



2024 Friends of Doernbecher Grant Recipients

Bruce Boston, M.D. and Alison O'Neill, M.D.

Project Title: Iodinated Contrast Induced Hypothyroidism in Infants

Award: \$49,847

In April 2023, the FDA issued a modified warning that recommended monitoring thyroid function in infants and children less than 3 months of age who receive iodinated contrast. The reason for the FDA recommendation is the potential for iodine induced hypothyroidism (low thyroid levels) in this population. Normal brain development is thyroid hormone dependent in the first two years of life with infants being even more susceptible to the impact of low thyroid hormones. The actual incidence of contrast induced hypothyroidism is currently unknown. Patients don't routinely get thyroid function checked within 3 weeks of receiving iodinated contrast. Furthermore, we don't know how long the hypothyroidism lasts nor the best way to treat hypothyroidism when detected. This study aims to provide comprehensive prospective data to help define best practices in the detection and treatment of iodinated contrast induced hypothyroidism in infants.

Patrick Evers, M.D., MBA, MSc

Project Title: Advancing Pediatric Cardiomyopathy/Heart Failure Care in Oregon

Award: \$11,776

The pediatric cardiomyopathy (CM)/ heart failure (HF) program at OHSU Doernbecher Children's Hospital cares for patients with a variety of conditions. Causes of CM/HF vary greatly, and patients experience a wide range of outcomes. Unlike when these conditions occur in adults, there is often little clinical guidance for how to best care for these children, and research for this patient population is generally underfunded. Our hope is to gain access to a national pediatric CM/HF learning network (ACTION) so that we can 1) gain access to resources, real-time learning, and networking within the network to ensure Oregon's CM/HF children are receiving state-of-the-art optimal care, 2) input our valuable patient data into the registry, and 3) make use of the registry to conduct our own research. By doing so, our patients benefit from best-practices from around the country, patients nationally and internationally will benefit from our patient data, and Doernbecher will be visible in a field in which it has never participated before.

Rachel L Palting, D.O.

Project Title: The effect of automated insulin delivery on sleep compared to multiple daily injections in pediatric patients with Type 1 Diabetes

Award: \$11,868

Sleep plays a crucial role in Type 1 diabetes (T1D) management by enhancing insulin sensitivity, regulating hormones and appetite, and supporting executive function and memory. Despite the importance of sleep, pediatric patients with T1D often experience shorter sleep duration and more disruptions compared to their healthy peers. The frequent treatments associated with diabetes management can disrupt sleep patterns, compounded by anxiety surrounding the risk of nocturnal hypoglycemia (NH) – a condition associated with the potential for seizures, loss of consciousness, or even fatality. Hybrid closed-loop insulin pumps, combine continuous glucose monitoring with automated insulin adjustment, offer hope in averting nocturnal hypoglycemia by providing automated glycemic control. However, the specific impact of these systems on NH mitigation and sleep improvement in pediatric patients is an active area of investigation, as previous studies have not objectively measured the impact of automated insulin delivery (AID) on sleep compared to multiple daily injections. To address this gap, we propose a pre-intervention and post-intervention study involving objective sleep measurements using FitBit devices before and after initiating insulin pump therapy. This data, coupled with subjective sleep assessments and continuous glucose monitor (CGM) data will shed light on the complex interplay of glycemic control, sleep patterns, and diabetes technology.

Jonathan Krasinkiewicz, M.B., B.Ch., B.A.O.

Project Title: Understanding Outpatient Supplemental Oxygen Practices in Children with Bronchopulmonary Dysplasia

Award: \$6,900

Up to 11% of children are born premature, and 17% to 25% of those infants are discharged on home oxygen for one month or more. This number will only increase as both the number of preterm births is increasing and newer guidelines advocate resuscitation down to 22 weeks of gestation. Sending infants home with oxygen reduces burden on neonatal intensive care units (NICUs) while simultaneously improving parental quality of life when all other goals have been met for a safe discharge. Pediatric Pulmonologists are charged with following these patients in the outpatient setting, but there is a surprising paucity of data on how to maintain or discontinue supplemental oxygen. Published guidelines were surmised by survey of provider practice and expert opinion, with few institutions having standardized weaning protocols. Since it is unclear what the current practice is at OHSU, both a knowledge gap and an opportunity to optimize home oxygen practice exists. The benefits are twofold: improved parental quality of life and reduced costs for home therapy. We propose to study our pattern of home oximetry testing (HOT) use, as this is the method that most of our providers use to evaluate readiness to discontinue supplemental oxygen. Using a retrospective data analysis, we will characterize HOT practices associated with successful oxygen discontinuation and then create data-informed guidelines for best practice.

Briza York, R.D., C.S.P., L.D., C.D. and Anna Hunter, M.D., M.C.R.

Project Title: Comparison of Stoss Dose versus Standard Treatments to Address Deficiency and Optimize Status of Vitamin D in Pediatric Patients with Inflammatory Bowel Disease

Award: \$ 26,050

This study will address the lack of understanding and data on the appropriate supplementation schedule to address vitamin D deficiency in children with Inflammatory Bowel Disease. Vitamin D deficiency can have detrimental effects on children's health outcomes and it is still considered a public health concern.

Inflammatory Bowel Disease (IBD) is a condition that is characterized by chronic inflammation caused by the immune system within the gastrointestinal (GI) tract resulting in damage to the GI tract. There are three types of IBD: Very Early Onset IBD (VEO-IBD), Crohn's disease, and ulcerative colitis. This is a lifelong disease that unfortunately can be diagnosed in children. There are an estimated 2.4 million Americans living with IBD today¹ including 58,000 children with IBD.² Rates of IBD are on the rise, particularly in the pediatric population, where prevalence has increased 133% from 2007 to 2016.² At Doernbecher Children's Hospital we have just over 300 pediatric patients with IBD.

Given the negative impacts of inflammation on bowel function thus nutrient absorption, poor nutritional status is common in patients with IBD. Many patients have limited growth, both weight and height, as well as inadequate vitamin and mineral status. Ensuring children with IBD grow and thrive similarly to their healthy peers is of utmost importance. We frequently monitor nutrient labs to identify and address any deficiencies. Vitamin D deficiency is often found on these labs, but further investigation is needed to determine the optimal management of vitamin D deficiency in this population.

This study will compare three different schedules of vitamin D supplementation: a one-time large dose, a weekly medium dose, and a daily small dose. Labs will be checked to monitor response to supplementation with the goal of restoring vitamin D levels to above 50ng/mL.

Rebecca Marshall, M.D., M.P.H. and Amanda Chiapa, Ph.D.

Project Title: Seeking Long-Term Solutions Targeting the Growing Pediatric Mental Health Needs at Doernbecher Children's Hospital

Award: \$ 38,549

Escalating rates of mental health crises among children and adolescents in the US are reflected at Doernbecher Children's Hospital, where pediatric mental health volume has increased exponentially in 7 years. This has resulted in a variety of significant challenges, including children being "boarded" in the ED or at DCH while awaiting placement in an inpatient psychiatric unit, and at times incidents of aggression or attempted elopement. DCH has responded with significant investments to address this growing need with staffing expansion and facility enhancements.

Part of ongoing, long-term quality improvement must include data tracking and management. The child psychology and psychiatry teams are seeking funding to ensure that we can accurately capture the value of our care to these youth, evaluate the cost savings of our work to the system, and track how our services reduce critical incidents, staff burnout, and ensure patient and staff safety.

To accomplish these goals, and to aid ongoing quality improvement and research, we are asking for funding to establish a long-term system for unified data collection and assessment, enabling improved patient care as well as maintaining safety and job satisfaction for staff.