Rita D Swinford is an Associate Professor and Division Chair for Pediatric Nephrology in the Department of Pediatrics. She is Medical Director for End Stage and Transplantation for Memorial Hermann Children’s Hospital and holds adjunct appointments at MD Anderson Cancer Hospital and The Woman’s Hospital at Houston.

One focus of Dr. Swinford’s research is to promote understanding of the pathogenesis, management and outcomes of primary Thrombotic Microangiopathy (TMA) syndromes, predominantly atypical hemolytic uremic syndrome (aHUS). TMA syndromes are extraordinarily diverse and include acquired or hereditary occurring suddenly or gradually in both children and adults. The main pathological feature of TMA is endothelial damage of small vessels, which can be devastating and catastrophic. aHUS/TMA syndromes were previously considered to be ultrarare disease, but in part due to education, are more often recognized. Using specific complement assays, Dr Swinford along with collaborators are attempting to improve response to a novel treatment of complement blockade. Dr. Swinford is participating in the first national registry for patients with both adult and pediatric and HUS will be obtaining complete genetic sequencing for participants that will be entered into the database. The registry’s goal is to use this new and growing database to ask of clinically important research questions to better define these conditions and the care of these individuals. Recently, Dr. Swinford spoke at a National Meeting for Rare Diseases on the dysregulation of complement activity in aHUS and new trends for diagnosis and treatment.

A second focus of Dr. Swinford’s research involves patients of the Mitochondrial Center of Excellence, where along with Dr Mary Kay Koenig, are developing protocols to investigate the correlation between urine protein excretion, kidney function and illness in children with mitochondrial diagnoses. Emerging evidence suggests a role of mitochondrial fragmentation in the pathogenesis of renal diseases including acute kidney injury and diabetic nephropathy. A better understanding of the regulation of mitochondrial dynamics and its pathogenic changes may reveal novel therapeutic strategies. Lastly, Dr. Swinford is part of the UTHealth Turner Syndrome Research Network, where she, along with a multidisciplinary team, will foster collaborative research in this special pediatric population to gain a better understanding the natural history of the condition.