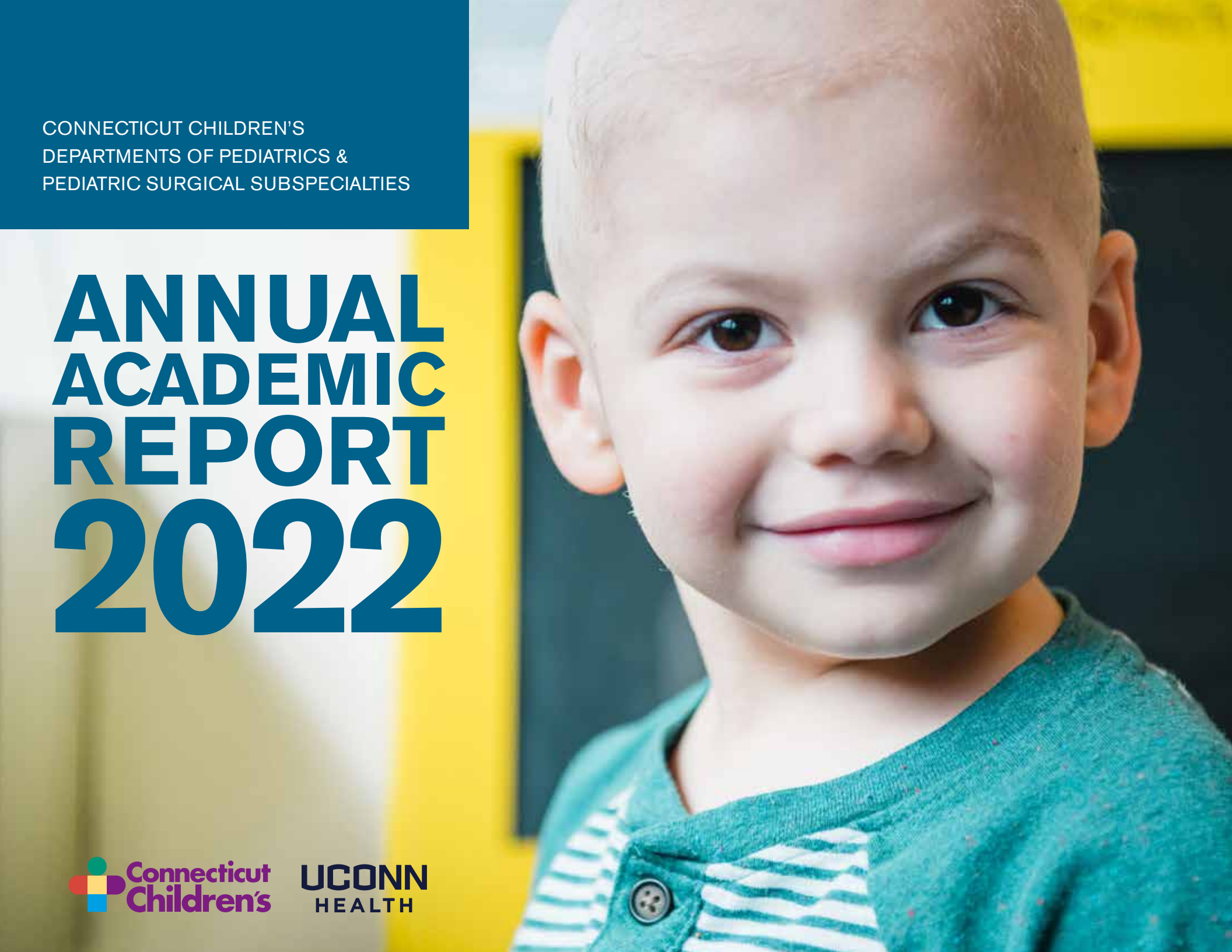
CONNECTICUT CHILDREN'S
DEPARTMENTS OF PEDIATRICS &
PEDIATRIC SURGICAL SUBSPECIALTIES

ANNUAL ACADEMIC REPORT 2022



Connecticut Children's

UCONN HEALTH

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Christine Finck, MD, FACS
Professor of Surgery and Pediatrics
Vice Chair of Surgery
University of Connecticut School of Medicine

Peter Deckers Endowed Chair of Pediatric Surgery
Surgeon-in-Chief, Executive Vice President
Connecticut Children's

Dear Colleagues and Friends,

It is with great pleasure that we present the 13th Annual Report from the Department of Pediatric Surgical Subspecialties of Connecticut Children's and the 9th combined report with the Department of Pediatrics. This report demonstrates the powerful alignment between Surgery and Pediatrics and the continued multidisciplinary growth of combined surgical and pediatric programs at Connecticut Children's.

As we reflect on the challenges over the last year, I am inspired by our Connecticut Children's team. Despite having to shut down portions of the operating room for the construction of our hybrid OR space, the Department of Surgery was able to perform 10,448 surgical procedures in fiscal year 2022. The teams worked hard to be flexible, resourceful, and to deliver the care our young patients deserve. Because of this hard work, we now have a state of the art Hybrid Operating Room - the only pediatric specific hybrid OR in the state. This expanded clinical space combines advanced imaging technology with minimally invasive operative techniques, and can expeditiously transition to open operative intervention when necessary.

In 2022, we were pleased to earn national recognition for three of our medical and surgical divisions. *U.S. News & World Report* ranked Connecticut Children's Divisions of Gastroenterology & GI Surgery, Neonatology, and Urology as among the best in the country. We are also very proud that Connecticut Children's received Children's Surgery Verification designation from the American College of Surgeons. In addition, Connecticut Children's continues its Magnet® designation for Nursing and the Bariatric Surgery Program (in collaboration with Hartford Hospital), as well as a Center of Excellence as determined by the American College of Surgeons and the American Society for Metabolic and Bariatric Surgery. Connecticut Children's is the only pediatric center in the state to hold this designation. Finally, we received re-verification of our Level I status for trauma.

Our strategic mission is to transform care for children and, in line with this mission, we are building a premiere Fetal Care Center to care for our smallest patients. We have successfully recruited a fetal surgeon, Dr. Timothy Crombleholme, who is actively building his team and program. We continue this work with strong pediatric cardiac surgery care from our pediatric cardiac surgeons, Dennis Mello, MD, and Kenneth Warner, MD. This team and our pediatric cardiologists and pediatric intensivists provide optimal care for some of the most critically ill neonates. For our future cardiac intensive care unit, we have recruited our first cardiac intensivist, Dr. Monika Gupta. In addition, our interventional cardiologists, Cesar Igor Mesia, MD, and Caitlyn Heyden, DO, are forging frontiers with transcatheter valve replacements. Our entire team is working together to build a state-of-the-art cardiovascular institute to serve the region under Dr. Mello and Dr. Upadhyay's leadership.

This past year, we continued to build on our *close-to-home* strategy, providing the right care at the right time as close as possible to our patients' homes via clinics in new regions. In Fairfield County, our new Westport Specialty Care Center has opened its doors and joins Specialty Care Centers in Danbury and Shelton. The specialties that provide care in these areas include pediatric cardiology, pediatric plastic surgery, pediatric orthopedics and sports medicine, pediatric neurosurgery, pediatric otolaryngology, pediatric surgery, and pediatric urology. Additionally, we increased the number of surgical services in our South Hadley Specialty Care Center to reach the children of northern Connecticut and western Massachusetts, including pediatric cardiology, pediatric neurosurgery, and pediatric otolaryngology. Through all of these expansions, we are sharing Connecticut Children's expertise as widely as possible to our patients and their families.

Some specific highlights from the past year:

Innovation through research is integral to the mission of the department, and powerfully demonstrated this year with the launch of a new company, Esophadex, Inc., focused on a novel device to care for children born with esophageal defects. Moving forward, our research and innovation efforts will continue to expand into the following areas with the support of the Center for Innovation: inflammation biology, regenerative medicine, rare diseases, oncology, and health services.

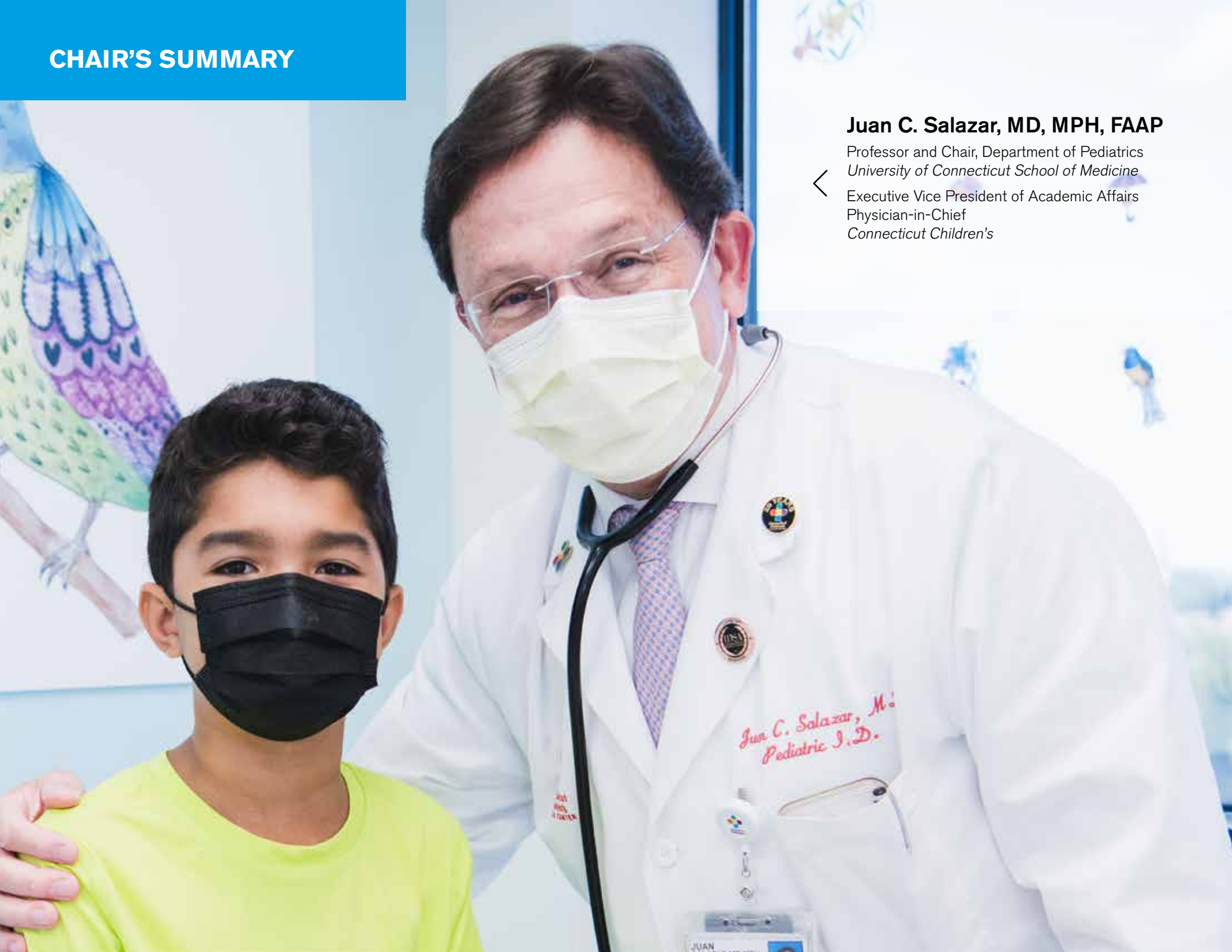
Education of the next generation of pediatric surgery specialists is another core mission of the department. Annually, dozens of students and residents from the University of Connecticut, Quinnipiac University, and other institutions receive their required pediatric subspecialty surgery training at Connecticut Children's. Pediatric Neurosurgery now serves as the site for the newly implemented neurosurgical residency at the University of Connecticut. In addition, Pediatric Cardiology has begun training their first fellow.

As we grow our footprint in Connecticut and remain enthusiastic champions for innovation and education, we will continue to aggressively pursue our mission of giving the highest quality, state-of-the-art care for children of the region. Our vision will always center on providing the best surgical experience, close to home, for our pediatric patients and their families.

Sincerely,

Christine Finck, MD, FACS

CHAIR'S SUMMARY



Juan C. Salazar, MD, MPH, FAAP

Professor and Chair, Department of Pediatrics
University of Connecticut School of Medicine

Executive Vice President of Academic Affairs
Physician-in-Chief
Connecticut Children's

Dear Colleagues and Friends,

It is with great joy that we present the combined *2022 Annual Academic Report for the Departments of Pediatrics and Pediatric Surgical Subspecialties* and share with you the remarkable accomplishments and achievements of our staff.

The year 2022 saw our country and our hospital begin to move into the post-pandemic phase of COVID-19, which brought with it a subsequent increase in patients experiencing behavioral health care needs and a tremendous surge in children experiencing respiratory viruses. Our Emergency Medicine team rose to this challenge as they always have – with a sense of resolve, purpose, and mission for the children we serve. In addition to our Emergency Medicine and Pediatric Hospital Medicine colleagues, our entire hospital stepped up to support this unprecedented surge in patients seeking inpatient beds, providing care to our "boarder" patients day and night throughout the fall and winter. Connecticut Children's and our incredible physicians, APPs, nurses, techs, and team members exemplified our One Team ethos and made it possible for us to weather the storm by working collaboratively, compassionately, and with a sense of teamwork.

A significant feature of 2022 was the completion of the planning phase for our new tower. While we are still a few years away from having a fully constructed tower, our teams were hard at work planning for the next chapter in Connecticut Children's history – a new high acuity destination featuring 13 adaptable beds, 50 private NICU rooms, Advanced Cellular and Gene Therapy, an expanded Emergency Department and Zone C, a Fetal Care Center, an inpatient Med/Psych unit, new operating rooms, a new pharmacy, and additional space for expanded growth and parking. This marks the beginning of a turning point for our hospital – when we first opened our doors 27 years ago, our facility was big enough for the care we provided. As our subspecialties, surgical teams, and educational programs have grown in the subsequent two-and-a-half decades, our need for additional space has been clear. We are excited to be one-step closer to realizing our collective dream of expanded and updated space where we can continue to provide excellent care for all of the children of Connecticut and the greater Northeast. As part of this vital work, Connecticut Children's was excited to welcome our new Chief Operating Officer, Robert Duncan, who joined us in 2022 and has helped spearhead the next phase of our health system's future.

In addition to planning for our future, we were able to celebrate many wonderful accomplishments in the present. This year we were fortunate to recruit a number of highly qualified clinical experts and leaders to lead our divisions: John Brancato, MD, Emergency Medicine; Michael Isakoff, MD, Hematology/Oncology; Louisa Kalsner, MD, Genetics; Ian Michelow, MD, Infectious Diseases and Immunology; Sherene Mason, MD, Nephrology; Stewart Mackie, MD, Pediatric Residency Program; and Haviva Veler, MD, Pulmonary Medicine. These remarkable leaders represent our growth and excellence in 2022 and will continue to build upon our great foundation in the years to come.

Our physicians, faculty, researchers, and administrative staff achieved significant distinctions in 2022 with remarkable accomplishments across all areas. We were fortunate to add 55 new faculty members, including 50 pediatricians and five pediatric surgeons. In addition, *U.S. News & World Report* again ranked Connecticut Children's as a top children's hospital in the nation for 2022-23. Three of our subspecialties ranked in the Top 50 programs nationally: Gastroenterology & GI Surgery, Neonatology, and Urology. These recognitions are a testament to the remarkable work being done by our clinicians and staff.

Our research team had a tremendous year of growth and productivity in 2022. We celebrated the promotion of three of our most valued leaders: Annamarie Beaulieu, MPH, promoted to Vice President of Academic Affairs and the Connecticut Children's Research Institute (CCRI); Marianne Custer, promoted to Administrative Director of Medical Education; and William T. Zempsky, MD, appointed as Vice Chair of Academic Affairs and Research. Under their leadership, the CCRI hosted its 2nd Annual Research Symposium which was attended by over one hundred scientists and researchers. Our research team continued to thrive in 2022.

It has been an honor and a privilege to serve, once again, alongside the exceedingly talented team at Connecticut Children's, and to support, applaud, and participate in the efforts that define our institution's success. Connecticut Children's would not be in a position for continued growth and success without the leadership and generous support of our dean, Bruce T. Liang, MD, and the ongoing support of our Executive Management Team, led by Jim Shmerling and our Board of Directors. We know they share our immense pride in celebrating the exceptional achievements of 2022.

Very Sincerely,

Juan C. Salazar, MD, MPH, FAAP

THIS YEAR'S HIGHLIGHTS

The year 2022 saw many remarkable highlights from the physicians at Connecticut Children's and the University of Connecticut School of Medicine. From the opening of new locations in Westport and a new Primary Care site in Hartford, to the first steps towards our new tower and Fetal Care Center, numerous teaching and grant awards, promotions, and special events, 2022 was an important year in the history of our academic and clinical care organization.

These important milestones would not be possible without the dedicated and passionate work of our physicians, medical staff, and countless others who turned these dreams into realities. We are honored to share some of the amazing accomplishments of our colleagues and friends. As always, we are extraordinarily grateful for the rich and dynamic contributions of our faculty. Please join us in congratulating our faculty, trainees, and staff on their continued successes and for another precedent setting year.

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CLINICAL ACHIEVEMENTS

BEAR® Implant, First in Connecticut

Connecticut Children's recently became the first health system in Connecticut to use the **BEAR® Implant** to treat a torn pediatric anterior cruciate ligament (ACL), one of the most common sports injuries in the U.S. The surgery, performed by Dr. Allison Crepeau, represents a huge shift from the standard treatment for ACL tears. Prior to this advancement, a patient's best option usually involved major surgery and borrowing healthy tissue from another spot in their knee. The BEAR implant acts as a bridge to help the torn ends of the ACL heal together, speeding healing and improving long-term outcomes.

Westport Specialty Care Center Now Open

Connecticut Children's officially opened the Westport Specialty Care Center with a **ribbon cutting ceremony** on December 15, 2022. The Connecticut Children's Westport Special Care Center is located at 191 Post Road, offering 30,000 square feet of space to provide care for an additional 20,000 children. In the years to come, around 40,000 children are expected to be seen each year at the new Westport location. It features 23 exam rooms and more than 20 of the health system's specialties – including cardiology, oncology and orthopedics – under one roof. It includes exam and procedure rooms; an outpatient infusion center; imaging services; speech, occupational and physical therapies; EEG and echocardiogram services; and a casting room.

The Westport Specialty Care Center follows up on Connecticut Children's tremendous successes with our satellite clinics in Glastonbury and Farmington, as well as other locations throughout Connecticut. By providing care close to home, patients and families can turn to locally trusted resources rather than requiring a trip to the hospital for care. This model has been proven to be effective for our organization and reliable for families in our community.

Primary Care South Now Open

Connecticut Children's was proud to open its new Primary Care South clinic at 100 Retreat Avenue in Hartford, Connecticut in July 2022. This new location was the product of many years of preparation and planning, building on our multi-year partnership with Community Health Centers, Inc. (CHC). In 2022, our contractual relationship with CHC ended and our Primary Care physicians undertook the work of opening our new clinic location a short distance from Connecticut Children's main campus.

Jennifer Haile, MD, serves as medical director for Primary Care South and patients are seen both in-person and in telehealth settings. OR patients are seen both in-person and via telehealth.The location is open Monday through Saturday in 3,500 square feet of space, including 11 exam rooms, one consult room, one behavioral health space, and two multi-user precepting offices. New staff, including MAs, MRs, RNs, LPNs, care coordinators, social workers, psychologists, and a practice coordinator have been hired to join more than 12 physicians and 2 APRNs to increase the services and care provided to children and families at this new location.

Timothy Crombleholme, MD, New Director of the Fetal Care Center

Connecticut Children's recruited a world-renowned fetal care surgeon, Timothy Crombleholme, MD, as the new Director of Connecticut Children's Fetal Care Center, on July 1, 2022. The Fetal Care Center plays an integral part in the future of pediatric care at Connecticut Children's and is part of our planning for our new tower, which will begin construction in 2023. Dr. Crombleholme comes to us from the Medical City Children's Hospital in Dallas, Texas where he was the director of their Fetal Care Center. He is a fetal and neonatal surgeon recognized worldwide for his experience in fetoscopic surgery, open fetal surgery, image-guided fetal intervention and EXIT procedures. He co-authored the book Fetology: Diagnosis and Management of the Fetal Patient, first and second editions, widely considered the gold standard textbook in the field. Dr. Crombleholme has authored or co-authored more than 300 peer-reviewed articles, book chapters and reviews, and has an active basic research laboratory developing innovative fetal interventions such as placental gene therapy for the treatment of severe intrauterine fetal growth restriction. He is also actively involved in clinical research advancing fetal surgery for the treatment of conditions such as twin-twin transfusion syndrome (TTTS), myelomeningocele (MMC), congenital diaphragmatic hernia (CDH) and bladder outlet obstruction (BOO).


Connecticut
Children's

Division of Pediatric Mental Health

Connecticut Children has launched its own Division of Pediatric Mental Health to supplement the services we previously offered through the Institute of Living, a division of Hartford Hospital. A new Division Head, Cristin McDermott, MD, was recruited to help lead the next generation of Psychiatric services at Connecticut Children's, in partnership with Melissa Santos, PhD, Division Head of Pediatric Psychology and Connie Grant, Senior Director of Mental Health Services.

New Tower Receives Approval

Planning for Connecticut Children's new tower continued in 2022 and culminated in approvals from our local, city, and state partners for construction. We are already under construction for the tower. The new LAZ parking garage, to be located across the street from our existing campus, is scheduled to begin construction in xxxx. Construction on the new tower, anticipated to be eight stories and 195,000 square feet, will proceed in the years ahead and is anticipated to be completed by the end of 2025. The new space will include fetal care and expanded surgical areas, a NICU, expanded PICU space, and a new location for our pharmacy services. It will also include updates and renovations to our existing hospital space at 282 Washington Street.

Extending Our Expertise Through Partnerships

Through our Care Alliance partnerships, we have established the largest newborn delivery services network in the State of Connecticut based on the number of hospitals offering neonatology and well-baby care provided by Connecticut Children's. In 2022 alone, we cared for more than half of all NICU babies in the state, and were selected by the Connecticut Department of Public Health to develop and oversee the Connecticut Newborn Diagnosis and Treatment Network, ensuring all babies have the opportunity to thrive.

In March, we were thrilled to participate in the ribbon-cutting ceremony for the new **pediatric inpatient unit at Vassar Brothers Medical Center in Poughkeepsie, NY.** Hospital leadership and Dr. Beth Natt have been working with our partners at Nuvance Health and Vassar Brothers to make the dream of this pediatric unit a reality. Congratulations to everyone on the team who made this possible.

WELCOME TO CONNECTICUT CHILDREN'S

Stewart Mackie, MD was recruited as Program Director for the University of Connecticut School of Medicine's Pediatric Residency Program based at Connecticut Children's. Dr. Mackie takes on this role after a year of outstanding leadership from Dr. Christine Skurkis, who served as interim program director since 2021. Dr. Mackie has served as the program director for the Pediatric Residency Program at the UMass Chan – Baystate and Baystate Children's Hospital since 2020. He has been a powerful advocate for resident education in his role at Baystate, and will be a tremendous asset to our medical education program as Program Director. Additionally, Dr. Mackie will be providing clinical care in the Division of Pediatric Cardiology.

Ian Michelow, MD was hired as Division Head of Infectious Diseases and Immunology at Connecticut Children's. Dr. Michelow takes on this leadership role from John Schreiber, MD, who served as Division Head over the last three years. Dr. Michelow is a national leader in infectious disease research and a remarkable clinician.

Haviva Veler, MD, was recruited as Division Head of Pulmonary Medicine. Dr. Veler takes on this work after several years of interim leadership, first from Dr. MacDara Tynan (recently retired) and currently from Dr. Melanie Sue Collins, a leader in the Pulmonary Division and a great asset to our team.

Carolyn Macica, PhD, MS was hired as Senior Program Manager for Research Operations and Development at Connecticut Children's. Dr. Macica began her new role on May 2, 2022. Dr. Macica served as Associate Professor of Pharmacology at the Yale University School of Medicine and Associate Professor at the Frank H. Netter MD School of Medicine at Quinnipiac University. She also serves as Chair of the Scientific Advisory Board for the XLH Network and has published significant work on patients with XLH (X-linked hypophosphatemia) and other rare metabolic bone disorders. During her time at Quinnipiac, Dr. Macica led the Netter Rare Disease Day Symposium for many years and chaired the Advisory Committee for the school's Rare Disease Day.

DIVERSITY, EQUITY & INCLUSION

DEI Work at Connecticut Children's: Launching a Mentorship Program

As part of our commitment to Diversity, Equity and Inclusion, Connecticut Children's piloted a new mentoring program to ensure team members who reside in Hartford have the support they need to succeed in their positions and advance their careers within our institution. Luis Rivera, Connecticut Children's Community Relations Manager, partnered with the United Way of Central and Northeastern Connecticut to create the program, which receives funding through a grant from Metro Hartford Alliance for Careers in Healthcare (MACH).

The inaugural cohort consists of three mentors and three mentees from Connecticut Children's food services, environmental services, and security department. The kickoff meeting took place on Wednesday, January 26, 2022, where participants learned about the importance of mentoring from the program's organizers and funders.

Help Students STRIVE!
Connecticut Children's Job Shadow Program

During the STRIVE program's inaugural experience on May 6, 2022, six high school students engaged in an interactive professional development experience with volunteers from Connecticut Children's. Beyond shadowing a professional, STRIVE participants explored how allied fields cooperate in the treatment and healing of our patients, including social work, nursing, marketing and communications, continual improvement, administrative, and patient access. STRIVE truly seeks to be a full spectrum introduction to Connecticut's only dedicated children's health system.

STRIVE has also established a new and exciting partnership with Hartford Promise to promote future career opportunities for students in our community. The mission of Hartford Promise is to transform the lives of thousands of Hartford students through an integrated college success model that provides them with financial resources, support services, and key relationships that lead to college success and economic mobility.

HONORS & AWARDS

We are proud to say that Connecticut Children's **Neonatal Intensive Care Network once again was recognized for delivering best care in state in 2022-2023** *U.S. News & World Report* Best Children's Hospital rankings, and in the Top 40 nationwide among more than 1,500 NICUs across the country. Connecticut Children's has established the largest newborn delivery services network in the state of Connecticut based on the number of hospitals for whom it provides neonatology care. In addition to Connecticut Children's two NICUs located in Hartford and Farmington, Connecticut, the health system also provides newborn delivery services at 13 hospitals, across 2 states, including 9 total NICUs. Connecticut Children's Care Alliance partnerships with adult health systems allow the system to deliver the best neonatal care in the region.

In addition to its Top 40 neonatology ranking, Connecticut Children's was also ranked in the Top 50 programs nationally by *U.S. News & World Report* in **Gastroenterology and GI surgery**, as well as in **Urology.**

The Human Research Protection Program (HRPP) earned full accreditation for another 5 years from the Association for the Accreditation of Human Research Protection Programs, Inc. (AAHRPP), a testament to Connecticut Children's commitment to conducting ethical research and protecting the rights and welfare of research participants. Earning reaccreditation of our human research protection program offers assurances that the highest quality research is being conducted at our organization, to research participants, researchers, sponsors, government regulators, external organizations relying on our IRB, and the general public.

Connecticut Children's received the **2022 American Heart Association for its continued success in using the Get With the Guidelines®-Resuscitation Award (Gold).** Hospitals awarded this achievement commit to applying the most up-to-date, evidence-based treatment guidelines to improve patient care and outcomes in the communities they serve.

For the sixth consecutive year, the College of Healthcare Management Executive (CHIME) named Connecticut Children's to the **Digital Health Most Wired list of hospitals.** Connecticut Children's is one of only five percent of hospitals nationwide to receive this designation.

Connecticut Children's has been named a Best Children's Hospital for the sixth consecutive year by the **Women's Choice Award®**, a true testament to the dedication and expertise of our team members, our high quality care, and our strategic focus on operational excellence. The Women's Choice Award® is America's trusted referral

source for the best in healthcare and identifies children's hospitals that parents and guardians can take their children to with the expectation that they will receive excellent comprehensive care. The Best Children's Hospital designation is based on a point system and self-reported data from almost 60 children's hospitals in the nation. Additionally, Connecticut Children's earned the **Best Children's Emergency Care Award** for receiving a perfect score for the level of care and expertise offered in our Emergency Department, an especially meaningful recognition as we continue to experience unusually high numbers of children fighting RSV, influenza, and COVID.

Connecticut Children's has been named the **2022 eHealthcare Leadership Awards Winner** in the Category of Best COVID-19 Pandemic Related Communications.

Connecticut Children's and the University of Connecticut School of Medicine's Pediatric Residency Program were reaccredited by the ACGME with no citations, a tremendous accomplishment and a continuation of the record of excellence in our GME programs.

INDIVIDUAL HONORS & ACHIEVEMENTS

Dean Bruce T. Liang, MD appointed **Anton Alerte, MD** to serve as interim Associate Dean of Primary Care, succeeding Dr. Bruce Gould who retired after more than 20 years of leadership and dedication to the role. He is a professor of pediatrics and proud alum of the School of Medicine. He has served as chair of the Medical School Admissions Committee, co-director of clinical foundation courses and medical director of the Clinical Longitudinal in the community curriculum, as well as president of the School of Medicine Alumni Board. He has been a powerful advocate for patients and students at Connecticut Children's, the University of Connecticut School of Medicine, and the Burgdorf Clinic.

Annamarie Beaulieu, MPH, Senior Director, Academic Affairs, Research, and Sponsored Programs at Connecticut Children's and the Connecticut Children's Research Institute (CCRI), has been promoted to vice president of Academic Affairs and the Connecticut Children's Research Institute. In her new role as vice president, Annamarie will enhance our leadership team and continue to build strategy in support of the growth and development of our academic and research operations. Annamarie was also elected to a two-year term as Communications Director for the Association of Administrators in Academic Pediatrics (AAAP).

John Brancato, MD was appointed to the role of Division Head of Pediatric Emergency Medicine at Connecticut Children's. He has many years of strong leadership and clinical experience, serving as Interim Division Head from April 2019 through February 2020 and as Associate Division Head and Medical Director of the Emergency Department.

Laura Caneira, APRN was recently honored as a healthcare hero for her incredible service to the Division of Child Abuse Pediatrics/SCAN. Laura is a team player with a compassionate spirit and the soul of an educator – as Dr. Nina Livingston stated, she is the "heart and soul" of her team.

Andrew Carlson, MD assumed the role of Medical Director of Primary Care at Connecticut Children's in May 2022.

Dean Bruce T. Liang, MD invited **Christopher Carroll, MD** to the School of Medicine Senior Appointments and Promotions Committee (SAPC) as a secondary member for a three-year term, through August 2025.

Melanie Sue Collins, MD assumed the role of Interim Head, Division of Pediatric Pulmonology at Connecticut Children's, succeeding Dr. MacDara Tynan who served to the Division of Pediatric Pulmonology as Interim Division Head during the COVID-19 pandemic.

Marianne Custer, BS, C-TAGME was promoted to Administrative Director, Medical Education. Marianne oversees all administrative aspects of current medical education programs for our medical students, residents/fellows, and continuing medical education, and supports strategic growth for new programs and experiences.

Brooke Davey, MD, was the elected president of NECCA and chaired the 2022 NECCA meeting in 2022.

Jennifer Haile, MD, was appointed to the Department of Public Health Lead Poisoning Prevention and Treatment Legislative Workgroup. She continues to serve as medical director of the Connecticut Children's Lead Poisoning Prevention Treatment Center.

Eric Hoppa, MD was appointed as Medical Director for the Emergency Department. Dr. Hoppa has long been a leader and expert in Quality Improvement and Patient Safety and resident education, developing pathways to improve treatment and serving our residents as Associate Program Director in the Pediatric Residency Program.

Louisa Kalsner, MD was appointed as Division Head of Genetics at Connecticut Children's. Dr. Kalsner assumes the leadership of the division from Dr. Karen Rubin, who served as interim division head for the past three years and has been an incredible steward of the division.

Robert Keder, MD, from the Division of Developmental-Behavioral Pediatrics was invited to present at the American Academy of Pediatrics Council on School Health 2022 National Conference. Dr. Keder will be leading a 90-minute panel and Q&A discussion on successful behavioral health care collaboration between schools and primary care providers during this prestigious conference.

Sherene Mason, MD, MBA, took on a new leadership role as Division Head and the Robert R. Rosenheim Endowed Chair for Nephrology at Connecticut Children's. Dr. Mason follows our great colleague, Cynthia Silva, MD, who has moved on to explore other opportunities in her career. Dr. Silva established a nationally renowned reputation in Pediatric Nephrology and was an instrumental leader in the creation of the Robert R. Rosenheim Foundation Dialysis Center. Dr. Mason has been a great advocate for our patients and is an asset to our organization as Division Head and Rosenheim Chair.

Amira Mohamed-Ahmed, MD, completed the Harvard Medical School Safety, Quality, Informatics and Leadership Program in 2022.

The American Academy of Orthopaedic Surgeons (AAOS) nominated **Kristan Pierz, MD** to the Commission on Motion Lab Accreditation Board of Directors.

Melissa Santos, PhD was appointed Associate Chair of Diversity, Equity, and Inclusion for the Department of Pediatrics and Pediatric Surgical Specialties at Connecticut Children's and the University of Connecticut School of Medicine. She will play an important role in expanding the footprint of our Diversity, Equity, and Inclusion efforts by working collaboratively with physicians, hospital leadership, and the Office of Faculty Development to center DEI as a core pillar of our current and future growth.

John Schreiber, MD transitioned from his role as Division Head for Infectious Diseases and Immunology to serve as medical director of Infection Control. John Schreiber has been a remarkable institutional leader throughout the COVID-19 pandemic and has made our organization a national leader in forward-thinking responses to the pandemic.

Jennifer Schwab, MD, appointed as Division Head for the Division of Community Pediatrics. Dr. Schwab takes over the leadership of the Division from our great friend and colleague, Dr. Doug MacGilpin, who was an outstanding leader and remains a valued member of our team. Dr. Schwab is a graduate of the University of Massachusetts Medical School and served as a resident at the University of Connecticut School of Medicine.

Anand Sekaran, MD, accepted a new role as System Chair of Pediatrics for Nuvance Health. In this role, Dr. Sekaran will oversee all pediatric divisions across the seven-hospital Nuvance system and will provide his leadership and expertise to enhance and grow pediatrics at Nuvance Health. He will also work to strengthen the partnership and Care Alliance between Connecticut Children's and Nuvance Health. This alliance works to improve access to Connecticut Children's pediatric expertise for all inpatient; NICU and nursery care for children and families in western Connecticut and eastern New York. In addition, Dr. Sekaran has also been named as the **Bridgett and Dominick Colabella Endowed Chair of Pediatrics at Nuvance Health.**

Dr. Sekaran will remain Division Head of PHM and director of Inpatient Services at Connecticut Children's while serving in his new role.

Catherine Sullivan, MD was appointed new Co-director of Inpatient Medical/ Psychiatric Services at Connecticut Children's. She has recently gained expertise and wide recognition in the care of patienats with Somatic Symptoms and Related Disorders (SSRD). This work has led to the development of a novel Clinical Pathway as well as multiple regional and national presentations. Her efforts have helped shape the national guidelines on the care of SSRD patients.

Jody Terranova, DO was elected President of the CT Chapter of the American Academy of Pediatrics.

William Zempsky, MD was appointed the Vice Chair for Academic Affairs and Research. He has played an integral role in the development of the Connecticut Children's Research Institute. He will expand his responsibilities in this new role by assisting the chair in oversight and development of all academic activities in the Department of Pediatrics. He will work with our division heads to optimize the mentorship and success of junior faculty in support of our organization's academic mission. He will also assist the chair in implementing the strategic vision of the department.

As it has been our wonderful tradition, teaching awards were presented by our residents as follows:

The **Resident Didactic Teaching** award presented to Cem Demirci, MD; Felice Heller, MD, Victoria Grossi, MD, Keri Wallace, MD; Robyn Matlof, MD; Heather Tory, MD; Jeffrey Thomson, MD; Jennifer Downs, MD.

Presentation of monthly **McNeill Teaching Award** to Eliot Melendez, MD; Keri Wallace, MD; Jane Im, MD; Andrew Carlson, MD; Melanie Rudnick, MD; Hayley Wolfgruber, MD; Hareem Park, MD; Allyson McDermott, MD; Sharon Smith, MD.

Excellence in Teaching in an affiliated Pediatric Field Award presented to Douglas Moote, MD.

Douglas MacGilpin Community Physician Award for recognition of outstanding role mole presented to Keri Wallace, MD.

Excellence in Teaching in Acute Care Award presented to Elliot Melendez, MD.

Excellence in Teaching in a Subspecialty Award presented to Hassan El Chebib, MD and Cem Demirci, MD.

Faculty Excellence in Teaching Award went to Melanie Rudnick, MD.
The Outstanding Contributions to Education and Career Development Award presented to Sharon Smith, MD.

The Leon Chameides Lifetime Achievement Award was presented to Douglas MacGilpin, MD in recognition of his 43 years of teaching and mentoring.

Physician-in-Chief Juan Salazar, MD, presented the **2022 Chair's Awards** to:

- **Melissa Santos, PhD,** Chair's Award for Wellbeing
- **Ching Lau, MD, PhD,** Chair's Award for Innovation
- **Christine Skurkis, MD,** Chair's Award for Teaching
- **Nina Livingston, MD,** Chair's Award for Citizenship
- **John Brancato, MD,** Chair Award for Citizenship

EDUCATION & OUTREACH

Connecticut Children's and the University of Connecticut School of Medicine were proud to honor the lifetime contributions of our former Pediatric Residency Director and current Senior Advisor to the Chair of Pediatrics, Dr. Edwin Zalneraitis. Dr. Zalneraitis, known lovingly as Dr. Z, has been a foundational leader in our organization and helped lead our residency program since the founding of our organization in 1996.

On September 15, 2022, medical education and physician leaders from throughout the UConn School of Medicine gathered to celebrate Dr. Z's many accomplishments and contributions to pediatric education. We were honored to be joined by Dean Bruce Liang, Dr. Paul Dworkin, Dr. Leon Chameides, Dr. John Raye, Dr. Jeffrey Hyams, and former residents Dr. Arvin Garg and Dr. Priti Bhansali on this special day. Connecticut Children's was pleased to announce the founding of a new **Teaching Academy** named in Dr. Z's honor, which will carry on his legacy of educational excellence in the years ahead.

RESEARCH

The Connecticut Children's Research Institute (CCRI) was proud to host its 2nd Annual Research Symposium on November 30, 2022. This event, which took place in-person and virtually at the Hartford Healthcare Bone and Joint Institute, was a resounding success and featured presentations from Connecticut Children's researchers including Drs. Courtney Rowe, Carolyn Macica, Candice Jersey, Emily Wakefield, Jeffrey Hyams, and Katie Hinderer, as well as Vaishali Belamkar and Nathan Leclair. Invited keynote presentations were shared by Dr. Lon Cardon, President and CEO of The Jackson Laboratory; Dr. Akhgar Ghassabian of New York University; and Dr. Timothy Crombleholme, Director of the Connecticut Children's Fetal Care Center.

GRANTS

Travelers made a $1 Million commitment to Connecticut Children's Foundation in support of pediatric mental health programs, announced on September 6, 2022. The generous commitment from Travelers supports our expansion of mental health program to enable more families to seek care on an outpatient basis, as well as in the proposed inpatient medical-psychiatric unit.

In addition, Travelers has invited representatives from Connecticut Children's to provide an ongoing series of virtual events for their employees to provide greater engagement between Connecticut Children's and Travelers.

Connecticut Children's Connection Is a community of members committed to supporting Connecticut Children's mission and providing the care children and families deserve. In conjunction with Medical Center leadership, six promising research scientists were invited to submit a request for proposal (RFP) for a $50,000 grant. The RFPs were reviewed by a committee of Connecticut Children's Connection members and three finalists were invited to present their proposals at Connecticut Children's Connection Funding Selection Event on March 22, 2022:

- David Hersh, MD, Neurosurgery: Bone Flap Resorption Following Autologous Cranioplasty
- Courtney Rowe, MD, Urology: A Novel Stent to Transform Urethral Healing
- Melissa Santos, PhD, Behavioral Health: Creating PAW Online

Courtney Rowe, MD, was selected as the recipient of Connecticut Children's Connection's inaugural $50,000 research grant. Dr. Rowe and Dr. Kelly Burke from the University of Connecticut have designed and preliminarily patented a urethral stent made of a biocompatible thermoplastic polyurethane (TPU) elastomer combined with silk microspheres to provide slow-release of Growth factors (GFs) in an effort to stimulate wound healing and produce a therapeutic approach to improve urethral healing. The $50,000 research grant will provide the opportunity to perform testing of their stent material to deliver preliminary data to apply for a larger NIH Career Award.

Kelly Hawley, PhD Research Scientist received a Good Ventures award to fund her project *Formulation and Assessment of a de nova Designed, Multivalent Syphilis Vaccine.* Dr. Hawley's leadership in pursuit of a syphilis vaccine is a powerful demonstration of Connecticut Children's research excellence.

The **Office of Community Health** and the **Injury Prevention Center (IPC)** received three year, $2 million grant from the City of Hartford to break the cycle of gun violence and other crimes in our communities. The IPC is working with two other hospitals and three community-based organizations to engage victims of firearm violence as they recover from injuries in the hospital to deter retaliation and improve outcomes. Congratulations to Kevin Borrup, Dr. Paul Dworkin, and their colleagues on securing this vital investment!

Healthy Homes received a $2 million grant from the U.S. Department of Health and Human Services to develop and implement the Neighborhood Environmental Assessment and Restoration (NEAR) program, which will utilize a block-by-block approach to build sustainable capacity for healthy homes in multiple neighborhoods in Hartford, with a focus on the North Hartford Promise Zone.

William Zempsky, MD received two new grants as a co-investigator – an R33/61 Grant for pain in sickle cell disease and a TOW Foundation grant to develop a portal for resources for LGTBQ+ youth.

MEDIA

Mental Health Matters: Kids in the Digital Age. On February 24, Melissa Santos, PhD, Division Head, Pediatric Psychology at Connecticut Children's, and Jennifer Schwab, MD of our Care Network joined lawmakers and parents on WTNH Channel I to discuss the COVID-19 pandemic and its impact on children's mental health.

In Connecticut, hundreds of children living in older homes suffer from lead poisoning, despite a ban on lead-based paint enacted in 1989. **Jennifer Haile, MD,** Medical Director of the regional Lead Treatment Program, told NBC news "Essentially once you've been exposed to lead, it gets absorbed into your muscles, in your bones and your tissue. It could takes months to years before it gets out of your system."

A surge of patients with common respiratory viruses, particularly RSV (respiratory syncytial virus) caused an unusually high number of cases and hospitalizations among kids prompting a flurry of local press coverage. "We saw a little bit of RSV last year, but this dramatic increase in cases of RSV in September and October is not something we have seen before historically," **Dr. Juan Salazar,** Executive Vice President and Physician-in-Chief at Connecticut Children's, told NBC TODAY.

Connecticut hospitals join National Gun safety movement to address guns as leading cause of death in kids. "As a parent, you can't always control the risks faced by your child. But, when it comes to firearms, you can control whether unlocked guns are present in the place your child lives," said **Kevin Borrup, DrPH, JD, MPA,** Executive Director of Connecticut Children's Injury Prevention Center.

OTHER

Appendix A of the SOM Bylaws was updated to state that all members of the Pediatric Department at Connecticut Children's will NOT be held to the FTE requirement that differentiates an affiliated faculty from a community faculty title. While faculty will remain affiliated, there is no need to modify their appointment type if they reduce below 80% FTE.

On March 26, 2022, Quinnipiac hosted its **QTHON,** a ten-hour in person dance marathon raising funds and awareness for Connecticut Children's. Over 750 students participated in the year-long fundraising initiative, The QTHON community raised a total of $125,040 for Connecticut Children's.

On April 2, 2022, UConn hosted its annual **HuskyTHON,** an eighteen-hour dance marathon benefitting Connecticut Children's. Over 3,500 students participated in the year-long fundraising initiative, each raising a minimum of $250 for the cause. It was first year back in person since the COVID-19 pandemic and the HuskyTHON community had yet another unbelievably successful year, raising a total of $1,340,671 for Connecticut Children's.

APPOINTMENTS AND PROMOTIONS

Promotion to Professor Emeritus

- Paul H Dworkin, MD
  Executive Vice President for Community Child Health

Promotion to Professor

- Olga Toro Salazar, MD, Professor of pediatrics
  Division of Cardiology
- Catherine Wiley, MD, Professor of pediatrics
  Division of General Pediatrics
- Brendan Campbell, MD, Professor of surgery
  Department of Surgery

Appointment to Associate Professor

- Anna Tsirka, MD, Associate Professor of pediatrics
  Division of Cardiology
- Karen Loechner, MD, Associate Professor of pediatrics
  Division of Endocrinology and Diabetes

Promotion to Associate Professor

- Natalie Bezler, MD, Associate Professor of pediatrics
  Division of Hematology/Oncology
- Donna Boruchov, MD, Associate Professor of pediatrics
  Division of Hematology/Oncology
- Allison Cowl, MD, Associate Professor of pediatrics
  Division of Pediatric Critical Care
- Brooke Davey, MD, Associate Professor of pediatrics
  Division of Cardiology
- Richelle deMayo, MD, Associate Professor of pediatrics
  Division of Clinical Informatics
- Felice Heller, MD, Associate Professor of pediatrics
  Division of Cardiology
- Shabnam Lainwala, MD, Associate Professor of pediatrics
  Division of Neonatal-Perinatal Medicine
- Carla Pruden, MD, Associate Professor of pediatrics
  Division of Emergency Medicine
- David Sink, MD, Associate Professor of pediatrics
  Division of Neonatal-Perinatal Medicine
- Heather Tory, MD, Associate Professor of pediatrics
  Division of Rheumatology
- Jennifer Trzaski, MD, Associate Professor of pediatrics
  Division of Neonatal-Perinatal Medicine
- Alicia Wang, MD, Associate Professor of pediatrics
  Division of Cardiology
- Bella Zeisler, MD, Associate Professor of pediatrics
  Division of Digestive Diseases, Hepatology and Nutrition

Promotion to Assistant Professor

- Brooke E. Bohn, MD, Assistant Professor of pediatrics

Promotion to Assistant Clinical Professor

- Jennifer Schwab, MD, Assistant Clinical Professor
  Division Head, Community Pediatrics

New Faculty

In 2022, 50 new faculty members joined the Departments of Pediatrics and Surgery during 2022 in the following divisions: Adolescent Medicine; Cardiology, Cardiovascular Surgery, Child Abuse SCAN, Child and Adolescent Psychiatry, Craniofacial Clinic, Developmental and Behavioral Pediatrics, Digestive Diseases Hepatology and Nutrition, Emergency Medicine, Endocrinology and Diabetes; Fetal Medicine, Hematology-Oncology, Infectious Diseases and Immunology, Mental Health and Psychology, Neonatal-Perinatal Medicine, Nephrology, Neurology, Ophthalmology; Orthopedics and Sports Medicine, Pediatric Hospital Medicine, Primary Care; Psychiatry, Pulmonary Medicine, Rheumatology, Weight Management (Surgery).

PEDIATRIC SUBSPECIALTIES

ADOLESCENT MEDICINE

The Division of Adolescent Medicine provides specialty care to adolescents and young adults ages 10 to 25 at our Adolescent Medicine Clinic in Farmington. Our services address:

- **Eating Disorders:** Our medical providers evaluate the medical and nutritional status of patients, recommend levels of care, and collaborate with pediatricians, community therapists, and dieticians to provide longitudinal care over time. We also prescribe psychotropic medications for the treatment of anxiety and depression, which are common co-morbid diagnoses in patients with eating disorders.
- **Contraception:** We offer all forms of hormonal contraception, including same-day insertions of IUDs and implants, for both the management of menstrual concerns and for contraception. We also provide non-surgical gynecologic care including Pap smears and sexually transmitted infection (STI) testing and treatment.
- **Menstrual disorders:** We treat a variety of menstrual disorders including abnormal uterine bleeding, dysmenorrhea, irregular menses, primary/secondary amenorrhea, and polycystic ovary syndrome (PCOS).

Division Head Alyssa Bennett, MD and Jessica MacCormac, DO, MS continue to provide primary care services to adolescents and young adults ages 13 to 21 within Primary Care in East Hartford and Farmington. The Division welcomed three new providers this summer and fall: Mandi Boisvert, part-time APRN, per diem physician, Barbara Snyder, MD, and Esther Oziel, MD from Primary Care. We are also actively recruiting for an Adolescent Psychologist to join our team.

EDUCATION

Educating future pediatricians and pediatric subspecialists is an essential part of our mission. University of Connecticut pediatric residents complete a four-week adolescent medicine rotation during their second year of training. The residents work with Connecticut Children's providers as well as our community clinical partners during their rotation. The Division of Adolescent Medicine greatly appreciates the time commitment and teaching contributions of the following clinical preceptors and their colleagues:

- **Connecticut Children's Sports Medicine, Farmington, CT:** Imran Hafeez, MD, and Allison Crepeau, MD
- **Westminster School, Simsbury, CT:** Davis Smith, MD, Medical Director
- **Institute of Living Adolescent Programs, Hartford, CT:** Victoria Urrutia, MD
- **Women's Ambulatory Health Services, Teen Clinic and Family Planning Clinic, Hartford, CT:** Sarah Lindsay, MD, and Sheila Flaum, DO

We also offer an adolescent medicine elective for fourth year medical students from the UConn School of Medicine and the Frank H. Netter MD School of Medicine at Quinnipiac University. Dr. MacCormac continues in her role as the clerkship director of Ambulatory Pediatrics at the UConn School of Medicine.

RESEARCH & GRANTS

Dr. Bennett continues her work with colleagues in the Division of Infectious Diseases on the Department of Public Health Integrated HIV Testing and PrEP Navigation Project

STAFF

Alyssa Bennett, MD, *Division Head*

Jessica MacCormac, DO, MS
Esther Oziel, MD – primary care pediatrician
Barbara Snyder, MD – per Diem
Mandi Boisvert, APRN
Miranda Mitchell, CPNP – per Diem

BIOMEDICAL INFORMATICS

The Division of Pediatric Biomedical Informatics celebrated its sixth anniversary with a sustained focus on sociotechnical solutions to promote high reliability healthcare delivery and equity, sustained by the strengths of our high impact informatics research.

During a year when mental illness and respiratory infection created overlapping national pediatric emergencies, the Division's expertise in information technology systems enabled its members to play key roles optimizing care delivery and supporting health care professionals. The team worked to introduce tools and training to better integrate social and clinical patient care, expanding platform capabilities for suicide risk screening, and onboarding and orienting a "surge" workforce to manage our inpatient census.

Responding to growing concerns about clinician well-being, the members of the division collectively redoubled efforts to minimize provider technostress and maximize efficiency. The increasing use of artificial intelligence enabled ambient documentation technology by pediatric providers in a variety of specialties, improved our satisfaction metrics, and reduced our note-writing burden. Ongoing efforts to review and refine clinical decision support interventions resulted in diminished alert fatigue and savings of more than 33 hours of provider time per month. Members of the division were actively engaged in streamlining documentation templates to eliminate "note bloat," unburden providers, and align with new billing regulations. The team also continued its longstanding "at-elbow" support of their peers' use of the EHR. The division educates the future generation of potential clinical informaticists via both brief and longitudinal trainee rotations that combine mentoring by Clinical Informatics-certified physicians with project-based learning.

Since its inception, the Pediatric Biomedical Informatics Division has proudly striven to use applied informatics as a means of narrowing the gap between existing healthcare practices and societal goals for better

health, healthcare quality, safety, and cost. This year, the team presented its Digital Health Equity toolkit to the Connecticut Public Health Association. With colleagues in Graduate Medical Education, we shared unique elements of the Pediatric Resident Telemedicine curriculum designed to address disparities and bias with attendees of an Association of American Medical Colleges Catalyst workshop. Members of the Division also improved the collection and use of race, ethnicity, and language (REL) data to confirm care delivery meets the needs of historically marginalized and underserved populations.

The Division was delighted when the outstanding contributions to quality improvement made by our hospitalist informaticist, Jane Im, MD, were recognized with the Connecticut Children's Physician Quality Cup 2022 award. Dr. Im represents a remarkable tradition of collaborative service excellence on the Medical Informatics team (Jessica Williams, MD and Chris Grindle, MD having been previously recognized as Connecticut Children's Physician of the Year and Physician Quality Cup awardees, respectively).

Among the division's other significant leadership activities this year: Richelle deMayo, MD served as principal investigator of two clinical trials and co-investigator of a Children's Hospital Association-funded Zero Suicide Initiative. Dr. Williams was appointed the first Patient Quality Safety Officer in Information Solutions and, with Heather Tory, MD, has embarked upon a comprehensive assessment of Connecticut Children's EHR safety features and functions. Dr. Im stepped into the inaugural role of Medical Director of Health Information Exchange and Interoperability and has commenced an environmental scan and action planning to advance capacities for cross-care continuum information sharing. Andrew Heggland, MD and Dr. Williams were named the co-directors of the Division's newly established Core for Intelligent Decision-support and Effective Analytics (IDEA), which will guide this year's implementation of a computable Pediatric Deterioration Index and a randomized evaluation of alternate forms of EHR alerts. The vision of the IDEA Core is to organize resources, build a learning community, and enhance access to technologies, services, and expert consultation related to the science of clinical decision-making. More recently, the Division formalized its commitment to organizing and evolving initiatives for provider well-being, launching a Wellness Informatics and Efficiency Learning Laboratory (WELL) that is led by Dr. Grindle.

Beyond the walls of the medical center, the division's members regularly collaborate with colleagues regionally and nationally. Dr. deMayo serves on the American Medical Informatics Association's Advancement of Health Equity and Antiracism in Healthcare Subcommittee; the American Telemedicine Association's Advisory Group on Using Telehealth to Eliminate Disparities and Inequities; and the American Academy of Pediatrics Council on Clinical Information Technology Executive Nominating Committee. Dr. Williams is an organizing member of a group of US pediatric hospitals working for improved pediatric medication systems safety. Dr. Im acts as a Clinical Advisory Committee member of the state's health information exchange.

STAFF

Richelle deMayo, MD, CM, *Division Head*

Christopher Grindle, MD
Andrew Heggland, MD
Jane Im, MD
Jessica Williams, MD
Robin Bradshaw, APRN

CARDIOLOGY

The mission of the Division of Pediatric Cardiology is to care for and improve the cardiovascular health of newborns, children and adolescents, and to transition them into healthy adulthoods. We strive to embrace discovery, teamwork, integrity and excellence in all that we do.

EXPANSION

The cardiology division provides top quality care close to home for families throughout the region. This year, expansion goals have centered around two central ideas – expanding access across the age continuum, from fetal cardiology to the adult congenital heart program; and increasing the consistency of regional presence. For example, cardiology clinic frequency in Shelton was significantly increased this year in addition to adding an adult congenital clinic at this site.

Expanding access for families has been achieved by strengthening established regional sites (e.g. Danbury, Glastonbury, and Farmington) as well as by continued growth at relatively new clinical sites, including Westport and South Hadley, MA. The end of the calendar year marks an exciting transition to a new facility in Westport after significant progress has been made at the Westport bridge site to establish relationships with local medical providers and the surrounding community in Fairfield County. Outreach efforts are supported by the entire division and lead by Dr. James Enos. In addition, Dr. Raymond Lorenzoni has joined the division following his advanced cardiac imaging fellowship at UCLA, and will have a significant role in expanding cardiology presence in Fairfield County. Through innovative CME outreach and community partnership, the cardiology division has established itself as a go-to resource for referring physicians and families alike. In turn, this has enhanced access to our healthcare system and driven clinical volumes across the cardiology division.

INTERVENTIONAL CARDIOLOGY AND ELECTROPHYSIOLOGY: PROCEDURAL INNOVATIONS

Cesar Igor Mesia, MD, serves as the director of Interventional Cardiology. Interventional cardiologists Caitlin Heyden, MD, and Dr. Mesia perform a full range of interventional procedures at Connecticut Children's and provide 24/7 coverage for interventional cardiology procedures. The access to cardiac catheterization laboratory was limited in 2022 as our lab was undergoing upgrade to a Hybrid Catheterization/ Electrophysiology lab/OR. We continued to perform Cardiac Catheterizations and Interventions in a monoplane cardiac Cath lab at Hartford Hospital through most of 2022. Our Hybrid Lab went live on December 25, 2022, offering rotational angiography with 3D reconstruction in complex patients. In the new lab, we have performed Premature PDA closure successfully in three patients. The catheterization team is developing a background for the development of Edwards trans-catheter pulmonary valve program. We have also established a collaboration with the Adult Cardiology Structural Program at Hartford Hospital in performing complex cases together.

Our electrophysiology laboratory performs state-of-the-art, non-fluoroscopic catheter ablation for supraventricular tachycardia in children. Connecticut Children's is the only medical facility in the state to routinely perform this procedure without X-ray use. Fluoroscopy time for catheter ablation of arrhythmias at Connecticut Children's is significantly lower than the national average. Connecticut Children's provides a dedicated pediatric pacemaker clinic run by a certified pediatric electrophysiologist and a pacemaker nurse. The electrophysiology case count were lower this year due to the upgrade to hybrid lab. The inaugural case of the Hybrid Lab was catheter ablation for supra-ventricular tachycardia in a teenager with an excellent outcome. Our volumes have picked up since the hybrid lab inauguration, averaging eight electrophysiology procedures each month.

The catheterization and electrophysiology laboratory is an active member of the American College of

Cardiology's IMPACT Registry™, a national, multi-institutional cardiovascular data registry designed to support evidence-based guidelines and review of performance benchmarks. The lab also participated in the Reducing Radiation Quality Care Initiative™, leading to drastic reductions in radiation exposure for Connecticut Children's patients. Radiation exposure for catheterization cases has also been substantially reduced with the upgraded hybrid lab.

ADULT CONGENITAL HEART DISEASE PROGRAM

Connecticut Children's provides the most comprehensive care of adults with congenital heart disease (ACHD) in the state of Connecticut. Our CT Adult Congenital Heart Disease Program (CTACH) is the first and only accredited ACHD program in the state of Connecticut, and one of only 48 in the nation. We received our accreditation in 2018 from the Adult Congenital Heart Association (ACHA). Under the leadership of Dr. Felice Heller, Director, and Dr. Anudeep Dodeja, Co-Director, the CTACH program has enjoyed continued growth and productivity. Additional ACHD providers include Dr. Shailendra Upadhyay and Whitney Fairchild, APRN, as well as two dedicated nurses, Felicia Tam, RN and Jamie Bopp, RN. All three of our ACHD physicians have received board certification from the American Board of Internal Medicine in Adult Congenital Heart Disease.

The outpatient clinic follows approximately 1,200 adults with congenital heart disease annually. In collaboration with colleagues from Maternal Fetal Medicine, we provided comprehensive pregnancy management for 24 women with congenital heart disease this year. We have an active inpatient ACHD service at Hartford Hospital where we manage conditions such as heart failure, arrhythmias, and post-op care, and we provide 24/7 call coverage for ACHD both at Connecticut Children's and Hartford Hospital. We are now able to offer behavioral health services to our ACHD population with a dedicated ACHD psychologist, Michael Reiss, PsyD. The adult congenital patients make up approximately 20 percent of our interventional cardiology, electrophysiology and cardiac surgery procedural volumes, and make up more than half of our cardiac MRI volume.

The team provides inpatient consultative services at Hartford Hospital for management of complex congenital heart disease.

With her presentation at the annual Chameides Lecture at pediatric grand rounds in April, Dr. Felice Heller enlightened the "Extraordinary Care of Unique Adult Patients at Connecticut Children's".

NON-INVASIVE IMAGING: PEDIATRIC AND ADULT

Our School of Pediatric Cardiac Ultrasound graduates Olivia Boucher, Briana Campiglio, and Jody Downing, joined our team after training this year. Additional hires included Danielle DeMatteo supporting our Danbury location, Leeza Swierzewski supporting the South Hadley location on per diem basis for fetal imaging, and Bella Levovitz, a pediatric and fetal cardiology sonographer supporting our Westport location expansion. In addition, Kristina Brenners was trained and became board certified in fetal echocardiography to support the Fetal Cardiology program. Our echocardiography team certified by the Intersocietal Accreditation Commission, performs the highest quality echocardiograms with efficient and accurate interpretation to serve the babies, children, and adults with congenital heart disease and acquired cardiac illness in our community.

This fiscal year we performed a record 8,201 transthoracic, trans-esophageal, and fetal echocardiograms with an average of 683 studies per month. This is an increase from 7,655 studies performed in 2021. With the recruitment of our new cardiology fellow, the Echocardiography Lab Education Task Force was created, which is a subgroup of physicians and sonographers focused on optimizing the educational experience within the lab for sonographers, cardiologists, residents, fellows, and other learners. Our lab has continued to stay on top of new technological advances to improve the quality of cardiac imaging of our patients with congenital heart disease.

Dr. Stewart Mackie, new director Pediatric Residency Program joined our division this year and will be a member of our echo lab physician team. In addition, Dr. Raymond Lorenzoni joined our imaging team. He is a recent graduate of an advanced imaging fellowship at Children's Hospital Los Angeles with additional skills in cardiac CT and MRI interpretation.

NON-INVASIVE IMAGING: FETAL

Under the directorship of Alicia Wang, MD, our fetal cardiology program has experienced continued growth to serve our youngest cardiology patients throughout Connecticut and Western Massachusetts. We are on track to reach over 500 fetal cardiology visits this year. We boast an accuracy rate of 98% for fetal cardiac diagnoses and a 99% appropriateness of delivery plan based on postnatal outcome. Our team of fetal cardiologists has expanded with the addition of Raymond Lorenzoni, MD to our current group that includes Alicia Wang, MD, Brooke Davey, MD, Anna Tsirka, MD, and James Enos, MD. We have a robust team of certified fetal sonographers: Kristen Pruner, Danielle DeMatteo, Melanie Bova, and Leeza Swierzewski and newly hired Bella Levovitz and newly certified Kristina Brenners. Rounding out our team of support, we have our dedicated fetal nurse, Lora Rizy, and our new administrative coordinator, Micaela Webster. We work closely with regional MFM and OB practices as well as our neonatologists, palliative care team, and cardiothoracic surgeons. We offer services on our main campus in Hartford as well as Farmington, Danbury, Westport, and South Hadley. We present monthly educational conferences for the regional maternal-fetal medicine specialists, and we are the primary site for teaching fetal echocardiography for the maternal-fetal medicine fellow at the University of Connecticut.

We are very excited to announce a new era in fetal care at Connecticut Children's with the development of the Fetal Care Center under the direction of Dr. Timothy Crombleholme. In addition to cardiac disease, we will be supporting the care of a number of other high-risk fetal conditions.

NON-INVASIVE IMAGING: CARDIAC MRI

Currently, our CMR program utilizes a 3.0 Tesla Magnet located at Connecticut Children's and 1.5 Tesla Magnet located at Hartford Hospital. We are currently a referral program for both pediatric and adult congenital and non-ischemic cardiomyopathies, with cardiac referrals from all over the state. Our cardiac MRI team provides high-quality, noninvasive cardiac imaging for infants and children with congenital and acquired heart disease, pediatric and adults with non-ischemic cardiomyopathy, pediatric and adults with genetic aortopathy, and patients with transfusion-dependent disorders (e.g., thalassemia and sickle cell disease).

Our MRI program is the backbone of our adult congenital heart disease center. By AHA/ACC recommendations, these patients require a CMR study once every three years. Over 1,100 patients over the age of 18 years have been seen at Connecticut Children's consecutively in the past two years. In addition, the MRI program now supports our Cardio-oncology program that images, on average, 50-60 patients per year. During the past fiscal year, we completed 324 CMR studies. Our trajectory should place us at 400 CMR studies per year by the year 2023. We have also developed a comprehensive training curriculum in CMR imaging for MR technologists, including cardiovascular physiology and pathophysiology of congenital and non-congenital heart disease, MR physics applied to cardiovascular CMR applications, and post-processing in a six-month intensive training program provided for 1-2 MR technologists a year.

THE CENTER FOR CARDIO-ONCOLOGY HEALTH AND INNOVATION FOR CANCER SURVIVORS

The Cardio-Oncology program at Connecticut Children's was formalized into the Center for Cardio-Oncology Health and Innovation for Cancer Survivors. It is a dynamic multidisciplinary collaboration of clinicians and researchers to ensure that health outcomes continue to improve for all children diagnosed with cardiotoxicity. The Center's mission is to improve the quality of life of children treated for cancer by reducing or eliminating their risk of cardiotoxicity. Cardiotoxicity is a frequent and devastating adverse complication of anthracycline therapy. With the aim of averting its effects, we started the development of the Cardio-Oncology Program in 2013 with the creation of a registry of pediatric cancer patients treated with cardiotoxic medications. We assembled an interdisciplinary team that includes Oncology, Cardiology, Endocrinology, Kinesiology, Nutrition, Psychology, Social Services and health-care-system engineering to implement primary, secondary, and tertiary heart failure prevention strategies in childhood cancer survivors to avert the deleterious consequences of cancer therapeutics-related cardiac dysfunction (CTRCD). Our team has undertaken novel echocardiographic and CMRI techniques designed to detect acute and chronic subclinical cardiotoxicity in pediatric cancer patients exposed to anthracyclines. Additionally, we have developed and validated cardiovascular risk modeling scores for childhood cancer survivors using our pediatric cancer registry. Starting at the time of cancer diagnosis, our goal is to facilitate safe completion of cancer therapies and lifetime avoidance of preventable cardiovascular toxicity in this vulnerable patient population.

CARDIOMYOPATHY AND HEART FAILURE PROGRAM

Under the directorship of Dr. Tsirka, we initiated the Cardiomyopathy and Heart Failure Program to provide comprehensive expert care to patients with all forms of cardiomyopathy, with an emphasis on genetic cardiomyopathies. The program incorporates multidisciplinary collaboration with state-of-the-art cardiac imaging, risk assessment, genetic counseling, and treatment. Our aim is to expand and become a center of excellence and regional referral center.

INPATIENT CARDIOLOGY

The inpatient cardiology program, under the directorship of Alex Golden, MD, and with the assistance of Katie Kellerman, PA-C, and Jill Sullivan, PA-C, provides care for children and adults with congenital and acquired heart disease who are admitted to the regular nursing floors and ICUs. The team manages patients on the Cardiology and Cardiothoracic Surgery services in a collaborative model, with cardiothoracic surgeons, critical care physicians, neonatologists and other specialists. It further supports the hospital with consultation services for the medical-surgical floor teams, NICU, PICU, Emergency Department, and the Hartford Hospital Well Baby Nursery. The inpatient service has again seen a significant increase this past year in its annual census and number of consultations provided. The inpatient team operates with special

attention to standardization of care, smooth transition of care from the ICU to regular nursing floor settings, and from inpatient to outpatient settings. The inpatient team has collaborated to create standardized pathways for postoperative care of patients undergoing CT Surgery and for diagnosis and treatment of disease such as Kawasaki disease, the Covid-related multisystem inflammatory syndrome in children (MIS-C), and post-mRNA vaccine myopericarditis. The inpatient team provides support and teaching for the new Cardiology Fellowship Program, the Connecticut Children's house staff, and the University of Connecticut medical students.

CARDIO-PULMONARY STRESS TESTING

We have demonstrated a tremendous growth in cardiac and cardio-pulmonary stress test with ~ 550 annual stress tests (up from less than 250 in the prior years). The program is crucial to provide support to the ACHD, cardio-oncology, and general cardiology programs. To meet the increasing demand, we recruited Ms. Bree Ostrowsky, an exercise physiologist.

NON-INVASIVE RHYTHM MONITORING

We perform rhythm monitoring with non-invasive (Holter, Mobile Telemetry, Event monitors) and invasive devices (Implantable Loop Recorders-ILR). We follow one of the largest pediatric patients with ILR in the New England region. These tools give us the ability to remotely monitor and treat heart rhythm disorders.

EDUCATION

Our division is dedicated to the medical education of future providers and medical professionals.

Under the leadership of Dr. Upadhyay as the program director, we have recruited our first pediatric cardiology fellow (Dr. James Wiley) at our newly an ACGME-accredited fellowship program in pediatric cardiology.

Drs. Heller, Dodeja and Upadhyay provide training in congenital heart disease for adult cardiology fellows from Hartford Hospital, John Dempsey Hospital, and Danbury Hospital. Dr. Heller serves as a content expert for the first-year medical student's core curriculum. She created a highly regarded lecture series on congenital heart disease for adult cardiology fellows.

Alicia Wang, MD, provides training in fetal cardiology for the maternal-fetal medicine fellows at the University of Connecticut. We provide subspecialty training for pediatric residents in pediatric cardiology.

We contribute to the training of medical students at both the University of Connecticut and Quinnipiac University.

The School of Pediatric Cardiac Ultrasound through the Hoffman Heart and Vascular Institute of Connecticut is now in its ninth year, and is recognized by the Joint Review Committee on Education in Cardiovascular Technology (JRC-CVT) and the Commission of Accreditation of Allied Health Education Programs (CAAHEP). Connecticut Children's Echo Lab is the training site for didactic and hands-on instruction of pediatric ultrasound for one to two sonographers yearly.

PROFESSIONAL RECOGNITION

Brooke Davey, MD, is the President Elect for New England Congenital Cardiology (NECCA). Dr. Davey also received a New England Congenital Cardiology Research Foundation Award for the project *'Congenital Cardiology Outpatient Demographics in the New England Region'.*

Anudeep Dodeja, MD, received her level 3 SCMR certification this year for the Society of Cardiac MRI.

Felice Heller, MD, has an international reputation as an expert for LMNA cardiomyopathy with patients from outside the state of Connecticut seeking her care.

Seth Lapuk, MD, is on the Connecticut Children's medical staff board of the Executive Committee. He remains a member of the Connecticut chapter of the American Heart Association and the American College of Cardiology board of directors.

Shailendra Upadhyay, MD, appointed medical advisory board member for ACHA. He was an invited faculty at the 9th National Adult Congenital Heart Association (ACHA) Conference 2022 and at the 32nd International Symposium on Adult Congenital Heart Disease, June 7-11, 2022. Due to his expertise in ACHD and electrophysiology, Dr. Upadhyay was invited to contribute to a scientific statement in arrhythmias in tetralogy of Fallot patients by the American Heart Association, Circulation Arrhythmia and Electrophysiology Journal. Whitney Fairchild, APRN, received the 2022 APP Excellence Award. Felicia Tam, RN, received the 2022 Nightingale Award.

CONNECTICUT CHILDREN'S CARDIOLOGY RESEARCH PROGRAM

This year, research scientists in the Division of Cardiology successfully submitted and published several papers in internationally recognized, peer-reviewed journals.

Our research group continues to have a multitude of active projects that include the following areas of exploration:

- **NECCA Collaborative Research**

  Health Disparities in Congenital Heart Disease (Drs. Brooke Davey, Olga Salazar, Alicia Wang). Dr. Davey is the chair of the New England Congenital Cardiology Association (NECCA) Health Disparities Working Group. The working group has champions at ten pediatric cardiology programs with all six states. This year, Dr. Davey presented a poster *'New England Congenital Cardiology: A Regional Evaluation of Physician Diversity and Training in Healthcare Disparities'* at the Pediatric Academic Societies meeting in Denver, CO. Dr. Davey was also invited to present the "NECCA Health Disparities Working Group Update" and the "NECCRF Update" at the 2022 NECCA Annual Fall Meeting in North Conway, NH.

  Fontan Working Group: This study aimed to determine the clinical characteristics of a Fontan

patient with low risk for mortality or significant morbidity over a 12-month period of follow-up and evaluate how well providers can identify patients at low vs. high risk of an adverse event. The results demonstrate that cardiologists are only marginally able to predict which Fontan individuals are at risk for major adverse events over 12 months. These findings were presented in poster format at the American Heart Association Scientific Sessions 2022 in Chicago, IL, and manuscript preparation is ongoing.

- **Fetal Cardiology Research**

Fetal Diagnosis of Coarctation of the Aorta (Drs. Brooke Davey, Olga Salazar, Alicia Wang): *'Antenatal Risk of Coarctation for newborns born at Hartford Hospital (ARCH) Score: A Predictor of Postnatal Management Strategy.'* In 2013, Fetal Cardiology Team created a scoring system and clinical pathway as an evidence-based guideline to decrease unnecessary variation and promote safe, effective, and consistent patient care for neonates while decreasing resource utilization in patients with prenatal suspicion for coarctation of the aorta (CoA). This study demonstrates that prenatal risk stratification system for CoA is safe and reliable and can help effectively guide management of patients with critical CoA. This work was presented by resident Elizabeth Flerlage at the Cardiology 2022 meeting in Huntington Beach, CA, and manuscript preparation is in progress.

- **Preventive Cardiology Research**

Dr. Brooke Davey developed a collaborative partnership with Dr. Christine Finck and the Pediatric Obesity Center for Treatment, Research and Education at Connecticut Children's. An initial collaborative project determined that exercise stress tests do not demonstrate clinically significant abnormalities and no cardiac adverse events occurred in the operative or postoperative period following bariatric surgery. Elimination of stress tests would impart a cost savings of $26,728/year. Resident Matthew Cummings presented a poster describing these findings at the Cardiology 2022 meeting in Huntington Beach, CA, and a manuscript is in progress.

- **Social Determinant's of Health and Psychological Coping Research**

CHD Diagnosis and Parental Psychological Coping: The study *'Parental Reaction and Psychological Coping after Diagnosis of Congenital Heart Disease'* was presented in virtual poster format at the American College of Cardiology in 2020. Subsequently, Dr. Davey submitted a manuscript for publication to Maternal and Child Health Journal, which has provisionally accepted the paper.

'Social Determinants of Health (SDH) and Cardiorespiratory Fitness in Childhood Cancer Survivors: Systematic Review' (by Drs. Brooke Davey and Olga Salazar): This study is a systematic review involving *'Social determinants of health and cardiorespiratory fitness in childhood cancer survivors exposed to cardiotoxic agents.'* The goal of this systematic review is to understand the interaction of SDH with exercise and physical fitness in this patient population to help develop effective individualized exercise interventions in future studies to reduce impact of cardiotoxic chemotherapeutic agents.

- **Electrophysiology and Arrhythmia Research**

Our electrophysiology laboratory performs predominant catheter ablation in pediatric and adult patients with congenital heart disease. Completed research projects include *'Zero Fluoroscopy" Radiofrequency Catheter Ablation of AV Node Re-entry Tachycardia in Children and patients with CHD'.*

- **Adult Congenital Heart Disease (ACHD) Research**

Our ACHD program has demonstrated ongoing research efforts and representation at national meetings. Whitney Fairchild, APRN presented two abstracts at the American College of Cardiology annual meeting in June 2022, including *'COVID 19 Saved My Life'* and *'Self-Management in Adults with Congenital Heart Disease.'* Dr. Dodeja moderated two sessions and presented a case.

Occupational and Educational Trajectories in ACHD: Our ACHD team has been involved with a research project funded by the med-peds seed grant, in collaboration with Dr. William Shaw with UConn occupational health. We have enrolled nearly 50% of the anticipated patients.

Fontan Outcomes Multi Center Collaboration: We have joined the FORCE (Fontan Outcomes Registry Using CMR Examination) Multicenter Registry with Dr. Anudeep Dodeja as the site PI. The goal of this multicenter registry is to improve patient outcomes by collecting data to help identify clinical and advanced imaging markers that are predictive of poor outcomes in Fontan patients. This registry is funded by Additional Ventures and Evan's Heart Fund.

Preventative Cardiology in Adult Congenital Heart Disease (Drs. Anudeep Dodeja, Felice Heller, Shailendra Upadhyay and Whitney Fairchild, APRN): Dr. Anudeep Dodeja and our adult congenital heart (ACHD) team is working on a series of projects to assess the metabolic risk factors in our growing population of ACHD patients. We have found a high prevalence of hypertension, obesity, and dyslipidemia in the Fontan patients, highlighting the need for screening and modifying these risk factors in this high risk population. A second project, in collaboration with Nephrology, is to assess the utility of ambulatory blood pressure monitoring in the ACHD population. Both of these projects are currently ongoing. Our goal is to collect preliminary data that can be used to propose multicenter studies in the future.

International Multicenter Study Evaluating Impact of COVID-19 in Thrombo-Embolic Risks in ACHD patients: Dr. Upadhyay has collaborated in this study, which is under review for publication in a major cardiology journal.

- **Cardio-Oncology and Cardiac MRI Research**

Cardio-oncology research (Drs. Toro-Salazar, Anudeep Dodeja, Ray Lorenzoni, Tiffany Ruiz (coordinator of program): Advancing Care through Research in Echo and CMRI-Related to Cardio-Oncology. The goal of this project is the development of imaging biomarkers that can accurately and reliably detect pre-clinical disease and enhance our understanding of the underlying pathophysiology of cancer treatment-related cardiotoxicity. Our team has completed a series of studies on novel echocardiographic and CMRI techniques designed to detect acute and chronic subclinical cardio-toxicity in pediatric cancer patients exposed to cardiotoxic medications. Based on this line of work, we have established protocols to perform CMRI and echocardiography, including 3-D/strain that are now routinely performed in our childhood cancer patients.

Creation of Imaging in Cardiac Hematology Oncology Research Consortium (ICHOR): Multidisciplinary imaging research collaboration for children with cancer to set the standard of excellence for multimodality imaging in pediatric cancer patients.

Clinical Research and Innovation Seed Program (CRISP) Application: Role of Transforming Growth Factor-ß Signaling Pathway on Cardiotoxicity from Chemotherapeutic Agents. The goal of this proposal is to obtain pilot data to determine whether components of the MSTN/GDF-11/activing, a signaling pathway, are increased in patients receiving chemotherapeutic drugs. If successful, these studies would provide strong impetus for pursuing the potential beneficial effects of blocking this signaling pathway and would form the basis for a new NIH grant proposal to test this novel therapeutic strategy using mouse models.

Development and usability testing of the ATOMIC mobile app to increase physical activity levels in children, adolescent and young adults (AYA) cancer patients (Support from the Gross Foundation).

Adaptation of a mobile APP with social support systems that has been successfully implemented by Dr. Samantha Stephens (Hospital for Sick Children's in Toronto) to promote physical activity in children with multiple sclerosis. The aims of this project are (a) Determine the adaptations required of a pre-existing mobile fitness app (ATOMIC app) to tailor for pediatric oncology patients. (b) Develop and evaluate ease of use and understanding, efficiency and acceptability of PA mobile app tailored to pediatric cancer patients.

- **COVID-19 and Cardiology**

COVID-19 impacted our division as it has health care systems around the globe. To accommodate patient needs, we embraced telemedicine and created disease-specific echocardiogram protocols specific to COVID patients to ensure the safety of caregivers. We developed return-to-sports guidelines for children infected with COVID and have periodically updated it as the recommendations changed. We developed MIS-C cardiac-evaluation management guidelines as well as protocols for post-COVID vaccine myocarditis evaluation and management. We also collaborated with other centers to further enhance the knowledge of COVID-19 and its impact on the heart. Finally, we have participated in national/international research elaborating effects of COVID on heart in children and patients with CHD.

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CHILD & ADOLESCENT PSYCHIATRY

The Division of Child and Adolescent Psychiatry continues to be a highly active, vibrant, and collaborative resource within the Department of Pediatrics at Connecticut Children's. Our work has focused on a number of areas: meeting the increasing clinical demand for behavioral health assessment and treatment services; close collaboration with other divisions within Connecticut Children's – both for treatment purposes as well as in the area of clinical pathway evaluation and development; and research efforts in a variety of areas as well as presentations at several national conferences.

During the past year, we continued to see clinical volumes rise in an unprecedented manner in all of the services in which we play a role. We expanded the Transitions Clinic to provide even greater amounts of immediate access to behavioral health services for patients presenting to our emergency department, on our medical surgical floors, and from our partnering inpatient psychiatric units to allow for flow of patients through all levels of mental health care. Our team also furthered our partnership with the Division of Pediatric Hospital Medicine (PHM) to maintain clinical pathways for our most complicated patients and to provide effective collaborative care models based on extensive research of evidenced-based treatments. Specifically, this year we worked to update and expand the Eating Disorders Pathway with a new arm specifying unique treatment for Avoidant Restrictive Food Intake Disorder. We are in the process of creating an agitation management pathway to standardize de-escalation methods and acute use of psychotropic medications when indicated. Additionally, we continue to partner with the Emergency Medicine division, not only in evaluating the many children and their families who present to us in crisis, but also to review alternate models to streamlining the movement through our emergency department into appropriate mental health care settings. As part of this, we participated in rapid improvement projects focused on safe discharges for all patients presenting in mental health crisis; assisted in streamlining the social work evaluation process, reducing intake time by 25 percent; and led efforts to expand into new physical spaces for patients within the hospital building. Finally, we are working to add new services for our patients at all levels of care. In conjunction with the Division of Psychology, we are creating med-psych outpatient services at two levels of intensity (traditional weekly therapy and intensive, multiple times-per-week therapy) to serve our most medically complex children in need of mental health supports. Psychology services opened in January 2022, and psychiatric care was added in the spring-summer of 2022. We also are working to create an inpatient med-psych unit to care for this same population of children when they are at their highest level of need. We hope to open this unit in January 2024. At the same time, we are investigating multiple partnerships around the state to expand traditional inpatient psychiatric services in the coming months with hopes of having increased access to hospital level of care for children at risk of harm to themselves or others and children with grave disability due to their psychiatric conditions.

At Connecticut Children's, our division's services include: a consultation/liaison service that provides inpatient evaluations on any patient presenting with behavioral health concerns that may indicate co-occurring psychiatric and medical conditions; emergency psychiatric assessment, triage and disposition services within the Connecticut Children's Emergency Department; and Transitions Clinic, a short-term stabilization outpatient clinic, located in the ambulatory offices at 85 Seymour Street.

At the Institute of Living (IOL), clinical services include individual, group, and family therapies; pharmacotherapy; and diagnostic evaluations. These services are provided through inpatient units for children and adolescents; the Grace Webb School, a therapeutic educational setting for children and adolescents with co-existing psychiatric and learning difficulties; an outpatient child and adolescent clinic; an extended day treatment program for older school-aged children; and a partial hospital program for children and adolescents. The adolescent program has a specialized track for early onset psychotic disorders. In addition, we continue to serve as one of the hubs for the Access-Mental Health CT program, a collaborative educational, consultation and assessment program between primary care providers and child and adolescent psychiatrists providing more than 1,000 phone consults to primary care physicians (PCPs) yearly, and approximately 2,500 care coordination activities since the program started in June of 2014.

Connecticut Children's and the IOL remain highly active teaching sites for many trainees: child and adolescent psychiatry fellows; general psychiatry residents; psychology interns; pediatric residents and medical students; as well as a post-doctoral psychology fellow who joins our consultation-liaison service for 12 months.

In the academic area: Lisa Namerow, MD, continues to study the benefits and limitation of pharmacogenomics testing on the treatment of children and adolescents with anxiety and depression. Michael Stevens, PhD, and Michal Assaf, MD, of the Olin Neuropsychiatry Research Center, remain active in the area of MRI research in such mental health conditions as ADHD, autism, traumatic brain injury (TBI), and mood disorders. The clinical trials unit, under the leadership of Mirjana Domakonda, MD, continues to have multiple drug treatment studies, including involvement in the international trial of esketamine. Salma Malik, MD, our fellowship director, continues her work in the areas of pharmacogenomics, homicide assessment, and residency transitions.

At the national level, it was an honor for our group to be selected for a number of presentations at the American Academy of Child and Adolescent Psychiatry Annual Meeting. Our presentations included such topics as: Internet gaming and obsessive-compulsive disorder; pharmacogenomics; homicide risk assessment; and the use of clinical pathways.

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CHILD ABUSE PEDIATRICS

The Division of Child Abuse Pediatrics provides clinical evaluation services through the Suspected Child Abuse and Neglect (SCAN) program at Connecticut Children's. Consults are provided on an inpatient and outpatient basis at the Hartford campus of Connecticut Children's, and they include comprehensive expert medical evaluation and psychosocial assessment for children who may have experienced maltreatment. SCAN staff also provide medical services in three satellite locations at Children's Advocacy Centers in Waterbury, Torrington, and Hartford. Program staff offer support to caregivers throughout the evaluation process. We collaborate with multidisciplinary partners in the service of the child and family, and strive to improve community response to child maltreatment through education, research, prevention, and advocacy.

Beyond clinical work, 2022 activities of division staff included the following:

- Teaching medical students, residents and fellows with didactics and block rotations.
- Teaching statewide multidisciplinary partners, including child protective service workers, members of law enforcement, and attorneys.
- Participation in nine regional community multidisciplinary teams: Hartford MDT, MDT 14, Central Connecticut New Britain MDT, Central Connecticut Bristol MDT, East Central MDT, North Central MDT, Tolland MDT, Torrington MDT, Waterbury MDT.
- Provision of regular expert testimony in Connecticut courts.
- Participation in statewide initiatives focused on child abuse prevention, human trafficking and domestic violence.
- Participation in quality improvement initiatives, including two active clinical pathways for suspected physical abuse and suspected sexual abuse, and a QI/regional MOC 4 project on universal education for domestic violence in SCAN outpatient pediatric settings.
- Provision of national medical peer review to other medical providers.
- Hosting a statewide ECHO telementoring program for sexual abuse medical examiners

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COMMUNITY PEDIATRICS

Community Pediatrics is the largest division in the Department of Pediatrics, consisting of more than 200 providers in practices throughout Connecticut and Western Massachusetts. The academic activities of the division are centered on pediatric primary care education. Practices serve as teaching sites for the core clinical experience of medical students in ambulatory pediatrics. Many physicians also precept medical students, advanced practitioner students, and residents in continuity experiences.

The Division of Community of Pediatrics serves a vital role in fostering the health and well-being of children and their families by focusing on wellness, safety, and behavior and development. This year was memorable for an unprecedented rise in respiratory and febrile illnesses that started in the summer and lasted through the end of the year. In addition to the hospital being overwhelmed with boarders in the Emergency room, private practices were similarly overrun with an incredible volume of sick patients each day. Balancing care became a key part of 2022 for our community pediatricians.

Many members of the Division of Community Pediatrics have also joined the Connecticut Children's Care Network, a clinically integrated network that includes primary care providers and Connecticut Children's subspecialists. This year, they engaged in quality work for Value Based Contracts and had a highly successful experience participating in a Medicaid Patient Centered Medical Home Plus Contract. Collaboration between primary care and subspecialists was enhanced via Voalte, a HIPAA compliant confidential texting application that allows primary care providers to collaborate on patient care with the subspecialists at Connecticut Children's.

Our first annual meeting since the onset of the COVID-19 pandemic took place virtually in November and was very well attended. It included a review of the Primary Care resident teaching sites (East, South, and West) and a discussion of the design for the new tower.

Our division emphasizes the ongoing education of its members. Our private practice pediatricians are encouraged to stay up-to-date on a broad variety of topics in pediatric medicine by attending grand rounds (or listening to the podcasts-including the brand new pediatric podcast pearls) and participating in the ongoing webinar series Ask the Experts, both sponsored by Connecticut Children's Continuing Medical Education office.

In 2023, we look forward to engaging our community members in student and resident education in a more robust way, including morning reports, as well as placing more students and residents in community practices as part of their learning process.

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CRITICAL CARE

The Division of Pediatric Critical Care is dedicated to the delivery of state-of-the-art child and family centered care for critically ill and injured children.

The division's mission is accomplished by a collaborative group that champions a multidisciplinary approach to care, the incorporation of best available evidence into clinical practice, and acquisition of new knowledge through clinical research. Attention to patient safety, continuous performance improvement, and education of physicians, nurses, and other care team members is paramount.

Pediatric Intensive Care Unit (PICU) staff members have remained resilient in light of new challenges. While still facing the uncertainty of COVID-19, critical care saw a resurgence of common viruses leading to respiratory failure, such as respiratory syncytial virus (RSV) and influenza. They staffed additional beds as needed, with the goal that children in need of critical care services would have that provided at Connecticut Children's Medical Center. Throughout all this, the PICU faculty has been successful academically and professionally. Major awards and academic accomplishments among the division members include important contributions to several national societies and both internal and external collaborations.

Christopher Carroll, MD, has continued to lead many clinical and translational research activities and collaborations. He is recognized as an eminent academic scholar nationally and internationally in topics including, but not limited to, asthma, sepsis, head trauma, and COVID-19. In the latter, he has collaborated with leaders throughout the nation, and been instrumental in contributing to the knowledge of the impact of COVID-19 and the multisystem inflammatory syndrome in children (MIS-C). He continues in leadership roles in major medical organizations including the Chest® (American College of Chest Physicians) Covid Task Force, deputy editor of multimedia for the journal Chest, and serves as chair of both the Critical Care NetWork and the program committee of Chest.

Kenneth Banasiak, MD, serves as the medical director of cardiac critical care in a multidisciplinary collaboration with Cardiology and Cardiothoracic Surgery to standardize the care of post-operative patients, resulting in improved inter-service communications, patient safety, staff competency, and patient outcomes. Dr. Banasiak also created and implemented a continuing education curriculum on "Applied Critical Care Physiology," which focuses primarily on the education of residents who intend to go on to careers in acute care subspecialties.

Leonard Comeau, MD, focuses on the comfort and quality of care for our patients, both in the PICU and hospital-wide. He participates in care delivered by the Sedation Service, and serves as the leader of the quality and safety oversight activities of the Sedation and Analgesia Committee. He is chair of the hospital Clinical Ethics Committee, which addresses issues related to the appropriateness and decision-making regarding health care for some of our most complicated patients. In addition, he leads Schwartz Rounds, a series of discussions for all Connecticut Children's staff where they can openly and honestly discuss the social and emotional dimensions of providing patient care. The goal is to foster empathy, collaboration, and compassionate support for the self and others, including our patients, their families, and all members of the health care team. Dr. Comeau is recognized by his colleagues for his excellent debriefing skills and creating an environment of sharing and inclusiveness.

Allison Cowl, MD, is the medical director of the PICU and manages the unit's clinical operations. She also collaborates with the Pediatric Acute Lung Injury and Sepsis Investigators (PALISI) international network, focusing on various aspects of the care of critically ill patients and is a key site director for these multi-institutional research collaboratives. Dr. Cowl serves as the site PI in a large international trial that is evaluating ventilation strategies, as well as the use of prone positioning in the treatment of patients with severe acute respiratory failure. In addition, Dr. Cowl has implemented a new care paradigm for all patients within the PICU, with an eye on ensuring the best possible functional outcomes for our patients and minimizing post-intensive care syndrome.

As leader of our comprehensive care multidisciplinary program, she works with the care team to develop the expertise to recognize, minimize, and manage delirium, promote early mobilization of patients, and liberate them as early as possible from mechanical ventilation support. In addition, Dr. Cowl is the core faculty leader for student, resident, and fellow education in the PICU.

Elliot Melendez, MD, is the Division Head of Critical Care. He leads the Connecticut Children's sepsis quality improvement program and is engaging all disciplines in improving sepsis care. He is involved in the hospital's overall quality improvement work and participates in event review as needed. His vision for the department is one that fosters and maintains a model of continuous improvement, which puts our patients and families in the center of all conversations in a collaborative and supportive environment. In addition, he aims to improve the well-being of his team by valuing both the clinical and nonclinical efforts that they bring to their everyday work.

Robert Parker, DO, is interested in medical simulation and education. In 2021, he created a PICU resident didactic curriculum to supplement the bedside clinical education for rotating residents. In addition, he created an in-time teaching of resuscitation for PICU nurses, where skills are affirmed through five-minute educational sessions. He is recognized for his teaching abilities and in using innovative pedagogical techniques. He is the PICU-Emergency Medicine resident site director and has a role in resuscitation simulation throughout the organization. Lastly, he is a visual abstract editor for the American College of Chest Physicians.

Rosanne Salonia, MD, specializes in the quality of care and safety for children with acute deterioration and in reducing the incidence of hospital acquired conditions. Specifically, she works as a member of the Emergency Response Committee, which oversees the use of the Pediatric Early Warning Score system (PEWS/MET) in focusing attention on patients at risk for clinical deterioration. She manages the associated database, coordinates the ongoing evaluation of the MET data, and continues her work to enhance this system.

She is also co-leader of the Code Blue Committee, reviewing activations across the institution with a multidisciplinary team to improve patient outcomes and system-related issues. She is involved in a collaboration with the Children's Hospitals Association, Solutions for Patient Safety group, which works to eliminate serious safety events in children's hospitals with specific work focused on reducing unplanned extubations.

Sara Sanders, MD came to Connecticut Children's in August 2022 having completed her critical care fellowship at Nationwide Children's Hospital. She has an academic interest in medical education and will use her skills to advance the education of students and residents, not only in the PICU, but throughout the residency.

Adam Silverman, MD, as director of the Center for Global Health (CGH), leads efforts to increase appreciation for diversity, equity, and inclusion amongst learners, staff and faculty at Connecticut Children's while leveraging the skills and talents of our institution and its members to improve the health of children living in resource-limited settings. Dr. Silverman has leveraged technology and collaborated with pediatric providers in Haiti, Rwanda, and Ghana to remotely provide education for future pediatricians in countries with some of the most compelling health care inequalities. To this extent, he has co-founded the Pediatric Critical Care in Resource Settings foundation. He continues to organize an annual Global Health Symposium and the Global Health Film Festival. Locally, he has collaborated with other faculty to further refine and improve the Global Health Care Pathway for pediatric residents, organized a Global Health Boot Camp, and he mentors multiple staff members in global health to help improve the health care of children around the world. Dr. Silverman is also a member of the Antimicrobial Stewardship Program and is an attending physician in the emergency department.

Heather Schlott, MD, has been the medical director of the hospital's Extracorporeal Membrane Oxygenation (ECMO) program. This technology provides state-of-the-art heart and lung support for our most critically ill patients. In these efforts, she has created an educational curriculum to enhance ECMO delivery by pediatric perfusionists and respiratory therapists. Dr. Schlott also leads the continuous renal replacement therapy (CRRT) program. This collaboration with Neonatology, Nephrology, Hepatology, and Pediatric Surgery continues its efforts to expand the services available to a growing population of neonates and infants that might benefit from CRRT.

Jessica Winters, MD, came to Connecticut Children's in September 2022 having completed her PICU fellowship at Lurie Children's Hospital. She has an academic interest in quality improvement and will take a role in improving upon the excellent care already provided by the PICU.

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STAFF

Elliot Melendez, MD, *Division Head*

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Christopher Carroll, MD
Leonard Comeau, MD
Allison Cowl, MD
Robert Parker, DO
Rosanne Salonia, MD
Sara Sanders, MD
Heather Schlott, MD
Adam Silverman, MD
Jessica Winters, MD

DEVELOPMENTAL - BEHAVIORAL PEDIATRICS

The Division of Developmental-Behavioral Pediatrics is composed of a diverse faculty of developmental-behavioral pediatricians and advanced practice registered nurses (APRNs). Our clinical services occur in a number of settings – outpatient, inpatient, and in the community (e.g., schools, Connecticut Birth-to-Three system, and other agencies). We provide direct consultation, optimal clinical care, and consultative services to schools and agencies across the state. The division's mission is to provide comprehensive and compassionate diagnosis and management for children with neurodevelopmental and behavioral problems that range from normative deviations to rare disorders; to educate health care professionals and trainees about these problems; to add to existing knowledge by researching relevant questions in the field; and to offer advocacy and influence public policy.

CLINICAL STAFF ROLES

Sarah Schlegel, MD serves as Division Head. Ana Garnecho, MD is the site director at the Norwalk Developmental Center, a joint venture between Connecticut Children's and Norwalk Hospital, which is part of Nuvance Health®. Robert Keder, MD is the division's education director. He is the division's core faculty liaison for the residency program and manages formal division education opportunities at all training/learning levels (undergraduate, graduate, and continuing medical education). He is also very engaged in legislative advocacy. Thyde Dumont-Mathieu, MD, MPH is the autism spectrum disorder program director. She continues to work on designing a sustainable, efficient autism spectrum disorder evaluation algorithm within the division.

In October 2022, Elizabeth Janofsky, MD joined the team at the Norwalk site.

ONGOING CLINICAL PROGRAMS

Dr. Keder continued as an embedded developmental-behavioral pediatrician for Connecticut Children's primary care settings, serving the goal of enhancing collaboration and co-management with primary care providers as well as improving access to care for our highest risk patients and families.

The Transition to Adulthood with Developmental Services Clinic, directed by Dr. Schlegel and serving patients 15 to 26 years of age and their families, celebrated four years of operation. The clinic is unique in the State of Connecticut and is one of only a few other similar programs in the United States. Two specialized physician- and advanced practice provider-collaboration pathways are offered to patients in the Developmental-Behavioral Pediatrics clinic: one for toddler evaluations (Ann Milanese, MD and Dana Eisenberg, MA, MSN, APRN, PPCNP-BC), the other for attention-deficit/hyperactivity disorder evaluation and management (Dr. Schlegel and Keith Ellis, APRN, MPH).

CLINICAL HIGHLIGHTS/ACCOMPLISHMENTS

In addition to in-person appointments, the division continues to maintain a robust telemedicine presence (approximately half of all appointments), offering comprehensive virtual access to care to ensure the safety of patients, their families, and faculty and staff. APRNs Mr. Ellis and Ms. Eisenberg were trained to administer the Autism Diagnostic Observation Schedule, an instrument which aids the diagnosis of autism spectrum disorders.

ONGOING COMMUNITY-BASED CONSULTATION PROGRAMS

For nearly 30 years, Dr. Milanese has been medical advisor for school districts across Connecticut, including the Connecticut Technical High School system. Dr. Milanese has been the medical advisor for Connecticut's

Early Intervention program, Birth-to-Three, for about 35 years and continued her appointment by Connecticut Governor Ned Lamont to the Connecticut Interagency Birth-to-Three Coordination Council. Additionally, she has been providing daily general pediatrics consultation to the Institute of Living inpatient child psychiatric unit since 1997. Dr. Schlegel continues to direct the decade-old School Consultation Service, conducting individual evaluations of medically and developmentally complex students within their school districts. She also serves as the medical director for Cheshire Fitness Zone.

EDUCATION HIGHLIGHTS/ACCOMPLISHMENTS

- In March 2022, Dr. Keder co-presented "Gender-Affirming Care" during the Connecticut Children's Professionalism Series for pediatric residents.
- He presented "Autism Diagnosis and Management" to child psychiatry fellows at the Institute of Living in May 2022.
- Dr. Keder presented "Finding Focus: Mindful and Equitable Management of ADHD [Attention-Deficit/Hyperactivity Disorder]" for Grand Rounds at Middlesex Health in June 2022.
- Later that month, Dr. Keder co-presented "School and Medical Provider Partnership: Trends and Best Practices Related to Navigating Bullying" at the Connecticut Children's Center for Care Coordination Fifth Annual Statewide Care Coordination Forum.
- Dr. Keder was an invited panelist for "Hot Topics in Behavioral Health Collaboration Between Schools and Medical Homes" at the American Academy of Pediatrics National Conference and Exhibition in October 2022.
- At the Society for Developmental and Behavioral Pediatrics Annual Meeting in October 2022, Dr. Keder, who is a SDBP Advocacy Committee co-chair, was the lead presenter for a topical symposium entitled "More Than Meets the Eye: Using the Humanities and Visual Arts as Developmental-Behavioral Pediatric Professionals to Foster Perspective Taking, Communication Skills, and Promote Wellness" and a workshop entitled "Elephants in the Nursery: Unpacking the Intersection of Implicit Bias and Parenting to Provide Equitable Parenting Practices in Clinical Settings." He was co-presenter for a workshop entitled "You've Got This! Empowering & Training Parents in the Role of Parent as Advocate."

ONGOING RESEARCH

- Supported by research assistant Rosalie Lyons, BS from the Connecticut Children's Research Institute, Dr. Dumont-Mathieu continues work on five active research projects, two of which are grant-funded:
  - » Bridging the Gap: Providing Equitable Early Treatment of ASD [Autism Spectrum Disorder] by Finding Children, Wherever They Are
  - » Strategies to Promote Culturally Effective Screening, Referral and Service Provision in Primary Care Practices and Birth-to-Three Programs
  - » Decision-Making Process and Experiences with Genetic Testing in Autism Spectrum Disorder: Pilot Study with a Clinically Derived, Diverse Sample of Participants (Co-I: Louisa Kalsner, MD, Division of Neurology)
  - » Connecting the Dots: An RCT Relating Standardized ASD Screening, Intervention Access, and Long-Term Outcomes (PI: Deborah Fein, PhD, University of Connecticut)
  - » Early Detection of Pervasion Developmental Disorders (PI: Deborah Fein, PhD, University of Connecticut)

PUBLICATIONS

Coulter KL, Moreno P, Barton M, **Dumont-Mathieu T**, Robins DL, Fein DA. Validity of the Toddler Autism Symptom Inventory in non-Hispanic white and black toddlers. J Autism Dev Disord. 2022 Oct 31. doi: 10.1007/s10803-022-05756-z. Epub ahead of print. PMID: 36316523.

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Keder RD, Mittal S, Wallis K, Stringer K, Wallace J, Soares N. Society for Developmental and Behavioral Pediatrics' Position Statement on Telehealth. Journal of Developmental and Behavioral Pediatrics 2022;43 (1):55-59. PMID: 34855691.

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STAFF

Sarah Schlegel, MD, *Division Head*

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DIGESTIVE DISEASES, HEPATOLOGY & NUTRITION

The Division of Digestive Diseases, Hepatology, and Nutrition is committed to cutting edge and innovative clinical care of infants, children and adolescents; pioneering clinical, translational, and basic research; and the education of the next generation of physicians.

The past three years saw our division challenged by the unprecedented SARS-CoV-2 pandemic. We were able to maintain our standards of excellence in clinical care, research, and education through the efforts of a dedicated and talented staff. Though we utilized telemedicine extensively in the first months of the pandemic, by early spring 2021, we had largely returned to in-person visits except when distance was a significant obstacle. Our many clinical trials are all back to full operation as we continue to examine the role of emerging therapies in pediatric gastroenterology (GI) disease. Our clinical operations now span seven different offices in Connecticut and Western Massachusetts. Endoscopic procedures are performed in the hospital in Hartford as well as at our Ambulatory Surgery Center in Farmington. In 2022, we added an ambulatory surgery location in Fairfield County.

Our Center for Pediatric Inflammatory Bowel Disease (IBD), the largest program in the region between Boston and New York, continues to provide care to over 800 children with Crohn's disease and ulcerative colitis. The Center is also home to pioneering research funded by the National Institutes of Health (NIH) and the Crohn's & Colitis Foundation to unravel some of the mysteries underlying the pathogenesis of bowel inflammation and provide precision medicine options in its treatment.

Jeffrey Hyams, MD is a co-principal investigator on a multicenter, multimillion-dollar NIH-funded study examining the clinical and biological predictors of response to certain biologic medications in children newly diagnosed with Crohn's disease. Dr. Hyams also serves as head of the Division of Digestive Diseases, Hepatology and Nutrition, and holder of the Mandell Braunstein Family Endowed Chair in Pediatric Inflammatory Bowel Disease.

Our IBD program teamed with the division of Infectious Diseases at Connecticut Children's and the Jackson Laboratory (JAX) in Farmington, CT to investigate and report the immune response of patients with IBD to SARS-CoV-2 infection as well as vaccination. The results were presented by invitation to the NIH and the Centers for Disease Control (CDC) as well as published in the prestigious Inflammatory Bowel Diseases journal. Further work is ongoing to examine the durability of response to vaccination in these patients.

Our Center for Pediatric Liver Care, directed by Karan Emerick, MD, continues its excellent work in providing care to children with hepatic disorders, ranging from chronic hepatitis B and C, metabolic liver disease, autoimmune disease, and acute and chronic liver failure. It provides pre- and post-transplant care to over 40 children. Samantha Lee, APRN, under the guidance of Dr. Emerick, coordinates the program, caring for children with non-alcoholic fatty liver disease (NAFLD), and she works closely with other divisions in the hospital. Fibroscan® technology allows the non-invasive evaluation of liver fibrosis in children with chronic liver disorders. This program not only welcomes patients at the hospital, but also every other month in our Shelton office. Dr. Emerick serves as an attending physician on the liver transplant service at Yale New Haven Hospital six to eight weeks yearly.

Our Multidisciplinary Intestinal Rehabilitation Team (IRT) is the only one of its kind in the state. Co-directed by Dr. Emerick and Bella Zeisler, MD, this group focuses on the care of children with intestinal failure of all causes. Nicole Lewie, RN and Kate Samela, RD are integral parts of this team, which also facilitates the transition of patients from hospital to home.

Corey Baker, MD has ably developed our Center for Neurogastroenterology program and has established anorectal manometry and esophageal motility capability. Our program has pioneered the use of IB-stim, a therapy that was approved in 2019 by the Food and Drug Administration for treating adolescents with chronic abdominal pain. IB-stim is a non-surgical device that sends electrical impulses to the brain that are involved in pain processing. We are one of the few centers in the country currently offering this treatment modality for patients with previously refractory abdominal pain.

The Aerodigestive Disease Program at Connecticut Children's is directed by Nicole Murray, MD (Pediatric otolaryngologist) and has grown significantly over the last few years. The mission of this team is to care for medically complex children with a pathology involving the airway and GI tract and includes experts from a variety of disciplines including pediatric otolaryngologists, pulmonologists, gastroenterologists, surgeons, speech therapists, a social worker, and a dietician. Dr. Zeisler, lead Pediatric Gastroenterologist for the program, provides pediatric GI expertise in the clinics as well as operating rooms for the Aerodigestive team, along with Dr. Baker, Victoria Grossi, MD and Peter Townsend, MD.

The medical education team within our department is involved in teaching the GI fellows, pediatric and other residents, and medical students. Dr. Zeisler is the fellowship director and Katherine Baldwin, MD is the associate director. In 2022, we expanded our fellowship from three to four fellows over a three-year training period. Resident education is led by Drs. Townsend and Grossi. Medical student teaching is directed by Drs. Grossi, Baldwin, and Townsend. All GI faculty remain engaged in teaching different learners as they rotate through the various GI clinical opportunities. The great depth in our pediatric surgical and radiology programs, as well as the great variety of clinical disorders and the intimate involvement of our faculty, make our educational programs particularly attractive.

Logan Jerger, MD is the division's quality improvement officer. He leads a number of projects and remains engaged in teaching principals of QI research to fellows and other learners via ongoing learner QI projects.

Dr. Townsend has recently accepted the role of Medical Director of endoscopy. As such, Dr. Townsend has been very involved in a number of projects pertaining to teaching (didactics and hands-on, including use of simulator modules) as well as quality and safety. As part of his endoscopy directorship, Dr. Townsend directs our fecal transplant service.

Under the direction of Sarita Singhal, MD, our South Hadley campus has continued to thrive and attract patients regionally through her commitment to excellent patient care and liaison work with referring pediatricians.

Brad Jerson, PhD, our division's pediatric psychologist, provides fully embedded psychological evaluation and intervention services. He has partnered with other institutional departments and regional community mental health agencies for development of psychosocial programming to address GI symptoms from an evidence-based perspective.

PEDIATRIC GASTROENTEROLOGY FELLOWSHIP PROGRAM

Our faculty has grown in size over recent years and our practice now includes a number of subspecialties within GI. Our growth in clinical programming has served to expand the clinical and research educational opportunities for our fellows. Our fellowship program is growing in response. Led by Bella Zeisler, MD, and associate program director Katherine Baldwin, MD, the fellowship program in Pediatric Gastroenterology is in its 12th year. Starting in July 2022, we now have four total fellowship positions (increased from three). We have continued to succeed in recruiting excellent fellows to our program.

Jeffrey Hyams, MD, an internationally recognized clinician and researcher in inflammatory bowel disease (IBD) and division head of Digestive Diseases, Hepatology, and Nutrition, continues to act as primary research mentor to many of our fellows and graduates. Our fellows also are supported by a number of faculty members with strong backgrounds in research. Our graduates have continued to receive recognition and awards for their research at international and national meetings and successfully transition into faculty positions or independent practice:

Joelynn Dailey Fitz, DO, (2021 graduate) accepted a clinical position as a pediatric gastroenterologist closer to her hometown at Lehigh Valley Reilly Children's Hospital and has transitioned nicely to her faculty role. Prior to graduating, Dr. Dailey completed several research projects under the mentorship of Dr. Hyams. Her primary research focused on understanding patterns of COVID-19

serology following natural infection or vaccination among a population of patients receiving infusion therapy for the treatment of inflammatory bowel disease (IBD). She presented her project at Digestive Disease Week®. Her manuscript was published in Inflammatory Bowel Diseases® (IBD Journal).

Chelsea Lepus, DO, (2022 graduate) accepted a position at Yale New Haven Hospital to develop and lead their newly established Intestinal Rehabilitation Program. She has transitioned well to her faculty role. Prior to graduating, Dr. Lepus focused her clinical time on the care of intestinal rehabilitation patients. She was also quite prolific with scholarly activity, publishing on topics such as nutrition in patients with short bowel syndrome and the use of MRI in patients with IBD.

Mariyam Hashmi, MBBS, (on track to graduate 2023) is our current senior fellow and has made excellent progress. She is completing additional training in advanced motility procedures under the leadership of Dr. Corey Baker. The focus of her primary research project is GI motility disorders in children.

Jing Marrero, MD, our current 2nd year fellow has made excellent progress on two research projects already under the mentorship of Dr. Jeffrey Hyams. Her primary project is an educational project for school nurses around the care of IBD patients. Her secondary project is examining Dupilumab in the use of eosinophilic esophagitis.

Viven Solomon, DO, our first-year fellow, joined the program in July 2022 after completing her pediatric residency at the University of Connecticut in June 2022. She completed her medical education at New York Institute of Technology College of Osteopathic Medicine. She is exploring her research opportunities and will finalize her research project by June 2023.

Sydney Kuzoian, DO, our first-year fellow, joined the program in July 2022 after completing her pediatric residency at the Sidney Kimmel Medical College in June 2022. She completed her medical education at Kansas City University College of Osteopathic Medicine in Kansas. She will finalize her research project by June 2023.

The Pediatric Gastroenterology Fellowship will welcome Pyae Naing, MD in July 2023. Dr. Naing graduated from the University of Debrecen Medical School and Health Science Centre in Hungary and is currently completing her Residency at The Herman & Walter Samuelson Children's Hospital/ Pediatric Residency Program in Baltimore, MD.

RECENT FELLOW PUBLICATIONS

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Lepus CA, Moote DJ, Bao S, Mosha MH, **Hyams JS.** Simplified Magnetic Resonance Index of Activity Is Useful for Terminal Ileal but not Colonic Disease in Pediatric Crohn Disease. J Pediatr Gastroenterol Nutr. 2022 May 1;74(5):610-616. doi: 10.1097/MPG.0000000000003412. PMID: 35149649.

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Children's Emergency
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EMERGENCY MEDICINE

The mission of the Division of Emergency Medicine is to provide the highest quality care for acutely ill or injured children. We strive to fulfill this through excellence in clinical care, teaching, and research.

In 2022, the Emergency Department (ED) at Connecticut Children's (Level 1 Pediatric Trauma Center) saw its patient volume surpass pre-pandemic levels. The total number of patients (more than 62,000) was blunted by relatively slow winter months in January and February, impacted by the arrival of the Covid-19 Omicron variant. An autumn surge of RSV infections led to challenges of its own, with record numbers of inpatients boarding in the ED. We are proud to be a key component of our Level 1 Pediatric Trauma Center.

The Connecticut Children's Urgent Care Center in Farmington, which opened during the pandemic in September 2020, has been a huge success, providing high quality treatment for children with low acuity illnesses.

OUR DIVISION

The Division of Emergency Medicine is composed of 19 Pediatric Emergency Medicine (PEM) board-certified/eligible fellowship-trained faculty, one pediatrician, six PEM fellows, and 16 advanced practice providers (APPs). John Brancato, MD was named division head and Eric Hoppa, MD was named associate division head in 2022. Together, they direct clinical operations, educational initiatives, research, patient safety, and quality improvement. Both have multiple other responsibilities throughout the institution. Dr. Brancato chairs the medical staff's Peer Review Committee, is the medical director of Urgent Care, and serves as liaison to Emergency Medicine colleagues at various affiliated hospitals. Dr. Hoppa is an associate program director of the pediatric residency program and, along with Kristin Welch, MD, serves on the Clinical Effectiveness Committee. Dr. Hoppa and ED nurse manager, Ryan O'Donnell, RN were awarded Lean Black Belts through the Department of Quality's Organizational Excellence program.

Members of the Division of Emergency Medicine play an integral role in many areas of the hospital and region. Education and research are core parts of our mission. Faculty members teach and mentor 60 pediatric residents and 54 emergency medicine residents as well as family practice residents, medical students, dental students, and advanced practitioner students. The fellowship in pediatric emergency medicine (a subspecialty of both Emergency Medicine and Pediatrics) is now in its 23rd year, led by program director Matt Laurich, MD. Dr. Laurich also leads the ED Sepsis Working Group and is a member of a nationwide sepsis learning collaborative. The Undergraduate Research Assistant Program, which was developed by Sharon Smith, MD and is taught by our faculty, supports the research productivity of our division. Dr. Smith teaches two honors-level undergraduate courses at the University of Connecticut. She also serves as the division's director of research and is the medical director of Pediatric Advanced Life Support (PALS) for the institution. Noah Jablow, MD and Ruchika Jones, MD share responsibility for orienting, scheduling, and evaluating the large number of medical learners who work in our department. Dr. Jones also leads our division wellness initiatives. Dr. Jablow has expertise in Wilderness Medicine, shared through didactic and other sessions at the resident and fellow level. Michael Soltis, MD is the medical director of the Pediatric Critical Care Transport team and is the ED coordinator for Clinical Forensics and Child Abuse Services.

The use of simulation in medical education has become an essential tool for teaching procedural skills and 'rehearsing' high stress processes, such as resuscitations, under lower stress conditions and in advance of performance on live patients. The Division of Emergency Medicine is a leader in its implementation across the institution. Our own Mariann Kelley, MD is director of Simulation Education at the UConn School of Medicine. Carla Pruden, MD is director of Simulation at Connecticut Children's. Together, they lead bimonthly simulation sessions for the Pediatric Emergency Medicine attendings and fellows; monthly sessions for the trauma team, residents, and fellows; and ad hoc sessions for the Urgent Care staff, medical school, and hospital using high fidelity manikins. Dr. Pruden also runs simulation sessions to improve pediatric assessment and management skills at affiliated hospitals in Connecticut and New York.

Henry Chicaiza, MD is the division director of point-of-care ultrasound (POCUS). He has developed an educational curriculum for our fellows, a formal ultrasound credentialing and quality program for the attending staff, and the hospital-wide ultrasound-guided IV program.

Steven Rogers, MD, the division's director of emergency mental health services, has worked closely with the Division of Psychiatry and partners in the community to streamline the assessment and disposition process for patients with acute mental/behavioral health concerns.

Ashley Notartomaso, MD helped lead the division's Diversity, Equity and Inclusion initiatives.

This year, the division was fortunate to welcome three new faculty: Candice Jersey, DO, Owen Kahn, MD, and Rahul Shah, MD. Dr. Jersey brings interest and experience in patient flow and quality improvement; Dr. Kahn in medical informatics. Dr. Shah, like Drs. Jersey and Kahn, completed our fellowship here at Connecticut Children's in PEM. He returned to Connecticut Children's after also completing a fellowship in Emergency Ultrasound at Yale New Haven Hospital.

Jonah Mandell, MD and Carol Erickson, APRN are the backbone of the urgent care. Dr. Mandell is also an associate program director for the pediatric residency program.

Two members of our team hold dual clinical appointments. They bring clinical expertise to our group with natural bridges to other divisions. Jesse Sturm, MD is the head of the hospital's Sedation Service, and Adam Silverman, MD is primarily based in both Critical Care and Global Health.

The division is productive with many poster presentations at national conferences, publications in peer-reviewed journals, and book chapters.

PUBLICATIONS

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STAFF

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Michele McKee, MD
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John Peng, MD
Carla Pruden, MD
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Sharon Smith, MD
Michael Soltis, MD
Jesse Sturm, MD (EM/Sedation)
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Kezia Meyer, APRN
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PEDIATRIC EMERGENCY MEDICINE FELLOWS

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Susana Collazo, MD, PGY-5
Kathleen Felisca, MD, PGY-4
Edgar Flores, MD, PGY-5
Kathryn Schissler, DO, PGY-6
Meghan Wilson Frost, MD PGY-4

ENDOCRINOLOGY & DIABETES

In 2022, the Division of Pediatric Endocrinology and Diabetes grew in its clinical programs, research endeavors, and geographical breadth with the overall mission of improving the health and quality of life of patients through our clinical expertise, compassionate care, and research focused on the development of new treatments through clinical trials as well as clinical and laboratory investigations.

This past year was highlighted by continued growth and innovation in both our clinical and research endeavors. Our outpatient clinics in Farmington, Glastonbury, Hartford, Shelton, and Danbury remained very productive, and clinical care extended to Fairfield and Westport at the end of 2022). Our multiple sub-specialty clinics have continued to grow as well.

We welcomed two full-time and one part-time faculty members to our division this year. Misha Sodhi, MBBS joined our division in March and will be in our newly opened Specialy Care Center in Westport full-time, having provided care in our Fairfield and Shelton locations this past year. In July 2022, Neetu Krishnan, DO joined full-time after completing her pediatric endocrinology fellowship with us at Connecticut Children's/University of Connecticut School of Medicine. She provides medical care in our Farmington and Glastonbury offices. Laleh Ardeshirpour, MD joined us in February 2022 from her prior position at Yale University School of Medicine. Dr. Ardeshirpour provides care in our Shelton clinic location and will begin clinics in Westport. Both Dr. Sodhi and Dr. Ardeshirpour join Raul Arguello, MD and Nordie Bilbao, MD in Fairfield County.

In 2022, our 15 faculty members focused on the highest quality of patient care while at the same time providing world-class education to medical students, residents, and fellows. All of our faculty members have given local, national, and/or international presentations and most are involved in clinical, translational, and/or bench research.

The division is led by Emily Germain-Lee, MD, professor of Pediatrics at the University of Connecticut School of Medicine and adjunct faculty at The Jackson Laboratory in Farmington, CT. In addition to her clinical and administrative roles as division head, she is chair of the Research Council and chair of the Dean's Council at the University of Connecticut School of Medicine, enabling her to be actively involved in the academic and research missions that intertwine Connecticut Children's with the School of Medicine. In addition, she has been very active in helping to build the Connecticut Children's Research Institute as a member of the Scientific Advisory Committee. Cem Demirci, MD, the Chase Family Chair of Juvenile Diabetes, is clinical director for the division and has been director of our very active diabetes program for over a decade. The incorporation in 2021 of the Glycogen Storage Disease & Disorders of Hypoglycemia Program into our division has widened our breadth, with Rebecca Riba-Wolman, MD serving as director. Dr. Riba-Wolman has also been the director of the division's very active fellowship program, which is currently in its twenty-fifth year. With the additional joint efforts of assistant program directors Christine Trapp, MD and Sunitha Sura, MD, and Susan Ratzan, MD, the fellowship program is thriving. This year Caroline Figgie, MD, who completed her pediatric residency at Rainbow Babies & Children's Hospital, joined us as a first-year fellow.

SUMMARY OF SUBSPECIALTIES WITHIN THE DIVISION OF PEDIATRIC ENDOCRINOLOGY & DIABETES

The Division of Pediatric Endocrinology and Diabetes has a unique array of subspecialty clinics focused on specific conditions. The Glycogen Storage Disease & Disorders of Hypoglycemia outpatient program is now fully incorporated within our division since 2021.

Diabetes Program: A large focus in the division is our Diabetes Program, which has grown significantly this past year. Directed by Dr. Demirci, it now cares for approximately 1,800 children and adolescents with diabetes. In addition, follow-up care for diabetes is now established within our Fairfield County satellites in Danbury and Shelton, under the direction of Dr. Bilbao, and will be expanded by Dr. Sodhi in Westport. Virtually all of the pediatric endocrinologists in the division are involved in providing care for diabetes of all types, including type 1 and type 2 DM, monogenic diabetes, maturity onset diabetes of the young (MODY), permanent neonatal diabetes, cystic fibrosis-related diabetes, and steroid-induced diabetes. The Division of Endocrinology and Diabetes is accredited by the American Association of Diabetes Educators (AADE) and has a multidisciplinary team of 12 staff, including advanced practice practitioners, registered nurses, registered dietitians, certified pediatric diabetes educators, a diabetes administrative coordinator, and pediatric social workers. We were fortunate that we added a social worker to our division this past year in order to expand this program.

Gender Program: This program continues to grow tremendously under the direction of Priya Phulwani, MD, who provides unique care to children and adolescents with gender incongruence and also offers support to families from throughout the region. Dr. Phulwani advances the program not only through her clinical care but also through statewide advocacy and presentations given locally and regionally. She has forged several important collaborations to improve the health and quality of life for patients including the Center for Advanced Reproductive Services, which offers fertility options to patients with gender incongruence, and multiple departments at Connecticut Children's. Dr. Phulwani is working to be a top leader in the Health Equality Index, which is the national LGBTQ+ benchmarking tool that evaluates the policies and practices of health-care facilities related to the equity and inclusion of their LGBTQ+ patients, employees, and visitors. She gives many educational talks to improve awareness of gender diversity for the Connecticut Department of Children & Families, various health institutions and facilities, and schools.

Clinic for Variations of Sexual Development: This clinic, co-directed by Dr. Phulwani, has evolved into a truly interdisciplinary model with visits involving joint meetings of the parents (or parent) with their child for

evaluations by a pediatric urologist, a family support provider, and Dr. Phulwani. The providers build upon each other's experiences to achieve a common shared goal of providing comprehensive compassionate care to infants, children, adolescents, and their families. The joint patient visits enable better coordination of care and allow for open, clear, and consistent communication. By providing ongoing age-appropriate education, the patients are empowered to be involved in the decision-making process. Dr. Phulwani actively participates with members of Medical Genetics, Urology, Plastic Surgery, Adolescent Gynecology, and Psychology. She also advocates extensively for these patients at local, regional, and state levels.

Center for Rare Bone Disorders: This center was established at Connecticut Children's by Dr. Germain-Lee and has built upon her more than 25 years of clinical care and translational laboratory research in this area. The center combines both clinical care and basic science research to help patients with rare bone disorders, while at the same time working to improve the health and quality of life of patients and discover potential new therapies. Dr. Germain-Lee gives talks and webinars locally, regionally, nationally, and internationally on rare bone disorders and serves on the Scientific Advisory Panel of the Rare Bone Disease Alliance, the Scientific Advisory Board of the Osteogenesis Imperfecta Foundation, and the International Expert Consensus Panel on Pseudohypoparathyroidism and Related Disorders. Through her work as vice president of the Human Growth Foundation, she focuses on expanding education and research for those with bone disorders that affect growth. She is a long-time advocate for patients with rare bone and rare endocrine disorders at the local, regional, national, and international levels and is also involved in advancing research as an elected member of the Connecticut Academy of Science & Engineering.

Under the umbrella of the Center for Rare Bone Disorders are two subcenters:

- **Albright Center:** This is the first and only center dedicated to Albright hereditary osteodystrophy (AHO), which includes two subtypes called pseudohypoparathyroidism type 1A and pseudopseudohypoparathyroidism. Dr. Germain-Lee has evaluated the largest population of patients with AHO worldwide, and patients travel from throughout the United States and from other countries to the Albright Center. She has developed a bedside-to-bench research program focused on her patients as well as her knockout mouse model for AHO. Dr. Krishnan has joined Dr. Germain-Lee in this center.
- **Osteogenesis Imperfecta (OI) Center:** This center is co-directed by Dr. Germain-Lee and Nancy Dunbar, MD, MPH. The Connecticut Children's OI Center is recognized officially by the OI Foundation and is a premier site in New England and the mid-Atlantic for patients with OI to be evaluated and treated. This center provides clinical care to OI patients and provides education and support sessions, which were halted temporarily and will be started again. A virtual group was initiated in 2022 by Dr. Dunbar and pediatric endocrinology fellow Ana Menendez, MD for Spanish-speaking patients. Karen Loechner, MD/PhD, who has extensive experience in OI, became a part of this center in 2022. Dr. Germain-Lee has an established translational research program that includes both clinical research studies as well as basic science laboratory investigations utilizing mouse models of OI, and she is working toward developing new treatments for this condition. Drs. Loechner and Dunbar will be investigators for a clinical trial in OI involving a potential new therapy. As of 2022, Dr. Loehner is an off-site principal investigator on a grant for a potential treatment for OI funded through a Marcus Pediatric Cellular Therapies Award through Children's Healthcare of Atlanta and Emory University.

  Additional rare bone disorders are seen by Drs. Dunbar, Germain-Lee, Krishnan, and Loechner, including hypophosphatemic rickets, hypophosphatasia, and a wide array of skeletal dysplasias (among a multitude of other genetic bone diseases).

Metabolic Bone Clinic: Dr. Dunbar directs this clinic at Connecticut Children's and Shriners Hospitals for Children® in Springfield, MA. The clinic focuses on all forms of bone disorders as well as disorders of mineral metabolism. Additionally, Dr. Dunbar has developed a focus on bone loss in children with various physical impairments. She is a certified clinical densitometrist through the International Society for Clinical Densitometry, permitting her to provide official interpretations of scans evaluating bone mineral density (DXA scans) using the state-of-the-art DXA machine at Connecticut Children's. She also provides these services to all other divisions. Dr. Dunbar is on the Editorial Board of the *Journal of the Endocrine Society*.

Global Health: Dr. Dunbar has been crucial in developing a type 1 diabetes clinic in Haiti, and she, along with Comalita Elliott, RN, CDE, have been working with local pediatric staff at Hôpital Sacré Coeur in Milot. Their ongoing fundraising efforts have supported the needs of the program. Dr. Dunbar has made a significant impact on the improvement of diabetes care within this program based on quantitative measures, and even in the midst of the pandemic, she maintains communication with the staff at Hôpital Sacré Coeur.

Lipid Disorders Clinic: Sunitha Sura, MD heads up this unique clinic, which has been fully running with a specialized nutritionist over the past four years. This clinic expanded greatly this year. It is one of the few lipid clinics in the country that is within a pediatric endocrinology division and focused solely on the management of childhood lipid disorders. Dr. Sura is a member of the National Lipid Association and has given grand rounds and other talks educating practitioners on the management of lipid disorders. She recently received her American Board of Clinical Lipidology certification from the National Lipid Association, and she is part of the Pediatric Endocrine Society's Lipid Special Interest Group.

Turner Syndrome Clinic: Dr. Loechner took over the Turner Syndrome Clinic upon her arrival, and with Karen Rubin, MD, a world-renowned expert in Turner Syndrome and prior director of the clinic, Dr. Loechner has become involved in the clinical guidelines for Turner Syndrome. The Turner Syndrome clinic involves a highly specialized interdisciplinary team, including a nutritionist, psychologist, and nurse, with expertise specifically in this disorder.

Newborn Screening Program: Through the efforts of Dr. Rubin, Connecticut Children's is the site of Connecticut's Newborn Screening Program. This program provides important clinical needs as well as important research investigations.

Thyroid Center: A multidisciplinary program for treating thyroid nodules and thyroid cancer, which involves Endocrinology, Pediatric Surgery, Pathology, Radiology, and Nuclear Medicine, is headed up by Dr. Bilbao and Connecticut Children's Surgeon-in-Chief Christine Finck, MD. Dr. Bilbao has increased the footprint of this center with a goal of continued regional expansion.

Cancer Survivorship: Dr. Riba-Wolman is the endocrinologist for the REACH for the STARS Cancer Survivorship Program, a multidisciplinary clinic in the Hematology-Oncology division for long-term survivors of childhood cancer. She also is involved in the Neuro-Oncology Program, a multidisciplinary clinic involving Oncology, Neurosurgery, and Endocrinology. She has embarked on clinical research in areas involving the endocrine disorders observed in children with cancer and is an active member of the New England Childhood Cancer Consortium.

Obesity: Dr. Trapp has expertise in obesity research and caring for children with co-morbidities secondary to obesity, as well as those with early onset obesity, type 2 diabetes mellitus, and Prader-Willi Syndrome. She serves as co-chair of the national Obesity Special Interest Group for the Pediatric Endocrine Society. Dr. Phulwani also works in the area of obesity and serves as the endocrinologist in the multidisciplinary Bariatric & Weight Management Clinic, which is overseen by members of the Pediatric Surgery department.

Adrenal Disorders: Dr. Loechner is the site principal investigator, with Dr. Bilbao as co-investigator, for an industry-sponsored Phase III trial (CAHtalyst Pediatric Study, Neurocrine Biosciences) that is testing a new pharmacologic agent for its ability to treat children with congenital adrenal hyperplasia (CAH; see Research section below). Dr. Loechner is also on the Medical Advisory Board for the CARES Foundation (CAH Research and Education) to help patients with CAH.

Glycogen Storage Disease (GSD) & Disorders of Hypoglycemia Program: The mission of the Glycogen Storage Disease & Disorders of Hypoglycemia Program, headed by Dr. Riba-Wolman, is to provide dedicated care and diagnostic evaluation for patients with disorders of hypoglycemia and also provide the best evidence-based care of patients with glycogen storage diseases. Dr. Riba-Wolman expanded this clinic to include all areas of hypoglycemia with a robust outpatient program. A dedicated support team includes Drs. Loechner and Germain-Lee, a metabolic nutritionist with extensive experience in GSD, as well as nurses with a great deal of prior experience. This program provides comprehensive care to patients with multiple forms of hypoglycemic disorders, with special attention to patients with glycogen storage diseases and ketotic hypoglycemia, both regionally and beyond. Extensive clinical trials in GSD are underway as described in the Research section of this annual report.

BASIC SCIENCE & TRANSLATIONAL RESEARCH (INCLUDING CLINICAL TRIALS)

Bone Loss & Muscle Wasting

Research efforts have extended even beyond Earth with Dr. Germain-Lee and her collaborator, Se-Jin Lee, MD, PhD from the Jackson Laboratory and University of Connecticut School of Medicine. They sent mice to the International Space Station in 2020 and continue to examine the role of a novel experimental agent that was created by Dr. Lee that can increase both muscle and bone mass. Microgravity causes both muscle and bone loss, as is evident in astronauts during space travel. This mimics the same phenomenon observed in patients who have bone disease, muscle wasting, and chronic illnesses, as well as in those who are elderly. By giving this experimental drug to mice exposed to systemic microgravity, the goal was to see whether bone and muscle loss were prevented. This has the potential for therapeutic use not only in astronauts in space but also in many patients here on Earth who suffer from either muscle-wasting disorders, bone fragility disorders, or both. Their scientific investigations successfully revealed that the novel experimental agent was able to improve bone and muscle mass in spite of microgravity, and further research is underway. Drs. Germain-Lee and Lee have continued an intensive focus on this research over the past two years with the goal of moving this therapeutic strategy further.

In 2022, they were awarded an NIH R01 grant to target specific receptors in osteoblasts that could lead to 10-fold increases in bone density, far exceeding what has been achieved to date with drugs to treat osteoporosis. They were also awarded an NIH R21 in 2022 to investigate extragonadal functions of follicle stimulating hormone (FSH) in order to determine FSH's direct effects on bone density and adiposity. This will be critical for developing the best strategies to target FSH signaling to treat osteoporosis and/or metabolic dysfunction including obesity and type 2 diabetes.

Rare Bone Disorders

Dr. Germain-Lee has continued her long-standing research efforts in the clinic and the laboratory on rare bone diseases, specifically AHO, for which she has developed a mouse model, and OI, for which she conducts translational and basic science research involving both patients and mouse models. Her laboratory is within the Center for Regenerative Medicine and Skeletal Development at UConn Health. One focus of this research program has been to investigate the pathogenesis of AHO and to develop new treatments. One of the key findings has been the identification of growth hormone (GH) deficiency in approximately two-thirds of patients with AHO, and GH treatment has now become well established for those patients who are GH deficient. Another major area of this research program is the hormonal control of bone development and homeostasis through investigations of rare bone disorders, specifically understanding the basis for bone abnormalities in AHO, including effects on both bone mineral density and the development of heterotopic ossifications. Recent investigations have led to potential therapeutics for these painful ossifications, not only in AHO but also in the general population. Patrick McMullan, an MD/PhD student from the University of Connecticut School of Medicine who completed his PhD in 2022 in Dr. Germain-Lee's laboratory, and Dr. Krishnan are also part of Dr. Germain-Lee's efforts in AHO research.

A second disorder that has been a focus of the laboratory's research program is OI, and Dr. Germain-Lee's investigations showed that blocking the activin/myostatin signaling pathway in a mouse model of OI can lead to increases in both bone and muscle mass, raising the possibility of a new therapeutic strategy in OI patients who suffer from fragile bones and muscle atrophy.

Glycogen Storage Disease (GSD)

- **Clinical Research:** The first trial of gene therapy for Glycogen Storage Disease (GSD) Type Ia began in July 2018 with David Weinstein, MD, MMSc as principal investigator and Connecticut Children's/University of Connecticut as the lead site. Since Dr. Weinstein's departure and the transition to Dr. Riba-Wolman as the principal investigator in 2020, our site remains the largest in a multinational trial sponsored by Ultragenyx. Dr. Loechner joined these efforts as sub-PI in November 2021. Utilizing new mRNA-based technology and with the sponsorship of Moderna, Dr. Loechner leads Moderna's novel Phase I clinical trial for GSD Ia to determine if mRNA infusions are both safely tolerated and efficacious. A repository and other studies for GSD are under the direction of Drs. Riba-Wolman and Germain-Lee, as well as Katherine Herbst, MS.
- **Laboratory Research:** Under the direction of Youngmok Lee, PhD, basic science director for GSD, the laboratory focuses on two types of pre-clinical research for GSD-Ia, GSD-Ib, GSD-VI, and GSD-IX using disease model animals, including, 1) the elucidation of pathological mechanisms underlying the complications of GSDs, such as liver cancer, steatosis, and fibrosis as well as immune cell dysfunction; and 2) the development of new gene therapy technology and evaluation of its efficacy and safety. The goal of the research is to understand the pathogenesis in GSDs and to develop new therapeutic strategies for treatment. His investigations are being conducted in the laboratory facilities at the University of Connecticut Cell and Genome Sciences building.

Diabetes

Dr. Demirci continues his collaboration with Derya Unutmaz, MD, a researcher at the Jackson Laboratory, to investigate the intestinal microbiome and the link between food, microbes, and diabetes with the ultimate goal of finding which genes are turned on and off as a result of the interaction between the microbiome and the immune system.

Dr. Germain-Lee is also working on basic science research in diabetes. She is currently collaborating on investigations with Dr. Se-Jin Lee. Their studies are aimed at discovering new strategies to improve the body's ability to control blood sugar levels. The goals of this project, which is partly supported by a grant from the National Institutes of Health (NIH), are to enhance

the ability of the pancreas to produce insulin as well as to improve the responsiveness of peripheral tissues to insulin. The focus is to understand the role of secreted proteins belonging to the transforming growth factor-ß superfamily of signaling molecules in regulating metabolism.

Sturge-Weber Syndrome

In addition to Dr. Germain-Lee's research on AHO and OI, she has also been investigating the clinical/hormonal phenotype in patients with Sturge-Weber syndrome (SWS) over the past two decades. Working with Anne Comi, MD (Johns Hopkins University School of Medicine/Kennedy Krieger Institute) for close to two decades, they were the first to demonstrate that these patients have a multitude of hormonal abnormalities.

Adrenal Disorders

Dr. Loechner is the site principal investigator with Dr. Bilbao as co-investigator for an industry-sponsored Phase III trial (CAHtalyst Pediatric Study, Neurocrine Biosciences) that is testing a new pharmacologic agent for its ability to treat children 2-17 years of age with congenital adrenal hyperplasia. Dr. Loechner is also on the Medical Advisory Board for the CARES Foundation and on the Adrenal Workgroup for the Ultragenyx GSD trial.

FEDERAL GRANTS

NIH

NIH R01 AR081659 – Principal Investigators: Emily L. Germain-Lee, MD and Se-Jin Lee, MD/PHD. Extracellular Regulation of Bone Mass by Transforming Growth Factor-ęrelated Ligands and Their Binding Proteins. 7/21/22 – 06/30/27.

NIH R21 AG077792 – Principal Investigators: Emily L. Germain-Lee, MD and Se-Jin Lee, MD/PhD. Elucidating Extragonadal Functions of Follicle Stimulating Hormone Using Genetic Approaches in Mice. 9/1/22 – 6/30/24.

NIH R01 AG052962 – Co-investigator: Emily L. Germain-Lee, MD; (PIs: Se-Jin Lee, MD/PhD and Thomas Rando, MD/PhD). TGF-ß Family Members and Their Binding Proteins in Aging Skeletal Muscle. 9/15/17 – 5/31/22.

Other Federal Grants

HRSA Award – Principal Investigator at site: Karen Rubin, MD. Connecticut Newborn Screening System: An Integrated Approach to Improving Long-term Health Outcomes. 8/1/20-7/31/22.

State Grants

Connecticut DPH – Principal Investigator: Karen Rubin, MD. Provision of a Diagnostic and Treatment Network for Connecticut's Newborn Screening Program Utilizing a Population Health Approach. 7/1/18 - 6/30/22.

Children's Health Fund, Child Health Development Institute CT – Principal Investigator: Karen Rubin, MD. Expanding Behavioral Health Services in Primary Care Through Co-Management and Implementation of a Learning Community. 1/1/21-6/30/22.

University of Connecticut School of Medicine – Co-investigator: Emily L. Germain-Lee, MD; (PI: Se-Jin Lee, MD/PhD). Continuation of research on "Mighty Mice in Space: Preclinical Evaluation of a Broad Spectrum Myostatin Inhibitor to Prevent Muscle Wasting and Bone Loss Due to Disuse." (Previously sponsored by the International Space Station U.S. National Laboratory/ NASA/CASIS/The Jackson Laboratory). 10/6/20 – 10/5/22.

Foundation Grants

Marcus Pediatric Cellular Therapies Award – Off-site Principal Investigator: Karen Loechner, MD/PhD. (Main site: Children's Healthcare of Atlanta/Emory University). Phase 1/2 Study to Examine the Effect of Mesenchymal Stromal Cells on Linear Growth and Bone Health Parameters in Children with Osteogenesis Imperfecta (OI). 10/1/22 – 09/30/26

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Cem Demirci, MD, *Clinical Director & Director, Diabetes Program*

Rebecca Riba-Wolman, MD, *Director, Glycogen Storage Disease & Disorders of Hypoglycemia Program; Fellowship Director of Endocrinology and Diabetes*

Christine Trapp, MD, *Associate Fellowship Director of Endocrinology and Diabetes*

Youngmok Lee, PhD, *Basic Science Director, Glycogen Storage Disease Program*

Laleh Ardeshirpour, MD
Raul Arguello, MD
Nordie Bilbao, MD
Nancy Dunbar, MD, MPH
Neetu Krishnan, DO
Karen Loechner, MD, PhD
Priya Phulwani, MD
Susan Ratzan, MD *(until 7/1/22)*
Karen Rubin, MD *(until 7/1/22)*
Misha Sodhi, MBBS
Sunitha Sura, MD
Carey Driscoll, PNP
Maureen Fearon, PNP
Elena Schneider, PA

Fellows

Neetu Krishnan, DO *(became faculty on July 1, 2022)*
Ana Menendez, MD
Caroline Figgie, MD

DIVISION OF EXCELLENCE IN PATIENT SAFETY & CLINICAL QUALITY

The Division of Excellence in Patient Safety and Clinical Quality strives to support Connecticut Children's partnerships with patients, families, and communities using evidence-based models resulting in zero-harm, highest quality, world-class outcomes in a culture based on equity, continual improvement, and compassionate care through the integration of patient safety and quality across the institution. The division's goal is to act as one team accelerating the transformation of people and systems to become nationally recognized for patient safety and quality, thereby enabling the vision of Connecticut Children's is transforming children's health and well-being as one team. We work to drive our culture of safety to the standard of zero-harm, to teach methods of improvement, and to use research to inform our programmatic efforts and innovations.

In 2022, the division faculty led safety and improvement efforts across the organization and had a role in each aspect of the organization's Health Compass 2027 goals and objectives. In promoting organizational excellence and striving to achieve zero harm, division faculty were engaged in work with Solutions for Patient Safety (SPS) in reducing harm associated with hospital-acquired infections and other conditions, medication safety, and emergency preparedness. The efforts of the faculty extended across our growing care network, including our partner inpatient units and our primary care ambulatory care network, through providing access to quality consortium resources, simulation experiences, and access to tools promoting population health across phases of care with access to clinical care pathways and co-management (CLASP guidelines).

As part of the organization's improvement journey, Division Head Lori Pelletier, PhD, MBA led the launch of the Organizational Excellence program, providing a curriculum for advancement in quality and patient safety. Organizational Excellence is a blend of the traditional tool-based approach to continuous improvement and a principle-based approach that enhances sustainability and velocity of change. The Organizational Excellence Learning program will be a key driver in building organizational capability to shift our culture and make sustainable improvements. This year, Division members earned Black Belts after completion of the Organizational Excellence 4.0 course requirements as follows:

- Dr. Natalie Bezler: Improving the Safety of Discharge on Enoxaparin
- Dr. Alex Golden: Creation of a Difficult IV Access Team
- Grace Hong: COVID-19 Long Haul Clinic System Design
- Dr. Eric Hoppa: ED Length of Stay and Left Without Being Seen (with Ryan O'Donnell, MSN, RN, NEA-BC)
- Dr. Mariann Kelley: Medical Emergency Team – Process Improvement
- Dr. Carla Pruden: Systems Integration Simulations: System Design
- Dr. David Sink: NICU West Provider Order, Documentation and Billing Improvements via EHR
- Dr. Heather Tory: Inpatient Medication Reconciliation Quality Audit Monitoring System
- Dr. Ilana Waynik: Improving Topical Anesthetic Use for Venous Access Procedures

Members of the division also participated in a wide array of quality improvement-related research as represented in the publications and presentations below. The work of the faculty of the Division of Excellence in Patient Safety and Clinical Quality, with multidisciplinary partnership, has been instrumental in organizational efforts to continue providing highest quality and safest care to our patients, and we look forward to ongoing efforts to promote the quality of care for patients throughout the region.

PUBLICATIONS

Bakel LA, Richardson T, Gruhler De Souza H, Kaiser S, Mahant S, Treasure J, **Waynik I**; Winer J; Bajaj L. Hospital's Observed Specific Standard Practice: A Novel Measure of Variation in Care for Common Inpatient Pediatric Conditions. J Hosp Med. March 2022; 1-10. DOI: 10.1002/jhm.12811

Basco SA, **Girotto JE.** Contemporary Treatment of Resistant Gram-Negative Infections in Pediatric Patients. Infect Dis Clin North Am. 2022 Mar;36:147-171.

Boudreaux, E.D., Larkin, C., Vallejo Sefair, A., Mick, E., Clements, K., **Pelletier, L.**, Yang, C., & Kiefe, C. Studying the implementation of Zero Suicide in a large health system: Challenges, adaptations, and lessons learned, Contemporary Clinical Trials and Communications (2022), 10.1016/j.conctc.2022.100999.
Wang EY, Girotto JE. Approaches to Reduce Use and Duration of Anti-MRSA Agents for Antimicrobial Stewardship Programs: A Review of Recent Literature. J Pharm Pract. 2022 Oct 4:8971900221130893.

ORAL PRESENTATIONS

Andreas S and Hoppa E. " Comparison of the Treatment of Sickle Cell Vaso-occlusive Crisis Prior to And During the COVID-19 Pandemic" Eastern Society for Pediatric Research and American Federation for Medical Research Meeting. March 2022. Virtual meeting due to pandemic. Platform Presentation.

Girotto J. "Can Oral/Enteral Antibiotics be Used to Treat Severe Infections in Pediatric Patients?" Provided as part of the Pediatric Antimicrobial Stewardship New Fronteir's presentation at ID Week, Washington DC, Oct 22, 2022. Platform Presentation.

Pelletier L. The Future of Quality Improvement is the Organizational Journey. Cambridge Health Alliance, Department of Psychiatry, Population Health Lecture Series, Cambridge, MA. June 2022
Schissler K, Brimacombe M, Stewart S, Phamduy T, Waynik I, Hoppa E. "High-Risk Markers and Infection Rates in Febrile Infants aged 29-60 days Presenting to the Emergency Department During the COVID-19 Pandemic Compared with Previous Years." Eastern Society for Pediatric Research Scientific Meeting, March 2022; Platform Presentation; Virtual due to COVID-19 pandemic.

Williams J. "Novel Medication Decision Support Across Encounters: Design Usability Remediates Common but Challenging Peri-op Workflows". Clinical Informatics Council of AMIA. May 2022. Platform presentation.

FACULTY

Lori Pelletier, PhD, MBA, *Division Head*

Natalie Bezler, MD
Brendan Campbell, MD, MPH
Alex Golden, MD, MMM
Eric Hoppa, MD
Logan Jerger, MD
Mariann Kelley, MD
Sherene Mason, MD, MBA
Carla Pruden, MD, MPH
David Sink, MD
Heather Tory, MD, MPH
Ilana Waynik, MD
Jessica Williams, MD
Tze Chiam, PhD
Jennifer Girotto, PharmD
Jill Herring, APRN
Grace Hong, APRN

GENERAL PEDIATRICS

The Division of General Pediatrics is committed to fostering optimal health and well-being of children, families and communities, and the education of the next generation of pediatricians.

To execute this mission, we provide exceptional clinical care in partnership with families, teach evidence-based clinical pediatrics to the next generation of pediatric health-care providers, and pursue original research and vigorous advocacy around issues important to children, families, and the public. Our activities place special emphasis on caring for children with special health-care needs, including disadvantaged children, children growing up in low-income families, and children with complex and chronic health conditions.

For 2022, the Division of General Pediatrics celebrated the opening of our newest primary care office in Hartford. Together with Primary Care East (East Hartford), West, (Farmington) and the Burgdorf/Bank of America Health Center, the Division continues to provide pediatric care for most of Hartford's children. Members of the Division provide ambulatory care to infants, children, adolescents, and young adults, as well as inpatient care in the newborn nurseries at Hartford Hospital in Hartford, and John Dempsey Hospital/University of Connecticut Health Center in Farmington, and inpatient consultation at Connecticut Children's for children with lead poisoning. Our ambulatory services include health supervision, behavioral health care, chronic disease management, and urgent care using a medical home model. The division houses innovative, community-wide clinical programs such as the Connecticut Children's Regional Lead Poisoning Treatment Center and the Reach Out and Read literacy program. Division faculty have gained regional and national prominence for clinical research, education, and program development in the fields of lead poisoning and prevention, integrated behavioral health, early obesity prevention, and emergent literacy promotion. This year, the Division is participating in a new learning community project to enhance goal concordant care with the Office of Community Child Health, supported by funding from the Help Me Grow National Center.

The Division welcomed two talented new faculty members this year – Ashok Kottarathara, MD and Brooke Bohn, MD. Dr. Kottarathara joins us after five years with United Community and Family Services – Norwich Health Center, and has previous experience as a hospitalist at Mercy Medical Center on Long Island, NY. Dr. Bohn recently completed her residency and chief residency at Connecticut Children's and has a special interest in urban pediatrics.

Faculty members in the Division play a central role in education in the University of Connecticut (UConn) system by providing pediatric primary care and newborn nursery educational experiences for medical students and pediatric residents in the region. Rotating learners from UConn and other institutions include family practice, dental, and psychiatry residents, and students from nurse practitioner, physician assistant, and medical assistant programs. Division members serve on a wide variety of hospital, university, and state committees. Membership on national committees includes the Reach Out and Read National Medical Advisory Committee (division head Catherine Wiley, MD) and the Society for Pediatric Dermatology Education Committee (Keri Wallace, MD). Dr. Wallace continues her work as core faculty lead to develop and restructure the pediatric dermatology rotation and curriculum. Research interests in the division include emergent literacy, cultural competence, immunization, obesity, and screening in primary care. Division members collaborate in a wide variety of projects, including the Asthma Center's Easy Breathing© program and various co-management protocols with Connecticut Children's pediatric subspecialists.

In response to the SARS CoV-2 pandemic, primary care continues to be offered via telehealth across all sites. Faculty members incorporate residents and medical students into this clinical experience. Andrew Carlson, MD, Medical Director, continues his work as a core faculty lead in developing a formal primary care telehealth curriculum. Faculty members have also supported the Connecticut Children's response to the respiratory illness surge by providing care in the Connecticut Children's Emergency Department.

Our Division members individually have had an engaging 2022

- Dr. Andrew Carlson was appointed as Medical Director of Primary Care at Connecticut Children's in May 2022.
- Monica Joyce-Montaudy, APRN, was named the medical liaison to Eagle House, providing primary care to these children as an extension of our partnership with The Village for Families and Children.
- Jennifer Haile, MD, was appointed to the Department of Public Health Lead Poisoning Prevention and Treatment Legislative Workgroup. She continues to serve as Medical Director of the Connecticut Children's Lead Poisoning Prevention and Treatment Center supported by a grant from the Department of Public Health.
- Dr. Douglas MacGilpin serves as Medical Director of the Hartford Public Schools.
- Grael O'Brien, MD, MPH, continued as site director for CORNET (Continuity Clinic Research Network) of the Academic Pediatric Association and has been active on the UConn School of Medicine Curriculum Reform Committee.
- Dr. Wiley worked in emergent literacy promotion and is the Medical Director of Reach Out and Read Connecticut.
- Jody Terranova, DO, continues her work on the science subcommittee of the Governor's COVID-19 Vaccine Advisory Group and was elected President of the CT Chapter of the American Academy of Pediatrics.
- Nancy Trout, MD, MPH, serves on the COACH network of the American Academy of Pediatrics Section on Obesity. Dr. Trout received a Healthier Kids for our Future grant from Cigna for the "Obesity prevention and Food is Medicine" initiative in the Ascent Pipeline neighborhoods, and a grant from Rite Aid for a food insecurity screening program in the Emergency Department
- Amira Mohamed-Ahmed, MD, completed the Harvard Medical School Safety, Quality, Informatics and Leadership Program this year.
- Dr. Larry Scherzer works as Chief of Pediatrics and Medical Director of the Newborn Nursery at John Dempsey Hospital/UConn Health.
- Amy Signore, PhD continues her role of Associate Chair of Integrated Primary Care SIG for the Division of Health Psychology of the American Psychological Association. She received a grant from Antioch University to support the first psychology doctoral student to train in primary care/integrated behavioral health.

STAFF

Catherine Wiley, MD, *Division Head*

Anton Alerte, MD
Brooke Bohn, MD
Andrew Carlson, MD, *Medical Director*
Jennifer Haile, MD, *Medical Director, Lead Poisoning Treatment and Prevention Program*
Shannon Hogan, DO, MPH
Jaye Ladinsky Horowitz, MD
Abraham Khorasani, MD
Douglas MacGilpin, MD
Eileen Mercurio, MD
Lisa Menillo, MD
Amira Mohamed-Ahmed, MD
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Keri Wallace, MD
Caleb Wasser, DO

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Amy Signore, PhD

Darlene Abbate, APRN
Keith Ellis, APRN
Kimberly Griffith, PA-C
Monica Joyce-Montaudy, APRN

HEMATOLOGY–ONCOLOGY

The Hematology-Oncology Division strives to improve the lives of children with cancer and blood disorders by delivering high-quality family-centered academic health care. We continuously improve what we do through discovery and partnerships. We have three broad areas of focus: Family Centered Care, Quality & Safety, and Research & Teaching.

The Division of Hematology-Oncology excels in our ability to provide the highest quality of care with our focus on the patient and family experience. A talented group of advanced practitioners and nurses are a key component of our service model. Over the past year, we have broadened our programs and further developed several areas of expertise. We have expanded our programs in Survivorship, Supportive Care, and Hemophilia and Thrombosis. We also maintained our focus on expanding disease expertise in neuro-oncology, sarcomas and other solid tumors, hematologic malignancies, and in adolescent and young adult oncology. In addition, we have provided cutting-edge clinical trials within our Advanced Cancer Program for novel therapeutics.

Highlights of our Programs include the Comprehensive Fertility and Sexual Health Program at Connecticut Children's, which aims to meet with all newly diagnosed patients and their families to discuss the potential impact of cancer treatment on fertility and potential fertility preservation opportunities. In partnership with the Center for Advanced Reproductive Services, we offer sperm banking, oocyte and embryo cryopreservation, and ovarian tissue cryopreservation. We are also able to offer patients testicular tissue cryopreservation as part of a research program with the University of Pittsburgh. Our team is currently working to meet with all patients coming off treatment to review fertility questions and concerns, including how to assess fertility status, moving into survivorship, and available preservation strategies post-treatment. In addition to fertility, team members are also able to meet with adolescent and young adult patients to provide education on sexual health during and after cancer and address relevant questions and concerns.

The Hemostasis and Thrombosis program is a federally-funded Hemophilia Treatment Center (HTC). The program is thriving in four locations in Hartford, Farmington, Shelton and South Hadley, MA. We have been able to add additional nursing and administrative support and now have three physicians, two advanced practice providers, two dedicated HTC nurses, a dedicated administrative assistant, a program manager, and a data manager. We continue to work closely within our region on advancing care for bleeding disorder patients and have an ongoing successful 340B pharmacy program. Our Center participates in national research programs including ATHN and the CDC Community Counts Registry.

Our Adolescent Bleeding and Clotting Disorders clinic was started in 2021 to benefit patients with bleeding and clotting disorders and has been an incredible resource to provide interdisciplinary care for this population of young women with our adolescent medicine colleagues. We have expanded our community outreach by offering educational events to families, including a summer picnic with infusion teaching and Pumpkin Fest at the Bushnell Carousel this past fall.

Our fellowship program thrives under the leadership of Andrea Orsey, MD, MSCE. Our second Hematology-Oncology fellow, Tatiana Lara-Ospina, MD, graduated from our program in June 2022. We were pleased to welcome Shruthishree Sukumar, DO into the program as a first-year fellow joining Erin Pastor, MD, who will complete the program in 2023. We also welcomed Jenine Tulledge-Wolff, PhD our first psychology fellow, this year and we look forward to providing expanded psychology services, especially in the area of neuropsychology

Many of our staff received recognitions throughout the year:

- Joanna Gell, MD became a member of the Systematic Evidence-based Review (SER) Committee for the Cancer risk in Differences of Sex Development/Intersex for the American College of Medical Genetics and Genomics (ACMG). Dr. Gell also became Biology Chair of the Children's Oncology Group Germ Cell Tumor Committee
- Dr. Orsey became Director of the Edwin Zalneraitis Teaching Academy at Connecticut Children's and was also appointed to the Graduate Medical Education Committee (GMEC) at the University of Connecticut School of Medicine. Dr. Orsey was invited to be on the Oncology Supportive Care Review Group, ASPHO, and SOHO
- Kelly Ha, LMSW was honored at the 2022 100 Women of Color Gala & Awards event.

Additionally, a number of division members were invited to be speakers at regional and national meetings:

- "The Practice of Fertility Preservation in Pediatric Oncology" 2022 American Society for Pediatric Hematology and Oncology Annual Meeting. Pittsburgh, Pennsylvania. (Dr. Natasha Frederick)
- "Sexual and Reproductive Health Care for the Adolescent and Young Adult in Survivorship" 2022 Children's Wisconsin Cancer & BMT Survivorship Annual Conference (Virtual). Milwaukee, WI. (Dr. Natasha Frederick)
- COG Bone Tumor Committee, Fall Meeting, New PI Orientation (Dr. Michael Isakoff)
- 2022 Sunshine Project Virtual Summit; "Digoxin in Medulloblastoma" (Dr. Michael Isakoff)
- "MIB Agents FACTOR"; Clinical Trials Panel Discussion Moderator (Dr. Michael Isakoff)
- Moderator and panelist in the pediatric cancer session during the Maine Cancer Genomics Initiative Annual Conference on April 1, 2022. (Dr. Ching Lau)
- "Anti-racism Efforts in Pediatric Psychology: Implementation of Training, Community, and Clinical Activism Efforts of the Anti-Racism Workgroup." Presented at the Society of Pediatric Psychology Annual Conference (Siddika Mulchan, PsyD)
- "Health-Related Stigma as a Social Determinant of Health in Diverse Pediatric Pain Populations." [Conference panel]. Presented virtually at the 13th International Symposium on Pediatric Pain, New Zealand. (Siddika Mulchan, PsyD)

- "We're Done! Now What?" Determining End of Treatment Needs of Childhood Cancer Survivors and their Parents. 26th Annual Association of Pediatric Hematology/Oncology Nurses Conference (Mary Keller, MSN, RN, CPHON, Elizabeth Holden, RN)
- "What We Learned from the COG Nursing Evidenced Based Project" Targeting Patient and Family Education for ALK/MEK Inhibitor Therapy, 26th Annual Association of Pediatric Hematology/ Oncology Nurses Conference (Mary Keller, MSN, RN, CPHON)
- "What We learned in the COG EBP Project Targeting ALK/MEK Inhibitor Patient and Family Education", Children's Oncology Group Meeting (Mary Keller, MSN, RN, CPHON)
- Parallel Session: Big Data for Small People: Leveraging Datasets to Advance Pediatric Supportive Care. MASCC/ISOO Annual Meeting on Supportive Care in Cancer. Toronto, Canada; 2022 June 25. Chaired by Orsey AD and Freedman J
- "What I Wish I Knew" Faculty Panel (Drs. Orsey, Offer and Rosenblum), v-Sympathy career development series: a collaboration to enhance professional awareness for pediatric hematology oncology trainees
- "Coping During COVID-19: A Pilot Study on the Impact of Gratitude Journaling or Cognitive Strategies on Healthcare Workers", 26th Annual Nursing Research and Evidence-Based Practice Conference (Kimberley Roche, MSN, PPCNP-BC, APRN, Siddika Mulchan, Psy.D., Lauren Ayr-Volta, Ph.D.)
- "The Science of Stress and Breathing Meditation; "Coping During COVID-19: A Pilot Study on the Impact of Gratitude Journaling or Cognitive Strategies on Healthcare Professionals" Nursing Grand Rounds (Kimberley Roche, MSN, PPCNP-BC, APRN)

Research activities were maintained at a high level in our division, leading to the publication of multiple papers outlined below and the receipt of external research grants including:

- DOD Career Grant: "Identification of new diagnostic biomarkers for intracranial germ cell tumors" to Joanna Gell, MD
- West Charitable Trust Grant - $1,000,000 three-year grant for investigation, research, and/or treatment of Acute Myeloid Leukemia (AML) to Ching Lau, MD
- "An Intervention to Reduce Implicit Bias in Pediatric Sickle Cell Disease." $47,000. Hartford Foundation for Public Giving to Siddika Mulchan, PsyD
- American Thrombosis & Hemostasis Network, $20,000. to Donna Boruchov, MD
- Department of Public Health, $25,000. to Donna Boruchov, MD
- Alex's Lemonade Stand Foundation for Childhood Cancer, $5,000. to Natasha Frederick, MD
- National Pediatric Cancer Foundation, $99,446. to Michael Isakoff, MD
- St. Baldrick's Foundation, $50,000. to Natasha Frederick, MD

PUBLICATIONS

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Other Publications

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Jenine Tulledge-Wolff, Ph.D.

INFECTIOUS DISEASES & IMMUNOLOGY

The Division of Infectious Diseases and Immunology provides outstanding care for children with infections and immune deficiencies, for individuals seeking preventive therapies and vaccines, for pregnant women with suspected infections that could impact their newborns, and for children and families who require travel advice. Members of the division are also involved in several NIH-funded research projects including spirochetal infection, COVID-19-related inflammatory disorders, as well as antimicrobial resistance and vaccine development.

There was a smooth transition of leadership in the Division from the Acting Head, John Schreiber, MD to the new permanent Division Head, Ian Michelow, MD on May 1, 2022.

CLINICAL PROGRAMS

The Division of Infectious Diseases and Immunology (ID) provides extensive inpatient and outpatient consultation and primary services for neonates, children and youth with common and complex infectious diseases, travel medicine, long-term complications of COVID-19, and congenital and acquired immunodeficiencies, including HIV care. During the third year of the COVID-19 pandemic, the Division, in addition to routine clinical duties, continued to have an expanded role for the organization:

1. **SARS CoV-2 pathways for clinical care of infected children:** Numerous clinical care pathways for the management of SARS CoV-2-infected children were created and continually updated due to the rapidly changing pandemic and its impact on patient care management. These pathways were developed under the leadership of Grace Hong, APRN and Ilana Waynik, MD of the Hospital Medicine division.
2. **SARS CoV-2 pathways for employees and their families:** Numerous pathways for the protection of employees pre- and post-exposure to COVID-19 infections were created and used as policy by the organization under the leadership of Ms. Hong, Dr. Waynik, and the Infection Control Department.
3. **COVID physician-on-call for the organization:** The Infectious Diseases physician-on-call continued to answer faculty and community physician and provider questions about COVID-19 and provided physician back-up to the One Call Center.
4. **Inpatient consultation:** Inpatient consultations continued unabated during the pandemic in 2022 due to an increase in volume of other non-COVID illnesses, as well as in admissions of SARS CoV-2-infected children with acute COVID-19 infection and multisystem inflammatory syndrome in children (MIS-C). In addition, we assisted with the management of unprecedented volumes of infants and children with Respiratory Syncytial Virus (RSV) during the fall of 2022 **(Figures 1 and 2)**.

Figure 1. Number of in-patients seen.

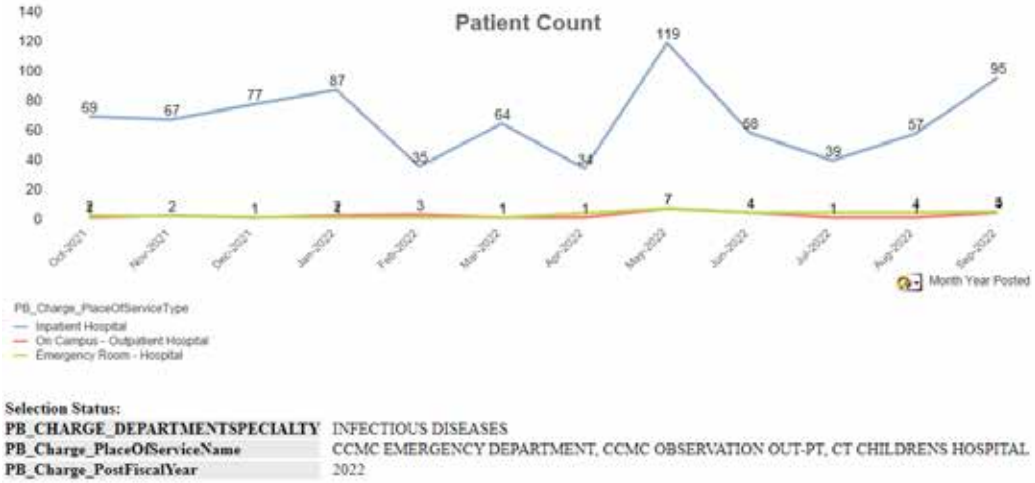

Figure 2. Number of charges for in-patient consultations.

ID faculty are in the process of getting privileges at Hartford Hospital so we can provide consults on newborn babies in their nursery. This will expand our patient care footprint and increase the number of children we are able to serve.

5. **Consultation for ambulatory patients**: The division continued to provide telemedicine visits to ensure that our patients had ongoing access to high-quality care during the pandemic. We also provided ambulatory in-person visits and travel clinic visits **(Figure 3)**.
6. **Refugee Clinic:** The Division of Infectious Diseases offered ambulatory clinical care and initial evaluation for new refugees to the Hartford area.
7. **Congenital/Neonatal Infectious Diseases Clinic: Ashley Howard, MD** is in the process of establishing a clinic that will focus on congenital and neonatal infections such as CMV, syphilis, Hepatitis B, and exposure to Hepatitis C and HIV.
8. **Friday *Ask the Experts*:** Dr. Schreiber continued to provide updates to community pediatricians through our bi-weekly *Ask the Experts* series, keeping our community informed of the latest scientific and clinical updates regarding COVID-19. The lecture series has maintained strong ratings particularly in the Clinically Integrated Network and reaches hundreds of participants during each session.

ANTIMICROBIAL STEWARDSHIP PROGRAM

Under the leadership of Jennifer Girotto, PharmD and Dr. Michelow, the Antimicrobial Stewardship Program (ASP) at Connecticut Children's provides prospective review and feedback on the use of antimicrobial therapies. The program supports the newly established Connecticut Children's-specific Firstline Antimicrobial App (launched in July 2021). The app has allowed the delivery of ASP resources including pathways, antibiograms, and antimicrobial dosing recommendations to all clinicians throughout the network via mobile and/or the web app (https://firstline.org/connecticutchildrens/). We continue to add new resources, including various clinical pathways and antimicrobial use guidelines. ASP members worked closely with a group of neonatologists and other specialists involved in neonatal care to standardize and improve infectious disease and antimicrobial recommendations and care of our neonate patients.

Other areas of focus this year have been improving documentations of specific reactions for inpatients with beta-lactam allergies, as well as continued refinement of inpatient and outpatient stewardship activities. Members of the ASP have met with various divisions (including Pulmonology and PICU) to educate them about antimicrobial stewardship and develop consensus guidelines. The ASP continues to work with the pharmacy to include area-under-the-curve or AUC-based monitoring for vancomycin dosing.

PEDIATRIC AND YOUTH HIV PROGRAM AND SERVICES

The Pediatric and Youth HIV Program at Connecticut Children's is comprised of a multidisciplinary team of physicians, case managers, nurses, social workers, and health advocates. They continued to provide timely, family-centered, and culturally sensitive care to children, adolescents, and parents infected with and affected by HIV. Our team offers medical, nursing, nutritional, psychosocial, and mental health services to youth in the region and facilitates appropriate community referrals with partner agencies for our patients and their families. We also offer a variety of programs designed to prevent the transmission of HIV and improve health outcomes.

The program has been continuously funded through the Ryan White program for almost three decades, having been awarded over $20 million from the federal government for the provision of direct HIV patient care services. The Ryan White-funded medical case management team stays abreast of cutting edge, innovative, and evidence-based practice modalities, augmenting their skills through trainings and workshops such as Motivational Interviewing, Couples Testing, Functional Behavioral Assessment, Adolescent Opioid Screening, Brief Intervention and Referral to Treatment (S-BIRT), and Youth Mental Health First Aid.

Many of the children, youth, and families we serve have been gravely impacted by the pandemic, including the loss of family members, jobs, and stable housing, resulting in increased stress, anxiety, and other mental health challenges. The Pediatric and Youth HIV Program staff has worked tirelessly to respond to our

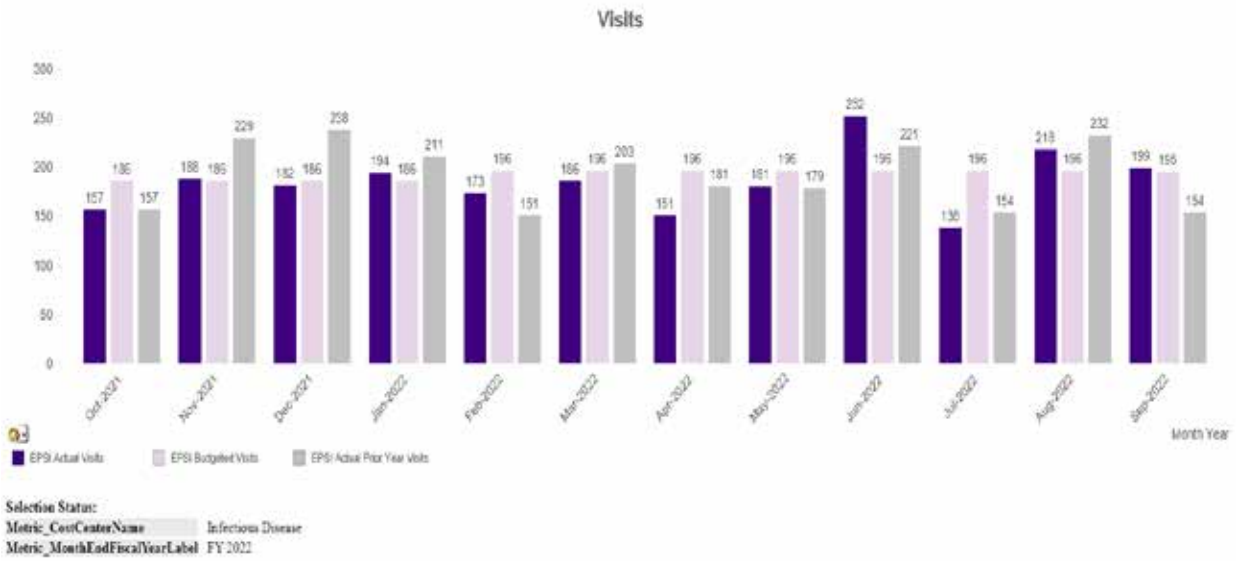

Figure 3. Number of out-patient consultations.

patient's needs while also taking measures to promote education and promotion of vaccinations for COVID-19 and Influenza. Our program provides protective measures, virtual preventive education and trainings, HIV testing, and access to emergency housing/shelter services. In total, we serves as an invaluable resource to at-risk youth on HIV transmission prevention.

The HIV team has established and implemented an evidenced-informed psycho-educational peer-to-peer group that enhances the overall mental health of our patients. The peer-to-peer model has been demonstrated to be effective, cost-efficient, and is looked upon favorably by the Health Resource Services Administration. We are currently engaged in a DPH Integrated HIV Testing and PrEP Navigation Project. The utilization of pre-exposure prophylaxis (PrEP) as a prevention tool has been incorporated into both the medical treatment side and the Hartford Youth HIV Identification and Linkage (HYHIL)/HIP prevention efforts at our program. Our HYHIL continues to coordinate with and collaborate in community efforts with participating agencies. The Ryan White Program established the Hartford Teen Pregnancy Prevention Project and continues to provide the Health Interactive Project to Connecticut's high schools.

In addition to HIV prevention education, we continue to educate vulnerable communities and pediatric practitioners on how to prevent the spread of the coronavirus, mpox, RSV and other respiratory viruses.

We are in the process of establishing a partnership with Qcare+, a TelePrEP Solution for Community Partners. The partnership will make PrEP services, including providing HIV medications to individuals with high-risk exposures in order to prevent HIV infection, easier to access for patients while enhancing our 340B program. Qcare+ will enroll patients receiving TelePrEP services through their agency into our 340B program. The HIV program at Connecticut Children's will receive cost savings for prescriptions, increasing program income which will be utilized for additional HIV prevention services.

FELLOWSHIP

Under the direction of **Hassan El Chebib, MD**, who was promoted to Fellowship Program Director, the division undertook a fellow recruitment effort in 2022 to fill the second of two positions. **Laura Kvenvold, MD** is a combined Medicine-Pediatrics fellow with the UConn Department of Medicine and will be joining Connecticut Children's in July 2023 as a pediatric fellow.

FACULTY RECRUITMENT

We are planning to recruit a Hospital Epidemiologist during 2023 to take on the role of Medical Director of Infection Control & Prevention, and Antimicrobial Stewardship. This individual will also assume a clinical role in our division.

RESEARCH

Team members continued to be highly productive in research activities during 2022, as indicated by multiple Active Grants from the National Institutes of Health (NIH) and various foundations totaling more than $8 million (see Table). The Division members and their collaborators published 23 peer-reviewed papers in prestigious journals.

The Spirochetal Research Laboratories, co-directed by Justin Radolf, MD and. Juan C. Salazar, MD, entered the fourth year of a five-year $11 million award from the NIH's National Institute of Allergy and Infectious Diseases (NIAID) to develop a vaccine for syphilis. The international study team is comprised of researchers from the UConn School of Medicine, Connecticut Children's, the Duke Human Vaccine Institute, the University of North Carolina (UNC) at Chapel Hill Institute for Global Health and Infectious Diseases, UNC Project-Malawi, CIDEIM in Cali, Colombia, Masaryk University in the Czech Republic, and Southern Medical University in Guangzhou, China. Melissa Caimano, PhD and Kelly Hawley, PhD are lead investigators. They are mapping the global diversity of various Treponema pallidum in preparation for a proper vaccine formulation.

Additionally, the Spirochetal Research Laboratories continues to engage in a multicenter international project supported by the Bill & Melinda Gates Foundation. Dr. Hawley, along with an international study team comprised of researchers, is focused on the genomic epidemiology of Treponema pallidum strains infecting populations in low- and middle-income countries to inform syphilis vaccine development.

Dr. Salazar also leads a multicenter, international project funded by the NIH. The project focuses on the epidemiologic, clinical, and laboratory predictors of progression toward severe forms of acute infection with SARS-CoV-2 and MIS-C among children, an urgently needed tool in the fight against COVID-19 in this population. To target this discovery initiative, Dr. Salazar and his team are using a battery of biological, immunological, and molecular tests to study children and young adults under 21 years of age with mild, moderate, or severe SARS-CoV-2 infection.

Dr. Michelow is the site PI for an NIH-funded study entitled "Combatting AntiMicrobial Resistance in Africa Using Data Science (CAMRA)", a 5-year multicenter international study to discover new mechanisms of antimicrobial resistance.

Dr. Howard and Dr. Michelow are currently setting up a new NIH-funded multicenter study to study congenital CMV, enterovirus, and parechovirus.

ACTIVE RESEARCH GRANTS

PI	Funder	Title	Amount
Michelow	NIH-U54/Redeemer University	Combatting AntiMicrobial Resistance in Africa Using Data Science (CAMRA)	$18,534.00
Michelow	NIH/UAB	Neonatal Enterovirus and Human Parechovirus Viral Sepsis: Natural History and Predictors of Morbidity and Mortality	$4K per subject
Howard	NIH/UAB	Identification of Biomarkers of Audiologic Outcomes in Congenital Cytomergalovirus Infection	$72,000.00
El Chebib	Pfizer Foundation, Inc.	Outpatient Antimicrobial Stewardship in Pediatrics: Targeting Providers in the Community	$100,000.00
Salazar	MIS-C R61 Yr 1	Identifying biomarker signatures of prognostic value for Multisystem Inflammatory Syndrome in Children (MIS-C)	877,921.00
	MIS-C R61 Yr 2	Identifying biomarker signatures of prognostic value for Multisystem Inflammatory Syndrome in Children (MIS-C)	$807,142.00
	MIS-C Supplement	Identifying biomarker signatures of prognostic value for Multisystem Inflammatory Syndrome in Children (MIS-C)	$195,180.00
	MIS-C R33 Yr 3	Identifying biomarker signatures of prognostic value for Multisystem Inflammatory Syndrome in Children (MIS-C)	$1,637,600.00
	NIH/NYU/Rutgers	Collaborative Study of Long-term Outcomes of COVID-19 in Kids (CLOCK)	$2,952,068.00
	DPH	HIV Prevention Program	$133,927.00
	HRSA/City of Hartford	Ryan White Part A	$56,351.00
	HRSA	Ryan White Part A and Minority AIDS Initiative (MAI)	$157,610.00
	HRSA	Ryan White Part D	$348,304.00
	DPH/Wheeler Clinic	Youth Recovery Initiative	$10,000.00
	Bill and Melinda Gates Foundation/UNC	Genomic epidemiology of Treponema pallidum strains infecting women and men in low-income countries to inform syphilis vaccine development	$138,943.00
	NIH/UCHC	A Global Syphilis Vaccine Targeting Outer Membrane Proteins of Treponema pallidum. Project 2: Global sequence and surface antigenic diversity of Treponema pallidum outer membrane proteins	$84,272.00
Hawley	Open Philanthropy/UCHC	Formulation and Assessment of a Multivariant Syphilis Vaccine	$199,087.00
	NIH/UNC	Bio4S: A Biorepository of Specimens for Syphilis Diagnostics Collected from Well-Characterized Syphilis Patients	$237,124.00
			$8,098,063.00

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# Authors contributed equally

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MEDICAL GENETICS

The mission of the division is to provide high quality, timely, and state-of-the-art genetic consultations, counseling, and interventions for patients from the prenatal period through childhood, adolescence, and into adulthood. Our team diagnoses and manages patients with a broad range of rare, often complex disorders, including metabolic and neurogenetic diseases. The Division of Medical Genetics at Connecticut Children's works jointly with members of the Department of Genetics and Genome Sciences and the Department of Obstetrics and Gynecology at University of Connecticut Health Center.

In 2022, Louisa Kalsner, MD assumed the role of division head, taking over for Dr. Karen Rubin, who served as interim division head. Dr. Kalsner, formerly within the Division of Neurology at Connecticut Children's, brings her expertise in the field of neurogenetics and has improved clinical access for patients in need of genetic consultation in her first year.

DIVISIONAL STRUCTURE & STAFFING

A multidisciplinary Genetics Care Team comprised of clinical geneticists, genetic counselors, and metabolic dieticians provides genetics/genomics expertise and services across the life continuum at Connecticut Children's and UConn Health. The consolidated care team is comprised of three clinical medical geneticists, genetic counselors, metabolic nutritionists, and a genetic counselor assistant.

CLINICAL PROGRAMS

The academic, administrative, and clinical offices reside at 11 South Road, Farmington. Pediatric-aged general genetic patients and both adult and pediatric metabolic patients are seen at the Connecticut Children's office at 11 South, and adult general genetics patients are seen at a UConn Health office at the same address. Prenatal and hereditary cancer genetic counseling services are provided in the outpatient pavilion on the main UConn Health campus.

The Neurogenetics Clinic, directed by Dr. Louisa Kalsner, is housed within the Connecticut Children's Genetics office at 11 South. Children with a broad range of developmental, neurological, and neurodegenerative disorders undergo comprehensive genetic evaluation, including intellectual disability, gait abnormalities, structural brain abnormalities, movement disorders and epilepsy.

The Autism Neurogenetics Clinic (ASAP Neurogenetics) is the only program of its kind in the region, offering genetic and other diagnostic testing for children diagnosed on the spectrum, as well as education and recurrence risk counseling for families. Led by Dr. Kalsner, the ASAP Neurogenetics Clinic evaluated 227 children with autism in 2022.

Patients with inborn errors of metabolism are seen in a comprehensive clinic at 11 South Road, Farmington, CT. Dr. Tucker leads this program with support from Sharon Gray and Katelyn Ware from the nutrition team. Children and adults with a variety of disorders, including urea cycle disorders, fatty acid oxidation defects, and PKU are closely managed by a multi-disciplinary team.

EDUCATIONAL MISSION

Teaching responsibilities begin in the first year of medical school and extend through the postgraduate years. A substantial number of medical students, residents, fellows, and genetic counselor learners rotate through Genetic clinics and/or attend educational sessions provided by Genetics faculty.

PARTICIPATION ON A NATIONAL COMMITTEE

Dr. Kalsner is a member of the IDMC for an AAV-delivery gene therapy treatment, designed to deliver a functional GBL1 gene encoding-galactosidase to the brain and peripheral tissues for the treatment of early infantile and late infantile GM1 gangliosidosis (GM1).

COLLABORATION WITH THE DPH NEWBORN SCREENING (NBS) LAB & THE CONNECTICUT NEWBORN DIAGNOSIS & TREATMENT NETWORK

Connecticut Children's Genetics division has assumed an expanded role in newborn screening (NBS) since the statewide network model went live in 2019 with an electronic NBS Registry. The network, funded through the Connecticut DPH, is housed in the Pediatric Clinical Genetics Program at 11 South Road in Farmington.

It was planned and implemented by Connecticut Children's under the leadership of Dr. Rubin, and it serves as the communication link between the DPH NBS laboratory, primary care providers or hospital-based medical providers, five subspecialty clinical care teams at both Connecticut Children's and Yale New Haven Hospital (Genetics, Endocrinology, Hematology, Neurology, and Immunology), and families. The network responds to all NBS results that are abnormal in the state of Connecticut. Connecticut now screens for more than 60 disorders. Almost half of the abnormal NBS results are for genetic/metabolic disorders, and these are reviewed and interpreted by the Genetics team at Connecticut Children's.

In the past year, the network received 391 referrals from the DPH NBS lab, with 178 abnormal screens in genetics. Our geneticists provided real-time interpretation for these 178 cases, ordered further diagnostic testing when appropriate, and ensured timely initiation of care. In this time period, 32 cases were confirmed as affected or disease carriers. To support the expanded roles of our geneticists, the network provides genetic counseling services and metabolic dieticians to assist patients and their families identified through NBS as having metabolic disorders. The network team includes two nurse coordinators and a dedicated genetic counselor.

COLLABORATIONS WITHIN UCONN HEALTH

The Medical Genetics division supports UConn's Maternal-Fetal Medicine Program and the Ray Neag Comprehensive Cancer Center in Farmington. Increased adoption of non-invasive prenatal genetic testing and of expanded and improved test offerings for patients with hereditary cancers continue to drive up patient volumes in the prenatal service and the hereditary cancer-counseling program.

GRANTS

University of Connecticut Academic Plan Award/ RFA. TSC2 variant without clinical findings of Tuberous Sclerosis as a risk factor for idiopathic autism spectrum disorder. Louisa Kalsner, Co Principal Investigator. $300,000. 7/1/16-6/30/2018 with extension through 06/30/2022.

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Joseph Tucker, MD
Jaclyn Beirne, MD

Pediatric Genetic Counselor
Virginia Casola, MS, LCGC

Pediatric Genetic Counselor Assistant
Catherine Silva

Pediatric Metabolic Dietitians
Sherry Gray, MS, MPH, CD-N
Kaitlyn Ware, MS, RD, CNSC, CD-N

Newborn Screening Network Team providing direct support to Genetic on NBS cases:

Genetic Counselor
Ginger Nichols, MS, LCGC

RN Coordinators
Debra Ellis
Meghan Criscuolo

NEONATAL-PERINATAL MEDICINE

The Division of Neonatal-Perinatal Medicine provides state-of-the-art, high quality care to our state and region within our own Connecticut Children's Neonatal Intensive Care Units (NICUs) and also in our Pediatric Care Alliance of NICUs and local Hospital Birthing Centers. Our expanding network remains anchored by our Level IV NICU in Hartford, perennially ranked among the nation's Best in Neonatology by U.S. News and World Report. Our division members continuously improve newborn care in our region by advancing education, training, collaboration, and cutting-edge research.

Faculty in the Division of Neonatal-Perinatal Medicine provide neonatal care and support clinical operations and research activities across our region within:

- Our flagship Connecticut Children's Level IV NICU in Hartford, CT
- Our Connecticut Children's Level III NICU at the UConn Health/John Dempsey Hospital in Farmington, CT
- The Level III NICU at the Hospital of Central Connecticut in New Britain, CT
- The Level III NICU at Eastern Connecticut Health Network in Manchester, CT
- The Level III NICU at Danbury Hospital
- The Level III NICU at Norwalk Hospital
- The Level III NICU at St Vincent's Hospital in Bridgeport, CT
- The Level III NICU at Vassar Brother's Medical Center in Poughkeepsie, NY
- Level I Birthing Centers and Nurseries in CT at Hartford Hospital, Backus Hospital in Norwich, Midstate Medical Center in Meriden, Charlotte Hungerford Hospital in Torrington, and Day Kimble Hospital in Putnam
- Level I Birthing Centers and Nurseries in NY at Northern Duchess Hospital in Rhinebeck, and Putnam Hospital in Carmel Hamlet

Our faculty members work collaboratively within these centers to bring the Connecticut Children's standard of highest quality neonatal care to patients in centers close to their homes. Through these partnerships, Connecticut Children's reaffirms its support as the provider of choice for expert pediatric and neonatal care to these large healthcare systems in Connecticut and New York. James E. Moore, MD and Annmarie Golioto, MD are also leading the development of a new Level II NICU at Backus Hospital, which will open in 2023. Building on the strength of this partnership and under leadership of division member and local Medical Director, Joseph Vitterito, MD, St. Vincent Hospital's neonatal patient volume increased by 39% in 2022. Our partnership with Nuvance Health led to additional growth in our division, and we welcomed three new neonatal faculty to our team under the leadership of our System Medical Director for Neonatal Services, Adam Czynski, DO, and Medical Director Brett Citarella, MD.

The division was pleased to host the 6th Annual Symposium on Neonatal Advances, organized by Mariann Pappagallo, MD. This year, the symposium invited faculty experts including Bill Hay, MD, Steven Abrams, MD, Josef Neu, MD, Cami Martin, MD, Laura Madore, MD, Christina Valentine, MD, and other faculty, providing a focused update on neonatal nutrition practices to a broad regional audience.

MAJOR RESEARCH ACTIVITIES

Adam Matson MD, MSc is conducting studies on the microbiome and how bacterial populations and/or their products influence gut health and neonatal outcomes. His recent published work integrates novel sequencing technology and translational research approaches to track specific pathogens in the NICU and to characterize metabolic factors that contribute to necrotizing enterocolitis (NEC) in premature infants. Dr. Matson serves as Director of Connecticut Children's Neonatal Biorepository and is helping to establish a neonatal genomics project with The Jackson Laboratory for Genomic Medicine.

Naveed Hussain, MBBS, MD, DCH is using epidemiological and data analytic approaches in evaluating strategies for early identification and prevention of serious neonatal problems, with a special focus on NEC and Pulmonary Hemorrhage. He is working with an international group of collaborators in developing prediction models for these conditions. He is the Research Director of the Neonatal Division and serves as Connecticut Children's Global Health Director for Education. He is also a recipient of the iCATCH grant (2021-2023) from the American Academy of Pediatrics for training Traditional Birth Attendants in India.

James I Hagadorn MD, MSc is the principal investigator on an NICHD-funded investigation of the relationship between changes in oxygen saturation targets and changes in clinical outcomes in very low birth weight (VLBW) infants in California NICUs, in collaboration with colleagues at Connecticut Children's, Stanford, Penn State, and Children's Hospital of Philadelphia. His recent published research includes investigations of the effects of changing management of patent ductus arteriosus on clinical outcomes in preterm infants in the USA. Dr. Hagadorn currently chairs the NICHD's Pediatrics Study Section.

Shabnam Lainwala, MBBS, PHD leads research focused on preterm infants' neurodevelopmental outcomes. She is the co-investigator on an NIH funded study that investigates the relationship between VLBW preterm infant gut microbiome and neurodevelopmental outcomes. A recent publication reports on the

relationship between nutrition and feeding practices in preterm infants and their short- and long-term clinical outcomes. Dr. Lainwala is also a leader in the New England Neonatal Follow-up Network, a subsection of Vermont Oxford Network.

Ted Rosenkrantz, MD collaborates with investigators at the UConn Storrs campus on hypoxic-ischemic injury in newborns. The team examines the effect of gestational age, sex, and neuroprotective therapies to determine mechanisms of brain injury and find appropriate therapies for specific subpopulations of asphyxiated newborn infants. Dr. Rosenkrantz is currently working with UConn undergraduate and graduate students to examine the mechanism of the methylxanthines to protect the brain of preterm infants born to women with chorioamnionitis.

QUALITY & SAFETY IMPROVEMENT

Neonatology division members promote and achieve highest quality and safety outcomes for our neonatal patients and families. Our faculty members lead local quality and safety improvement teams within international collaboratives, including Solutions for Patient Safety, The Vermont Oxford Network, and the Children's Hospital Neonatal Consortium. Dr. Golioto and David Sink, MD lead our NICU Central Line Associated Bloodstream Infections (CLABSI) Prevention Team. As a result of their work, zero patients in our Level III Farmington NICU have experienced a CLABSI in the last 3 years. Dr. Sink , Kendall Johnson, MD, and Les Wolkoff, MD lead efforts that have decreased unplanned extubations (unintentional dislodging of breathing tubes) in our NICUs to levels below national benchmarks.

Our Division supports efforts to improve care across our regional Neonatal Network. Alaina Pyle, MD leads a multidisciplinary, multisite effort to improve neonatal antibiotic prescribing practices. Dr. Pyle's team brought together our division's seven NICU Medical Directors, in collaboration with other Connecticut Children's Subspecialists and our Antimicrobial Stewardship Team. Her team developed and implemented evidence-based antibiotic use guidelines, which are now in use across our network of NICUs and birthing centers. Available on a mobile app platform, these best-practice guidelines are available to our neonatal providers at the point of care in all of our locations. Building on this successful model of network quality improvement, Drs. Sink and Golioto are aligning with a large New England NICU Quality Collaborative aiming to improve neonatal respiratory care.

Marilyn Sanders, MD directs the Connecticut Children's Multidisciplinary Bronchopulmonary Dysplasia (BPD) Collaborative to address the clinical care of infants in need of long-term positive pressure ventilation. This multidisciplinary team includes medical and nursing leadership from the NICU and Pediatric ICU; neonatologists from 5 referral hospitals; critical care attendings; and specialists from pulmonary, cardiology, otolaryngology, surgery, and palliative care. This team collaborates to optimize care for our patients who are most severely affected by this chronic lung disease of prematurity and to help these infants and their families transition from the NICU to the next appropriate location for ongoing care.

NEONATAL-PERINATAL MEDICINE FELLOWSHIP

Under the leadership of Program Director Jennifer Trzaski, MD, we successfully recruited two first-year fellows in 2022: Jacob Kelner, DO, previously a Pediatric Resident at UConn School of Medicine, and Nazifa Rahman, MD, who completed medical school at Georgetown University and her pediatric residency at Mount Sinai Kravis Children's Hospital in New York City. Our fellows complement our academic productivity and in 2022 they presented their research at several regional, national, and international meetings on topics including maternal voice and development of feeding skills in preterm infants, management of hypoglycemia in the NICU, reducing chronic lung disease in VLBW infants, and improving time to early feeding in VLBW infants.

NEONATAL CRITICAL CARE TRANSPORT TEAM

Under the leadership of Dr. Sanders, the Neonatal Critical Care Transport Team is responsible for the transport of critically ill neonates from referring hospitals across New England to a newborn NICU within our network that is appropriate for the baby's individualized medical needs. Our team is able to provide protective technologies during transport, including high frequency ventilation, inhaled nitric oxide, and induced hypothermia. We leverage our regionalized clinical neonatal network to provide the right care, at the right place, at the right time, as close to home as possible.

Using our 24-hour One Call system, health care providers from other locations can access a Level 4 neonatologist to arrange transport of their neonatal patients to the appropriate level of care. Neonatal-Perinatal Medicine Fellows (PGY4-6) are actively involved in the transport program. In the past year, our Neonatal Team, consisting of a medical practitioner, neonatal fellow, neonatal nurse practitioner (NNP) or PA, neonatal nurse, and NICU respiratory therapist, provided 313 neonatal transports.

NEONATAL NEURODEVELOPMENTAL FOLLOW-UP PROGRAM

Connecticut Children's Neonatal Neurodevelopmental Follow-Up Program (NNFP) is a regional service supporting all high-risk infants born and discharged from NICUs in the Greater Hartford and Eastern and Central Connecticut region. The program receives referrals from NICUs at Connecticut Children's in Hartford and Farmington, St. Francis Hospital, the Hospital for Central Connecticut, and Eastern Connecticut Health Network, as well as the Connecticut Children's ECMO program, Cardiology, Neurosurgery, General Surgery services, and from community pediatricians. In 2022, Dr. Lainwala's team conducted over 900 visits in this program.

The NNFP continues to be an integral part of research in Connecticut Children's Neonatology division. Patients enrolled in the NIH funded R01 study, as well as the Connecticut Children's stool biorepository study, receive evaluations in the program. The NNFP provides training to the neonatal fellows as well as to pediatric residents as a continuity clinic experience. Fellows, residents, and medical and undergraduate students have ongoing research projects within the program, leveraging the

extensive NNFP database and presenting their work at international conferences.

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Mc Leod, RM, Koski R, **Rosenkrantz, T** and Fitch R. Sex differences in the protective mechanism of action of caffeine on microglia in a rodent model of preterm hypoxic ischemic injury. Annual Meeting of the Society for Neuroscience. November 2022, San Diego, CA

Rosenkrantz, TS: Sex differences in Hypoxic Ischemic Encphalopathy Outcomes. 1st Annual Maria Delivoria Papadopoulos, MD "A Day with the Newborn' Symposium, January 28, 2022. Philadelphia, PA

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NEPHROLOGY

In early 2022, Dr. Sherene Mason, MD/MBA, FAAP took on a new leadership role as the Division Head of Nephrology and Medical Director of Dialysis and Apheresis Services within the Robert R. Rosenheim Foundation Dialysis Center. Dr. Mason was honored as the inaugural recipient of the Robert R. Rosenheim Endowed Chair for Nephrology at Connecticut Children's for continued program development and expansion of research endeavors to care for children with chronic kidney disease.

The ever-changing landscape and complexity of medical care has allowed for tremendous growth of our Nephrology Division. We provide high quality care in our multidisciplinary clinics for complex patients with posterior urethral valves, renal transplant, lupus, kidney stones, and spina bifida. Our Division has cultivated relationships with primary care doctors to provide comprehensive care for patients in Connecticut, New York, and Massachusetts. The Nephrology Division experienced tremendous clinical growth this year, with further expansion into Westport, under the guidance of Dr. Robyn Matloff, MD/MPH, FAAP, Medical Director, Physician Relations of Fairfield County and Eastern New York.

The Nephrology Division's multidisciplinary approach to care is strengthened by its five board-certified pediatric Nephrologists, two advanced practitioners, a registered dietician, a dialysis nurse manager, six nurses, and a dedicated full-time licensed clinical social worker. Dr. Hanan Tawadrous, Renal Pediatric Kidney Transplant Director, has led the growth of our program in partnership with the Hartford Hospital Transplant team, and established a new collaboration with our Pediatric Infectious Disease colleagues. We welcomed two new Nephrology providers to our team. Dr. Juliann Reardon, MD/MHS, whose scholarly work focuses on medical education surrounding resident well-being and the impact of identity formation on physician habits and responsibilities. Dr. Leonela Villegas, MD/MSCE, brings her expertise in health equity and patient-reported outcomes in pediatric chronic kidney disease to expand our research portfolio within the Division.

We have provided over five hundred outpatient dialysis treatments, including out-of-state children who require care while visiting Connecticut. Our dialysis team has also completed approximately fifty acute treatments to pediatric patients admitted to Connecticut Children's. The renal transplant service successfully transplants some of our most ill patients. Additional renal replacement services are performed in collaboration with our pediatric ICU colleagues to provide continuous veno-venous hemodiafiltration.

PRESTIGIOUS RESEARCH & ACADEMIC EXCELLENCE

Our Division is committed to excellence in all phases of care through engagement in quality and scholarly work. As such, Nephrology has participated in prominent research consortiums including Pediatric Nephrology Research Consortium, The Childhood Arthritis and Rheumatology Research Alliance, Standardizing Care to Improve Outcomes for Pediatric ESRD, and Children's Hospitals' Solution for Patients Safety. Members sit on various nationwide committees as co-chairs. Nephrology team members have continued with national and international academic excellence with Dr. Sherene Mason's co-authorship of a chapter on Pediatric Lupus Nephritis in a seminal Pediatric Nephrology textbook, in addition to peer-reviewed articles. Likewise, Dr. Robyn Matloff published work on the treatment of IgA Vasculitis Nephropathy in Children.

THE FUTURE

As we look towards 2023, the Nephrology Division will expand regional clinical outpatient services as well as acute care services in collaboration with our upcoming Fetal Care Center. We will grow our home dialysis services and pheresis treatments in partnership with our Hematology colleagues. And our treatment of hypertension will grow beyond our Ambulatory Blood Pressure Monitor (ABPM) Program as we develop our Hypertension Program.

PUBLICATIONS

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NEUROLOGY

The clinicians in the Neurology Division treats pediatric patients with all types of neurological diseases at the highest standard of care. They provide pioneering treatments for several diseases of the nervous center including tuberous sclerosis complex, epilepsy, muscular dystrophy and motor neuron diseases. Here we summarize the main developments for the division in 2022.

Neurology has added outpatient services at Connecticut Children's new Specialty Care Center in Westport, CT. Our outpatient volume this year surpassed 10,000 patients for the first time. The Division's scope of practice was enhanced by the return of Dr. Elizabeth Ng, who provides expanded EMG/NCV procedures. She is also involved in the peripheral neuropathy program. The epilepsy and EEG/EMU service was further enhanced by the arrival of Dr. Krista Grande after completion of her fellowship at Cincinnati Children's. Dr. William Yorns has started a movement disorder clinic focused on treatment of Tourette syndrome and dystonia. The clinic started to offer chemodenervation treatment. Cognitive behavioral intervention therapy is administered by Dina Conley APRN, who has obtained certification for this service.

Patients with refractory epilepsy receive comprehensive care in the Epilepsy Center, directed by Dr. Jennifer Madan Cohen. The treatment options include medications, vagal nerve stimulation, and epilepsy surgery, in collaboration with the Division of Neurosurgery. Dr. Lila Worden directs the ketogenic diet program, while Dr. Mark Schomer leads the neonatal epilepsy and electrophysiology service. Dr. Louisa Kalsner was appointed to Division Head of Genetics and continues to serve patients with complex neurogenetic diseases. Multidisciplinary clinics include: the Pediatric CMT Center of Excellence, as part of the Inherited Neuropathy Consortium supported by the National Institutes of Health (NIH) Rare Diseases Research Center; the MDA Care Center (supported by a grant from Muscular Dystrophy Association); the SMA Care Center sponsored by CureSMA; and The Neurocutaneous Clinic, directed by Dr. Francis DiMario and recognized by the TS Alliance (TSA) and Children's Tumor Foundation as part of the Neurofibromatosis Clinic Network (NFCN).

At the beginning of 2022, we had a Division Retreat and discussed the plan for the next five years. This was followed by finalizing a detailed strategic development plan, submitted in December of 2022. The neurology faculty continues to teach medical students, pediatric residents, adult neurology residents, and psychiatry fellows. Dr. Yorns and Dr. Ng started training the residents in Danbury from the Nuvance adult neurology residency program. Unfortunately, our request to start a Pediatric Neurology training had to be delayed. The Academic Activity of faculty members continued to expand by presentation at national/international conferences, committee memberships, editorial board participation in several periodicals as highlighted below. Dr. Ng serves in the Neuromuscular & Electrodiagnostic Medicine Self-Assessment Exam (SAE) Committee. Dr. Graf is the chair for the Child Neurology Society (CNS) Ethics Committee, and a CNS representative for the American Academy of Neurology (AAN) Ethics, Law, and Humanities Committee (ELHC). Dr. Acsadi serves on the Scientific Review Committee of the Child Neurology Society and Care Center Committee of CureSMA.

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BOOK CHAPTERS

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NATIONAL PRESENTATIONS

Graf WD: "Antenatal Neuropalliative Care". Child Neurology Society (CNS) 51st Annual Meeting Symposium: "Neuropalliative Care across the Age Spectrum", October 14, 2022; Cincinnati, OH, USA.

Graf WD "Practical Ethics for the Child Neurologist". Presentation to the Child Neurology Society (CNS) Professors and Educators in Child Neurology, Annual Meeting. Child Neurology Society (CNS) 51st Annual Meeting, October 12, 2022; Cincinnati, OH, USA.

Graf WD "Phenotype, Genotype and Neurobiology of ADCY5-Related Disease". Presentation to the CNS Movement Disorders Special Interest Group Annual Meeting. Child Neurology Society (CNS) 51st Annual Meeting, October 12, 2022; Cincinnati, OH, USA.

Acsadi G "Update on SMA Treatment (Roundtable)", Child Neurology Society 51st Annual Meeting, October 12, 2022; Cincinnati, OH, USA.

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Constandina Conley, APRN
Niall Mitchell, APRN

PAIN & PALLIATIVE MEDICINE

The mission of the Pain and Palliative Medicine Division is to utilize our multidisciplinary expertise to alleviate pain and stress in children afflicted with acute, chronic, or terminal illness.

The division continues to be actively engaged in clinical care, education, and research. This year we welcomed Melissa Jenkins APRN to our Division. Ms. Jenkins was formerly a member of our nursing staff. She has helped expand our interventional pain program and spearheaded our lidocaine infusion therapy for treatment of refractory chronic pain. We are indebted to all our Advanced Practice Practitioners for their vital role in our division.

William Zempsky, MD received two new grants as a co-investigator – an R33/61 Grant for pain in sickle cell disease and a TOW Foundation grant to develop a portal for resources for LGTBQ+ youth. Dr. Zempsky also gave Grand Rounds at St. Jude's Children's hospital, presented at the Colombian Pediatric National Conference, and the Pediatric Pain Matters Class and gave webinars for GrnDad a national Sickle Cell Organization and for Children Healing Pain.

Dr. Emily Wakefield is the Pain SIG Chair of the Society of Pediatric Psychology. Dr. Wakefield had oral presentations to the United States Association for the Study of Pain and the International Symposium on Pediatric Pain.

Dr. Clare Riotte served on the Department of Children and Family's Medical Review Board.

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STAFF

William T. Zempsky, MD, MPH, *Division Head*

Ross Cleveland, MD
Richelle deMayo, MD
Timothy LaVigne, PhD
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Kerry Moss, MD
Kalyani Raghavan, MD
Clare Riotte, DO
Emily Wakefield, PsyD
Kelly Maynes, PhD

Mallory Fossa, APRN
Taryn Hamre, APRN, DNP
Melissa Jenkins APRN

PEDIATRIC & ADOLESCENT GYNECOLOGY

The members of the Division of Gynecology at Connecticut Children's continue to provide state-of-the-art pediatric and adolescent gynecology consultative services in our four offices, the Connecticut Children's operating rooms, the Connecticut Children's emergency room, and in inpatient settings. Outpatient consultations in all areas of pediatric and adolescent gynecology are available in our Farmington, Hartford, Glastonbury, and Rocky Hill offices of Gynecology and Obstetrics, a Division of Women's Health Connecticut.

The clinical services provided at Connecticut Children's and our offices include specialty care in all areas of medical and surgical gynecologic care for children and adolescents. These include reproductive health issues, vulvar and vaginal infections in children and adolescents, management of abnormal uterine bleeding and pelvic pain, adolescent endometriosis, congenital abnormalities of the reproductive tract, ovarian cysts and masses, and adolescent hormonal and contraceptive issues. Our team of gynecologists from Gynecology and Obstetrics, a Division of Women's Health, provides 24/7 coverage of the Connecticut Children's emergency room, operating room, and inpatient floors.

Our surgical services include da Vinci robotically assisted minimally invasive gynecologic procedures at Connecticut Children's for selected patients. Division head Frederick Rau, MD performs robotically assisted laparoscopic procedures for reproductive tract anomalies and other complex reproductive tract disorders.

Office evaluations and follow-up of pediatric and adolescent patients are done at Gynecology and Obstetrics, a Division of Women's Health, by Drs. Frederick Rau, Emily Rosenbush, Kerrie Henry, Catherine Graziani, Kelley Sturrock, Erin Pickett, Marlaine Miller, Elizabeth Purcell, Ellen Lamb, and Ashley Young, and Pallvi Singh at locations in Farmington, Glastonbury, and Rocky Hill. Our extensive range of pediatric and adolescent-friendly providers has improved the ability of community physicians to refer families for age-appropriate gynecologic care. We work closely with community pediatricians and Connecticut Children's subspecialty team members to provide best-practice care.

Our physicians are members of the North American Society for Pediatric and Adolescent Gynecology, an international organization dedicated to the gynecologic care of children and teenagers. They collaborate at Connecticut Children's with the University of Connecticut School of Medicine obstetrics/gynecology and pediatrics residents and the University of Connecticut School of Medicine and Dartmouth Medical School medical students for inpatient, emergency room, and operating room patient care. Our physicians emphasize a supportive and minimally intrusive strategy while seeing children, adolescents, and families.

For 2023, the division will maintain and improve our patients' access to superior specialty care in pediatric and adolescent gynecology to promote reproductive health and wellness for our community's children and teenagers.

STAFF

Frederick J. Rau, MD, *Division Head*

Catherine Graziani, DO
Kerrie Henry, MD
Ellen Lamb, MD
Marlaine Miller, MD
Erin Pickett, MD
Elizabeth Purcell, MD
Emily Rosenbush, MD
Pallvi Singh, DO
Kelley Sturrock, MD
Ashley Young, MD

PEDIATRIC HOSPITAL MEDICINE

The Division of Pediatric Hospital Medicine (PHM) provides world class, family-focused care for the hospitalized children of our region. Now spanning five inpatient sites, we direct one of the largest PHM programs in New England. Wherever we serve, we emphasize an evidence-based approach driven by best practice. We lead in educational excellence with the highest number of teaching awards of any Division at Connecticut Children's over the years, including winning the overall Faculty Excellence in Teaching award this past year. We oversee learners from two medical schools, our own University of Connecticut pediatric residency program, and four family medicine residency programs. The division has paralleled the rapid growth of PHM overall. As the field continues to evolve, at Connecticut Children's we help to shape its growth through our commitment to clinical excellence, education, and academic scholarship.

It is hard to imagine that the division could see a more momentous year than the previous one. In 2022, we encountered our busiest clinical volume ever, with a 25% increase over the prior year, which had already been our busiest year to date. This increase was largely due to a post-pandemic, unprecedented surge in children hospitalized with Respiratory Syncytial Virus (RSV). The spike in pulmonary disease strained our hospital systems and stretched our capabilities like never before. Despite this, the division continued to grow. Under the leadership of Dr. Beth Natt, we opened our fifth inpatient site, expanding into New York State at Vassar Brothers Medical Center. We maintained our presence at Danbury and Norwalk Hospitals, as well as at our 12-bed unit at St. Mary's Hospital in Waterbury.

We could not accomplish what we do as a division without our advanced practice provider (APP) colleagues. The group's leader, Basia Adams, DNP, APRN, co-directs the Office of Advanced Practice, which oversees professional development for more than 180 APPs at Connecticut Children's. Ms. Adams was honored to win the hospital's prestigious Nightingale Award in nursing for her exemplary leadership and commitment to patients and families. Another member of this group, Christina Giudice, APRN, received the APP Excellence award, one of just three APPs in the institution to be so honored. Ms. Giudice also participated as a Fellow in the Nursing Research and Evidence Based Practice Fellowship. We are incredibly proud of this whole group, and we realize that fostering the talents of our APPs will help their professional development while also benefitting Connecticut Children's and the patients we serve.

In the realm of medical education, members of the division won an unprecedented number of teaching awards or nominations. For the tenth time since its inception, a member of the division won the overall Faculty Award for Excellence in Teaching, and in 2022, that honor went to Dr. Melanie Rudnick. Both runners-up for the award were from the division as well—Drs. Hareem Park and Christine Skurkis. All four runners-up for the Milton Markowitz/ Edwin Zalneraitis Award for Outstanding Contribution to House Staff Education and Career Development, were from the division—Drs. Joanne Crowley, Christine Skurkis, Melanie Rudnick, and Patricia Garcia. Four division members won the monthly McNeill Teaching Award from the pediatric residents. This honor went to Drs. Melanie Rudnick, Hayley Wolfgruber, Hareem Park, and Allyson McDermott.

Members of the division continue to lead in a number of educational positions. Joanne Crowley, MD, serves as director of Undergraduate Pediatric Education for the University of Connecticut School of Medicine. Dr. Rudnick leads the Quinnipiac University Netter School of Medicine pediatric clerkships at Connecticut Children's. Marta Neubauer, MD, oversees the highly regarded Netter medical student rotation at the St. Mary's unit in Waterbury. Christine Skurkis, MD, fulfilled a critical role in 2022, serving as the interim Pediatric Residency Program Director, instituting numerous positive changes. Dr. Skurkis also holds a national role as chair of the curriculum learning group for the Association of Pediatric Program Directors. We achieved a huge win, under the leadership of Allyson McDermott, MD, in getting institutional financial approval for a Pediatric Hospitalist Medicine Fellowship program! Our first ever PHM Fellow will join us in 2024, and Dr. McDermott will lead that program with wide faculty support.

On the quality improvement front, we emerged from a nearly sole focus on COVID-19 and transitioned to coverage of a major respiratory patient surge. As one of the highlights of the year, Dr. Jane Im received the 2022 Connecticut Children's Quality Cup award, given to a faculty member who had the greatest impact on patient quality and safety. Dr. Im employed her skill in information technology and hospital medicine to devise creative solutions to ensure top quality care. This was the second year in a row our division was honored with this award. On the clinical effectiveness front, we hit two milestones in 2022. Under the leadership of Ilana Waynik, MD, we approved and implemented our 60th Clinical Pathway, further spreading evidence-based practice across multiple specialties and sites. Our internet site for pathways received over 50,000 hits, mostly from outside of our institution. Clinicians from all over the country benefitted from our work in leading best practice, extending our impact far beyond our doors.

The year included great strides in clinical research and academic presentations. Multiple faculty members delivered talks or led workshops at the national level for a number of organizations: Pediatric Academic Society, Pediatric Hospital Medicine, the Association of Pediatric Program Directors, the Council on Medical Student Education in Pediatrics, the American Academy of Pediatrics, and the American Association of Child and Adolescent Psychiatry. Dr. Hogan partnered with our Chair of Pediatrics, Dr. Juan Salazar, in leadership of a multi-million dollar NIH-funded grant, as one of eight sites nationally to search for biomarkers for MIS-C and Kawasaki's Disease. Other grants included an AAP Rome visiting professor grant for Drs. Rudnick and Garcia, as well as a Pfizer antibiotic stewardship grant for Dr. Waynik.

Fostering leadership across the continuum has been a priority for our division for many years. Division head Anand Sekaran, MD, served on the 12-member American Academy of Pediatrics PHM PREP editorial board. This group created the first national exam for pediatric hospital medicine. Dr. McDermott continued in the role of PHM Clinical Director and has brought her own professionalism and poise, helping to sustain and nourish our group. Dr. Neubauer further evolved her leadership role as site director of our St. Mary's unit, bringing a higher level of quality to that location. Beth Natt, MD, served as the Director of Regional Clinical Operations, and went above and beyond to ensure the success of the new inpatient unit and service line at Vassar Brothers Medical Center.

As pediatric hospitalists, we continue to provide the best in value based care to our patients. The future is bright as we look forward to our first PHM Fellowship, which we expect to further elevate our academic stature as we bring on this new group of high-level learners. Our goal is to not only measure our performance against national standards, but to be at the top of those standards. Yet as we continue to grow and thrive, we strive to maintain our greatest core value of putting patients and families first in all we do.

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STAFF

HARTFORD-BASED TEAM

Anand Sekaran, MD, *Division Head*
Allyson McDermott, MD, *Clinical Director*

Ebla Abd Al-Rahman, MD
Amanda Begley, MD
Joanne Crowley, MD
Patricia Garcia, MD
Alex Hogan, MD
Emily Hogeland, MD
Jane Im, MD
Kathy Kalkbrenner, MD
Allyson McDermott, MD
Marta Neubauer, MD
Hareem Park, MD
Melanie Rudnick, MD
Christine Skurkis, MD
Catherine Sullivan, MD
MacDara Tynan, MD, MBA
Ilana Waynik, MD
Hayley Wolfgruber, MD

Basia Adams, APRN, DNP, lead APP
Rachel Caplan, APRN
Kara Denz-Fluck, PA-C
Christine Giudice, APRN
Jill Herring, APRN
Alexis Veith, PA-C

ST. MARY'S TEAM

Marta Neubauer, MD, Site Director
Marisa Shaker, PA-C, lead APP, St. Mary's
Crystal Bastedo, APRN
Tammie Carey, APRN
Megan Dushek, APRN

NUVANCE HEALTH® TEAM

Beth Natt, MD, MPH, Director of Regional Clinical Operations
Donald Sampson, MD
Alicia Briggs, MD

Jacqueline Talbot, PA-C, lead PA, Danbury
Beth Cross, PA-C
Alexis D'Aloisio, PA-C
Alexandra Pavain, PA-C
Lauren Smith, PA-C

Pamela Fanning, PA-C, lead PA, Norwalk
Jacquelyn Brown, PA-C
Nora Croll, PA-C
Jennifer Napolitano, PA-C
Kimberly Orzech, PA-C

PSYCHOLOGY

The mission of the Division of Pediatric Psychology is to be on the forefront of improving the mental health of all of Connecticut's children through clinical innovation, research, and education. With new programming, collaborations, research, and trainees, 2022 has been a record year for the Division.

DIVISION OVERVIEW

The Division of Pediatric Psychology is comprised of eighteen pediatric psychologists. Many of our psychologists are embedded across eleven divisions at Connecticut Children's including the Pediatric Obesity Center, Pain & Palliative Medicine, GI, Consultation/ Liaison, Rheumatology, Adult Congenital Heart Disease, Feeding Team, Hematology-Oncology, Primary Care, Sleep Medicine, and the NICU; others are in our newest service lines including Neuropsychology, the Medical Coping Clinic, The Medical and Mental Wellness Program, and Employee Health. Our pediatric psychologists are clinicians; researchers with funding at the national and local level; and educators to trainees, colleagues, and the community. We are dedicated to improving treatment options, testing new therapies, being the voice for mental health in the state of Connecticut, identifying and addressing disparities to care, and training the next generation of providers.

CLINICAL

The year started with the opening of two brand new psychology clinics. Our Medical Coping Clinic with Jennifer Paul, PhD and Chris Chew, PhD delivers care to our ambulatory clinics by providing mental health services to youth and their families who have medical conditions affecting their mental health or have mental health conditions that are influencing their medical wellbeing. The launch of this clinic means that every child receiving ongoing medical care at Connecticut Children's now has access to a psychologist.

In addition, our Medical and Mental Wellness Program (MMWP), led by Kelly Maynes, PsyD, is a multiday program in collaboration with our colleagues in Physical Therapy, Occupational Therapy, and Care Coordination. This program is designed to support youth at risk for, or being discharged from, a medical hospitalization. Preliminary data from the MMWP shows its impact – kids are returning to school more readily, have improved mood, and have a reduced frequency of hospitalizations.

This year also saw the launch of our Neuropsychology Clinic, a critical service that was not previously available in-house for Connecticut Children's patients, even when testing is part of standard of care. With the hiring of neuropsychologist Kimberly Maynard, PsyD, Connecticut Children's families now have access to this important part of their care.

Finally, 2022 brought renewed focus on the mental health of healthcare workers. Our division spent considerable time this year focused on reducing the stigma of receiving mental health care. In the fall of 2022, we hired our first psychologist dedicated to the healthcare worker: Kelly Weber, PsyD provides services, free of charge, to our Connecticut Children's team members. This position was in direct response to the healthcare worker burnout pandemic and was highly cited by our team members as a needed position. In support of this work, Dr. Santos also leads a workgroup focused on healthcare worker mental health.

In addition to these exciting new programs, we have experienced growth throughout our embedded psychology clinics. Preeti Sandhu, PsyD is leading our division offering Comfort Ability, an evidence based virtual group treatment for children and adolescents with chronic pain and their families. Siddika Mulchan, PsyD is extending the use of Comfort Ability by implementing it onto the inpatient unit with patients with sickle cell disease who have been admitted for pain. Brad Jerson, PhD launched a group therapy intervention for young children with specific phobia of vomiting while continuing initiatives to target resilience building as standard of care for youth with chronic GI conditions, leading to the launch of the Disorders of Gut-Brain Interaction Clinic. Alicia MacDougall, PsyD is expanding the range of services family receive within the NICU, launching new groups to support parents.

RESEARCH

Our division continued its strength in research and advancing science. Emily Wakefield, PsyD oversees her NIH K23 grant to advance care by focusing on pain-related stigma for adolescent chronic pain. Her research was featured on an infographic on chronic pain and stigma created by the NIH pain consortium. Dr. Mulchan received funding from the Hartford Foundation for Public Giving to advance her work in provider implicit bias. She is preparing for the submission of a K23 application in 2023.

Dr. Santos leads her NIH R21-funded research in the area of pain and obesity as well as her Connecticut Children's Surgical Innovation Grant to study adolescents' mood using real time data trackers. She was also awarded several grants to further her research in transgender youth (American Diabetes Association and Tow Foundation), improved mental health screening (SAMHSA, Cardinal Health, and CVS Foundation), and eliminating healthcare disparities (Connecticut Health Foundation).

Our team presented topics related to our work at various national conferences, including the Society of Pediatric Psychology Annual Conference, US Association for the Study of Pain, International Symposium of Pediatric Pain, National Sickle Cell Disease Scientific Meeting, Family Advocacy Week, and the Care Coordination Forum. In addition, our team published widely throughout 2022 and served as reviewers for top tier journals.

TRAINING

Our division continued to provide clinical and research supervision to multiple learners at different levels of training through our collaboration with the Institute of Living as well as other area educational institutions. We also grew in new collaborations including the efforts of Amy Signore, PhD, to establish a practicum training site for primary care psychology. We are excited to begin recruitment for our first Division of Pediatric Psychology postdoctoral fellow and Neuropsychology fellow to begin in the fall of 2022.

REACHING OUTSIDE CONNECTICUT CHILDREN'S

Through our professional society, the Society of Pediatric Psychology (SPP), Dr. Santos spent the year as President-Elect in advance of her 2023 Presidential Year. Dr. Maynes was elected to serve as the clinical co-chair for the Society of Pediatric Psychology's Functional Neurological Symptom Disorder Special Interest Group. Dr. Wakefield continued as the Pain SIG Chair. Outside SPP, Dr. Jerson remains an integral member of the Rome Foundation Psychogastro Group. Dr. Wakefield, and previously Vanessa Laurent, PhD, served on the steering committee for PoWER – the affinity group for women in pediatrics. Dr. Santos remains on the governance board of the Pediatric Obesity Weight Evaluation Registry (POWER), the national registry for pediatric obesity, and is leading the committee writing the psychological guidelines for adolescents undergoing bariatric surgery. She serves on the Integrated Health Committee for the American Society of Bariatric and Metabolic Surgery. Dr. Santos was named the Associate Chair for Diversity, Equity and Inclusion for the Departments of Pediatrics and Surgery, serves on the Diversity Committee for the Connecticut Hospital Association, and is the pillar lead for patient healthcare inequities at Connecticut Children's. Dr. Weber serves on the Task Force for Training Guidelines in Clinical Child and Adolescent Psychology.

Our psychologists presented widely to the community throughout the year. After a devastating death within our community, several of our psychologists (Santos, Sandhu, Maynes, Wakefield) supported initiatives to increase awareness about mental health warning signs and treatment options. Several psychologists presented at Connecticut Children's "Ask the Experts" (Maynes and Santos) and Grand Rounds (Santos) to address salient topics related to the mental health pandemic. Many of our psychologists (Schneeberg, Sandhu, Santos) appeared on local, regional and national news stations to address topics related to sleep to the Uvalde school shooting. We disseminated information about psychology and topics relevant to parents through the Connecticut Children's Growing Healthy Blog.

In addition, many psychologists (Schneeberg, Jerson, Santos) were quoted in local and national magazines.

THE FUTURE

2022 was a time of rapid growth for our division. As we move into 2023, we do so with excitement of our role in the new med-psych inpatient unit and expanding the reach of pediatric psychology to develop a full spectrum continuum of care. We remain committed to our mission to provide the finest mental health treatment for Connecticut's children.

GRANTS

- Mulchan: Hartford Foundation for Public Giving
- Wakefield: K23
- Santos & Finck: American Diabetes Association Grant
- Santos: NIH R00
- Santos: Cardinal Grant
- Santos: SAMHSA Grant
- Santos: Connecticut Health Foundation Grant
- Santos: Tow Foundation Grant
- Santos: CVS Foundation
- Santos: CT Children's Surgical Innovation Grant

PUBLICATIONS

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STAFF

Melissa Santos, PhD, *Division Head*

Lauren Ayr-Volta, PhD
Christine Chew, PhD
Elinor Coloccia, PhD *(departed summer 2022)*
Bradley Jerson, PhD
Danielle Guttman-Lapin, PhD
Timothy LaVigne, PhD *(departed summer 2022)*
Vanessa Laurent, PhD
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PULMONOLOGY & SLEEP MEDICINE

The Division of Pulmonology and Sleep Medicine pursues the following vision that align with the institution's mission:

1. *Providing innovative clinical care to children throughout the state of CT and our bordering states. We are committed to provide excellent care to children with respiratory or sleep related illnesses. We build/expand new clinical programs and centers and recruit team members that can address the more commonly seen respiratory diseases, such as asthma with the Asthma Center that provides community support to patients and their families, as well as research conducted to uncover the allergic exposures that are at the root cause of asthma. More rare conditions (such as interstitial lung disease) will be addressed with the expected establishment of the new Primary Ciliary Dyskinesia (PCD) center, the only accredited one between NY and Canada.*
2. *Commitment to Education of medical students and residents by creating new and interactive modules for rotating learners. This year we are creating a collection of learning modules for the trainees rotating through pulmonary to provide the base for pulmonary knowledge. In the Sleep specialty, we are collaborating with University of Connecticut Sleep Division to create a new Sleep Fellowship program.*
3. *Commitment to Research through The Asthma Center, Division of Sleep Medicine as well as our accredited Central Connecticut Cystic Fibrosis Center.*

ADMINISTRATIVE UPDATES

The Division welcomed a new division head, Dr. Haviva Veler, who joined in June 2022. Dr. Veler is the head of the pulmonary and sleep medicine Division. She is bringing expertise in both pulmonary and sleep and is looking to develop the sleep program, by extending indications for polysomnography use; increasing the span of testing done at the sleep lab; and overseeing the evaluation of children at high risk for sleep apnea and the creation of CPAP clinic that is run in a multidisciplinary fashion.

PULMONARY FUNCTION TESTING LA

Melanie Sue Collins, MD, the director of the Department of Cardiopulmonary Diagnostic Services' (CDS), and Lynn Dougherty, RRT, were instrumental in helping the CDS achieve American Thoracic Society (ATS) accreditation this year for its pulmonary function laboratory. The lab also was able to upgrade its equipment for breathing, exercise and cardiac stress tests. The new complement of laboratory devices provides more accurate testing for a diverse population of patients. Our patients also say the equipment is easier to use and more "kid-friendly" than ever.

PULMONARY FELLOWSHIP/DIVISION DIVERSITY COMMITTEE

Our division's diversity committee has integrated multiple activities into the department to raise awareness of our similarities and differences. We celebrate and decorate for various ethnically themed months and, based on the theme, daily explore a historical figure thanks to the efforts of Anita Cruz. We continue to expand our Spanish-speaking through our daily word-of-the-day.

INPATIENT/CONSULTATIVE PULMONARY SERVICE

Our resources in our Inpatient/Consultative Pulmonary Service expanded with our dedicated nurse practitioner Emily Tyskinski, APRN, to help us meet the demand for ongoing consultative requests. While servicing the needs of all of our patients, Ms. Tyskinski's special focus is providing longitudinal consultative care to the NICU patients to help facilitate their transition out of the NICU to home or to Connecticut Children's main inpatient hospital. The division joined the severe BPD group, including neonatology, cardiology and pulmonology to provide the best support and care for this growing patient population.

We expanded and upgraded our outpatient care services by retrofitting providers' workspaces to enhance telemedicine visits, which facilitate care for patients who continue to have access to our specialists without leaving the comfort of their homes. Telehealth visits continue to be valuable, especially for complex patients where travel is a challenge.

COVID LONG-HAULER PROGRAM

Dr. Collins and Amanda Filippelli, APRN, have teamed with the Division of Infectious Diseases to incorporate pulmonary diagnostic and chronic care for patients with long-term effects of COVID. They have developed an algorithm for the pulmonary care of these patients so that we can offer consistent treatment among all our providers.

SEVERE ASTHMA PROGRAM

Due to collaborative efforts with Dr. Collins and Allison Matthews-Wilson, LCSW, we were able to bring our social worker, Deana Phillips, MSW, into our Severe Asthma Clinic to provide mental health support for our patients. Rosalynn Bravo-Cavoli, APRN, and Debby Foster, RN, provide their ongoing efforts to re-invigorate the program by using a team approach. We hope to use this clinic as a pilot program to extend innovative solutions throughout the practice.

CYSTIC FIBROSIS CENTER

Connecticut Children's Central Connecticut Cystic Fibrosis (CF) Center has proven to be one of the best in the country based on clinical outcomes of lung function, nutrition, and adherence to CF guidelines. Our CF Newborn Screening Program remains one of the top in the nation and Dr. Collins is now serving in advisory capacity on a Cystic Fibrosis Foundation Grant due to the success of incorporating genetic counseling by telemedicine in our program.

Our team was busy this past year and added a new team member with our CF nurse, Alyson Alissi. Our CF social worker, Ms. Philips, and our nutritionist, Lisa Devine, RD, offer nutrition screening for families across our CF clinics to ensure all families had adequate supplies to feed their families. In addition, Ms. Philips and our CF coordinator, R.B. Curtis, worked to revitalize our patient and family advisory board and served as CF XoC (Experience of Care) Champions. Ms. Curtis continues to serve on a number of other national committees at the CF Foundation, as do Dr. Collins and center director Craig Lapin, MD.

RARE LUNG DISEASE PROGRAMS (INTERSTITIAL LUNG DISEASE, CILIARY DYSKINESIA, SICKLE CELL DISEASE)

There is ongoing collaboration among various subspecialties for our Rare Lung Disease Program. We are hopeful and on tract to establishing an accredited PCD center that will allow additional patients to be evaluated, diagnosed, and managed better. We resumed our in-person, multidisciplinary Sickle Cell Clinics with Pediatric Hematology and are looking forward to refining and expanding the services provided in these clinics in the coming year.

SLEEP MEDICINE PROGRAM

Jay Kenkare, MD, has continued to lead our Sleep Medicine program through some challenging times in the last year. He was at the forefront of reorganizing services for patients during a manufacturer's device recall and helped to ensure that all of our patients received safe and efficient care. We continue our commitment to teaching and education. In the past year, new diagnostic and therapeutic indications were established at the sleep lab, with the new use of high flow nasal cannula (HFNC) as a treatment for patients with poor adherence to CPAP.

Pulmonary fellows now rotate with Sleep on a scheduled basis. Residents on their Developmental Pediatric elective also rotate with us to gain some basic sleep experience. Lectures on sleep have been incorporated for Otolaryngology residents. We are exploring initiation of a Sleep Medicine fellowship in conjunction with UConn. Niddya F. Mishra, a registered polysomnographic technologist, was recognized as a subject matter expert by the American Academy of Sleep Medicine educational programming team and has contributed to their latest educational guide.

Lynne Schneeberg, PhD, continues with her local media and blog posts as well as outreach to community providers (especially in the Fairfield area) in an effort to expand the division's footprint. Our Multidisciplinary Sleep Clinic has been highly successful and reached the one-year milestone. Sleep, Pulmonary, Otolaryngology, and Behavioral Sleep all combine expertise to treat our most challenging children. Tracey Allen, APRN, has worked diligently to expand her skill set through additional training and continuing medical education in the field of Adolescent Sleep Medicine, which is an area of need for us.

On the technology and therapeutics side, we introduced volume-assured pressure support (VAPS) as a treatment modality for our patients with complex sleep-related breathing needs. We also have performed multiple studies successfully with high flow oxygen as a potential treatment for sleep apnea in infants. The number of patients being serviced at the sleep center grows every year, and the number of sleep studies that were done in the past year surpassed 2,000.

NEUROMUSCULAR RESPIRATORY DISEASE PROGRAM

We welcomed our new faculty member, Jamie Harris, MD, our former fellow and newest attending, as the pulmonary director of the Neuromuscular Respiratory Disease Program, a new and exciting initiative that offers a multidisciplinary clinic approach to patients with neuromuscular respiratory disorders. He in the process of revising both inpatient and outpatient airway clearance protocols for this population in hopes of improving quality of life and diminishing length-of-stay for inpatients.

AERODIGESTIVE PROGRAM

Anne McLaughlin, MD, the program's lead pulmonologist, is an essential part of the Aerodigestive Center. The number of patients seen at the center in the past year grew exponentially and the indications for referral and management increased as well. New protocols were written to address the various aerodigestive conditions, such as esophageal atresia and laryngeal cleft. Dr. McLaughlin actively seeks to

upgrade our bronchoscopy equipment to move into the digital area and enable us to perform procedures on even smaller patients. Dr. Lapin adds his experience to our bi-monthly procedure days, which are a favorite among all our faculty.

PEDIATRIC PULMONOLOGY FELLOWSHIP/ EDUCATION

We successfully graduated another pulmonary fellow in October 2022, Dr. Kasia Saar. Dr. Saar completed an exciting mask microbiome project under the direction of Jessica Hollenbach, PhD. Dr. Collins and Dr. Umit Emre reframed schedules for fellows to promote wellness, and improved our didactics to provide a more integrated approach to teaching pulmonary medicine. We have successfully integrated a new quality improvement curriculum into the program. Craig Schramm, MD, associate professor emeritus, serves as a foundation of physiology education for the fellowship program. Through our creative use of technology, we have integrated nationally-recognized speakers into our fellowship didactic program. Dr. Collins, the program director, has continued her work with the ACGME Milestones Committee for Pediatric Pulmonology.

Our APRNs, Ms. Filipelli and Ms. Bravo-Cavoli, are active educators with both nursing and APRN students. Ms. Filipelli served as the secretary of the Asthma and Allergy Special Interest Group for the National Association of Pediatric Nurse Practitioners.

RESEARCH

The entire Pulmonary Division is participating in a randomized, controlled trial, multicenter National Institutes of Health (NIH) study exploring the use of omalizumab to prevent asthma in children ages 2 to 4. Drs. Collins and Lapin are collaborating with UConn in an investigator-initiated study evaluating potential innate immune deficiency (Integrin activation) to determine which is responsible for dysfunction in phagocytosis, bacteria-killing, and/or cytokine production leading to inflammation and fibrosis.

Dr. Collins has been promoted to co-director of the Asthma Center with Jessica Hollenbach, and they are actively working to improve asthma care by integrating Easy Breathing© into primary care practices. Dr. Collins also collaborates with Thomas Murray, MD at Yale New Haven Hospital on nebulizer disinfection practices during respiratory treatments.

We have had representation at all national meetings with research abstracts accepted this year for presentation at the North American Cystic Fibrosis Conference, American Thoracic Society, and the American Academy of Allergy, Asthma, and Immunology, among others.

ADVOCACY/COMMUNITY SERVICE

Our APRN Rosalynn Bravo-Cavoli did significant outreach this past year to ensure patients throughout the state had access to COVID vaccination. Dr. Lapin and the CF Team work with CF Foundation to advocate for patients and research with CF. Dr. Collins advocates for vaping legislation in the state and received an award for this work from the American Academy of Pediatrics.

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Craig Schramm, MD, ***Emeritus Division Head***

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Medical Director, Division of Pediatric Pulmonary and Sleep Medicine
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Co-Director, Asthma Center at CT Children's
Associate Director, Central Connecticut Cystic Fibrosis Center

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Director, CF Center

Annie McLaughlin, MD
Lead Pulmonologist, Aerodigestive Program

Lynelle Schneeberg, PhD
Director, Behavioral Sleep Clinic

Tracy Allen, PA-C

Rosalynn Bravo-Cavoli, APRN
Director, Severe Asthma Clinic

Amanda Filippelli, APRN
Director, Pulmonary COVID Long-Hauler Clinic

Emily Tyksinski, APRN

RHEUMATOLOGY

In 2022, the Division of Rheumatology experienced clinical growth with a significant presence in South Hadley, MA, as well as Specialty Care Centers in six locations throughout Connecticut: Danbury, Shelton, Stamford, Farmington, Glastonbury, and Hartford. We now have four board-certified/board eligible pediatric rheumatologists. We have a psychologist on our team who addresses the critical biopsychosocial factors affecting our patients. Our team also includes two nurses who provide outstanding clinical care and participate in research through the Rheumatology Nursing Society.

The Division of Rheumatology completed 3,248 outpatient visits this year and cared for 85 complex inpatients, including many with multisystem inflammatory syndrome (MIS-C), the post-inflammatory condition causing significant illness in children following exposure to COVID-19. Despite the ongoing impact of the pandemic, our physicians continue to see patients in person as well as via telemedicine.

Barbara Edelheit, MD is proud to lead a division in which each physician has a specific area of expertise and focus, thereby forming the basis of a robust team. She has maintained her focus on education and mentorship. A former mentee/UConn resident, Jessica Fennell, MD, completed her pediatric rheumatology fellowship at the Hospital for Special Surgery in New York, NY and chose to join our division in August 2022 as our fourth attending physician. Dr. Edelheit serves as a preceptor for Keaven Caro, a CLIC student who is a MD/PhD student at the University of Connecticut for whom she provides longitudinal clinical immersion in the community and Dr. Edelheit has now taken on a second CLIC student, Frukan Ileaasu, a second year MD student at UConn.

Dr. Edelheit leads the Connecticut Children's Women in Medicine group called PoWER (Pediatric Women Relate), whose goal is to foster a community of women physicians and psychologists at Connecticut Children's by providing leadership, professional and personal development, and support. The group has now completed a successful second year with many well-attended events and greater visibility in our Connecticut Children's community. Dr. Edelheit remains the faculty advisor for the student chapter of the University of Connecticut chapter of the American Medical Women's Association, a national organization whose mission is to advance women in medicine and improve women's health. She serves as board chair of the Connecticut Children's Specialty Group (CCSG). Dr. Edelheit continues to serve as a member of the Connecticut Children's Care Network Development and Credentialing Committee. Dr. Edelheit serves as PI for inclusion in our national research organization Childhood Arthritis and Rheumatology Research Alliance (CARRA) with participation in their registry and related studies.

Heather Tory, MD, MPH, CPPS was promoted this year from Assistant to Associate Professor of Pediatrics. She continues her focus on safety and quality within the Rheumatology division while serving as associate quality director at Connecticut Children's. Within the medical center, she is co-chair of CCSG's Clinical Quality and Providers IT Advisory Committee. Dr. Tory continues to serve as co-chair of the hospital's Medication Safety Management Committee. She serves as the Rheumatology lead representative on the MIS-C clinical pathway and, together with Blaine Lapin, MD, she has co-developed a CLASP referral and co-management guideline related to joint swelling in pediatric patients. She was asked to co-develop, present and record for future use a presentation on quality improvement tools and methodology for use by the Connecticut Children's Maintenance of Certification (MOC) committee to provide to faculty seeking MOC projects as the required QI didactic learning component of earning MOC part 4. Dr. Tory completed the Organizational Excellence Lean Black Belt 4.0 program at Connecticut Children's, and performed a quality improvement/system design project on quality auditing system for medication reconciliation. Dr. Tory is a member of the Care Network Quality and Medicaid Committee and a member of the Connecticut Hospital Association Committee on Patient Care Quality. She has earned national recognition as a member of the American College of Rheumatology Quality Measures Subcommittee of the Quality-of-Care Committee. She continues to serve as the chair of the Juvenile Dermatomyositis (JDM) Quality Measures Workgroup of the Childhood Arthritis and Rheumatology Research Alliance (CARRA) under the JDM Committee. Dr. Tory is also on the Medical Advisory Council for the Make-A-Wish Foundation of Connecticut.

Blaine Lapin, MD continues his focus on advocacy. He is serving on the American College of Rheumatology Special Committee on Pediatric Rheumatology for a three-year term (2019-2022). Dr. Lapin continues in his role as medical director for the Local Leadership Board of the Connecticut Chapter of the Arthritis Foundation. He participated in a national virtual advocacy program to discuss important topics in the field of rheumatology including work force shortages, subspecialty loan repayment, and step therapy by serving on the American College of Rheumatology's (ACR) Workforce Solutions Committee as a member of the Workforce Solutions Intervention. Dr. Lapin helped co-author a grant, along with other rheumatologists and American College of Rheumatology staff, which was submitted to Pfizer to develop educational materials and best-practices for telemedicine in rheumatology which was recently notified of grant award receipt. Dr. Lapin serves as a member of the Connecticut Children's PEC and CCC committees as the Core Faculty Leader for the Rheumatology Division.

Our newest division member, Dr. Jessica Fennell, joined us in August of 2022 and is focused on enhancing our Fairfield County presence. She has a clinical interest in Pediatric Lupus and will be taking over as the Rheumatology lead in our combined lupus clinic.

The Division of Rheumatology remains committed to collaborative care at Connecticut Children's and Dr. Edelheit, together with Sherene Mason, MD, FAAP, MBA in the division of Nephrology, have successfully completed the second year of their Combined Lupus Clinic to provide continued state-of-the-art care for children and young adults with systemic lupus erythematosus in a multidisciplinary setting. This clinic offers patients and families collaborative care from specialists in a variety of divisions that include

Rheumatology, Nephrology, Psychology, and Adolescent Medicine. Dr. Fennell will be taking over this role in January 2023.

Our Rheumatology Division also focused on collaborative care in conjunction with the Division of Pediatric Ophthalmology with ophthalmologist Janine Collinge, MD. We have continued to provide care for children with inflammatory rheumatic and inflammatory eye disease in a seamless, collaborative and streamlined fashion that has increased overall patient and family satisfaction.

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PEDIATRIC SEDATION

The mission of the Center of Procedural Excellence (CoPE) is to provide the highest quality care for children undergoing tests and procedures outside the operating room. We aim to utilize not just sedation medications but distraction techniques, alternative therapies, and a family centered approach to minimize anxiety and unnecessary discomfort for our patients. We offer a six-bed unit within Connecticut Children's dedicated to providing high-quality procedural sedation for pediatric patients. It is one of only a few centers in New England with space and staff dedicated to non-operating-room pediatric sedation. The CoPE was opened in March 2016 with generous donations from the Connecticut Children's Foundation and the UConn HuskyThon. The Sedation Service provides comprehensive high-quality care with a focus on the patient and family experience. To help families prepare for a visit, our child life specialist is available for phone consultations in advance to help develop individualized approaches with the input of family members. In 2022, we provided care for over 1,600 patients requiring sedation for procedures outside of the operating room.

The Sedation division works with nearly all subspecialties within Connecticut Children's to provide sedation for painful procedures outside of the operating room, including: bone marrow aspiration/biopsy in Oncology patients, kidney biopsies for Nephrology, imaging for Radiology, catheter placement and minor surgical procedures for Urology and Surgery, central line placement for the PICC line service, and vaccination/lab draws for patients with developmental delays and autism spectrum disorders. In 2022, we expanded our service to provide additional care for patients with chronic pain and chronic headaches needing injections for longer-term symptom control. Our service utilizes a mixture of intravenous, oral, and inhaled sedative agents to provide mild to deep sedation, scaled to meet the developmental and procedural needs of each patient.

Connecticut Children's CoPE continues its record as a Sedation Center of Excellence as designated by the Society for Pediatric Sedation. The designation is a highly competitive award given annually to centers that create an "ideal environment for the delivery of safe, effective, efficient, timely and equitable patient-centered pediatric procedural sedation." The Society for Pediatric Sedation is the international multidisciplinary leader in the advancement of pediatric sedation. Applications are reviewed in a blinded fashion by a panel of experts and Center of Excellence designations are awarded for a four-year period, with ours running from 2020 to 2024. We are currently the only pediatric hospital in New England with this Center of Excellence designation.

Members of the Sedation Team are active in leadership and committees at Connecticut Children's. Leonard Comeau, MD, is chairperson of the Sedation and Analgesia Committee and is responsible for writing and updating sedation policies, updating and overseeing credentialing of the house staff, and monitoring safety and quality of sedation hospital-wide. Members of the Sedation Service also participate on hospital committees focused on pain management, the patient and family experience, pediatric palliative care, and quality and safety.

Our educational commitment remains strong. Every UConn Pediatric and Emergency Medicine intern (35 per year) spends a week on a dedicated Sedation rotation. Residents participate in all aspects of patient care, are given hands-on training in airway management, and become credentialed to independently provide moderate sedation.

We are humbled by our high commendations from patients and families, a testament to our continued efforts to develop a family-centered approach to care delivery. To that end, associate medical director Kalyani Raghavan, MBBS, MD, DCH, develops strategies to serve the needs of our patients with autism spectrum disorders. With colleagues in Developmental Pediatrics at Connecticut Children's and with state and national experts, Dr. Raghavan has developed social stories to help prepare patients and families for their procedural sedation. These social stories are available online and can be viewed by families to prepare their child for the visit to Sedation. Dr. Raghavan has received grant funding from Autism Speaks® and other outside foundations to support this very important work. Dr. Raghavan has also expanded her expertise in alternative approaches to management of pain and anxiety by inaugurating a program to offer aromatherapy options for patients hospital-wide.

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Kathy Kalkbrenner, MD
Leonard Comeau, MD

PEDIATRIC SURGICAL SUBSPECIALTIES

ANESTHESIOLOGY

The Division of Anesthesiology is recognized for the outstanding clinical care and pain management services it provides. We are committed to advancing pediatric anesthesia care, providing cutting edge therapies for the management of acute and chronic pain, and educating the next generation of anesthesiologists and nurse anesthetists.

The Division of Pediatric Anesthesiology draws on the long history of anesthesia excellence in Hartford to provide superb clinical care, innovative teaching, academic achievement, and a commitment to patient safety. The division's successes depend on the close collaboration of our physicians, nurse anesthetists, advanced practice nurses, and staff. The division consists of 13 full-time anesthesiologists, and over nine certified registered nurse anesthetists (CRNAs) and advanced practice nurses.

Our division services our main clinical care site at the Connecticut Children's Hartford campus, as well as other sites throughout the area, including our ambulatory surgery center in Farmington and offsite areas throughout Hartford Hospital. We coordinate care for over 10,000 surgical patients of all ages for procedures of varying levels of complexity, including elective and emergent surgery, trauma surgery, endoscopy, radiologic imaging, and cardiac catheterization. For patients requiring MRA, nuclear medicine, specialized interventional radiology, or transplant surgery, we provide pediatric coverage across the street at Hartford Hospital when necessary. We also cover critical procedures within the NICU at Connecticut Children's sites in Hartford and Farmington. We are excited to play a significant role in the launching of our Fetal Care Center, which has begun to take shape under the guidance of Timothy Crombleholme, MD. We continue to pursue our vision to provide compassionate care with extraordinary expertise for the children of Connecticut.

During the year, we continued to face the challenges of COVID-19, as well as a surge in other respiratory

infections, such as RSV and influenza. With collaboration between our Infectious Disease colleagues, as well as various perioperative committees and task forces, we safely navigated these challenges. Instrumental in this process was the leadership of Tracy Kunkel, APRN.

Various members of our division have provided unique and essential roles for the education of attending physicians, residents, fellows, and medical students within the Connecticut Children's and University of Connecticut community. Michael Archambault, MD continues to work with Katherine Kavanaugh, MD from the Division of Otolaryngology to provide simulation-based training to anesthesia residents, ENT residents, medical students, and other trainees. Dr. Archambault is the site director for the UCONN anesthesiology residency program. We collaborate with the ENT department on strategies to manage pain in patients following bilateral myringotomy. Our division's pediatric pain specialist, Eapen Mathew, MD, serves within the Division of Pain and Palliative Medicine, consulting on patients, conducting research, and performing various therapeutic nerve blocks and other procedures. Greg Rutkowski, MD, as the newly appointed president of the Connecticut State Society of Anesthesiology, is instrumental in collaborating with other anesthesiology groups and academic residencies within our state, ensuring consistent practice, education, policy, and procedures. Ted Cortland, MD succeeds Craig Bonanni, MD as the division head of Anesthesiology.

PUBLICATIONS

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STAFF

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John Garrison MD
Thomas Golembeski MD
Mark Indelicato MD, MSc
Peter Lam MD
Anil Mathew MD
Eapen Mathew MD
Greg Rutkowski MD

Thomas Miller CRNA *(Lead Nurse Anesthetist)*
Heather Allen CRNA
Samantha Anzalone CRNA
Kelly Gorski CRNA
Laura Pelullo CRNA
Rachel Petree CRNA
Christine Rouleau CRNA
Michelle Stevens CRNA
Joshua Yoffe CRNA

Tracey Kunkel APRN

NEUROSURGERY

The Division of Pediatric Neurosurgery is committed to the following core values:

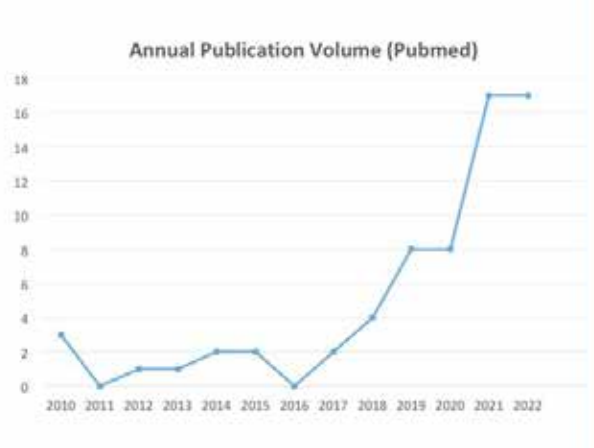
- We are dedicated to the delivery of comprehensive, compassionate, and timely, family centered care to our patients and families.
- We collaborate with and respect all members of our regional community.
- Through clinical research, we hope to develop new and better treatments for neurosurgical disease.

The Division of Pediatric Neurosurgery had another outstanding year in 2022, with continued contributions to Connecticut Children's and the UConn School of Medicine. We provided nearly 4,000 outpatient clinic visits and 250 surgical procedures to children in Western New England, delivering unparalleled service and setting a standard for institutional patient and family satisfaction at Connecticut Children's. The neurosurgery division benchmarks our quality and safety metrics against programs nationally through participation in ACS NSQIPP and HCRNq. Our providers continue to exceed national standards for shunt-related complications.

During this year, we demonstrated our commitment to both growth and expansion of clinical services for our patients. We now offer outpatient clinic evaluations in Fairfield county, with anticipated daily clinic availability in Westport in early 2023. For patients diagnosed with myelomeningocele, David Hersh, MD now partners with Timothy Cromblehome, MD to offer the option of fetal surgery. The development of this program will place our division among a select group of facilities nationally that offer this procedure.

Our providers continue to expand their local, regional and national presence in research, education, and advocacy, as illustrated in the following figure

DIVISION OF NEUROSURGERY ACADEMIC PRODUCTIVITY



In last 2 years:

- 18 oral presentations at regional or national meetings.
- 16 posters at regional or national meetings
- 2 state translational research start-up grants
- Thrasher Research Fund Early Career Award

PUBLICATIONS

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STAFF

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Affiliated Faculty

Evan Cantor, MD, ***Neuro-oncology***
Mark Lee, MD, ***Orthopaedic Surgery/Complex Spine Service***
Charles Castiglione, MD, ***Craniofacial Surgery***
Christopher Hughes, MD, ***Craniofacial Surgery***
Belachew Tessema, MD, ***Otolaryngology / Endonasal Sinus Surgery***
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Sonia Chaudhry, MD, ***Orthopaedic Surgery/ Peripheral Nerve***
Jennifer Madan Cohen, MD, ***Epilepsy / Neurology***
Helaine Bertsch, MD, ***Radiation Oncology***

OPHTHALMOLOGY

The Division of Ophthalmology started the year with the onboarding of a new optometrist in December 2021 and two new ophthalmologists who were both seeing a full panel of patients by late spring/early summer of 2022. The division coped effectively with the impacts of social distancing due to various variants of COVID-19 and challenges related to patients, as well as staff testing positive for COVID-19.

The year saw significant growth in caseloads and staff. We expanded our division with the addition of a physician assistant in August 2022. We successfully recruited for a new optometrist and one more physician assistant (PA). We hired an additional optometrist who will be starting in early 2023 for a total of three optometrists in our division. The final physician assistant, who we hope will start by summer 2023, will bring us to three ophthalmology physician assistants who are trained in house by the division ophthalmologists. Pediatric ophthalmology physician assistants are rare in and of themselves - for Connecticut Children's to have three such PAs speaks to the strengths of our division and our desire to teach and train.

CLINICAL INITIATIVES

We expanded our retinopathy of prematurity (ROP) services to Massachusetts at Baystate Medical Center. We now have an ophthalmologist who will travel to Baystate on a weekly basis and examine the eyes of premature infants, preventing blindness in this vulnerable population. The division plans to expand ROP services into Fairfield County in 2023.

We established a physician assistant rotation in late 2022 through Baypath University. PA students interested in ophthalmology come for a two-week or one-month rotation to work with our PAs and observe pediatric ophthalmology surgery to expand their knowledge base in ophthalmology.

We have begun planning to open yet another combined clinic which we hope to launch in early 2023. The clinic would be in combination with craniofacial surgery. This would allow patients who require the expertise of both an ophthalmologist and a craniofacial surgeon, as well as a neurosurgeon, to complete all of their appointments at once, thereby avoiding multiple visits to Connecticut Children's clinics. This clinic will be held on a monthly basis and is scheduled to start in January 2023.

Our physicians actively participate in various monthly conferences and are part of institution-wide committees. We continue to provide Emergency Department Fellow rotations annually. We provide medical student rotations in ophthalmology throughout the year and mentor University of Connecticut medical students interested in ophthalmology, involving them in various research projects which have led to poster presentations at national meetings and publications.

Dr. Majida Gaffar is an active participant of the Ophthalmology Interest Group, which meets quarterly to discuss various subspecialties and mentors medical students who are interested in ophthalmology.

Dr. Janine Collinge works closely with the Pediatric Eye Disease Investigator Group (PEDIG), a group consisting of pediatric ophthalmologist and optometrists throughout the country who participate in research projects to compile a large database and answer questions regarding pediatric ophthalmology diseases.

PUBLICATIONS/PRESENTATIONS

Classifying-retinopathy-of-prematurity Review of current disease classification of retinopathy of prematurity and future endeavors in ROP screening. https://www.reviewofophthalmology.com/article/.

Reviewer of article with editing contributions as part of the PEDIG group Freedman SF, Hercinovic A, Wallace DK, Kraker RT, Li Z, Bhatt AR, Boente CS, Crouch ER, Hubbard GB, Rogers DL, VanderVeen D, Yang MB, Cheung NL, Cotter SA, Holmes JM; Pediatric Eye Disease Investigator Group. Low- and Very Low-Dose Bevacizumab for Retinopathy of Prematurity: Reactivations, Additional Treatments, and 12-Month Outcomes. Ophthalmology. 2022 Oct;129(10):1120-1128. doi: 10.1016/j.ophtha.2022.05.019. Epub 2022 Jun 1. PMID: 35660415; PMCID: PMC9509410.

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STAFF

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Mariana A. Flores, MD

Sonia Hamelin, PA-C
Tiffanie J. Richardson, MSPAS, PA-C

Michelle Reichle, OD
Marnie Smith, OD
Maria Varela, OD

ORTHOPEDIC SURGERY

The Division of Orthopedic Surgery consists of three services: the General Orthopedic service, Sports Medicine service, and the Center for Motion Analysis. The General Orthopedic service provides the full spectrum of care for children and young adults with orthopedic conditions such as scoliosis and spinal deformities, limb deformity, congenital hip dislocations, clubfeet, congenital hand deformities, children's fractures, as well as neuromuscular conditions such as cerebral palsy, spina bifida, and muscle diseases. The Sports Medicine service provides expert care for injured athletes, ligament and cartilage injuries, and offers a variety of injury prevention programs.

The Division of Orthopedic Surgery has a total of 20 clinical providers. There are nine single or dual-fellowship-trained surgeons: Matt Brown, MD, Sonia Chaudry, MD, Allison Crepeau, MD, Mark Lee, MD, Phil Mack, MD, Kristen Pierz, MD, Jeffrey Thomson, MD, Donna Pacicca, MD and Janet Zahradnik, MD. Imran Hafeez, MD remains an invaluable non-operative Sports Medicine physician who spearheads our efforts in concussion management. Our ten advanced practice providers (APPs) remain vital in delivering excellent and compassionate patient care, in both inpatient and outpatient settings, while advancing our research mission: Marta Berube, PA-C, Katelyn Colosi, PA-C, Kevin Connolly, PA-C, Kevin Fitzsimmons, PA-C, Sarah Florence, PA-C, Jennifer Hope, APRN, Erin Malone, PA, Anthony Pastore, PA-C, A.J. Ricciuti, PA-C, and Kimberly VanPelt, PA-C.

The Division explores a range of pediatric orthopedic pathologies through clinical studies based at Connecticut Children's or through multicenter projects, resulting in 25 peer-reviewed publications this year on such topics as clinical spine deformity, pediatric hand trauma, and national consensus opinions on the surgical management of neuromuscular disorders. Further, the Division is an active participant in a national study group focused on understanding the pathophysiology and treatment options for Perthes disease.

The Division welcomed Donna Pacicca, MD, who had spent a majority of her career at Children's Mercy in Kansas City, Missouri. Dr. Pacicca is a seasoned pediatric orthopaedic surgeon with a sports medicine background and a keen interest in biologic mechanisms of orthopaedic disease. In addition to a long record of publications, Dr. Pacicca submitted an R01 NIH grant this year to develop an atlas of bone and cartilage development through single cell genomics and spatial imaging of healthy and diseased pediatric bone.

The Division values its collaborations with other services at Connecticut Children's and believes such interactions drive research creativity. Joint work with Gyula Acsadi, MD from the neurology service has led to advances in understanding gait mechanics in Charcot-Marie-Tooth disease. Collaboration with our neurosurgeons, in particular Jon Martin, MD has not only allowed the provision of world-class care for a variety of spine pathologies, but has also fueled the development of a state-of-the-art brachial plexus treatment program.

THE CENTER FOR MOTION ANALYSIS

The Center for Motion Analysis (CMA), one of the few labs in the nation to be fully certified by the Commission for Motion Laboratory Accreditation, is under the medical direction of Dr. Pierz and is supported by world-renowned kinesiologist Sylvia Ounpuu, along with experienced physical therapist Jennifer Rodriguez-MacClintock and engineer Jessica Lloyd. The CMA provides a wide variety of clinical diagnostic services, from the evaluation of children with neurologic disorders that affect walking to understanding the recovery of normal coordination and strength in athletes who have undergone orthopedic surgery. Core to its mission, the CMA strives to improve the understanding of human motion through a robust research program. In 2022, the CMA published four peer-reviewed articles, two of which were multicenter efforts in collaboration with other children's hospitals, and participated in numerous podium presentations as well as invited speakerships.

SPORTS MEDICINE

The Sports Medicine service provides high quality care to athletes from youth sports to the collegiate level and beyond. The service is composed of Dr. Crepeau, Dr. Brown, and Dr. Hafeez, along with a number of outstanding athletic trainers and the Connecticut Children's Sports Medicine Physical Therapy group. The service offers care to patients with the range of sports-related injuries, including ligament or meniscal injuries, joint or patellar instability, concussion, and cartilage injury. The team offers the state of the art in patella stabilization techniques, as well as novel, biologically-enhanced anterior cruciate ligament repair techniques, and have been simultaneously studying the outcomes of these interventions.

The team continues to develop, in collaboration with the Center for Motion Analysis and Sports Medicine Physical Therapy, safer return-to-sport protocols after ACL reconstruction. The Sports Medicine team is also involved in multiple large national studies on juvenile osteochondritis dissecans (JOCD) of the knee and elbow.

EDUCATION

Education is primary to the mission of the Division and is instrumental to our research efforts, as the next generation of surgeons provides insights into current practice and fuels inquiry. Our orthopedic surgeons train and educate orthopedic residents from the University of Connecticut Health Center and Maimonides Medical Center in New York. In addition, the Division maintains an ACGME-accredited/POSNA-accredited one-year Fellowship in Pediatric Orthopedics.

The Pediatric Orthopedic Surgery Fellowship, directed by Dr. Lee, is entering its seventh year of formal ACGME accreditation and has thus far graduated four fellows, three of whom are currently in independent practice. Recent graduates have all contributed peer-reviewed works to orthopedics, with our most recent graduating Fellow, Mauricio Drummond, MD, publishing a manuscript in the highly acclaimed American Journal of Sports Medicine on the radiographic anatomy of the patellofemoral relationship.

In August 2022, the Fellowship welcomed Chong Weng, MD, a pediatric spine surgeon originally trained in China who has completed three additional fellowships in the United States, consisting of trauma and spine fellowships at the University of Alabama and a pediatric orthopedic fellowship at Mass General in Boston. Dr. Weng is currently evaluating the effect of physical therapy on scoliosis bracing compliance.

HONORS & ACHIEVEMENTS

Other notable achievements in the Division of Orthopedic Surgery during 2022 include the following:

- Dr. Pierz and Ms. Õunpuu gave five national research presentations and two instructional lectures at the annual AACPDM meeting and GCMAS. In addition, Ms. Ounpuu was the keynote speaker at the "Gait Analysis and Clinical Applications Course" in Shanghai.
- Dr. Pierz was named the AAOS representative to the Commission for Motion Laboratory Accreditation (CMLA) Board this year.
- Dr. Chaudhry became a Fellow of the American College of Surgeons and a Board Member of the Clinical Orthopaedic Society.

PUBLICATIONS

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Book Chapter

Brown MJ. Chapter 5 "The Meniscus Deficient Knee: Options for Repair and Reconstruction", Intech Open: Arthroscopy. 2022 Mar 16.

STAFF

Orthopedics

Mark C. Lee, MD, *Division Head*
Sonia Chaudhry, MD
Philip W. Mack, MD
Donna Pacicca, MD
Kristan Pierz, MD
Jeffrey Thomson, MD
Janet Zahradnik, MD

Marta Berube, PA-C
Nicole Chaves, MHS, PA-C
Kevin Connolly, PA-C
Sarah Florence, PA-C
Jennifer Hope, MSN, APRN
Erin Malone, PA-C
Anthony Pastore, MS, PA-C
Kimberly VanPelt, PA-C

Sports Medicine

Mathew Brown, MD
Allison E. Crepeau, MD
Imran Hafeez, MD

Rebecca Gotthelf PA-C
Kevin Fitzsimmons, PA-C
Katelyn Colosi, PA-C

Fellow

Mauricio Drummond, MD

OTOLARYNGOLOGY – HEAD AND NECK SURGERY

The Division of Otolaryngology – Head and Neck Surgery provides cutting edge and innovative clinical care of infants, children and adolescents. We are national leaders in our field and educate the next generation of pediatric otolaryngologists. We continue to have active outpatient offices in Hartford, Farmington, and Glastonbury, and to perform surgical procedures in Hartford and Farmington.

Over the past year, we expanded our services in South Hadley, MA, and Westport, CT, to better serve the communities of Western Massachusetts and Fairfield County, CT. We continue to have an active telehealth presence, which enables our division to expand access to subspecialty care while maintaining convenience for patients and families. In the past year, we managed over 13,000 outpatient visits and performed over 2,500 surgeries. We also remained productive academically. Our faculty won numerous teaching awards, created new modules for resident and staff wellness, established new medical simulation models for otolaryngology resident education, and presented at meetings locally, regionally and nationally.

Christopher Grindle, MD, serves as the medical director of the division of Otolaryngology and oversees the continued development of the division and its growth. He is the fellowship director for Pediatric Otolaryngology and has spearheaded the development of our curriculum for developing future pediatric otolaryngologists. Our division welcomed its first fellow in 2022. Dr. Grindle was a member of the faculty for the "Worst Case Scenarios" simulation session at the American Academy of Otolaryngology National Meeting. Dr. Grindle often gives lectures to the UConn pediatrics and otolaryngology residents. This past year, he was also a guest lecturer at the University of Massachusetts Doctor of Audiology program.

Nancy Grover, MD, is the co-medical director of the Connecticut Children's multidisciplinary sleep apnea clinic in collaboration with sleep medicine, sleep psychology and weight management. The program has provided definitive therapy for children with persistent sleep apnea after conventional management. Dr. Grover is the principal investigator for a multicenter randomized control trial on children with mild obstructive sleep apnea and its impact on the child's quality of life and on parental decision-making. Dr. Grover recently completed a study on the socio-economic determinants of severe OSA in children with an emphasis on studying the effects of COVID-19. She received the faculty research award for outstanding scholarship by UCONN Otolaryngology – Head and Neck Surgery residency program for her ongoing commitment to research. She co-authored the chapter on the diagnosis and initial management of pediatric sleep disorders in the newly released Bailey's Otolaryngology Head and Neck Surgery 6th Edition.

Katherine Kavanagh, MD, continued in her role as director of simulation for the University of Connecticut Otolaryngology residency program and the director of research for the division of Pediatric Otolaryngology. She is the chair of the Simulation Education Committee for the American Academy of Otolaryngology – Head and Neck Surgery where she co-directed a simulation course entitled "Worst Case Scenarios." At the same meeting, Dr. Kavanagh presented her experiences in simulation education and moderated a panel to address workplace bullying. She serves as treasurer of the Connecticut ENT Society. She has expanded our Voice Clinic services and continues as director of the monthly multidisciplinary Airway Conference. Dr. Kavanagh is the co-leader for Connecticut Children's Office of Faculty Development.

Amy Hughes, MD, leads the division's efforts to care for patients with Sialorrhea (drooling). The number of outpatient visits and surgical procedures for drooling continues to increase year over year. She presented at Connecticut Children's grand rounds in December 2022 "Sialorrhea Management in Children." She is a member of an international group from the Academy of Cerebral

Palsy and Developmental Medicine developing a care pathway for children with sialorrhea. Dr. Hughes is active nationally, having had two poster presentations at the American Academy of Otolaryngology – Head and Neck Surgery national meeting.

Nicole Murray, MD, is the director of Connecticut Children's Aerodigestive team and the division head for the division of Airway, Voice and Swallowing Disorders. Under her leadership, the division continues to expand its ability to care for these complicated patients. Dr. Murray is the co-chair of the Connecticut Children's COVID PPE Task Force, which has provided vital guidance to all of Connecticut Children's through the COVID-19 pandemic. She is the president elect of the Children's Medical Staff Executive Committee. She also serves as the chair of the Clinical Competency Committee for the University of Connecticut Otolaryngology residency program. She won awards in August 2022 and June 2022 for excellence in delivery of formal lectures and was a nominee for the UConn pediatric residency program's prestigious R. Timothy Brown Award for Excellence in Teaching in an Affiliated Field.

Division head Scott Schoem, MD, MBA, FAAP, continues in his role as associate director for Surgical Clinical Affairs working closely with the Surgeon-in-Chief, Christine Finck, MD, on clinical operations, budgets, mentoring, and marketing at Connecticut Children's. Dr. Schoem completed his second year as Connecticut Chapter President of the American Academy of Pediatrics (AAP). The Connecticut Chapter received the 2022 Phoenix Award at the AAP Annual Leadership Conference for its resilience and perseverance through a difficult transition led by its President and leadership team. Dr. Schoem's main goals for advocacy are anti-vaping strategies, overcoming parental vaccine hesitancy for SARS-CoV-2 and HPV vaccination, and education of both professionals and parents on choking hazards and button battery ingestion. He is the Principal Investigator on a $21,000 national AAP grant to the Connecticut Chapter of the AAP on overcoming parental HPV vaccination hesitancy. He served as a national oral board examiner for the American Board of Otolaryngology in 2022.

PEDIATRIC OTOLARYNGOLOGY FELLOWSHIP PROGRAM

The Pediatric Otolaryngology Fellowship Program, led by Christopher Grindle, MD, is entering its 4th year as an accredited program and this year, welcomed its first fellow. Ryan Tabtabai, MPH, MD, who joined the program in July 2022 after completing his pediatric residency at the SUNY Health and Science Center at Brooklyn in June 2022. He completed his medical education at University of Connecticut School of Medicine in Farmington, CT and obtained his MD. He also completed his MPH degree at University of Connecticut Graduate School in Storrs, CT.

The Pediatric Otolaryngology Fellowship will welcome Ruwaa Samarrai, MD, in July 2023

PUBLICATIONS

Peer-Review Journals

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Book Chapters

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STAFF

Scott Schoem, MD, MBA, FAAP, *Division Head*
Christopher Grindle, MD, FAAP
Nancy Grover, MD
Amy Hughes, MD, FAAP
Katherine Kavanagh, MD, FAAP
Nicole Murray, MD, FAAP

Rebecca Strong, APRN
Christine Harrington, PA-C
Elizabeth Oblon, PA-C

Fellow

Ryan Tabtabai, MPH, MD

PEDIATRIC AND ADULT CONGENITAL CARDIAC SURGERY

The Pediatric and Adult Congenital Cardiac Surgery team led by Dennis Mello, MD, provides world-class surgical care and support to the children and adults of Connecticut born with congenital heart disease.

We provide state-of-the-art management of complex congenital heart defects across the entire age spectrum from newborns to adults, including a collaboration with the adult cardiothoracic surgery team at Hartford Hospital. The Pediatric Cardiothoracic Surgery service strives for discovery, teamwork, integrity, and excellence in cardiac surgical care. Cardiothoracic Surgery, Pediatric Cardiac Anesthesia, the Pediatric Intensive Care Unit (PICU), and Pediatric Cardiology work together in a strong collaborative effort to provide a uniform standard of care to patients with congenital heart disease who are seeking surgery.

Dr. Mello, division head, and Kenneth Warner, MD, are our two board-certified congenital heart surgeons who work together to provide perioperative cardiac surgical care to all patients with congenital heart disease. They are supported by two excellent and highly skilled physician assistants, Jill Sullivan, PA-C, and Kathleen Kellerman, PA-C, who help navigate the operative and post-operative care, respectively, of our patients. By having two dedicated cardiac surgeons at Connecticut Children's, we have been able to safely perform complex procedures in the operating room as well as cardiac catheterization lab with appropriate surgical coverage at all times. Despite COVID-19, our surgical volumes continue to increase with each year, and we are performing the most congenital heart surgeries of any program within the state.

NEONATAL AND PEDIATRIC HEART SURGERY

Our team has regularly been performing numerous complex congenital heart surgeries, including Norwood operations for hypoplastic left heart syndrome as well as other neonatal operations such as an arterial switch and truncus arteriosus repair with excellent outcomes. Furthermore, we have had an increase in the level of case complexity across our patient spectrum – whether it is a successful ventricular septal defect closure in a baby weighing less than 3 kg, a valve-sparing aortic root operation in young adults, or a fourth time redo-operation in an adult patient to repair complex left ventricular outflow tract obstruction.

ADULT CONGENITAL HEART DISEASE SURGERY

We strive to attain excellence in our surgical care of adults with congenital heart disease (ACHD), in collaboration with adult congenital cardiology as well as the adult cardiothoracic surgeons at Hartford Hospital. Robert Hagberg, MD, an experienced adult heart surgeon and chief of Cardiac Surgery at Hartford Hospital, is an integral partner in helping provide care for adult patients with congenital heart disease. He and his partners often collaborate with our Connecticut Children's congenital heart surgeons to perform ACHD surgeries. This association further strengthens our commitment to provide surgical services to all congenital heart disease patients, regardless of age, within the region and statewide.

CONGENITAL CARDIAC INTENSIVE CARE

Dr. Monika Gupta has started as our first cardiac-trained intensivist and D'Anna Obey PAC as our first cardiac ICU midlevel provider. Their hires represent an important step toward the creation of a dedicated congenital cardiac intensive care unit.

QUALITY & OUTCOMES

Our surgical data and operative outcomes are periodically submitted to the Society of Thoracic Surgeons (STS) Congenital Cardiac Surgery Database (www.sts.org). This database includes more than 94 percent of the congenital cardiac surgery programs in North America and helps establish outcome and quality benchmarks. We continue to rank very well within these objective benchmarks.

In order to improve communications and enhance patient care efficacy, we implemented cardiac surgery ICU rounds. Monthly mortality and morbidity presentations and quarterly quality STS reviews are performed for continuous review of the surgical program.

EDUCATION

We continue to provide ongoing educational support to PICU nursing and ancillary staff through a congenital heart surgery lecture series on a monthly basis. These efforts have been extended to our NICU colleagues as well, in order to continue to improve care for patients with congenital heart disease. We are also in the process of establishing our first UConn integrated cardiac surgery residency program.

STAFF

Dennis Mello, MD, *Division Head, Pediatric and Adult Congenital Cardiac Surgery*
Co-Director, Connecticut Children's Cardiovascular Institute

Kenneth Warner, MD, *Congenital Heart Surgeon*
Monica Gupta, MD, *Cardiac Intensivist*
Robert Hagberg, MD, *Chief of Cardiac Surgery, Hartford Hospital*

Jill Sullivan, MS, PA-C
Kathleen Kellerman, PA-C
D'Anna Obey, PAC

PEDIATRIC SURGERY

The mission of the Pediatric Surgery division is to provide high quality family-centered surgical and trauma care. The Division of Pediatric Surgery offers a full range of clinical services for pediatric patients from newborns to young adults. This includes prenatal consultations, the treatment of congenital anomalies, head and neck surgery, surgery of the chest and abdomen, pediatric gynecology, non-reconstructive urology, surgical oncology, bariatric surgery, treatment of chest wall deformities, and trauma including burn care. Pediatric surgeons see patients in Hartford, Farmington, Danbury, and Westport, allowing easier access for the convenience of our patient families. The Pediatric Surgery team performs outpatient procedures at the Connecticut Children's Ambulatory Surgery Center in Farmington. Same-day outpatient visits continue to be available at our Hartford office for any urgent problems and at our satellites on any days when a pediatric surgeon is there. Additionally, we are committed to offering families outpatient appointments within one week of referral for non-urgent problems.

The Division of Pediatric Surgery learned many lessons during the COVID pandemic, and devised new and innovative ways to provide high quality acute and elective surgical care for children in Connecticut across a broad range of surgical conditions. The division remains steadfastly committed to our vision statement of providing compassionate, family-centered, evidence-based care of the highest quality, together with innovative research, and education of future leaders. Our respectful collaboration, internally and externally, leads us to be a foundational part of the Connecticut Children's network and the field of pediatric surgery.

There were many exciting new developments in the division in 2022. In August, Dr. Timothy Crombleholme, a nationally and internationally recognized pioneer in the field of fetal surgery, joined the division and is building a multidisciplinary team of surgeons, anesthesiologists, obstetricians, and maternal fetal medicine specialists that will provide innovative treatments to a wide variety of fetal congenital anomalies. Connecticut Children's continues as one of only two centers in New England that is verified by the American College of Surgeons as Level I Pediatric Trauma Center and a Level I Children's Surgery Center. Data collected through both the pediatric trauma (TQIP) and children's surgery program (NSQIP) allows the institution to track important quality metrics, benchmark Connecticut Children's against other US children's hospitals, and provides insight to guide institutional quality improvement work. Additionally, the division was nationally ranked by U.S. News & World Report for excellence in Pediatric Gastroenterology and Gastrointestinal Surgery, demonstrating the high quality multidisciplinary care our pediatric surgeons provide across the spectrum of pediatric alimentary tract diseases.

The Bariatric Surgery Program continues to grow in both volume and scope under the leadership of Drs. Christine Finck, James Healy, and Melissa Santos. Over the last three years, the volume of laparoscopic sleeve gastrectomies has steadily increased, and during this past year, the program performed its 100th gastric sleeve. The program is accredited by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP), which is the combined accreditation program of the American College of Surgeons (ACS) and the American Society for Metabolic and Bariatric Surgery (ASMBS). Connecticut Children's is the first and so far only pediatric program in Connecticut to receive this distinction.

The Multidisciplinary Thyroid Group, led by Drs. Finck, Weiss, Healy, Nordie Bilbao, and Rebecca Riba-Wolman, enables children with thyroid diseases to be rapidly and simultaneously evaluated by a surgeon and an endocrinologist.

Brendan Campbell, MD, MPH, holds the Donald W. Hight Endowed Chair in Pediatric Surgery, and continues in the role of clinical director for the Division of Pediatric Surgery. He has led efforts to standardize work in the division and to ensure that patients have prompt access to outpatient care, working collaboratively with Drs. Lori Pelletier and Heather Tory to align medical and surgical quality priorities. Since 2020, Dr. Campbell has been one of 100 surgeons nationally selected to serve on the American College of Surgeons Committee on Trauma, where he chairs the Injury Prevention and Control Committee and serves on the Executive Committee. In June, he was honored by the University of Connecticut Integrated General Surgery Residency Program, receiving the Joseph M. Civetta Best Faculty Teacher Award "in recognition for his outstanding contributions to Surgical Resident Education" for the third year in a row.

Christine Rader, MD, FACS, continues in her role as assistant dean for Academic Affairs at Connecticut Children's which involves the educational oversight of both the medical and surgical house staff. It has been especially important during the pandemic to develop creative ways to provide all UConn residents with top-notch postgraduate educational opportunities. Dr. Rader is also the surgical director of the Extracorporeal Membrane Oxygenation Program (ECMO), which cares for critically ill patients with cardiac and respiratory failure, and she leads the Chest Wall Deformities Program, which provides state-of-the-art treatment for pectus excavatum and pectus carinatum.

Dr. James Healy serves as the UConn Integrated Surgical Residency site director. He was awarded a Surgical Innovation Grant for his study on "Improving and Tracking Peri-operative Activity for Pediatric Bariatric Patients Using Wearable Fitness-tracking Technology." This year, Dr. Healy worked with the multidisciplinary weight management program to increase safety and efficiency of care for the bariatric patients presenting for weight loss surgery. This included collaboration on novel development of a "Procedure Pass" system in Epic and weekly multidisciplinary meetings to review the details of all the patients who are scheduled for upcoming procedures. The Division of Pediatric Surgery also initiated a quality improvement program aimed to prevent re-admission due to vitamin deficiency, and implemented an Enhanced Recovery After Surgery (ERAS) protocol to avoid post-operative narcotic use and reduce recovery time for our patients.

Dr. Richard Weiss participates as an ex officio member of the American Pediatric Surgical Association (APSA) Practice Committee, which monitors the practice of pediatric surgery in North America, reports trends in

practice patterns, and offers guidance to APSA members for improvements and optimization of care delivery. He also serves on the APSA History Committee preserving the rich history of pediatric surgery in the United States and Canada. He continues his role as an advisor for the American Pediatric Surgical Association to the AMA/Specialty RVS Update Committee (RUC), and is a member of the executive council of the Connecticut Chapter of the American College of Surgeons.

J. Leslie Knod, MD, cultivates her passion for advocacy as a member of the American Pediatric Surgical Association Health Policy and Advocacy Committee, and locally through Connecticut Children's Public Policy Council. At an institutional level, Dr. Knod has been involved with our NICU antimicrobial stewardship project, and has been working collaboratively with Dr. Corey Baker to standardize our institutional approach to caring for children with esophageal atresia and to create a surgical bowel management guideline. Dr. Knod is also a member of the International Pediatric Endosurgery Group's Education Committee.

Over the past year, Katerina Dukleska, MD, assumed the role of the Surgical Site Director for the Quinnipiac University (QU) Pediatrics clerkship and became the director for the UCONN Pediatric Surgery Rotation. On a national level, Dr. Dukleska is involved with the Education and Industry Committees of the American Pediatric Surgical Association (APSA). In 2022, she along with Dr. Weiss, co-directed a boot camp for all pediatric surgery fellows from the United States and Canada that was held at Connecticut Children's in July. Locally, Dr. Dukleska is the chair of the Connecticut Chapter of the American College of Surgeons Junior Women in Surgery Committee.

As the Surgeon-In-Chief at Connecticut Children's, Dr. Christine Finck views one of her most important roles is to promote gender equality and increase diversity across all divisions in the Department of Surgery. To this end, she created a very successful Women in Surgery group designed to help women surgeons manage the unique challenges they face. Dr. Finck also serves as the chair of the Women in Surgery Committee of the Connecticut Chapter of the American College of Surgeons Women in Surgery Committee, which led a session titled "Creating Your Brand" at the 2022 State Chapter meeting.

PEDIATRIC SURGERY FELLOWSHIP PROGRAM

Jacob Campbell, DO, MPH, began his fellowship in August 2021 after completing his chief residency at the University of Connecticut Integrated Surgical Residency. In August of 2023, Dr. Danielle Dougherty, MD will begin her fellowship after receiving additional subspecialty surgical training at the University of Michigan in Surgical Critical Care and Fetal Medicine.

EDUCATION

We create outstanding learning opportunities in pediatric surgery and trauma for general surgery and subspecialty residents from the University of Connecticut affiliated residency programs, and for general surgery residents from Stamford Hospital, Waterbury Hospital, St. Mary's Hospital, and Danbury Hospital. Each year, several UConn Pediatric residents participate in elective rotations on the pediatric surgery service. We also incorporate medical students from both UConn and Quinnipiac University. The fellowship program in pediatric surgery has been offered at Connecticut Children's since 2011, and we have trained five pediatric surgeons.

Each of the pediatric surgeons are Advanced Trauma Life Support (ATLS) Instructors, and participate as instructors at ATLS courses taught throughout the year for residents, fellows, APPs, and physicians from around the region and state. Drs. Campbell and Knod are both instructors for the Advanced Trauma Operative Management (ATOM) course that is a live-animal model course that teaches proper operative techniques for managing penetrating injuries to the chest and abdomen.

RESEARCH

Dr. Finck's lab focuses on innovation and tissue engineering of organs, including the lungs and the esophagus. Over the last year, the laboratory received a new grant from the American Diabetes Association whose objective is to evaluate obesity and diabetes risk in transgender youth. Dr. Finck also launched the company Esophadex, Inc., and received a SPARK award for further device development.

The division is participating in several trials through the Eastern Pediatric Surgical Network (EPSN) which is a consortium of children's hospitals on the East Coast that are working together to study low-frequency childhood diseases. Connecticut Children's is the lead site for esophageal atresia evaluating cases of long gap/pure esophageal atresia (Dr. Finck) and post-repair surveillance (Dr. Knod). Other EPSN studies include central line infection (Dr. Knod), appendicitis (Dr. Campbell), and pediatric thyroid disease (Dr. Healy). The division is active in several other IRB-approved studies related to quality improvement, health services, and injury prevention research under the leadership of Drs. Campbell, Dukleska, and Knod, and basic science research through Dr. Finck's lab at the UConn Health Center.

THE FUTURE

For 2023, the Division of Pediatric Surgery will continue to expand its regional footprint in Southern New England, with an emphasis on Fairfield County plus increased satellite clinics in Danbury and Westport. We will expand our niche programs that leverage our expertise in chest wall deformities, pediatric burn care, weight management, thyroid disease, and pilonidal sinus disease. Finally, we are continuing to facilitate in-person access for patients by offering outpatient clinic visits within one week if

desired, and evening and weekend clinic options to make it easier for families to have ready access to pediatric surgery services.

PUBLICATIONS

Cramm SL, Graham DA, Allukian M, Blakely ML, Chandler NM, Cowles RA, Feng C, Kunisaki SM, Russell RT, Santore MT, DeFazio JR, Scholz SM, Aronowitz DI, **Campbell BT**, Collins DT, Commander SJ, Dantes G, **Dukleska K**, Engwall-Gill A, Esparaz JR, Gerall C, Griggs CL, Hanna DN, Lamoshi A, Lipskar AM, Orlas Bolanos CP, Pace E, Tracy ET, Williams S, Zhang L, Rangel SJ. Predictive value of a routine WBC count obtained before discharge for organ space infection in children with complicated appendicitis: Results from the Eastern Pediatric Surgery Network. J Am Coll Surg. 2023 Jun 1:236(6):1181-1187.

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STAFF

Christine Finck, MD, FACS, *Surgeon-in-Chief, Division Head*

Brendan T. Campbell, MD, MPH, FACS, FAAP
Clinical Director, Pediatric Surgery Division
Medical Director, Pediatric Trauma Program
Medical Director, Injury Prevention Center

Michael Bourque, MD, emeritus
Timothy Crombleholme, MD, *Director Fetal Care Center*
Katerina Dukleska, MD
James Healy, MD, MHS
Donald W. Hight, MD, emeritus
J. Leslie Knod, MD
Christine Rader, MD
Surgical Director, Extracorporeal Membrane Oxygenation Program
Medical Director, Chest Wall Deformities Program
Richard G. Weiss, MD, FACS, FAAP

Elisabeth Campbell, PA
Nicole Dietzel, PA
Evan Fusaro, PA
Samantha Pelow, APRN
Allison Schilling, APRN
Abby Theriaque, APRN
Alyssa Gersten, APRN
Anthony Angotta, PA

Fellow

Jacob Campbell, DO, MPH

PLASTIC SURGERY

The year 2022 was defined by continued growth for the Division of Plastic Surgery. Lauren Schmidtberg, PA-C, returned from a year away, and we rehired Melissa Condren, APRN, to share duty as full-time division advanced practitioners. We hired another advanced practitioner, Nichole Buswell, APRN, to expand our continuity of care in Westport. The office administration and staff reorganization has allowed the division to provide a more robust service line. Clinical services were expanded, and new clinical pathways in plastic surgery and craniofacial surgery were introduced. Christopher Hughes MD, MPH, assumed leadership of the division as Division Head of both Plastic Surgery and Craniofacial Surgery in October. Education and research remain a priority of the division. We provide clinical education and guidance for general surgery residents and oral and maxillofacial surgery (OMFS) residents. With Division mentorship, one OMF resident is applying into a craniofacial fellowship program. Several research projects with medical students and residents are ongoing. We published in peer-reviewed journals over the past year, and we presented our data at scientific conferences. Christopher Hughes provided educational lectures for residents and peers at local, regional, state, and national levels over the past year as well.

With the inclusion of Dr Hughes as full-time division head, we are able to provide more consistent, complex, and collaborative services at Connecticut Children's. Our surgical volume has continued to increase, including all types of plastic and reconstructive procedures. Our plastic surgeons frequently collaborate with other surgical specialists, providing state-of-the-art multidisciplinary surgical care. Common surgical procedures performed include complex wound closures (including flaps and grafts), craniofacial reconstruction, craniofacial fracture repair, cleft lip/palate reconstruction, breast surgery/reconstruction, body contouring, skin/soft tissue tumor excision/repair, upper extremity/hand surgery/reconstruction, gender-affirming care, and treatment of vascular anomalies. We have successfully implemented telehealth visits for consults and follow-up visits whenever necessary and appropriate.

Ms. Schmidtberg, a physician's assistant, and Ms. Condren, an APRN, shared division duties in 2022, and they facilitated the expansion of services. The division has increased and streamlined the treatment of breast and chest wall deformities, as well as post-bariatric-surgery weight-loss deformities. Ear molding for infants with protruding or malformed ears continues to be offered, and we have expanded treatment options. The division is also actively participating in the Vascular Anomalies Team. Operations for gender affirmation have also become common, including gender affirming chest reconstruction ("top surgery") and facial feminization. We have created a multidisciplinary wound clinic (Pediatric and Adolescent Wound (PAWs) Clinic in collaboration with Dr. Christine Rader from Pediatric Surgery.

Christopher Hughes assumed directorship of the multidisciplinary Craniofacial Team at Connecticut Children's in October. Previously directed by Charles Castiglione, MD, MBA, the team remains a center of excellence. We provide comprehensive evaluation and treatment for patients of all ages with congenital or acquired deformities of the head and neck. Active team members come from many disciplines including Plastic Surgery, Pediatric Neurosurgery, Pediatric Otolaryngology, Pediatric Dentistry, Orthodontics, Oral and Maxillofacial Surgery, Pediatric Development, Social Work, and Speech and Language Pathology. Clinical pathways for cleft lip and palate patients have been updated and modified with excellent results. Clinical research protocols have been established for the common cleft lip and palate operations. Craniosynostosis reconstruction, performed by Drs. Hughes and Castiglione, and by Jonathan Martin, MD, Markus Bookland, MD, and David Hersh, MD, of Pediatric Neurosurgery, is common. Virtual surgical planning for cranial reconstruction and for mandibular distraction is now routine. In addition, the multidisciplinary Craniofacial Trauma Team, under the leadership of Drs. Castiglione and Norman Cavanagh, MD, DMD, provides treatment for all craniomaxillofacial injuries at both Connecticut Children's and Hartford Hospital.

Four affiliate staff plastic surgeons, Duffield Ashmead, MD, Alan Babigian, MD, David Bass, MD, and Steven Smith, MD, are fellowship-trained hand surgeons, and they perform all types of upper extremity and hand surgery. This includes trauma surgery and reconstruction for acquired and congenital deformities. These surgeons also provide coverage for hand call at Hartford Hospital and Connecticut Children's.

Plastic surgeons expanded their role in global surgery this past year. All activities in 2021 were canceled due to the COVID-19 pandemic, but members of our team, including Drs. Babigian, Castiglione, and Hughes resumed global surgical activities this past year in collaboration with our partner NGO Hands Across the World. Dr Hughes is a member of the Center for Global Health at Connecticut Children's, and leads the global surgical arm. He has and continues to provide educational and research opportunities for students and residents interested in global surgery.

Education is a large component of our division's activities. Residents from General Surgery and Oral and Maxillofacial Surgery participate in clinical experiences in Plastic Surgery. We have established a visiting plastic surgery resident rotation for this upcoming year, and shadowing experiences for medical students from the University of Connecticut. Active teaching occurs during daily patient rounds, in the clinic/office setting, the emergency room, the operating room, and during planned teaching conferences. Several residents and medical students are involved in research projects with Drs. Babigian, Hughes, and Castiglione. In addition to publishing, Drs. Babigian, Hughes, and Castiglione presented papers locally, regionally, and nationally in 2022. Presentations focused on the management of complex craniofacial anomalies, the use of small mobile operating room spaces for global surgery, analysis of global health initiatives, and burn and wound care for pediatricians. Dr. Hughes is the plastic surgery editor for *Connecticut Medicine: The Journal of the Connecticut State Medical Society*, and is a reviewer for the *Journal of Craniofacial Surgery, Cleft Palate-Craniofacial Journa*l, and *Plastic and Reconstructive Surgery Global Open*. Dr. Castiglione is a reviewer for three journals: the *American Journal of Cosmetic Surgery, Craniomaxillofacial Trauma & Reconstruction*, and the *Journal of Oral and Maxillofacial Surgery.* Drs. Babigian, Hughes, and Castiglione are members of the executive council of the New England Society of Plastic and Reconstructive Surgery.

PUBLICATIONS

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Fajardo MA, Glomski K, **Castiglione CL, Babigian A, Hughes CD.** Pleomorphic adenoma of the eyebrow: an unsuspected finding and review of unusual periorbital soft tissue lesions. J Craniofac Surg 2022; 33(4):e408-411.

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Hersh DS, **Hughes CD.** Syndromic Craniosynostosis: unique management considerations. Neurosurg Clin N Am 2022; 33(1):105-112.

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Book Chapters

Fajardo MA, Tow DJ, **Hughes C, Castiglione CL.** Cleft lip and palate surgery. In: The History of Maxillofacial Surgery. New York, NY: Springer, 2022.

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Paul C. Polzella, PA-C

PEDIATRIC UROLOGY

The Division of Pediatric Urology provides comprehensive and cutting-edge care to the children of Connecticut. We are proud to be ranked amongst the top 50 Pediatric Urology programs in the nation by the U.S. News & World Report for the fourth year in a row. Our team sees patients in Hartford, Farmington, Glastonbury and Danbury, and performs surgical procedures in Hartford and Farmington. We are committed to providing world-class urologic care close to home.

Courtney Rowe, MD, FAAP, serves as the interim division head of Urology. Her active research career has been marked by the first Connecticut Children's Connection Grant from the Foundation for her work to develop a novel urethra stent to improve healing after surgery or injury. On a national level, she serves as the chair-elect of the Patient Education Committee of the Urology Care Foundation, the nonprofit arm of the American Urologic Association.

Anne Dudley, MD, FACS, is the Pediatric Urology site director for the University of Connecticut Urology Residency Program and was recently elected to the Medical Staff Executive Committee. She continues to expand the clinical volume and geographical reach of the multidisciplinary Spina Bifida Clinic, which serves as the only clinic in the state that is a certified Spina Bifida Association Clinic Care Partner.

One of the highlights of our year was hosting the Inaugural Howard I. Hochman, MD, PhD, Endowed Lectureship in Pediatric Urology in September 2022. This lectureship was in honor of Dr. Hochman, a founding member of our division who retired last year. It was led by our former colleague and residency alum Carlos Medina, MD, and funded through generous donations from grateful former trainees. We were delighted to welcome our own Dr. Dudley as our first speaker. This annual lectureship will remain a durable legacy of the dedicated resident teaching and patient care that Dr. Hochman provided through his long career.

CLINICAL CARE

The Division of Urology is a leader in providing the full range of next-generation urologic care to our community. We offer robotic surgical procedures with a dedicated pediatric Da Vinci Xi, and have partnered with our colleagues in the Division of Radiology to provide the most advanced options, including MR Urogram using a dedicated 3T MRI and Contract Enhanced Voiding Ultrasound (CEVUS) for radiation-free diagnosis of vesicoureteral reflux. We formed Connecticut's first multi-institutional regional partnership focused on care for children with bladder and cloacal exstrophy.

We provide families with the latest collaborative care within multidisciplinary clinics. These include the GUPPE Clinic for patients with variations of sexual development, the Spina Bifida Clinic for patients with myelomeningocele, the ROCKS Clinic for patients with kidney stones, the Prenatal Clinic, and the PUV Clinic for patients with posterior urethral valves. We also offer the Connecticut Children's Continence Program for the management of non-neurogenic voiding issues, included comprehensive visits with both a physician and an advanced practice provider (APP). We continue to successfully leverage telehealth opportunities, providing urologic care from the comfort of home.

Nick Rodrigue, NP, manages our advanced video urodynamics suite. Our cutting-edge equipment now includes air catheters which have streamlined this complex procedure, allowing for efficient evaluation of neurogenic and non-neurogenic voiding. Erin Floridia, PA-C, is an invaluable resource as a first assist in the operating room, and is expanding her training to learn hypnosis for patients with voiding concerns. Both of our APPs are beloved by the patients and families who see them for non-surgical urologic concerns.

EDUCATION

Our division is dedicated to providing education to the next generation of surgeons. We work with residents from the University of Connecticut, providing initial exposure to pediatric care to incoming interns, experience in basic and advanced pediatric urology for

our junior residents, and opportunities for our senior residents to serve as mentors and teachers to rotating juniors.

As the residency pediatric site director, Dr. Dudley has streamlined evaluations for trainees, and she serves as an examiner for mock oral boards. She works closely with University of Connecticut medical students, serving as a Capstone mentor for research and a Clinical Longitudinal Immersion in the Community (CLIC) flex instructor for surgical experience and training. Dr. Dudley is also involved in national educational efforts, authoring the core curriculum for American Urologic Association Resident Reference on cryptorchidism.

Our division had multiple national and international presentations. Dr. Rowe served as a panelist for resident and fellows forums at the American Urologic Association Annual Meeting in New Orleans. Katherine Herbst, MS, was an invited speaker on statistical methodology at the European Society for Paediatric Urology Annual Meeting in Belgium.

RESEARCH

Dr. Rowe's lab continues its work in translational research and regenerative medicine. With the strong support of Christopher Foster, MS, our lab currently holds two patents and collaborates with local and national investigators. This year, Dr. Rowe submitted a comprehensive K08 training grant to the NIH's National Institute of Diabetes and Digestive and Kidney Diseases. If funded, this grant will provide support for continued research on urethral healing, along with continued training in research methodology.

Dr. Dudley is the site director for the Society of Fetal Urology Prenatal Hydronephrosis Registry. This national multi-institutional collaboration is a publication powerhouse and is reshaping our national perspective on care for patients with hydronephrosis. Dr. Dudley also serves as co-principal investigator of the testicular tissue cryopreservation protocol, which preserves fertility options for children undergoing oncologic treatment.

Despite expanding her focus to other clinical areas, Katherine Herbst, MS, remains an influential member of the pediatric urology research community. She serves on the Research Committee for the European Society for Paediatric Urology and on the Board of Statisticians for the *Journal of Urology*. She continues to be a valued lecturer on research methodology and statistics to national and international audiences.

DIVISIONAL CHANGES

We are delighted to welcome Kelly Sosenksy, APRN, to our division. Already an experienced pediatric provider, she is quickly gaining expertise in Urology. As she expands her practice, Kelly will be offering increased access to clinic procedures for those families who require urologic care.

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Olson P, Dudley A, Rowe C. Contemporary Management of Urinary Tract Infections in Children. Current Treatment Options in Pediatrics. 2022 Sep;8(3):192-210. doi: 10.1007/s40746-022-00242-1.

Book Chapters

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Katherine Herbst, MSc
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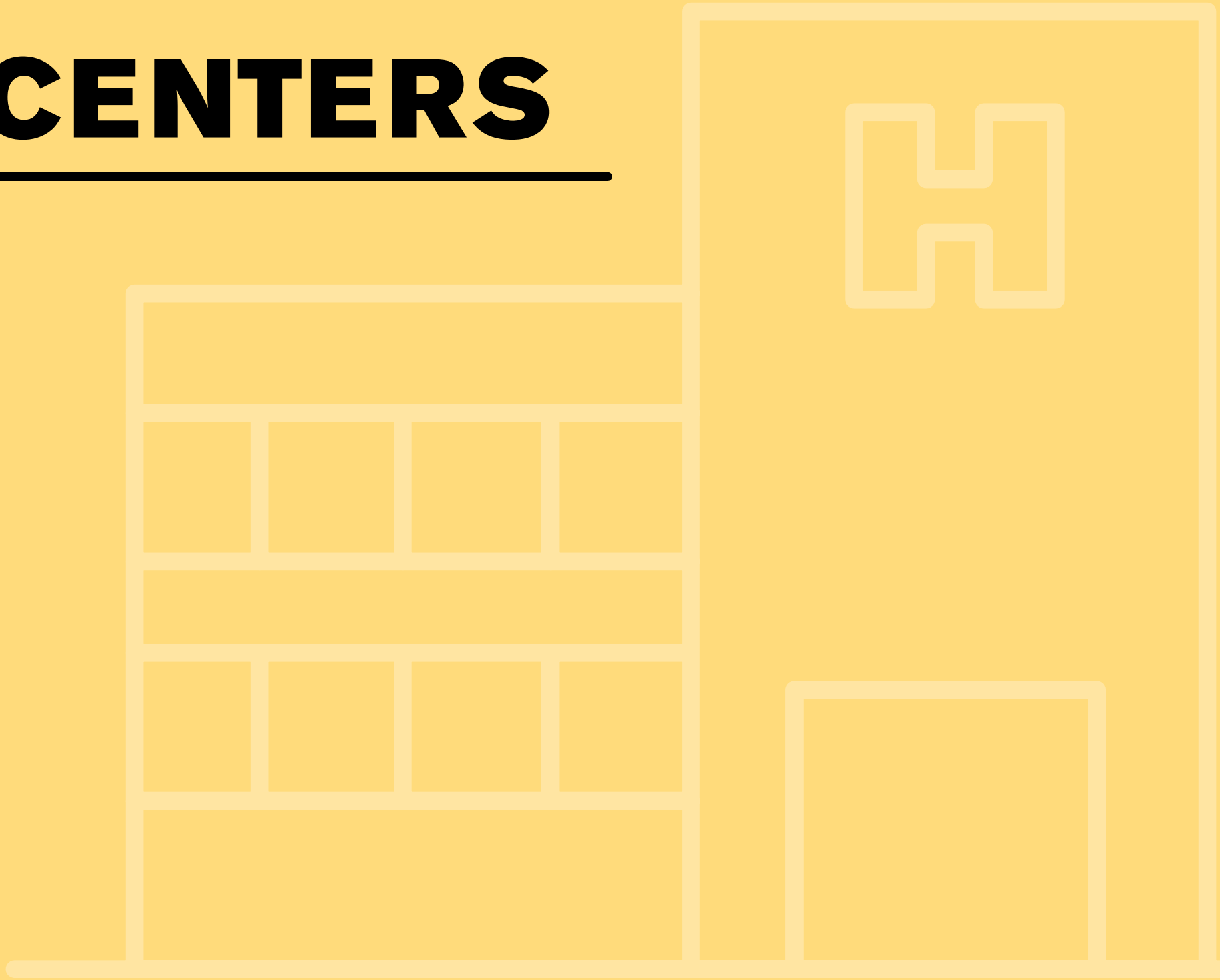
CENTERS



ASTHMA CENTER

The Asthma Center is the region's leader in pediatric asthma research and its premier resource for evidence-based asthma programs. We are dedicated to improving the health and well-being of children and families through community-based collaborative research and programs, and we deliver a mechanism for program dissemination and outcomes assessment of clinical and translational research conducted by investigators within community settings, including schools, homes, community organizations, hospitals and ambulatory practice settings. The Asthma Center is committed to the training of investigators and community stakeholders in community-based research.

In 2022, The Asthma Center continued to reduce asthma health disparities and their determinants by conducting multifaceted, interdisciplinary collaborative research on critical contemporary health issues facing children with asthma, and to establish optimal models of health management and best practices in the following initiatives:

EASY BREATHING

The Easy Breathing program responded to several requests from the primary care community to receive education on the 2020 Focused Updates to the Asthma Management Guidelines. We developed a continuing medical education (CME) module on implementing single maintenance and reliever therapy (SMART) in the pediatric primary care setting, guided by content experts in the division of pediatric pulmonary and sleep division. With this CME module in hand, Dr. Caleb Wasser, the Easy Breathing Physician Champion, delivered more than eight SMART therapy CMEs to pediatric practices across the state.

With the 2020 focused update to Asthma Guidelines came SMART therapy, a paradigm shift in asthma management where a single combination inhaler, an inhaled corticosteroid ICS for maintenance and a short-acting-beta-agonist SABA for relief, became available for patients. This shift in the guidelines has spurred significant confusion in the medical community, which inspired Dr. Jessica Hollenbach and Dr. Melanie Sue Collins to create a CME for pharmacists on SMART therapy in collaboration with the UConn School of Pharmacy. Practitioner response to this module has been robust: As of September 2022, over 200 pharmacists and over 700 technicians have completed our SMART therapy training. In addition, as part of the Connecticut Children's Community, Drs. Collins and Hollenbach also gave two presentations to members of the Clinically Integrated Network (CIN or CareNetwork) and Northeast Regional Advisory Board on SMART and integration of Easy Breathing into practice.

Work outside of Connecticut led us to continue the implementation and evaluation of a pilot Easy Breathing project in rural areas of Florida. In collaboration with investigators from the University of Florida, Easy Breathing was implemented for two years. Providers' adherence to the guidelines included two outcome metrics: 1) the frequency of children with persistent asthma who were prescribed appropriate therapy and 2) the frequency of children who were provided a written asthma treatment plan. We were able to demonstrate that providers who used Easy Breathing improved their proportion of patients receiving a written asthma treatment plan and increased the prescription of anti-inflammatory therapies. Qualitative feedback from implementers suggested that integration of the paper-based forms into an electronic health record would improve workflow.

EASY BREATHING FOR SCHOOLS

The Asthma Center's Easy Breathing for Schools program is a multipronged asthma education toolkit that reduces asthma-related school absenteeism and improves both asthma control and inhaler technique. In 2022, the Asthma Center continued to implement a $25,000 Environmental Protection Agency (EPA) grant to implement Easy Breathing for Schools in the Hartford area, where asthma disproportionately affects low-income African-American and Latino children. A designated bilingual Certified Asthma Educator (AE-C) from the Asthma Center (Sigrid Almeida) provided training to school nurses during the academic year and facilitated screening, survey administration, and data collection. Due to restrictions posed by the Covid-19 pandemic, the program was modified to Zoom-based professional education modules for school nurses. At the request of the school district, we were also able to provide schools in Hartford access to stock albuterol metered-dose inhalers and spacers for suffering students.

With support from the Department of Education's North Hartford Ascend Pipeline grant (Ascend, PI Dr. Dworkin), Asthma Center staff conducted a needs assessment among school nurses working in one of five schools in the North End to understand current asthma care needs. One area of need centered on understanding and awareness of the new asthma guidelines. Therefore, a professional development session was delivered to school nurses on SMART therapy.

ASTHMA RESEARCH

The COVID-19 pandemic brought necessary public health mitigation measures to schools. Interventions like universal masking, social distancing, quarantines, hybrid-learning, and increased hand washing all likely contributed to the unprecedented decrease in asthma exacerbations globally. How mask-wearing affects the respiratory microbiome is unknown. Thus, an opportunity presented itself to evaluate how mask wearing among schoolchildren was associated with the microbiome. In collaboration with Drs. Christopher Carroll, Adam Matson, and Yanjiao Zhou from the UConn School of Medicine, a pulmonary fellow (Dr. Kasia Saar, DO) explored whether a microbiome could be isolated from surgical masks worn by schoolchildren and whether differences existed between students with asthma and those without. In the Spring of 2021, Dr. Saar enrolled more than 30 students, collecting masks worn in school. She demonstrated that the bacterial microbiome of surgical masks worn by children with and without asthma are compositionally similar. However, those with asthma have a significantly higher abundance of Staphylococcus. These findings will allow hypothesis-driven future studies on the effect of surgical masks and the host bacterial microbiome and its relationship to the development and management of asthma in

children. Results from this study were presented at the American Thoracic Society's International Meeting held in San Francisco in May 2022. Further, these results provided preliminary data for a successful Seed Grant from Connecticut Children's to continue to explore the relationship between the environmental microbiome and asthma exacerbations in schoolchildren.

In another research initiative, a phenomenon known as the "September asthma peak" would occur among schoolchildren (prior to COVID-19), where approximately 14 days after the return to school, asthma-related health services utilization would peak. Whether this peak would change in response to school-based mitigation measures was a question investigators from the Asthma Center and Inpatient Medicine Division decided to explore. Drs. Jessica Hollenbach, Melanie Sue Collins, and Alex Hogan, with statistical support from Dr. Michael Brimacombe, demonstrated that, in September 2020 and 2021, no asthma peak was observed. This was most likely due to mitigation measures established to prevent the spread of Sars-CoV-2 mandated for all schools in Connecticut, and this hypothesis is currently undergoing further testing in September of 2022. The 2020 data were presented at the annual meeting of the Association for Asthma, Allergy, and Immunology in Pheonix, Arizona in February 2022.

MENTORSHIP

In collaboration with the Pediatric Pulmonary fellowship program, Dr. Jessica Hollenbach and Dr. Melanie Sue Collins provided mentorship to a pediatric pulmonary fellow, Kasia Saar, DO. In addition, mentoring was provided to Dr. Saar and Dr. Jamie Harris of the Pediatric Pulmonary division on their respective Quality Improvement projects. Dr. Hollenbach also provided mentorship to a second-year medical student, Ms. Abigail Tulchinsky. Ms Tulchinsky's project is focused on field-testing a novel asthma treatment plan that adheres to the focused update of the asthma guidelines, and that is understandable to the end-user: patients with asthma and their caregivers.

PUBLICATIONS

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Ambarenis Caraballo, Administrative Assistant
Iris Becene, BS, *Research Assistant*
Kailee Martin, *Data Entry Specialist*
Kasia Saar, *DO, Pulmonary Fellow*

CENTER FOR AIRWAY, VOICE & SWALLOWING

The Center for Airway, Voice, and Swallowing, also known as the Division of Aerodigestive Medicine, was started in 2011 and was designated in 2017 as a surgical division within Otolaryngology. In 2021, it grew into an independent multidisciplinary department. The mission of the department is to provide state-of-the-art care for children with complex disorders affecting airway, breathing, feeding, swallowing, and growth.

This multidisciplinary department consists of pediatric medical and surgical subspecialists from Otolaryngology, Pulmonology, Gastroenterology, Speech and Language (Swallow) Pathology, and General Surgery. Our clinical services begin with a coordinated visit with pertinent specialists and concurrent diagnostic tests or interventions. For many patients, the next step in evaluation and treatment is coordinated surgical endoscopy (also called a "triple scope"). Our synchronized approach offers many advantages for patients and families, including fewer doctor visits and missed days of school/work; fewer exposures to anesthesia; less time to effective treatment; and, by combining surgical procedures and minimizing off-target testing, families generally see fewer out-of-pocket medical costs. The ultimate advantage is that our collaboration yields more comprehensive, sophisticated, and effective treatment for this vulnerable population.

We offer Aerodigestive appointments in Farmington, Glastonbury, and Hartford. Full aerodigestive team clinics are held four times monthly (Hartford, Farmington). Focused specialty clinics are also offered: Airway clinics are held twice weekly (Hartford), voice clinics are held twice monthly (Glastonbury, Farmington), and swallow clinics are held twice monthly (Hartford, Farmington). We now offer telemedicine for these visit types as well. Our team performs coordinated surgical endoscopies together twice monthly.

In terms of growth this year, we have an exciting addition to the care we provide for the children of our community: we are collaborating with our Pediatric Surgeons to develop a special branch of our Aerodigestive Team to treat children with Esophageal Atresia/Tracheoesophageal Fistula. With this collaboration, we aim to break down the older silo approach to these patients and provide advanced multidisciplinary care for this population, from birth through adulthood. This work, led by Drs. Leslie Knod, Christine Finck, Anne McLaughlin, Corey Baker, Bella Zeisler, and Nicole Murray, is continuing into next year and we will bring in the new year with a Grand Rounds on this topic in January.

This year did continue to challenge us all with pandemic-related impediments. As our PPE and COVID testing supplies became more plentiful, many other types of medical equipment became more scarce, including tracheostomy tubes for children and babies. Our department led a national response to this dire situation when Dr. Murray sounded the first alarm bells and activated multiple national advocacy groups, including the American Society of Pediatric Otolaryngology, the American Academy of Otolaryngology-Head and Neck Surgeons, and the US Food and Drug Administration. We are happy to report that we got results: this effort led to critical national conversations between the tube producers and the advocacy groups, and to governmental redirections of scarce resources (e.g. silicone to the producers). We also developed novel methods to extend our current supply, and we received priority dispensations from producers for some of our most vulnerable patients. Lastly, this work led to improved collaboration between industry and our advocacy groups, so that if such a crisis happens again, there will be better communication, and earlier conservation, in order to prevent calamitous shortages in the future.

SCHOLARLY ACTIVITY

Poster Presentations

Grindle C, Drake R, Murray N, Hughes A. Implementation of a Novel Airway Risk Evaluation and Communication Tool for Tracheostomy Patients. American College of Surgeons Quality and Safety Conference Virtual Conference. July 2021.

Mitossis, R. M., Pidano, A. E., Vance, K., Dale, L. P., Zeisler, B., Reed, B. W., & Jerson, B. (2022, April 7-9). Psychological adjustment and treatment adherence among youth newly diagnosed with celiac disease. Poster presented at the Society of Pediatric Psychology Annual Conference 2022, Phoenix, Arizona.

Invited Lectures

Murray N. "Update on Pediatric Voice and Swallowing Disorders". Pediatric Grand Rounds, Day Kimball Hospital. Putnam, CT (virtual). June 2022.

Murray N. "What do I do now? Problem Solving for Pediatric Otolaryngology" Invited Visiting Professor, Residency/Fellowship Lecture. Department of Otolaryngology, University of Tennessee, Memphis. September 2021.

Harris, J, Acsadi, G. "Supporting Weak Respiratory Muscles" Pediatric Grand Rounds, Connecticut Children's. Hartford, CT. Jan, 2022.

Book Chapters

Murray N. Sinonasal Manifestations of Cystic Fibrosis. In: Otolaryngology and Facial Plastic Surgery, Medscape Reference (formerly eMedicine World Medical Library), eMedicine.medscape.com, Inc. 2022, 2015, 2011, 2005, 2000.

Peer Reviewed Publications

Middelberg LK, Leonard JC, Shi J, Aranda A, Brown JC, Cochran CL, Eastep K, Haasz M, Hoffmann JA, Koral A, Lamoshi A, Levitte S, Lo YHJ, Montminy T, Myer S, Novotny NM, Parrado RH, Ruan W, Stewart AM, Talathi S, Tavarez MM,**Townsend P**, Zaytsev J, Rudolph B. Warning Labels and High-Powered Magnet Exposures. Pediatrics. 2022 Nov 1;150(5):e2022056325. doi: 10.1542/peds.2022-056325.

Middelberg LK, Leonard JC, Shi J, Aranda A, Brown JC, Cochran CL, Eastep K, Gonzalez R, Haasz M, Herskovitz S, Hoffmann JA, Koral A, Lamoshi A, Levitte S, Lo YHJ, Montminy T, Novak I, Ng K, Novotny NM, Parrado RH, Ruan W, Shapiro J, Sinclair EM, Stewart AM, Talathi S, Tavarez MM, **Townsend P**, Zaytsev J, Rudolph B. High-Powered Magnet Exposures in Children: A Multi-Center Cohort Study. Pediatrics. 2022 Mar 1;149(3):e2021054543. doi: 10.1542/peds.2021-054543.

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Condren MM, **Kavanagh K, Mulholland B.** Caregiver Perceptions of a Tracheostomy "Go-Bag" Standardization Initiative. J Pediatr Health Care. 2022 Jul 5:S0891-5245(22)00143-2. doi: 10.1016/j.pedhc.2022.05.018. Epub ahead of print. PMID: 35803768.

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Claribel Vega, *Practice Coordinator*

Rebecca Strong, CPNP, APRN
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Barbara Mulholland, RN, BSN, CPN, CNRN
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Nicole Murray, MD
Katherine Kavanagh, MD
Amy Hughes, MD

Pediatric Gastroenterology
Bella Zeisler, MD
Corey Baker, MD
Victoria Grossi, DO
Peter Townsend, MD

Pediatric Pulmonology
Anne McLaughlin, MD
Craig Lapin, MD
Jamie Harris, MD

Pediatric Surgery
Leslie Knod, MD

Speech/Language Pathology
Sara Burnham, MA, CCC-SLP
Kamie Chapman, MS, CCC-SLP
Kathryn Fields, MS, CCC-SLP
Sara Burnham MS, CCC-SLP
Kerri Byron MS, CCC-SLP
Jodi Urzua MS, CCC-SLP

Family Support Clinician
Anna Maria Mennella, LMSW

Registered Dietician
Alexis Cascone, RD, CSP, CD-N

THE PEDIATRIC OBESITY CENTER FOR TREATMENT, RESEARCH & EDUCATION

The mission of the Pediatric Obesity Center is to be at the forefront of the care of families with obesity by providing innovative clinical service, cutting-edge research initiatives, and tailored education of the next generation of providers. In our second decade of providing care, we reflect on 2022.

CENTER OVERVIEW

The Pediatric Obesity Center comprises an interdisciplinary team of surgeons, pediatric psychologists, pediatricians, endocrinologists, dietitians, and physical therapists. Our team members are clinicians, researchers with funding at the national and local level, and educators to trainees, colleagues, and the community. We are dedicated to improving and creating new, effective, and culturally responsive treatment options for youth and their families. Our team addresses health care disparities with the families we serve and publishes our work and findings to expand the reach of our care. We lead as educators of the next generation of providers. Finally, we serve as content experts to the community on the many ways obesity impacts families and decreasing the myths of obesity that lead to stigma.

CLINICAL HIGHLIGHTS

The year of 2022 was one of continued growth and expansion as we continue to help families be their healthiest in our new post-pandemic world. Over the past three years, we have more than doubled referrals into our program, from 890 in 2019 to more than 2,000 in 2022, and started to receive more out-of-state referrals. Our multidisciplinary team allows us to treat the whole child and tailor treatment to the unique needs of each family we serve. The Pediatric Obesity Center grew in 2022 in both staff and locations. We welcomed new team members: pediatric psychologist Alicia MacDougall, PsyD; pediatrician Robert Rosenberg, MD; dietitian Valerie Becker, MS, RDN, CDN; and physician assistant Anthony Angotta, PA-C. Our program increased services in Farmington and expanded to Fairfield County in anticipation of the Westport opening in December of 2022. We experienced a record number of surgeries in 2022 in close partnership with Hartford Healthcare and their bariatric surgeons, Dr. Darren Tishler and Dr. Pavlos Papasavas. Our program maintained our national accreditation as a Center of Excellence for Adolescent Bariatric Surgery. As part of our accreditation, we completed several quality improvement projects all focused on how we can continue to provide the best, and safest, care.

RESEARCH

Our missions remains the advancement of science to improve care for the patients and families we serve. The Pediatric Obesity Center maintains 12 IRB approved studies targeted at improving care for youth with obesity and their families. Christine Finck, MD, Surgeon-in-Chief, oversees work on the “Evaluation of Increased Susceptibility of Obese Pediatric Patients to SARS Co-V-2 infection” project, funded through the American Society for Bariatric and Metabolic Surgery. Melissa Santos, PhD, clinical director of the Pediatric Obesity Center, leads her National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)/the National Institutes of Health (NIH) clinical trial of a cognitive behavioral intervention for youth with comorbid obesity and chronic pain. In addition, Dr. Santos continued work on her surgical innovation grant from Connecticut Children’s to examine pain, mood, activity, and eating in the immediate times following bariatric surgery. Drs. Finck and Santos, along with program endocrinologist, Priya Phulwani, MD, received grant funding from the American Diabetes Association to develop a care pathway for transgender youth with obesity. Along with her collaborators, Dr. Santos also received research funding from the NIH, SAMHSA, the Tow Foundation, and the Connecticut Health Foundation to advance further science into behavioral health and health disparities. Obesity program team members presented throughout the year at national conferences, including

the ASMBS Conference, the American Psychological Association Convention, and the Society of Pediatrics Psychology Annual Conference. Dr. Santos serves on the governance board of the Pediatric Obesity Weight Evaluation Registry (POWER), a national registry for childhood obesity. Dr. Santos is also leading a national work group that is writing guidelines for the psychological evaluation of adolescents undergoing bariatric surgery. Our staff has been asked to serve on data safety monitoring boards for large NIH studies (Finck and Santos) as well as on an NIH study section (Santos). Dr. Santos continues her role on the board of directors for the Society of Pediatric Psychology as President Elect. Our clinical staff members provide ad hoc reviewers for relevant journals and published significantly throughout the year.

EDUCATION

The pediatric obesity center trains the next generation of obesity providers as part of its mission. Through clinical placements, learners were instrumental in our ability to provide tailored treatment to families. In research, learners helped us to advance science, including publishing on a unique case outlier that we hope will allow other programs to help children post-bariatric surgery. Our team presented widely at pediatrician offices and lunch-and-learns on best treatment guidelines for pediatric obesity. In 2023, we look forward to bringing on our first research fellow dedicated to education and advancing obesity science. In addition, Drs. Finck and Santos, in collaboration with Sharon Smith, MD from the Emergency Department, are working on national funding to create a consortium for the education of the next generation of obesity providers.

SUMMARY

As the Pediatric Obesity Center entered its second decade of operation, we remain committed to our mission and vision of eliminating childhood obesity, providing innovative care options, eliminating stigma, and creating the healthiest generation of kids. With an eye to the future and examining even more ways we can help families, our future is bright!

GRANTS

- Finck: ASMBS Research Grant
- Santos & Finck: American Diabetes Association Grant on transgender youth and obesity
- Santos: NIH Grant on Circadian Rhythm
- Santos: Cardinal Grant
- Santos: SAMHSA Grant
- Santos: Connecticut Health Foundation Grant
- Santos: Tow Foundation Grant
- Santos: Surgery Innovation Grant
- Santos: CVS foundation

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Chen, J., Zhang, Y., Barandouzi, Z.A., Xu, W., Feng, B., Chon, K., **Santos, M.**, Starkweather, A. and Cong, X., 2022. Somatosensory Profiles Differentiate Pain and Psychophysiological Symptoms Among Young Adults With Irritable Bowel Syndrome: A Cluster Analysis. The Clinical Journal of Pain, 38(7), pp.492-501.

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STAFF

Melissa Santos, PhD, C*linical Director, Pediatric Obesity Center*

Darlene Abbate, APRN
Anthony Angotta, PA
Valerie Becker, RD
Haley Duscha, RD
Christine Finck, MD, FACS
Elena Gandiaga, PA *(departed summer 2022)*
James Healy, MD
Vanessa Laurent, PhD
Alicia MacDougall, PsyD
Priya Phulwani, MD
Michael Reiss, PsyD
Robert Rosenberg, MD
Jessica Williams, MD

DEPARTMENTS

PATHOLOGY & LABORATORY MEDICINE

It was another productive and busy year for the Department of Pathology and Laboratory Medicine. There was a 1.1% percent increase in testing volume from 2021 to 2022. The most significant changes were seen in Anatomic Pathology as well as Molecular Pathology and Special Hematology.

In Anatomic Pathology, we continue to recruit for pathologists with subspecialty training. We recruited Dr. Nan Ring, who is dual-boarded in Dermatology and Dermatopathology, having trained at Yale University and Dr. Todd Sheridan, trained at Johns Hopkins Hospital. Dr. Toni El-Jabbour, gastrointestinal/liver pathologist, who trained at Mt. Sinai, NYC and Memorial Sloan Cancer Center will join us in July 2023. Additionally, Dr. Vandita Johari will join us as a Hematopathologist and supporting Transfusion Medicine. Dr. Johari is currently the Director of Clinical Pathology at Baystate Medical Center, MA and holds leadership roles nationally including the College of American Pathologists (CAP). We also recruited for an Associate Director in molecular pathology, Dr. Yong Shi, who joined January 1, 2023. Recruitments in the recent past also have been successful, including Dr. Robert Pantaleon Vasquez, Krzysztof Glomski, MD, and Ronald Araneta, MD, have all been integrated into the department.

We continue to support the Cytology Fine Needle Aspiration (FNA) needs of Connecticut Children's. Fiscal year (FY) 2022 Cytology volume for Connecticut Children's decreased approximately 22% in FY 2022 with a total volume of 105 cytology specimens. Of those, there were 24 rapid onsite evaluations performed, representing a slight decrease of 2 cases from FY2021.

Surgical specimen volume, including dermatology samples, decreased in FY2022. There were a total of 3,155 cases which represented a 6% decrease from FY2021. Renal tissue triage was performed for 25 patients in FY2022, also a slight decrease of 2 cases below those in FY2021.

As in past years, the Department of Pathology and Laboratory Medicine (DPLM) at Hartford Hospital provided Pathology Services for Connecticut Children's, including on-site frozen sections; handling of anatomic and clinical pathology specimens including neuropathology and cytopathology; hematopathology services; performance of pediatric autopsies; and pathology support for multiple interdisciplinary conferences including Pediatric Solid Tumor Board, Pediatric Neuropathology Tumor Board, Pediatric Hematopathology conference, Pediatric GI pathology conference, Pediatric Thyroid Program meeting, and Neonatal/Perinatal conference. In addition, our department performs triaging of pediatric tumors for Children Oncology Group, assessment and triaging of pediatric medical renal biopsies, and provides samples of pediatric tumors for Connecticut Children's Biorepository Bank. There were a total of 3,155 cases which represented a 6% decrease from FY2021. Renal tissue triage was performed for 25 patients in FY2022, also a slight decrease of 2 cases below those in FY2021.

We continue to expand the laboratory offerings in immunohistochemistry and molecular pathology, expanding markers used for diagnostic pathology and ones that have therapeutic implications.

NEW PROGRAMS

Anatomic Pathology

As part of the standardization across the Hartford HealthCare (HHC) system, weekly meetings have resulted in many changes and improvements across all the HHC hospitals and a few examples include:

1. Standardize the format and information provided in the headers on Pathology Reports
2. Backus Histology consolidation to Hartford Hospital
3. Standardize cutting/staining and reporting of Temporal Artery Biopsies
4. Standardize the handling of Creutzfeldt-Jakob disease (CJD) cytology specimens and developing a system wide CJD policy (in process)
5. Standardize the process for how Non-Gynecological cytology results are integrated and reported into EPIC

We are continuing research study collaborating with a vendor (Cytoveris) and the HHC Breast Surgery Division to use spectroscopy in evaluation of gross margins intraoperatively. This is now being evaluated for genitourinary tumors. Further, there are collaborative studies ongoing with The Jackson Laboratory (JAX) in the area of digital pathology and correlating that with molecular data. Slides from cases of colorectal cancer with existing single cell RNA-seq testing (previously performed at Moffitt) have been scanned for assessment by AI methods (Inception, Hover-Net). Plans for performance of spatial transcriptomics on many of the cases are underway, pending acquisition of instrumentation by JAX for performing ST on Formalin-Fixed Paraffin Embedded (FFPE) tissue. The study will assess combined features from all three methodologies, with extended clinical follow-up data over 10 years.

Additionally, we have an approved Institutional Review Board (IRB) for evaluating an artificial intelligence (AI) tool in diagnosis of breast cancer. This is in collaboration with Ibex and HHC innovation to include both retrospective validation and prospective studies. Some of this research data is being presented in February 2023 at the international Pathology meeting in New Orleans. A new study using the Ibex AI tool is getting started to evaluate its utility in prostate biopsies.

Informatics

A lot of background work got put into implementation of expanding the scope and capability of whole slide digital scanning. Various vendors were evaluated, information technology leadership was engaged, and a large capacity scanner purchased. The scanner has been installed and validated. The above mentioned AI project is being performed utilizing the scanner. This scanner is also being utilized for the research study assessing spatial transcriptomics in mouse patient-derived xenograft (PDX) melanoma samples, where the scanned Hematoxylin and eosin stain (H&E) slides are also assessed by AI methods.

LABORATORY MEDICINE

Main LaboratorySpecimen Volumes & Growth:

Chemistry:

Hematology:

TRANSFUSION MEDICINE/BLOOD BANK

In fiscal year 2021, the transfusion service began Transfusion Service/Blood Bank showed comparable annual patient Type and Screens (TS) but a slight decrease in total components administered. This is despite a higher number of perfusion log-book cases (major CT surgeries, transplants and Extracorporeal membrane oxygenation (ECMO) procedures involving perfusion services) year-over-year (1,761 in FY2022 versus 1,728 in FY2021). Additionally, while full trauma activations increased slightly year-over-year, the percentage of penetrating versus blunt traumas was significantly higher in FY2022.

The decrease in TOTAL PLASMA TX (from 5,939 to 4,415 y-o-y) is largely due to more prudent use of cryoprecipitate. Increased awareness, education, and monitoring by cardiac anesthesia is largely responsible for this favorable trend. The small but meaningful year-over-year decrease of 600 red cells is attributed to Patient Blood Management efforts such as the "Why Give 2 When 1 Will Do?" initiative.

TRANSFUSION SERVICE MONTHLY REPORT: FY2022															
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	FY22 Total	FY21 Total
PERIOD	1	2	3	4	5	6	7	8	9	10	11	12		
RBC TX	1586	1482	1420	1355	1444	1426	1416	1668	1444	1452	1456	1457		
TOTAL RBC TX	1586	1482	1420	1355	1444	1426	1416	1668	1444	1452	1456	1457	17606	18109
Plasma	316	267	206	183	216	217	224	311	210	205	243	207		
CRYO	236	194	129	98	141	140	125	141	119	79	86	122		
TOTAL PLASMA TX	552	461	335	281	357	357	349	452	329	284	329	329	4415	5939
Platelets SDP/Prepool	415	394	347	344	376	382	360	526	448	447	431	311		
TOTAL PLT TX	415	394	347	344	376	382	360	526	448	447	431	311	4781	4885
TOTAL COMPONENTS	2553	2337	2102	1980	2177	2165	2125	2646	2221	2183	2216	2097	26802	28933
TS	3713	3580	3503	3463	3397	3703	3526	3848	3847	3837	3966	3807	44190	45542

UPDATES/NEW EQUIPMENT/LAB STANDARDIZATION

Laboratory teams by each discipline participated in system-wide standardizations of major equipment.

On June 27, Hematology implementation of Sysmex XN9100 (including integrated DI-60 Cellavision for digital microscopy) – Implemented in conjunction with Caresphere (Sysmex Middleware) to replace the discontinued Work Area Manager (WAM) Middleware as part of a system initiative.

Implementation of 2nd Roche Cobas 8000 instrument at Hartford Hospital on January 11th, added more capacity and throughput along with serum indices for automated analysis of interference for hemolysis, lipemia and icterus. A New Fentanyl screen assay go-live in October significantly improved concordance with confirmatory method compared to our previous assay.

System wide standardization and implementation of solid-phase immunohematology testing was approved and updated IMMUCOR Neo and Echo instruments were installed at the HH Blood Bank.

Client services department at HH is providing central call-back for all of Hartford Hospital's Ancillary Lab Microbiology, Backus Hospital, and Charlotte Hungerford Hospital. Women's Health is pending. Flow cytometry testing across all sites was consolidated in May 2022.

We have also had ongoing success of the Categorical MLS program in training and credentialing new staff. New Medical Laboratory Scientist (MLS) and Medical Laboratory Technician (MLT) hires. Success in recruiting students who have rotated here to become technologists.

POINT OF CARE

A Point of Care (POC) 12 Panel Multi-Drug Test Cup for Urine Toxicology Screening was implemented at the Community Care Clinic on Jefferson Street in May of 2022. The annual volume for this test was 218.

The Telcor information system for POC testing went live in April of 2022.

Annual volumes for POC testing at HH sites are summarized below:

TEST	INSTRUMENT KIT	PT PROGRAM	ANNUAL VOLUME	COMPLEXITY
Activated Clotting Times	i-STAT	CAP CT	20,555	MODERATE
Whole Blood Glucose	Freestyle Precision Pro		681,795	WAIVED
Specific Gravity	Refractometer	CAP-CM	205	MODERATE
Occult Blood	Hemaprompt		1,030	WAIVED
Pregnancy Testing	Cardinal Rapid Test Cassette		19,133	WAIVED
Dipstick Urinalysis	Multistick 10SG Clinitek		15,056	WAIVED
Fern Test	Microscope	CAP-CMP	200	PPM
KOH, Wet Preps	Microscope	CAP CMP	460	PPM
Blood Gas	i-STAT	CAP AQ2	18,899	MODERATE
NA,	i-STAT	CAP AQ2	21,128	MODERATE
K	i-STAT	CAP AQ2	21,911	MODERATE
BUN	i-STAT	CAP AQ2	2190	MODERATE
CL	i-STAT	CAP AQ2	2165	MODERATE
Creatinine	i-STAT	CAP AQ2	2,459	MODERATE
TCO2	i-STAT	CAP AQ2	2163	MODERATE
HCT	i-STAT	CAP AQ2	20,395	MODERATE
Glucose	i-STAT	CAP AQ2	18,899	MODERATE
iCa	i-STAT	CAP AQ2	18,565	MODERATE
02 Saturation	AVOXimeter	CAP - SO	6,145	MODERATE
HGB A1C	DCA Vantage		2,780	WAIVED
PT INR	i-STAT	CAP WP3	1,717	MODERATE
BNP	i-STAT	CAP-BNP	1,671	MODERATE
Urine Microalbumin	Hemocue		380	WAIVED
P2Y12	Verify Now	CAP-PIA	300	MODERATE
Rapid Covid	Binax Now		5,955	WAIVED

MICROBIOLOGY

Over the course of FY2022, the HHC Ancillary Microbiology Laboratory at Newington implemented the following instruments and/or assays as well as continued forward with COVID-19 testing initiatives to include performing 250,006 SARS-CoV-2 NAA (PCR) tests during FY22. Hartford Hospital STAT Microbiology lab performed 18,471 SARS-CoV-2, Influenza A&B, RSV tests during FY22.

1. Implemented abnormal flagging of positive Blood Parasite smears, Ehrlichia, Pinworm, Tick ID, Mycology and AFB positive smears by the implementation of an additional "micro other" tab in Sunquest, which is manually resulted by technologists. This was a request from Infectious Disease clinicians. Initial go-live 3/29/22. O&P and Cyclospora/Isospora subsequently went live on 4/19/22.
2. Verified and implemented, Mycoplasma genitalium, rRNA, TMA assay (08/16/2022). It is intended to aid in the diagnosis of urogenital infections in patients suspected of M. genitalium infection.
3. CMV Viral Load testing brought back in-house (go-live 9/2022) on the Panther.
4. Cepheid SARS-CoV-2 singleplex Plus 07/17/2022 go-live in Epic. Provided standardized validation plan for affiliate hospitals that have a Cepheid instrument. All hospitals (except Plainfield) live by 08/08/2022 with Hartford Hospital Ancillary Lab (HHAL) providing testing in the interim. Worked with Epic to facilitate relaunch with display of process instructions.
5. BioRad Geenius HIV1/2 differentiation & confirmation assay brought in-house (03-09-2022). Allows same day confirmation and differentiation for patients that test HIV-1/2 Ab/Ag reactive. As a send out, this test took up to 10 days to result severely delaying patient management.
6. 2nd torch instrument installed at HHAL, verified for ME panel, GI panel, RP2.1 panel, and BCID2 panel, and interfaced (go-live 09/07/2022).
7. Implemented automatic Hepatitis C Antibody Reflex to HCV NAA if the Ab is positive on 01/31/2022 to comply with CDC and CT DPH recommendation in order to provide an efficient, patient centered approach that will reduce the number of patients that may be lost to follow-up. The specimen labels were updated to indicate (1) Red Top Serum Separator tube and (2) Lavender Top EDTA tube collection providing a tube type reminder to collectors.
8. Varicella zoster virus (VZV) RT-PCR (Sunquest Code: VZVNAA) was validated as a laboratory developed test using ASR primers/probes on the Luminex Aries. Began offering on BAL specimens (05/2022).
9. Total-fix one vial (Black Top, Med-Chem) ova and parasite (O&P) collection kit instead of a two-vial Formalin and PVA kit was verified and HHAL began accepting (11/02/2021). This reduces hazardous chemical waste streams i.e. formalin and PVA, which will reduce exposures to colleagues transferring stool into the O&P transport and stability vial. Additional communication with affiliate storerooms occurred 03/31/2022, indicating to deplete the two-vial kits and replenish with the Total-fix one vial.
10. Bugsy Infection Control and Antimicrobial Stewardship Module: kickoff meeting December 17, 2021. Submitted all State reportable organisms by test code and organism/result to EPIC build team (4/2022). Multidrug resistant organism (MDRO) spreadsheet was created from the updated MDRO policy (05/2022) based on the microbiology resulting organism/antibiotic codes. The antibiogram assessment was performed for Bugsy (7/2022), with ongoing review to ensure accuracy along with updates to location information (ongoing).
11. Standardized Job Aid: Laboratory Testing for Infectious Causes of Diarrhea sent out 03-09-2022. This was to provide better ED awareness of tests offered. Presented to and approved by Pathology Council.
12. In order to improve compliance with Healthcare-associated diarrhea testing practices for laboratory diagnosis of toxigenic *Clostridium difficile*, in 03/2022 C. *difficile* (toxin A/B) was removed from the Gastrointestinal Pathogens PCR Panel (GIPCR) target menu.
13. Microbiology Ordering Standardization for Operating Rooms (OR). During CY22, Specimen Source to Specimen Type Mapping to orderable Microbiology Tests was mapped; Optime Navigator was updated with the data from the mapping project, and an education document was drafted. Build and testing of the interface, infrastructure assessment for all operating rooms across HHC, and regression testing is ongoing. Phase I go-live is planned for March 07, 2023, which will include BJI (Bone and Joint Institute) for labeling of microbiology specimens with a test specific label.

DEPARTMENT GOALS

Plans to renovate the frozen section room to meet demand got underway as planned but were delayed due to the Covid-19 pandemic. The renovation and move to the new frozen section room was completed successfully, which now includes a state-of-the-art cutting stations and expanded work space.

In Anatomic Pathology, some of the goals include: subspecialization of review and sign-out of surgical and biopsy specimens, Standardize monitoring of TRT/TIF/CIT of specimens to meet new CAP requirements and communication of these changes to clinical teams, Standardize autopsy paperwork and process of receiving autopsy requests.

The Molecular Pathology department is currently in validation to convert existing custom solid tumor NGS panels to Pan Solid Tumor RNA/DNA panels which will expand NGS content to include 137 gene targets on the FusionPlex (RNA) panel and 185 gene targets on the VariantPlex (DNA) panel. The expanded FusionPlex panel includes sarcoma panel content. Additionally, a new rapid myeloid panel for use on the MassARRAY system is in validation. This panel includes 67 assays

covering 46 variants spread over the genes CALR, IDH1, IDH2, JAK2, KRAS, MPL, NPM1, and NRAS.

STAFF CHANGES & PLANNED RECRUITMENT

We successfully recruited Drs. Nan Ring, Todd Sheridan, and Toni El-Jabbour in anatomic pathology and Dr. Vandita Johari in clinical pathology.

Pertinent subspecialization

1. There is a wide range of subspecialization in the department broadly as Anatomic and Clinical Pathology. Within Anatomic Pathology there is subspecialization as follows: neuropathology (3), cytopathology (6), pediatric pathology (1), molecular pathology (2), and dermatopathology (1). Additional members within Anatomic Pathology have specialty skills in organ systems for which there is no board certification. These include breast pathology, GI pathology, GU pathology, gynecologic pathology, pulmonary pathology, head and neck pathology, and soft tissue/bone tumor pathology. Additionally four members of the department are board-certified in hematopathology to provide support in Hematology and Hematopathology.
2. In other areas of Clinical Pathology, two staff members provide support in transfusion medicine. One is board-certified in transfusion medicine and the other has specialty expertise in coagulation. There is one PhD board-certified member in each of the following disciplines: microbiology, chemistry, molecular pathology/cytogenetics, and immunopathology.

PUBLICATIONS

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STAFF

Srinivas Mandavilli, MD, *Head of Pathology & Laboratory Medicine*

Ronald Araneta, M.D.
Margaret Assaad, M.D.
Fabiola Balarezo, M.D., *Program Director of residency program*
Richard Cartun, MS, Ph.D., *Retired in 2022*
Joseph A. DiGiuseppe, M.D., Ph.D., *Division Director, Hematopathology*
Jonathan Earle, M.D.
Torsten Ehrig, M.D.
Mary Fiel-Gan, M.D., *Director, Anatomic Pathology*
Krzysztof Glomski, M.D., Ph.D., *Director of Immunohistochemistry Lab*
Saverio Ligato, M.D.
Gregory S. Makowski, Ph.D., DABCC, FACB, *Vice-President of Laboratory Services, HHC*
Laila Mnayer, Ph.D., *Director of Molecular Pathology*
Nan Ring, M.D.
Amity Roberts, Ph.D., D (ABMM), *Director of Microbiology*
Peter Shen, M.D.
Bradford Sherburne, M.D., *Director of Transfusion Medicine; Medical Director of Laboratory*
Todd Sheridan, M.D.
Yong Shi, Ph.D.
Xianyuan Song, MD, Ph.D.
Dean Uphoff, M.D.
Theresa Voytek, M.D., *Director of Cytopathology*

RADIOLOGY

The Department of Radiology provides a full spectrum of imaging services and minimally invasive image-guided procedures to all clinical divisions at Connecticut Children's. The department participates in the Image Gently Alliance, seeking to minimize radiation while utilizing best practice standards, and utilizes American College of Radiology (ACR) Appropriateness Criteria® to provide optimal diagnostic imaging for children. Our imaging modalities range from digital radiography to state-of-the-art magnetic resonance. The department is accredited through the American College of Radiology in ultrasound, CT, and MRI. The imaging team, including Radiologists and Advanced Practice Providers, interpret and perform these diagnostic and interventional services twenty-four hours a day, providing uninterrupted care to the children we treat.

Our priority is always focused on balancing optimal image quality with dose reduction strategies throughout the department. We are assisted in achieving these goals through the use of digital radiography and low-dose imaging equipment, such as the EOS scoliosis technology in our orthopedic department.

The Ultrasound division offers extended appointments at our Hartford campus on weekdays and on the weekends to meet the needs of our patients and their families. Ultrasound imaging by our subspecialty-trained sonographers is also available at our Farmington, Danbury, and Westport locations, allowing the community greater access to these expertly performed examinations in a setting that is close to home. We also employ a new technique, contrast-enhanced ultrasound using microsphere bubbles, to evaluate vesicoureteral reflux or characterization of hepatic abnormalities without the need for radiation or sedation.

Fluoroscopy is another important tool for diagnosis and procedural guidance in a variety of conditions in children. This examination is performed at the Hartford campus using flat-panel technology with pulsed fluoroscopy, allowing for significant radiation dose reduction with improved image quality. This equipment is in alignment with our philosophy to "Image Gently and Step Lightly" to minimize a patient's exposure to ionizing radiation. This goal is facilitated by constant monitoring and technical adjustments with state-of-the-art dose monitoring software.

Our department is currently upgrading our CT technology to an ultrafast scanner which essentially "freezes" the rapid motion of structures such as the heart or the lungs of children and young adults. The CT scanner speed, quality, and low dose are all essential in the pediatric setting and optimized with advanced intelligent deep learning reconstruction and spectral imaging. Rapid acquisition speeds help to minimize the need for sedation and anesthesia when performing these exams. Every child is different, and our CT scanning techniques are monitored to ensure dose optimization for children of all sizes. We continue to participate in the American College of Radiology Dose Index Registry, which enables us to benchmark our CT doses with other facilities.

Image-guided procedures are performed on site at Connecticut Children's with support from the Divisions of Anesthesia and Sedation, improving delivery of care in a pediatric-friendly environment. Interventional care has been enhanced with the addition of a hybrid operating room as well as advanced CT fluoroscopy.

The MRI department offers state-of-the-art facilities with both 1.5T and 3T field strength units at Connecticut Children's Hartford campus. The 3T MRI system provides advanced cardiac and neurologic imaging, including functional brain MRI. Our advanced imaging protocols also include quantitative liver imaging, whole body MRI, and functional imaging of the urinary tract. Fetal MRI supports the mission of our fetal surgery division. The ability to provide film and music streaming during the examinations allows children and our adult patients to undergo their MRI studies comfortably without sedation when possible. For more technically challenging or lengthy studies, the Sedation Service and the Division of Anesthesia offer outstanding resources to help our children undergo MRI or CT examinations. A child life specialist will be joining our team to enhance the patient and family experience.

Education is a major component of the activities of the Division of Pediatric Radiology. Radiology residents from Hartford Hospital, University of Connecticut, and St. Vincent's Hospital Bridgeport receive pediatric radiology training in our department. We also host elective rotations for UConn pediatric residents, pediatric subspecialty fellows, and medical students. Additionally, the department engages in the education of sonography and radiography technology students. Didactic lectures and case presentations provide teaching to our residents, medical students, and radiology staff. Clinical care and teaching conferences are held in collaboration with the other divisions throughout the hospital. Through these activities, the Division of Radiology seeks to deliver optimized, patient- and family-centered care to the children we serve.

PUBLICATIONS

Lepus CA, Moote DJ, Bao S, Mosha MH, Hyams JS. Simplified Magnetic Resonance Index ofActivity Is Useful for Terminal Ileal but not Colonic Disease in Pediatric Crohn Disease. J Pediatr Gastroenterol Nutr. 2022 May 1;74(5):610-616. doi: 10.1097/MPG.0000000000003412. PMID: 35149649.

Anderson K, Moss K, Campbell B, Moote D, Kakazu K, Hyams, J. Follicular Dendritic Cell Sarcoma in a Patient with Adolescent-Onset Crohn's Disease Exposed to Multiple Immunomodulator and Biologic Therapies. JPGN Reports 3(3):p e231, August 2022. doi:10.1097/PG9.0000000000000231.

Sun RC, Cheng LS, Shah RH, Lohmann P, Cortes-Santiago N, Ketwaroo P, Keswani SG, King A, Lee TC. Case Report: The Medical and Surgical Management of an Infant With Extreme Prematurity and Fetus-In Fetu. Front Surg. 2022 Mar 4;9:856837. doi: 10.3389/fsurg.2022.856837. eCollection 2022. PMID: 35310432.

Sanz Cortes M, Tidwell E, Doughty C, Ketwaroo P, Sundgren N, Belfort M, Simulation-based clinical rehearsal in the preparation for delivery of conjoined twins. Ultrasound Obstet Gynecol 2022 Nov 9. https://doi.org/10.1002/uog.26115

POSTER

Kathleen Morrisroe, Naveed Hussain, Douglas Moote, Katerina Dukleska. Ultrasonography for the Diagnosis of Segmental Volvulus in Premature Neonates: A Case Series. Florida Chapter of American Academy of Pediatrics, September 3, 2022.

STAFF

Douglas Moote, MD, *Division Head*

Shanshan Bao, MD
Director of Body Magnetic Resonance Imaging

Johanna Chang, MD
Assistant Director of Body Magnetic Resonance Imaging

Pamela Ketwaroo, MD
Director of Fetal MRI

Anna Golja
Pediatric Radiology and Pediatric Neuroradiology

Rosario Carrasco, MD
Pediatric Radiology

Frederick Conard, MD
Body Imaging and Ultrasound

Pallavi Nadendla, MD
Director of Interventional Radiology

Prasanta Karak, MD
Director of Nuclear Medicine and Molecular Imaging

Ryan Kaliney, MD
Director of Musculoskeletal Imaging

Gregory Wrubel, MD
Director of Neuroradiology

Robert Hynecek, MD
Director of Functional Neuroimaging

Steven Lee, MD
Chief of Radiology, Hartford Hospital

David Zimmerman, MD
Director of Head and Neck Imaging

Martin Ollenschleger, MD
Director of Neurointerventional Radiology

Michael O'Loughlin, MD
Body Magnetic Resonance Imaging

Molly Mable, PA-C, RT(R)
Fluoroscopy and Interventional Radiology


ADVERTENCIA

ACADEMIC AFFAIRS & RESEARCH

Connecticut Children's strives to encourage, support, and recognize the academic activities and achievements of its Departments of Pediatrics and Surgery faculty and staff. The mission of our Academic Affairs office is to empower faculty, medical learners, and community providers to succeed in their academic endeavors, professional development, research, and quality improvement pursuits by providing critical and timely administrative, technical, and educational support.

Once again, this annual report is a wonderful reflection of the professionalism, skill, adaptability, and resilience across all of our academic teams. What the 2022 report cannot easily illustrate is the energy and enthusiasm that our team members bring to work with them each day, and their heartfelt dedication that allows us to steadily advance our institutional mission of creating hope for our patients and their families through research and the education of tomorrow's pediatric medical experts.

Our successes were plenty over the last year. We made great strides on our Journey to Excellence, including the approval of our Connecticut Children's Research Institute (CCRI) five year plan by our Board of Directors, and their agreement to direct at least $20M of philanthropic dollars to the CCRI over the next five years. The five-year institutional strategic plan introduced at the end of the year, Health Compass 2027, once again highlighted research and innovation as one of its main areas of focus. What resulted from everyone's hard work can be seen in the many successes and achievements listed in the pages that follow. We received the approval of the Accreditation Council for Graduate Medical Education (ACGME) for a new fellowship in Pediatric Hospital Medicine; and we celebrated 19 new faculty academic promotions. One of our senior faculty members was granted professor emeritus status in the Department of Pediatrics at the University of Connecticut School of Medicine.

The wonderful work detailed throughout the academic section of our annual report is directly attributable to our team members and to the steadfast support of our leaders over the course of an extremely busy and deeply rewarding year. My sincere thanks to the following leaders and colleagues for their dedication, hard work and leadership that enabled us to achieve so much meaningful work; Ali Borgert, MRA, MBA, CRA, Neal Breen, MBA, Michael Brimacombe, PhD, Stacy Chandna, MS, CIP, Danielle Chenard, MPH, Marianne Custer, BS, C-TAGME, Kim Davey, MBA, James Hansberger, PhD, Kathy Herbst, MS, Jessica Hollenbach, PhD, James Gallagher, JD, Garry Lapidus, PA-C, MPH, Esperanza Lesmes, Carolyn Macica, PhD, Hendriana Nielsen, RD, RN, Alison Oville, CCRC, CHRC, James Santanelli, MS, MPH, Julie Vigil, MS, MPH, FACHE, CHC, CHRC, and Carrie Zevetchin, MS. Individually and collectively, this leadership team guided our academic team members with confidence, empathy, and focus. Of course, for guiding and inspiring all of us, my sincere thanks to Surgeon-in-Chief Christine Finck, MD, FACS, and Chair, Department of Pediatrics & Physician-in-Chief Juan C. Salazar, MD, MPH, for their continued exemplary leadership, expertise, and support.

There is a moment in every leader's journey when words such as pride and gratitude no longer adequately express the sentiments brought on by the achievements and contributions of the team. 2022 leaves me and hopefully all of us speechless and yet content in the knowledge of all that has been accomplished....and excited for all that still lies ahead.

Annamarie Beaulieu, MPH, BBA
Vice President, Academic Affairs,
Connecticut Children's Research Institute

ACADEMIC ADMINISTRATION

The Department of Pediatrics is fortunate to have a very strong presence and administrative support on both the University of Connecticut Health Center (UConn Health) and Connecticut Children's campuses. With faculty based at multiple institutions, administration of the Department of Pediatrics is comprised of centrally managed academic functions for affiliated faculty, and decentralized business and research management functions for all faculty.

In collaboration with the offices of both Pediatrics and Surgery Chair's staffed at Connecticut Children's, Esperanza Lesmes manages academic appointments, reappointments and promotions; coordinates the academic merit plan for affiliated faculty; the renewal of academic faculty contracts; and in collaboration with Marianne Custer, Administrative Director Medical Education (UME, GME, CME); James Harnsberger, Scientific Grant Writer and Brett Maddux, Executive Associate for Dr. Juan C. Salazar, and Senior Visual Designer Sally Knowles, produces the Departments of Pediatrics and Surgical Subspecialties Annual Report. The administrative staff in the chair's office maintains close communication with the Department of Pediatrics Academic Office at UConn Health.

Julie Vigil, MS, MPH, Administrative Director of the Department of Pediatrics and her team at UConn Health, manage the academic budgets, including in-residence faculty, tenured faculty support, components of the residency budget, discretionary accounts, and the UConn Health-based sponsored programs. The administrative team at UConn Health consists of Administrative Officer, **Laurie Papacs, MA, MBA** and Administrative Program Assistant 2, **Satophia Brown**.

FACULTY PROMOTIONS

Paul H. Dworkin, MD, was granted professor emeritus status. Olga Toro-Salazar, MD, Catherine Wiley, MD promoted to Professor of Pediatrics and Brendan Campbell, MD promoted to Professor of Surgery. Felice Heller, MD and Catherine Sullivan were promoted to Associate Clinical Professor. Natalie Bezler, MD, Donna Boruchov, MD, Brooke Davey, MD, Richelle deMayo, MD, Shabnam Lainwala, MD, Carla Pruden, MD, David Sink, MD, Heather Tory, MD, Jennifer Trzaski, MD, Alicia Wang, MD and Bella Zeisler, MD, promoted to Associate Professor of Pediatrics. Karen Loechner, MD, granted an appointment as Associate Professor. Brooke E. Bohn, MD, promoted to Assistant Professor.

FACULTY APPOINTMENTS

New Faculty Members

Barbara Snyder, MD, Adolescent Medicine; Kenneth Warner, MD, Cardiovascular Surgery; Ada Both, MD, Child Abuse SCAN; Laleh Ardeshirpour, MD, Neetu Krishnan, MD; Juliann Reardon, MD, Misha Sodhi, MD, Endocrinology and Diabetes; Owen Kahn, MD, Emergency Medicine; Timothy Crombleholme, MD; Fetal Medicine; Erin Barthel, MD, Evan Cantor, MD, Hematology-Oncology; Ebla Abd Alrahmam, MD; Amanda Begley, MD, Karla Dixon, MD (NYCMP); Emily Hogeland, MD, Sarah Sanders, MD, Hospital Medicine; Ian Michelow, MD, Infectious Diseases and Immunology; James Edward, MD, Usha Prasad, DO, Pattnaik Priyam, MD, Neonatal-Perinatal Medicine; Jualiann Reardon, MD, Nephrology; Mariana Flores-Pimentel, MD, Robert Spector, MD, Ophthalmology; Booke Bohn, MD; Ashok Kottarathara, MD, Danielle Keebaugh, MD, Primary Care, General Pediatrics; Haviva Veler, MD, Pulmonary Medicine; Jessica Fennell, MD, Rheumatology.

Joint Appointments

Katherine M. Bernier Carney, PhD, Sharon Casavant, PhD, Jean S. Coffey, PhD, Eileen M. Condon, PhD, Mallory Perry-Eaddy, PhD from the School of Nursing, UConn Health; Robert Aseltine, PhD, School of Dental Medicine UConn School of Medicine.

Community-based Faculty

Raul Arguello, MD, Danbury Hospital; Elinor Coloccia, PsyD, the Village for Families and Children; Daniel Keebaugh, MD, Elizabeth Solan, MD, Rena L. Aroestry, MD, Margaret K. Ikeda, MD, Jill Bernstein, MD from the Clinical Longitudinal Immersion in the Community (CLIC), UConn Health.

MEDICAL EDUCATION

Our institution was awarded the American Academy of Pediatrics Rome Visiting Professorship (VP). The Rome VP will focus on developing a structural competency curriculum for the pediatric residency program. Dr. Rhea Boyd from the Palo Alto Foundation was our first visiting professor. She presented Grand Rounds and conducted a mentorship session during the Rome Visiting Professorship on Health Equity & Advocacy.

Connecticut Children's and the University of Connecticut School of Medicine were proud to honor the lifetime contributions of our former Pediatric Residency Director and current Senior Advisor to the Chair of Pediatrics, Dr. Edwin Zalneraitis. Dr. Zalneraitis, known lovingly as Dr. Z, has been a foundational leader in our organization and helped lead our residency program since the founding of our organization in 1996.

On September 15, 2022, medical education and physician leaders from throughout the UConn School of Medicine gathered to celebrate Dr. Z's many accomplishments and contributions to pediatric education. We were honored to be joined by Dean Bruce T. Liang, Dr. Paul Dworkin, Dr. John Raye, Dr. Jeffrey Hyams, and former residents Dr. Arvin Garg and Dr. Priti Bhansali on this special day. Connecticut Children's was pleased to announce the founding of a new **Teaching Academy** named in Dr. Z's honor, which will carry on his legacy of educational excellence in the years ahead.

CONTINUING MEDICAL EDUCATION (CME)

The world of continuing medical education (CME) and the Office of CME at Connecticut Children's certainly had its share of accomplishments in 2022. As we emerged from the pandemic during the past year, we adapted to the quickly changing needs of our patients, families, and health care personnel. We developed a variety of programs that address the mental health crisis that affects our families and practitioners. We broadened the modalities of delivering timely educational content to include virtual and in person learning, podcast, and enduring materials, which all allow for increased attendance and flexibility in the schedules and personal lives of our learners.

We are happy to announce that our office received full reaccreditation through the Accreditation Council for Continuing Medical Education (ACCME) for the next four years. Our CME portfolio is now the largest to date, increasing overall by 20 percent compared to the 2020-21 academic calendar year. Over the past year, we proudly hosted four new symposiums, which included the Dr. Edwin Zalneraitis Celebratory Symposium, Connecticut Children's Pediatric Health Symposium, PoWER Event, and Rare Disease Day.

Our office was pleased to introduce a new monthly enduring materials educational series, Pediatric Podcast Pearls, where in which a faculty member records a podcast of clinically important information, recommendations, and/or guidelines on a topic in areas of their specialty that emphasizes best practices. The series offers .25 CME credit and most importantly, practitioners are able to easily gain clinically relevant information, while spending less time doing so. Our office also expanded the popular "*Ask the Experts*", formerly a solo series with Dr. Schreiber, to include other experts in areas of pediatric medicine and behavioral and mental health, on every first and third Friday of the month.

Our Traveling Grand Rounds Speaker Bureau expanded to reach our Nuvance® Health partners in Poughkeepsie, NY, (Vassar Brothers Medical Center) and we added Dr. Crombleholme, who is one of the world's most experienced fetal surgeons, to the speaker bureau for the upcoming 2023-24 Academic Year. Our Traveling Grand Rounds Speaker Bureau continues to grow in size every academic calendar; highlighting new faculty members who share their expertise with community partners. In October, we were thrilled to collaborate with the Children's Hospital Neonatal Consortium for their annual live conference, which took place over the course of three days. This jointly-provided symposium offered 20+ hours of credit and had twenty-six educational sessions with seventy-five speakers from around the world. We are looking forward to our 3rd Annual Diversity, Equity & Inclusion (DEI) Symposium. This year the virtual symposium will take place on two separate days: Thursday, April 13, 2023 and Thursday, April 20, 2023. Attendees will learn to develop and enhance skills to promote an inclusive and respectful workplace culture that directly aligns with our organizations DEI journey.

Our staff registered achievements on a national level as well. Nicole Capsolas, CME coordinator III earned a CPA Associate Certificate through the Alliance for Continuing Education in the Health Professionals, which aids the CME office with skills needed to develop and advance continuing healthcare education for healthcare practitioners. Our office was pleased to add two new team members in April 2022: Katherine Joy (CME coordinator III) and Vivian Bronson (CME coordinator I), who have proven to be instrumental to our mission. Marianne Custer, B.S., C-TAGME, was appointed to the role of Director, Medical Education. She will oversee all administrative aspects of current medical education programs for our medical students, residents, fellows, and continuing medical education, as well as support strategic growth for new programs and experiences across the continuum.

Last but certainly not least, our Maintenance of Certification Practice Quality Improvement (MOC 4) has grown tremendously over the past year, increasing by 40 percent from 2021-22. We are portfolio sponsors for sixteen available American Board of Pediatrics projects and two available American Board of Medical Specialties (ABMS) projects. Our office offers sponsorship to internal and external partners throughout the Academic Year.

The best part about education is that there is always something new, exciting, and life-changing to learn. At Connecticut Children's, we continue to use innovation to provide clinically relevant information, in hopes to improve the care for children and families.

DEPARTMENTAL HIGHLIGHTS OVER THE LAST YEAR INCLUDE:

Annmarie Beaulieu, MPH, BBA, was promoted to Vice President of Academic Affairs and the Connecticut Children's Research Institute. In her new role as Vice President, she will enhance our leadership team and lend her exceptional talents to the ongoing growth and development of our academic and research operations.

Nicole Capsolas attained Certification of Healthcare Continuing Professional Development (CHCP).

Marianne Custer, BS, C-TAGME was promoted to Administrative Director, Medical Education. She oversees all administrative aspects of current medical education programs for our medical students, residents/fellows, and continuing medical education, and supports strategic growth for new programs and experiences.

Katherine Joy was hired as a Continuing Medical Education Program Coordinator III

Vivian Bronson, was hired as a Continuing Medical Education Program Coordinator I

Brittany Valentine, was hired as a Fellowship Program Coordinator I

Amanda Ross, BS, C-TAGME was appointed to the Coordinator Advisory Group of the Accreditation Council for Graduate Medical Education (ACGME) for a three (3) year term, beginning July 1, 2023.

STAFF

Annamarie Beaulieu, MPH, BBA
Vice President, Academic Affairs
Connecticut Children's Research Institute

Staci Brown
Administrative Assistant III (Relocated to Texas in August 2022)

Kayla Dlubac, JM, MHA, CHAA
Administrative Assistant IV

UConn Health
Julie Vigil, MS, MPH, CHC, CHRC, FACHE
Administrative Director, Department of Pediatrics

Laurie Papacs, MA, MBA
Administrative Officer, Department of Pediatrics

Sophia Brown
Administrative Program Assistant 2, Department of Pediatrics

Kristiana Rinaldi
Administrative Program Assistant, Department of Pediatrics

Connecticut Children's
Marianne Custer, BA, C-TAGME
Administrative Director, Medical Education (UME, GME, CME)

Amanda Ross, BS, C-TACME
Senior Fellowship Program Coordinator

Kierstyn Connors, BA, C-TAGME
Fellowship Program Coordinator II

Brittany Valentine, BS
Fellowship Program Coordinator I

Allison Williams, BA
Fellowship Program Coordinator I

Nicole Capsolas, BS, CHCP
Continuing Medical Education Program Coordinator III

Katherine Joy, BA
Continuing Medical Education Program Coordinator III

Vivian Bronson, BA
Continuing Medical Education Program Coordinator I

Esperanza Lesmes
Senior Program Manager

GRADUATE MEDICAL EDUCATION

PEDIATRIC RESIDENCY

The Pediatric Residency Program continued its uninterrupted record of full accreditation, with no areas of concern or citations from the Pediatric Review Committee of the Accreditation Council for Graduate Medical Education (ACGME). This represents one of the strongest records of accreditation standing in the nation.

This past year, the program successfully recruited 20 stellar residents from 13 states with great diversity of interests and experiences. They transitioned very well with support from our excellent senior residents. The 21 graduates placed in competitive fellowship programs and outstanding practices: ten graduates matched to fellowships in seven specialties at UConn, Brown, Nemours, Denver, Hackensack, Rutgers, Rochester and UNC. Three were selected as Chief Residents and one was hired to our Pediatric Hospital Medicine Team. One was hired in urgent care at Colorado Children's and six joined primary care practices, including four in Connecticut.

The program underwent changes in leadership during the previous year, as Edwin Zalneraitis, MD transitioned from his long-time role as Program Director to take on a new position as Graduate Medical Education Advisor to the Chair of Pediatrics. Christine Skurkis, MD became Interim Program Director in December 2021, and the program welcomed Stewart Mackie, MD as the new Program Director in August 2022.

Program improvements that were planned and implemented during the year:

The Graduate Medical Education (GME) Diversity, Equity and Inclusion Committee continues its work with residents, fellows, faculty, team members, and the larger community. This committee began through the work of past residents and continues under the leadership of Kayla Gonzalez, MD and Omar Ibarra Aleman, DO.

In March 2022, residents, fellows, and faculty gathered for a Professionalism Workshop on Gender Affirming Care, with guest speakers Garret Garborcauskas, M3 (Quinnipiac Medical Student) and Julie Thompson, PA (Medical Director of the Transgender Health Program at Fenway Health) with facilitation by Christine Skurkis, MD and Robert Keder, MD. Sherene Mason, MD and Dr. Keder continued to provide training addressing microaggressions for the UConn community for Chief Residents across medical education programs. Pediatric residents continued inclusive recruitment efforts in collaboration with organizations such as the Latino Medical Student Association and Student National Medical Association, and attended both local and national conferences. Residents led an initiative resulting in Connecticut Children's having a presence at the 2022 Hartford Pride Celebration. Members of the committee continue to participate regularly with the UConn GME Diversity Oversight Committee.

The residency program secured two grants. The Association of American Medical Colleges awarded a grant to address equity through telemedicine in the pediatric program. Patricia Garcia, MD, Jonah Mandell, DO, Nancy Presnick, DO, Melanie Rudnick, MD, and the Pediatric Residency Program were awarded The American Academy of Pediatrics Rome Grant to promote and educate on structural competency and advocacy through curriculum and professional development. Core Faculty Leaders from each hospital division were provided faculty development on incorporating social determinants of health and advocacy into resident rotation curriculum.

The Pediatric Residency Program recruited three Resident Team Assistants to provide support to patients admitted to the hospital, improving efficiency of care, safe discharges, and enabling residents more time to spend with direct patient contact.

Fiscal Year 2022 was also a year of unprecedented patient volumes and the residents stepped up to help meet the need for additional faculty to support patients boarding in our emergency department. To better meet the educational needs of residents, the Pediatric Residency Program applied and was granted approval to increase the resident compliment by two additional residents per year, which will begin in July of 2023.

Scholarly Accomplishments

There were a total of 18 abstracts presented by 13 residents at national meetings, including Timothy Phamduy, DO, Sidney Stewart, DO, Kayla Gonzalez, MD, Erica Lardieri, DO, Elizabeth Vargas, DO, Monika Williams, MD, Susannah Swan, MD, Joseph Gallagher, DO, Elizabeth Flerlage, DO, MS, Matthew Cummins, MD, and Rawah Zeiad, MD. Nickolas Mancini, MD and Devon Godek, DO were selected for a platform presentation for a top four Research Abstract Plenary. The abstracts were presented at the following meetings: Eastern Society for Pediatric Research and American Federation for Medical Research Meeting. 2022; Pediatric Academic Societies Meeting 2022; New England Pediatric Hospital Meeting 2022; Pediatric Hospital Medicine Conference. 2022; North American Society for Pediatric Gastroenterology Conference 2021, CHOP Cardiology 2022; and American Diabetes Association Scientific Sessions 2022.

Timothy Phamduy, DO published a first author manuscript in the Pediatric Infectious Disease Journal titled *Kawasaki Disease Hospitalizations in the United States 2016-2020: A Comparison of Before and During the Coronavirus Disease 2019 Era*.

Christie Devoe, DO, Anna Winchester, DO, and Joseph Gallagher, DO published opinion editorials in the Connecticut Mirror. Alyssa Nycz, MD published an opinion editorial in the Connecticut Children's Advancing Kids blog. Kayla Gonzalez, MD presented a Grand Rounds for the ECHN Family Medicine Department.

PEDIATRIC RESIDENTS BY LEVEL 2021-22

Chief Residents	Post-Graduate
Brooke Bohn, MD	Primary Care
Divya Harpalani, DO	Allergy-Immunology Fellowship
Gabriella Izzo, MD	Private Practice

PL-3 Graduated 2022

Ebla Abd Alrahman, MD	Hospitalist
Stephanie Brule, DO	Neonatology Fellowship
Emily Colpas, DO	Chief Resident
Joseph Gallagher, DO	Pediatric Emergency Medicine Fellowship
Jacob Kelner, DO	Neonatology Fellowship
Erica Lardieri, DO	Pediatric Gastroenterology Fellowship
Eugene Master, DO, MS	Urgent Care
Adam Mastrocola, MD, PhD	Private Practice

Chief Residents	Post-Graduate
Alyssa Nycz, MD	Private Practice
Nancy Presnick, DO	Chief Resident
Julia Ryan, MD, PhD	Private Practice
Ragnheidur Hera Sigurdardottir, MD	Neonatology Fellowship
Viven Solomon, DO	Pediatric Gastroenterology Fellowship
Zachary Steinman, MD	Private Practice
Elizabeth Vargas, DO	Pediatric Endocrinology Fellowship
Ashley Varkey, DO	Pediatric Hematology-Oncology Fellowship
Lauren Weaver, MD	Chief Resident
James Wiley, III, DO	Pediatric Cardiology Fellowship
Monika Williams, MD	Medical Genetics and Genomics Fellowship
Maxie Wilson, DO, MS	Private Practice
Anna Winchester, DO	Private Practice

Chief Residents Cont.

PL-2

Sobia Aamir, MB, BS
Christie Devoe, DO
Elizabeth Flerlage, DO
Devon Godek, DO
Kayla Gonzalez, MD
Amanda Guzikowski, DO
Trenten Lancaster, MD
Brook Martell, DO
Khushboo Modi, MB, BS
Maria Teresa Peralta, MD
Timothy Phamduy, DO
Geoffrey Ryan, DO
Amanda Smith, DO
Kelly Smith, MD
Sidney Stewart, DO
Suzannah Swan, MD
Hayley Talboy, DO, MS
Elyssa Wiegand, MD
Rawah Zeiad, MD

PL-1

Neveen Al-Said, DO
Kaitlyn Anderson, MD
Adriana Bodlak, MD
Sarah Burley, DO
Lauren Costigan, MD
Matthew Cummins, MD
Lindzey Faust, DO
Sravya Gourishetti, DO
Einar Helgason, MD
Omar Ibarra Aleman, DO
Jordan Johnstone, DO
Megan Kabara, DO
Andrea Lizarazo, DO
Eugenia Loverde, MD
Christina Mallery, DO
Nickolas Mancini, MD
Lindsay Oliver DO
Marissa Rodenstein, MD
Grace Schwantes, MD
Sydney Sherman, DO
Susan Washburn, MD

FELLOWSHIP PROGRAMS

The University of Connecticut School of Medicine graduate medical education fellowship programs at Connecticut Children's continue to graduate exceptionally trained specialty physicians who enter practice throughout the country. Our fellows made strides in the medical education community by being awarded multiple travel grants and awards to attend national and international meetings. Their perseverance and commitment to excellence are highlighted through their work and contributions to the educational learning environment. The success of our fellowship programs would not be possible without the efforts and commitment of our Associate Chair of Education, Andrea Orsey, MD, MSCE, our newly appointed Director of Medical Education, Marianne Custer, BS, C-TAGME, and our wonderful fellowship administrative team.

In 2022, the fellowship coordinators and program directors administered 11 pediatric and surgical subspecialty fellowship programs and supported 24 fellows. The coordinator team demonstrated ingenuity and innovation by continuously updating our recruitment processes to align with national trends and provide a unique recruitment experience to our fellow applicants. Through frequent modifications of our websites and content, they have increased our marketability across the continuum of graduate medical education and effectively conducted 199 applicant interviews in a span of 61 days.

The pediatric fellowship programs graduated nine fellows and successfully filled six of nine available fellowship positions.

PEDIATRIC CARDIOLOGY

Under the leadership of Shailendra Upadhyay, MD as program director, we recruited our first pediatric cardiology fellow, **James Wiley, MD** at our newly ACGME-accredited fellowship program in Pediatric Cardiology.

PEDIATRIC EMERGENCY MEDICINE

Led by Matt Laurich, MD, the Pediatric Emergency Medicine Fellowship is in its 22nd year. It is a three-year fellowship with two fellows per year.

Candice Jersey, DO graduated from the fellowship in June of 2022. Her research on the use of furosemide to expedite bladder filling for the performance of pelvic ultrasound to rule out ovarian torsion was presented at the 2022 Connecticut Children's Resident and Fellow Research Day Pediatric Grand Rounds as well as at the 2022 Connecticut Children's Research Institute Research Symposium. Upon graduation, Dr. Jersey joined the faculty at Connecticut Children's as an attending in the division of Pediatric Emergency Medicine.

Owen Kahn, MD graduated from the fellowship in June of 2022. His research on the impact of one-on-one electronic health record training on provider usability and efficiency was presented at Pediatric Academic Society 2022 Annual Meeting, Eastern Society for Pediatric Research 2022 Annual Meeting, and the American Medical Informatics Association 2022 Clinical Informatics Symposium. Upon graduation, Dr. Kahn joined the faculty at Connecticut Children's as an attending in the division of Pediatric Emergency Medicine.

Kathryn Schissler, DO is currently a third-year fellow. Her research on febrile young infants presenting to the ED during the COVID pandemic was shared as a platform presentation at the Eastern Society for Pediatric Research 2022 Annual Meeting, as well as a poster at Pediatric Academic Society 2022 Annual Meeting and the 2022 Pediatric Hospital Medicine Conference. She presented a case series of papilledema diagnosed via Point-of-care Ultrasound in the setting of viral meningitis at the Eastern Society for Pediatric Research 2022 Annual Meeting. In addition, she is leading a multidisciplinary research and quality improvement project on the use of Fast MRI in the evaluation of abusive head trauma.

Following graduation, Dr. Schissler will begin a one-year fellowship in Emergency Medical Services at Brown University School of Medicine within the Department of Emergency Medicine.

Shaheen Andreas, DO is currently a third-year fellow. Her research on the time to pain management for patients with Sickle Cell Disease in the ED during the COVID pandemic was presented at the Eastern Society for Pediatric Research 2022 Annual Meeting. She is currently leading several additional research and quality improvement projects related to time-to-antibiotics sickle cell disease, the use of simulation to improve emergency preparedness at Pediatric Urgent Cares, and a study of adolescent views of social media challenges.

Edgar Flores, MD and **Susana Collazo, MD** are our second-year fellows. The fellowship program welcomed two excellent new arrivals in July 2022. Prior to joining us, **Kathleen Felisca, MD** completed her residency in Pediatrics at Yale New Haven Children's Hospital. **Meghan Wilson Frost, MD** also completed her residency and chief residency in Pediatrics Yale New Haven Children's Hospital.

On Match Day, November 30, 2022, we successfully matched with two of our top fellowship candidates who will joining us in July 2023. **Emily Colpas, DO** completed her Pediatric Residency here at UCONN/Connecticut Children's and is currently serving as Chief Resident.

Sarah McHugh, MD is completing her Emergency Medicine residency at Baystate Medical Center/UMass Chan Medical School, where she is one of the program's Chief Residents.

FELLOW PUBLICATIONS

Cohen N, Jeter J, Schissler K, et. al. Poor Perception and Knowledge of Electronic Cigarettes among Adolescents and their Parents. Ped Emerg Care. 2022 Feb 1; 38 (2):e709-e713. PMID 35100768


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Children

PEDIATRIC ENDOCRINOLOGY

Led by **Rebecca Riba-Wolman, MD** and associate program director **Christine Trapp, MD**, the Pediatric Endocrinology Fellowship is now in its 25th year. We were successful in recruiting excellent fellows who are engaged in meaningful research experiences mentored by well-published, NIH-funded investigators in basic and translational research. Their research has culminated in publication in peer-reviewed journals and invitations to national meetings to present their work. We continue to place fellows in academic positions upon graduation. Graduates of our fellowship program had a 100 percent pass rate on first attempt taking the pediatric endocrinology boards.

Ana Menendez, MD joined us from the pediatric residency program at Flushing Hospital Medical Center in Queens, NY in July 2020. Her primary research is under the mentorship of Connecticut Children's Surgeon-in-Chief Christine Finck, MD, studying the pathophysiologic link between pediatric obesity and infectious disease (SARS-CoV-2) sensitivity. Specifically, her work focuses on membrane rafts on the cell membrane of adipocytes with the goal of better characterizing them in patients with obesity, as well as expression in visceral vs. subcutaneous fat. She co-presented an invited oral presentation on Cystic Fibrosis-Related Diabetes at a regional pediatric pulmonary conference in2021. She published an abstract and presented a video poster at the 2021 Pediatric Endocrine Society national meeting.

Caroline Figgie, MD joined us as a first-year fellow in July 2022. She completed her pediatric residency at Case Western Reserve University School of Medicine/ Rainbow Babies in Cleveland, OH.

Kelly Smith will be joining us as a first-year fellow in July 2023. She is completing her pediatric residency at the University of Connecticut School of Medicine in Pediatrics.

PEDIATRIC GASTROENTEROLOGY

Led by **Bella Zeisler, MD** and associate program director **Katherine Baldwin, MD** the fellowship program in Pediatric Gastroenterology (GI) is in its 12th year.

Our faculty has grown in size over recent years and our practice now includes a number of subspecialties within GI. Our growth in clinical programming has served to expand the clinical and research educational opportunities for our fellows. Starting in July 2022, we now have four total fellowship positions (increased from three).

Jeffrey Hyams, MD an internationally recognized clinician and researcher in inflammatory bowel disease (IBD) and division head of Digestive Diseases, Hepatology, and Nutrition, serves as primary research mentor to many of our fellows and graduates. Our fellows also are supported by a number of faculty members with strong backgrounds in research. Our fellows have continued to receive recognition and awards for their research at international and national meetings.

Our graduates continue to successfully transition into faculty positions or independent practice:

Joelynn Dailey Fitz, DO (2021 graduate) accepted a clinical position as a pediatric gastroenterologist at Lehigh Valley Reilly Children's Hospital and has transitioned nicely to her faculty role. Prior to graduating, Dr. Dailey completed several research projects under the mentorship of Dr. Hyams. Her primary research focused on understanding patterns of COVID-19 serology following natural infection or vaccination among a population of patients receiving infusion therapy for the treatment of IBD. She presented her project at Digestive Disease Week. Her manuscript was published in Inflammatory Bowel Diseases.

Chelsea Lepus, DO (2022 graduate) accepted a position at Yale New Haven Hospital to lead their newly established Intestinal Rehabilitation Program. She has transitioned well to her faculty role. Prior to graduating, Dr. Lepus focused her clinical time on learning the care of intestinal rehabilitation patients. She was also quite prolific with scholarly activity and has published on topics pertaining to nutrition in patients with short bowel syndrome. She also published a study looking at the use of MRI in patients with IBD.

Mariyam Hashmi, MBBS (2023 graduate) is our current senior fellow and has made excellent progress. She is completing additional training in advanced motility procedures under the leadership of Corey Baker, MD. The focus of her primary research project is GI motility disorders in children.

Jing Marrero, MD is our current 2nd year fellow and has made excellent progress on two research projects, both under the mentorship of Dr. Hyams. Her primary project is an educational project for school nurses around the care of IBD patients. Her secondary project is examining Dupilumab in the use of eosinophilic esophagitis.

Viven Solomon, DO, our first-year fellow, joined the program in July 2022 after completing her pediatric residency at the University of Connecticut in June 2022. She completed her medical education at New York Institute of Technology College of Osteopathic Medicine. She is exploring her research opportunities and will finalize her research project by June 2023.

Sydney Kuzoian, DO, our first-year fellow, joined the program in July 2022 after completing her pediatric residency at the Sidney Kimmel Medical College in June 2022. She completed her medical education at Kansas City University College of Osteopathic Medicine in Kansas. She will launch her first research project in June 2023.

The Pediatric Gastroenterology Fellowship will welcome **Pyae Naing, MD** in July 2023. Dr. Naing graduated from the University of Debrecen Medical School and Health Science Centre in Hungary and is currently completing her Residency at The Herman & Walter Samuelson Children's Hospital Pediatric Residency Program in Baltimore, MD.

RECENT FELLOW PUBLICATIONS

Dailey J, Kozhaya L, Dogan M, Hopkins D, Lapin B, Herbst K, Brimacombe M, Grandonico K, Karabacak F, Schreiber J, Liang BT, Salazar JC, Unutmaz D, Hyams JS. Antibody Responses to SARS-CoV-2 After Infection or Vaccination in Children and Young Adults With Inflammatory Bowel Disease. Inflamm Bowel Dis. 2022 Jul 1;28(7):1019-1026. doi: 10.1093/ibd/izab207. PMID: 34528661; PMCID: PMC8499989.

Lepus CA, Samela K, Emerick KM, Mokha JS. Vitamin D status in children with intestinal failure who have achieved enteral autonomy. Nutr Clin Pract. 2021 Dec; 36(6):1284-1289. doi: 10.1002/ncp.10685. Epub 2021 Jun 23.

Lepus CA, Karasik MS, Moote DJ, Hyams JS. Electrocautery Incisional Therapy for an Atypical Esophageal Stricture in a Previously Healthy Patient. J Pediatr Gastroenterol Nutr. 2021 Feb 1;72(2):e53. doi: 10.1097/MPG.0000000000002971. PMID: 33075014.

Lepus CA, Samela K, Mokha JS. Efficacy and safety of intravenous iron sucrose in children younger than 2 years with intestinal failure. Nutr Clin Pract. 2022 Nov 28. doi: 10.1002/ncp.10936. Epub ahead of print. PMID: 36440796.

Lepus CA, Moote DJ, Bao S, Mosha MH, Hyams JS. Simplified Magnetic Resonance Index of Activity Is Useful for Terminal Ileal but not Colonic Disease in Pediatric Crohn Disease. J Pediatr Gastroenterol Nutr. 2022 May 1;74(5):610-616. doi: 10.1097/MPG.0000000000003412. PMID: 35149649.

PEDIATRIC INFECTIOUS DISEASES

Hassan El Chebib, MD was appointed the Program Director of the Infectious Diseases Felowship. He takes over leadership of the program from **Juan C. Salazar, MD.**

Laura Kvenvold, MD is a combined Medicine-Pediatrics fellow with the UConn Department of Medicine and will be starting her Pediatrics fellowship in July 2023.

NEONATAL-PERINATAL MEDICINE

Led by **Jennifer Trzaski, MD,** the fellowship program in Neonatal-Perinatal Medicine continued its outstanding record of academic accomplishment and scholarly productivity. In the 47 years since accreditation, 70 fellows have graduated from the program.

Poonam Thakore, MD, graduated from the program in June 2022. In her time here, she worked with David Sink, MD and Annmarie Golioto, MD in the Division of Neonatology. Her research interest was in quality improvement, specifically neonatal hypoglycemia and improving BPD rates and respiratory outcomes in preterm infants. She was first author on NICU East's presentation, "A Quality Initiative to Decrease Delivery Room Intubation of VLBW Infants" at the Vermont Oxford Network (VON) Annual Quality Congress. Her work was presented at the Pediatric Academic Societies in the Spring of 2022.

Usha Prasad, DO graduated from the program in June 2021 and has stayed on as a faculty member in the Division of Neonatal-Perinatal Medicine at Connecticut Children's. She joined the program in July 2020 as a second-year fellow after transferring from the Neonatal-Perinatal Medicine Fellowship Program at Nemours/Alfred DuPont Hospital for Children and Thomas Jefferson University in Philadelphia, PA. Dr. Prasad completed her residency at UConn School of Medicine at Connecticut Children's, and her medical school education at Philadelphia College of Osteopathic Medicine in Philadelphia. She conducts research under the mentorship of Drs. Kendall Johnson and Shabnam Lainwala in the Division of Neonatology. Her work aims to improve growth and nutrition in premature infants by changing the NICU feeding protocol and time to first feedings. Her findings were accepted for presentation at the BYCONN Conference, the Gravens Conference, and Pediatric Academic Societies in the spring of 2022.

Third-year fellow **Hala Saneh, MD** joined the program in July 2020 after completing her pediatric residency at Lincoln Medical and Mental Health Center in New York City, NY. Dr. Saneh completed her medical school education at Lebanese University Faculty of Medical Sciences in Lebanon. She is pursuing basic science research under the mentorship of Connecticut Children's Surgeon-in-Chief Christine Finck, MD in the Division of Pediatric Surgery. She is investigating the effect of extracellular vesicles derived from human-induced pluripotent stem cells in repairing hyperoxia-induced injury in a fetal murine lung explant model. Her research was presented at the New England Perinatal Society in the spring 2022, the International Society of Extracellular Vesicles in Lyon, France in the spring 2022, the American Academy of Pediatrics Northeastern Conference on Pediatric Research fall 2022, and the American Academy of Pediatrics Neonatal-Perinatal Developmental Conference in fall 2022.

Second-year fellow **Allison Sadowski, MD** joined our program in July of 2021. Dr. Sadowski completed her medical training and pediatric residency at the UConn School of Medicine and Connecticut Children's. She is pursing clinical research under the mentorship of Naveed Hussain, MD, investigating the effect of breast milk and various types of formula on gastric pH.

Second-year fellow **Kinga Zgutka, MD** joined our program in July of 2021. Dr. Zgutka completed her medical training at the Medical University of Warsaw in Poland, and her pediatric residency at Flushing Hospital Medical Center in Flushing, NY. Her clinical research is in the use of near-infrared spectroscopy (NIRS) as a marker for renal perfusion, under the mentorship of Drs. James Moore and Jennifer Trzaski.

First year fellow **Jacob (Coby) Kelner, DO** joined our program in July 2022. Dr. Kelner completed his medical training at Rowan University School of Osteopathic Medicine, and his pediatric residency at the University of Connecticut/Connecticut Children's. His area of scholarly interest is in point of care ultrasound in the NICU.

First year fellow **Nazifa Rahman, MD** joined our program in July 2022. Dr. Rahman completed her medical training at Georgetown University School of Medicine and her pediatric residency at Mount Sinai

Kravis Children's Hospital in New York City. Her area of scholarly interest concerns the developmental outcomes of premature infants with older siblings, under the mentorship of Drs. Emily Gritz and Shabnam Lainwala.

FELLOW PUBLICATIONS

Chhikara A, Hagadorn JI, Lainwala S. Effect of maternal voice on proportion of oral feeding in preterm infants. J Perinatol. 2022 Aug 18. doi: 10.1038/s41372-022-01493-4. Epub ahead of print. PMID: 35982244

PEDIATRIC PULMONOLOGY

We successfully graduated another pulmonary fellow in October 2022, **Katarzyna (Kasia) Saar, DO**. Dr. Saar completed an exciting mask microbiome project under the direction of Jessica Hollenbach, PhD.

Melanie Sue Collins, MD and Umit Emre, MD reframed schedules for fellows to promote wellness and improved our didactics to provide a more integrated approach to teaching pulmonary medicine. We have successfully integrated a new quality improvement curriculum into the program. Craig Schramm, MD, professor emeritus, continues to be a foundation of physiology education for the fellowship program. Through our creative use of technology, we have integrated nationally recognized speakers into our fellowship didactic program. Dr. Collins, the program director, has continued her work with the ACGME Milestones Committee for Pediatric Pulmonology.

PEDIATRIC ORTHOPEDIC SURGERY

The Pediatric Orthopedic Surgery Fellowship, directed by Mark Lee, MD is entering its seventh year of formal ACGME accreditation and has thus far graduated four fellows, three of whom are currently in independent practice. Recent graduates have all contributed peer-reviewed works to orthopaedics, with our most recent graduating Fellow **Mauricio Drummond, MD** publishing a manuscript in the highly acclaimed American Journal of Sports Medicine on the radiographic anatomy of the patellofemoral relationship.

In August 2022, the Fellowship welcomed **Chong Weng, MD**, a pediatric spine surgeon originally trained in China who has completed three additional fellowships in the United States, consisting of trauma and spine fellowships at the University of Alabama and a pediatric orthopedic fellowship at Mass General in Boston. Dr. Weng is currently evaluating the effect of physical therapy on scoliosis bracing compliance.

FELLOW PUBLICATIONS

Drummond M Jr, Ayinon C, Rodosky M, Vyas D, Lesniak B, Lin A. Predictive factors for failure of conservative management in the treatment of calcific tendinitis of the shoulder. Published on the JSES Int. 2021 Mar 26;5(3):469-473. doi: 10.1016/j.jseint.2021.01.013. PMID: 34136856. PMCID: PMC8178619.

PEDIATRIC OTOLARYNGOLOGY

The Pediatric Otolaryngology Fellowship Program, led by Christopher Grindle, MD, is entering its 4th year as an accredited program and this year welcomed its first fellow.

Ryan Tabtabai, MD, MPH, joined the program in July 2022 after completing his pediatric residency at the SUNY Health and Science Center at Brooklyn in June 2022. He completed his medical education at University of Connecticut School of Medicine in Farmington, CT. He also completed his MPH degree at University of Connecticut Graduate School in Storrs, CT.

The Pediatric Otolaryngology Fellowship will welcome **Ruwaa Samarrai, MD**, in July 2023.

PEDIATRIC SURGERY

Jacob Campbell, DO, MPH began his fellowship in August 2021 after completing his chief residency at the University of Connecticut Integrated Surgical Residency. In August of 2023 **Dr. Danielle Dougherty, MD** will begin her fellowship after receiving additional subspecialty surgical training at the University of Michigan in Surgical Critical Care and Fetal Medicine.

PEDIATRIC HEMATOLOGY-ONCOLOGY

The Pediatric Hematology-Oncology Fellowship Program is led by Andrea Orsey, MD, MSCE, and is entering its sixth year as an accredited program.

Tatiana Lara-Ospina, MD graduated in June 2022. During her fellowship, she joined Ching Lau, MD's Laboratory at The Jackson Laboratory for Genomic Medicine and worked under the mentorship of both Drs. Ching Lau and Joanna Gell on the development of targeted therapeutics for intracranial germ cell tumors based on in silico drug screening and validation. Dr. Lara-Ospina was accepted into the Alpha-Omega-Alpha Honor Society during her 2nd year of Fellowship. Dr. Lara-Ospina joined the department of Stem Cell Transplantation and Cellular Therapies at Children's Hospital of Los Angeles as a post PHO Fellow.

Erin Pastor, DO, second-year fellow, is leading a multi-institutional quality improvement project aimed at diagnosing and evaluating hypertension to develop a standard of care process. Together with Dr. Lara-Ospina, she presented a poster at the May 2022 ASPHO annual meeting in Pittsburgh, PA entitled "A Case Report of Disseminated Erdheim-Chester Disease in an Adolescent Male".

Shruthishree Sukumar, DO, first-year fellow, joined the program in July 2022 after completing pediatric residency at the Children's Hospital at Saint Peter's University Hospital in New Brunswick, NJ. She is exploring her research opportunities and will finalize her research project by June 2023.

CONNECTICUT CHILDREN'S RESEARCH INSTITUTE (CCRI)

As the research arm of Connecticut Children's, the Connecticut Children's Research Institute (CCRI) is the home of our team of scientist-champions who advance the discovery of life-saving treatments that alleviate the suffering of children and youth worldwide. Our physicians, nurses, clinical providers, researchers, and faculty form an ecosystem of innovation that emerged organically from Connecticut Children's longstanding culture of operational excellence.

Founded in 2021, the CCRI is advancing life-saving, innovative treatment models utilizing the research expertise and clinical experience of our physicians, researchers, and faculty. From inflammation biology, infectious disease and regenerative medicine research to clinical research focused on hematology/oncology, rare diseases and behavioral health studies, the CCRI is home to cutting edge discovery across the research continuum from bench to bedside and in support of population health. Connecticut Children's researchers are experts in their respective specialties and at the forefront of innovative therapies and healthcare delivery. Through our commitment to high-quality care and scientific research, we provide every child across our region and beyond with an opportunity to grow and thrive.

CCRI infrastructure oversees the full lifecycle of the research process while also supporting two cross-pollinating centers: 1) the Bright Ideas Research Incubator for early-career, highly promising pediatric researchers and 2) the Center for Innovation, which catalyzes partnerships with corporations and foundations to disseminate and commercialize CCRI creativity.

OUR MISSION & VISION

Across all areas of the CCRI, our daily mission is to utilize discovery, inquiry and curiosity towards achieving excellence in research and clinical breakthroughs for our patients and their families. We never stop imagining the brighter future that is possible for all children thanks to the expertise and dedication of our clinical and research scientists. We value integrity, diversity, and advocacy for pediatric medicine in all that we do.

BASIC & TRANSLATIONAL RESEARCH

Our expertise in basic & translational research promotes the exploration of basic science from the lens of our clinical expertise to facilitate next-generation treatments for pediatric diseases and disorders.

POPULATION HEALTH & OUTCOMES

Our expertise in population health and outcomes research aims to advance the understanding of population health through research, education, interventions, policy, and community partnerships. With special focus on suicide prevention, asthma management, social determinants of health, and clinical pathways to improve health outcomes, we are a recognized leader of this important work across Connecticut and New England.

CLINICAL RESEARCH

Our focus on clinical research is pursuing breakthrough studies through groundbreaking clinical trials to improve care for infants, children, and adolescents with acute and chronic medical conditions. CCRI supports rigorous clinical trials for rare diseases/endocrinology, gastrointestinal disorders, and hematological/oncological disorders. Our Fetal Care Center is home to the most cutting edge research for fetal anomaly diagnostics and surgery.

CORE SERVICES & ADMINISTRATION

Connecticut Children's Research Institute is supported by an incredible team of administrators and research staff through our Clinical Trials Core, Human Research Protection Program (HRPP), Office for Sponsored Programs (OSP), and Research Operations & Development. Other support programs include our Geographic Information Systems (GIS) Lab, biostatistical and natural language processing cores.

OUR FOUNDATION

Over the past 25 years, Connecticut Children's has developed fertile groundwork for the CCRI's current robust research program. In 1996, we joined with The University of Connecticut School of Medicine to form the Department of Pediatrics, which instantly strengthened research and academic relations to help inform and guide clinical decisions for children across the state. Since then, this relationship grew to involve joint faculty, academic sub-specialty rotations, and a multitude of funded collaborations such as Mighty Mice in Space and our most recent U19 award from the NIH to support the development of a vaccine to treat syphilis. In 2016, we pursued a similar institutional relationship with the Jackson Laboratory for Genomic Medicine to hire joint faculty who could focus on translational pediatric research. Connecticut Children's also forged a new standing within the greater Hartford community, working with collaborators such as the Village, Hartford Public Schools, and the Connecticut Department of Housing. These partnerships, in turn, have yielded substantial external support, such as our $30M Department of Education award in 2021 to expand the Promise Neighborhoods Program to Hartford, and most recently a $14M National Institutes of Health award for CAMEO: Clinical, imaging, and endoscopic outcomes of children newly diagnosed with Crohn's disease.

The Connecticut Children's Research Institute (CCRI) is the home of our team of scientist-champions who advance the discovery of life-saving treatments that alleviate the suffering of children and youth worldwide. As the research arm of Connecticut Children's, the CCRI specializes in Cardio-Oncology, Hematology / Oncology, Infectious Disease, Inflammation Biology, Population Health, and Regenerative Medicine, among other fields. Our physicians, nurses, clinical providers, researchers, and faculty form an ecosystem of innovation that emerged organically from Connecticut Children's longstanding culture of operational excellence.

Founded in 2021, the CCRI for the first time formally unites investigators to discover and evaluate biological mechanisms and agents for the treatment of disease and the improvement of health. Our scientists collaborate across three active centers:

- *Center for Basic & Translational Research*, for regenerative medicine and inflammation biology.
- *Center for Population Health & Outcomes*, focusing on suicide prevention, asthma management, social determinants of health, and clinical pathways to improve health outcomes.
- *Center for Clinical Research*, the home for our rigorous clinical trials program for rare disease/endocrinology, gastrointestinal disorders, and hematological/oncological disorders.

Finally, the research operations wing of the CCRI oversees the full lifecycle of the research process while also supporting two cross-pollinating centers:

1. The Bright Ideas Research Incubator for early-career, highly promising pediatric researchers
2. The Center for Innovation, which catalyzes partnerships with corporations and foundations to disseminate and commercialize CCRI creativity.

OUR PURPOSE

CCRI researchers are at the forefront of the future of healthcare. Through our commitment to high-quality care and scientific research, we provide every child with an opportunity to grow and thrive. We understand that excellence in pediatric research is Connecticut Children's engine of evolutionary edge, and the wellspring for tomorrow's treatments that astonish, that are "no longer beyond imagination."

CLINICAL TRIALS

The mission of the Clinical Trials Division is to support Connecticut Children's Research Institute (CCRI) investigators in advancing pediatric health care by conducting innovative life-saving and/or increased quality of life trials that offer equitable access to investigational treatments for patients and families. Our highly skilled, multispecialty team ensures the successful execution of phase I-IV interventional trials and observational studies for neonates, children, and adolescents through 18 years of age.

We provide support for 30 investigators across 12 divisions including the new Director of our Fetal Care Center, Dr. Crombleholme. This year, we expanded our rare disease trial portfolio to patients and families seeking investigational treatments for Congenital Adrenal Hyperplasia (CAH) and Osteogenesis Imperfecta (OI).

Through the Leadership of our Medical Director, Michael Isakoff, M.D. and Lead Clinical Research Associate, Robin Arens, we have maintained our nationally recognized status through the Children's Oncology Group, allowing us to offer the latest investigational treatments to pediatric cancer patients.

Collectively, our clinical trials portfolio in the Hematology/Oncology Division provides patients and families opportunities for over 80 interventional trials and 50 observational studies.

We are pleased to announce promotions for the following Clinical Trials Team Members:

- Dayna Kennedy, MPH, CCRC, Clinical Research Associate I was promoted to Clinical Research Associate II.
- Jennifer Querim, BSN, RN, CCRP, Clinical Research Nurse Coordinator II was promoted to Senior Clinical Research Nurse Coordinator.
- Lisa Little, BA, Regulatory Specialist was promoted to Clinical Research Study Start-up Manager.
- Masai McIntosh, BA, Clinical Research Associate I was promoted to Clinical Research Associate II.
- Michaela Siver, BA, CCRC, Clinical Research Associate I was promoted to Clinical Research Associate II.
- Sean Hanrahan, MPH, Clinical Research Assistant II, was promoted to Clinical Research Associate 1.

STAFF

Alison Oville, BA, CCRC, CHRC, *Director*
Michael Isakoff, MD, Medical Director, Clinical Trials Division

Hendriana Nielsen, RD, RN, BSN, CCRP, CPN, *Clinical Research Nurse Manager*

Robin Arens, BS, CCRP, *Lead Clinical Research Associate*

James Santanelli, MS, MPH, CCRP, *Lead Clinical Research Associate*

Julieta Bonvin-Sallago, MS, *Lead Clinical Research Associate*

Jennifer Querim, BSN, RN, CCRP, *Senior Clinical Research Coordinator*

Jennifer Twachtman-Bassett, MS, CCC-SLP, CCRP, *Research Coordinator, Autism Specialist*

Masai McIntosh, BA, *Clinical Research Associate II*

Dayna Kennedy, MPH, CCRC, *Clinical Research Associate II*

Michaela Siver, BS, CCRC, *Clinical Research Associate II*

Mark Ferreira, BA, *Clinical Research Assistant II*

Alexzandrea Buscarello, BS, *Clinical Research Assistant II*

Bunly Kuoch, *Clinical Research Laboratory Coordinator*

Lisa Little, *Clinical Research Study Start-up Manager*

Sean Hanrahan, MPH, *Clinical Research Associate I*

Sarah Brungard, BSN, RN, *Clinical Research Nurse Coordinator I*

Eliza Baker, *Clinical Research Nurse Coordinator I*

RESEARCH OPERATIONS & DEVELOPMENT DEPARTMENT

For the Research Operations & Development department, the fiscal year 2022 was marked by the continued growth of our core services and new opportunities in the areas of community service and research dissemination. Historically, we have served our clinical divisions with regulatory support, protocol development, study start-up to study close-out, study logistics (recruitment, consenting, and standardized operating procedures), database builds, and database management.

The Research Operations & Development continues to grow our pipeline of student research, beginning in high school. The team participated in the 2nd annual Support and Teamwork Resulting in Valuable Experience STRIVE program. This involves a partnership with Bloomfield High School (BHS) and established a solid foundation for students to learn more about allied health fields. Over the summer the team went BHS for a hands-on experiential learning series that was employed to illustrate the genetics, inheritance patterns, phenotype and molecular genotype of Duchenne Muscular Dystrophy. Simultaneously we created RISE; Research Internship Summer Experience (RISE) which has allowed undergraduates from across the region to spend 6 weeks during the summer learning about our Research Institute.

In fiscal year 2022, all of these services were strengthened with new hires to meet the growing needs of our productive principal investigators [See Table 1]. In spring 2022, we welcomed the arrival of Carolyn Macica, MS, PhD, Associate Director for Research Operations and Development. Dr. Macica joined us from her dual responsibilities as Professor of Pharmacology at the Yale University School of Medicine and Professor of Medical Sciences at the Frank H. Netter MD School of Medicine at Quinnipiac University. She also serves as scientific chair of the XLH rare disease patient network and the annual Rare Disease Day Symposium. We are incredibly fortunate to have Dr. Macica's leadership skills on our team, and we look forward to a bright future of innovation and collaboration.

We successfully recruited new research assistants: Carlie DeFelice, Stephanie Lesmes and Kevhanna Whyte. Each brings a unique educational and experience background and all are committed to helping their PIs successfully implement and complete their research studies. The Research Operations and Development team has assisted with the growth of the Undergraduate Research Assistant Program (URAP) for University of Connecticut undergraduates, giving them the research design skills and a clinical setting for their inaugural investigations. The URAP program is under the medical direction of Sharon Smith, MD (Emergency Medicine), with Danielle Chenard, MPH, and research associate Mary-Kate Nowobilski providing management and coordination support. Our URAP program branched out beyond its historic relationship with our Emergency Department to 10 total clinical divisions.

We expanded our capacity to provide biostatistician support by the recruitment of a new statistician, Amiral Anuar, MS. He is tasked with supporting our increasing number of our research grant applications. In addition, Mr. Anuar serves as the newest member of our Scientific Review Committee (SRC). To properly address the needs of our stakeholders, Research Operations and Development team has gone beyond personnel growth to enhance the skills of our division and staff. In fiscal year 2022, we augmented our continuous training programs in eight key areas to improve customer access and experience: literature review, regulatory documents, database development/management, study implementation, data abstraction/collection, coding data, analyzing data, and abstract/manuscript preparation. This led to a focused effort to increase our staff's skills in designing REDCap surveys, a vital tool for many of our investigators. Team members participated in an online REDCap training program to advance their skills from novice to intermediate to advance.

On the analytics side, Research Operations and Development team oversees the UConn GIS (Geographic Information Systems) Health Lab at Connecticut Children's. GIS provides exceptional tools that hold the promise to revolutionize our understanding of disease etiology, injury epidemiology, and health promotion. GIS analysis allows visualization, management, and reporting of thematic data (e.g., demographic, epidemic, socioeconomic, environmental, and clinical data) under different geographic contexts. Such analyses can be employed to identify spatial patterns and associations within the built environment. The GIS Health Lab is a collaboration with the University of Connecticut's Department of Geography.

Finally, our department is leading and managing the Scientific Review Committee (SRC). The SRC provides a structured review of investigator-submitted study protocols to enhance their scientific quality. In FY21, we reviewed 40 study protocols. With support from Connecticut Children's Physician-in-Chief Juan C. Salazar, MD, MPH, and Surgeon-in-Chief Christine Finck, MD, FACS, we upskilled the SRC staff with help from content-area experts from each clinical division, each of whom was nominated by their respective division chiefs. We now have an SRC whose members can provide a full spectrum of support for junior faculty by contributing their expert content knowledge, and they simultaneously are enhancing their own research methods, design, and analytic skills - all of which contributes to research excellence at Connecticut Children's.

TABLE 1: Principal Investigators served by the department in the past year.

Principal Investigator	Research Area
Adam Matson, MD	Neonatology
Alex Hogan, PhD	Infectious Disease
Allison Cowl, MD	PICU
Allison Matthew-Wilson	Care Coordination
William Zempsky, MD	Pain & Palliative Medicine
Christine Finck, MD	Surgery
Christopher Carroll, MD	Surgery
Courtney Rowe, MD	Surgery
David Hersh, MD	Surgery
Emily Wakefield, PhD	Psychology
Ilana Waynik , MD	Hematology/Oncology
Jennifer Knod, MD	Surgery
Juan Salazar, MD	Infectious Disease
Kathy Herbst, MPH	Infectious Disease
Mariann Kelley, MD	
Markus Bookland, MD	Surgery
Melissa Santos, PhD	Psychology
Nancy Trout, MD	Primary care
Natasha Frederick, MD	Hematology/Oncology
Sharon Casavant, PhD	Nursing
Sharon Smith, MD	Emergency Medicine
Sherene Mason, MD	Nephrology
Siddika Mulchan, MD	Psychology
Steven Rogers, MD	Suicide Prevention
Thyde Dumont-Mathieu, PhD	Development & Behavioral

PUBLICATIONS

Pierz K, **Brimacombe M**, Õunpuu S. Percutaneous hamstring lengthening in cerebral palsy: Technique and gait outcomes based on GMFCS level. Gait Posture. 2022 Jan;91:318-325. doi: 10.1016/j.gaitpost.2021.10.035. Epub 2021 Oct 29. PMID: 34823200.

Sinha R, **Herbst K**, Romano JC. Status of women in congenital heart surgery: Results from a national survey. J Thorac Cardiovasc Surg. 2022 Dec;164(6):e513-e522. doi: 10.1016/j.jtcvs.2021.09.069. Epub 2021 Nov 12. PMID: 34895726.

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RESEARCH AT UCONN DEPARTMENT OF PEDIATRICS

Julie Vigil, MS, MPH, Administrative Director of the Department of Pediatrics and her team at UConn Health, manage the academic budgets, including in-residence faculty, tenured faculty support, components of the residency budget, discretionary accounts, and the UConn Health-based sponsored programs. The administrative team at UConn Health consists of Administrative Officer, **Laurie Papacs, MA, MBA** and Administrative Program Assistant 2, **Satophia Brown.**

During the past year, there have been many exciting developments within the research labs and clinical trials.

CLINICAL TRIALS

Our Clinical Trials team, led by **Shaylee King, MS**, Clinical Trials Manager and assisted by Study Coordinators **Vi Nguyen** and **Julieta Bonvin-Sallago, MS**, has had another successful year. The beginning of 2022 started with a first in humans Phase III infusion (DTX401-CL301), with **Rebecca Riba-Wolman, MD** as the Principal Investigator and Karen Loechner, MD, PhD as Co-Principal Investigator, as well as the continuation of our original GSD Clinical Trial (401GSDIa02), both sponsored by Ultragenyx Pharmaceuticals, Inc. This investigational AAV8 gene therapy was engineered to deliver stable expression and activity of glycose-6-phosphatase (G6Pase) using a single intravenous infusion.

The team was also successful in being the first-in-humans for the Ba1ance Trial, sponsored by Moderna, with **Karen Loechner, MD**, PhD as Principal Investigator and **Dr. Narinder Maheshwari, MD, MS**, from UConn Health's Department of Medicine, as Co-Principal Investigator. Its purpose is to use mRNA technology to instruct the body to make the protein that is missing in people with GSD-Ia. In this Phase I trial, the mRNA is administered as a single intravenous infusion.

GLYCOGEN STORAGE DISEASE RESEARCH LABORATORY

Youngmok Lee, Ph.D. leads the basic science Glycogen Storage Disease (GSD) Research Laboratory at the University of Connecticut Cell and Genome Sciences building, assisted by **Yasir Ameen, BS** and graduate student, **Charles Arend, MS**. The Laboratory focuses on Glycogen Storage Diseases to investigate underlying disease mechanism and develops novel gene therapies. In 2022, the lab published two articles, "Molecular mechanisms of aberrant neutrophil differentiation in glycogen storage disease type Ib, Cell Mol Life Sci.79 (5), 1-14" and "A Mouse Model of Glycogen Storage Disease Type IX-Beta: A Role for Phkb in Glycogenolysis, Int J Mol Sci.23(17):9944". These articles unveiled the fundamental cause of neutropenia in GSD Type Ib and elucidated the mechanism underlying glycogen accumulation/degradation in GSD Type IX-beta. The lab also developed novel gene therapy vector shown excellent efficacy from both in vitro and in vivo studies with GSD-Ib mouse model. This development has been applied for international (PCT) patent for future gene therapy clinical trials.

SPIROCHETAL RESEARCH LABORATORIES

The Spirochetal Research Laboratories co-directed by Justin Radolf, MD and Juan C. Salazar, MD, MPH entered the fourth year of a five-year $11 million award from the National Institute of Allergy and Infectious Diseases (NIAID) at the NIH to develop a vaccine for syphilis. The international study team is comprised of researchers from UConn School of Medicine, Connecticut Children's, the Duke Human Vaccine Institute, the University of North Carolina (UNC) at Chapel Hill Institute for Global Health and Infectious Diseases, UNC Project-Malawi, CIDEIM in Cali, Colombia, Masaryk University in the Czech Republic, and Southern Medical University in Guangzhou, China. In addition, Melissa Caimano, PhD, and Kelly Hawley, PhD are lead investigators for this grant. They are mapping the global diversity of various Treponema pallidum in preparation for a proper vaccine formulation. Additionally, the Spirochetal Research Laboratories continues to engage in a multicenter, international project supported by the Bill & Melinda Gates Foundation. **Dr. Hawley**, along with an international study team comprised of researchers, is focused on the genomic epidemiology of Treponema pallidum strains infecting populations in low- and middle-income countries to inform syphilis vaccine development.

PEDIATRIC REGENERATIVE MEDICINE: TISSUE ENGINEERING

The Pediatric Regenerative Medicine: Tissue engineering laboratory, led by **Christine Finck, MD** and managed by **Joanne Walker, MS** and assisted by graduate student **Heather Wanczyk, MS**, has been working several projects over the past year:

ESOPHAGEAL REGENERATION USING TISSUE ENGINEERED SCAFFOLDS

Their previous work demonstrated esophageal tissue growth in a piglet model of esophageal loss (4–5 cm gap) treated with an implanted synthetic scaffold seeded with stem cells, most commonly adipose-derived mesenchymal stem cells (AD-MSCs). However, the mechanism by which this regeneration occurs in the esophagus and the cells responsible for the tissue regeneration has not been described. Currently, they are investigating the epithelial to mesenchymal transition in wound healing. The lab is in the process of characterizing the secreted factors in AD-MSCs and esophageal epithelial cells (EECs) alone or in response to stimulation with 20ng/mL of IL1ęor TGFę1. To determine how the secretome of AD-MSCs may influence EECs, we are characterizing the secretome of EECs cultured in conditioned media (CM) from AD-MSCs under different culture conditions. We will evaluate specifically for expected signaling factors of EMT including cytokines IL-6, IL-8, and TGFę and miR23-3p and miR125b. We will also characterize the AD-MSC secretome when they are seeded on the scaffold to determine if the scaffold changes the secretome. The results will allow us to then analyze how AD-MSC-associated biochemical cues affect EMT initiation in a 2D and 3D wound healing model.

Submissions/Presentations:

- Manuscript: Sundaram S, Jensen T, Roffidal T, et al. Esophageal regeneration following surgical implantation of a tissue engineered esophageal implant in a pediatric model. NPJ Regen Med. 2022;7(1):1. Published 2022 Jan 10. doi:10.1038/s41536-021-00200-9
- Grant: NIH R01, "The Role of Epithelial to Mesenchymal Transition in Esophageal Tissue Regeneration" 1 R01 HD107033-01A1

Testing a novel 4 in 1 medical device in a pediatric model of esophageal surgery.

We have developed a 4-in-1 medical device that contains conduits for feeding, drug delivery, and balloon dilation. This all-in-one device is a feeding tube and balloon dilator, which can dilate strictures at the bedside as needed. Additionally, agents such as mitomycin C, which treat strictures, can be delivered through a port at the anastomotic site. Finally, an aspiration port in the esophagus is present to monitor the healing environment of the esophagus. We sought to determine feasibility of the device in a cadaveric and in vivo animal model of esophageal resection. Functionality of the device was tested in cadaveric rabbits (n=2) evaluating length and dimensions of the device and balloon functionality. In vivo feasibility testing of the device was performed in a rabbit esophageal resection model to assess tolerability, ease of insertion, balloon dilation, and the ability to continuously deliver feeds (IACUC AP-200543-0824; n=1). One male New Zealand rabbit (3.2 kg) underwent a thoracotomy with esophageal transection and re-anastomosed mimicking esophageal repair. A pharyngostomy was performed and the device was inserted and secured. Prior to chest closure, the balloon was inflated with saline to ensure appropriate position and function. Next steps will be to test ability of the device to reduce stricture formation in a large animal model.

Submissions/Presentations:

- Abstract: SAGES 2023 Mtg - Abstract Accepted for Podium Presentation - Abstract ID 124793, "A Novel 4-in-1 Medical Device for the Treatment of Esophageal Atresia"
- Started a company "Esophadex"

CLINICAL DEVELOPMENT OF A NOVEL TRACHEAL SEALANT

The goal of this study is to develop a pleural and tracheal sealant that will have optimized mechanical and biological properties, coupled with low cost, ease-of use, appropriate storage, and other logistical considerations. This project is in collaboration with Daniel J. Weiss, MD, PhD from the University of Vermont State and Agricultural College. Our focus this year was to continue small animal (rat) tracheal injury survival studies.
To this end, we have achieved the following: Engaged in a 1-year longitudinal study of the research grade ALG-MA-DA patch in the rat tracheal injury model. Study will be completed in Summer 2023. We have initiated long-term adult rat tracheal injury studies with cohorts being assessed at 1, 3, 6, and 12 months. Endpoint analyses include burst pressure assessments, gross lung appearance, and histologic appearance/assessment of inflammation, serial blood samples will undergo toxicologic analyses. To date, the team has assessed 60 animals in the patch group (10%, 25% and 50% defect, and 1, 2 and 3 rings) and 26 control animals (10% and 50% defect, and 1, 2 and 3 rings). All completed animals have demonstrated intact seal and normal histology with minimal inflammatory cell infiltrate.

Submissions/Presentations:

- Abstract to the Military Health Research Symposium (MHSRS) 2022 – "Development of Novel Pleural and Tracheal Sealants"
- Grants submitted with UVM May 2022- Medical Research Program Technology/Therapeutic Development Award Funding Opportunity Number: W81XWH-22-PRMRP-TTDA "Continued Clinical Development of a Novel Pleural and Tracheal Sealant".

Evaluation of the Increased Susceptibility of Obese Pediatric Patients to SARS CoV-2 Infection.

The goal of this research project is to understand the role obesity contributes to SARS CoV-2 infection. This year, we have been able to obtain patient specific data from a cohort of non-obese (control) and obese patients to investigate the implications of obesity and its role in membrane saturated fatty acids and altered lipid metabolism.

Data is continuously being collected to build a database of information from an at-risk population. Recruitment, screening, and enrollment of patients for adipose tissue (visceral and subcutaneous) collection has been ongoing for the last year to evaluate the metabolic parameters and in-vitro expression of the abundance of ACE2 and DPP-4 associated receptors in membrane rafts of cells derived from obese and non-obese adolescent patients. For each sample collected, the team has completed tissue digestion utilizing aseptic techniques, isolation of adipose derived mesenchymal stem cells (ADMSCs), and passaging of cells for further characterization techniques (flow cytometry, RNA isolation and ELISA). One of the major characteristics of obesity is fat accumulation, including hyperplasia and hypertrophy. Associations of mean adipocyte size with body mass index (BMI), glucose, HbA1C, blood lipids as well as mature adipocyte mitochondrial respiration have been previously investigated. Adipose tissue dysfunction was evaluated by measuring cell diameter, area, and volume of obese adipocyte vs control. As part of the evaluation of dysfunctional adipocyte, we have been evaluating coulometric assays for lipolysis. In lipolysis quantification of glycerol has been measured at basal and stimulated conditions. This project is fundamental in developing a lab environment that supports the growth and development of surgical residents and junior faculty interested in research specifically bariatric research.

Submissions/Presentations:

- Manuscript: Menendez A, Wanczyk H, Walker J, Zhou B, Santos M, Finck C. Obesity and Adipose Tissue Dysfunction: From Pediatrics to Adults.

Genes (Basel). 2022;13(10):1866. Published 2022 Oct 15. doi:10.3390/genes13101866

- Grant to the America Heart Association that was not chosen for funding: "Impact of bariatric surgery in obese adolescents on metabolic and inflammatory-induced health risks."
- Abstract to the Pediatric Endocrine Society 2023 meeting: "Peripheral blood mononuclear cells lineage and Lipopolysaccharide induced activation potential in childhood obesity."

Investigating cell therapies for treatment of neonatal lung diseases

The goal of this research is to assess the effectiveness of extracellular vesicles (EVs) derived from iPSCs and their alveolar progenies (iPSCs differentiated into alveolar-like cells, diPSCs) in repairing hyperoxia-induced injury in preterm lung tissue. To date, there are no standardized protocols for EVs isolation and characterization. For the optimal isolation of EVs from iPSCs, different techniques were tested in the lab, such as differential ultracentrifugation (UC), precipitation (P), precipitation and immune-magnetic capture, followed by bead elution (P/B/EI) and size-exclusion chromatography (SEC). After investigating, we opted to proceed with size-exclusion chromatography (SEC) given its high yield and specificity. EVs were then characterized using Transmission Electron Microscopy (TEM), Imaging Flow Cytometry and Nanoparticle Tracking Analysis (NTA). We were able to recover intact EVs with a median diameter of 120 nanometers and with 70% positivity for the tetraspanin marker CD63. Samples have also been processed and sent to the Mass Spectrometry Facility at UConn for proteomic analysis. RNA has also been extracted from EVs; we aim to send the samples to the Center for Genome Innovation at UConn for sequencing. Additionally, we are working on optimizing bioprinting the fetal lung model using E17.5 murine fetal pulmonary cells (FPCs). To date, manual seeding and bioprinting the models were both trialed. Multiple seeding concentrations were tried. Also, multiple media-to-ink ratios were trialed from 1:10 parts. Cell viability of the model in-vitro remain low. Proceeded to try a published protocol, air-liquid interface, with some modifications.

Our current focus is hyperoxia exposure of the fetal lung model. Tissue lung explants are exposed to hyperoxia (95% O2, 5% CO2), using a modular incubator chamber. We have exposed our models to 95% O2 for 24 hours and 48 hours and assessed lung morphogenesis after 3 days of in-vitro culture. Following 24 hours of hyperoxia exposure, iPSC-EVs or diPSC-EVs were added to the medium at different vesicular concentrations (based on NTA results) and kept for 48 hours. Explants were assessed at day 3 and day 6 following in-vitro culture.

Submissions/Presentations:

- Proposal and preliminary results submitted to the Little Giraffe Foundation, section of Neonatal research funding).
- Platform presentation (re: Optimization of techniques for isolation and characterization of EVs from hiPSCs) at the NEPS meeting, April 2022.
- Poster (re: Optimization of techniques for isolation and characterization of Evs from hiPSCs) presented at the ISEV meeting, May 2022.
- Platform presentation (re: Effectiveness of Evs derived from hiPSCs in repairing hyperoxia-induced injury in a fetal murine lung explant model) at the AAP 48th Northeastern Conference meeting, October 2022.
- Platform presentation (re: Effectiveness of Evs derived from hiPSCs in repairing hyperoxia-induced injury in a fetal murine lung explant model) at the AAP 100th Perinatal and Developmental Medicine Symposium meeting, November 2022.

Investigating novel approaches to lung tissue engineering

The overall goal of this project is to bioengineer functional biomimetic airways for treatment of neonatal and pediatric respiratory conditions.

Part 1 – mechanical optimization of human decellularized extracellular matrix (dECM) 3D bioprinted airway structures. The goal is to produce airways of comparable dimensions and physical characteristics to those of native large and medium sized airways. Different permutations of dECM hydrogel formulations, with and without additional supporting polymers (polyethylene glycol, alginate), have been systematically assessed with relevant materials and mechanical testing, including gelation kinetics, compression and tension moduli, burst pressure, and degradation. Extensive experiments were performed to determine the optimal conditions for 3D bioprinting of pediatric-sized airways using a gelatin microparticle support bath. The difficulties encountered were mimicking the correct gelatin microparticle size to obtain the correct print resolution of our airways and removal of the print from the bath following post-processing steps. Parameters (such as pressure and print speed) were optimized using this bath and then translated to the FRESH support bath. We were able to demonstrate the feasibility of printed a simplified airway structure using the FRESH support bath. We then printed a pediatric-sized airway using this approach as well. Constructs were printed at high resolution and held their shape following the post-processing period. However, it was difficult to completely remove the slurry bath support material. This step will need to be optimized in further studies.

Part 2 – optimization of cell viability and phenotype in 3D bioprinted dECM airway structures. Effects of dECM hydrogels on growth, differentiation, and function of both differentiated as well as stem/progenitor airway epithelial cells will be further delineated. This year, we have optimized protocols for cell differentiation of iPSCs to distal and airway epithelial phenotypes; demonstrated viability, growth and differentiation of anterior foregut endoderm cells in decellularized human lung matrix; and identified collagen + 30 mg/mL dECM as potential substitute for printing of pediatric sized airways.

Submissions/Presentations:

- Podium presentation at American Pediatric Surgical Association Conference, May 2022, San Diego, CA.

"The Use of 3D Bioprinting Technology to Fabricate Pediatric Airways".

- Presentation at Vermont Lung Center Seminar, October 7th, 2022, Burlington, VA. "Bioengineering Lung Tissue using Advanced 3D Printing Technology."

Courtney Rowe, MD, has her laboratory within the Pediatric Regenerative Medicine: Tissue engineering laboratory. Dr. Rowe works in translational research and regenerative medicine. With the strong support of **Christopher Foster, MS**, the Rowe lab currently holds two patents and continues to collaborate with local and national investigators. This year, Dr. Rowe submitted a comprehensive K08 training grant to the NIH's National Institute of Diabetes and Digestive and Kidney Diseases. If funded, this grant will provide support for continued research on urethral healing along with continued training in research methodology for Dr. Rowe.

RARE BONE DISORDERS

Emily Germain-Lee, MD, leads the translational research program to elucidate the molecular, cellular, and physiological mechanisms underlying the pathogenesis of diseases affecting the endocrine system, with a particular focus on rare bone disorders, with the assistance of **Qingfen Yang** and graduate student, **Patrick McMullen**. Dr. Germain-Lee's overarching goal is to develop new therapies and improve the health and quality of life for children and adults with these disorders. Through this work, she has built an extensive clinical and basic science research program that has also provided insights into general bone biology, given that the focus on rare bone diseases has shed light on fundamental pathways and processes. During this past year, Dr. Germain-Lee has maintained her work in several areas. First, she has continued investigation on the pathophysiology of Albright hereditary osteodystrophy, a rare bone condition caused by heterozygous inactivating mutations in GNAS, which encodes a key signaling component utilized by many G protein-coupled hormones. A major focus of research during the past year has been investigating the role of GNAS in regulating overall bone homeostasis. Through studies involving both patients and a mouse model, her team was able to publish that genomic imprinting of Gnas can result in opposite effects on bone mineral density depending on the parent-of-origin of the mutant Gnas allele due to changes in osteoblast-osteoclast interactions as well as possible calcitonin resistance. Additionally, their studies are directed at understanding the role of GNAS in the development of heterotopic subcutaneous ossifications (SCO), which cause pain and limitations in mobility. They used lineage tracing to show that these ossifications derive from abnormal differentiation of stem cells surrounding hair follicles. They identified a key signaling molecule that plays an important role in this process, and are building on this work to develop new treatments to target and prevent the development of SCOs. This has implications for the treatment of heterotopic ossifications that occur in the general population and are a major health issue, such as ossifications that form after hip fractures, surgeries, and severe burns.

Second, they have continued their studies examining the role of the myostatin/activin A signaling pathway in regulating both muscle and bone. In recent studies, they have shown that targeting key receptors for myostatin and activin A can lead to dramatic increases in both muscle and bone mass. They have shown that targeting these receptors in muscle leads to much more dramatic increases in muscle growth compared to what has been achieved to date using a wide range of biologics that have been tested by multiple pharmaceutical companies in clinical trials to treat muscle loss. They also demonstrated that targeting these same receptors in osteoblasts can lead to increases in bone density by approximately 10-fold, far exceeding what has been achieved to date with drugs to treat osteoporosis. Dr. Germain-Lee is one of two Principal Investigators on an NIH R01 to continue work examining this pathway in bone.

Third, they have recently initiated a project investigating extragonadal functions of follicle stimulating hormone (FSH). Given that FSH secretion is regulated by activin A and that FSH utilizes G proteins for signaling, this project directly relates to many of the other projects Dr. Germain-Lee is investigating the signaling pathways in Albright hereditary osteodystrophy. For this project, they are determining whether FSH's extragonadal effects on bone density and adiposity reflect direct signaling to osteoclasts and/or adipocytes. This will be critical for developing the best strategies to target FSH signaling to treat osteoporosis and/or metabolic dysfunction including obesity and type 2 diabetes. Additionally, Dr. Germain-Lee is one of two Principal Investigators on an NIH R21 to work on this project.

Fourth, they have been investigating the role of myostatin, activin A, and related signaling molecules in regulating metabolism, with the goal of developing new strategies to enhance the ability of the pancreas to produce insulin as well as to improve the responsiveness of peripheral tissues to insulin. The overall goal is to find a novel therapeutic approach to diabetes.

NEONATAL RESEARCH

Adam Matson, MD laboratory is conducting basic-translational research on the neonatal gut microbiome, with the assistance of his post-doctoral fellow, **Katrin Unterhauser, PhD** and his research assistant, **Rezaul Karim**. His work is focused on elucidating the pathogenic potential of Klebsiella species in the gut lumen as inciting agents of necrotizing enterocolitis, a devastating intestinal inflammatory disease of premature infants. Dr. Matson is also conducting studies to identify gut microbial populations that impact neonatal growth and neurodevelopmental outcomes and utilizing novel long-read sequencing approaches to identify and track bacterial strains in the hospital setting.

OFFICE FOR SPONSORED PROGRAMS (OSP)

The Office for Sponsored Programs (OSP) supports the research community at Connecticut Children's by facilitating the preparation, submission, and management of extramural funding. Our services include pre-award, post-award, contract management, and clinical research finance. We are dedicated to providing outstanding customer service in an environment that embraces teamwork, integrity, and compliance.

OSP strives to help Connecticut Children's become a top-tier institution by leveraging technology to provide best in-class research administration services. This allows discovery that improves the lives of children and their families in Connecticut and throughout the region.

OSP sustained continued growth in 2022 and managed over $21 million in grant funding. Connecticut Children's received its first ever Department of Education grant, continued its successful partnership with NIH, and welcomed newly funded grants. OSP saw an 8% increase of proposals submitted and a 16% increase in contract management. OSP had some transition with its Clinical Research Finance unit and created pathways to enhance the service delivery and create opportunities for more growth.

OSP continued its partnership with other stakeholders, such as Information Systems, Accounting, and Supply Chain to manage business operations with current systems as well as plan for future optimization with new systems that will enhance the business operations of OSP. We are excited to see what the changes will bring for 2023.

Throughout 2022, OSP celebrated well-deserved promotions, welcomed new team members, and bid farewell to departing staff members. Marlene Tzickas was promoted to Lead Post Award Specialist, Aubree Siebert was promoted to Lead Clinical Research Finance Specialist, and Karen Long was promoted to Senior Clinical Revenue Specialist.

OSP TEAM

Kimberly Davey, MBA, *Office for Sponsored Programs and Research Finance*

Neal Breen, MBA, *Senior Manager Post Award and Research Finance*

Pre-Award
Alixandra Borgert, MRA, CRA, *Lead Pre-Award Specialist*
Gena Dixon, MS, CRA, *Senior Pre-Award Specialist*

Contracts
James Gallagher, Esq., *Assistant General Council*

Clinical Research Finance
Karen Long, BS, *Senior Clinical Revenue Specialist*
Aubree Siebert, MS, *Lead Clinical Research Finance Specialist*

Post Award
Marlene Tzickas, *Lead Post-Award Specialist*
Evana Nasse, *Senior Post- Award Specialist*
Suzanne Setterberg, *Senior Post-Award Specialist*
Jackie Yeo, *Senior Post-Award Specialist*

OFFICE FOR FACULTY DEVELOPMENT (OFD)

The Office of Faculty Development's purpose is to champion the personal and professional growth of faculty at each stage of their career while promoting a culture of well-being and resilience.

The Office of Faculty Development (OFD) celebrated growth in 2022. While the OFD is focused on academic faculty, we define our target audience as all providers (physicians, APPs, and psychologists) regardless of academic standing. OFD addresses key issues facing faculty – such as well-being, burnout, personal effectiveness, gender disparities, diversity and inclusion – through innovative educational offerings.

The Transition into Practice (TiP) Program completed the inaugural year under the direction of Rebecca Moles, MD with co-creators and collaborators Hayley Wolfgruber, MD and Lisa Marella. This innovative pilot program supported new attending faculty in their first job out of training and launched a new era in the Office of Faculty Development. This innovative program was designed to foster and maintain faculty engagement and retention, assure a solid foundation and career trajectory for new faculty, and promote interdisciplinary collaboration and communication. Katherine Kavanagh, MD, Lisa Marella, Rebecca Moles, MD and Hayley Wolfgruber, MD presented outcomes of the TiP Program at Connecticut Children's Grand Rounds in November 2022. Additional programs building on the success of the TiP program will be initiated in the 2022-2023 academic year.

National presentations:

- Rebecca Moles, MD was an invited speaker at the 2022 American Academy of Pediatrics National Conference and Exhibition in Anaheim CA. She provided 2 successful interactive workshops on physician burnout in October 2022.
- Katherine Kavanagh, MD moderated a panel at the American Academy of Otolaryngology - Head and Neck Surgery Foundation annual meeting in Philadelphia, PA entitled "Bullying in the workplace: How to recognize and respond" and was a speaker for "How to create a wellness curriculum at your institution: The GME experience".
- Christine Finck, MD and Lisa Marella were invited to speak at the CT Chapter of the American College of Surgeons Annual Meeting in Trumbull, CT on "Gender and Pay Equity in Surgery."

OFD offerings to faculty in 2022 included:

- Dr. Wolfgruber and Ms. Marella continued our successful Virtual Faculty Lounge, a bimonthly open Zoom meeting where faculty gather for connection and support. This platform has fostered connections across the institution that have positively impacted patient care and provider well-being.

- Ms. Marella provided individual coaching to faculty to support personal and professional growth.
- Ms. Marella provided leader onboarding, team effectiveness, and engagement consultation to division leaders and faculty.
- Stephanie Futtner facilitated the expansion of the Office of Faculty Development internal webpage. The Office of Faculty Development Intranet page brings together all of Connecticut Children's faculty development programs and initiatives. The page is ever-evolving as it aims to stay current and resourceful for our faculty.
- Dr. Kavanagh, Dr. Wolfgruber, and Ms. Marella launched the monthly Faculty Development Series, a lunch and learn offering encompassing a wide variety of faculty development topics featuring institutional experts.

The OFD looks forward to continued innovation and definition in 2022 and beyond as we strive to support faculty across the institution.

STAFF

Hayley Wolfgruber, MD
Katherine Kavanagh, MD
Lisa Marella, *Sr. Director of Organizational Effectiveness, Learning & Culture*
Rebecca Moles, MD
Stephanie Futtner, *Executive Assistant*

Transition into Practice (TiP) Program
Lead: Rebecca Moles, MD
Core faculty:
Lisa Marella & Hayley Wolfgruber, MD


Baby Unicorn

OFFICE FOR COMMUNITY CHILD HEALTH

CENTER FOR GLOBAL HEALTH

Our mission is to improve the lives of children living in resource-limited settings by collaborating with our partners in the development sustainable capacity-building activities. Through the volunteer efforts of trainees, staff and faculty, the Center for Global Health (CGH) creates a culture at Connecticut Children's that acknowledges that we are world citizens and our knowledge and skills change the lives of children around the world. We engage in influential activities that increase global health participation and appreciation. We work to increase cultural humility, resilience and engagement within our community, resulting in healthier children locally and internationally.

The CGH continues to be led by its director, Adam Silverman, MD. The impact of the Center has grown with the appointment of Hareem Park MD, for whom great success is anticipated in her new position. Leadership continues to be provided by Stephen Mahier RN, who is responsible for nursing activities; Naveed Hussain MD, who is responsible for newborn/neonatal capacity-building and research; Lisa LeBon RRT, who is responsible for allied health professionals; and Christopher Hughes MD, who is responsible for surgical activities. All of the work is supported by Lisa Roberts, administrative assistant to the team. The CGH continues to benefit from its status as a program of the Office for Community Child Health (OCCH) through which it can share innovations and methods developed in resource-limited settings with local programs in Connecticut as well as benefit from the resources, structures and methodologies developed by OCCH programs.

Fortunately, global activities have increased in 2022, allowing for a resumption of global health activities abroad. In July, Adam Silverman co-directed a pediatric critical care course with Dr. Janvier Hitayezu of CHUK, the University Teaching Hospital of Kigali, Rwanda in which over 40 Rwandan pediatricians and pediatric nurses were taught life-saving concepts and skills necessary to care for critically ill children. In September, as part of the year-long hybrid Neonatal Nurse's Essential Training and Skills (NNETS) training program, Naveed Hussain led a multi-disciplinary team providing 5-weeks of in-person training at Nakasero Hospital in Kampala, Uganda. In November, Adam Silverman coordinated a Point of Care Ultrasound Course for Haitian pediatricians at the University of Miami Miller School of Medicine and supported the acquisition of ultrasound equipment donated to the pediatricians to allow for advanced imaging of critically ill children at St. Damien Pediatric Hospital in Port-au-Prince and Hospital Sacre Coeur in Milot.

In addition, the yearly university-wide Global Health Symposia was held in collaboration with three partners: the student-led Global Health Spaces on Campus organization in Storrs, CT, the leaders in global health at the UConn Health Center in Farmington, and the Center for Global Health. The theme for Symposia focused on "Partnerships: Connecting People, Places and Health" and turnout continued to be remarkable.

Support for our partners continued this year despite the inability to travel. Remote lectures provided by CGH team members as well as interactive sessions were held at pediatric training programs in Haiti, Uganda, Ghana, Rwanda, Nigeria and Ethiopia. New strategies and technologies were leveraged, so that despite a year in which we could not work side-by-side with our partners, the number of educational sessions held overall significantly increased. Because we were able to maintain relationships and teaching efforts, the volunteers of the Center are in an optimal position to continue the sustained collaborative capacity-building efforts in person when international travel returns to full capacity.

The foundation of these capacity-building activities includes collaborations, partnerships, and sustainable volunteering opportunities with several organizations including:

- Justinien University Hospital as volunteers with Konbit Santé in Cap-Haitian, Haiti
- St. Damien Pediatric Hospital as members of the St. Damien Collaborative in Port-au-Prince, Haiti
- Hospital Sacré Coeur Pediatric Diabetes Program as volunteers with CRUDEM in Milot, Haiti
- NICE Foundation "Cool the Kids" program in Hyderabad, India
- The University Teaching Hospital of Kigali (CHUK) in Kigali, Rwanda
- Mengo Hospital in collaboration with the Friends of Mengo Hospital, USA, and in Kampa-la, Uganda
- Nakasero Hospital as the site for Neonatal Nurse training in Kampala, Uganda

OUR TEAM

Adam Silverman, MD, FAAP – *Director, Connecticut Children's Center for Global Health, Emergency Medicine and Critical Care physician*

Brendan Campbell, MD, MPH, FACS – *Director of Trauma, Pediatric Surgeon, Pediatric Surgical Quality and Safety Officer*

Nancy Dunbar, MD, MPH, FAAP – *Endocrinologist*

Christine Finck, MD, FACS – *Connecticut Children's Surgeon-in-Chief, Division Chief, Pediatric Surgery*

Melissa Held, MD – *Infectious Diseases & Immunology Physician*

Victor Herson, MD – *Neonatologist*

Christopher Hughes MD, MPH – *Pediatric Plastic Surgery & Global Surgery Associate Director of the CGH*

Naveed Hussain, MD – *Neonatologist and Associate Director of the CGH*

Lisa LeBon, RRT – *Respiratory Therapist and Associate Director of the CGH*

Cliff O'Callahan, MD, PhD, FAAP – *Pediatric faculty and Director of Nurseries, Middlesex Hospital; Associate Professor, Pediatrics, University of Connecticut School of Medicine; Assistant Professor, Family Medicine, Frank H. Netter MD School of Medicine, Quinnipiac University*

Andrea Orsey, MD – *Director, Cancer Supportive Care Program, Oncologist*

Hareem Park, MD – *Pediatric Hospital Physician and Associate Director of the CGH*

Juan C. Salazar, MD, MPH, FAAP – *Physician-in-Chief and Executive Vice President, Academic Affairs, Connecticut Children's*

Kristin Welch, MD – *Emergency Medicine Physician*

Stephen Mahier, BSN, RN – *Pediatric Intensive Care Unit (PICU) Nurse and Associate Director of the CGH*

Ian C. Michelow, MD, FCPaed – *Division Head, Pediatric Infectious Diseases and Immunology*

OFFICE FOR COMMUNITY CHILD HEALTH (OCCH)

Connecticut Children's Office for Community Child Health (the Office) is nationally recognized as a pioneer in promoting children's optimal health, development and well-being by utilizing a cross-sector approach to build stronger child-serving systems, strengthen families and advance equity. Under the leadership of Paul H. Dworkin, MD, the Office helps shape federal, state, and local policy regarding child services; builds partnerships between internal and external programs across all sectors that influence child health and development; and cultivates innovations to support children and families that are at risk for adverse health and life outcomes. The Office oversees 17 community-oriented programs that strive to meet the various needs of children and families, which include both medical and basic needs, as part of Connecticut Children's commitment to keeping children healthy.

Highlights of the Office's work in 2022 include Connecticut Children's Injury Prevention Center (IPC) receiving a three-year, $2 million grant from the City of Hartford to oversee a new, citywide hospital-based violence intervention program designed to break the cycle of gun violence and other crimes in Hartford. As part of the grant, the IPC is working with two other hospitals and three community-based organizations to engage victims of firearm violence as they recover from injuries in the hospital to deter retaliation and improve outcomes.

The Help Me Grow (HMG) National Center is playing a key role in two nationwide projects funded by the U.S. Department of Health and Human Services. The HMG National Center will provide technical assistance to the Early Childhood Developmental Health Systems Evidence to Impact National Center and the National Resource Center for the Infant Toddler Court Program. Both projects are in partnership with Zero to Three.

Also, the North Hartford Ascend Pipeline engaged the community in filling seats on various governance teams and work groups, as well as in a series of Community Conversations. Ascend is funded by a five-year, $30 million grant from the U.S. Department of Education's Promise Neighborhoods Program in which Connecticut Children's Office for Community Child Health is leading a multi-partner, cross-sector initiative designed to improve academic outcomes, developmental trajectories, long-term well-being and quality of life for children living in North Hartford.

In addition to the above-mentioned work, the Office is excited to share the following updates from a majority of its programs during the past year:

OCCH PROGRAMS

Center for Global Health (CGH): The CGH mission is to improve the lives of children living in resource-limited settings by collaborating with partners in developing sustainable capacity-building activities. Through volunteer efforts, CGH creates a culture at Connecticut Children's dedicated to using our knowledge and skills to change children's lives around the world.

In 2022, CGH resumed training activities abroad. Adam Silverman, MD, co-directed a pediatric critical care course at the University Teaching Hospital of Kigali and coordinated an ultrasound course for Haitian pediatricians at the University of Miami Miller School of Medicine. In addition, Naveed Hussain, MD, led a five-week, multi-disciplinary training at Nakasero Hospital in Kampala, Uganda. Also, the annual Global Health Symposia, which CGH co-sponsors, focused on "Partnerships: Connecting People, Places and Health."

Our work includes collaborations, partnerships, and sustainable volunteering opportunities with organizations including:

- Justinien University Hospital (Cap-Haitian, Haiti)
- St. Damien Pediatric Hospital (Port-au-Prince, Haiti)
- Hospital Sacré Coeur (Milot, Haiti)
- NICE Foundation (Hyderabad, India)
- The University Teaching Hospital of Kigali (CHUK) (Kigali, Rwanda)
- Nakasero Hospital as the site for Neonatal Nurse training (Kampala, Uganda)

Childhood Prosperity Lab (the Lab): The Lab advances social innovations that address challenges children and families too often face. These innovations are implemented where children and families live, learn, work, play, and pray. They align with the various systems and sectors known to influence children's optimal healthy development.

The Lab engages changemakers in consultation sessions, strengthening innovations through targeted technical assistance and capacity building, and connecting changemakers to professionals across Connecticut Children's. Efforts this year focused on increasing the Lab's capacity to support individual changemakers, partnering with networks of child- and youth-oriented service providers, and collaborating with organizations spurring investment in innovation. Key activities included:

- Co-leading a national learning community with 12 communities to study the impact of integrating four evidence-informed/based strategies into an existing system model.
- Starting to develop an innovation strategy for a place-based initiative and national network, including the tools and resources needed execute said strategies.
- Certified two team members as Human Centered Design Practitioners through the Luma Institute.
- Certified one team member in the Be Strong Families Parent Café Model.

CLASP Co-Management: Clinical Effectiveness, under the direction of Dr. Ilana Waynik, now houses both the CLASP (Connecticut Children's Leaders in Advanced Solutions in Pediatrics) Co-Management and Clinical Pathways Programs. CLASP is vital to many community pediatricians who look to Connecticut Children's specialists for expertise in managing pediatric conditions within their own offices and in understanding when to refer to specialists. In addition to easy-to-use

algorithmic approaches to management and referral, the CLASP platform links to community/online resources, clinical decision tools, and family-centered materials related to that condition. This past year, CLASP increased its reach across the region by 19%, now with 623 unique users. We are excited to announce the formation of a new CLASP Committee that is comprised of seven community pediatricians from all over the state. This committed, excited, and insightful group of pediatricians will serve to review and approve all new CLASP tools and update existing tools. Through new processes of continual improvement, we are on track to reach our goal to ensure all CLASP tools are updated every two years.

Connecticut Children's Center for Care Coordination (the Center): The Center provides supportive and targeted care coordination for children and youth with high-risk medical conditions and complex social stressors, specifically working with community providers, Connecticut Children's patients, and Connecticut Children's Care Network of community pediatricians. Activities included:

- Providing targeted, comprehensive and culturally-competent care coordination to children who screen positive for rare conditions during newborn screening.
- Partnering with Healthy Homes to provide care coordination to children and youth identified through the Hartford NEAR (Neighborhood Environmental Assessments and Restoration) grant.

- Expanding behavioral health care coordination to support Emergency Department discharges.
- Supporting three outpatient clinics at Connecticut Children's – the Behavioral Health Transitions Clinic, the Medical Coping Clinic, and the Intensive Outpatient Clinic – by connecting families to outpatient care.
- Distributing over $48,000 to almost 600 families facing economic challenges for basic needs, medication, and equipment not covered by insurance.
- Participating in two roundtable discussions with Senator Chris Murphy to highlight care coordination as a high yield resource supporting pediatricians and families.
- Continuing active participation with the **Care Coordination Collaborative Model**, which is also a program of the Office, to improve efficiency and effectiveness of care coordination throughout the north central part of Connecticut.

Connecticut Children's Healthy Homes Program (Healthy Homes): In 2022, Healthy Homes received a $2 million grant from the U.S. Department of Health and Human Services to develop and implement the Neighborhood Environmental Assessment and Restoration (NEAR) program. NEAR will utilize a block-by-block approach to build sustainable capacity for healthy housing in multiple neighborhoods in Hartford, with a focus on the North Hartford Promise Zone. NEAR will remove health and safety hazards in 70 homes, contributing to safe, stable and affordable workforce housing. Healthy Homes' Manager was appointed to the Governor's Lead Legislative Work Group to make recommendations for state lawmakers regarding whether legislative or policy adjustments are needed to ensure a smooth transition to new lead standards in 2023. The new standards will trigger parental notification, inspections, and remediation at lower blood lead levels than are currently in place.

Connecticut Newborn Screening Network: The Connecticut Newborn Screening (NBS) Network substantially improved care delivery while reducing the burden on families and providers. We developed an online resource packet and provided a link for families after our NBS Family Advisory Group expressed a preference for electronic resources. We have accelerated our progress during Year 1 of our Health Resources and Services Administration-funded project to implement and evaluate a comprehensive, family-centered, long-term follow up NBS model by applying population health tools and meeting family care coordination (CC) needs. In our early childhood NBS cohort across three subspecialty areas, we engaged care teams to monitor and respond to Epic Registry dashboards to fill care gaps and address CC needs quickly, as evidenced by improvements in multiple dashboard metrics tied to improved health outcomes. For example, Congenital Hypothyroidism patients improved from 81-98% in being up-to-date on visits from 1/1/ 22 to 12/22, and the percent of Sickle Cell Disease patients up-to-date on Transcranial Doppler improved from 57% to 90% during the same timeframe. This represents a remarkable pace of change in practice behaviors and improved outcomes.

Easy Breathing (EB): In 2022, the EB program responded to several requests from the primary care community to receive education on the 2020 Focused Updates to the Asthma Management Guidelines. Guided by content experts in the pediatric pulmonary and sleep division, EB developed a continuing medical education (CME) module on how to implement single maintenance and reliever therapy (SMART) in the pediatric primary care setting. With this CME module in hand, Dr. Caleb Wasser, the EB Physician Champion, delivered more than eight SMART therapy sessions to pediatric practices across the state. SMART therapy is a paradigm shift in asthma management where, rather than prescribing two therapies (an inhaled corticosteroid and a short-acting-beta-agonist) for maintenance and relief, the new approach uses a single combination inhaler for both maintenance and relief. This shift in the guidelines spurred significant confusion in the medical community. To address this confusion, and in collaboration with the UConn School of Pharmacy, Dr. Jessica Hollenbach and Dr. Melanie Sue Collins prepared a corresponding CME module for pharmacists.

As of September 2022, over 200 pharmacists and over 700 technicians have completed the module.

Educating Practices: A grant from the Connecticut Department of Public Health that began in May 2022 helped to reinvigorate the Educating Practices program. The funding included specific support for the spread of the Breastfeeding Basics module and the development of a School-Based Health Center module. The Educating Practices program has also worked with the Easy Breathing program to support the spread of the updated asthma guidelines to practices around the state. Since May 2022, program experts have given 25 presentations focused on seven different topics to 22 different practices and 427 participants.

Hartford Youth HIV Identification and Linkage Consortium (HYHIL): The HYHIL team engaged in the following activities:

- Placed 16 families, including young adults, in emergency housing shelters and connected them with support from housing specialists to navigate the housing system as part of a Housing Stabilization Pilot Project.
- Expanded HIV routine testing services and Pre-Exposure Prophylaxis (PrEP) Navigation Services to youth ages 15 to 24 years old to Connecticut Children's new Primary Care South site in Hartford.
- Due to the routine testing initiative, HYHIL tested 300 adolescents for HIV and enrolled seven youth into PrEP Navigation Services. In addition, HYHIL provided education about PrEP Navigation Services to approximately 265 medical providers and 27 community recovery providers. Also, HYHIL provided 32 adolescents with HIV home testing kits.
- HYHIL leveraged resources from the Wheeler Clinic to address substance use disorder among young adults. As a result, 42 youth participated in virtual recovery support groups and 27 Wheeler Clinic Recovery Network facilitators received presentations on routine testing and PrEP Navigation Services.
- The Health Interactive Project (HIP), of which HYHIL is a part, reached 4,176 middle and high school students across Connecticut. The program expands access to HIV prevention and PrEP Navigation Services to students in traditional and non-traditional education settings through interactive preventive education.

Help Me Grow National Center: In addition to one new affiliate state and three new communities in existing affiliate states, the HMG National Center led the National Network in strategic initiatives including:

- Serving as a key partner to establish the inaugural Early Childhood Developmental Health Systems Evidence to Impact National Center, funded by the U.S. Department of Health and Human Services.
- A Goal-Concordant Care project, studying the impact of expanding a focus on parent-identified goals through the HMG Model to advance family engagement, satisfaction, and achievement of family goals for child health, development, and well-being.
- A Roadmap for Advancing Family-Engaged Developmental Monitoring, offering a visionary new framework for following children's developmental pathways in authentic partnership with families.
- The release of a new report codifying what it means to lead HMG at the state level.
- Partnership to support the National Resource Center for the Infant Toddler Court Program, which seeks to expand entry to screening, assessment, and treatment options for families involved in the child welfare system with a focus on collective, system-level changes.

Injury Prevention Center (IPC): Founded in 1990, the IPC's mission is to keep children and families safe and injury free. IPC research focuses on preventing suicide,

community violence, firearm violence, domestic violence, and child maltreatment. Our community programs, including Safe Kids Connecticut, address safety issues and focus on bringing evidence-based interventions to bear. The Hayley Petit Injury & Violence Prevention Fellowship for undergraduate women is key to our education/training goals of inspiring the next generation of researchers. Finally, our policy and advocacy work supports meaningful change, most recently including a greater focus on ending firearm violence and establishing an office within the Department of Public Health for that purpose.

Notably, in 2022, with support from the City of Hartford in response to a striking increase in firearm-related fatalities, the IPC formed the Hospital-based Violence Intervention Program Strengthening Collaborative to enhance ongoing efforts to intervene with gunshot victims. This evidence-based effort enhances services, centralizes data collection, and brings additional resources to community partners. The IPC participates in national and regional discussions of research opportunities and priorities as a member of the Society for the Advancement of Violence and Injury Research.

North Hartford Ascend Pipeline (Ascend):
Ascend is a place-based, pre-natal - career initiative ensuring children and families living in the North Hartford Promise Zone have the supports they need to reach their full potential. Leveraging a U.S. Department of Education Promise Neighborhoods Grant, Connecticut Children's Office for Community Child Health is leading the multi-partner, cross-sector initiative as it:

- Develops a comprehensive, integrated continuum of services
- Facilitates the implementation of a parent-, family, and community-driven agenda
- Leverages targeted universalism to support equity
- Strengthens families' protective factors
- Enhances early identification, referral, and linkage to services

Over the last year, Ascend has focused on community engagement and leadership to be the driving force behind all efforts. Notable successes include:

- Hosting 10 community conversations with attendance ranging from 50 to 90 participants
- Releasing Ascend's budget in response to community questions and concerns
- Launching a Resident and Community Advisory Group composed of representatives from existing community groups, such as Neighborhood Revitalization Zones and School Governance Councils
- Embedding community members within the governance framework

Person-Centered Medical Home (PCMH):
The National Committee for Quality Assurance recertified the Connecticut Children's Primary Care East (East Hartford) and West (Farmington) locations as PCMHs in April 2022. This year, we opened a third primary care site, Connecticut Children's Primary Care South (100 Retreat Avenue, Hartford), and that site was accepted onto the Department of Social Services Glide Path for PCMH. In keeping with the PCMH model, we conduct universal screening to identify and evaluate behavioral and developmental concerns at all well-child visits. In response to the mental health crisis (amplified by the COVID-19 pandemic), we follow a model of integrated behavioral-medical care, with psychologists and care coordinators on site. This year, Amy Signore, PhD, received a grant from Antioch University to support the first psychology doctoral student to train in primary care/integrated behavioral health. All three Connecticut Children's Primary Care sites participate in the Connecticut Children's Care Network and serve as laboratories for many programs of the Office. We are the first department at Connecticut Children's to implement a documentation platform for social determinants of health in our Electronic Health Record. This work dovetails with participation in a new learning community project to enhance goal-concordant care, supported by funding from the Help Me Grow National Center.

Resident Education in Advocacy and Community Health (REACH): The REACH program continues to be an active in advocacy. We offered an Introduction to Advocacy elective twice with participation from pediatric residents and medical students (UCONN and QU). During this time, multiple residents published Op-Eds and participated in the state legislative session by submitting testimony for various bills. The Rome professorship took place (awarded '21) with Dr. Rhea Boyd presenting grand rounds on social determinants of health and mini-mentor sessions on building an advocacy portfolio and Op-Ed writing. Also, we introduced structural competency education to our core faculty leaders to incorporate in their rotations. The REACH program continues to work with different community groups, including Hands on Hartford, the YMCA nursery schools, Capitol Squash, and KNOX community garden. We participate in national and local initiatives including Wear Orange to advocate for gun safety. We also formed an advocacy committee to further residency involvement and awareness within advocacy. Dr. Nancy Presnick was awarded the Capitol Area Health Consortium community award and Dr. Kayla Gonzalez gave a family medicine grand rounds presentation on adverse childhood experiences.

Start Childhood Off Right (SCOR): To help combat rising levels of food insecurity and promote increased consumption of fruits and vegetables, SCOR received a Healthier Kids for Our Future grant from the Cigna Foundation to establish a produce prescription program that screens families for food insecurity in Connecticut Children's Emergency Department (ED). Families with a positive screen receive a voucher for fresh fruits and vegetables. To date, the initiative has screened 590 families and distributed 205 vouchers, showing a food insecurity rate of about 34% in our ED population. We are partnering with Hartford Food Systems Mobile Market, which sets up a produce table outside the ED so parents can redeem their vouchers on their way out and, most recently due to cold weather, we have moved the mobile market inside and expanded redemption options. We also partnered with UConn Health's Husky Nutrition program to provide additional nutritional education and resources next to the Mobile Market.

OCCH PUBLICATIONS (INCLUSIVE OF GREY LITERATURE)

Administration

Gurganus EA, Honigfeld L, Dworkin PH. Social network analysis as a tool to inform a children's hospital's efforts to improve population health. Acad Pediatr. 2022;22:1338-1345. https://doi.org/10.1016/j.acap.2022.04.002.

Childhood Prosperity Lab

- How to Support a Child's Media Diet - ADVANCING KIDS
- An Integrative Outlook on STEAM Education - ADVANCING KIDS
- Comics and Child Health Education | Advancing Kids

Easy Breathing

Implementation of a pediatric asthma management program in rural primary care clinics.Fedele DA, **Hollenbach J**, Sinisterra M, LeFave E, Fishe J, Salloum RG, Bian J, Gurka MJ.J Asthma. 2022 Oct 20:1-8. doi: 10.1080/02770903.2022.213295

The Promise of School-Based Asthma Interventions. **Hollenbach JP**, Simoneau T, Halterman JS. Acad Pediatr. 2022 Apr;22(3):385-386. doi: 10.1016/j.acap.2021.11.006. Epub 2021 Nov 28

SMARTen Up: Asthma Management Guidelines. Lindsey Sawtelle, PharmD Candidate 2022, University of Connecticut School of Pharmacy, Storrs, CT. Melanie Collins, MD, and Jessica Hollenbach, PhD, AE-C, are Co-Directors, Asthma Center, Connecticut Children's Medical Center, Hartford, CT. Accreditation Council for Pharmacy Education. April 20, 2022.

Help Me Grow National Center

Leading Help Me Grow at the State-Level: An Exploration of Roles, Responsibilities, Strategies & Approaches: This report from the HMG National Center aims to illuminate approaches to HMG leadership at the state-level, explore existing functions and strategies, and bring clarity so we may learn from this unsung role. Through a series of key stakeholder interviews on the current landscape of state-level HMG leadership, the report offers insights directly from HMG state leads, in their own words:

- Showcasing the ways in which HMG state leadership is currently carried out across the nation
- Highlighting the existing aims, functions, and challenges of state leadership
- Exploring state funding strategies, budgets, and directions for ongoing conversations
- Diving into HMG's strategic priority of advancing equity and the unique role state leads play

Help Me Grow: Building Impact 2021 Annual Report: This 2021 HMG Building Impact Report synthesizes data collected through the Fidelity Assessment from 107 of the HMG National Affiliate Network's 118 HMG systems operating within 28 affiliate states and Washington D.C. Data reported in the HMG 2021 Fidelity Assessment were collected by affiliates across the National Affiliate Network between August 31, 2020 and September 1, 2021, in order to capture the following:

- The breadth and scope of HMG system implementation and progress since 2020
- The capacity of HMG to reach children, families, community partners, and child health care
- Novel approaches and system enhancements currently explored by the National Affiliate Network

Strengthening Developmental Surveillance to Enhance Developmental Promotion and Early Detection In partnership with the Learn the Signs. Act Early. Ambassador program at AUCD and HMG Connecticut, the HMG National Center released a blog post and accompanying toolkit to help HMG affiliates understand, talk about, and utilize updated developmental milestone guidelines released from the Centers for Disease Control and Prevention (CDC) in February 2022.

The Magnitude of Mental Health Challenges: Op-Ed in the Hartford Courant by Dr. Paul H. Dworkin, March 3, 2022.

Budget Reconciliation Could Turn the Tide or Leave Families Behind: Make Your Voice Heard to Protect Child Care Funding: Blog post for HMG National Center by Morgan Reiss, Policy & Communications Program Specialist, July 28, 2022

Hartford Youth HIV Identification and Linkage Consortium

Margaret R. Weeks, Helena D. Green Montaque, David W. Lounsbury, Jianghong Li, Alice Ferguson, Danielle Warren-Dias, Using participatory system dynamics learning to support Ryan White Planning Council priority setting and resource allocations, Evaluation and Program Planning, Volume 93, 2022, 102104, ISSN 0149-7189, https://doi.org/10.1016/j.evalprogplan.2022.102104. (https://www.sciencedirect.com/science/article/pii/S0149718922000581)

Injury Prevention Center

Amick M., Bentivegna K., Hunter A.A., Leventhal J.M., Livingston N., Bechtel K., Holland M.L. Child maltreatment-related children's emergency department visits before and during the COVID-19 pandemic in Connecticut. Child abuse & neglect. 2022 Jun 1;128:105619.

Dukleska, K., Borrup, K., & Campbell, B. T. (2022, October). Childhood injury prevention: where we've been and where we need to be. In Seminars in Pediatric Surgery (Vol. 31, No. 5, p. 151220). WB Saunders.

Hogan, A. H., Gadun, A., Borrup, K., Hunter, A. A., Campbell, B. T., Knod, J. L., ... & Rogers, S. C. (2022). Assessing the effect of electronic medical record note template on firearm access screening in high-risk children. Hospital pediatrics, 12(8), e278-e282.

Hunter A.A., Schwab-Reese L., DiVietro S., McCollum S. An examination of fatal child poisonings in the United States using the National Violent Death Reporting System (NVDRS), 2012–2017. Clinical toxicology. 2022 Mar 4;60(3):342-7.

Kilian, E. R., Rogers, S., Chenard, D., Clough, M., Santos, M., & Borrup, K. (2022, April). Attitudes and experiences

of parents of children with behavioral health concerns in the schools. Journal of investigative medicine (Vol. 70, No. 4, pp. 1153-1153). British Med Assoc House, Tavistock Square, London wc1h 9jr, England: BMJ publishing group.

O'Neill, K. M., Dodington, J., Gawel, M., Borrup, K., Shapiro, D. S., Gates, J., ... & Becher, R. D. (2022). The effect of the COVID-19 pandemic on community violence in Connecticut. The American Journal of Surgery.

Shah, R., Rogers, S., Campbell, B., Borrup, K., Knod, J., Lapidus, G., ... & Smith, S. (2022, April). caregiver perceptions of firearm education. Journal of Investigative Medicine (Vol. 70, No. 4, pp. 1010-1011). British Med Assoc House, Tavistock Square, London WC1H 9JR, England: BMJ Publishing Group.

Thomas, A., Borrup, K., & Campbell, B. T. (2022). Moving Toward a Better Understanding of Why Interpersonal Firearm Violence Increased During the Pandemic. JAMA Network Open, 5(2), e2146116-e2146116.

Volz, K., Chenard, D., Sacco, S., Borrup, K., & Rogers, S. (2022, April). UNIVERSAL SUICIDE Screening in a pediatric emergency department is feasible: Even during a pandemic. Journal of Investigative Medicine (Vol. 70, No. 4, pp. 991-991). British Med Assoc House, Tavistock Square, London WC1H 9JR, England: BMJ Publishing Group.

Resident Education in Advocacy and Community Health

Devoe, Christie. "Closing CT's digital divide starts with public internet." *CT Mirror*. 6 May 2022. Op Ed.

Gallagher, Joe. "This Bill can Save Connecticut Children from harm caused by ingestion of marijuana." *CT Mirror.* 26 April 2022. Op-Ed.

Gonzalez, Kayla. Family Medicine Grand Rounds. 4 May 2022. "Adverse Childhood Experiences: What are they and What Can we Do?" Connecticut.

Nycz, Alyssa. "Prioritizing Consistent Sleep To Support Mental Health." *Advancing Kids Blog*, Connecticut Children's. 7 April 2022.

Winchester, Anna. "Connecticut's youth are suffering their own pandemic." *CT Mirror*. 7 June 2022. Op Ed.

GRANTS, GIFTS AND AWARDS

Connecticut Children's Center for Care Coordination

The Center for Care Coordination (the Center) is concluding its second year of a five-year Department of Public Health grant for Children and Youth with Special Health Care Needs. These State and Federal dollars, $418,001 awarded yearly to the Center, allows for the expansion of community-based supports for which the Center provided care planning support to over 2,000 children in FY22. The DPH grant award, along with smaller grant and endowment dollars support efforts to engage in pediatric practices through Connecticut Children's Care Network. Total grant award (5 year): $2,090,005.

Connecticut Children's Healthy Homes Program

The Healthy Homes program received a $2 million grant from the Department of Health and Human Services to develop and implement the Neighborhood Environmental Assessment and Restoration (NEAR) program, which will utilize a block-by-block approach to build sustainable capacity for healthy homes in multiple neighborhoods in Hartford, with a focus on the North Hartford Promise Zone.

Easy Breathing

Environmental Protection Agency 2020 Healthy Communities Grant Program. Hollenbach (PI). 10/1/2020-9/30/2022. Easy Breathing for Schools. This study proposes the expansion of an efficacious school-based asthma program that focuses on healthy indoor environments among school-age children with asthma.

Educating Practices

Grant from the Connecticut Department of Public Health, $55,950

Hartford Youth HIV Identification and Linkage Consortium

Angel Ruiz, Community Health Worker, was recognized by Connecticut Children's, through the Southside Institutions Neighborhood Alliance's REACH Committee, with the 2022 Steve Balcanoff Award

Consuelo Munoz, Community Health Worker, was recognized with the 2022 World AIDS Day Statewide Trailblazer Award.

Help Me Grow National Center

HMG Maine Technical Assistance (State of Maine/ HHS) 1/1/2022

HMG Texas Technical Assistance (State of Texas/ HHS) 4/14/2022

Early Childhood Developmental Health Systems: Evidence to Impact (HRSA/Zero to Three) 9/30/2022

Infant-Toddler Court Program – National Resource Center (HRSA/Zero to Three) 9/30/2022

Injury Prevention Center

CT Elks Association, Safe Kids Connecticut, $100,000

Petit Family Foundation, Hayley Petit Injury & Violence Prevention Fellowship, $25,000

Connecticut Coalition Against Domestic Violence, Intimate Partner Violence and Maternal Mortality in Connecticut, $15,000

CT Department of Children and Families, Intimate Partner Violence Support Project, $240,000

CT Department of Public Health, Connecticut Violent Death Reporting System Report 2015-2019, $25,000

City of Hartford, Hospital-based Violence Intervention Program (HVIP) Strengthening Collaborative, 2022-2026, $2.4 million over 3 years

Connecticut Department of Transportation, Watch for Me CT, $360,000

Connecticut Department of Transportation, Look Before You Lock, $150,000

Connecticut Department of Transportation, Child Passenger Safety (CPS) Supports, $75,000

Hartford Hospital, Injury and Violence Prevention Program, $122,000

Newborn Diagnosis and Treatment Network

Name of Funding Agency: Connecticut Department of Public Health **Name of Project:** Connecticut Newborn Diagnosis and Treatment Network **Funding Amount:** 7/1/21-6/30/22: $623,144; Extension 7/1/22: $49,932; Extension 8/1-9/31/22 $99,864)

Name of Funding Agency: Connecticut Department of Public Health **Name of Project:** The Connecticut Newborn Screening Network: Optimizing Short and Long Term Outcomes of Infants Identified Through Newborn Screening **Funding Amount:** $1,797,531 **Date of Grant Period:** October 1, 2022 to June 30, 2025

Name of Funding Agency: HRSA (Health Resources and Services Administration) **Name of Project:** Connecticut's Newborn Screening System: An Integrated Approach to Improving Long Term Health Outcomes **Funding Amount:** $1,088,288: (Year 1: 8/1/21-7/30/22: $477,408; Year 2: 8/1/22-7/30/23 $477,880 plus supplemental and carry over funding: $133,000)

Resident Education in Advocacy and Community Health

Dr. Nancy Presnick was the recipient of the Capital Area Health Consortium Community Award.

Start Childhood Off Right

SCOR received a $100,000 Healthier Kids for Our Future grant from the Cigna Foundation to benefit its food insecurity screening program.

SCOR received a $15,000 grant from Rite Aid Foundation to benefit its food insecurity screening program.

CORE FACULTY

Center for Global Health
Adam Silverman, MD, FAAP
Brendan Campbell, MD, MPH, FACS
Nancy Dunbar, MD, MPH, FAAP
Christine Finck, MD, FACS
Melissa Held, MD
Victor Herson, MD
Christopher Hughes MD, MPH
Naveed Hussain, MD
Lisa LeBon, RRT
Cliff O'Callahan, MD, PhD, FAAP
Hareem Park, MD
Juan C. Salazar, MD, MPH, FAAP
Kristin Welch, MD
Stephen Mahier, BSN, RN
Ian C. Michelow, MD, FCPaed

Childhood Prosperity Lab
Jacquelyn Rose, MPH, *Manager, Connecticut Children's Office for Community Child Health*

Annika Anderson, *MPH, Program Coordinator*

CLASP Co-Management
Ilana Waynik, MD, *Director, Clinical Effectiveness Program, Associate Professor Pediatrics*

Karen Rubin, MD, *Program/CLASP Founder, Professor Emeritus Pediatrics, Pediatric Endocrinology*
Grace Hong, AP, *Senior Development Specialist, Clinical Effectiveness Program*
Mellissa Molcan, BSN, RN, CCRN, *Clinical Data Coordinator*

Children's Center for Care Coordination
Allison Matthews-Wilson, LCSW, *Director, Center for Care Coordination*

Katherine Ramirez, MS, Manager, *Center for Care Coordination*

Ann Riley, MSN, RN, *Lead, Care Coordination Team*
Nancy Caperino, LCSW
Damaris Rodriguez
Rachelle Tirrell, BSN, RN
Nidia Rivas
Kerri Zimmerman, LMSW

Connecticut Children's Healthy Homes Program
Chris Corcoran, *Manager*

Alba Cruz, MPH, *Relocation Education Coordinator*
Amalyn Morales, *Program Coordinator*
Esther Figueroa, *Program Manager*
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Tavanna Hansberry, *Relocation Education Coordinator*
Taysha Thompson, BA, *Referral Coordinator*
Tom Rotchford, *Construction Manager*

Connecticut Newborn Screening Network
Karen Rubin, MD, *PI/Medical Director, Professor Emeritus UConn SOM*
Debra Ellis, RN BSN, *Program Coordinator*
Katie Raboin, RN MSN, *Senior Nurse Analyst*
Ginger Nichols, MS LCGC, *Genetic Counselor*
Meghan Criscuolo, RN BSN, *Nurse Coordinator*

Easy Breathing©
Jessica P. Hollenbach, PhD, AE-C, *Assistant Professor, Co-director*

Melanie Sue Collins, MD, *Medical Director, Division of Pediatric Pulmonary and Sleep Medicine; Director, Cardiopulmonary Function Laboratory; Program Director, Pediatric Pulmonology Fellowship; Co-Director, Asthma Center at Connecticut Children's; Associate Director, Central Connecticut Cystic Fibrosis Center; Associate Clinical Professor, UConn School of Medicine*

Caleb Wasser, DO, *Pediatrician, Division of Primary Care, Connecticut Children's*
Kasia Saar, DO, *Pulmonary Fellow*
Sigrid Almeida, BS, AE-C, *Research Assistant*
Brian Lesmes, BA, *Administrative Assistant*
Ambarenis Caraballo, *Administrative Assistant*
Iris Becene, BS, *Research Intern*
Kailee Martin, *Data Entry Specialist*

Educating Practices
David Krol, MD, MPH, FAAP, *Project Director*

Cassie Yaiser, MS, *Project Manager*

Hartford Youth Identification and Linkage Consortium
Danielle Warren-Dias, MS, HS-BCP, *Program Director*

Nilda Fernandez, LMSW, *Supervisor*
Myrna Millet Saez, MS, HS-BCP, *Community Health Specialist*
Consuelo Munoz, MS, *Community Health Worker*
Angel Ruiz, BS, *Community Health Worker*
Mieykeya McClendon, BA, *Community Health Worker*

Help Me Grow® National Center
Paul H. Dworkin, MD, HMG *Founding Director, HMG National Center; Executive Vice President for Community Child Health, Connecticut Children's; Professor Emeritus of Pediatrics at UConn School of Medicine*

Kimberly Martini-Carvell, MA, HMG *Executive Director, HMG National Center; and Associate Director for Capacity Building, Organizational Learning & Professional Advancement, Connecticut Children's Office for Community Child Health*

Sara Sibley, MBA, *Associate Director of Business Development & Operations, HMG National Center*
Melissa Passarelli, MA, *Associate Director of Implementation & System-Building, HMG National Center*

Sarah Zucker, BA, *Manager of Communications & Network Relations, HMG National Center*

Morgan Reiss, MSW, *Program Specialist of Policy & Communications, HMG National Center*

Noshin Ahmed, MPH, *Program Coordinator, HMG National Center*

Injury Prevention Center
Kevin Borrup, DrPH, JD, MPA, , *Executive Director & Assistant Professor in Pediatrics*

Renee Beavers, LMSW, *Hospital-based Violence Intervention Program (HVIP) Specialist*

Rebecca Beebe, PhD, *Research Scientist & Assistant Professor in Pediatrics*

Bruce Bernstein, PhD, *Affiliated Faculty & Research Scientist*

Brendan Campbell, MD, MPH, *Donald W. Hight Endowed Chair in Pediatric Surgery, Chief Surgical Quality Officer, Research Scientist, Professor of Surgery and Pediatrics, Medical Director of the Injury Prevention Center*

Meghan Clough, MA, *Research Associate*

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Katerina Dukleska, MD, *Research Scientist & Assistant Professor of Pediatric Surgery*

Sarah Gedeon, MSW, *Hospital-based Violence Intervention Program (HVIP) Research Assistant II*

Damion Grasso, PhD, *Research Scientist & Associate Professor of Psychiatry*

Amy Hunter, MPH, PhD, *Research Scientist & Assistant Professor of Public Health Sciences*

J. Leslie Knod, MD, *Research Scientist & Assistant Professor of Surgery and Pediatrics*

Garry Lapidus, MPH, PA-C, *Co-Founder & Associate Professor of Pediatrics and Public Health Sciences*

Amalyn Morales, *ASCEND Program Coordinator*

Mayra Pino, *Research Assistant I*

Steven C. Rogers, MD, *Research Scientist & Associate Professor of Emergency Medicine*

Elizabeth Sagan, *Program Coordinator*

Amy Watkins, MPH, *Manager & Director of Safe Kids Connecticut*

North Hartford Ascend Pipeline

Jacquelyn Rose, MPH, Manager, *Connecticut Children's Office for Community Child Health*

Michelle Safo-Agyeman, MS, *Program Manager*

Person-Centered Medical Home

Catherine Wiley, MD, *Program Medical Director, Professor of Pediatrics*

Yazmin Hernandez, *Consulting Program Manager*
Andrew Carlson, MD *Primary Care Medical Director, Asst-P*
Cynthia O'Brien, RN, *Nurse Manager*
Shana Lowery, MBA, *Practice Manager*
Amaris Delgado, MA, *PCMH QI Team representative*
Brooke Bohn, MD, *Asst-P*
Jennifer Haile, MD, *Asst-P*
Shannon Hogan, DO, MPH, *Asst-P*
Abraham Khorasani, MD, *Asst-P*
Ashok Kottarathara, MD, *Asst-P*
Jaye Ladinsky, MD, *Asst-P*
Douglas MacGilpin, MD, *Asst-P*
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Esther Oziel, MD, *Asst-P*
Aruna Ramanan, MD, *Asst-P*
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Nancy Trout, MD, MPH, *Asst-P*
Keri Wallace, MD, *Asst-P*
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Darlene Abbate, APRN
Keith Ellis, APRN
Monica Joyce-Montaudy, APRN
Kimberly Griffith, PA-C
Elinor Coloccia, PsyD
Amy Signore, PhD
Amy Dempsey, *Care Coordinator*
Angela Easterling, *Care Coordinator*
Darwin Garcia-Nunez, *Social Work Care Coordinator*

Resident Education in Advocacy and Community Health

Jonah Mandell, DO, *Assistant Professor Pediatrics*

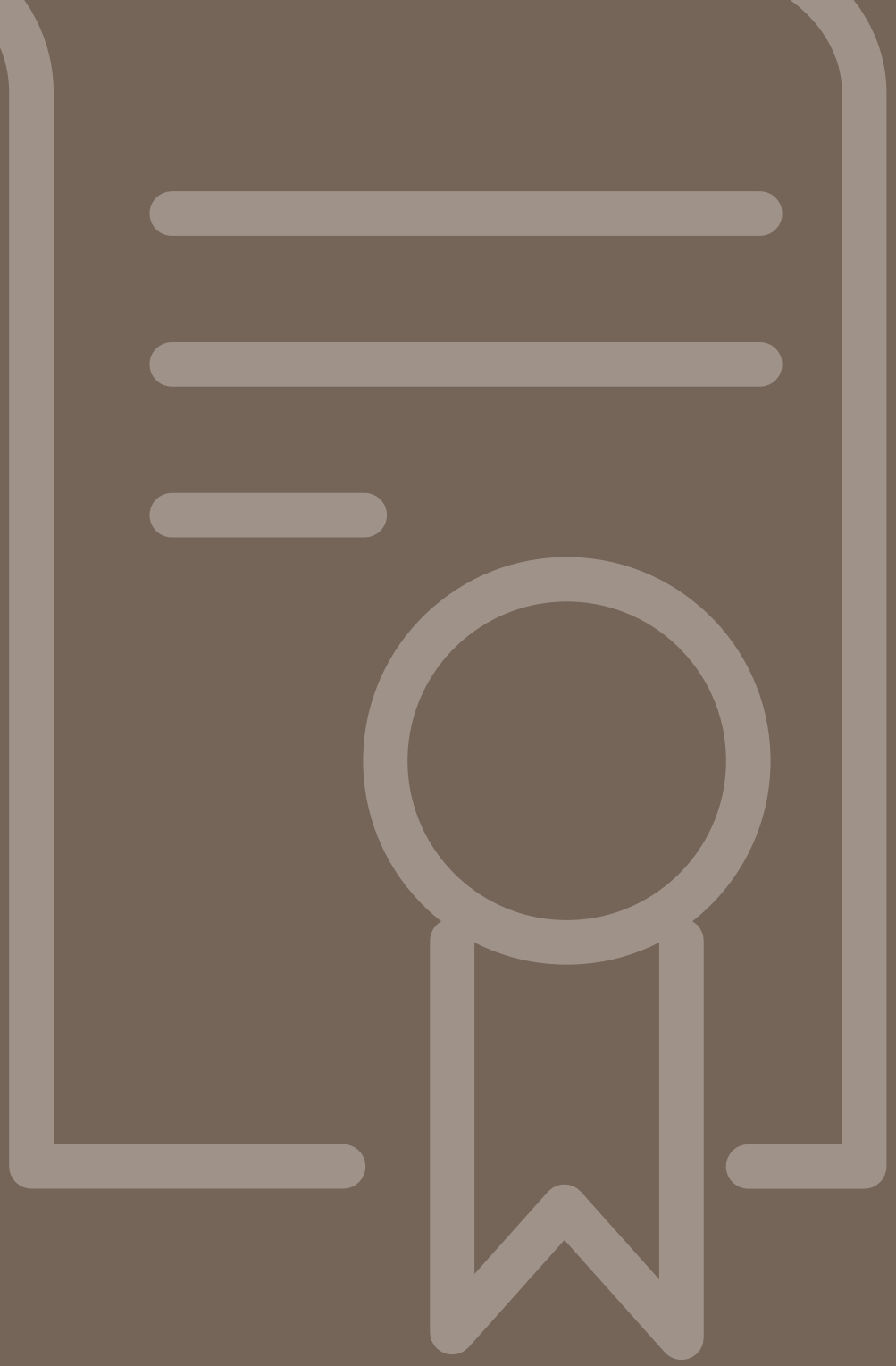
Start Childhood Off Right (SCOR)

Nancy Trout, MD, MPH, *Program Co-director, Assistant Professor of Pediatrics, UConn School of Medicine*

Stacey Chandna, MS, CIP, *Program Co-director*

Mary-Kate Nowobilski, *URAP Research Coordinator*

GRANTS



PRINCIPAL INVESTIGATOR	AWARD / STUDY TITLE	FUNDING SOURCE PRIMARY / SECONDARY	AWARD	START DATE	END DATE	SUBCONTRACT TO UCHC/CCMC?	AMOUNT OF SUBCONTRACT	PRIMARY SITE
Acsadi, Gyula	An intermediate access protocol for AVXS-101 Gene Therapy of spinal muscular atrophy (SMA)	AveXis	15,565					
Acsadi, Gyula	An Open-Label Extension Study for Patients With Spinal Muscular Atrophy Who Previously Participated in Investigational Studies of ISIS 396443	Biogen MA Inc.	107,709					
Acsadi, Gyula	An Open-Label Extension Study for Patients With Spinal Muscular Atrophy Who Previously Participated in Investigational Studies of ISIS 396444	Biogen MA Inc.	107,709					
Acsadi, Gyula	COAV101B12301	NOVARTIS PHARMACEUTICALS CORP		5/3/22				
Acsadi, Gyula	Cure SMA	CURE SMA	30,000	4/1/21	3/31/22			Connecticut Children's
Acsadi, Gyula	Cure SMA	CURE SMA	40,199	4/1/22	12/31/23			
Acsadi, Gyula	DCS 14/2357/51	National Pediatric Cancer Foundation		7/29/20				Connecticut Children's
Acsadi, Gyula	Open label, long- term safety, tolerability, and efficacy study of GIVINOSTAT in all DMD patients who have been previously treated in one of the Givinostat studies.	Italfarmaco	20,715					
Acsadi, Gyula	Open label, long- term safety, tolerability, and efficacy study of GIVINOSTAT in all DMD patients who have been previously treated in one of the Givinostat studies.	Italfarmaco	80,877					
Acsadi, Gyula	PPMO 5051-102	Sarepta Therapeutics, Inc.		7/15/20				
Acsadi, Gyula	Randomised, double blind, placebo controlled, multicenter study to evaluate the efficacy and safety of givinostat in ambulant patients with Duchenne Muscular Dystrophy	Italfarmaco	31,681					
Acsadi, Gyula	Sarepta 4658-403 EVOLVE	Sarepta Therapeutics, Inc.		11/11/20				
Acsadi, Gyula	SHINE - ISIS 396443	Biogen MA Inc. / Research LLC		7/5/18				
Acsadi, Gyula	SRP 5051-201	Sarepta Therapeutics, Inc. / Syneos Health LLC		9/13/22				
Bennett, Alyssa	BTA51-350-203	PPD Development LP		10/1/12				
Bezler, Natalie	54767414 ALL2005	Janssen Research & Development LLC		9/5/19				Connecticut Children's

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Bezler, Natalie	Protocol # 54767414ALL2005 An Open-label, Multicenter, Phase 2 Study Evaluating the Efficacy and Safety of Daratumumab in Pediatric and Young Adult Subjects greater than or equal to 1 and less than or equal to 30 Years of Age With Relapsed/ Refractory Precursor B-cell or T-cell Acute Lymphoblastic Leukemia or Lymphoblastic Lymphoma	Janssen Research & Development LLC	55,098					
Bookland, Marcus	Screening of Pediatric Cranial	University of Connecticut	9,999	6/15/21	6/20/22			
Borrup, Kevin	Fresh Check Day	Jordan Porco Foundation	20,000	2/1/21	1/31/22			
Borrup, Kevin	HVIP	US Department of the Treasury / City of Hartford	753,908	3/1/22				
Borrup, Kevin	Intimate Partner Violence	CT Department of Children & Families	720,000	7/1/20	6/30/24			
Borrup, Kevin	Intimate Partner Violence	CT Department of Children & Families	240,000	7/1/22				
Borrup, Kevin	Judge Sexual Violence Training	CDC / CT DPH	50,000	2/1/21	1/31/22			
Borrup, Kevin	Mapping Dimensional Aspects of Biobehavioral Threat Reactivity in Young, Violence-Exposed Children: Linkages to Fear and Distress	NIH / UCHC	917,550	7/1/18	6/30/23			
Borrup, Kevin	Mapping Multi-Level Aspects	NIH / UCHC	145,969	7/1/21	6/30/22			Connecticut Children's
Borrup, Kevin	Rape Prevention and Education (RPE) Program: Using The Best Available Evidence for Sexual Violence Prevention	CT DEPARTMENT OF PUBLIC HEALTH	250,000	6/28/19	1/31/24			
Borrup, Kevin	Violent Death Reporting System	HRSA / CT DPH	24,999	6/1/22	8/31/22			
Boruchov, Donna	A Natural History Cohort Study of the Safety, Effectiveness, and Practice of Treatment for People with Severe Von Willebrand Disease (VWD)	American Thrombosis and Hemostasis Network (ATHN)	1,590					
Boruchov, Donna	ATHN Transcend	American Thrombosis and Hemostasis Network (ATHN)		4/1/22	3/31/27			
Boruchov, Donna	ATHN-10	American Thrombosis and Hemostasis Network (ATHN)		2/17/20				Connecticut Children's
Boruchov, Donna	ATHN-14	American Thrombosis and Hemostasis Network (ATHN)		9/1/22				

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Boruchov, Donna	ATHN 2018-ATHN9	American Thrombosis and Hemostasis Network (ATHN)		1/22/20				Connecticut Children's
Boruchov, Donna	Data Quality Counts 13	American Thrombosis and Hemostasis Network (ATHN)		9/1/21	8/31/22			
Boruchov, Donna	Sickle Cell Disease UCH 2021	CDC / CT DPH	15,000	7/1/21	6/30/22			
Boruchov, Donna	Sickle Cell Disease UCH 2022	CT DPH / UCHC	12,500	1/1/22				
Boruchov, Donna	Sickle Cell Disease UCH 2023	CT DPH / UCHC	25,000	7/1/22				
Carroll, Christopher	COVID-19 Vaccine Effectiveness	CDC / Boston Children's Hospital		8/3/22	1/31/24			
Cohen, Jennifer Madan	Predictive Model for Infantile Spasms	PERF / Children's Hospital of Orange County		9/1/21	8/31/23			
Cohen, Jennifer Madan	YKP3089C040	SK Life Science Inc. / Pharmaceutical Research Assoc		3/16/22				
Collinge, Janine	ATS20P	NIH / Jaeb Center for Health Research Foundation		1/29/20				
Collinge, Janine	ATS22	NIH / Jaeb Center for Health Research Foundation		12/8/21				
Cowl, Allison	PICS-p	NIH / University of Pennsylvania		7/1/21	6/30/23			
Davey, Brooke	Congenital Cardiology Demograp	NECCRF	7,788	8/1/22				
DeMayo, Rachelle	BHV3000-311	Biohaven Pharmaceuticals Inc. / Syneos Health LLC		4/18/22				
deMayo, Rachelle	BHV3000-312	Biohaven Pharmaceuticals Inc. / Syneos Health LLC		6/1/22				Connecticut Children's
DiVietro, Susan	Mapping Multi-Level Aspects 20	NIH / UCHC	138,334	7/1/22				
DiVietro, Susan	Pediatric Firearm Deaths	NIH / UCHC	5,199	6/1/21	5/31/22			Connecticut Children's
DiVietro, Susan	Perinatal Pandemic-Related Str	NIH / UCHC	69,599	4/1/22				
Dumont-Mathieu, Thyde	New OEC - Bridging the Gap	CT Office of Early Childhood	100,000	3/1/21	2/28/22			
Dunbar, Nancy	Alexion ALX-HPP-501	Alexion Pharmaceuticals Inc. / Quintiles		12/8/16				

PRINCIPAL INVESTIGATOR	AWARD / STUDY TITLE	FUNDING SOURCE PRIMARY / SECONDARY	AWARD	START DATE	END DATE	SUBCONTRACT TO UCHC/CCMC?	AMOUNT OF SUBCONTRACT	PRIMARY SITE
Dunbar, Nancy	An Observational, Longitudinal, Prospective, Long-Term Registry of Patients with Hypophosphatasia	Alexion Pharmaceuticals Inc.	12,295					
Edelheit, Barbara	Observational Study of Pediatric Rheumatic Diseases: The CARRA Registry	Childhood Arthritis and Rheumatology Research Alliance (CARRA) / Duke University	27,755	11/18/15				
Emerick, Karan	A 5-year Longitudinal Observational Study of Patients with Nonalcoholic Fatty Liver or Nonalcoholic Steatohepatitis (NASH)	Target PharmaSolutions, Inc.	375					
Emerick, Karan	Target Nash	Target PharmaSolutions, Inc.		3/13/19				Connecticut Children's
Finck, Christine	Clinical Development of a Novel Pleural and Tracheal Sealant	Department of Defense/ University of Vermont	289,237	7/1/19	6/30/23	X	11,544	UVM/UConn Health
Finck, Christine	Evaluation of the Increased Susceptibility of Obese Pediatric Patients to SARS CoV-2 Infection	American Society for Metabolic & Bariatric Surgery	25,000	7/1/21	6/30/23			UConn Health
Finck, Christine	Ex vivo bioengineering of functional biomimetic airways for treatment of neonatal and pediatric respiratory conditions	NIH	479,270	4/1/21	3/31/24	X	40,824	UConn Health
Garcia, Patricia	REACH Program	American Academy of Pediatrics	2,900	9/1/21	5/15/22			
Gell, Joanna	PRDMP14	CURESEARCH	225,000	1/1/22				
Gell, Joanna	Identification of New Diagnostic Biomarkers for Intracranial Germ Cell Tumors	DOD	211,540	4/1/22	3/31/23			Connecticut Children's
Germain-Lee, Emily and Lee, Se-Jin	Elucidating extragonadal functions of follicle stimulating hormone usine genetic approaches in mice	NIH	493,523	9/1/22	6/30/24			UConn Health
Lee, Se-Jin and Germain-Lee, Emily	Extracellular regulation of bone mass by transforming growth factor-ß-related ligands and their binding proteins	NIH	3,144,125	7/21/22	6/30/27			UConn Health
Golioto, Annmarie	CCD 050000-01	Covance, Inc.		10/7/21				
Grover, Nancy	OSA 18 in children	RESMED Foundation	10,000	2/1/21	1/31/23			
Haile, Jennifer	Childhood Lead Poisoning Prevention Program - Hospital	CT Department of Public Health	134,229	7/1/21	6/30/22			Connecticut Children's
Haile, Jennifer	Lead Clinic 2022-23	CT Department of Public Health	135,126	12/1/22				

PRINCIPAL INVESTIGATOR	AWARD / STUDY TITLE	FUNDING SOURCE PRIMARY / SECONDARY	AWARD	START DATE	END DATE	SUBCONTRACT TO UCHC/CCMC?	AMOUNT OF SUBCONTRACT	PRIMARY SITE
Hawley, Kelly	Bio4S	NIH / University of North Carolina	254,636	9/15/22				
Hawley, Kelly	Multivalent Syphilis Vaccine	Good Ventures Foundation / UCHC	199,087	2/1/22				
Hersh, David	Low Intensity Pulsed Ultrasound	Thrasher Research Fund	26,750	1/1/21	6/30/23	X	22,201	Connecticut Children's
Hollenbach, Jessica	Easy Breathing in Schools	Environmental Protection Agency	25,000	10/1/20	9/30/22			
Howard, Ashley	CMV Biomarker	NIH / University of Alabama	72,000	12/1/22	8/31/23			
Hyams, Jeffrey	16T-MC-AMBU	ELI LILLY		5/4/20				
Hyams, Jeffrey	A Long-Term Non-Interventional Registry to Assess Safety and Effectiveness of Humira® (Adalimumab) in Pediatric Patients with Moderately to Severely Active Crohn's Disease (CD) – CAPE	AbbVie Ltd	26,158					
Hyams, Jeffrey	A Multicenter, Prospective, Long-term, Observational Registry of Pediatric Patients with Inflammatory Bowel Disease, DEVELOP®	Janssen Biotech, Inc.	138,745					
Hyams, Jeffrey	A Phase 2b, Extension Study to Determine the Long-term Safety of Vedolizumab IV in Pediatric Subjects With Ulcerative Colitis or Crohn's Disease Long-term Safety With Vedolizumab IV in Pediatric Subjects With Ulcerative Colitis or Crohn's Disease	Takeda Development Center Americas, Inc.	30,905					
Hyams, Jeffrey	A3921210 (Ovation)	PFIZER INC / ICON Clinical Research LLC		4/9/21				
Hyams, Jeffrey	AbbVie CAPE Registry P11-292	ABBVIE INC		8/18/15				

PRINCIPAL INVESTIGATOR	AWARD / STUDY TITLE	FUNDING SOURCE PRIMARY / SECONDARY	AWARD	START DATE	END DATE	SUBCONTRACT TO UCHC/CCMC?	AMOUNT OF SUBCONTRACT	PRIMARY SITE
Hyams, Jeffrey	CAMEO	NIH	391,223	9/7/21	8/31/22			
Hyams, Jeffrey	DEVELOP REGISTRY - "REGISTRAT"	JANSSEN ORTHO BIOTECH		10/1/10	5/1/27			
Hyams, Jeffrey	Development and Evaluation of the TUMMY CD-index: A Patient-reported Signs and Symptoms Index for Pediatric Crohn's Disease	Izaak Walton Killam Health Centre	4,851	10/27/16				
Hyams, Jeffrey	EXAGEN	EXAGEN DIAGNOSTICS		10/1/10				
Hyams, Jeffrey	I6T-MC-AMAZ	ELI LILLY		3/23/22				
Hyams, Jeffrey	Neutrophil Study	EMORY U		11/1/16				
Hyams, Jeffrey	Nurture Study	UCB INC		10/1/10				
Hyams, Jeffrey	OSCI COHORT	The Hospital for Sick Children		10/1/10				
Hyams, Jeffrey	Pilot and feasibility study of 2'-FL as a dietary supplement in pediatric and young adult IBD patients receiving stable maintenance anti-TNF therapy	NIH	36,189					Connecticut Children's
Hyams, Jeffrey	Precision Crohn's Disease Management Utilizing Predictive Protein Panels (ENvISION)	The Leona M and Harry B Helmsely Charitable Trust	2,000					

PRINCIPAL INVESTIGATOR	AWARD / STUDY TITLE	FUNDING SOURCE PRIMARY / SECONDARY	AWARD	START DATE	END DATE	SUBCONTRACT TO UCHC/CCMC?	AMOUNT OF SUBCONTRACT	PRIMARY SITE
Hyams, Jeffrey	Protocol I6T-MC-AMBU(a) A Multicenter, Open-Label PK Study of Mirikizumab in Pediatric Patients with Moderately to Severely Active Ulcerative Colitis SHINE-1	Eli Lilly & Co.	26,500					
Hyams, Jeffrey	Pursuit 2 - CNTO148UCO3003	Janssen Research & Development LLC		5/20/19				
Hyams, Jeffrey	R01 University of Houston	NIH / University of Houston	93,298	7/1/20	6/30/22			Connecticut Children's
Hyams, Jeffrey	R21 University of Texas	NIH / University of Texas Health Sci Ctr	19,986	7/8/21	6/30/22			
Hyams, Jeffrey	RESULTS-UC LONG TERM	CENTOCOR INC		10/1/10				Connecticut Children's
Hyams, Jeffrey	Secure Registry	UCB INC		10/1/10				
Hyams, Jeffrey	Serum-Deried Bovine Immun	ENTERA HEALTH INC		11/14/14				
Hyams, Jeffrey	SHP621-303	SHIRE PHARMACEUTICALS INC / PPD Development LP		4/11/19				
Hyams, Jeffrey	Takeda Vedolizumab IV; MLN0002	Pharmaceutical Research Assoc / Takeda Development Center		9/22/17				
Hyams, Jeffrey	Takeda Vedolizumab-2005	Takeda Development Center Americas, Inc. / Pharmaceutical Research Assoc		10/3/17				
Hyams, Jeffrey	TUMMY Study	IWK Health Centre		10/27/16				
Hyams, Jeffrey	VEDOKIDS	SHAARE ZEDEK MEDICAL CENTER		11/1/19				
Isakoff, Michael	A Phase 2 Study of the JAK1/JAK2 Inhibitor Ruxolitinib With Chemotherapy in Children With De Novo High-Risk CRLF2-Rearranged and/or JAK Pathway–Mutant Acute Lymphoblastic Leukemia	Incyte Corp / COG	1,000					
Isakoff, Michael	AALL0434			9/30/19				Connecticut Children's
Isakoff, Michael	AALL1331	CHOP		11/14/17				
Isakoff, Michael	AALL1521	CHOP		4/28/17				
Isakoff, Michael	AALL1621	CHOP		2/27/18				
Isakoff, Michael	AAML 1831	ASTELLA PHARMACEUTICALS / CHOP		2/5/21				
Isakoff, Michael	AAML1031 Bayer Healthcare	CHOP		8/5/16				

PRINCIPAL INVESTIGATOR	AWARD / STUDY TITLE	FUNDING SOURCE PRIMARY / SECONDARY	AWARD	START DATE	END DATE	SUBCONTRACT TO UCHC/CCMC?	AMOUNT OF SUBCONTRACT	PRIMARY SITE
Isakoff, Michael	ACCL2121	COG / Public Health Institute		12/2/22				
Isakoff, Michael	ACNS1831	COG / Public Health Institute		12/5/19				
Isakoff, Michael	ACNS1833	COG / Public Health Institute		5/5/20				
Isakoff, Michael	ADVL 1921	COG / CHOP		12/21/21				
Isakoff, Michael	AHOD 13331 Seattle Genetics	CHOP		3/18/16				
Isakoff, Michael	ALTE07C1	NIH / CHOP		5/18/21				
Isakoff, Michael	ALTE1631	NIH / CHOP		7/16/18				
Isakoff, Michael	ALTE2031	Georgetown University / Public Health Institute		6/21/21				Connecticut Children's
Isakoff, Michael	ANBL1531	NIH / CHOP		9/1/19				
Isakoff, Michael	APAL2020SC	COG / Public Health Institute		10/24/22				
Isakoff, Michael	ARST1921	COG / Public Health Institute		1/3/21				
Isakoff, Michael	CHOP - St. Baldricks	COG	11,250					Connecticut Children's
Isakoff, Michael	COG NCORP per case Research	NIH / CHOP		1/23/20				
Isakoff, Michael	COG NCTN Per-case Reimburse	NIH / CHOP		1/23/20				
Isakoff, Michael	COG NCTN Site PI	NIH / CHOP		1/23/20				
Isakoff, Michael	HTC 340B Program	HRSA		7/1/21				
Isakoff, Michael	MCC 20320	Italfarmaco		7/29/20				
Isakoff, Michael	MCC 20339	National Pediatric Cancer Fdn / H Lee Moffitt Cancer Ctr		3/23/21				
Isakoff, Michael	MCC Protocol 19487, A Phase Ib/II Study to Evaluate the Safety, Feasibility and Efficacy of Nivolumab or Nivolumab in Combination with Azacitidine in Patients with Recurrent, Resectable Osteosarcoma	National Pediatric Cancer Foundation (NPCF) / BMS	12,294					
Isakoff, Michael	MCC18613	MOFFITT		11/12/16				
Isakoff, Michael	MCC19487	MOFFITT		12/23/16				

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Isakoff, Michael	MCC20320, Blood based biomarkers for minimal residual disease detection in pediatric sarcomas	NATIONAL PEDIATRIC CANCER FOUNDATION (NPCF)	4,955					
Isakoff, Michael	Neuroblastoma and Meduloblastoma Translational Research Collaborative	NMTRC	4,000					
Isakoff, Michael	OST31-164-01	COG / CHOP		8/20/21				
Isakoff, Michael	Phase II Study of nab-Paclitaxel in Combination with Gemcitabine for Treatment of Recurrent/Refractory Sarcoma in Teenagers and Young Adults	MOFFITT CANCER CENTER AND RESEARCH INSTITUTE	750					
Isakoff, Michael	REAL HLH SOBI NA RWE 101	SOBI INC		9/12/21				
Isakoff, Michael	SARCOMAS CLINICALS SACCO 2007	Reid R. Sacco Memorial Foundation	243,309	10/1/10				
Isakoff, Michael	SUNSHINE	MOFFITT		5/24/13				
Keller, Mary	End of Treatment Transition	APHON		1/1/21	12/31/22			
Lapin, Craig	2021 CF Care Center Award: CC1	CF Foundation	93,210	7/1/21	6/30/22			
Lapin, Craig	CASK - Controlling and Prevent	NIH / Boston Children's Hospital	100,000	5/1/18	6/30/23			
Lapin, Craig	CF Center Grant CC117	CF Foundation	93,210	7/1/22				Connecticut Children's
Lapin, Craig	Controlling and preventing Asthma progression and Severity in Kids (CASK)	NIH	12,072					Connecticut Children's
Lapin, Craig	Impact of CFTR	CF Foundation / UCHC	33,600	7/1/22	6/30/23			
Lapin, Craig	The Role of Oral Glutathione	CF Foundation / Seattle Children's Hospital		7/1/16				
Lau, Ching	Novel Genomic Diagnostics	Alex's Lemonade Stand Foundation	250,000	11/1/21	8/31/23			
Livingston, Nina	ARPA - SA Services 2022-23	US Department of Justice	191,782	7/1/22				
Livingston, Nina	DCF CACE 2022-23: SID 29652	CT Department of Children & Families	31,250	7/1/22				
Livingston, Nina	DCF-CACE 2021-22 SID 16064	CT Department of Children & Families	518,671	7/1/21	6/30/22			
Livingston, Nina	DCF-CACE 2021-22 SID 16135	CT Department of Children & Families	52,852	7/1/21	6/30/22			
Livingston, Nina	DCF-CACE 2021-22 SID 20139	CT Department of Children & Families	220,500	7/1/21	6/30/22			

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Livingston, Nina	DCF-CACE 2022-23 SID 16064	CT Department of Children & Families	539,418	7/1/22	6/30/23			
Livingston, Nina	DCF-CACE 2022-23 SID 16135	CT Department of Children & Families	54,966	7/1/22	6/30/23			
Livingston, Nina	DCF-CACE 2022-23 SID 20139	CT Department of Children & Families	470,500	7/1/22	6/30/23			
Livingston, Nina	OVS - SA Services	US DOJ / CT Judicial	389,178	7/1/21	6/30/22			
Livingston, Nina	OVS - SA Services	US DOJ / CT Judicial	197,396	7/1/22	6/30/23			
Loechner, Karen	Mesenchymal Stromal Cells	Children's Healthcare of Atlanta	18,120	10/1/22				
Loechner, Karen	NBI-74788-CAH206	Neurocrine Biosciences Inc. / Worldwide Clinical Trials Inc.		5/7/22				
Loechner, Karen	UX143-CL301	Ultragenyx Pharmaceuticals, Inc. / Icon Clinical Research LLC		8/22/22				
Loechner, Karen	An Open-Label Dose-Escalation Study to Evaluate the Safety, Tolerability, Pharmacokinetics, and Pharmacodynamics of mRNA-3745 in Participants with Glycogen Storage Disease Type 1a (GSD1a)	ModernaTX, Inc.	193,399	12/1/21		X		
Mason, Sherene	CURE GN 2.0	NIH / Nationwide Children's Hospital		8/16/19	5/31/23			
Mathews-Wilson, Allison	Certified Behavioral Health CI	SAMHSA / The Village	285,000	7/1/20	4/30/22			
Matson, Adam	Multi-Omics Analysis of Pain/Stress Impact on Neurodevelopment in Preterm Infants	NIH / University of Connecticut	61,967	9/14/17	7/31/22	FEE FOR SERVICE		
McKay, Laura	Hemophilia Treatment Center	HRSA / Icahn School of Medicine at Mt Sinai	926	6/1/22				
Michelow, Ian	CAMRA	NIH / Redeemer's University	18,534	7/1/22				
Moore, James	CHEFA Camera	CHEFA	63,250	11/22/22				
Moore, James	NIRTURE	West Sydney Local Health District	14,757	12/1/21				
Mulchan, Siddika	Mulchan - Health Research Prog	University of Connecticut	500	9/1/21				
Orsey, Andrea	NACHO LCH-IV Consortium	St Jude Children's Research Hospital		4/25/17				

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Orsey, Andrea	TTP Registry	Baxalta / University Hospital of Bern		3/19/16	6/30/27			
Orsey, Andrea	Yoga to reduce fatigue	CIHR / HOSPITAL FOR SICK CHILDREN		4/1/19	3/31/24			
Ounpuu, Sylvia	A study of the correlation between gait abnormalities, activity monitoring parameters, CMTPedS and a biomarker in children with Charcot-Marie-Tooth disease	Harold & Rebecca Gross Foundation	19,872					
Ounpuu, Sylvia	Disease and Progression Treatm	Harold & Rebecca Gross Foundation	60,000	8/27/21	8/27/22			
Phulwani, Priya	WEL-A-U307	Daiichi Sankyo Inc.		12/15/10				
Mathews-Wilson, Allison	Health Care Needs SID 12126	CT Department of Public Health	177,807	7/1/21	6/30/22			
Mathews-Wilson, Allison	Health Care Needs SID 12126	CT Department of Public Health	159,720	7/1/22	6/30/23			
Mathews-Wilson, Allison	Health Care Needs SID 21531	HRSA / CT DPH	296,144	7/1/21	6/30/22			
Mathews-Wilson, Allison	Health Care Needs SID 21531	HRSA / CT DPH	258,109	7/1/22	6/30/23			
Riba-Wolman, Rebecca	A Long-Term Follow-up Study to Evaluate the Safety and Efficacy of Adeno-Associated Virus (AAV) Serotype 8 (AAV8)-Mediated Gene Transfer of Glucose-6-Phosphatase (G6Pase) in Adults with Glycogen Storage Disease Type Ia (GSDIa)	ULTRAGENYX PHARMACEUTICALS, INC.	785,062	7/15/19	11/30/24	X		
Riba-Wolman, Rebecca	A Phase 3, Randomized, Double-blind, Placebo-controlled Study of Adeno-associated Virus Serotype 8-mediated Gene Transfer of Glucose-6-phosphatase in Patients with Glycogen Storage Disease Type Ia	ULTRAGENYX PHARMACEUTICALS, INC.	821,088	7/26/21	10/31/24	X		
Rogers, Steven	CONNECT	HRSA / CHDI	10,000	1/1/22				
Rogers, Steven	CVS - Hometown Fund	CVS Health Foundation	68,898	10/15/22				
Rogers, Steven	Preventing Youth Suicide	Cardinal Health Foundation	100,000	8/1/22				
Rogers, Steven	UCHC - Risk of Suicide	NIH / UCHC	14,490	3/1/22				

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Rubin, Karen	Connecticut Newborn Screening	CT Department of Public Health	507,060	10/1/22	9/30/23			
Rubin, Karen	Expanding Behavioral Health	Children's Fund of CT, Inc.	75,000	1/1/21	6/30/22			
Rubin, Karen	Long-Term Follow-Up for SCID and other NBS Conditions	HRSA	631,880	8/1/22	7/31/23			Connecticut Children's
Rubin, Karen	Long-Term Follow-Up for SCID and other NBS Conditions	HRSA	477,408	8/1/21	7/31/22			Connecticut Children's
Rubin, Karen	Newborn Screening 21-22	CT Department of Public Health	599,177	7/1/21	6/30/22			
Rubin, Karen	Newborn Screening 21-22 #5	CT Department of Public Health	49,932	7/1/22	6/30/23			Connecticut Children's
Rubin, Karen	Newborn Screening 21-22 #6	CT Department of Public Health	99,864	8/1/22				
Rylant, Lisa	Alternative Stimuli for Use	ASH Foundation / University of Massachusetts		12/1/18	12/31/22			
Salazar, Juan	A Global Syphilis Vaccine Targeting Outer Membrane Proteins of Treponema pallidum - Project 1	NIH	16,713	5/1/19	4/30/24	X		
Salazar, Juan	A Global Syphilis Vaccine Targeting Outer Membrane Proteins of Treponema pallidum - Project 1	NIH	16,820	5/1/19	4/30/24	X		
Salazar, Juan	A Global Syphilis Vaccine Targeting Outer Membrane Proteins of Treponema pallidum - Project 2	NIH	580,046	5/1/19	4/30/24	X		
Salazar, Juan	A Global Syphilis Vaccine Targeting Outer Membrane Proteins of Treponema pallidum - Project 2	NIH	648,539	5/1/19	4/30/24	X		
Salazar, Juan	A Global Syphilis Vaccine Targeting Outer Membrane Proteins of Treponema pallidum - Project 3	NIH	50,120	5/1/19	4/30/24	X		

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Salazar, Juan	A Global Syphilis Vaccine Targeting Outer Membrane Proteins of Treponema pallidum - Project 3	NIH	50,441	5/1/19	4/30/24	X		
Salazar, Juan	Prevalence of Syphilis and Other Sexually Transmitted Infections in Men and Transgender Women Who Have Sex with Men in Cali, Colombia	NIH	97,575	8/26/22	4/30/23	X		
Salazar, Juan	Allergan Dalbavancin DAL-PK-02	Allergan Sales, LLC		9/6/16				
Salazar, Juan	Baxalta HYQVIA 161503	Baxalta / Quintiles		12/7/17				
Salazar, Juan	DPH HIV Prevention-Fed	CDC / CT DPH	25,000	1/1/22	12/31/22			
Salazar, Juan	DPH HIV Prevention-State	CT Department of Public Health	113,985	1/1/22	12/31/22	X	113,985	Connecticut Children's
Salazar, Juan	Expanded Access IND Program	Sanofi Pasteur Inc.		6/8/17				Connecticut Children's
Salazar, Juan	Expanded Access IND Program to Provide Stamaril® Vaccine to Persons in the United States for Vaccination Against Yellow Fever	Sanofi Pasteur Inc.	13,455					
Salazar, Juan	Genomic Epidemiology	Bill & Melinda Gates Foundation / UNC at Chapel Hill	112,732	11/2/21				
Salazar, Juan	GILEAD 2-OPEN LABEL	GILEAD		10/1/10				Connecticut Children's
Salazar, Juan	MIS-C	NIH	877,921	1/1/21	11/30/21			
Salazar, Juan	MIS-C YR3 R33	NIH	1,638,983	12/1/22				

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Salazar, Juan	Pfizer Anidulafungin A8851008	PFIZER INC / ICON Clinical Research LLC		9/22/16				
Salazar, Juan	R61 Supplement	NIH	195,200	8/1/22	11/30/22			
Salazar, Juan	Registry of Patients With Primary Immune Deficiency Disorders	United States Immunodeficiency Network	700	9/30/14				
Salazar, Juan	RW Cares Act COVID Response	HRSA / City of Hartford	12,425	4/1/21	3/31/22			
Salazar, Juan	Ryan White A 2021-22	HRSA / City of Hartford	85,867	3/1/21	2/28/22			
Salazar, Juan	Ryan White A 2022-23	HRSA / City of Hartford	56,351	3/1/22	2/28/23	X	5,500	Connecticut Children's
Salazar, Juan	Ryan White B 2021 - 2022	HRSA / CT Department of Public Health	97,607	4/1/21	3/31/22			
Salazar, Juan	Ryan White B 2022 - 2023	HRSA / CT Department of Public Health/COH	147,372	4/1/22	3/31/23			
Salazar, Juan	Ryan White D 2021-22	HRSA	357,831	8/1/21	7/31/22	X	182,767	Connecticut Children's
Salazar, Juan	Ryan White D FY 22/23	HRSA	348,304	8/1/22	7/31/23	X	181,027	Connecticut Children's
Salazar, Juan	U19 - Clinical	NIH / UCHC	69,021	5/1/21	4/30/22			
Salazar, Juan	U19 - Clinical	NIH / UCHC	45,599	5/1/22				
Salazar, Juan	U19 - Immunology	NIH / UCHC	84,272	5/1/22				

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Salazar, Juan	U19 - Outer Membrane	NIH / UCHC	16,694	5/1/21	4/30/22			Connecticut Children's
Salazar, Juan	U19 Immunology	NIH / UCHC	50,120	5/1/21	4/30/22			Connecticut Children's
Salazar, Juan	VLA15-221	Valneva Austria GMBH / Celerion Icn.		4/1/21				Connecticut Children's
Salazar, Juan	YouthRecovery	Wheeler Clinic / CT DCF	10,000	1/1/22				Connecticut Children's
Salazar, Olga	Support to Maintain Heart Health	Harold & Rebecca Gross Foundation	40,000	10/20/22				
Santos, Melissa	Innovation Fund	The Tow Foundation	132,000	9/1/22				
Santos, Melissa	Pain and Weight Treatment: Development and Trial of PAW	NIH	463,879	4/1/19	3/31/22			
Santos, Melissa	Structural Racism	NIH / UCHC	80,740	9/1/22				
Santos, Melissa	TEACH	SAMHSA	125,000	12/31/22				
Santos, Melissa	Transgender youth with obesity	American Diabetes Association	199,628	11/15/22				
Tatem, Christine	Child's Play	Child's Play Charity	65,025	6/30/22				
Tatem, Christine	Supporting and Training Parent	Joseph S. Stackpole Charitable Trust	5,000	12/14/22				

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Tory, Heather	Patient and Physician Discordance of Global Disease Assessment in Juvenile Dermatomyositis: Findings from the Childhood Arthritis & Rheumatology Research Alliance Legacy Registry	Childhood Arthritis and Rheumatology Research Alliance (CARRA)	2,755	1/24/20				
Trout, Nancy	SCOR-Start Childhood Off Right	CIGNA FOUNDATION	100,000	1/1/22				
Wakefield, Emily	The Impact of Social Rejection: Pain-related Stigma in Adolescents with Chronic Widespread Musculoskeletal Pain (K23)	NIH	129,828	2/1/20	1/31/25			
Watkins, Amy	Child Passenger Safety Program	US DOT / CT DOT	75,000	1/1/22				
Watkins, Amy	GHSA	GOVERNOR'S HWY SAFETY ASSOC	25,000	1/1/22				Connecticut Children's
Watkins, Amy	Watch For Me CT FY23	US DOT / CT DOT	380,000	10/1/22	9/30/23			Connecticut Children's
Watkins, Amy	Western CT CPS Support	US DOT / CT DOT	150,000	10/18/22	9/30/23			
Watkins, Amy	Where's Baby?	US DOT / CT DOT	225,000	1/1/22	12/31/23			
Wolkoff, Leslie	IBT-9414 Probiotic Study	Infant Bacterial Therapeutics		8/29/19				
Zempsky, William	FIT Teens	NIH / Children's Hospital Medical Center	40,200	6/1/17	5/31/23			
Zempsky, William	SICKLE CELL PAIN: A NOVEL APP	Donaghue Foundation	148,686	10/1/10				