Medpace Strategy for Nonalcoholic Steatohepatitis (NASH) Studies

Medpace specialty teams with noted medical experts, highly experienced clinical trial management teams, central labs, and core imaging labs can accelerate your next study.

Nonalcoholic steatohepatitis (NASH) – is a condition causing inflammation and accumulation of fat and fibrous scar tissues in the liver. While the cause is likely multi-factorial, NASH is more likely to develop in patients who share combinations of the medical conditions involved in the “metabolic syndrome,” inclusive of diabetes, insulin resistance, hyperlipidemia, and obesity.

Studies to determine the cause and treatment of NASH are critical, given the global growth of this disease. Medpace, a global full service, CRO with deep experience in both metabolic, and gastrointestinal studies is a key CRO involved in NASH studies. The Medpace scientifically-driven model, combined with Medpace Central Labs, and Core Imaging Services combines to accelerate NASH studies on a global platform.

Why choose Medpace for NASH Studies?

- Scientifically-driven study design takes advantage of our broad clinical trial experience and scientific expertise in the metabolic and gastrointestinal disease therapeutic areas.
- Full service capabilities inclusive of Central Lab, Core Imaging Lab, and existing investigative site relationships
- Deep experience in Metabolic and Gastrointestinal Studies utilized by a variety of Sponsors in need of consultations concerning feasibility and protocol design

Medpace Central Labs with Biomarker Services Supporting NASH Studies

With laboratories in the US, Europe, China and Singapore, Medpace Labs has the global reach and capabilities to conduct NASH studies in concert with Medpace CRO or as standalone service.

Biomarker Strategic Services

Medpace Labs’ test menu includes many validated biomarkers associated with NASH: cytokeratin-18 fragments (M30 and M65), apolipoprotein A1, apolipoprotein B, leptin, adiponectin, resistin, free fatty acids, ghrelin, hsCRP, interleukin-6, and tumor necrosis factor-alpha.

Medpace Labs’ test menu also includes validated assays used in NASH fibrosis scores such as Fibrotest/FibroMax and ELF (Enhanced Liver Fibrosis).
Core Imaging Expertise for NASH Studies

Medpace Imaging Core Lab provides holistic central imaging services including site assessment, qualification and training, recording equipment, provisioning, image processing (blinding and quality control) and expert evaluation. In particular, Medpace has expertise with both Magnetic Resonance Spectroscopy (MRS) and Magnetic Resonance Imaging (MRI) to support endpoints for NASH.

Recruitment and Global Site Relationships

With combined gastroenterology medical expertise, as well as hepatic/GI and metabolic trial experience, Medpace has strong relationships with established Investigator contacts instrumental in operationalizing NASH studies.

Gastrointestinal clinical studies require a unique set of expertise and relationships. The ability to recruit NASH study participants requires a comprehensive site feasibility assessment, a well-designed study, and established relationships with key opinion leaders and principal investigators. Patient retention over an often long treatment period with multiple and invasive assessments presents unique challenges. Finally, the ability to integrate and coordinate all of the components of a study, from early design through post-marketing studies, requires a partner with a full suite of services and operational excellence at every level.

Therapeutic Experience

The nature of NASH is strongly correlated with Metabolic Syndrome. Extensive Metabolic experience combined with GI experience is critical to understand the broad nature of this disease.

Recent NASH Experience Summary

<table>
<thead>
<tr>
<th>STUDY DESCRIPTION</th>
<th>SITES</th>
<th>PATIENTS</th>
<th>MEDIPLACE SERVICES/ GEOGRAPHICAL COVERAGE (REGION)</th>
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</thead>
<tbody>
<tr>
<td>Phase II, Nonalcoholic Steatohepatitis (NASH)</td>
<td>35</td>
<td>243</td>
<td>Full Service Puerto Rico, United States</td>
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<td>Phase II, Nonalcoholic Steatohepatitis (NASH)</td>
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<td>289</td>
<td>Full Service Australia, Belgium, France, Germany, Hong Kong, Italy, Moldova, Poland, Spain, UK, US</td>
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<td>Phase II, Nonalcoholic Steatohepatitis (NASH)</td>
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<td>Full Service, Labs United States</td>
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<tr>
<td>Nonalcoholic Steatohepatitis (NASH)</td>
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<td>56</td>
<td>Labs United States</td>
</tr>
<tr>
<td>Phase II, Nonalcoholic Steatohepatitis (NASH)</td>
<td>20</td>
<td>80</td>
<td>Full Service, Labs, Imaging United States</td>
</tr>
</tbody>
</table>

Other GI experience includes:

- Irritable Bowel Syndrome,
- Gastroesophageal Reflux Disease (GERD)
- Gastroparesis
- Helicobacter pylori
- Steatorrhea
- Eosinophilic Esophagitis
- Opioid Induced Constipation
- Ulcerative Colitis
- Clostridium difficile
- Barrett’s esophagus
Metabolic Studies

Diabetes Mellitus

Medpace Diabetes experience includes the management of over 90 diabetic trials involving over 22,000 patients globally with Types 1 and 2 diabetes. Medpace Type 2 Diabetes trial designs have included treatment naïve patients, metformin-only patients, those with narrow HbA1c inclusion ranges, uncontrolled diabetics on routine background therapies, unique diabetic device delivery systems, glucose clamp trials, diet-controlled diabetics, elderly diabetics, mixed dyslipidemic diabetics, among others. Medpace has executed studies in subjects with types 1 and 2 diabetes with renal or neurologic impairment, as well as those with disease-related gastrointestinal complications. Medpace has both designed and executed full diabetic development plans, from trial start-up to NDAs and marketing submissions. Medpace has reached out to many countries and Investigators in order to find both the routine and obscure diabetic patients.

Obesity

Medpace has supported a number of major obesity development programs. One example included comprehensive services for a program which involved a combination product and executed a series of Phase II and III trials. This included two Phase III pivotal 56-week studies evaluating the safety and efficacy of the product - involving 3,750 patients across 93 sites.

Medpace is managed by leading therapeutic and regulatory experts, with extensive experience in the advancement of pharmaceutical agents for use in multiple therapeutic areas including gastroenterology. Medpace’s Gastroenterology division is led by our European Medical Expert, Dr. Piotr Krzeski, an internist with global expertise in the design and medical oversight of clinical trials, in the area of gastroenterology.
Expertise in NASH Studies

The Medpace global physicians are noted in their fields of specialty. NASH studies require physician led study design and execution in both the CRO and Labs to ensure precision conduct of the study.

Piotr Krzeski, MD
*Medical Director*

Dr. Piotr Krzeski is an internist with a broad background in pharmaceutical research. He has over 15 years of experience in clinical drug development, with global expertise in the design and medical oversight of clinical trials in the area of gastroenterology, cardiology, and rheumatology. Dr. Krzeski completed his internal medicine training at the Gastroenterology Department at the Warsaw Postgraduate Centre in Poland. He earned his PhD in Hepatology. Dr. Krzeski is recognized in the field for his contribution to the pioneering work on standardization of central imaging in inflammatory bowel disease drug development.

Phillippa Miranda, MD
*Medical Director*

Dr. Miranda received her M.D. from Duke University School of Medicine and completed her residency in Internal Medicine and her fellowship in Endocrinology at Duke. She served on the faculty in the Division of Endocrinology at Duke University Health System for five years prior to transitioning to industry. Dr. Miranda is board certified in Endocrinology, Diabetes, and Metabolism. Her therapeutic expertise covers a wide range of metabolic indications with significant medical monitoring experience in the areas of type 2 diabetes, type 1 diabetes, and obesity. Dr. Miranda has over seven years of experience conducting clinical research studies with a large CRO and is well versed in the conduct of Phase 2 and 3 studies in endocrinology.
Traci Turner, MD  
*Executive Director, Central Labs and Metabolic Atherosclerosis Research Center (MARC)*

Dr. Traci Turner is board-certified in Internal Medicine, is a Diplomate with the American Board of Clinical Lipidology, and serves as the Executive Director of Medpace Reference Laboratory Operations and the Metabolic and Atherosclerosis Research Center. A native of Cincinnati, OH, she attended the University of Cincinnati and graduated with a BS in Medical Technology, where she also earned her medical degree. Dr. Turner completed her residency at University Hospital in Cincinnati, Ohio. Prior to joining Medpace, Dr. Turner’s experience includes 15 years in central laboratory operations supporting the pharmaceutical industry and 7 years in practice specializing in Internal Medicine.

**About Medpace**

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. Headquartered in Cincinnati, Ohio, Medpace employs approximately 2,500 people across 35 countries.