Charles Barnett Endowed Chair in Pediatric Mitochondrial Medicine and Metabolic Disease
*Douglas C. Wallace, PhD*
William T. Grant Endowed Chair in Child Development and Rehabilitation
*Marc Yudkoff, MD*

**NEONATOLOGY**
Thomas Frederick McNair Scott Endowed Chair in Pediatrics
*Eric Eichenwald, MD*
Gisela and Dennis Alter Endowed Chair in Pediatric Neonatology
*Haralambos Ischiropoulos, PhD*
Harriet and Ronald Lassin Endowed Chair in Pediatric Neonatology
*Scott Lorch, MD, MSCE*

**NEPHROLOGY**
Laffey-Connolly Endowed Chair in Pediatric Nephrology
*Susan Furth, MD, PhD*

**NEUROLOGY**
Catherine D. Brown Endowed Chair in Pediatric Epilepsy
*Dennis Dlugos, MD*
Tristram C. Colket, Jr. Endowed Chair in Pediatric Neurology
*Robert R. Clancy, MD*
Jacob A. Kamens Endowed Chair in Neurological Disorders and Translational NeuroTherapeutics
*Adeline Vanderver, MD*
Grace R. Loeb Endowed Chair in Neurosciences
*Brenda Banwell, MD*
Hubert J.P. and Anne Faulkner Schoemaker Endowed Chair in Pediatric Neuro-Oncology
*Peter C. Phillips, MD*

**NEUROSURGERY**
Leslie N. Sutton Endowed Chair in Pediatric Neurosurgery
*Phillip B. Storm Jr., MD*
Alexander B. Wheeler Endowed Chair in Neurosurgical Research
*Adam Resnick, PhD*

**NURSING**
Ruth M. Colket Endowed Chair in Pediatric Nursing
*Barbara Medoff-Cooper, PhD, MS, BSN*

**ONCOLOGY**
Louis and Amelia Canuso Family Endowed Chair for Clinical Research in Oncology
*Frank M. Balis, MD*
Alan R. Cohen Endowed Chair in Pediatrics
Peter C. Adamson, MD

Giulio D’Angio Endowed Chair in Neuroblastoma Research
John M. Maris, MD

Audrey E. Evans Endowed Chair in Pediatric Oncology
Garrett M. Brodeur, MD

Joshua Kahan Endowed Chair in Pediatric Leukemia Research
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Yetta Deitch Novotny Endowed Chair in Pediatric Oncology
Stephan Grupp, MD, PhD

Jeffrey E. Perelman Distinguished Chair in the Department of Pediatrics
Stephen P. Hunger, MD

Richard and Sheila Sanford Endowed Chair in Pediatric Oncology
Alix Seif, MD, MPH

**ORTHOPAEDIC SURGERY**

- Richard M. Armstrong Jr. Endowed Chair in Pediatric Orthopaedic Surgery
- John M. Flynn, MD

*Children’s Hospital of Philadelphia Endowed Chair in Pediatric Orthopaedic Surgery*

**PENDING APPOINTMENT**

- Dr. Bong S. Lee Endowed Chair in Pediatric Orthopaedics
- Maurizio Paciﬁci, PhD

**OTOLARYNGOLOGY**

- Children’s Hospital of Philadelphia Endowed Chair in Pediatric Otolaryngology
- Ken Kazahaya, MD, MBA

*Children’s Hospital of Philadelphia Endowed Chair in Pediatric Otolaryngology and Pediatric Airway Disorders*

- Ian N. Jacobs, MD

- E. Mortimer Newlin Endowed Chair in Pediatric Otolaryngology and Human Communication
- Ralph Wetmore, MD

*William Potsic Endowed Chair in Pediatric Otolaryngology and Childhood Communication*

**PENDING APPOINTMENT**

**PATHOLOGY**

- Evelyn Willing Bromley Endowed Chair in Clinical Laboratories and Pathology
- Michael Bennett, PhD

- Evelyn Willing Bromley Endowed Chair in Pathology and Clinical Laboratories
- Nancy B. Spinner, PhD, FACMG

- Mildred L. Roeckle Endowed Chair in Pediatric Pathology
- Andrei Thomas-Tikhonenko, PhD

- Lucy Balian Rorke-Adams Endowed Chair in Neuropathology

*PENDING APPOINTMENT*

- Evelyn and George Willing Endowed Chair in Pathology Research
- Janis Burkhardt, PhD

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- Leonard and Madlyn Abramson Endowed Chair in Pediatrics
- Joseph W. St. Geme III, MD

- Mary D. Ames Endowed Chair in Child Advocacy
- David Rubin, MD, MSCE

- William H. Bennett Professor of Pediatrics at the Perelman School of Medicine at the University of Pennsylvania
- Nathan J. Blum, MD

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- Phillip Bryant, DO

- Distinguished Chair in the Department of Pediatrics
- Susan Coffin, MD, MPH
Distinguished Chair in the Department of Pediatrics
Gail Slap, MD

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Distinguished Chair in the Department of Pediatrics
Carole Marcus, MBBCh

Gerald D. Quill Distinguished Chair in the Department of Pediatrics
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Nancy Abramson Wolfson
Endowed Chair in Health Services Research
Jeffrey H. Silber, MD, PhD

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Mary Downs Endowed Chair in Pediatric Craniofacial Treatment and Research
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Friends of Brian Endowed Chair in Pediatric Plastic and Reconstructive Surgery
Pending appointment
Peter Randall Endowed Chair in Plastic and Reconstructive Surgery
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Robert W. Doms, MD, PhD

John M. Keating Endowed Chair in Pediatrics
Pending appointment
Arthur Vincent Meigs
Endowed Chair in Pediatrics
Beverly L. Davidson, PhD

R.A.F. Penrose Endowed Chair in Pediatrics
Stewart A. Anderson, MD

Louis Starr Endowed Chair in Pediatrics
Pending appointment

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Endowed Chair in Pediatrics
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Carole Marcus, MBBCh

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Beverly Gilbert Coleman, MD

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James S. Meyer, MD

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Kassa Darge, MD, PhD

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Holly L. Hedrick, MD

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Leonard and Madlyn Abramson Endowed Chair in Pediatric Urology
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Minimally Invasive Surgery Endowed Chair in Pediatric Urology
Pending appointment
Howard M. Snyder III Endowed Chair in Pediatric Urology
Pending appointment

UROLOGY
# Financial Summary

For the Fiscal Year Ending June 30, 2016

## Sources of Revenue

<table>
<thead>
<tr>
<th></th>
<th>FY 2016</th>
<th>FY 2015*</th>
<th>FY 2014*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Patient Service Revenue</td>
<td>$2,329,632,000</td>
<td>$2,128,105,000</td>
<td>$2,021,363,000</td>
</tr>
<tr>
<td>Other Operating Revenue</td>
<td>$107,018,000</td>
<td>$95,366,000</td>
<td>$104,211,000</td>
</tr>
<tr>
<td>Contributions (1)</td>
<td>$97,849,000</td>
<td>$91,530,000</td>
<td>$64,074,000</td>
</tr>
<tr>
<td>Research</td>
<td>$219,862,000</td>
<td>$221,205,000</td>
<td>$211,834,000</td>
</tr>
<tr>
<td><strong>TOTAL SOURCES OF REVENUE</strong></td>
<td><strong>$2,754,361,000</strong></td>
<td><strong>$2,536,206,000</strong></td>
<td><strong>$2,401,482,000</strong></td>
</tr>
</tbody>
</table>

(1) Includes unrestricted, temporarily restricted and permanently restricted contributions

*Reclassified for comparative purposes

## Uses of Revenue

<table>
<thead>
<tr>
<th></th>
<th>FY 2016</th>
<th>FY 2015*</th>
<th>FY 2014*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries, Wages and Employee Benefits</td>
<td>$1,260,987,000</td>
<td>$1,209,400,000</td>
<td>$1,121,520,000</td>
</tr>
<tr>
<td>Supplies and Expenses</td>
<td>$491,930,000</td>
<td>$442,179,000</td>
<td>$420,851,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>$154,775,000</td>
<td>$135,464,000</td>
<td>$119,955,000</td>
</tr>
<tr>
<td>Interest</td>
<td>$20,604,000</td>
<td>$2,587,000</td>
<td>$8,383,000</td>
</tr>
<tr>
<td>Research Expenses</td>
<td>$370,962,000</td>
<td>$350,529,000</td>
<td>$334,155,000</td>
</tr>
<tr>
<td>Uncompensated Care</td>
<td>$117,096,000</td>
<td>$103,455,000</td>
<td>$129,101,000</td>
</tr>
<tr>
<td>Provisions for Programmatic Investments</td>
<td>$338,007,000</td>
<td>$292,592,000</td>
<td>$267,517,000</td>
</tr>
<tr>
<td><strong>TOTAL USES OF REVENUE</strong></td>
<td><strong>$2,754,361,000</strong></td>
<td><strong>$2,536,206,000</strong></td>
<td><strong>$2,401,482,000</strong></td>
</tr>
</tbody>
</table>

## 2016 Uses of Revenue

- **Net Patient Service Revenue:** 45.8%
- **Other Operating Revenue:** 17.9%
- **Contributions:** 5.6%
- **Research:** 13.5%
- **Salaries, Wages and Employee Benefits:** 12.3%

- **Salaries, Wages and Employee Benefits:** $1,260,987,000
- **Supplies and Expenses:** $491,930,000
- **Depreciation:** $154,775,000
- **Interest:** $20,604,000
- **Research Expenses:** $370,962,000
- **Uncompensated Care:** $117,096,000
- **Provisions for Programmatic Investments:** $338,007,000
## Combined Balance Sheet

For the Fiscal Year Ending June 30, 2016

### Assets

<table>
<thead>
<tr>
<th></th>
<th>FY 2016</th>
<th>FY 2015</th>
<th>FY 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and Short-term Investments</td>
<td>$582,390,000</td>
<td>$531,105,000</td>
<td>$484,826,000</td>
</tr>
<tr>
<td>Receivables</td>
<td>$386,243,000</td>
<td>$290,235,000</td>
<td>$245,931,000</td>
</tr>
<tr>
<td>Other Current</td>
<td>$123,747,000</td>
<td>$95,110,000</td>
<td>$91,472,000</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td>$1,092,380,000</td>
<td>$916,450,000</td>
<td>$822,229,000</td>
</tr>
<tr>
<td>Investments</td>
<td>$2,135,493,000</td>
<td>$2,113,941,000</td>
<td>$1,958,345,000</td>
</tr>
<tr>
<td>Property, Plant and Equipment (Net)</td>
<td>$2,322,334,000</td>
<td>$2,204,005,000</td>
<td>$1,952,896,000</td>
</tr>
<tr>
<td>Other Assets</td>
<td>$129,616,000</td>
<td>$112,629,000</td>
<td>$72,667,000</td>
</tr>
<tr>
<td><strong>Total Investment Assets</strong></td>
<td>$4,587,443,000</td>
<td>$4,430,575,000</td>
<td>$3,983,908,000</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td><strong>$5,679,823,000</strong></td>
<td><strong>$5,347,025,000</strong></td>
<td><strong>$4,806,137,000</strong></td>
</tr>
</tbody>
</table>

### Liabilities and Net Assets

<table>
<thead>
<tr>
<th></th>
<th>FY 2016</th>
<th>FY 2015</th>
<th>FY 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Portion of Long-term Debt</td>
<td>$16,890,000</td>
<td>$16,187,000</td>
<td>$15,523,000</td>
</tr>
<tr>
<td>Accounts Payable and Accrued Expenses</td>
<td>$377,858,000</td>
<td>$366,490,000</td>
<td>$342,533,000</td>
</tr>
<tr>
<td><strong>Total Current Liabilities</strong></td>
<td>$394,748,000</td>
<td>$382,677,000</td>
<td>$358,056,000</td>
</tr>
<tr>
<td>Long-term Debt</td>
<td>$923,475,000</td>
<td>$940,365,000</td>
<td>$736,297,000</td>
</tr>
<tr>
<td>Other Liabilities</td>
<td>$400,803,000</td>
<td>$292,129,000</td>
<td>$294,269,000</td>
</tr>
<tr>
<td><strong>Total Long-term Liabilities</strong></td>
<td>$1,324,278,000</td>
<td>$1,232,494,000</td>
<td>$1,030,566,000</td>
</tr>
<tr>
<td>Unrestricted Net Assets</td>
<td>$3,532,002,000</td>
<td>$3,337,119,000</td>
<td>$3,047,668,000</td>
</tr>
<tr>
<td>Temporarily Restricted Net Assets</td>
<td>$212,931,000</td>
<td>$209,097,000</td>
<td>$213,612,000</td>
</tr>
<tr>
<td>Permanently Restricted Net Assets</td>
<td>$215,864,000</td>
<td>$185,375,000</td>
<td>$156,235,000</td>
</tr>
<tr>
<td><strong>Total Net Assets</strong></td>
<td>$3,960,797,000</td>
<td>$3,731,584,000</td>
<td>$3,417,515,000</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES AND NET ASSETS</strong></td>
<td><strong>$5,679,823,000</strong></td>
<td><strong>$5,347,025,000</strong></td>
<td><strong>$4,806,137,000</strong></td>
</tr>
</tbody>
</table>
### HOSPITAL STATISTICS
For the Fiscal Year Ending June 30, 2016

#### STATISTICAL HIGHLIGHTS

<table>
<thead>
<tr>
<th></th>
<th>FY 2016</th>
<th>FY 2015</th>
<th>FY 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Admissions</td>
<td>29,468</td>
<td>29,062</td>
<td>28,156</td>
</tr>
<tr>
<td>Patient Days</td>
<td>166,311</td>
<td>162,390</td>
<td>159,045</td>
</tr>
<tr>
<td>Number of Beds</td>
<td>520</td>
<td>520</td>
<td>500</td>
</tr>
<tr>
<td>Number of Employees</td>
<td>12,120</td>
<td>11,552</td>
<td>11,649</td>
</tr>
</tbody>
</table>

#### OUTPATIENT VISITS

<table>
<thead>
<tr>
<th>Service</th>
<th>FY 2016</th>
<th>FY 2015</th>
<th>FY 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHOP Care Network Specialty Care</td>
<td>406,920</td>
<td>381,839</td>
<td>363,497</td>
</tr>
<tr>
<td>CHOP Care Network, West/South</td>
<td>129,352</td>
<td>123,872</td>
<td>117,110</td>
</tr>
<tr>
<td>phiadelphia Communities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHOP Care Network, Suburban</td>
<td>611,291</td>
<td>608,214</td>
<td>581,161</td>
</tr>
<tr>
<td>Communities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Department</td>
<td>83,771</td>
<td>80,949</td>
<td>86,134</td>
</tr>
<tr>
<td>Day Surgery</td>
<td>19,578</td>
<td>18,170</td>
<td>18,065</td>
</tr>
<tr>
<td>Day Medicine</td>
<td>27,828</td>
<td>27,484</td>
<td>25,207</td>
</tr>
<tr>
<td>Urgent Care</td>
<td>18,142</td>
<td>13,831</td>
<td>4,421</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,296,882</strong></td>
<td><strong>1,254,359</strong></td>
<td><strong>1,195,595</strong></td>
</tr>
</tbody>
</table>

#### OUTPATIENT VISITS 2016

- CHOP Care Network Specialty Care
- CHOP Care Network, West/South Philadelphia Communities
- CHOP Care Network, Suburban Communities
- Emergency Department
- Day Surgery
- Day Medicine
- Urgent Care

The chart shows a visual representation of the number of outpatient visits across different services for the year 2016.
HOSPITAL STATISTICS
For the Fiscal Year Ending June 30, 2016

GRADUATE MEDICAL EDUCATION

In FY16, CHOP had trainees in 67 accredited and nonaccredited training programs.

- **Department of Pediatrics**
  - Number of Trainees: 130 Residents, 189 Fellows

- **Department of Surgery**
  - Number of Trainees: 8 Residents, 25 Fellows

- **Department of Pathology**
  - Number of Trainees: 2 Fellows

- **Department of Child and Adolescent Psychiatry and Behavioral Sciences**
  - Number of Trainees: 17 Fellows

- **Department of Radiology**
  - Number of Trainees: 2 Fellows, 16 Fellows

- **Department of Anesthesiology and Critical Care Medicine**
  - Number of Trainees: 38 Fellows

**TOTAL TRAINEES:** 425
## CHARITABLE GIVING
For the Fiscal Year Ending June 30, 2016

### GIFTS BY DESIGNATION

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Dollar Amount*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>2%</td>
<td>$2,300,000</td>
</tr>
<tr>
<td>Endowment</td>
<td>62%</td>
<td>$83,600,000</td>
</tr>
<tr>
<td>Research, Care and Education</td>
<td>29%</td>
<td>$38,700,000</td>
</tr>
<tr>
<td>Unrestricted</td>
<td>7%</td>
<td>$9,900,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$134,500,000</strong></td>
</tr>
</tbody>
</table>

*New cash gifts and pledges

### DOLLARS RAISED

- 2012: $76,800,000
- 2013: $130,800,000
- 2014: $110,600,000
- 2015: $155,700,000
- 2016: $134,500,000

### ENDOWED CHAIRS

- **Fully Funded CHAIRS**: 114
- **Pledged CHAIRS**: 22
- **President's Scholar CHAIRS**: 7
RESEARCH STATISTICS

RESEARCH LOCATIONS AND SPACE

Leonard and Madlyn Abramson Pediatric Research Center 359,222 Sq. Ft.
3550 Market Street 2,408 Sq. Ft.
3535 Market Street 143,584 Sq. Ft.
CHOP Main Campus 3,408 Sq. Ft.

TOTAL SQUARE FOOTAGE OF RESEARCH SPACE
797,947
### RESEARCH STATISTICS

#### For the Fiscal Year Ending June 30, 2016

<table>
<thead>
<tr>
<th>Sources of Funding</th>
<th>Percentage</th>
<th>Dollar Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sources of Funding</td>
<td></td>
<td>$325,496,838</td>
</tr>
<tr>
<td>External</td>
<td>67.76%</td>
<td>$220,558,794</td>
</tr>
<tr>
<td>Endowment</td>
<td>5.82%</td>
<td>$18,943,958</td>
</tr>
<tr>
<td>Hospital</td>
<td>17.76%</td>
<td>$57,817,616</td>
</tr>
<tr>
<td>Other</td>
<td>8.66%</td>
<td>$28,176,470</td>
</tr>
</tbody>
</table>

**TOTAL**

### BREAKDOWN OF EXTERNAL FUNDING

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
<th>Dollar Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>51.99%</td>
<td>$114,678,621</td>
</tr>
<tr>
<td>Corporate and Clinical Trials</td>
<td>10.82%</td>
<td>$23,871,176</td>
</tr>
<tr>
<td>State/Local</td>
<td>2.76%</td>
<td>$6,079,414</td>
</tr>
<tr>
<td>Children’s Oncology Group – Federal</td>
<td>14.02%</td>
<td>$30,915,834</td>
</tr>
<tr>
<td>Children’s Oncology Group – Foundation/Industry</td>
<td>5.95%</td>
<td>$13,126,859</td>
</tr>
<tr>
<td>Foundation</td>
<td>10.53%</td>
<td>$23,223,806</td>
</tr>
<tr>
<td>Other</td>
<td>3.93%</td>
<td>$8,663,084</td>
</tr>
</tbody>
</table>

**TOTAL**

$220,558,794
CHILDREN'S HOSPITAL OF PHILADELPHIA 2016 ANNUAL REPORT IS PRODUCED BY THE MARKETING, WEB AND PUBLIC RELATIONS DEPARTMENT.

MEET OUR PATIENTS

Front cover: Sarah, 10, tried out the See IV prototype during a Hospital stay. Learn more about this innovative device on Page 16.

Inside front cover: Georgie, 4½, enjoys the playground behind the South Philadelphia Community Health and Literacy Center. Read about the new center’s unique features on Page 8.

Page 2: Caroline, 4, sees her CHOP ophthalmologist at the CHOP Care Network King of Prussia Specialty Care and Surgery Center.

Page 30: Michael, 10 months, receives his primary care at the South Philadelphia practice.

Page 34: Rhyan, 5, is a patient in CHOP’s Comprehensive Sickle Cell Center, one of the largest such programs in the country.

Page 51: Parker, 3, who was diagnosed in utero with congenital diaphragmatic hernia and born in CHOP’s Garbose Family Special Delivery Unit, can play in the park like other little girls thanks to the breakthrough care she received at Children’s Hospital.

Opposite: The Castro family lives near the South Philadelphia Community Health and Literacy Center and takes advantage of the library and park, as well as CHOP’s primary care practice, where Raul Jr., 13, and Elizabeth, 11, receive care.
Children’s Hospital of Philadelphia is driven every day to make breakthroughs that help children. Since our start in 1855 as the nation’s first children’s hospital, we have led innovations, fostered medical discoveries, trained generations of leaders and advocated for children’s health. As a nonprofit charitable organization, we rely on the generous support of donors to continue to set the global standard for pediatric care.

chop.edu