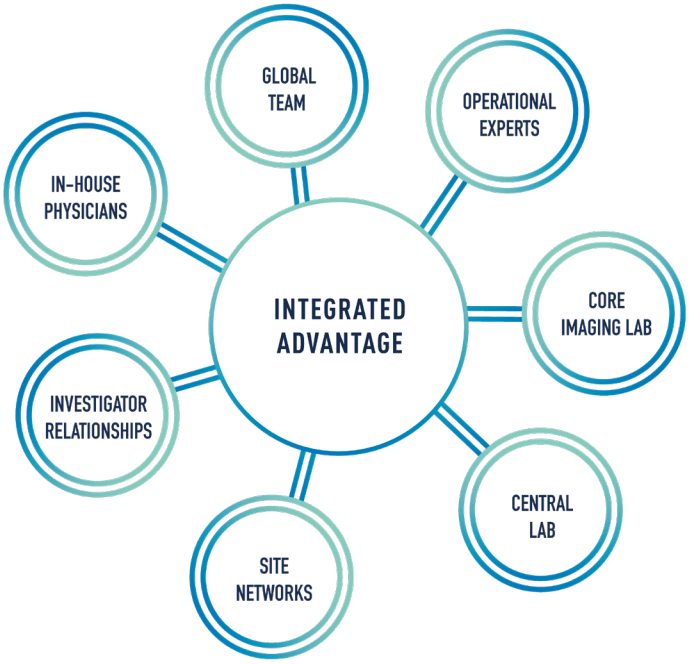
MEDPACE

A DEEPER DIVE INTO SUBSTANCE USE DISORDERS

AN INTEGRATED ADVANTAGE

As a full-service and therapeutically-focused CRO, Medpace specializes in the design and conduct of global trials in substance use disorders clinical research, including psychiatry. We bring a global footprint, strategic medical, regulatory, and operational leadership as well as fully integrated Central Labs and Core Imaging services to accelerate substance use disorder studies.

- Highly relevant operational know-how and subject matter expertise in managing and executing substance use disorder studies
- A well-profiled network of investigative sites enables timely enrollment and high-quality conduct of trials
- End-to-end suite of global imaging services seamlessly integrated into the overall structure of the trial
- A wide range of relevant biomarker assays through our wholly-owned central and bioanalytical lab network



THERAPEUTICALLY-FOCUSED TEAM

Medpace is unique in its scientifically-driven approach to clinical research. Our model gives Sponsors the advantage of early and ongoing insight and guidance from a team of therapeutic experts throughout the trial design and execution. Our highly experienced team of medical, regulatory, and operational experts work collaboratively to conduct clinical trials. We understand issues from the perspectives of Sponsors, clinical investigators, scientific leaders, and reviewers at regulatory agencies. With this insight, we successfully define and execute clear development plans from beginning to end.

EXPERTS

SCIENTIFIC-DRIVEN DEVELOPMENT

Serving as therapeutic team leaders, our in-house medical doctors apply years of psychiatric/neurologic drug development experience to each study. Our medical leaders provide strategic direction for study design and planning, train operational staff, work with Investigators, provide medical monitoring, and meet with regulatory agencies as well as our global regulatory affairs experts to provide strategic guidance into the best pathways to accelerate approvals. Medpace MDs are embedded throughout every study, providing greater depth of expertise and the ability to tackle complex and challenging diseases.

Rich D. Scheyer, MD
Sr. Vice President, Medical Department

James Vornov, MD, PhD
Vice President, Medical Department

Toshihiro Hokonohara, MD
Medical Director

Boban Joksimovic, MD, PhD
Medical Director

Filipe Brogueira Rodrigues, MD, PhD
Medical Director

ADVANCED CLINICAL PRACTITIONERS ADD A PATIENT'S PERSPECTIVE

Our medical directors are supported by experienced ACPs whose unique perspective brings added value to the clinical development team. These highly-trained nurse practitioners with advanced degrees and hands-on clinical experience provide an additional layer of knowledge and insights that can streamline your studies and address potential challenges early in the study planning. ACPs are embedded in the teams to ensure your study is feasible and operationalized for efficient execution by looking at the protocol through the lens of the patient and site staff. ACPs also help with the review of safety events, ongoing team education, recruitment strategies, and study document review. Their understanding of what works in a clinical setting makes them a valuable part of our embedded medical expertise model.

Morgan Ball, MSN, FNP-BC
Advanced Clinical Practicioner

Danielle Caudell-Stamper, MSN, AGACNP-BC
Advanced Clinical Practitioner

Danielle Mattingly, FNP-BC, MPH
Advanced Clinical Practitioner

Daniela Rae, MSc, RGN, IP
Advanced Clinical Practitioner

IN-HOUSE PHYSICIAN BIOGRAPHIES

Richard D. Scheyer, MD

Sr. Vice President, Medical Department, Neurology, Pharmacology

Dr. Richard Scheyer is a board-certified neurologist with over 30 years of professional medical experience which includes over 20 years dedicated to clinical drug development.

Experience Summary

- Pioneer in translational medicine and Phase I/IIa drug development with special interest in early demonstration of clinical efficacy
- Led a team that designed and executed an early development program for next-generation alpha-2 delta ligand, including capsaicin challenge, and crafting Proof of Concept strategy for novel ion channel blockers
- Highly-regarded author with over 60 manuscripts and abstracts, with a focus on clinical pharmacology and therapeutic activity in areas ranging from diabetes to oncology
- Launched first controlled trial natural product-derived protein kinase C activator in Alzheimer's at previous company

Education Summary

- Bachelor of Science, Physics, Stanford University
- Doctor of Medicine, The State University of New York, Upstate Medical University
- Residency in Neurology, Yale University
- Fellowship Training in Epilepsy, Yale University

James Vornov, MD, PhD

Vice President, Medical Department, Neurology, Analgesia, Psychiatry

Dr. James Vornov is a board-certified neurologist with over 20 years of director level clinical development experience.

Experience Summary

- Brought multiple compounds into first-in-man to proof-of-concept and successful NDA submission. Provided broad clinical trial design expertise, clinical pharmacology experience, operational excellence and global regulatory strategy development across a broad range of CNS diagnostics and therapeutics
- Expertise in the rapid transition of compounds from the laboratory to clinical proof of concept using Critical Path technologies such as biomarkers, PK/PD modeling and clinical trial simulation
- Worked in multiple CNS therapeutic areas having directed programs in Depression, Suicidal Ideation, Parkinson's disease treatment and diagnosis, stroke, neuropathic pain, diabetic and chemotherapy-induced peripheral neuropathies, anesthesia and brain tumors

Education Summary

- Bachelor of Arts, Biology & Psychology, Columbia University
- Doctor of Medicine, Emory University, School of Medicine
- Doctor of Philosophy, Anatomy, Emory University, School of Medicine

Toshihiro Hokonohara, MD

Medical Director

Dr. Toshihiro Hokonohara is a board-certified neurologist with over 15 years of clinical practice and academic neurology including experience in leadership roles at pharmaceutical and global contract research organizations.

Experience Summary

- Drug development expertise in neuropsychiatric disorders, dementia, autoimmune disease, oncology and other CNS and Internal Medicine disease
- Clinical and drug development experience in neuro-immunological disease
- Extensive research experience in some neurological hereditary disease
- Pharmacovigilance Leader of clinical development programs in Epilepsy
- Broad experience in pharmacovigilance medical governance and support of regulatory submissions

Education Summary

- Doctor of Medicine, Kyushu University – Fukuoka, Japan
- Residency in Neurology, Kyushu University Hospital – Fukuoka, Japan

Boban Joksimovic, MD, PhD

Medical Director

Dr. Boban Joksimovic is a board-certified neurologist with a PhD in neuroscience and over 20 years of clinical experience in neurology.

Experience Summary

- 17 years of CRO experience as a Medical Director, Clinical Operations Lead, and Clinical Research Associate in Phase I-IV studies
- Expert in intraoperative neurophysiology and EMNG with neuromuscular disorders in focus
- Previously practiced as a neurophysiologist and introduced intraoperative neurophysiology to Serbia in 2008
- Extensive experience as Sub-investigator and rater in CNS studies
- Rankin Scale, NIHSS, Neurostatus EDSS, MDS-UPDRS, Modified Hoehn and Yahr, MoCA training certificates

Education Summary

- Doctor of Philosophy in Intraoperative Neurophysiology, University of Kragujevac – Kragujevac, Serbia
- Board Certified Neurologist, University of Novi Sad – Novi Sad, Serbia
- Medical Doctor, University of Belgrade – Belgrade, Serbia

Filipe Brogueira Rodrigues, MD, PhD

Medical Director

Dr. Filipe Rodrigues is an academic neurologist with over 6 years of drug development experience in neurology and psychiatry.

Experience Summary

- Served as academic neurologist at University College London Queen Square Institute of Neurology and as clinician at the National Hospital for Neurology & Neurosurgery in London
- Hands-on clinical trial experience in neurodegeneration, movement disorders and neurogenetics, including antisense technology and intrathecal delivery
- Member of working groups for Movement Disorders Society, Research Ethic Committee, Critical Path Institute, and Cochrane Collaboration
- Academic research in biofluid biomarkers and clinical pharmacology
- 50+ peer-reviewed medical and scientific publications

Education Summary

- Master's Degree in Medicine, Faculty of Medicine, University of Lisbon – Lisbon, Portugal
- Bachelor of Science Degree in Medicine, Faculty of Medicine, University of Lisbon – Lisbon, Portugal

Morgan Ball, MSN, FNP-BC

Advanced Clinical Practitioner

Morgan Ball is a board-certified family nurse practitioner with over 7 years of clinical experience, bringing expertise in interventional pain management and neurology with a focus on movement disorders.

Experience Summary

- Experience providing care both inpatient and outpatient, including pediatric cardiac ICU, general pediatrics, neurology, and interventional pain management
- Assessed, diagnosed, and managed a variety of neurological and chronic pain conditions
- Provided patient and family education about diagnosis and treatment plans
- Served as the lead nurse practitioner and manager
- Active member of the American Academy of Neurology and multiple advanced practice nursing associations

Education Summary

- Post-Master's Family Nurse Practitioner Certificate Diploma, Xavier University – Cincinnati, OH
- Master of Science in Nursing, Xavier University – Cincinnati, OH
- Bachelor of Science in Biology, University of Kentucky – Lexington, KY

Danielle Caudell-Stamper, MSN, AGACNP-BC

Advanced Clinical Practitioner

Mrs. Danielle Caudell Stamper is a board-certified advanced practice registered nurse bringing over 8 years of clinical and preclinical research experience, over 3 years of nursing experience and over 7 years of experience as a nurse practitioner providing direct patient care.

Experience Summary

- Clinical experience in neuro critical care, pulmonary critical care, and transplant medicine.
- Served as a sub-investigator on multiple clinical trials, including investigation of genomic classifiers for idiopathic pulmonary fibrosis, proteomic risk evaluation for lung cancer, the treatment of persistent air leak after pneumothorax, a novel device for the treatment of emphysema, and devices in improving the diagnostic yield of biopsies
- Over eight years of clinical and preclinical neurological research experience as a senior clinical research assistant specializing in hemorrhagic stroke, traumatic brain injury, aneurysm, and ischemic stroke
- Involved in the conduct of over 40 clinical trials as a clinical trial nurse coordinator and regulatory specialist
- Member of the American Academy of Neurology (AAN), American Association of Bronchology and Interventional Pulmonology (AABIP) and American College of Chest Physicians (CHEST)

Education Summary

- Master of Science in Nursing in Adult Gerontology Acute Care Nurse Practitioner, University of Cincinnati – Cincinnati, OH
- Bachelor of Science in Nursing, University of Cincinnati – Cincinnati, OH
- Bachelor of Arts in Biology, Thomas More University – Crestview Hills, KY
- Associate of Arts in Spanish, Thomas More University – Crestview Hills, KY

Danielle Mattingly, FNP-BC, MPH

Advanced Clinical Practitioner

Ms. Mattingly is a certified Family Nurse Practitioner and Neuroscience Registered Nurse. She brings experience in clinical research, public health, and health policy.

Experience Summary

- Extensive experience as a Neurology Nurse Practitioner at multiple university medical centers
- Experience providing both inpatient and outpatient care of patients, including patients with epilepsy and sleep disorders
- Served as sub-investigator on active clinical trials for novel treatments of localization related epilepsy, narcolepsy, and idiopathic hypersomnia
- Actively worked to create an education lecture series for neurology advanced practice providers
- Active member of multiple neurology and advanced practice nursing associations

Education Summary

- Master of Science in Nursing, Family Nurse Practitioner, Columbia University – New York, NY
- Master of Public Health in Health Policy and Management, Columbia University – New York, NY
- Bachelor in Nursing Science, Columbia University – New York, NY
- Bachelor of Arts in Public Health, Vanderbilt University – Nashville, TN

Daniela Rae, MSc, RGN, IP

Advanced Clinical Practitioner

Daniela Rae is a registered Consultant nurse and Independent Prescriber (UK). She brings nearly decades of senior clinical leadership and research experience in neuroscience, with a focus in neurodegeneration, neuropsychiatry and neurogenetics.

Experience Summary

- Extensive experience in Huntington's disease, rare dementia and cognitive disorders– genetic counselling, clinical assessment and management, policy and standards of care development as well as clinical and academic research.
- Former clinical lead providing operational and clinical leadership for a large, multidisciplinary team, including medical consultants, nurses, trainees, and external key stakeholders.
- Managed an autonomous clinical caseload in a world leading tertiary outpatient clinic for patients and families with neurological, neuropsychiatric, neurogenetic, and neurodegenerative disease.
- Former Scottish government research fellow functioning as Chief investigator and Lead researcher for a multi-center organizational case study investigating care delivery systems in Huntington's disease
- Served as lead and key contributor for international working groups developing standards of care guidelines in rare, neurodegenerative disease
- Extensive experience as senior research nurse, trials manager, sub- and principal investigator in clinical trials with neurodegenerative and critical care focus
- Served as lead and key contributor for international working groups/ taskforce developing standards of care guidelines in rare, neurodegenerative disease

Education Summary

- Diploma in Psychological Therapies, Association of Psychological Therapies – London, United Kingdom
- Master of Science in Public Health and Health Services Research, University of Aberdeen – Aberdeen, United Kingdom
- Diploma in Adult Nursing, Berufsfachschule fuer Krankenpflege – Munich, Germany

EXPERIENCE

Medpace has in-house neurologists, imaging specialists, and operational teams with relevant and recent experience in managing and executing substance use disorder studies. In addition, we have experience overcoming the challenges associated with regulations regarding controlled scheduled drugs –including getting sites up and running from a regulatory perspective.

Our Physicians and Staff are Experienced in the Following Areas:

- Opioid/narcotics
- Methamphetamines/cocaine
- Alcohol
- Nicotine

RECRUITMENT AND SITE RELATIONSHIPS

Recruiting patients for substance use disorders can be challenging because patients need to be willing to get help for their addiction. Retaining patients is also difficult because high-dropout rates are associated with this patient population. Medpace is able to navigate the complex world of patient recruitment and retention by employing our multi-dimensional recruitment model that enables us to implement customized strategies that identify, recruit, and retain members of specific patient populations.

With broad neuroscience experience and relationships with Investigators and Key Opinion Leaders (KOLs) worldwide, we can select the best sites for your specific program. We provide in-depth knowledge of screening tools and rating scales and will provide oversight for rater services including subjective assessments, inter-rater reliability, and scale validation.

SAFETY AND BIOMARKER ANALYSIS

Medpace Labs provide consistency in methods and instrumentation across wholly-owned and purpose built laboratories located in the US, Europe, China and Singapore. Medpace's frontline testing for drugs of abuse is immunoassay based screening tests that identify drugs of abuse by class. The central lab performs 14 common drugs of abuse screening tests on the Beckman Coulter chemistry analyzer. If there are requirements (e.g. determination of specific metabolite, possible cross-reactivity) they are followed by confirmatory testing (typically GC/MS or LC/MS) which Medpace offers through our partner lab network.

Medpace Bioanalytical Laboratories has significant experience with small molecules, biologics, and biomarkers across a wide variety of technologies and therapeutic areas including substance use disorders. We also have the capability to work with Sponsors to create new assays and biomarkers to investigate novel endpoints.

Below are Key Biomarkers Used in Drugs of Abuse:

TYPE	BIOMARKER	MEDPACE VALIDATED ASSAYS	MEDPACE LAB PARTNER NETWORK
DRUGS OF ABUSE	6-ACETYLMORPHONE		✓
	AMPHETAMINE AND METHAMPHETAMINE	✓	
	BARBITURATES	✓	
	BENZODIAZEPINE	✓	
	BUPRENORPHONE	✓	
	COCAINE	✓	
	COTININE		✓
	ECSTASY (MDMA)	✓	
	EDDP		✓
	ETHANOL	✓	
	FENTANYL		✓
	HYDROCODONE		✓
	HYDROMORPHONE		✓
	KETAMINE		✓
	LSD		✓
	METHADONE		✓
	METHAQUALONE	✓	
	OPIATES	✓	
	OXYCODONE	✓	
	PCP	✓	
	PROPOXYPHENE		✓
	TCA	✓	
	THC	✓	
	TRAMADOL		✓
CONFIRMATION TESTS			✓

EXECUTION

CORE IMAGING LAB

Neuroimaging plays a crucial role in determining how substance use disorders affect changes in brain structure, function, and neurochemistry. Medpace Imaging Core Lab has experience in the primary imaging techniques that are used to reveal different structures of the brain.

The Primary Techniques Are:

- Structural Magnetic Resonance Imaging (MRI)
- Functional MRI
- Magnetic Resonance Spectroscopy (MRS)
- Positron Emission Tomography
- Single Photon Emission Computed Tomography (SPECT)

CARDIOVASCULAR CORE LAB

The potential cardiac side effects of drugs in development and the long-term cardiovascular effects of substance abuse are quantified in the identification of the cardiovascular status of the patient at baseline right through the treatment phases of the clinical development program. State of the art surface ECG and Holter monitoring for potential arrhythmia assessment as well as changes in blood pressure through the use of centralized ambulatory blood pressure monitoring are utilized by the Medpace Cardiovascular Core Laboratory team consisting of board certified cardiologists and highly trained and experienced electrocardiographic analysts, biostatisticians, pharmacometricians, data mangers and medical writers.

FULL-SERVICE CLINICAL DEVELOPMENT

Medpace is a scientifically-driven, global, full-service clinical contract research organization (CRO) providing Phase I-IV clinical development services to the biotechnology, pharmaceutical and medical device industries. Medpace's mission is to accelerate the global development of safe and effective medical therapeutics through its high-science and disciplined operating approach that leverages local regulatory and deep therapeutic expertise across all major areas including oncology, cardiology, metabolic disease, endocrinology, central nervous system and anti-viral and anti-infective.

WE CAN'T SIMPLIFY CLINICAL DEVELOPMENT – BUT WE CAN EXECUTE IT SEAMLESSLY.