

## RESEARCH FOCUS AREAS

Department	Focus Areas
	<ol style="list-style-type: none"> <li>1. Opioid sparing anesthesia</li> <li>2. Real-time decision support during surgery</li> <li>3. Preoperative assessment efficiency</li> <li>4. Enhanced Recovery after Surgery</li> </ol>
<p><b>Will Hand, MD</b> Anesthesiology</p>	
	<ol style="list-style-type: none"> <li>1. Rare tumor novel therapies</li> <li>2. Mitochondrial dysfunction after chemotherapy</li> <li>3. New drug development</li> <li>4. Pharmacogenomics</li> <li>5. Exercise physiology and cancer survivors</li> <li>6. Integrative therapies for cancer survivors.</li> </ol>
<p><b>Jeff Edenfield, MD</b> Cancer Institute</p>	
	<ol style="list-style-type: none"> <li>1. <b>Community Health:</b> Roadway safety, human trafficking, HIV surveillance, opioid abuse, behavior health</li> <li>2. <b>Education:</b> UME, GME, simulation, cardiopulmonary resuscitation</li> <li>3. <b>Operations:</b> efficiency, patient satisfaction, communications, performance, teamwork</li> <li>4. <b>Wellness:</b> profession burnout, gender specific, physician motivation</li> </ol>
<p><b>Ron Pirrallo, MD</b> Emergency Medicine</p>	
	<ol style="list-style-type: none"> <li>1. Cultivation of interest and development of basic skills for clinically oriented research projects for medical students and undergraduates through our summer research program</li> <li>2. Resource and, with the help of our departmental research coordinator, often driving force for a broad range of interdisciplinary projects with subspecialty expertise in most areas of pathology and laboratory medicine</li> </ol>
<p><b>Jenny Knight, MD</b> Pathology</p>	



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 <b>Irf Asif, MD</b> Family Medicine	<ol style="list-style-type: none"> <li>1. <i>Quadruple Aim and Population Health:</i> Goal to provide high quality care to populations with low cost, great patient experience, and low provider burnout; Specific areas that we are addressing include: colon cancer screening, falls risk, BMI, depression, and diabetes.</li> <li>2. <i>Leadership in Medicine:</i> Moving forward, populations will be taken care of in teams where providers must understand the concepts of elements such as team dynamics and emotional intelligence, while also being able to teach patients about key concepts such as resilience and adversity quotient. Medical education often does a poor job of teaching students about leadership.</li> <li>3. <i>Exercise and Lifestyle Medicine:</i> This includes the prevention and treatment of disease through physical activity, eating healthy, reducing stress, behavior change, etc.</li> <li>4. <i>Faculty Development/Medical Education:</i> What are novel and effective methods to teach our future workforce and develop our faculty members to be education and curricular wizards?</li> </ol>
 <b>Irf Asif, MD</b> Sports Medicine	<ol style="list-style-type: none"> <li>1. <i>Sports Cardiology:</i> Researchers within our department are internationally recognized for their work on the prevention of sudden cardiac death in young athletes. This includes understanding what kills athletes, how often it happens, can we screen to prevent disease, can we resuscitate athletes if they have a cardiac arrest, etc.</li> <li>2. <i>Concussion:</i> The athletic training network for which we provide care has nearly 25,000 athletes. We've examined data from this network to answer questions on head injuries in sport and can address many other areas of interest</li> <li>3. <i>Exercise and Lifestyle Medicine:</i> Our research spans programs including the use of a physical activity vital sign within our high-risk clinic, data on employee health, cost-effectiveness of physical activity based programs, business health, and other domains</li> <li>4. <i>Mental Health:</i> Key areas in this field include addressing bullying, hazing, depression, suicide, etc. in young athletes</li> <li>5. <i>Pediatric Obesity:</i> Nearly half of young Americans are obese. What clinical programs can effect a change to prevent this from worsening?</li> </ol>

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 <p><b>Alain Litwin, MD</b> Internal Medicine</p>	<ol style="list-style-type: none"> <li>1. Models of health care delivery (including telemedicine, directly observed treatment, group-based models, and case management / patient navigation, and co-located models of care)</li> <li>2. Population health and screening (including SBIRT used to identify, reduce, and prevent substance use disorders)</li> <li>3. Pharmacotherapy clinical trials for chronic diseases (including diabetes, congestive heart failure, NASH, and cerebrovascular diseases)</li> <li>4. Prevention of chronic diseases (including diabetes and cerebrovascular disease)</li> <li>5. Centers and programs of excellence including 1) Oncology: Institute for Translational Oncology Research (ITOR) – personalized cancer therapy, biorepository, proteomics and genomics; 2) Geriatrics: Memory Care Program; and 3) Neurology: Stroke Center</li> </ol>
 <p><b>Kacey Eichelberger, MD</b> Obstetrics &amp; Gynecology</p>	<ol style="list-style-type: none"> <li>1. <b><u>Preterm birth prevention</u></b> <ul style="list-style-type: none"> <li>• CRADLE study: The impact of group prenatal care (Centering Pregnancy) on racial disparities in spontaneous preterm birth (sPTB) and variations in placental biomarkers for maternal stress (NIH funded)</li> <li>• PROSPECT study: RCT of pessary versus vaginal progesterone versus vaginal placebo on sPTB rates in twin pregnancies with a sonographic short cervix (NICHD funded)</li> <li>• TOPS study: RCT of pessary versus no pessary on sPTB rates in singleton pregnancies with a sonographic short cervix (NICHD funded)</li> </ul> </li> <li>2. <b><u>Endometrial biomarkers</u></b> <ul style="list-style-type: none"> <li>• Fertile women without endometriosis (NIH funded)</li> <li>• Comparison of inflammatory cell characteristics in the endometrium (NIH funded)</li> <li>• Endometrial integrins as markers of uterine receptivity-Phase 2 (NIH funded)</li> <li>• Modeled menstrual cycles in women with and without endometriosis (NIH funded)</li> </ul> </li> <li>3. <b><u>Perinatal infectious diseases</u></b> <ul style="list-style-type: none"> <li>• Cytomegalovirus: Observational study of prevalence of seropositive screens for CMV during pregnancy, followed by an RCT of Cytogam versus placebo for low avidity IgG seropositive women (NICHD funded)</li> <li>• Hepatitis C: Observational study identifying risk factors associated with mother to child transmission of HCV (NICHD funded)</li> </ul> </li> </ol>



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 <b>Des Kelly, MD</b> Pediatrics	<ol style="list-style-type: none"> <li>1. Diabetes prevention and management</li> <li>2. Obesity prevention and management</li> <li>3. Autism</li> <li>4. Asthma</li> <li>5. Eosinophilic Esophagitis</li> <li>6. Population health (addressing social determinants of health and health equity)</li> </ol>
 <b>Ben Griffeth, MD</b> Psychiatry	<ol style="list-style-type: none"> <li>1. Integration and Collaborative care models for providing mental health care at the primary care level.</li> <li>2. ECHO models for psychiatric education at the primary care bedside.</li> <li>3. Identification and treatment of First Onset Psychosis.</li> </ol>
 <b>Mike Devane, MD</b> Radiology	<ol style="list-style-type: none"> <li>1. Treatment of hepatocellular carcinoma</li> <li>2. Imaging of hepatic fibrosis</li> <li>3. Lung cancer screening</li> <li>4. Imaging and procedure cost effectiveness</li> <li>5. Computerized measurement and artificial intelligence</li> </ol>
 <b>Alfredo Carbonell, DO</b> General Surgery	<ol style="list-style-type: none"> <li>1. Hernia mesh, explant analysis, and surgical outcomes</li> <li>2. OR traffic and its effect on air flow and microbial load</li> <li>3. Vascular aneurysm, hemodialysis access</li> </ol>

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	<ol style="list-style-type: none"> <li>1. Comparative Effectiveness (SC Center for Effectiveness Research in Orthopaedics)</li> <li>2. Clinical and Patient-Reported Outcomes</li> <li>3. Biomechanics/Biomaterials</li> <li>4. Prospective Randomized Clinical Trials in trauma, hand, sports, shoulder and elbow, and joint replacement.</li> </ol>
<p><b>Tom Pace, MD</b> Orthopaedic Surgery</p>	
	<ol style="list-style-type: none"> <li>1. <i>Sergio Arce, M.D., Ph.D.</i> – Immunology and pathogenesis of multiple myeloma and sarcoidosis</li> <li>2. <i>Asa C. Black, Jr., M.D.</i> – Pluripotent Adult Stem Cells and Multiple Sclerosis</li> <li>3. <i>Anna V. Blenda, Ph.D.</i> – Antimicrobial properties of human galactin proteins; genetics of Split Hand Foot Malformation (SFHM)</li> <li>4. <i>Renee J. Chosed, Ph.D.</i> – Genetics/epigenetics posttranslational modifications and disease progression; molecular mechanisms of human embryo development</li> <li>5. <i>Steven E. Fiester, Ph.D.</i> – Microbiology/infectious disease; virulence of multidrug-resistant bacterial pathogens</li> <li>6. <i>Lauren A. Gonzales, Ph.D.</i> – Vertebrate paleontology; evolution of primate brain</li> <li>7. <i>Richard L. Goodwin, Ph.D.</i> – Mechanisms of cardiovascular development and malformation; cell-based therapies</li> <li>8. <i>Richard L. Hodinka, Ph.D., F (AAM)</i> – Clinical microbiology, infectious diseases; molecular diagnostics, identification and monitoring of microbial pathogens</li> <li>9. <i>Ann Blair Kennedy, LMT, BCTMB, DrPH</i> – Patient and stakeholder engagement; behavioral change interventions and integrative medicine</li> <li>10. <i>Mohammed K. Khalil, DVM, M.S.Ed., Ph.D.</i> – Medical education and innovative learning strategies; learning and instructional technology</li> <li>11. <i>Thomas I. Nathaniel, Ph.D.</i> – Neurology; stroke/telestroke program; medical education</li> <li>12. <i>William E. Roudebush, Ph.D.</i> – Embryology; preimplantation embryo morphometrics</li> <li>13. <i>Rebecca Russ-Sellers, Ph.D.</i> – Health services research; medical education</li> <li>14. <i>Jennifer Trilk, Ph.D.</i> – Exercise science; Exercise is Medicine Greenville; improving patient health through exercise</li> <li>15. <i>Matthew Tucker, Ph.D.</i> – Sleep and memory processing; medical education</li> <li>16. <i>Shanna Williams, Ph.D.</i> – Craniofacial study; medical education</li> <li>17. <i>William Wright, Ph.D.</i> - Diabetic retinopathy; medical education assessment practices; curriculum design</li> </ol>
<p><b>Rick Hodinka, PhD</b> USCSOMG</p>	

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 <b>Lori Stanley, DNP</b> Nursing	<ol style="list-style-type: none"> <li>1. Recruitment/ Retention                 Compassion Fatigue                 Burnout/ Stress                 Staff Engagement</li> <li>2. Team work</li> <li>3. Workplace Violence                 Employee Safety                 Patient Safety</li> <li>4. Patient outcomes - quality of life</li> <li>5. Care Delivery models</li> <li>6. Comparative Effectiveness research – nurse driven protocols and effect on patient outcomes and key quality indicators</li> </ol>
 <b>John Pearson, PharmD</b> Pharmacy	<ol style="list-style-type: none"> <li>1. Success in Medical Education (photovoice study)</li> <li>2. Access and success to higher education for underserved students (specifically in the STEAM and health sciences fields)</li> <li>3. Social capital and innovation's role in upward mobility for youth and young adults</li> <li>4. High school access programs and their impact on the health science pipeline</li> <li>5. Impact of institutional, state, and national shifts/policy changes on faculty work</li> <li>6. Community Engaged Scholarship (research is hand-in-hand with the people we serve)</li> </ol>
 <b>Christen Hairston, PhD</b> Student Affairs	<ol style="list-style-type: none"> <li>1. Success in Medical Education (photovoice study)</li> <li>2. Access and success to higher education for underserved students (specifically in the STEAM and health sciences fields)</li> <li>3. Social capital and innovation's role in upward mobility for youth and young adults</li> <li>4. High school access programs and their impact on the health science pipeline</li> <li>5. Impact of institutional, state, and national shifts/policy changes on faculty work</li> <li>6. Community Engaged Scholarship (research is hand-in-hand with the people we serve)</li> </ol>



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 <b>Adrienne Talbert, DPT</b> Allied Health	<ol style="list-style-type: none"><li>1. Traumatic Brain Injury, Spinal Cord Injury, Stroke, Amputee Rehabilitation</li><li>2. Driving Rehabilitation</li><li>3. Rehabilitation and assisted devices design and evaluation to improve therapy process or assist patients with activities of daily living</li><li>4. Recreational Therapy</li></ol>
 <b>Terrie Long, MSN</b> Academy of Leadership & Professional Development	<ol style="list-style-type: none"><li>1. Identify current and prospective behaviors and competencies for healthcare leaders and professionals to transform patient care, minimize burnout, and optimize employee well-being and engagement.</li><li>2. Develop, evaluate, and translate organizational science practices into state-of-the-art tools for learning, development, and assessment of healthcare leaders and professionals.<ol style="list-style-type: none"><li>a. Catalog, analyze, and share key metrics that define organizational science principles that matter to healthcare—organizational change, culture, learning, engagement, burnout/well-being, leadership, teamwork, innovation.</li><li>b. Support the development of an organizational science research emphasis through collaborative inter-professional research efforts, grants, and publications.</li></ol></li><li>3. Continually assess the long term, multidimensional impacts of a conscious culture approach to healthcare, focusing on patient, employee, team, interprofessional, and system outcomes.</li></ol>