Support

We serve and support clinicians, researchers, and students to create innovative solutions in the pediatric healthcare field.

Connect

We connect clinicians with science and engineering researchers to drive innovation in pediatrics.

Advocate

We channel our passion for pediatrics to the community through our leadership of organizations like the International Society for Pediatric Innovation and the International Children's Advisory Network.

Educate

While creating innovative solutions, we also educate the next generation of researchers through fundamental training and participation in hands-on, real-world applications.

Partners

America Association of Pediatrics | American Cancer Society | Andee's Army | Atlanta Ronald McDonald House Charities | Centers for Medicare and Medicaid Services | Children's Healthcare of Atlanta | Emory University School of Medicine | Food and Drug Administration | Georgia Bio | Georgia Department of Community Health | Georgia Department of Family & Children's Services | Georgia Department of Public Health | Georgia Public Broadcasting | Georgia Research Alliance | Global Center for Medical Innovation | Grady Memorial Hospital | Health Connect South | Hope for Henry | Hughes Spalding Hospital | IBM | Impact Pediatric Health (IPH) | International Children's Advisory Network (iCAN) | International Society for Pediatric Innovation (iSPI) | Kids Georgia | Live for Others (L4O) | Marcus Autism Center | Metro Atlanta Chamber of Commerce (MACOC) | Morehouse School of Medicine | Murata | Pfizer | Sibley Heart Center | Southeast Medical Device Association | TAG Health | Thinking of Oscar |

Children's Healthcare of Atlanta Pediatric Technology Center

2012 Children's Foundation gift for joint research

2013 Quick Wins research funding program kicks off

2014 First pediatric medical device prototype delivered

2015 Children's Foundation gift for the Krone Engineered Biosystems Building

2016 Imlay Foundation endowment for joint research

2017 M.G Finn, Ph.D. named The James A. Carlos Family Chair for Pediatric Technology

2017 Scott Hollister, Ph.D. named The Patsy and Alan Dorris Chair in Pediatric Technology

2018 Clint Joiner, M.D., Ph.D. named Sharp & Matt Price Chair for Pediatric Research

Funded

89 Faculty
87 Seed Grants
27 Children's Petit Scholars

Reputation

4:1 ROI
8 Patents Filed
89 Joint-Publications

ptc.gatech.edu

Message from the Center

The Children's Healthcare of Atlanta Pediatric Technology Center at Georgia Tech brings clinical experts together with Georgia Tech scientists and engineers to develop technological solutions for problems in the health and care of children. The Center provides extraordinary opportunities for interdisciplinary collaboration in pediatrics and creating breakthrough discoveries that often can only be found at the intersection of multiple disciplines. These collaborations also allow us to bring discoveries to the clinic and the bedside, thereby enhancing the lives of children and young adults. The Center is putting the pediatric patient first. We strive to make children's lives better; there is nothing more important.

There are many ways to engage the Children's Healthcare of Atlanta Pediatric Technology Center at Georgia Tech to solve tough problems. We can collaborate through various funding opportunities, student projects, philanthropic gifts, patient advocacy, and mentoring.

M.G. Finn, Ph.D, Chief Scientific Officer
Sherry Farrugia, Chief Operating and Strategy Officer
Leanne West, Chief Innovation Officer

> *The culture of excellent service and support in your center is a breath of fresh air.*
>
> Brandon Dixon
> Associate Professor

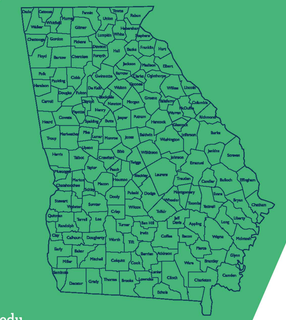
2018

Children's Healthcare of Atlanta
Pediatric Technology Center

Children's Healthcare of Atlanta Pediatric Technology Center at Georgia Tech

Impact in Georgia

Through our partnership with Children's Healthcare of Atlanta, we have developed: data collection tools to better understand access to care, smartphone apps to improve access to care in underserved areas, and predictive statistical models to make that clinical care better. With these projects, we are able to serve every county in Georgia.



ptc.gatech.edu

Mobile Health

The Children's Healthcare of Atlanta Pediatric Technology Center develops mobile health technologies that allow doctors to diagnose and monitor their pediatric patients in their own homes, or on the go.

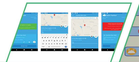
> *We are improving compliance and access to care using mobile apps and games.*
>
> Leanne West
> Chief Engineer

iEAT App Extends Feeding Therapy for Children

Developed in collaboration with the Marcus Autism Center and researchers at Georgia Tech, the iEAT smartphone app takes clinicians and caregivers through a protocol to help resolve feeding disorders and reduce reliance on feeding tubes. This decision support tool changes the way clinicians think about providing this type of care, which can now be used at home for some kids.

Designing Cancer Care for Kids, By Kids

Children receiving cancer care go through complicated, time-consuming, and often intimidating treatments. With funding from Quick Wins and the Imlay Foundation, our team is developing a "Passport" app, with which children receiving treatment at the Aflac Cancer and Blood Disorders Center will collect quantitative time-motion data during their visits and provide qualitative data about how they feel in each location. This novel approach to patient-centered care aims to design solutions with the children, instead of for them.



The Safe Harbor app provides a way for case workers to request emergency assistance with a wireless panic button.

The Colorectal app empowers children as they manage their incontinence.

The Nephrotic app uses smartphones to assist in the reading of urine protein results.

The Talk With Me Baby app helps parents deliver vital language nutrition to their children.

The Cellscope smart-phone attachment allows parents to send ear images to clinicians for remote diagnosis.

Medical Devices & Tools

From the clinical bedside to the home environment, implantable devices, surgical robots, and other instruments are making treatment and long-term healthcare more efficient, less expensive, and tailored to each individual child.

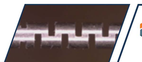
> *We are saving lives one child at a time using the latest in 3-D printing technology.*
>
> Kevin Maher, MD
> Medical Director

3D Biomaterial Printing

Georgia Tech biomedical engineers and Children's Healthcare of Atlanta clinicians are teaming up to push the boundaries of personalized medicine. By pioneering new ways to use a child's imaging test results to design one-of-a-kind implants, and then creating those implants by 3D printing just before surgery, we can help kids overcome many problems caused by injury, infection, or congenital defect. We also help doctors practice complex surgical procedures by printing realistic models of the any patient's tissue that needs repair.

IV Infiltration Detection Using Non-Invasive Sensors

The smaller the child, the more difficult it is to insert an intravenous needle. Infiltration occurs when the vein is missed or ruptured and can lead to long-term adverse effects. It often goes unnoticed until the damage is done. The development at Georgia Tech of a device for early detection, relying on real-time sensors and automatic detection algorithms, will enable clinicians to rapidly identify and correct the problem before tissue is damaged.



Ultra-thin, steerable robotic probes are being developed to minimize risk in pediatric neuro-surgery.

GCMI brings critical expertise in mfg. and regulatory approval for commercialization of new medical devices.

Researchers created a realistic mockup of a medical MRI to reduce stress for autistic children, lessening the need for sedation.

Researchers are using biological sciences to create implantable materials for healthy tissue growth.

Microneedle patches have been developed to painlessly administer vaccines for flu and other disorders.

Health Analytics

Georgia Tech is a leader in the use of "big data" to solve big problems, including information from new bedside sensing technologies and Medicaid data from all 50 states.

> *By leveraging talent across the Institution and at Children's we aim to reduce mortality in the NICU.*
>
> Sherry Farrugia
> Chief Operating & Strategy Officer

Assessing Variation in Care of Children's Perforated Appendicitis in Georgia

With funding from Children's Healthcare of Atlanta, Children's clinicians and researchers at Georgia Tech are developing a standardized management protocol to deliver better care following surgery for perforated appendicitis in children. These children often experience infections and prolonged hospital stays, so improving outcomes and efficiency will help avoid additional procedures and reduce healthcare costs.

Sensing Danger in the NICU

Identifying which infants in neonatal intensive care are most at risk for serious complications is an important challenge. Our collaborative research team is developing a new system to find clues in unused data that could help save the lives of these fagile infants. This new system will predict potentially deadly conditions like necrotizing enterocolitis (NEC), primarily seen in premature infants, before any clinical signs become apparent. It will also provide doctors with information they need to customize care and avoid unnesessary tests later.

Our data analytics experts are using Medicaid data to assess the treatment of pediatric asthma in rural areas of Georgia.

We are creating interactive tools to improve patient-clinician discussions of radiology reports.

We are implementing FHIR standards to improve the use of medical records for both clinical care and research.

Bedside data can assist with identi-fication and alerting of Central Line Assocated Blood Stream infection.

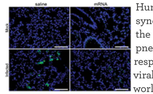
Analyzing and visualizing careflow process are used to inform clinicians how to provide better care at lower costs.

Basic Science

Georgia Tech's research is aimed at understanding fundamental problems and translating these discoveries into direct applications for patient care.

> *Researchers at Georgia Tech have a real chance to dramatically reduce bronchiolitis and pneumonia in babies.*
>
> M.G. Finn
> Chief Scientific Officer

mRNA-Based Therapeutics for the Treatment of hRSV Infections



Human respiratory syncytial virus (RSV) is the leading cause of pneumonia, bronchiolitis, respiratory failure, and viral death in infants worldwide. With funding from Children's Heathcare of Atlanta, Georgia Tech researchers are are working to deliver the best known antibody against RSV directly to the lungs via aerosol inhalation. Early tests have reduced RSV in laboratory animals approximately 90%.

Chemistry Solutions to Line Infections

Pediatric patients who stay in the hospital for long periods are at special risk of developing infections from implanted tubes that provide essential nutrients and medicines. Researchers at Georgia Tech are developing microbial-resistant tubing by changing the surface chemistry of these materials, while retaining their flexibility and functional utility. Knocking down these so-called "line infections" can bring dramatic improvements in patient care and hospital costs.

Materials created to mimic biological tissues allow healthy cells to grow and replace implants over time.

New vaccines are being developed that protect children from parasitic infections.

We are searching for new early signals of TBI to better predict outcomes and monitor the effectiveness of treatment.

We are looking for biomarkers in saliva to identify concussion in high school football athletes.

Researchers are using viruses to kill bateria in children with cyctic fibrosis.