

The Johns Hopkins Division of Rheumatology

ARTHRITIS CENTER

2019 Update

The Johns Hopkins Arthritis Center has continued its outstanding record of innovation in research, education, and clinical care. Our clinical faculty of 8 physicians and 2 nurses recorded almost 5,000 patient visits in the last year for patients with Arthritis. With almost half of our patients engaged in research, this clinical base serves as the “living laboratory” for our many clinical and translational research projects. We maintain a number of clinical registries for patients with rheumatoid arthritis and psoriatic arthritis, each with correlative biorepositories. These registries provide important blood and synovial fluid samples to investigators in the laboratory who are seeking to uncover the causes of arthritis and biological mechanisms that define patient subsets.

INNOVATIONS IN RESEARCH

The Arthritis Center has had tremendous activity in the dissemination of research findings in the last year in leading medical journals. This has been in addition to numerous lectures, posters, and oral presentations given around the world and across the country at various rheumatology meetings. Many of our faculty serve on national and international organizations in leadership capacities and on committees for the American College of Rheumatology. Several members have been involved in the development of national and international guidelines for care for rheumatoid arthritis, psoriatic arthritis, osteoarthritis, and the newly emerging area of cancer immunotherapy- related autoimmune diseases.



Clifton Bingham MD, the director of the Arthritis Center has 35 publications in the last year. In collaboration with **Susan Bartlett PhD**, he has been involved in advancing the use of quality of life measures into clinical care for patients with rheumatoid arthritis and in validating these measures in longitudinal studies and clinical trials. He is one of the leaders of the international OMERACT group, which seeks to develop, validate, and standardize outcomes for rheumatic diseases in clinical trials and studies. He works with a number of pharmaceutical companies in clinical trial design and data analysis.

Ana Maria Orbai MD MHS is a physician-scientist and a recognized world leader in psoriatic arthritis research, with 19 new publications in the last year. Her work has contributed greatly to our ability to measure the patient’s experience and disease impacts in psoriatic arthritis. She has led studies to examine quality of life from clinical trials of newly approved and emerging medications. She has also helped to develop the current treatment guidelines for psoriatic arthritis.





Laura Cappelli MD MHS and Clifton Bingham MD described for the first time in 2017, newly emerging arthritis manifestations in patients with cancer receiving new classes of drugs called immunotherapies. They have now published 16 papers on this new disease entity (9 in the last year). They are working closely with investigators in our labs as well as with genetics and oncology to understand what drives this condition specifically, and how this might inform our understanding of the initiation of spontaneous forms of rheumatoid arthritis and psoriatic arthritis.

Jemima Albayda MD, director of the Musculoskeletal Ultrasound Clinical, Research, and Educational Program for the Division of Rheumatology, has 13 publications in the last year in work related to ultrasound assessments for joints and muscles in patients with rheumatic diseases. In her work, she collaborates with computational scientists to use artificial intelligence and machine learning to quantitate ultrasound images and use these measurements in making diagnoses and determining appropriate treatments.



The addition of two new physician-scientists in the last 18 months has expanded our research portfolio into new areas. **John Miller MD** is working with laboratory scientists to evaluate novel biomarkers to help in the characterization of patients with “undifferentiated” and “seronegative” inflammatory arthritis, a large group of inflammatory arthritis patients for whom the natural history and best choices for treatment remain unknown.

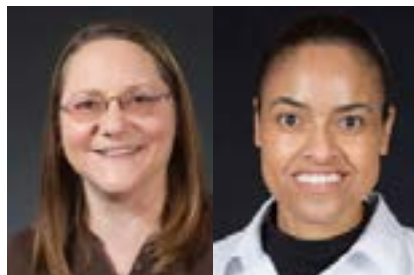
The work of **Dana DiRenzo MD MHS** focuses on the patient experience of disease and psychosocial aspects of living with chronic arthritis. Her current studies focus on the use of patient-reported outcome data to identify patients with high levels of anxiety and depression and targeting interventions such as mindfulness to address these aspects of the disease experience to improve outcomes. In collaborative studies, she is also evaluating functional MRI imaging to better understand the neurological pathways in the brain that are unregulated in arthritis pain and how mindfulness may moderate these processes.





Erika Darrah PhD, a basic and translational researcher, has described the clinical consequences for patients with rheumatoid arthritis having novel antibodies that were discovered in our laboratories. One of these marks patients for a milder disease course, another identifies patients at increased risk for lung disease and early joint damage. Her lab works closely with our physician-scientists to identify additional markers to characterize arthritis patient's biologic drivers so as to inform risk stratification and treatment choices.

Additional research collaborations are ongoing with **Jennifer Elisseeff PhD** and her researchers in Biomedical Engineering to study animal models of osteoarthritis and inflammatory arthritis. These studies are revealing new inflammatory pathways in osteoarthritis that may open up the use of new classes of drugs for the treatment of this condition.



Michelle Jones BA CCRC Marilyn Towns BS CCRP

Our research is made possible by our experienced research coordinators, **Michelle Jones BA CCRC**, **Marilyn Towns BS CCRP**, and **Gryznya Purwin CRC**. These individuals are responsible for the collection of data and management of our clinical databases, the collection and processing of samples for our biorepositories, and managing our interventional studies of new medications.

This summary only scratches the surface of the many ongoing research projects in the Arthritis Center. Our research portfolio is broad and encompasses various forms of arthritis and spans the spectrum from basic bench research to translational studies to clinical epidemiology and interventional studies. These research studies are made possible by research grants awarded to our faculty, but are highly dependent on the generous support of our donors. This support helps to maintain our databases and repositories, launch innovative pilot studies, provide reagents for investigations, and help us to support young faculty as they begin their investigative careers.

INNOVATIONS IN EDUCATION

The Johns Hopkins Arthritis Center has served an important role in the education of both health care professionals as well as patients. Resident physicians and Rheumatology Fellows rotate through our clinics and are involved in patient care under the direction of our Attending Rheumatology Faculty. But our educational reach goes much further in terms of how we educate health care providers across disciplines, at various levels of training, and with a reach that is national and international in scope.



Uzma Haque MD, Associate Director for Clinical Operations for the Arthritis Center, has led efforts in the Center for health care provider directed education. Now in its second year, she launched a new educational course directed toward primary care providers to improve the recognition and referral for patients with inflammatory arthritis and other musculoskeletal conditions. She has also developed a number of educational modules directed toward Internal Medicine trainees also geared toward early disease recognition, initial evaluation and management, and referral. These modules have already been used by more than 2,500 trainees across the United States as part of their training programs. She also serves as Co-Director for the Johns Hopkins Rheumatology CME Update Course, now in its 16th year, with almost 200 live and on-line rheumatologist registrants from across the country and around the world.

Victoria Ruffing RN, BC-Rheum is the Director of Nursing and Patient Education for the Arthritis Center. For over more than a decade, she has been committed to improving the ways in which we inform our patients about their diseases, their medications, and how to make lifestyle adjustments to optimize quality of life. She has led our efforts for our rheumatology websites to improve patient education. We now have a library of more than 200 videos covering the spectrum of rheumatic diseases, medications and injection techniques, infusions, and lifestyle. These can be found through our website at **www.Rheum.TV** as well as through our YouTube and Facebook channels.





These videos are also now being integrated within our electronic health record system EPIC to provide education for patients to access after their visits to reinforce topics covered in their visits. She works closely with our other Rheumatology nurse, **Laura Manning RN** to provide one-on-one patient education in addition to answering patient questions and helping with disability forms and providing access to medications.

Our educational programs have been enabled through the support of generous donors who have provided the resources for us to develop, expand, and update new content, especially directed toward patients living with arthritis and those who care for them.

INNOVATIONS IN CLINICAL CARE

Over the past three years, the EPIC Electronic Health Record system has transformed the ways in which we care for patients in the Arthritis Center.



Over the past three years, the EPIC Electronic Health Record system has transformed the ways in which we care for patients in the Arthritis Center. **Thomas Grader-Beck MD**, one of our rheumatologists, has undertaken additional training in health information technology, and specifically in optimizing EPIC for specific clinical settings. As one of 11 Physician-Builders for EPIC at Hopkins, he has developed a number of functionalities to enable better care and documentation for our patients in the Arthritis Center. Our physicians can now record elements of their examination directly into the system, such as joint counts. Patient assessment questionnaires are now obtained on tablets in the waiting room and imported directly into the record

for review at the time of the encounter. With Ana Maria Orbai MD MHS, a comprehensive psoriatic arthritis evaluation form and questionnaires are now integrated. These systems also allow us to export this data for later analysis for research purposes in those patients who have consented to be part of our registries, eliminating a cumbersome step of paper forms. Working with Vicky Ruffing RN, Dr. Grader-Beck has now made the extensive video library of patient-directed education available to add to patient after-visit summaries at the time of clinical encounters. The work that is being done by Dr. Grader-Beck is being replicated now at a national level as he leads the efforts at EPIC to standardize rheumatology data collection across EPIC facilities (now covering more than 250 million patients).

Our clinical operation is made possible by our outstanding Medical Office Assistants, **Penny Athanasiou** and **Brittany Leggs**, who help coordinate appointments, messages, and care between visits for patients in the Arthritis Center.



Penny Athanasiou



We are pleased to share with you the accomplishments of the Arthritis Center faculty and staff. The past year has been extremely fruitful in the three areas of focus for the Johns Hopkins Arthritis Center: Research, Education, and Clinical Care. Our faculty have continued to innovate in each of these arenas and continue to lead the field nationally and internationally.

These efforts are made possible through the generous support of our donors who support our tripartite Mission. Your support allows our young faculty to launch their investigative careers, supports pilot projects to acquire preliminary data for larger grants, helps us to maintain and expand our research infrastructure, and allows us to provide outstanding education for our patients and other health care professionals. As NIH funding becomes tighter, and grants are reduced in size, the support of our donors is even more essential to allow our research portfolio to expand and thus to maintain our position of excellence. We truly could not accomplish all that we have been able to without this outside support.

