



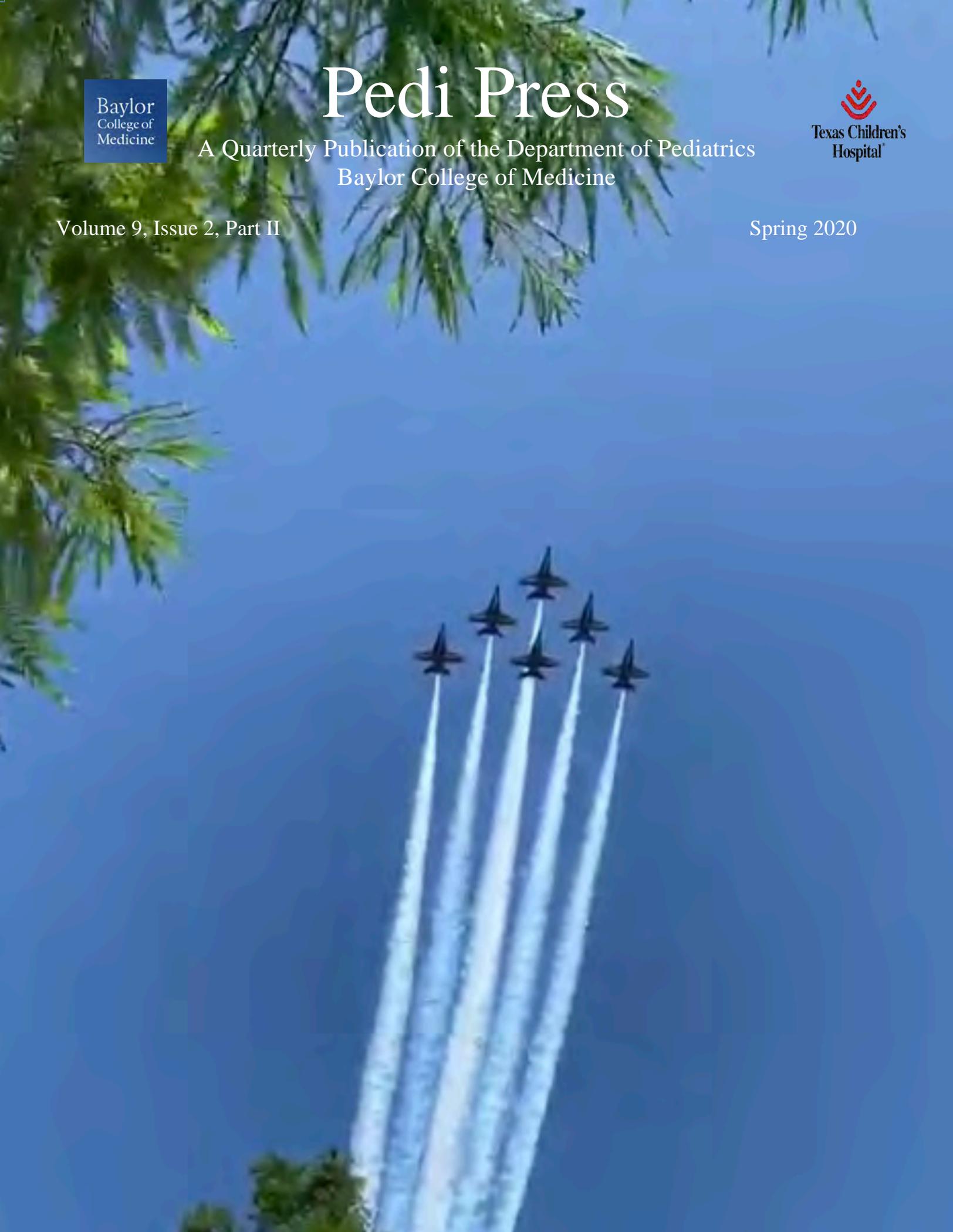
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PART II

FACULTY, FELLOWS, RESIDENTS & STAFF	26
CEO for BIPAI Announced	26
Psychology Section Chief Appointed	27
Dr. Lopez Appointed to Health Equity Response Task Force	27
Dr. Mahoney Receives Prestigious Award	27
Staff Members Express Appreciation for Chief's Leadership	28
Department Promotions Announced	28
Faculty Lauded for Going "Above & Beyond" During COVID-19	29
Faculty Interviewed About Inflammatory Illness Linked to COVID-19	30
Baylor College of Medicine Women of Excellence Awards 2020	30
BCM Faculty Awards Day Recognizes Outstanding Faculty	31
Special Faculty Recognition	
Pediatric Resident Banquet Teaching Awards - TCH	32
CHofSA Faculty Awards	32
CHofSA Faculty Award-Excellence in Teaching Honor Roll	32
faculty briefs....	32
CHofSA Announces New Physician Leadership Structure	34
CHOFSA Pediatric Residents Engage Community During COVID-19	35
RESEARCH	36
Study in Piglets Finds Connections to Gut Bile Acids and Microbiome	36
Tropical Medicine Strides Forward with Coronavirus Vaccine	37
Hematology/Oncology Faculty Address Issues of COVID-19	39
T-Cell-Based Therapy	39
Inflammation in Patients with Acute SARS-COV-2	39
Faculty Publish Article on Care of COVID-19 Patients	40
Researchers Study Link Between Cancer and Birth Defects	41
Researchers Engineer Better Way to Target Leukemia Cells	42
MARK YOUR CALENDAR	43

Front Cover. On May 6, 2020, the U.S. Navy Flight Demonstration Squadron, the Blue Angels, in association with Operation America Strong, flew in a formation flight over the Houston Medical Center, starting in The Woodlands, to honor frontline COVID-19 first responders and essential workers. Photo courtesy of Robyn and Doug Jones, The Woodlands.



DEPARTMENT NEWS

FACULTY, FELLOWS, RESIDENTS, & STAFF

CEO for BIPAI Announced



Mike Mizwa has been named Chief Executive Officer of BIPAI. In making the announcement, Claire Bassett, Chair of the BIPAI Board, noted that he “has served as the Chief Operating Officer since 2010 and has been an outstanding leader in that role. His vision and his strategic planning with the BIPAI leaders throughout the network has resulted in our organization being internationally recognized for excellence in patient care, research and education.” He accepted the position with the full support of the BIPAI Board and the leadership of Baylor College of Medicine and Texas Children’s Hospital.

As CEO, he oversees BIPAI Network operations, which has an aggregate annual budget of \$50 million. He has received numerous local, state, and national awards in HIV prevention and leadership, including the CDC Price Fellowship in HIV Prevention Leadership for developing the first HIV/AIDS offender education training-of-trainers program throughout the Texas Department of Criminal Justice. In 1996, he co-founded Camp Hope, one of the country’s largest recreational summer camps for children living with HIV/AIDS; the camp continues to thrive in Texas, Botswana, Lesotho, Swaziland, Malawi, Uganda, Tanzania, and Romania.

Psychology Section Chief Appointed



Dr. Karin Price, Assoc. Professor, was promoted to Chief of the Section of Psychology in the Department of Pediatrics. She is particularly interested in the Anxiety Disorders Program, where she provides cognitive-behavioral intervention for generalized anxiety, social anxiety, selective mutism, separation anxiety, and specific phobias. Her research interests include “clinical and administrative aspects of psychology, including treatment outcome research, family interaction patterns in morbidly obese adolescents, and organizational factors in the successful adoption of evidence-based practices and quality initiatives within the practice of clinical psychology.” She has been an integral part of the Section for the past 17 years. Her work in anxiety disorders, pediatric obesity, and other behavioral health conditions has advanced the mission of Baylor College of Medicine and Texas Children’s Hospital to create a healthier future for children and women. Her

measured and thoughtful leadership continues to guide her personally and her team. As interim Chief of Psychology since Feb 28, 2020, she has demonstrated strong leadership skills and has enabled Psychology at BCM/TCH to move forward during the COVID-19 pandemic.

Dr. Lopez Appointed to Health Equity Response Task Force

Dr. Keila N. Lopez, Asst. Professor, was appointed recently to a new Health Equity Response task force formed by the City of Houston to bring information and supplies to those individuals who are most at risk and disproportionately affected by COVID-19. Dr. Lopez, who has been with BCM/TCH for almost 10 years has worked with the Texas Department of State Health Services on population-based epidemiologic projects to better understand congenital heart disease patients in the state of Texas and has worked with dentists to improve oral health screening and access to care. She also has lead teams to conduct multidisciplinary work using large databases and GIS mapping to better understand the connection among health, socioeconomic status, neighborhood level factors, and access to quality healthcare. She is the creator and director of the cardiology transition medicine program, which is designed to reduce gaps in care for patients navigating from pediatric to adult systems. She has also received a NIH National Heart Lung and Blood Institute funding for mobile-based interventions to reduce health disparities among those with low health literacy and complex congenital heart disease. In her role on the Health Equity Response task force, Lopez will work on and advise strategies such as a public health education campaign to encourage residents in the highest risk neighborhoods to take additional precautions to protect themselves and others; direct community support to distribute essential supplies to Houstonians, including masks; and develop a Houston health equity response fund to accept donations that will provide resources to those who need them most.



Dr. Mahoney Receives Prestigious Award



Dr. Donald Mahoney, Jr., Professor of Pediatrics – hematology-oncology, has received the George R. Buchanan Lectureship Award from the American Society of Pediatric Hematology/Oncology. This honor is in recognition of his scientific contributions to the field of hematology/oncology and his outstanding mentorship in research, education and clinical leadership. The award will be presented at the 2021 ASPHO Conference in Portland, Oregon. Dr. Mahoney is former Director of the Texas Children's Hematology Center and has been treating patients with hematologic disorders for more than 30 years. He is a well-respected expert in pediatric hematologic disorders, and his advice is frequently sought by physicians around the city, state, and country. He is a specialist in hematology/oncology, hematologic disorders, sickle cell disease, platelet disorders, bone marrow failure syndromes, neutropenia disorders, leukemia, and lymphoma.

Staff Members Express Appreciation for Chief’s Leadership

During the turbulent times we have been experiencing with COVID-19, many people have turned to leadership for encouragement and direction. Several members of Cardiology’s staff – **Silvana Molossi, Carrie Altman, and Karen Jones**—wanted especially to thank **Dr. Dan Penny**, Professor and Chief, for his exemplary leadership. We are happy to publish here their request that he be acknowledged in this issue for how he has led his team:

1. Rallying the cardiology faculty with daily noon phone calls to provide open communication with updates and support for 6 weeks
2. Leading the way in thoughtful approach to both condensing the cardiology schedule to provide care to the most urgent patients while limiting exposure to faculty and staff, and then rapid ramping up of cardiology care in the cath lab and clinics as it became safe to do so
3. Encouraging excellent communication with and reassurance of our patients and ensuring appropriate scheduling by the deployment of a daily triage team of faculty and nursing staff
4. Tirelessly advocating for maintaining essential positions as the overall efforts were to contain expenses, to ascertain all essential areas would continue to be covered throughout this time and future uncertainties
5. Overwhelming concern for the well-being of Faculty and staff at large given flexing down strategies and financial constraints measures instituted
6. Firmly reassuring to his team the Institution’s commitment to maintain jobs and stimulating strategies to safely maintain care of patients and financial responsibilities
7. Perhaps, more importantly, being available 24/7 to each and every member of his Section, unconditionally, to guide, counsel, be a voice of encouragement, or simply listen



CONGRATULATIONS
TO OUR FACULTY

Department Promotions Announced

Distinguished Emeritus Professor
Dr. Mariam Chacko

Promoted to Professor

Dr. Elumalai Appachi
Dr. Alison Bertuch
Dr. Lisa Bomgaars
Dr. Douglas Fishman
Dr. Deborah Hsu
Dr. Tammy Kang
Dr. George Mandy
Dr. Debra Palazzi
Dr. Mary Paul
Dr. Constance Wiemann
Dr. Yong Xu

Promoted to Associate Professor

Dr. Andre Chu
Dr. Katheryn Jones
Dr. Y-Chen Lai
Dr. Daniel Lemke
Dr. Krithika Lingappan
Dr. Brent Mothner
Dr. Binoy Shivanna
Dr. Moushumi Sur
Dr. Justin Zachariah

Faculty Lauded for Going “Above & Beyond” During COVID-19



Dr. Chris Greeley, Professor and Chief of the Section of Public Health and Child Abuse Pediatrics, expressed his appreciation to one of the faculty for his contributions during the Covid-19:

“Dr. Jim Mitchell is a Child Abuse pediatrician in the Section of Public Health and Child Abuse Pediatrics that has gone above and beyond to ensure there was no gap in coverage for our patients during the COVID-19 pandemic. Dr. Mitchell works part-time and lives in Florida. Each month he typically alternates time in Houston and time in Florida with his family.

During the COVID-19 pandemic many of the Section’s providers were subject to quarantine and other family related issues that prevented them from patient care. Despite working part-time, Dr. Mitchell provided coverage for the clinical service for 9 weeks straight without going home to his family in Florida to ensure there was no coverage gap.

Thank you Dr. Mitchell!”



The Section of Public Health Pediatrics (SPHP) was created in recognition that complex family and community forces play a large role in the health and well-being of children. Through the SPHP cornerstones of the Child Abuse Pediatrics Clinical Services and Center for the Study of Childhood Adversity and Resilience (CARE), SPHP engages practitioners, services, and programs in a larger effort to reframe how children and families receive care and services within our community that mitigate adversities and foster resilience.

SPHP’s clinical care, community initiatives, education and training, scholarship, and research concentrate on child abuse and neglect, violence (community, peer and in-home), poverty and inequality, the role of education, mental health (both children and parents), parental support, addressing the needs of children in foster care, and access to health care. The SPHP presents a unique opportunity to expand the reach of the BCM/TCH community into a forward leaning and engaged role within the greater community, as there are many opportunities to influence policy and practice to ultimately improve the lives of children and families.

Baylor College of Medicine and Texas Children’s Hospital offer an ACGME-accredited three-year fellowship in child abuse pediatrics. Completion of the program prepares the candidate to sit for the Child Abuse Pediatrics board examination.

One fellowship position is open per academic year and the program accepts applications July through Oct. 15. To foster a deeper understanding of the many implications of childhood maltreatment and adversity to the pediatric population, a Master’s degree will be strongly encouraged in the course of training, and will be facilitated by the program.

Information from the Section website at Baylor College of Medicine

Faculty Interviewed About Inflammatory Illness Linked to COVID-19

Three Chiefs of BCM Pediatric services were interviewed after health experts nationally began to notice a rise in cases of multisystem inflammatory syndrome in children (MIS-C) who had been infected by or previously exposed to COVID-19. MIS-C affects various organs, such as the heart, lungs, kidneys, brain, skin, intestines, esophagus, eyes, and stomach, which become inflamed. In early June, the CDC issued a health advisory warning doctors about the illness and cautioning them to be aware of a constellation of symptoms that includes fever, abdominal pain, vomiting, diarrhea, neck pain, and rash.



Dr. Dan Penny, Chief of Pediatric Cardiology, **Dr. Eyal Muscal**, Chief of Rheumatology, and **Dr. Lara Shekerdeman**, Chief of Critical Care, in a series of interviews answered numerous questions regarding the condition. Some physicians attribute it to an overactive immune system in response to COVID-19, leading to abnormal inflammation throughout the body. **Dr. Penny** explained that a lag occurs between the primary infection and the inflammatory response, indicating it is not a manifestation of the primary infection with COVID-19, but instead is the body's inflammatory response to



the infection. He noted that even if patients treated weren't extremely unwell in the first place, "we are bringing back these children for cardiology assessment with a cardiography in order to make sure they don't have abnormalities of the coronary arteries that haven't manifested clinically at this stage but could be problematic in the longer term." **Dr. Muscal** noted that MIS-C appears to be relatively uncommon if not rare, with experts in New York City suggesting that fewer than 1% of children who actually get COVID-19 seem to develop the more serious post-infectious process, most cases are treated quickly and not serious, but some children do end up in the intensive care unit and pass away. **Dr. Shekerdeman** said that the majority of patients will not be contagious at the time they develop the MIS-c, with the typical presentation around the 4-week mark after a primary COVID-19 infection. She said that only a handful of patients with MIS-C have been seen at Texas Children's and that Houston was not hit nearly as badly as other cities.



Baylor College of Medicine Women of Excellence Awards 2020

Women from across all mission areas at Baylor College of Medicine were honored as Women of Excellence for their leadership, mentorship, and commitment to academic medicine. The Women of Excellence Program was developed in 2018 by the Office of Institutional Diversity, Inclusion and as part of Women's History Month. This year's ceremony was canceled due to social distancing guidelines developed in response to the COVID-19 pandemic. Instead, the College honors these award recipients through a video posted online and a full list of the winners posted on the website.

CONGRATULATIONS

Department of Pediatrics Recipients

- Dr. Melissa Carbajal**, Assistant Professor of Pediatrics – Newborn
- Dr. Jordana Goldman**, Assistant Professor of Pediatrics – Critical Care
- Dr. Amy Hair**, Assistant Professor of Pediatrics – Newborn;
- Dr. Tiffany McKee-Garrett**, Associate Professor of Pediatrics – Newborn
- Dr. Elena Ocampo**, Assistant Professor of Pediatrics – Cardiology
- Dr. Binita Patel**, Associate Professor of Pediatrics – Emergency Medicine
- Dr. Lakshmi Srivaths**, Professor of Pediatrics – Hematology

BCM Faculty Awards Day Recognizes Outstanding Faculty



Baylor College of Medicine held its Faculty Awards Day on Wednesday, May 20, 2020. Although the coronavirus pandemic precluded the usual gathering to honor colleagues, President Paul Klotman, M.D., and Provost Alicia Monroe, M.D. issued a pdf announcement, noting that “When Baylor faculty members succeed, so does the Baylor Community” and that “in these extraordinary times, it is more important than ever to recognize outstanding contributions with professionalism to education, service and clinical care.”

2020 PEDIATRIC FACULTY RECIPIENTS

Clark

Faculty Service Award

Dr. Liane Renee Campbell, Asst. Professor
Dr. Elliott, Assoc. Professor
Dr. Richard Flores, Asst. Professor

Norton Rose Fulbright

Faculty Excellence Award for Teaching and Evaluation

Dr. Betty Del Rio Rodriguez, Assistant Professor
Dr. Jill Ann Jarrell, Assistant Professor
Dr. Ashley Joshi-Patel, Assistant Professor
Dr. Brent D. Kaziny, Assistant Professor
Dr. Wilson Lam, Assistant Professor
Dr. Sarah K. Lyons, Assistant Professor
Dr. Ghadir Sasa, Assistant Professor
Dr. Lisa R. Forbes-Satter, Assistant Professor
Dr. Jeremy S. Slone, Assistant Professor
Dr. Adam D. Wolfe, Assistant Professor

Norton Rose Fulbright

Faculty Excellence Award for Development of Enduring Educational Materials

Dr. Susan L. Gillespie, Assistant Professor
Dr. David D. Schwartz, Associate Professor
Dr. Rajkumar Venkatramani, Associate Professor

Early Career

Faculty Award for Excellence in Patient Care

Dr. Sara Klinepeter Bartz, Assistant Professor
Dr. Luis A. Castagnini, Assistant Professor
Dr. Jonathan Crews, Assistant Professor
Dr. Shailendra Das, Assistant Professor
Dr. Daniel J. Desalvo, Assistant Professor
Dr. Jennifer C. Erklauer, Assistant Professor
Dr. Kristin Marie Ernest, Assistant Professor
Dr. Kevin Kaplan, Assistant Professor
Dr. Ruchi Kaushik, Assistant Professor
Dr. Haithuy N. Nguyen, Assistant Professor
Dr. Ameer Patel, Assistant Professor
Dr. Irene Patniyot, Assistant Professor
Dr. Priya Raj, Assistant Professor
Dr. Jill R. Roth, Assistant Professor
Dr. Jared Rubenstein, Assistant Professor
Dr. Shweta Shah, Assistant Professor
Dr. Mary Carroll Shapiro Assistant Professor
Dr. Karen Thursday S. Tuano, Assistant Professor

STAR

Faculty Award for Excellence in Patient Care

Dr. Alisa A. Acosta, Assistant Professor
Dr. Aarti Bavare, Assistant Professor
Dr. Nilesh K. Desai, Assistant Professor
Dr. Ankhidutta, Assistant Professor
Dr. Rodrigo Erana, Assistant Professor
Dr. Ganga Gokulakrishnan, Assistant Professor
Dr. Jose Hernandez, Assistant Professor
Dr. Kala Y. Kamdar, Associate Professor
Dr. Binal Shah Kancherla, Assistant Professor
Dr. Yuezhen Lynda Lin, Assistant Professor
Dr. Caridad "Cary" Martinez, Associate Professor
Dr. Matei Petrescu, Assistant Professor
Dr. Surya P. Rednam Assistant Professor
Dr. Daniel J. Sedillo, Associate Professor
Dr. Mona Shah, Associate Professor
Dr. Amrita Singh, Assistant Professor
Dr. Sebastian Tume, Assistant Professor
Dr. Amber M. Yates, Associate Professor

Master Clinician

Faculty Award for Excellence in Patient Care

Dr. Juan Carlos Bernini, Professor
Dr. Murali Chintagumpala, Professor
Dr. Zoann Eckert Dreyer, Professor
Dr. Lefkothea Karaviti, Professor
Dr. Donald H. Mahoney, Jr., Professor
Dr. Kenneth L. McClain, Professor
Dr. Paul E. Sirbaugh, Associate Professor

SPECIAL FACULTY RECOGNITION

Pediatric Resident Banquet Teaching Awards – Texas Children’s Hospital

Best Continuity Attending: Dr. Margaret Wood
Outstanding Faculty Teacher: Dr. Nader El-Mallawany
Outstanding Fellow: Dr. AnnaMarie Arias-Shah

CHofSA Faculty Awards

Mentor of the Year: Dr. Samiya Razzaq
New Faculty of the Year: Dr. Mohammed Salameh
Champion for Resident Wellness: Dr. Samiya Razzaq
Faculty Excellence in Clinical Care and Communication: Dr. Rebecca Huston
Dr. Osvaldo Reguiera Humanism Award in Medicine: Dr. Cody Henderson
Faculty Excellence in Teaching: Dr. Cory Henson

CHofSA Faculty Award – Excellence in Teaching Honor Roll

(Faculty who received the next top vote totals for the Excellence in Teaching Award)

Dr. Katherine Brandt
Dr. Luis Castagnini
Dr. Lindsay DeVries
Dr. Oluwadamiolola Ejike
Dr. Shawn Funk
Dr. Taylor Fordham
Dr. Anthony Gardea
Dr. Cody Henderson
Dr. Ruchi Kaushik
Dr. Alex Henri
Dr. Ian Mitchell
Dr. Scott McLean
Dr. Melissa Svoboda
Dr. Mohammed Salameh

Faculty briefs....

Dr. Maria Elena Bottazzi, Professor, along with Dr. Peter Hotez, received a boost from Tito’s Handmade Vodka through a \$1 million grant from the brand’s philanthropic arm Love, Tito’s to accelerate research on a vaccine for the COVID-19 virus.

Dr. Hsiao-Tuan Chao, Asst. Professor and a McNair Scholar, has been honored with the Philip R. Dodge Young Investigator Award by the Child Neurology Society for her promising translational research in neurodevelopmental disorders like intellectual disability, epilepsy and autism. She will present the Dodge Lecture at the CNS-ICNA Conjoint Meeting in October.

Dr. Ivan Chinn, Asst. Professor, was awarded the first Mario Ricciardi Award for the Best Scientific Article on Hemophagocytic Lymphohistiocytosis by l’Associazione AILE, an Italian HLH patient organization, on Rare Disease Day.

Dr. Ahmed El-Saie, Clinical Postdoc Fellow, was awarded the SSPR David Oleberg Award for the top perinatal abstract

Dr. Cathy Gannon, Asst. Professor, was elected into the Alpha Omega Alpha (AOA) Society

Dr. Charleta Guillory, Assoc. Professor

-- was named Co-Chair of the AAP Texas Pediatric Society Fetus and Newborn Committee, 2020.

-- was selected to the AAP National Committee of Fetus & Newborn (COFN)

Dr. Heather Haq, Asst. Professor, moderated an AAP Section on Global Health webinar on Tuesday on June 23rd, titled "Women in Global Health and Parenting during a Pandemic: When the Venn diagram of work and family collapses."

Dr. Peter Hotez, Professor and Dean of the National School of Tropical Medicine, along with Dr. Maria Bottazzi, received a boost from Tito's Handmade Vodka through a \$1 million grant from the brand's philanthropic arm Love, Tito's to accelerate research on a vaccine for the COVID-19 virus.

Dr. Binal Kancherla, Asst. Professor, was elected to the AAP Executive Committee for the Section of Pediatric Pulmonary and Sleep Medicine

Dr. Jeffrey Kim was elected as the future President of the Pediatric and Congenital Electrophysiology Society (PACES), the preeminent international society with regard to pediatric and congenital arrhythmias. It serves as the primary group for advocacy, research, and collaborative care of this patient population.

Dr. Keila Lopez, Asst. Professor, along with Dr. Asim Shah, executive vice chair of psychiatry & behavioral sciences, was appointed to the Health Equity Response Task Force by Mayor Sylvester Turner. They will help to implement and accelerate Houston's rapid response to provide information, supplies and services to vulnerable members of the community.

Dr. Philip Lupo, Assoc. Professor, has been selected to serve on the Genetics of Health and Disease Study Section, a part of the NIH Center for Scientific Review, for a three-year period beginning July 1. In this role, he will contribute to the national biomedical research effort by reviewing and making recommendations on grant applications submitted to the NIH and surveying the status of research in this field.

Dr. Tiffany McKee-Garrett, Assoc. Professor, was named Co-Chair of the AAP Texas Pediatric Society Fetus and Newborn Committee, 2020.

Dr. Stacy Pierson, Asst. Professor, was appointed to the Pediatric Hospital Medicine sub-board of the American Board of Pediatrics.

Dr. Jennifer Rama, Asst. Professor, was elected President of the Pulmonary Training Directors Association.

Dr. Christopher Rhee, Asst. Professor, was awarded the Baylor College of Medicine Young Investigator Award.

Dr. Kirti Saxena, Assoc. Professor, has been appointed Interim Chief of the Section of Child and Adolescent Psychiatry.

Dr. Binoy Shivanna, Assoc. Professor

-- was awarded the Baylor College of Medicine Young Investigator Award.

-- was selected as an Editorial Apprentice with the Pediatric Research's Editor Apprentice program for 2020.

Dr. Teri Turner, Professor, is the incoming President of the Ambulatory Pediatric Association for 2020

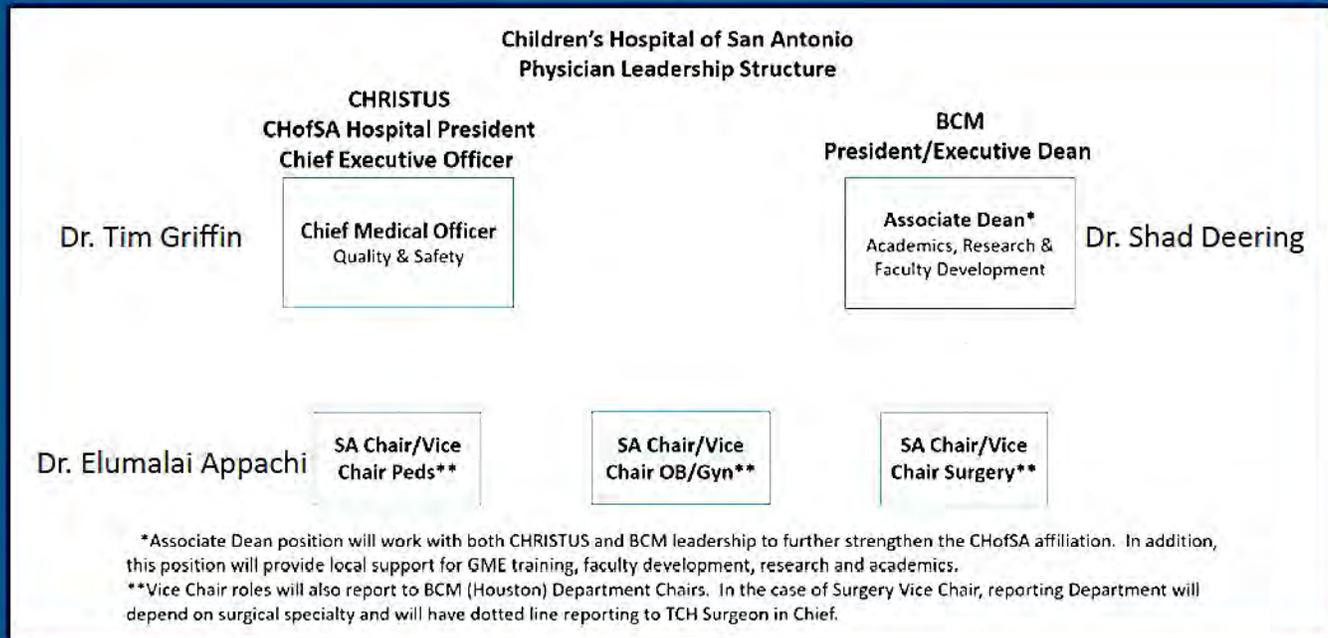
Dr. Jesus Vallejo, Professor, was named the Associate Dean for Admissions, Equity and Multicultural Affairs for the School of Medicine.

Dr. Yong Xu, Assoc. Professor, received the 2020 Michael E. DeBakey Excellence in Research Award.

Dr. Huda Zoghbi, Professor and Director of the Jan and Dan Duncan Neurological Research Institute and Howard Hughes Medical Institute investigator, and Sir Adrian Bird, professor of genetics at Edinburgh University, will be honored with the Lundbeck Foundation Brain Prize for their mapping of Rett syndrome, a rare neurological disorder. His Royal Highness Crown Prince Frederick will present the Brain Prize, the world's largest award for brain research, on September 13 in Copenhagen, Denmark.

ChofSA Announces New Physician Leadership Structure

CHofSA New Leadership Structure



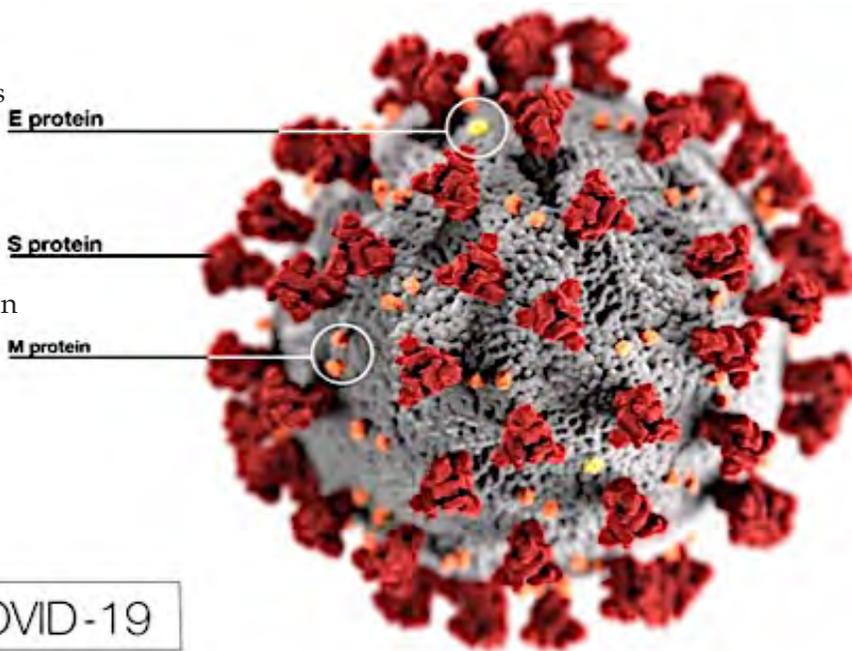
CHofSA Pediatric Residents Engage Community During COVID-19

Pediatric residents at ChofSA took time to engage the community by doing numerous acts of kindness:

- Prepared school materials for remote teaching for local educators
- Prepared handouts of parenting resources during the COVID-19 pandemic
- Sorted food at the Food Bank warehouse – thereby doubling the Food Bank’s food output for the afternoon from 300 to 600 meals
- Donated blood to the South Texas Blood and Tissue Center outreach center at the Alamodome
- Packed hygiene kits for the homeless at the San Antonio Police Department SAFFE substation
- Babysat children of attending physicians
- Walked dogs at San Antonio Pets Alive (and one lucky dog found a new foster home!)



This illustration, created at the Centers for Disease Control and Prevention (CDC), reveals ultrastructural morphology exhibited by coronaviruses. Note the spikes that adorn the outer surface of the virus, which impart the look of a corona surrounding the virion, when viewed electron microscopically. In this view, the protein particles E, S, and M, also located on the outer surface of the particle, have all been labeled as well. A novel coronavirus, named Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), was identified as the cause of an outbreak of respiratory illness first detected in Wuhan, China in 2019. The illness caused by this virus has been named coronavirus disease 2019 (COVID-19).



Content providers: Alissa Eckert, MS; Dan Higgins, MAMS

DEPARTMENT NEWS RESEARCH

Study in Piglets Finds Connections to Gut Bile Acids and Microbiome

A study led by researchers at the USDA-ARS CNRC, BCM, and TCH and published recently in *Journal of Lipid Research* shows evidence that the protective effect of parenteral oil infusions is accompanied by changes in the levels of gut bile acids and the gut microbiome. This study is the first to find a connection among parenteral oil infusions, the microbiome, metabolism, and health. This finding is especially important for infants born prematurely, who may require parenteral or intravenous nutrition to obtain necessary nourishment, as their immature digestive systems cannot digest nutrients. The original lipid emulsion, which was based solely on soybean oil has been the only parenteral lipid option for preterm infants for almost 45 years. Although it provides needed nourishment, it also has the potential to lead to several adverse conditions, including liver disease. This concern drove the development of new lipid emulsions with various oil components to prevent or treat parenteral nutrition-associated liver diseases.



The first study, led by **Dr. Douglas Burrin**, Professor, was published in 2014. In the current study, they expanded the original investigations by comparing two previously studied oil emulsions (namely soybean oil alone and a combination of soy, olive, coconut, and fish oils [SMOFlipid]) and a new experimental formulation (EXP) similar to SMOFlipid but with added DHA, an omega-3 fatty acid, and arachidonic acid. An additional experimental group consisting of piglets fed infant formula through a feeding tube was used for reference and lasted 22 days. Evaluation of the effects of the different oil emulsions in preterm piglets confirmed that the multicomponent oil emulsions (SMOF and EXP) but not Intalipis, can prevent cholestasis and restore bile flow in preterm piglets.



Tropical Medicine Strides Forward with Coronavirus Vaccine

The Texas Children's Center for Vaccine Development (Texas Children's CVD), led by Baylor pediatrics professors, **Dr. Peter Hotez** and **Dr. Maria Elena Bottazzi**, is leading the development of global health vaccines to prevent COVID-19. Specifically, this spring they announced a new alliance and consortium with three major partners to advance two recombinant protein COVID-19 vaccines to clinical trials and manufacturing.

The Global nonprofit organization PATH, the nonprofit biotech company Infectious Disease Research Institute (IDRI), and the biotechnology company Millipore Sigma have all joined the partnership dedicated to developing a low-cost effective vaccine that could be used not only in the U.S. but in developing countries as well.

- PATH is a Seattle-based non-profit product development partnership that led the development of the malaria vaccine and meningococcal A vaccine for Africa, among other life-saving vaccines. PATH will help navigate licensure and global access of the selected vaccines.
- IDRI is another Seattle-based non-profit biotech that will assist the Texas Children's CVD in vialing and other manufacturing steps. IDRI will contribute valuable expertise with respect to adjuvant technology.
- Millipore Sigma is a renowned life sciences company in the Boston area, which has worked with the Texas Children's CVD in the past for assistance with pilot- and larger scale manufacture. Millipore Sigma will assist with manufacturing platforms.

Texas Children's CVD has also secured a \$1 million donation from Love, Tito's, the philanthropic arm of Texas Tito's Vodka, as well as \$1 million from the JPB Foundation, in addition to almost \$1 million in additional gifts and grants, including support from NIAID, NIH.

The vaccine candidates include CoV RBD219-N1 Vaccine, originally developed to combat multiple coronaviruses. CoV RBD219-N1 Vaccine was begun in 2011 and completed technology transfer and a first round of manufacturing before being shelved for lack of funding. A second COVID19 RBD-N1 specific for SARS-CoV2 is also being rapidly advanced. In addition to being advanced for use in the U.S., these vaccines use a low-cost yeast-based expression system, which is similar to the recombinant hepatitis B vaccine used globally, and potentially suitable for technology transfer to vaccine manufacturers in middle-income nations, including Brazil and India. Now, as COVID19 spreads across the Global South, with recent reports showing an abrupt rise of this viral disease in Latin America and Southeast Asia, these vaccines might be expected to show widespread use.

Further information about the COVID19 program at the Texas Children's CVD can be found in the following recent papers published in 2020.

[How Efficacious Must a COVID-19 Coronavirus Vaccine be to Prevent or Stop an Epidemic by Itself.](#)

Bartsch SM, O'Shea KJ, Ferguson MC, Bottazzi ME, Cox SN, Strych U, McKinnell JA, Wedlock PT, Siegmund SS, Hotez PJ, Lee BY. medRxiv. 2020 May 30:2020.05.29.20117184. doi: 10.1101/2020.05.29.20117184. Preprint.PMID: 32511569

[Yeast-Expressed SARS-CoV Recombinant Receptor-Binding Domain \(RBD219-N1\) Formulated with Alum Induces Protective Immunity and Reduces Immune Enhancement.](#)

Chen WH, Tao X, Agrawal A, Algaissi A, Peng BH, Pollet J, Strych U, Bottazzi ME, Hotez PJ, Lustigman S, Du L, Jiang S, Tseng CK. Version 2. bioRxiv. 2020 May 22:2020.05.15.098079. doi: 10.1101/2020.05.15.098079. Preprint.PMID: 32511385

[COVID-19 vaccines: neutralizing antibodies and the alum advantage.](#)

Hotez PJ, Corry DB, Strych U, Bottazzi ME. Nat Rev Immunol. 2020 Jun 4:1-2. doi: 10.1038/s41577-020-0358-6. Online ahead of print.PMID: 32499636

[COVID19 meets the antivaccine movement.](#)

Hotez PJ. Microbes Infect. 2020 May 19:S1286-4579(20)30088-5. doi: 10.1016/j.micinf.2020.05.010. Online ahead of print.PMID: 32442682

[COVID-19 vaccine design: the Janus face of immune enhancement.](#)

Hotez PJ, Corry DB, Bottazzi ME. Nat Rev Immunol. 2020 Jun;20(6):347-348. doi: 10.1038/s41577-020-0323-4. Epub 2020 Apr 28.PMID: 32346094

[The potential role of Th17 immune responses in coronavirus immunopathology and vaccine-induced immune enhancement.](#)

Hotez PJ, Bottazzi ME, Corry DB. Microbes Infect. 2020 Apr 17:S1286-4579(20)30072-1. doi: 10.1016/j.micinf.2020.04.005. Online ahead of print.PMID: 32305501

[Potential for developing a SARS-CoV receptor-binding domain \(RBD\) recombinant protein as a heterologous human vaccine against coronavirus infectious disease \(COVID\)-19.](#)

Chen WH, Hotez PJ, Bottazzi ME. Hum Vaccin Immunother. 2020 Apr 16:1-4. doi: 10.1080/21645515.2020.1740560. Online ahead of print.PMID: 32298218

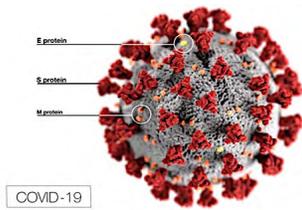
[Will COVID-19 become the next neglected tropical disease?](#)

Hotez PJ, Bottazzi ME, Singh SK, Brindley PJ, Kamhawi S. PLoS Negl Trop Dis. 2020 Apr 10;14(4):e0008271. doi: 10.1371/journal.pntd.0008271. eCollection 2020 Apr.PMID: 32275667

[The SARS-CoV-2 Vaccine Pipeline: an Overview.](#)

Chen WH, Strych U, Hotez PJ, Bottazzi ME. Curr Trop Med Rep. 2020 Mar 3:1-4. doi: 10.1007/s40475-020-00201-6. Online ahead of print.PMID: 32219057

Hematology/Oncology Faculty Address Issues of COVID-19



T-Cell-Based Therapy

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was first reported in Wuhan, China, in December 2019. In January 2020, the World Health Organization (WHO) declared the outbreak a global emergency after it spread rapidly to numerous other countries including the United States.

The most common clinical symptoms of COVID-19 at onset are fever, cough, dyspnea, myalgia, and/or fatigue. However, the clinical spectrum ranges widely from asymptomatic or mild illness to critical illness in a subset of patients with progression to acute respiratory distress syndrome (ARDS), shock, and/or multi-organ failure leading to death.

Death in many patients with COVID-19 has been associated with a dysfunctional immune response and failure to clear the virus.



To address this deficiency, investigators at the Center for Cell and Gene Therapy, including **Dr. Ann Leen**, Professor, are developing a T-cell-based therapy to deliver to

high-risk patients in order to restore their ability to eradicate the virus.

They are preparing banks of allogeneic SARS-CoV-2-targeted virus-specific T cells (VSTs) from individuals (healthy donors) who have been exposed to and naturally cleared the virus. These banked VSTs will be available as an “off the shelf” product to patients who are partially HLA-matched with the donor and who are at risk of developing severe COVID-19.

They have successfully used this approach clinically to treat a spectrum of other viral infections/diseases and hence anticipate that the infusion of these partially HLA-matched banked VSTs will be safe in patients and reduce COVID-related morbidity and mortality. It will be assessed in a Proof of Concept study with Drs. Premal Lulla, LaQuisa Hill, and Kevin Grimes serving as the clinical principal investigators (PIs) and Dr. Leen as the laboratory PI.

Inflammation in Patients with Acute SARS-COV-2

SARS-CoV-2 that causes COVID-19 disease is similar to SARS and MERS. Clinical findings among critically ill patients infected with these new viruses includes features of pathologic inflammation, with more severe inflammation associated with risk of death. For some patients, treatment with corticosteroids or other agents that target inflammatory proteins may be detrimental, whereas for others, immune suppression may be life-saving. Further, there are emerging cases in children with endothelial inflammation and clinical features that have been compared to Kawasaki disease. Mechanisms of pathogenesis of COVID-19, reasons for clinical variability, and potential clinical benefit of immune suppression are not known.

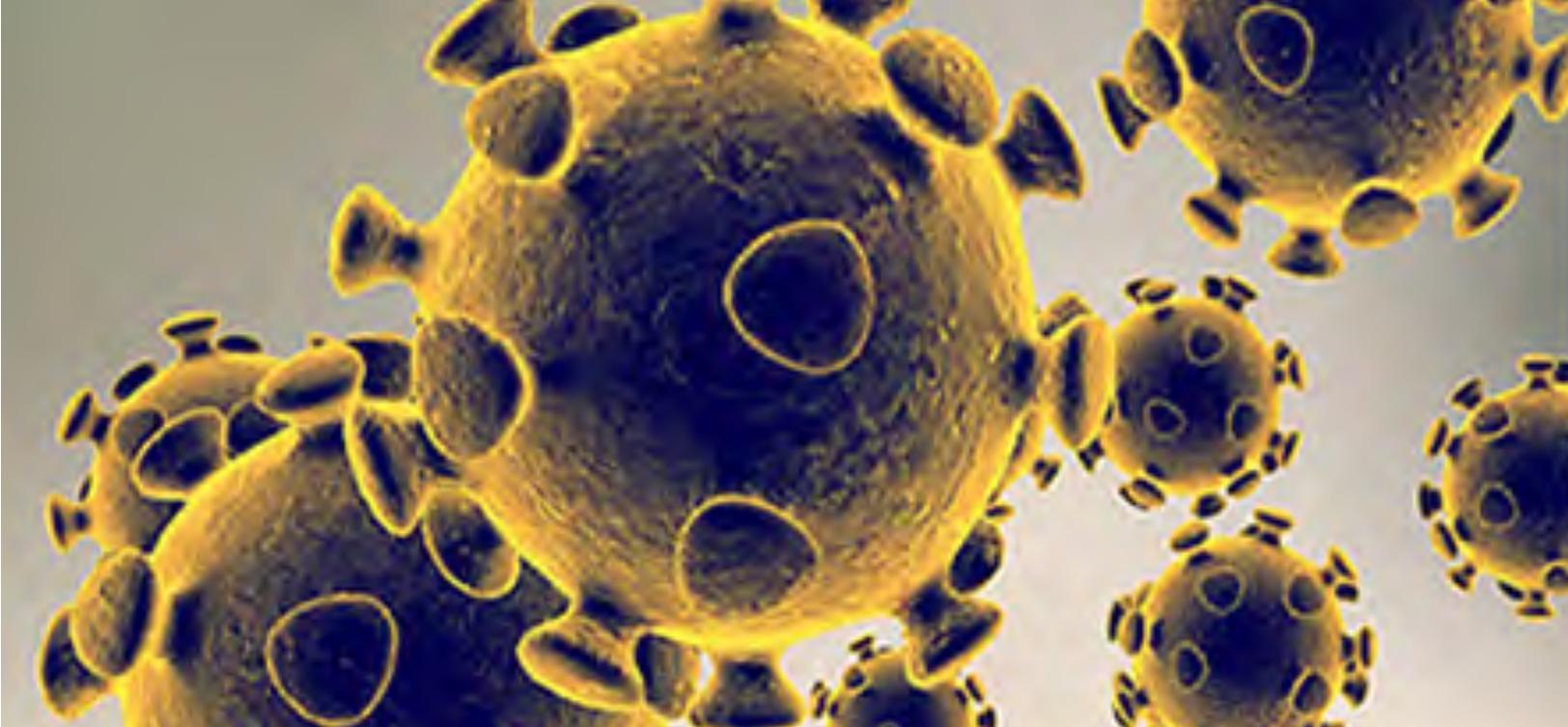
A multidisciplinary team of clinical and scientific experts in disorders of immune dysregulation from Baylor College of Medicine/Texas Children’s Hospital including Pediatric Hematology/Oncology, Cell and Gene Therapy, Immunology and Microbiology, Pathology, Pediatric Allergy and Immunology and Critical Care Medicine have organized a study to define inflammation in patients with acute SARS-CoV-2 infection. With colleagues at University of Buffalo, Cincinnati Children’s Hospital and Mount Sinai School of Medicine, they are characterizing plasma inflammatory protein profiles, immune cell populations, and immune function in adults and children with COVID-19 in order to identify biomarkers of disease severity. Further, the results from COVID-19 patients will be compared to plasma and immune cells from patients with other diseases of hyper-inflammation, including hemophagocytic lymphohistiocytosis (HLH), severe sepsis, and Kawasaki disease.

Ultimately, the goal is to create clinical tools to predict disease outcomes in patients with COVID-19 and to inform development of novel therapeutic



strategies to manage pathologic inflammation in severely ill patients.

This research team organized with support from the Baylor College of Medicine COVID-19 response and received funding support from the National Cancer Institute (Dr. Kent Osborne [PI]; **Dr. Carl Allen** [Supplement PI], Asst. Professor), as well as from the BCM COVID-19 seed grant (**Dr. Rikhia Chakraborty** [PI], Asst. Professor).



Faculty Publish Article on Care of COVID-19 Patients



Dr. Catherine Foster, Asst. Professor (top), is lead author and **Dr. Judith Campbell**, Professor (bottom), is senior author on a paper published in the Oxford Academic: The Journal of the Pediatric Diseases Society. The paper describes the clinical course of 57 children with COVID-19 who were treated at Texas Children's at the beginning of the pandemic. Most of the children were mildly symptomatic. Using the TCH Infection Control and Prevention infrastructure and available test in the TCH laboratory, they were able to capture and describe the course of



COVID-19 in patients who presented in different settings. An important aspect was that most cases presented in the ambulatory setting (53%), and the yield of positive tests was greater in the outpatient setting than in the hospitals (9.6% vs. 1.6%, respectively). They explained the reasons for these findings as multifactorial. For one, a known household exposure may have lowered the threshold for testing in outpatients. Also, hospitals are more likely to perform preprocedural surveillance testing. Most of the patients reported that a household member had been diagnosed with COVID-19, suggesting that the infections in children occurred after exposure to an adult in their own homes during the time of social distancing.

Most patients (83%) presented with either fever or cough: fever was reported in 53% of ambulatory patients, 90% of ED patients, and 2% of hospitalized patients. All patients admitted had non-COVID diagnoses contributing to the need for admission, highlighted the importance of testing broadly for implementation of appropriate infection control measures. None of the 57 patients received therapeutic agents to treat COVID-19, but three received azithromycin for possible atypical pneumonia or acute chest syndrome, three received desamethasone for exacerbation of asthma, and one patient with hypogammaglobulinemia received scheduled intravenous immune globulin. No patients required mechanical ventilation, and none died. The median length of stay was 2 days (range, 1-10 days.).

The authors also described strategies implemented at the hospital for healthcare workers caring for patients, which allowed continued delivery of pediatric care in different settings. Among these strategies were screening of patients/family and employees, policies restriction visitors, and drive-through COVID-19 testing for patients. The drive-through testing enabled the hospital to deal with any surge, but none occurred.

The other authors on the paper were Drs. Elizabeth Moulton, Flor Munoz, Kistina Hulten, James Versalovic, James Dunn, Paula Revell, Tjin Koy, Amy Arrington, and Lucila Marquez.

Researchers Study Link Between Cancer and Birth Defects

A study published in the journal *Cancer*, and led by Dr. Jeremy Schraw, Instructor and first author, compared approximately 13,000 children with cancer but no birth defects with nearly 1,600 children with cancer and one or more defects.

Scientific studies suggest that children with birth defects are at increased risk of cancer. However, it has not been assessed whether the type of cancer, the age at which they are diagnosed or the extent of



cancer spread at the time of diagnosis, is different for children with birth defects compared to children without birth defects.

"We investigated 28 different types of cancer by analyzing data from population-based registries in four U.S. states. For eight cancer types, we saw

differences in the frequencies of those cancers when comparing children with birth defects and children without," said first author **Dr. Jeremy Schraw**, instructor of pediatric oncology and part of the Center for Epidemiology and Population Health at Baylor.

The group of children with birth defects in this study did not include those with syndromes caused by chromosomal or single-gene alterations, such as Down syndrome or neurofibromatosis, whose increased cancer risk has been previously studied.

The researchers found that acute lymphoblastic leukemia (ALL), the most common childhood cancer in the general pediatric population (24.5 percent), constituted a smaller proportion of diagnoses (12.4 percent) in children with birth defects. On the other hand, among children with birth defects, larger proportions of tumors were of embryonic origin, including neuroblastoma (12.5 percent vs. 8.2 percent) and hepatoblastoma (5 percent vs. 1.3 percent).

Regarding the age of diagnosis, the researchers found that the majority of these cancers were diagnosed 1 to 2 years earlier in children with birth defects than in children without.

Dr. Schraw and his colleagues also looked at the stage of cancer at diagnosis to address the possibility that cancers were diagnosed earlier in children with birth defects a result of the children getting

more medical attention due to their condition, and during checkups cancer was found incidentally. If this were the case, the researchers expected that cancers in children with birth defects would more often be at an earlier stage at diagnosis than cancers in the general pediatric population.

"When we looked at the cancer stage at diagnosis, we found that, for the most part, there was no trend toward earlier stage at diagnosis in children with birth defects," said Schraw, who also is a member of Baylor's Dan L Duncan Comprehensive Cancer Center. "This suggests that increased medical surveillance alone does not explain the earlier age at diagnosis in children with birth defects."

"We hope that this research can inform future studies that will help us better understand cancer risk in children with birth defects,"

said corresponding author **Dr. Philip Lupo**, Assoc. Professor of pediatric hematology and oncology and member of the Dan L Duncan Comprehensive Cancer Center at Baylor. He also is the director of the Childhood Cancer Epidemiology and Prevention Program at TCH. "However, it should be noted that while children with birth defects are more likely to develop cancer, their overall risk remains low."

"If we understand better the link between birth defects and cancer, we might be able to identify which of these children have a unique high risk of cancer and need surveillance," said co-author **Dr. Sharon Plon**, Professor of pediatric oncology and of molecular and human genetics at Baylor. She also is a member of the Dan L Duncan Comprehensive Cancer Center.



Other authors on the study were Drs. Tania Desrosiers, Wend Nembhard, Peter Langlois, Robert Meyer, Mark Canfield, Sonja Rasmussen, Tiffany Chambers, and Logan Spector.



Researchers Engineer Better Way to Target Leukemia Cells

Acute Lymphoblastic Leukemia (ALL) is the most common childhood cancer. While most children respond well to chemotherapy, some experience resistant or relapsed disease.

Building on an immunotherapy treatment called CAR T cell therapy, researchers at Baylor College of Medicine, working with colleagues from multiple institutions, were able to engineer a new fighter T cell that more effectively targeted leukemia cells in preclinical studies.



“Chimeric antigen receptor (CAR) T cell therapy, a form of immunotherapy, was developed to help children for whom chemotherapy was not enough,” said **Dr. Nabil Ahmed**, Assoc. Professor and senior author of

the findings published by Dr. Kristen Fousek and colleagues in the journal *Leukemia*.

CAR T cell therapy uses a patient’s T cells, a type of immune cell that is usually involved in fighting cancer. Several research groups have genetically engineered patient’s T cells to express a CAR molecule to recognize CD19, a protein (antigen) found on leukemia cells. When these CAR T cells are introduced back into the patient, they can attack the cancer more effectively.

Although initial treatment using CAR T cells offered impressive initial results, nearly half of the patients who received the therapy later relapsed because the cancer adapted to the attack by not producing the target protein CD19 anymore. As a result of this adaptation, the cancer became invisible to the engineered T cells.

Looking to improve this promising immunotherapy, Dr. Ahmed collaborated with

Dr. Hisham Abdel-Azim, an investigator in the Saban Research Institute of Children’s Hospital Los Angeles and co-corresponding author, to study the pattern of target change before and after treatment with CD19 CAR T cells.

Accordingly, Dr. Fousek, then a graduate student in Dr. Ahmed’s laboratory at the Center for Cell and Gene Therapy, engineered a T cell that targets not only CD19, but also two other proteins found on leukemia cells, CD20 and CD22.

“It’s like using a trident to attack the cancer instead of a spear,” Dr. Ahmed said. The team used this three-pronged weapon against leukemia cells in preclinical studies and developed new methods to monitor how well it worked.

The new CAR T cells, named TriCAR T cells, targeting CD19/20/22 were significantly more effective than T cells that target CD19 alone. When the leukemia cells stopped producing CD19 and were no longer visible to CD19 CAR T cells, TriCAR T cells were still effective.

“TriCAR T cells bind to more cancer cells and these connections are much stronger,” said Dr. Abdel-Azim. “We studied the behavior of individual TriCAR T cells in the laboratory of Dr. Varadarajan at the University of Houston; the new TriCAR T cells are more effective serial killers of leukemia,” Dr. Ahmed said.

Although a clinical trial will be needed before the new TriCAR T cell therapy could be used on patients, the early lab results suggest a path that could be significantly more effective in battling resistant leukemia.

Other authors on the study were Drs. Junji Watanabe, Sujith Joseph, Ann George, Xingyue An, Tiara Byrd, Jessica Morris, Annie Luong, Melisa Martinez-Paniagua, Khaled Sanber, Shoba Navai, Ahmed Gad, Vita Salsman, Pretty Mathew, Hye Kim, Dimitrios Wagner, Lorenzo Brunetti, Albert Jang, Matthew Baker, Navin Varadarajan, Meenakshi Hegde, Yong-Mi Kim, Nora Heisterkamp.



July 8, 2020
TCH New Fellows Orientation Begins

July 14, 2020
Fellows College Orientation

July 30, 2020
12:00 – 1:00 PM
Faculty Development Workshop: Virtual Work Rounds

September 11, 2020
10th Annual Educator Orientation

October 5, 2020
By 5:00 PM
Norton Rose Fulbright Award Portfolio Due

November 9, 2020
Early Career Faculty Award for Excellence in Patient Care

January 18, 2021
Star Faculty Award for Excellence in Patient Care

February 15, 2021
By 5:00 PM
Master Clinician Faculty Award for Excellence in Patient Care



Pedi Press
September 4, 2020