### Pediatric Research Alliance Centers

The **Pediatric Research Alliance Centers** were launched in 2007 via an initial $430M endowment from Children’s Healthcare of Atlanta (Children’s) to enhance the research infrastructure towards supporting and facilitating child health research in the Atlanta area. This effort has been extremely successful in bringing together multidisciplinary groups from multiple institutions to collaborate on research topics important to child health. It is now jointly sponsored via a financial investment from Children’s, the Emory University Woodruff Health Sciences Center and Georgia Institute of Technology (GA Tech) resulting in a unique collaboration between a children’s hospital, an academic medical center and a state university. The collective Children’s-Emory-GA Tech initiative has resulted in robust research centers that offer a thematic home for basic, translational and clinical investigators to interact and collaborate.

**Pediatric Research Centers:**

·       **Aflac Cancer and Blood Disorders Center**: As one of the leading pediatric oncology, hematology, and blood and marrow transplant programs in the country, the Aflac Cancer and Blood Disorders Center of Children’s Healthcare of Atlanta and Emory University is committed to developing new techniques, treatments and cures to advance research and medicine in pediatric hematology/oncology. Our rapidly growing research program includes more than 100 physicians and researchers in the following fields of study:

o   Blood and Marrow Transplant (BMT)

o   Brain Tumors

o   Cancer Survivorship

o   Cell and Gene Therapy

o   Hemostasis and Thrombosis

o   Leukemia and Lymphoma

o   Psychology

o   Sickle Cell Disease

o   Solid Tumor

o   Transfusion Medicine

At the Aflac Cancer Center, we are uniquely positioned to leverage the vast capabilities in Atlanta through collaborative relationships with Winship Cancer Institute of Emory University, Georgia Institute of Technology and the Centers for Disease Control and Prevention. These collaborations provide a significant opportunity to seek answers to the most challenging pediatric hematology/oncology conditions.

·      **Center for Childhood Infections and Vaccines (CCIV)**: Atlanta is a leading global center of infectious diseases research, rooted in research strengths at Emory University and the Centers for Disease Control and Preventions (CDC). Investigators from a number of additional institutions add to strengths in this area, including Georgia Tech, Morehouse School of Medicine, The University of Georgia, and the Medical College of Georgia. Children’s Healthcare of Atlanta builds on these strengths through the Center for Childhood Infections and Vaccines (CCIV), working with partner institutions, to address major childhood infectious diseases through innovative research into microbial pathogenesis, immune responses in children, and the development of new vaccines and therapeutics

To achieve the overarching goal of impacting child health on a global scale, CCIV:

o   Enhances understanding of infectious diseases, basic immunologic processes, and the development of vaccines and treatments against childhood pathogens.

o   Builds new collaborations and interdisciplinary projects leading to new extramural funding.

o   Develops a program and critical mass of investigators focused on infectious diseases and emerging global health issues. In that vein, CCIV integrates efforts with those at the Emory Vaccine Center, Emory Transplant Center, the Carter Center, the Emory Global Health Institute, and CDC initiatives. Participation in CCIV initiatives is open to investigators from these and other research institutions throughout the state of Georgia.

CCIV has five integrative focus areas that are designed to build new collaborations, leading to sustainable research programs, new grant opportunities and important discoveries.

·       **Center for Cystic Fibrosis and Airways Disease Research (CF-AIR)**: The Center for Cystic Fibrosis and Airways Disease Research (CF-AIR) is the home for two research programs, one focused on cystic fibrosis (CF), and one focused on asthma. Research in other airway diseases, such as COPD and non-CF bronchiectasis, also is of interest.

·       **Children's Center for Pediatric Cellular Therapies (CPCT)**: The Center for Pediatric Cellular Therapies provides the leadership and expertise necessary to bring cellular therapies now being developed in the lab, to the bedside. The Center provides an academic home for the entire spectrum of investigators -- basic, translational, and clinical researchers -- working in cell therapy. The overall goal of this center is to streamline the translation of our scientific discoveries into early clinical trials.

·       **Center for Clinical Outcomes Research and Public Health (CORPH)**: CORPH was established in January 2011 and is a research center focused on clinical outcomes and public health that promotes the development and oversight of high-quality epidemiologic and clinical research within the Department of Pediatrics at Emory University and Children’s Healthcare of Atlanta. This center aims to understand the end results of specific health care practices and interventions and identifies established investigators to mentor young investigators interested in establishing careers in clinical research. By linking the care people get to the outcomes they experience, outcomes research has become the key to developing better ways to monitor and improve the quality of care.

This center centralizes and coordinates child-health-focused outcomes and epidemiologic research throughout the system, emphasizing strong ties to the Rollins School of Public Health at Emory University and to the Centers for Disease Control and Prevention.  CORPH provides a forum for researchers to learn about available resources including suitable funding opportunities, to garner advice about navigating health services research within our system, and to identify collaborators and investigators.  The Center synergizes with Children’s Healthcare of Atlanta's plans for new wellness initiatives impacting the health of Georgia’s children

·       **Center for Viroscience and Cure (CVC):** The mission of Center for ViroScience and Cure (CVC) is to develop therapeutic and curative strategies that improve the lives of the many who are battling acute, chronic and difficult-to-treat virus infections and related complications.

Our researchers have been highly successful in developing small molecules, from discovery to clinical use, for treating devastating human viral infections. Currently, our drug discovery efforts focus on the following areas:

o   Anti-HIV/AIDS drugs targeting replication and various viral reservoirs

o   Anti-HCV drugs targeting viral replication

o   Anti-HBV drugs targeting viral replication

o   Anti-SARS-CoV-2 small molecule inhibitors

o   Anti-Monkeypox virus small molecule inhibitors

o   Anti-Ebola virus drugs

o   Anti-Zika virus drugs

o   Anti-Influenza virus drugs

o   Anti-Norovirus drugs targeting viral replication

o   Anti-Dengue virus drugs targeting viral replication

o   Anti-respiratory syncytial virus (RSV) drugs targeting viral replication

o   Anti-cancer drugs

o   Experimental models for chronic liver disease

·       **Marcus Autism Center** is one of the largest centers for clinical care of autism spectrum disorder (ASD) in the U.S., offering families access to the latest research, comprehensive testing, and science-based treatments. With the help of grants, community support, and government funding, Marcus Autism Center maximizes the potential of children with autism today and transforms the nature of autism for future generations.

·       **Children’s Center for Neurosciences Research (CCNR)**: Brain development is a complex, incompletely understood process that presents both challenges and innumerable opportunities for important new discoveries. **Children’s Center for Neurosciences Research (CCNR)** aims to be an internationally recognized center for excellence in which multidisciplinary research teams bring insight from developmental neuroscience to the benefit of children with neurologic disorders.

·       **Center for Clinical and Translational Research (CCTR)**: The Center for Clinical and Translational Research is the virtual home for pediatric clinical and translational research. The Center supports innovative clinical research studies and the translation of basic science discoveries into improved child health. The Center integrates closely with the Georgia Clinical and Translational Science Alliance (Georgia CTSA), an NIH/NCRR-sponsored component of the CTSA network.

·       **Children’s Heart Research and Outcomes Center (HeRO)**: he Heart Research and Outcomes Center (HeRO) seeks to reduce the morbidity of pediatric heart disease. Our Center will lead the transformation of focused cardiac research in to innovative therapies for young patients.  Major areas of research include Regenerative and Nanomedicine Technologies, Cardiac Development, Cardiac Outcomes, Cardiac Devices, and Neurodevelopmental Studies. At HeRO we strive to create the next generation of pediatric-specific therapies.  We do this through cutting edge research using nanotechnology, stem cells, and better understanding of normal and abnormal cardiovascular development.  We also look at the whole picture: what will happen to these children as they age from a neurodevelopmental standpoint.  By researching both daily function and long-term outcomes, we hope to have a better understanding of how we can help these children regain normal function.  Our research blends fundamental basic science, with translational and clinical medicine to improve the quality of life of children with CHD.

·       P**ediatric Technology Center (PTC) at Georgia Tech**: The mission of the Pediatric Technology Center is to establish the world’s leading program in the development of technological solutions for children’s health.

Modern biomedical research has made great strides in science and technology that impacts health care, but for the most part these advances have targeted adult populations. While children are often not included in clinical studies, the greatest impact in many areas of health care could be made by identifying and treating disease at the youngest possible age. Children present distinct challenges in all aspects of research and development: they have a different physiology than adults, they grow and change in ways that adults do not, and market drivers for research and commercialization are often seen as less compelling by the private sector.

To accelerate the pace of practical discovery in pediatric medicine, scientists and engineers at the Georgia Institute of Technology work with clinicians and scientists at Children’s Healthcare of Atlanta and other partners on the engineering challenges of translating basic research to clinical practice. These efforts define the Pediatric Technology Center, the only organization in the U.S. designed to address this critical gap.  Here, fundamental insights and new tools are combined to develop better ways to diagnose, treat, and cure diseases and conditions that affect children.

The Pediatric Technology Center is led by its Chief Scientific Officer, Dr. M.G. Finn, and a versatile team with expertise in the following areas:

o   Nanotechnology

o   Regenerative Medicine

o   3-D Printing

o   Diagnostics and Imaging

o   Medical Devices and Device Manufacturing

o   Health Analytics

o   Patient Facing Technologies

o   Medicaid Data for Research

·       **Children’s Center for Immunity and Applied Genomics (CIAG)**: The Children's Center for Immunity and Applied Genomics (CIAG) is a multi-faceted center that works closely with physicians and researchers from Children's Healthcare of Atlanta, Emory University, and the Georgia Institute of Technology. With the advances in genomics that have begun to drive personalized and precision medicine, CIAG has made the strategic decision to maintain its focus on immunology while serving as a primary driver of precision molecular medicine for children in Atlanta. CIAG is co-directed by Dr. Subra Kugathasan and Dr. Greg Gibson. The main goals of the CIAG include the following:

* Conduct precision diagnostics through applied genomics
* Create personalized management plans to prevent complications, improve outcomes, and enhance the quality of life
* Develop precision therapeutics through pharmacogenomics, tailoring drug therapies to each patient's genetic makeup
* Prevent disease progression through detection of at-risk siblings and unborn children
* Foster inter-institutional and cross-departmental collaborations to combine expertise across Georgia Tech, Emory University, and Children's Healthcare of Atlanta
* Coordinate regulatory and fiscal affairs required to gain approval for genomic profiling and on-and off-label interventions in keeping with initiatives at children's hospitals all over the country
* Sharpen our focus on genomics-enabled precision medicine

 Each center’s activities are supported through an NIH-funded leader, primary faculty membership, and a wide array of collaborators from Children’s, Emory, Morehouse School of Medicine, Georgia Institute of Technology and other area institutions.