THE UNIVERSITY OF ARIZONA COLLEGE OF MEDICINE TUCSON
Pulmonary, Allergy, Critical Care & Sleep Medicine

PACCS Newsletter

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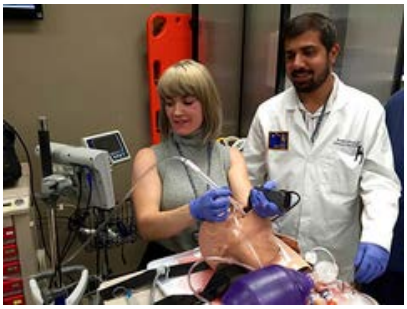
First and foremost...

The Division of Pulmonary, Allergy, Critical Care, and Sleep Medicine (PACCS) has had a busy first quarter in 2023. This newsletter is aimed at highlighting the activities and accomplishments of the members of our division who serve the tripartite mission of our academic institution. The clinical services in the intensive care units, inpatient consultation services, and various pillars of the PACCS ambulatory clinics and procedural programs continue to serve our communities within Arizona. The educational and training mission continues with full vigor within our four fellowship programs -- Pulmonary-Critical Care, Critical Care, Allergy-Immunology, and Sleep Medicine -- and trains the future pipeline of clinicians, educators, and physician-scientists. Medical students, residents, and fellows from other intra- and extra-mural programs also receive training during their elective rotations within the busy PACCS clinical services and research labs. The PACCS research engine continues to power innovations that span the spectrum of research from knowledge generation to clinical translation.

Clinical Mission

PACCS led the 3-year battle against the scourge of the Coronavirus Disease (COVID) pandemic. Members of the PACCS division activated up to 13 Intensive Care Unit (ICU) teams and provided coordination and logistics with Arizona-wide surge line, institutional command center and other units and departments within the College of Medicine - Tucson. In 2022, members of the PACCS division achieved a net positive contribution margin of 18.6% and achieved an average individual productivity of 79th percentile (FPSC). PACCS has a total of 22.2 FTE with **10 pillars**. The 10 pillars with corresponding number of individuals are: Allergy/Immunology (n=3), Sleep Medicine (n=4), COPD/Asthma (n=3), Cystic Fibrosis (n=2), Interstitial Lung Disease (n=4), Pulmonary Hypertension (n=2), Interventional Pulmonology (n=3), Lung Transplant (n=4), ECMO/trach (n=6), and critical care (n=18). In the wake of the COVID pandemic, PACCS is again leading the charge against the second scourge of Long-COVID in its clinics.

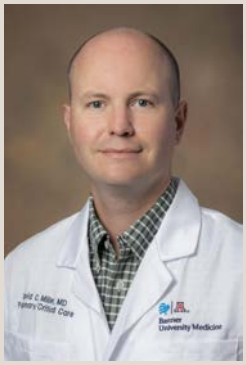


Changing the standards

After nearly four years of work, the American Thoracic Society workshop report on Race, Ethnicity and the interpretation of Pulmonary Function Tests (PFTs) was finally released. **Dr. Christian Bime** (Associate Professor of Medicine, University of Arizona, PACCS) co-chaired the effort with Dr. Nirav Bhakta from University of California San Francisco and this was published in the *American Journal of Respiratory and Critical Care Medicine*. This project was in response to the rising concern that the use of race and ethnicity in PFT interpretation contributes to a false view of fixed differences between races and may mask the effects of differential exposures. This use of race and ethnicity may contribute to health disparities by norming differences in pulmonary function. The workshop members reviewed evidence that challenges current practice and recommended to replace race and ethnicity-specific equations with race-neutral average reference equations, and recommended a broader re-evaluation of how PFTs are used to make clinical, employment, and insurance decisions. The group called for continued research and education to understand the impact of the change, to improve the evidence for the use of PFTs in general, and to identify modifiable risk factors for reduced pulmonary function.

Recommended to replace race and ethnicity-specific equations with race-neutral average reference equations.

CYSTIC FIBROSIS FOUNDATION



2 Cystic Fibrosis Grants

David C. Miller, MD
Medical Director, Adult Cystic Fibrosis Program

Dr. David Miller received two grants from the Cystic Fibrosis Foundation. Dr. Miller completed his Pulmonary and Critical Care fellowship training within the division of PACCS (UArizona College of Medicine - Tucson) after residency training in Boston (Harvard Medical School). He was a NHLBI-T32 fellow at UArizona before joining PACCS as an Assistant Professor of Medicine. He is passionate about providing high quality care for patients with Cystic Fibrosis. He is dovetailing his clinical and research interests and has successfully competed for the prestigious Cystic Fibrosis Foundation PACE award. The Program for Adult Care Excellence (PACE) will fund Dr. Miller until October 2025. Dr. Miller is already a Principal Investigator for the CF Foundation Adult Center Award to the University of Arizona.

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James Knepler, MD
Professor of Medicine, Associate Chief, PACCS Program Director, Pulmonary-Critical Care Director, Interventional Pulmonology

Meet our fellows

The Division of PACCS houses four fellowship programs in Pulmonary-Critical Care, Critical Care only, Allergy-Immunology, and Sleep Medicine. The ACGME accredited fellowships train high-quality fellows who will become tomorrow's leaders and experts in their respective fields. In addition to receiving training in state-of-the-art medicine, our fellows are involved in conducting quality improvement projects and research.

Pulmonary Hypertension research

Our researchers have found that early change in diastolic function with diastolic elastance and baseline right ventricular ejection fraction were the best predictors of therapeutic response to interventions in patients with pulmonary artery hypertension. The American Thoracic Society (ATS) conducted a virtual journal club that included **Drs. Rebecca Vanderpool and Franz Rischard** as panelists. This journal club was conducted on February 1, 2023 and the panelists discussed the scientific findings of their 2022 publication in the journal Chest. Drs. Rebecca Vanderpool, Michael Insel, Saad Kubba, and Franz Rischard published another related publication in the American Journal of Respiratory and Critical Care Medicine that contends that prostacyclin-induced differences in right ventricular contractility and right ventricular pulmonary artery (RVPA) coupling are likely dependent on the stage of disease assessed. They suggested that a therapeutic increase in RVPA coupling ratio is more likely to occur with large changes in afterload.

Drs. Vanderpool, Kubba, and Insel are all mentees of Dr. Rischard at the University of Arizona where the work was conducted. Dr. Rischard has mentored numerous junior faculty, fellows, internal medicine residents and medical students.

Fellowship Directors

The Pulmonary Critical Care fellowship is led by outstanding educators -- James Knepler, MD (Program Director [PD]), Jarrod Mosier, MD (Associate PD) and Bhupinder Natt, MD (Associate PD). Dr. Knepler is the Associate Chief of the Division of PACCS and Director of Interventional Pulmonology. Dr. Natt is the Medical Director of the Medical Intensive Care Unit at BUMC-South and Dr. Mosier is the Medical Director of the ECMO program. Dr. Tara Carr is the PD for Allergy & Immunology and an Associate Professor of Medicine who established the Allergy-Immunology services at BUMC-Tucson in 2012.

New Program Director for the ACGME-accredited Sleep Medicine Fellowship Program

Dr. Saif Mashaqi is the new PD for the ACGME-accredited Sleep Medicine fellowship program and took over the reigns in January 2023. Dr. Mashaqi completed his Sleep Medicine fellowship training at the Cleveland Clinic and has been with the Division of PACCS since 2019. He has over 20 PubMed referenced publications, numerous book chapters, and is currently a co-investigator in a project led by Dr. Fiona E. Bailey (R01-AG065346) that aims to study the effect of inspiratory muscle training on blood pressure and vascular function in older adults with sleep apnea. Dr. Mashaqi is PI for a study involving an implantable hypoglossal nerve stimulator treatment for sleep apnea.

2 Acute Lung Injury Grants

Christian Bime, MD, MSc
Associate Professor of Medicine
Medical Director, Medical Intensive Care Unit, BUMC-T

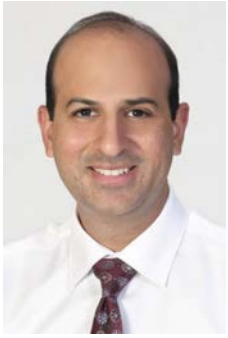
Dr. Bime has received two new grants as Principal Investigator from the NIH/NHLBI that pertains to Acute Lung Injury. His first grant (R21-HL168142) seeks to validate two highly novel stratification tools to improve patient stratification in the design of future ARDS clinical trials targeting eNAMPT/TLR4 and PSGL1/P-Selectin interactions. The second grant (4UH3TR003597) in collaboration with Dr. Natalia Ignatenko (UArizona Cancer Center) aims to target polyamines in order to suppress SARS-CoV-2 virus that causes COVID. These are in addition to to his K08-HL141623 and R56-HL160907 grants.

Interstitial Lung Disease Research

A genomic classifier for usual interstitial pneumonia (gUIP) has been shown to predict histological UIP with high specificity, increasing diagnostic confidence for idiopathic pulmonary fibrosis (IPF). Whether those with positive gUIP classification exhibit a progressive, IPF-like phenotype was unknown. Dr. Sachin Chaudhary served as the lead author for a multi-institutional research that was recently published in the European Respiratory Journal. The investigators performed a pooled, retrospective analysis of patients who underwent clinically indicated diagnostic bronchoscopy with gUIP testing at seven academic medical centers across the United States. They assessed the association between gUIP classification and 18-month progression-free survival (PFS) using Cox proportional hazards regression. They found that while gUIP may serve as a reliable surrogate for histological UIP, the gUIP classification was not associated with differential rates of progression-free survival or longitudinal decline in Functional Vital Capacity. The researchers suggested that gUIP testing has diagnostic value, but has little prognostic value.

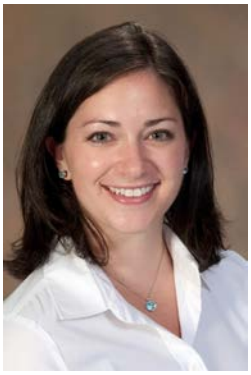
Genomics of Interstitial Lung Disease did not prognosticate patient outcomes

Dr. Sachin Chaudhary is the Medical Director for the Interstitial Lung Disease (ILD) program at BUMC-Tucson and Division of PACCS. He is also the Site Principal Investigator on various NIH and industry sponsored clinical trials. The ILD program was awarded the Center of Excellence by the Pulmonary Fibrosis Foundation and remains the largest care center network catering to the patient population in the Southwest region of United States. The ILD center at The University of Arizona also secured the World Association of Sarcoidosis and Other Granulomatous Disorders (WASOG) Center of Excellence. The ILD center was previously awarded the Center of Excellence by the Scleroderma Foundation.



Sachin Chaudhary, MD
Assistant Professor of Medicine, Medical Director, Interstitial Lung Disease Program

Treating Asthma during COVID times



Tara Carr, MD
Associate Professor of Medicine, Director, Allergy Clinic
Program Director, Allergy Immunology Fellowship

Dr. Tara Carr was the lead author for a new publication in the ***Journal of Allergy and Clinical Immunology***. Along with many researchers across the U.S. who are part of the **Precision Interventions for Severe and/or Exacerbation-Prone Asthma network** they performed a thoughtful review and assessment of the many considerations and plans for treating asthma within the context of these novel COVID-19-related therapies. The authors call to attention the pharmacologic interactions between established asthma therapies and novel drug interventions for COVID-19 infection, including antivirals, biologics, and vaccines. In particular, impaired metabolism of some long-acting beta-2 agonists by the cytochrome P4503A4 enzyme in the setting of antiviral treatment using ritonavir-boosted nirmatrelvir (brand name Paxlovid) may increase risk for adverse cardiovascular events. They point out that these issues are largely unappreciated by clinicians who treat asthma, or those dispensing COVID-19 interventions in patients who happen to have asthma. Because these drug-drug interactions have not previously been relevant to patient care, clinicians have had no guidance on management strategies to reduce potentially serious interactions between treatments for asthma and COVID-19. This thoughtful analysis is a must read for providers treating asthma and/or COVID.

Dr. Tara Carr is the Medical Director for the Allergy-Immunology Clinic and Program Director of the Allergy-Immunology fellowship program in the Division of PACCS. She is Core Leader for the Program Project Grant (5U19AI125357; Core B) that aims to elucidate the mechanisms by which the innate immune system affords protection against viral-induced exacerbations in asthma.

New Faculty Spotlights

Arista Chand, MD
Clinical Assistant Professor, Medicine, Interstitial Lung Disease Program

Dr. Arista Chand completed medical school at the University of Sydney (2011-2014), internship at Nepean Hospital, Sydney, Australia, and residency training at Greenwich Hospital, CT (2015-2016). She completed her Pulmonary-Critical Care fellowship at the Division of PACCS (UArizona College of Medicine - Tucson; 2019-2022) and is Board Certified in Internal Medicine (2019) and Pulmonary Medicine (2021). She has both clinical and research interests in Interstitial Lung Disease and works with Sachin Chaudhary, MD, Bhupinder Natt, MD, Tammer El-Aini, MD and Ms. Marybeth Jamieson, NP.

Madhav Chopra, MD
Clinical Assistant Professor, Medicine, Interventional Pulmonology Program

Dr. Chopra completed medical school at the University of Cincinnati (2011-2014) and his residency training at the University of Arizona College of Medicine - Phoenix campus. He completed his Pulmonary-Critical Care fellowship at PACCS (UArizona College of Medicine, Tucson; 2018-2021) and Interventional Pulmonology at Penn State University (2021-2022). He is Board Certified in Internal Medicine (2018), Pulmonary Medicine (2020), and Interventional Pulmonology. He has both clinical and research interests in Interventional Pulmonology and COPD. He performs endobronchial valve placement which is a minimally invasive procedure that helps people with severe emphysema and chronic obstructive pulmonary disease (COPD) to breathe more easily.

Awards and Recognitions

PACCS celebrates the following awardees who were recognized a the 2023 COM-Tucson awards ceremony. **Salma Patel, MD, MPH, an** Assistant Professor of Medicine in PACCS , received the Excellence in Clinical Science Teaching of Medical Students and or Residents award.

John Bloom, MD (PACCS, Professor of Medicine) received the "Outstanding Achievement in Teaching by a Block/Course" award for the Cardio, Renal, and Pulmonary Block.

Dr. Tara Carr (Associate Professor of Medicine; PACCS) received the 2023 COM-T Specialty Advisor Award.

Dr. Jarrod Mosier (Associate Professor of Medicine) received the 2023 COM-T Mentoring Award. In 2022, he had received the COM-T Clinical Researcher Award.

Jarrod Mosier, MD
Associate Professor of Medicine,
APD, Critical Care Fellowship
Medical Director ECMO
Program

Awards and Recognitions

The 2023 COM-T Research Day featured keynote address by **Dr. Sairam Parthasarathy, MD**, Chief of PACCS. Dr. Parthasarathy delivered the keynote entitled, "The Long Arm of Long COVID" and highlighted the latest research from his laboratory. Other keynote speakers were **David Julius, PhD,** Nobel Laureate and Professor of Physiology and **Dr. Holly Ingraham** (both from the University of California at San Francisco).

Spotlight on Active Grants

The RECOVER Study is ongoing at UArizona and encompasses a multi-site investment in understanding the impact of Long-COVID on the health and well being of the public. This $23 Million grant has investigators from PACCS (**Drs. Christian Bime, Lilian Hansen, Jarrod Mosier, and Franz Rischard. Ms. Heidi Erickson, RN**, is the Director for Regulatory Science for the RECOVER study and **Sairam Parthasarathy MD** serves one of four Principal Investigators. The study aims to identify the origins and manifestations of Long-COVID in various organ systems that are responsible for over 90 symptoms and disorders.

COVID Grand Rounds

The NIH-CEAL (OT2HL158287) and CDC funded COVID Grand rounds featured three speakers in the first part of the year. The COVID Grand rounds is aimed to be a virtual grand rounds that is held monthly with an innovative format that aims to educate healthcare providers and researchers in Arizona regarding the latest developments regarding the COVID pandemic and post-acute sequelae of SARS-CoV-2 infection (PASC). Emphasis is placed on the epidemiology, etiopathogenesis, public health implications, immunobiology, prevention (including vaccination), and treatment approaches for COVID and post-acute sequelae of SARS-CoV-2 virus infections (PASC). In January 2023, Dr. **Talal Moukabary, MD** (Clinical Associate Professor, Division of Cardiology) spoke about "Postural orthostatic tachycardia syndrome and post-COVID Conditions". In February 2023, speakers from the Office of the Surgeon General delivered a panel discussion entitled, "Building a Healthy Information Environment: Addressing Misinformation in Your Sphere of Influence". The speakers included **Ms. Kyla Fullenwider**, Senior Advisor, Office of the Surgeon General and **Mr. Rafael Campos** Deputy Director of Public Engagement Office of the Surgeon General. In March 2023, **Dr. Sairam Parthasarathy** gave a lecture entitled, "Long-COVID Updates: Epidemiology, Diagnostics, and Treatment." The PACCS COVID grand rounds is attended by clinicians and researchers from 26 states and 7 countries.

Upcoming events for 2023 Q2

April 2023

April 12 (Wednesday) Department of Medicine Faculty Meeting (UAHS 8403 @ 1730 hrs).

April 13 (Thursday) A2DRC Spring Research Meeting (Zoom; 1500 hours).

April 18 (Tuesday): COVID Grand Rounds (Zoom) 0800-0900 Hrs.

April 18 (Tuesday) PACCS Monthly Meeting (1500 hrs; AHSC Rm 6416).

April 24-26 (Mon-Wed): Annual meeting for the R25-PRIDE Training grant awardees (NIH-NHLBI) Bethesda, MD (R25-HL126140).

May 2023

May 5 (Friday) & 6 (Saturday) NIH-RECOVER Annual PI Meeting (HSIB Building)(OT2-HL161847); Bethesda, MD.

May 15 (Monday) UAHS Center for Sleep & Circadian Sciences Ribbon Cutting Ceremony; COM-T Plaza from 1600-1830 hours.

May 16 (Tuesday): COVID Grand Rounds (Zoom) 0800-0900 Hrs.

May 16 (Tuesday) PACCS Monthly Meeting (1500 hrs; AHSC Rm 6416).

May 20 - 24 (Saturday-Wednesday): ATS Conference; Washington DC.

June 2023

June 3 - 7 (Saturday - Wednesday): APSS Annual SLEEP2023 Meeting; Indianapolis, IN.

June 14 (Wednesday): DOM Faculty Meeting AHSC Rm 8401 (1730-1830 hrs).

June 20 (Tuesday): COVID Grand Rounds (Zoom) 0800-0900 Hrs.

June 20 (Tuesday): PACCS Monthly Meeting (1500 hrs; AHSC Rm 6416).

June 28 (Wednesday): Critical Care - Pulmonary CCG Meeting (MSTeams) 1645-1815 hrs

June 30 (Friday): Last day for DEI Credits and Banner Learning Modules.

Please send your events and accomplishments to Sai Parthasarathy (spartha1@arizona.edu) Editor

Publications from the Division of PACCS (Q1 of 2023)

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19. M. Jergovic et al., T-cell cellular stress and reticulocyte signatures, but not loss of naive T lymphocytes, characterize severe COVID-19 in older adults. Geroscience, 1-16 (2023).
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23. X. Li et al., Low CC16 mRNA Expression Levels in Bronchial Epithelial Cells Are Associated with Asthma Severity. Am J Respir Crit Care Med 207, 438-451 (2023).
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