



BPH RESEARCH INTEREST GROUP

*Connecting BPH clinicians, investigators, and
trainees to advance science and clinical care*



2026 Monthly Virtual Interactions, Knowledge Exchanges, & Discussions

2nd Wednesdays (times may vary to accommodate clinicians' schedules)

Check CAIRIBU website [Events Page](#) for times

Logistics, coordination, and outreach by CAIRIBU Interactions Core¹

May 6, 2026	7:00 PM Eastern (6 PM Central, 4 PM Pacific)	Meet & Greet: BPH investigators and clinicians get to know each other, share their research interests, and discuss research gaps in benign prostatic hyperplasia	Led by Kazumi Taguchi, MD, PhD and Kris Penniston, PhD <i>(list of attendees below)</i>
June 10, 2026	8:00 PM Eastern (7 PM Central, 5 PM Pacific)	From Introductions to Innovation: Welcome new participants and briefly summarize first meeting → breakout groups discuss specific topics in BPH research	CAIRIBU BPH RIG leadership team ²
July 8, 2026	7:00 PM Eastern (6 PM Central, 4 PM Pacific)	Knowledge Exchange 1: Two presentations, one clinical and one basic science, set the stage for future discussions about clinical needs and knowledge gaps in BPH	Speakers TBD
Aug. 12, 2026	TBD	Knowledge Exchange 2: Two presentations, one clinical and one basic science, set the stage for future discussions about clinical needs and knowledge gaps in BPH	Speakers TBD
Sept. 9, 2026	TBD	TBD	
Oct. 14, 2026	TBD	TBD	
Nov. 11, 2026	TBD	Strategic Planning: Discuss goals and plan agenda for BPH breakout session at annual CAIRIBU meeting , Dec. 9-11 in Madison, WI	

¹ **CAIRIBU Interactions Core:** Kristina Penniston, PhD, RD (Principal Investigator), Mariana Graff, MS (Research Program Coordinator), Theo Ng (Administrative Specialist); University of Wisconsin-Madison

² **BPH RIG Leadership:** Kazumi Taguchi, MD, PhD (University of Alabama at Birmingham); Petra Popovics, PhD (Virginia Health Sciences at Old Dominion University); Scott Quarrier, MD, MS (University of Rochester); and Renee Vickman, PhD (Endeavor Health)

SUMMARY OF RESEARCH APPROACHES AND INTERESTS FROM 5/06/2026 MEET & GREET

1. Attendees cited the following research approaches they use:

- Basic science
- Collaborative, “big data” (e.g., MUSIC now has a BPH program)
- Epidemiological approaches to studying BPH
- Geroscience, aging, senescence
- Imaging
- Microbiology, microbiome
- Model development
- Neuroscience
- Resource development
- Risk stratification
- Clinical/translational approaches

2. Research interests and topics of attendees:

- Biomarker discovery (e.g., image-based)
- Epithelial cytokines
- Fibrosis, interstitial fibroblasts
- Glandular nodules
- Immune system
- Inflammation
- Lipid accumulation
- Molecular mechanisms of aging
- Role of Piezo1 expression
- Organoids, organ-on-a-chip
- PDX model of BPH
- Pleiotropic therapy (e.g., exercise)
- Post-surgical dystrophic calcification
- Sex hormones
- Single cell spatial analysis
- Sleep fragmentation
- Stromal-epithelial interactions
- Tissue properties
- TNF antagonists

3. Summary of discussion:

- There was robust discussion on the need to partner with **clinical trial specialists** and to develop the infrastructure for running clinical trials.
- The need to pursue funds outside of traditional federal sources was discussed. Suggested candidates included pharmaceutical and surgical/device companies.
- Attendees discussed the need to develop **connections, commonalities, and “through lines”** across investigators’ specific research interests.
- **The need for UNITY in the field was discussed.** Specifically, the need to stick together and stand up for each other was strongly encouraged. This extends to reviews of grant applications as well as manuscripts.
- **There was vigorous support for clinician and scientist partnerships.** Attendees brought up the **Society of Benign Prostate Disease (SoBPD)** as an example of a clinician-focused organization with which connections should be made. Some attendees have interacted with SoBPD.
- The **Society for Basic Urological Research (SBUR)** was noted as another organization with which to make connections (**Travis Jerde** is current president). More benign urology presence at SBUR meetings was encouraged.

ATTENDEES OF 5/06/2026 CAIRIBU BPH RESEARCH INTEREST GROUP MEET & GREET

NAME	EMAIL	INSTITUTION
Scott Bauer, MD, MS	scott.bauer@ucsf.edu	UC San Francisco
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Jashkaran Gadhvi, PhD	jashkaran.gadhvi@utdallas.edu	UT Southwestern
Simon Hayward, PhD	simon.hayward@endeavorhealth.org	Endeavor Health
Mariah Jensen-Wachspress, graduate student	jensenma@odu.edu	Virginia Health Sciences, Old Dominion Univ
Travis Jerde, PhD	tjjerde@iu.edu	Indiana University
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Renee Vickman, PhD	renee.vickman@endeavorhealth.org	Endeavor Health
Shane Wells, MD	shanewel@med.umich.edu	University of Michigan



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CAIRIBU BPH RIG KNOWLEDGE EXCHANGE – DISCUSSION: 6/10/2026

PARTICIPANTS: Alex Polasko, PhD (Stanford University), Blas Garcia-Canga (University of Michigan), Dan Gralnek, MD (UW-Madison), Han Eckenrode, PhD (University of Alabama at Birmingham), Haotian Xie (University of Michigan), Smita De, MD, PhD (Cleveland Clinic Foundation), Jacqueline Perelman (University of Michigan), Jashkaran Gadhvi, PhD (UT Southwestern), Jim Brooks, MD (Stanford University), Jon Pollack, MD, PhD (Stanford University), Karl Tan, MD (Veterans Memorial Medical Center, Philippines), Petra Popovics, PhD (Virginia Health Sciences at Old Dominion University), Scott Bauer, MD, MS (UC San Francisco), Kazumi Taguchi, MD, PhD (University of Alabama at Birmingham), Matthew Lee, MD (The Ohio State University), Wilson Sui, MD (University of Michigan), Manisha Tripathi, PhD (Texas Tech University), and CAIRIBU Interactions Core staff

QUICK RECAP

Dr. Penniston gave an overview of the CAIRIBU Community and its formation of Research Interest Groups. Among the unsolved questions surrounding BPH, some have been unsolved for 20+ years. The CAIRIBU Interactions Core provides logistical support to investigators to help them foster collaborations and advance research to address these unsolved questions. Attendees introduced themselves and their general research approaches, research interests, and specialized areas of expertise to a CAIRIBU BPH Investigator Directory (in development).

Among the attendees were clinicians and basic scientists with varied research interests:

- (Sex) hormones
- Lipid accumulation
- Inflammation
- Patient-derived organoids
- Single cell spatial analyses
- Tissue properties
- Early signals in BPH
- Bladder segmentation
- Patient-derived xenograft models and computational approaches
- Image-based biomarkers,
- Single cell RNA sequencing

Collaborative approaches used include:

Basic science | Collaborative “big data” | Clinical trials

Investigators participated in a BPH “visioning” exercise to map out shared resources to accomplish desired goals and overall outcomes for BPH research. A copy of the visioning exercise is shown (next page).

Key Themes

Assets/Strengths (“Roots”)	Actions (“Branches”)	Outcomes (“Clouds”)
<u>Expertise</u> • Clinical trials • Organoid development • RNAseq <u>Infrastructure & resources</u> • Mouse models • Tissue/biobank samples • Protocols • Clinical data	<u>Advancing trainees and ESIs</u> • Bring in junior faculty • Collaborative training grants <u>Resource sharing</u> • Share models (mouse, organoid) • Share protocols (IRBs, MTAs) <u>Translational and clinical application</u> • Phenotyping • Whitepaper • Multicenter trials	<u>Getting BPH research on funders’ radars</u> • Submitted grants • Funding

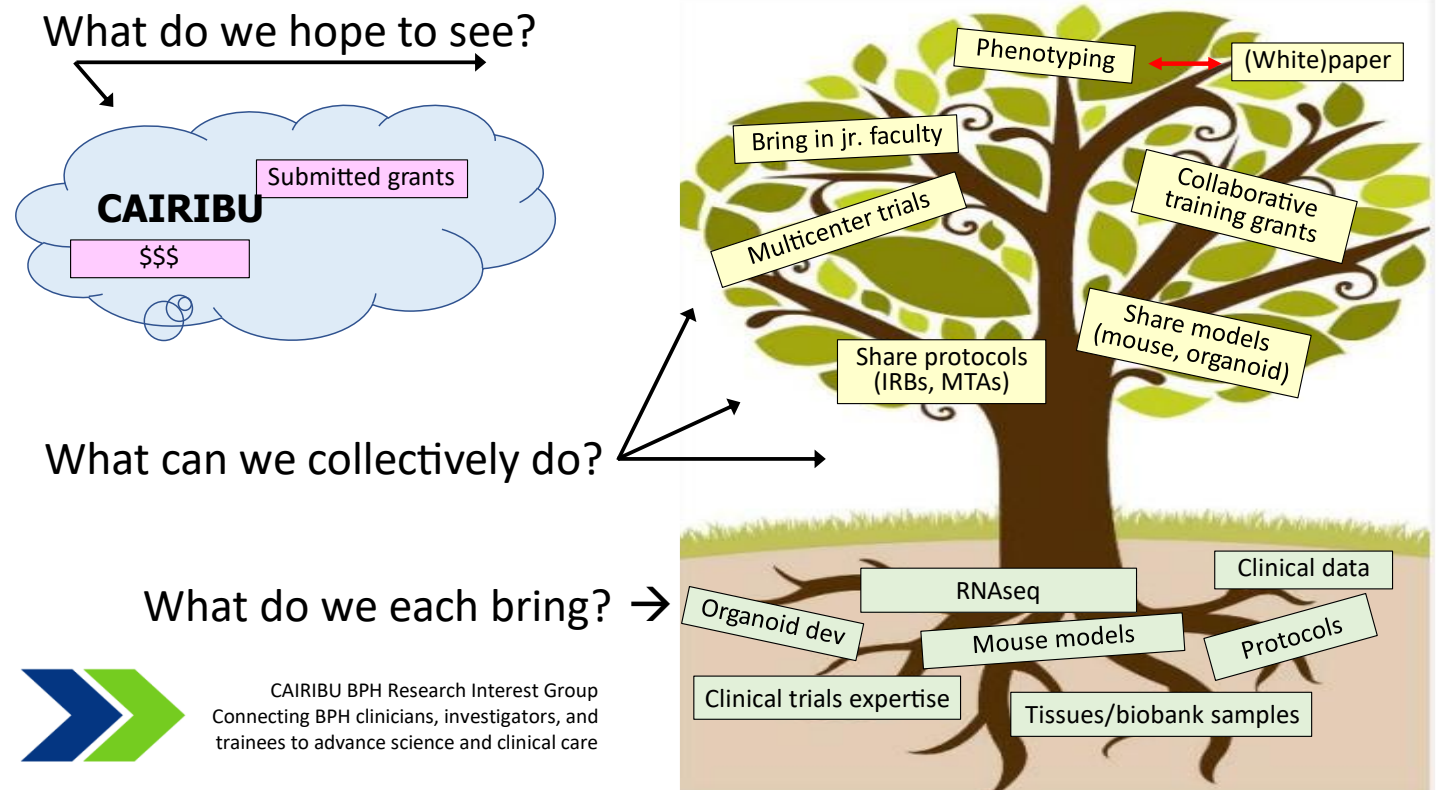
NEXT STEPS

BPH Investigators: Continue to add researcher information to the [BPH Investigator Directory](#)

CAIRIBU Interactions Core staff will:

1. Organize the July BPH RIG Knowledge Exchange
2. Disseminate the BPH Investigator Directory to gather more researcher information

Below are results of the CAIRIBU BPH RIG visioning exercise showing tools and expertise at the root, actionable goals to advance BPH research (branches and leaves), and desired outcomes (cloud).





CAIRIBU BPH RESEARCH INTEREST GROUP (BPH RIG)

CAIRIBU BPH KNOWLEDGE EXCHANGE



BPH RIG KNOWLEDGE EXCHANGE

**JULY 8, 2026
7PM-8PM ET**



EXECUTIVE SUMMARY 7/8/2026

Goal: Facilitate knowledge exchange and spur collaborations in BPH research and adjacent fields

Dr. Simon Hayward's Presentation: The History of BPH Research

BPH Issues and What Is Needed

- Dr. Hayward stated that one of the biggest issues with BPH treatment is the growing aging population and decreasing urologist population.
- **There have been relatively ineffective medical approaches with minimal changes in the last three decades**, he said, emphasizing the need for new and effective medical approaches to slow the influx of BPH patients.

Past Discoveries and Ideas of the Prostate

- Dr. Hayward introduced T/E₂ ratio and the discovery of 5-alpha-reductase made by Dr. Jean Wilson which later becomes a therapeutic target for medicinal approaches.
- In 1980s, he described how Dr. John McNeal introduced embryonic reawakening; the "reawakening" of fetal inductive potential of adult mesenchymal cells of the prostate giving rise to new growth and duct architecture.

More Recent Discoveries and Ideas of Prostate

- Dr. Hayward discussed the association of inflammation and BPH and noted that inflammatory comorbidities (metabolic syndrome, type 2 diabetes, obesity) are common foci in BPH research and often are linked to treatment resistance.

History of Medical Approaches

- Dr. Hayward described how BPH surgery has been occurring for centuries starting as castration in the 19th century, transitioning to simple prostatectomy in the late 19th and mid-20th centuries, and transurethral resection of the prostate throughout the 20th century.
- Alpha-adrenergic inhibitors have a long history for BPH treatment, he said, including non-selective, short-acting selective, long-acting selective, and uro-selective alpha blockers. These target specific alpha receptors in the prostate to improve urine flow.
- To shrink the prostate effectively, 5-alpha reductase inhibitors (5ARIs), such as finasteride, are often used in clinical management.

New and Upcoming Ideas

- **Dr. Hayward stressed the need to recognize subclasses of BPH disease**, such as size and stiffness of prostates and stated that new clinical techniques may be necessary to determine if these subclasses matter for symptomology.

- Using imaging modalities to visualize size, inflammation, and fibrosis of the prostate could create individualized treatment plans, he said.

Modeling BPH

- Dr. Hayward reviewed new mouse models that have been developed over the last few decades. He noted, however, that mouse models are not as well correlated with human disease states.
- Development of 3D in-vitro approaches, mostly organoid based, may prove to be informative.

Cellular Characterization

- Single-cell RNA sequencing and spatial transcriptomics have provided major improvements in characterizing the cellular components of the prostate.
- Dr. Hayward suggested that **research on cellular characterization be expanded to include representation of all major BPH related disease profiles** in order to improving understanding of the cell types in relation to a patient's morbidity.

Human Tissue Problems

- Dr. Hayward noted that changes to surgical procedures have unfortunately tended toward tissue destruction, potentially having major implications for future studies.
- He said that **the advance of these destructive approaches underscores the importance of existing biobanks of human prostate tissue** and encourages clinicians to collect as much human tissue samples as possible.
- Dr. Hayward also advocated for more models to study BPH disease due to destructive surgical interventions, highlighting the need for more reliable vivo, ex vivo, in vitro, and silico models.

Summary

- Dr. Hayward reviewed that BPH is a potentially fatal and increasingly common disease without a distinctive cause.
- Throughout history, T/E₂, embryonic reawakening, and inflammation have all been studied as a cause for BPH.
- He cited major medical improvements but noted that the last few decades have been rather stagnant with respect to new treatment methods.
- Dr. Hayward stressed the need for improvements in categorizing subclasses, cellular characterization, and the creation of new, more reliable models as necessary for advancing BPH research.

Simon Hayward, PhD, is a Principal Investigator at the P20 FORWARD Center at Endeavor Health in Chicago, IL. He studies the effects of systemic inflammatory conditions in the promotion and therapy resistance of benign prostatic hyperplasia. His project at Endeavor Health is titled "Validating Mouse Models of Prostatic Hyperplasia," and aims to address the need to generate a relevant mouse model for BPH.



CAIRIBU BPH RESEARCH INTEREST GROUP (BPH RIG)

CAIRIBU BPH KNOWLEDGE EXCHANGE



BPH RIG KNOWLEDGE EXCHANGE

AUGUST 12, 2026
7PM-8PM ET

Dr. Alex Glaser,
Endeavor Health



EXECUTIVE SUMMARY 8/12/2026

Goal: Facilitate knowledge exchange and spur collaborations in BPH research and adjacent fields

Summary

Modern Surgical Management of BPH and Implications for Translational Work

Modern BPH Management:

- Dr. Glaser discussed how **BPH is a universal condition affecting 80%-90% of the male population by the age of 70**. This high prevalence leads to a large economic burden.
- He noted that AUA guidelines recently changed to recommend starting with PDE-5 inhibitors, then determining procedural management based on prostate volume and ejaculatory preservation.
- Standard care begins with an evaluation to discuss the patient's history, conduct an exam, and perform urinalysis. **If there is minimal improvement, surgical intervention is discussed with the patient.**

Usefulness of Medications:

- The Medical Therapy of Prostatic Symptoms (MTOPS) trial demonstrated that combining finasteride and doxazosin provides the most symptom relief, although the improvement was only modestly more than placebos. (7.4 vs 4.9-point drop)
- Dr. Glaser discussed **a major problem clinicians encounter is that 66.7% of patients stop their alpha-blocker within 12 months and 47% of those abandon BPH drug therapy entirely.**

Current Urological Workforce Issues:

- Dr. Glaser highlighted that the existing disability burden is large and continuing to grow.
 - **In 2017, 2.4 million years were lived with disability from BPH, which was three times that of prostate cancer.**
- We have more procedural options than ever, but we cannot out-operate the problem.
 - 62% of U.S. counties do not have a practicing urologist and just 10% of counties in the U.S. hold 90% of the urology workforce.
 - The mean age of urologists is 55 years old.

Reshaping BPH Through Prevention:

- Dr. Glaser noted that prostate growth is hormonally driven and inevitable; but metabolic syndromes, inactivity, and adiposity are consistently linked to LUTS.
 - Physical activity can decrease LUTS by 19%; weight loss decreases LUTS from 35% to 22% post-operatively among bariatric surgery patients.
- Dr. Glaser mentioned the idea of using GLP-1s as a potential management strategy for LUTS/BPH.

Automation and Personalization of BPH Treatment:

- **Clinicians can stratify patients before treatment to predict if retention or surgery is the best option.**
 - Genetic and molecular risk scores along with inflammatory and metabolic phenotypes are proposed as potential predictors for therapy failure.
- Dr. Glaser introduced the **LURN SI-10** to use analogously to the IPSS. This questionnaire covers topics missed by the IPSS such as UII, SUI, PVD, and pain.
- Automated questionnaires can be used as post-procedure check-ins for patients to complete, which can flag failure risk factors and help with symptoms/complications without requiring clinic re-entry.
- Dr. Glaser raised the concept of **remote uroflowmetry through a phone app**, allowing patients to void in their own homes while running an app that will collect measurements that correlate with traditional uroflow.
 - He noted that this helps patients manage travel, avoids overscheduled clinics, and provides more accurate void data.

Modifying the Disease – Not just Symptoms:

- Old BPH models were based on androgen driven hormonal overgrowth, where the size of the prostate caused the symptoms.
- **New models suggest that as the prostate enlarges, the immune landscape changes.** A combination of inflammation, fibrosis, and proliferation contribute to LUTS.
 - With this, Dr. Glaser noted that candidate therapeutics include TNF antagonism, TREM2 macrophages, and antifibrotics.
- **Figuring out each patient's unique disease phenotype is an important next step in determining the proper targets.**

When Clinicians Should Intervene:

- The list of minimally invasive intervention options is expanding rapidly; some can be done in the office.
- Dr. Glaser stated that later intervention may be best if sexual preservation and the risk of incontinence are of importance to the patient.
- However, he recommended early intervention if the prostate is obstructing the bladder and causing functional decline and said that **research on immediate TURP shows better symptom improvement than waiting.**

Future Work of Scientists and Clinicians:

- Dr. Glaser suggested **prevention, automation, modification, and intervention** to promote the movement of BPH management from a reactive approach toward mechanistic and biomarker-based approach.
- High emphasis was placed on sharing cohorts and biorepositories, working on a non-invasive biomarker, having mechanism based multi-PI programs, and using standardized remote patient reported outcomes.

Summary

- Dr. Glaser ended by noting that BPH is a universal condition affecting nearly every aging male, causing a great burden on our economy and healthcare system.
- Current medications are modestly effective, but more than two-thirds of patients stop alpha-blockers within 1 year, and nearly half of those completely abandon BPH therapies.
- The urological workforce is aging and highly concentrated in a small percentage of the country, leaving it difficult for many patients to see urologists.
- Dr. Glaser advocated for treating comorbidities and using automated, personalized medicine as potential strategies to lessen office visits and directly target the unique disease phenotype.
- He ended his talk by encouraging collaboration to advance BPH research toward a mechanistic approach.

Alex Glaser, MD, is a urologist and Vice Chief of Urology at Endeavor Health. He specializes in endourology and the treatment of benign prostatic hyperplasia (BPH). He uses advanced techniques including Aquablation and robotic-assisted surgery to provide precise, minimally invasive care. An NIH-funded surgeon-scientist and investigator with the LURN network, Dr. Glaser leads two R01 grants in BPH research. As Director of Urology Research and a clinical associate professor at the University of Chicago, he works to advance surgical innovation and improve outcomes for patients with urologic conditions.



CAIRIBU BPH RESEARCH INTEREST GROUP (BPH RIG)

KNOWLEDGE EXCHANGE

EXECUTIVE SUMMARY 9/9/2026

Goal: Facilitate knowledge exchange and spur collaborations in BPH research and adjacent fields

Shane Wells, MD

Image-Based Biomarkers for the Lower Urinary Tract

Clinical Needs and Current Challenges with Lower Urinary Tract Dysfunction (LUTD):

- **Dr. Shane Wells:** LUTD is common and increases in frequency and severity with age. Delaying treatment can lead to permanent bladder detrusor dysfunction. But **there is a gap in non-invasive diagnostic tools linking symptom severity and pathophysiology**, he said.
- He stressed the need to focus beyond the prostate, noting that functionally, the bladder and bladder outlet form an interdependent physiologic dyad. Though Uroflow is an option, it cannot differentiate bladder outlet obstruction (BOO) and detrusor underactivity.
- Urodynamic studies can establish BOO detrusor function but are invasive and not routinely used for BPH.

Image-Based Biomarkers:

- Dr. Wells hypothesized that in patients with LUTD, image-based biomarkers are sensitive to histologically confirmed tissue changes occurring in the bladder and prostate. His goal, therefore, is to **use imaging to improve risk stratification and guide personalized diagnosis and treatment**.
- Quantitative imaging produces reproducible data to assess disease severity and treatment response.

Using Magnetic Resonance Elastography (MRE) to Characterize Prostate Biomechanics and Stiffness:

- Changes in physiological properties of the prostate from aging may contribute to altered physiology and anatomy of the bladder and urethra, affecting urinary flow dynamics.
- Dr. Wells said that MRE can visually display and quantify prostate tissue stiffness.
- He presented an example of patient imaging that included: axial T2-weighted MRI for an anatomical assessment, an elastogram measuring tissue stiffness, a color map to better visualize the elastogram data, and a wave image to assess the quality of the MRE.
 - The imaging identified that an increase in prostate stiffness related to BPH elongates and narrows the prostatic urethra, reducing urethral compliance and causing an increased urethral opening pressure and early urethral closure, altering flow dynamics.
- Dr. Wells said he believed that prostate segmentation from MRI/MRE can be used to co-register imaging data and create a 3D stiffness map of the prostate to quantify the tissue stiffness.

Jesse Hamilton, PhD

MR Fingerprinting for Quantitative Bladder Wall Tissue Characterization

Bladder Remodeling in BPH:

- **Dr. Jesse Hamilton** began by reviewing how BPH increases bladder workload and can lead to BOO and progressive bladder remodeling. As bladder dysfunction increases, the bladder undergoes the following stages of remodeling: normal, hypertrophy, compensation, and decomposition.

Magnetic Resonance Fingerprinting (MRF):

- Dr. Hamilton said that while conventional MRI is largely qualitative, **quantitative mapping offers more insight on bladder tissue traits**. Researchers can use MRF, he said, as a framework for mapping multiple tissue properties in a single rapid scan.
- Based on changes in MRI data over time, MRF generates “fingerprints” to be compared with simulated fingerprints in a dictionary to identify the best match and generate co-registered quantitative maps.

FEATURED SPEAKERS

SHANE WELLS, MD

JESSE HAMILTON,
PHD



- He noted, however, that there is not currently a standardized MRF approach for bladder wall segmentation.

In BPH Preliminary Results:

- Dr. Hamilton said that Isotropic imaging allows different views, sagittal, coronal, axial, and oblique planes, to be generated from the same acquisition.
- Using data from an initial volunteer study, Dr. Hamilton was able to find that older patients had increasing T_2 values and that men had higher T_1 and bladder wall thickness compared to women, establishing age- and sex-adjusted normative values for future studies.
- Further preliminary work that used 3T MRF in BPH patients to map T_1 and T_2 values showed elevated T_1 and T_2 levels in symptomatic patients compared with healthy volunteers.
- Dr. Hamilton concluded by suggesting that fibrotic tissues may be able to be identified with MRF $T_{1\rho}$, which is sensitive to macromolecular environment (especially collagen). While $T_{1\rho}$ is still in preliminary data stages, he said, literature in both cardiac and liver imaging supporting its use for identifying fibrosis.

Shane Wells, MD is an Associate Professor of Radiology and Associate Professor of Urology at the University of Michigan Medical School. His translational research program is highly collaborative and focuses on the development of non-invasive image-based biomarkers – such as magnetic resonance imaging and ultrasound – to improve diagnostics and treatment of the prostate and bladder problems associated with lower urinary tract symptoms.

Jesse Hamilton, PhD is an Assistant Professor of Radiology at the University of Michigan Medical School. He has a degree in Biomedical Engineering and collaborates closely with clinicians and clinician-scientists, such as Dr. Wells, to improve early detection and monitoring of diseases using new quantitative magnetic resonance imaging methods. A particular method of interest is MRI “fingerprinting,” which allows for the measurement of multiple biological properties from one rapid scan. Dr. Hamilton’s lab focuses on the development of new data acquisition methods and reconstruction algorithms; validation in simulations, phantom experiments, and human subjects scanning; and clinical translation. His prior work has been largely among cardiac patient groups.

Drs. Wells and Hamilton are co-PIs (along with Giulia Ippolito, MD, MS, also at University of Michigan) on an NIDDK-funded R01 grant, “Non-Invasive Risk Stratification of Neurogenic Lower Urinary Tract Dysfunction with Magnetic Resonance Fingerprinting.”