RESEARCH ROUNDUP

Hackensack Meridian *Health*

SPRING 2024

HMH RESEARCH NEWS

MESSAGE FROM THE **PRESIDENT OF ACADEMICS, RESEARCH, AND INNOVATION**

Hackensack Meridian *Health* continues to blaze new trails through collaborations, and by leveraging our considerable talent and expertise. Accolades like the network being named to *Modern Healthcare*'s 2024 Innovators List is further validation that our efforts are noticed at a national level.

Ihor Sawczuk, M.D., FACS

NOTE FROM THE **VICE PRESIDENT**

Looking over all these many accomplishments and milestones, it's clear that HMH successes are building off one another. The future is exciting.

Cheryl Pinto, RN, MBA, CIP,
Vice President of Research and Regulatory Affairs

Hackensack Meridian *Health* Is the Only Organization in New Jersey and Among 10 Nationwide Named to *Modern Healthcare*'s 2024 Innovators List

Hackensack Meridian *Health*, New Jersey's largest and most comprehensive health network, is proud to announce the network has been named one of *Modern Healthcare*'s 2024 Innovators. *Modern Healthcare*'s Innovators Awards and recognition program recognizes leaders and organizations driving innovation that improves care, achieves measurable results, and contributes to the clinical and financial goals of the organization. Hackensack Meridian *Health* achieved this recognition for:

- Establishing the Center for Discovery and Innovation (CDI), which includes 32 laboratories and employs 200 scientists and staff. The center's scientists created one of the first PCR tests for COVID-19.
- Creating the HMH Research Institute to coordinate research and advancements across the CDI and Hackensack Meridian care locations. Through this institute, more than 250 principal investigators are conducting active studies.
- Launching innovation challenges that invited the participation of all 35,000 HMH employees and linked to network strategic goals, with the six winning ideas piloted in hospitals.

"At Hackensack Meridian *Health*, we're dedicated to transforming healthcare delivery and ensuring the best possible outcomes for our patients," said Robert C. Garrett, FACHE, CEO, Hackensack Meridian *Health*. "This accolade is a testament to the ingenuity of our entire team. Their pursuit of excellence is making a difference in the lives of our patients today and for generations to come."

Through the CDI, the network is addressing the needs of communities around New Jersey with strategic, patient-focused initiatives and research. The CDI was established to conduct scientific research with clinical impact by translating, in real-time, insights from molecular and cellular science to improve patient outcomes.

(Cont'd)

Modern Healthcare's 2024 Innovator's List *(Cont'd)*

To support the CDI, the network established the Hackensack Meridian *Health* Research Institute (HMHRI) to operate a connected research ecosystem linking the CDI and all health network sites dedicated to accelerating discovery, innovation and translation of scientific breakthroughs to address unmet clinical needs. The network is engaged in high-impact translational research characterized by clinical excellence, utilizing leading-edge science, advanced data science to improve clinical outcomes, and population health in the communities it serves.

Founded in 2019, the CDI comprises 32 state-of-the-art laboratories and more than 200 scientists and staff. CDI scientists developed one of the first FDA-Emergency Use Authorization PCR tests for COVID-19. Now, CDI scientists are leading two national NIH-supported drug accelerators to develop next-generation therapeutics to overcome drug resistant bacterial and viral pandemic infections.

"The Center for Discovery and Innovation is helping us usher in a new era of healthcare excellence," said Ihor Sawczuk, M.D., FACS, Hackensack Meridian *Health*'s president of Academics, Research and Innovation, founding chair of the Hackensack Meridian *Health* Research Institute, and also associate dean of Clinical Integration and professor and chair emeritus of Urology at the Hackensack Meridian School of Medicine. "Our goal is to not only address current healthcare challenges but also to anticipate the future needs of our communities and the healthcare ecosystem. Being named one of *Modern Healthcare*'s 2024 Innovators is a proud moment for all of us at Hackensack Meridian *Health*, and we will continue to raise the standard of innovation in both clinical and research settings." Read more

Hackensack Meridian *Health* Part of Select Parkinson's Foundation Study Group, Implementing Changes to Enhance Care for Patients

Hackensack Meridian *Health* is one of just three health systems nationwide to work with the Parkinson's Foundation in determining new care recommendations for patients with Parkinson's disease (PD). The recommendations are based in part on what's already been implemented throughout the network with the guidance of experts at the Hackensack Meridian Neuroscience Institute.

The resulting report, "Parkinson's Foundation Hospital Care Recommendations," was released to bridge major gaps common in American health care for people with Parkinson's, including medication management through system-level changes in clinical care, management, culture, technology, education and policy.

Existing Hackensack Meridian *Health* programs are at the forefront of these changes, and the Hackensack Meridian Neuroscience Institute has prioritized the implementation of these programs across all the hospitals throughout the network.

The other health systems consulted on the project besides Hackensack Meridian *Health* are Henry Ford Health, University of Florida Health, along with consulting firm Manatt Health.

"We are glad to be part of this much-needed conversation," said Robert C. Garrett, FACHE, CEO, Hackensack Meridian *Health*. "Parkinson's disease is a progressive condition that requires specialized care. We are at the forefront of treating it - and in so doing, we're helping to set a new standard of care. Our clinical workers are always doing what's best for patients - and this is why we are helping to guide a new way of doing things."

"We are in good company, and we are glad to be part of such a necessary re-evaluation of national care standards," said Ihor Sawczuk, M.D., FACS, Hackensack Meridian *Health*'s president of Academics, Research and Innovation, founding chair of the Hackensack Meridian *Health* Research Institute, and also associate dean of Clinical Integration and professor and chair emeritus of Urology at the Hackensack Meridian School of Medicine. Read more

Hackensack Meridian *Health* Awarded Nearly $1 Million in Grants by New Jersey Health Foundation

Hackensack Meridian *Health* has been awarded 22 grants totaling nearly $915,202 from the New Jersey Health Foundation (NJHF) for important research and community health projects.

The grants support work across the state's largest and most comprehensive health network, spanning not only the Hackensack Meridian *Health* Research Institute and clinical and basic research, but also the Hackensack Meridian School of Medicine (HMSOM), and a multitude of sites across the Garden State.

Among the research areas supported by the grants are cancer, infectious disease, community health, education, diabetes and rheumatology, among other topics.

The amount for Hackensack Meridian *Health* and the Hackensack Meridian *Health* Research Institute increased from 16 grants totaling $486,876 last year.

"This support is so crucial to all our many promising research projects," said Ihor Sawczuk, M.D., FACS, president of Academics, Research and Innovation for Hackensack Meridian *Health*, and the founding chair of the Hackensack Meridian *Health* Research Institute. "The New Jersey Health Foundation continues to be an incredible partner for us." Read more

Hackensack Meridian John Theurer Cancer Center Treats its First Patient in Innovative Cell Therapy Clinical Trial

Researchers at Hackensack Meridian John Theurer Cancer Center — part of the National Cancer Institute-designated Lombardi Comprehensive Cancer Center at Georgetown University — treated its first patient at the Center in a leading-edge Phase I clinical trial of LYL845, a novel cellular therapy under evaluation for advanced melanoma and other select solid tumors. A type of tumor-infiltrating lymphocyte (TIL) therapy, LYL845 is custom-made from a patient's cells and designed to help the immune system find and kill cancer cells.

TIL therapy harnesses and expands the power of the patient's immune cells that have already been fighting cancer, such as those in a patient whose cancer continues to grow despite checkpoint inhibitor immunotherapy. TILs are made from white blood cells (T cells or lymphocytes) that come from a piece of a patient's own tumor removed during surgery. The TILs are shipped to a state-of-the-art manufacturing center where they are modified and expanded to generate up to billions of cells. Several weeks later, the cells are returned to the patient's body, where they can detect and destroy remaining cancer cells.

"Clinical trials such as this one require a tremendous amount of preparation, detailed work, and integration across specialties and departments to be able to deliver excellent clinical care," said Martin Gutierrez, M.D., director, Drug Discovery/ Phase I Program at John Theurer Cancer Center, co-chief, Thoracic Oncology, and the study's principal investigator. "This makes Hackensack University Medical Center unique and an extraordinary place for clinical research."

The basis of LYL845 is epigenetic reprogramming designed to promote and preserve T-cell stemness — the ability of T cells to self-renew and maintain certain important qualities in fighting cancer. The study has two phases. The first includes patients ages 18-75 with metastatic or locally advanced melanoma, and the second includes non-small cell lung cancer, or colorectal cancer that has relapsed or persists despite prior therapy for advanced disease that may have included checkpoint inhibitors (such as nivolumab or pembrolizumab). Read more

Hackensack Meridian Neuroscience Institute at JFK University Medical Center Receives $2.2 Million Research Grant to Study Novel Traumatic Brain Injury Treatment

Hackensack Meridian Neuroscience Institute at JFK University Medical Center announced today that it has been awarded a major research grant from the National Institute of Neurological Disorders and Stroke, part of the U.S. National Institutes of Health, to study a novel approach on whether the blocking of formation of neutrophil extracellular traps (NET) provides better outcomes after a traumatic brain injury (TBI). The five-year award of $2,213,750 is part of the highly competitive NIH extramural grant application process that recognizes innovative scientific projects. NIH-funded research has led to scientific breakthroughs and new treatments that help people live longer, healthier lives.

The NIH grant will fund a project entitled "Neutrophil Extracellular Traps And Associated Pathogenesis In TBI: A Novel Peptide Therapeutic Strategy," proposed by Mohammed Abdul Muneer, MSc, Ph.D., Research Scientist and Principal Investigator, Hackensack Meridian Neuroscience Institute at JFK University Medical Center, and Associate Professor of Neurology at the Hackensack Meridian School of Medicine.

The work hypothesizes that inhibition of peptidyl arginine deiminase type 4 (PAD4), an enzyme required for NET formation, using PAD4 antagonistic peptide (PAP), will attenuate the formation of NET, NET-induced thrombosis, and will promote neovascularization and functional recovery after TBI.

"We are honored to receive this prestigious NIH grant," said Gregory J. Przybylski, M.D., MBA, chairman, Hackensack Meridian Neuroscience Institute at JFK University Medical Center, and Professor of Neurosurgery at the Hackensack Meridian School of Medicine. "I congratulate Dr. Muneer and his team for this incredible achievement. This is yet another research grant that he has received from the NIH. It is a testament to his hard work, dedication, and leadership in the neuroscience field." Read more

Georgetown's Cancer Center Awarded Top Designation by National Cancer Institute; Comprehensive Cancer Center Consortium includes Hackensack Meridian's John Theurer Cancer Center

Hackensack Meridian John Theurer Cancer Center

Part of Georgetown University Lombardi Comprehensive Cancer Center

NCI Comprehensive Cancer Center

A Cancer Center Designated by the National Cancer Institute

The National Cancer Institute (NCI), a part of the U.S. National Institutes of Health, has awarded its most prestigious designation — "comprehensive cancer center" status — to Georgetown University's Lombardi Comprehensive Cancer Center in recognition of its high-impact research, community outreach and cancer care.

The NCI's comprehensive cancer center designation, awarded by way of a competitive, rigorous, peer-reviewed "cancer center support grant," was first received by Georgetown Lombardi 50 years ago. In addition, Hackensack Meridian *Health*'s John Theurer Cancer Center was renewed by the NCI as Lombardi Comprehensive Cancer Center's research consortium partner – a consortium that exponentially amplifies the work of both cancer centers. More than 6.5 million people live in the areas served by both cancer centers.

Georgetown University President John J. DeGioia recognized Georgetown Lombardi members for their dedication to the community, research and patient care, and the University's partnership with its academic health system partner, MedStar Health.

"Georgetown Lombardi has defined excellence in cancer research," DeGioia said. "We're grateful that the excellence of our faculty and staff has been recognized by the NCI and to have an extraordinary partner in MedStar Health. Georgetown Lombardi and MedStar Health, working with Hackensack Meridian *Health*, have made important contributions to medical research and clinical care, transforming the lives of the patients and families that we serve."

DeGioia added, "Over the years, our clinicians and researchers have brought together three elements: high-impact research, community outreach and engagement, and patient-centered cancer care. Everything they do is aimed at preventing, treating and curing cancer, and ensuring that this care reaches those who need it most."

In New Jersey, clinical care and research is provided at Hackensack Meridian *Health* and at its network of clinics and hospitals throughout the state.

"This grant is a testament to our shared commitment to discover innovations that change our understanding of cancer and ultimately, lead to the best care possible," said Robert C. Garrett, FACHE, CEO, Hackensack Meridian *Health*. "Our extraordinary teams are delivering tomorrow's cures today and transforming health care. We are honored to lead research that benefits residents across the state of New Jersey and partner with Georgetown Lombardi as part of this tremendous Comprehensive Cancer Consortium." Read more

Hackensack Meridian *Health* Named Top Research Center in State by *NJBIZ*

Hackensack Meridian *Health* has again been named the top research center in the state of New Jersey by *NJBIZ*.

HMH has consistently been ranked among the top research centers on the *NJBIZ* list.

"We are leading the way in innovation and know-how - not just in New Jersey, but also beyond," said Robert C. Garrett, FACHE, CEO of Hackensack Meridian *Health*. "It is our world-class researchers, including not just scientists but also physicians, nurses and other team members, who are driving our progress to keep getting better for patients now, and long into the future."

"Our health network merges clinical know-how with the critical need to improve through asking the right questions," said Ihor Sawczuk, M.D., FACS, Hackensack Meridian *Health*'s president of Academics, Research and Innovation, founding chair of the Hackensack Meridian *Health* Research Institute (HMHRI), and associate dean of Clinical Integration and professor and chair emeritus of Urology at the Hackensack Meridian School of Medicine.

Hackensack Meridian *Health* formed in 2016, and has continued to grow - and leverage that growth - into world-class care and research. The Hackensack Meridian *Health* Research Institute was created in 2022 to centralize all the lines of scientific inquiry from across the entire health network, which spans 18 hospitals and more than 500 patient care locations, among other locations. Read more

Hackensack Meridian *Health*, Choose NJ Announce HMH Emerge Program to Partner with Companies from Ireland

Hackensack Meridian *Health*, and Choose NJ, the Garden State's leading nonprofit economic development organization, are looking for potential from across the Atlantic - starting in Ireland.

HMH Emerge is a new, exclusive pitch competition for Ireland-based health startups, providing an unparalleled opportunity to take ideas to reality through piloting, partnering, mentorship and/or investment.

The opportunity is to provide Irish companies that create new health care innovations with the chance for growth and opportunity, designed to propel healthcare innovation to the global stage.

"HMH Emerge is a new way for our cutting-edge health network to develop further global talent, ideas, and collaborations," said Ihor Sawczuk, M.D., FACS, Hackensack Meridian *Health*'s president of Academics, Research and Innovation, founding chair of the Hackensack Meridian *Health* Research Institute, and also associate dean of Clinical Integration and professor and chair emeritus of Urology at the Hackensack Meridian School of Medicine. "Our goals are for revolutionizing health care not just in New Jersey, but on the world stage."

"We have fantastic relationships with our colleagues in Ireland," said Bill Noonan, Choose NJ's chief business development officer. "It's such a vibrant place for innovation and enterprise, and we are glad to help catalyze such potential, for everyone's benefit."

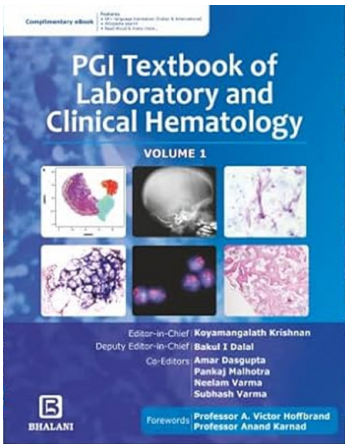
The program is open to all groups from Ireland. The process includes: an initial two-minute, high-level video pitch; the selection of 10 start-ups for a unique combination of mentorship and refinement; targeted at tailoring commercialization opportunities in the U.S. health care market with a culmination of the top three start-ups selected to present their refined pitches to the HMH Bear's Den board, which includes HMH executives, board members and external investors. Read more

HUMC Movement Disorders Team Publishes Papers

A combined team from Hackensack University Medical Center (HUMC) and the Hackensack Meridian School of Medicine involving the HUMC Movement Disorder team, Parkinson's clinicians, and the nursing education team published a recent paper in *Frontiers in Medicine*.

The publications outlines HUMC's educational efforts to ensure safety for patients with Parkinson's disease who are admitted to the hospital. The authors are Mary Bobek, Pamella Pascarelli, Lisa Cocoziello and Hooman Azmi, M.D.

Two further articles published in the last quarter also highlight the innovative work being done at HUMC. One outlines the collaborative work done at HUMC with Epic, Cleveland Clinic, University of Rochester, Northwestern, and the Parkinson's Foundation to provide tools in Epic for addressing safety gaps in the care of patients with Parkinson's in the hospital. The other features efforts to improve medication management in the hospital for this patient population. On the latter paper, a Hackensack Meridian School of Medicine student is co-author.



HMH Professor and Collaborators Publish "Monumental" Textbook

British Kumar Bhattacharyya, M.D., professor of Pathology at the Hackensack Meridian School of Medicine, recently edited and contributed to several chapters of a three-volume textbook on hematology that has been described as "monumental" in a recent review.

The PGI Textbook of Laboratory and Clinical Hematology included contributions from 108 different authors from eight different countries, all of whom were alumni or affiliated with the Postgraduate Institute of Medical Education and Research (PGI) in India. Dr. Bhattacharyya was the editor of the Molecular Hematology section and contributed five chapters on the topic.

Barbara J. Bain reviewed the book for the *British Journal of Haematology* and summed it up with the following: "It encompasses all of haematology and is certainly comprehensive … The book can be used as a laboratory handbook. However, there is also a clear explanation of principles, so the laboratory aspects of the book will be useful to clinicians who are not directly involved in laboratory haematology. Treatment of haematological disorders is equally detailed. There is valuable history, a little philosophy, and even light entertainment…"

This publication is among Dr. Bhattacharyya's latest achievements in his field following a long career at HMH. He joined HUMC in 2002 as director of Hematology, then transitioned to the role of director of the Division of Hematopathology in 2004. Since 2008 and until his recent retirement from the role, Dr. Bhattacharyya was the director of Molecular Pathology.

Top Grants from the Past Quarter

PI Name	Division	Service Line	Sponsor	Award Number	Grant Title	Direct Cost	Indirect Cost	Total Budget
Walch, Brian	JSUMC	Construction	NJ State	OHCF24SFR023	Coronavirus State Fiscal Recovery Fund Project 2024 aka Ackerman Building Renovation at JSUMC	$25,000,000	-	$25,000,000
Zhang, Yi	CDI	Cancer	NIH-NCI	1R01CA290808-01	ID3 regulation of tissue-infiltrating T cells mediating graft-versus-host disease and leukemia rejection	$425,749	$327,081	$752,830
Gengenbacher, Martin	CDI	Infectious Disease	NIH - NIAID	5R01AI145436-05	Translational approaches to improve understanding and outcome in Tuberculous meningitis	$481,083	$266,074	$747,157
Zhang, Yi	CDI	Infectious Disease	NIH-NHLBI	5R01HL154757-04	I DOT1L, reconstitution of plasmacytoid dendritic cells and alloimmunity	$379,086	$191,067	$570,153
Shah, Aakash	JSUMC	Substance Abuse	SAMHSA	5H79TI083671-02	HMH Youth and Family TREE Program	$496,650	$47,165	$543,815

RESEARCH UPDATES & EVENTS

SPRING 2024

HMHRI Research Symposium Brings Together Network, Networking Innovations

The third annual Hackensack Meridian *Health* Research Institute Symposium brought together the innovations and insights and discoveries of New Jersey's largest and most comprehensive health network.

The in-person meeting was held June 4 at the Hackensack Meridian School of Medicine.

The event kicked off with remarks from Robert Garrett, FACHE, CEO of Hackensack Meridian *Health*. The beginning of the event was moderated by Ihor Sawczuk, M.D., FACS, the president of Academics, Research and Innovation, founding chair of the HMHRI, and associate dean of Clinical Integration and professor and chair emeritus of Urology at the Hackensack Meridian School of Medicine.

Featured topics included multiple presentations about artificial intelligence and digital health; behavioral health discussions; a project collaboration between the HMSOM and HMHRI focusing on diversity in clinical trials in New Jersey; and many other clinical topics.

For more in-depth information on the symposium, please stay tuned for the HMH Research Roundup's Summer 2024 edition.

The Office of Research Administration Boasts Another HMH 20-Year Celebrant!

Elaine Mordecai, who works in research credentialing for the Office of Research Administration, has been with the HMH family for 20 years. She was initially hired at HUMC to help with fundraising for the foundation, but she soon moved to the Research Integrity Office. Since moving to the department, Elaine has assisted with conflict of interest committee meetings, IRB meetings, reviewing CITI training compliance, and handling payroll, timekeeping, and invoices. She is married with two adult daughters and four dogs.

May 20 Was Clinical Trials Day!

Clinical trials represent the chance for better and longer lives for individuals around the world. For patients who need options that extend beyond currently accepted treatments, clinical trials provide a chance to try something new and less cumbersome. For patients who have exhausted treatment options for their particular diseases, clinical trials represent the potential for more years with their families and friends. And for everyone - regardless of current health status - clinical trials represent hope for a better tomorrow, a tomorrow in which seemingly incurable diseases are readily managed - or even eradicated.

Clinical Trials Day was celebrated around the world on May 20 to recognize the day that James Lind began what may be considered the first randomized clinical trial. Aboard a ship on this day in 1747, in pursuit of a treatment for scurvy among sailors, the Scottish doctor tested the theory that citrus fruits could cure the deficiency. His work ultimately discovered a cure - and saved untold lives.

Here at HMH, there are hundreds of leading-edge clinical trials available to our patients. Throughout the network, scientists are pursuing treatments for diseases that run the gamut from tuberculosis to Parkinson's disease, from epilepsy to coronary artery disease.

As it does each year, the Hackensack Meridian *Health* Research Institute took this opportunity to recognize the researchers who contribute every day to the vast body of knowledge that allows for a better tomorrow. This year, research team members also shared some memories, experiences, and pictures related to their work. Here are some of them! Check out HMH social media channels for photos from the day itself!

The Contracts Team Executed 860+ Contracts in 2024!

The Office of Research Administration's research contracts team has executed an unusually high amount of agreements this year! The team includes Caitlin Dibello, Sr. Contract Specialist; Maja Scott, Sr. Contract Specialist; James Mantia, Sr. Contract Specialist; Alex Yeaw, Contract Specialist; and Jennifer Olivier, Contract Specialist. They assist researchers in review and negotiation of research-related contracts agreements for projects funded by industry, cooperative groups, and other public and private sources. Additionally, they help prepare and draft contracts for other collaborative research efforts.

Interested in joining the DSMB?

The HMHRI is looking for physicians to serve as members of the HMH Data Safety Monitoring Board (DSMB). The HMH DSMB is charged with monitoring the safety of research participants and the integrity of data collected in investigator-initiated human subjects protocols being conducted at HMH. The DSMB is a voluntary, multi-disciplinary, independent group consisting of MDs, PhDs, and statisticians. Meeting virtually on the fourth Wednesday of each month at 12:30 p.m., the DSMB reviews adverse event reports, protocols' data safety monitoring plans and stopping rules, and determines if studies should continue or if any issues regarding safety need to be addressed. Anyone interested in being part of the HMH DSMB should contact Research Integrity Office Manager Daniel Alderson at daniel.alderson@hmhn.org.

Upcoming Changes in Biostatistical Support

The HMH Biostatistics Core provides a variety of services to the research community, including, but not limited to:

- Pre-IRB submission support: statistical analysis plan, power/ sample size calculation, study design and protocol development, data collection, data collection tool review
- Post-IRB submission support: primary and secondary data analysis
- Publication support: abstract/poster/manuscript/other
- Grant submission support and grant ongoing support (planned and ad hoc analysis)

In order to strategically allocate our limited resources for biostatistical support and to ensure the quality of the projects supported by the HMH Biostatistics Core, we will be implementing the following changes, effective July 1, 2024:

1. **Fees for Certain Types of Support:** Facilitating and supporting research is our mission; therefore initial support for all types of requests is provided at no charge. Teams requiring significant support based on the project type, are offered the option to purchase additional services at internal rates for all HMH projects without extramural funding (see fee structure). Similarly, to ensure consistency, all HMH projects with extramural funding are subject to charge rates calculated
2. based on the source of the funding as described below. The costs associated with the services provided will be charged back quarterly to the requested researchers' department unless alternative instructions are expressly provided.
3. **New Form and Department Authorization:** All projects must be submitted using a new request form (to avoid confusion, link will be provided closer to the date). Additionally, authorization will be required by the respective department chair for projects that will require significant support and have associated costs. Please see flowchart here.

The new process and the respective fee structure have been established based on comparative market rates observed at other equivalent research hospitals and universities.

Please note that the old request form will be sunsetted at midnight of June 30, 2024. Any projects submitted to our team prior to July 1, 2024 will not be subject to fees or department authorization.

We look forward to continuing to support your biostatistical needs.

New Form for Audit Requests

In an effort to better track requests, the Corporate Compliance Research and Monitoring Program has developed, and rolled out, a simple Google form for teams in the HMH network to utilize when requesting a research compliance review or audit.This form will also be available on the research website https://www.hackensackmeridianhealth.org/en/research/research-compliance.

For any questions please contact Martin Kleber, Research Compliance Auditor, at 551-996-2382 or martin.kleber@hmhn.org.

Upcoming Events

As the summer approaches, we will be winding down some of the educational programming. However, there are still some events taking place before July and many exciting events planned for the fall. More information will be provided as we get closer to the lecture dates, but we strongly encourage you to check the research events calendar and block your calendar for the dates and times of events that interest you in advance.

FEATURED RESEARCHER

SPRING 2024

The CDI Experts: Aschner Makes a Difference in Clinical, Research Worlds

Judy Aschner, M.D., has been practicing medicine for almost 40 years, across clinical, research and administrative roles at world-class institutions.

The pediatrician now brings her major federally-funded research projects to the CDI, to focus more than ever on the science of child health and well-being - and she is elated to do so.

"Now I have the opportunity to bring together and focus on two areas of research I've been passionate about my entire career: how to broadly improve child health and the impact of environmental exposures, particularly in the earliest stages of life," she said recently, from her CDI office. "I've always liked to build programs and bring teams together to create something larger than the sum of its parts - and this is what I plan to continue to do at the CDI."

"Judy Aschner is a world-class physician and investigator, and we are privileged to host her important projects at the CDI," said David Perlin, Ph.D., chief scientific officer and executive vice president of the CDI.

"Dr. Aschner is a valuable expert helping to push the envelope toward better understanding the factors of health for our youngest patients," said Ihor Sawczuk, M.D., FACS, president of Academics, Research and Innovation for Hackensack Meridian *Health*, the founding chair of the Hackensack Meridian *Health* Research Institute, and also associate dean of Clinical Integration and professor and chair emeritus of Urology at the Hackensack Meridian School of Medicine.

Many Roles

Aschner has been a leader at leading institutions over the course of her career, including Vanderbilt University, Albert Einstein College of Medicine, and Wake Forest University Health Sciences, among others. Among the titles at these institutions: a nearly-10-year stint as the Julia Carell Stadler Professor (with Tenure), at the Vanderbilt University Medical Center and the Director of Neonatology at the Monroe Carell Jr. Children's Hospital at Vanderbilt; the Michael I. Cohen M.D. University Chair of Pediatrics at the Albert Einstein College of Medicine, and Physician-in-chief at the Children's Hospital at Montefiore.

More recently, Aschner relocated across the river to Hackensack Meridian *Health* in 2018, where she has served in roles including the Marvin I. Gottlieb, M.D., Ph.D., Chair of Pediatrics, at Hackensack University Medical Center (HUMC); and the physician-in-chief roles for both the Joseph M. Sanzari Children's Hospital at HUMC, and also that of Hackensack Meridian Children's Health. She is also a professor of pediatrics at the Hackensack Meridian School of Medicine.

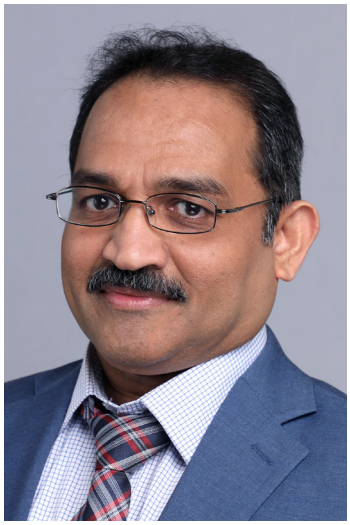
"I love what I have done at every stage," she said. "I feel very fortunate to have landed on a career path that is so rewarding and has given back to me as much as I gave to it."

She moved her research program and day-to-day work to the CDI in December 2023. Read more

FEATURED RESEARCHER

SPRING 2024

Muneer Shares Groundbreaking Developments in Neuro



Mohammed Abdul Muneer, MSc, Ph.D., Research Scientist and Principal Investigator, Hackensack Meridian Neuroscience Institute at JFK University Medical Center, and Associate Professor of Neurology at the Hackensack Meridian School of Medicine.

Dr. Muneer sat down with us to give us some background on some of the tremendous strides the field of neurology has taken in the last decades, to share some of the groundbreaking developments that HMH is employing to help neurology patients' lives, and to provide insight into how intricate and interdisciplinary some of these protocols can be.

What led you to your interest in neurology?

During my high school time, I wished to be a medical doctor, but later I pursued my education in research orientation courses in undergraduate and master's programs. I got much interest in research during my MSc dissertation work at Cochin University of Science and Technology (CUSAT) in India. I continued this research interest and completed my Ph.D in Molecular Biology from the same University. My interest in biomedical research surfaced during my graduate program. I got several chances to attend biomedical research conferences in India during my graduate program. Once during a conference program and happened to read an article about biomedical research from a journal of that institute's library.

Then after completion of my Ph.D, I tried to get a position for the postdoctoral in Neuroscience in the USA. During my postdoctoral career at the University of Nebraska Medical Center at Omaha, I became passionate about Neuroscience research, and I decided to continue in that direction as my career. This was not too long back, in 2009-2013 time, and in 2012 I started working on central nervous system injury research, my current main research interest.

Where did you first begin working in research and how did your research career evolve?

I started research during my master's course. It was a fantastic experience spending much time in the laboratory and taking measurements day and night at the Department of Biotechnology, CUSAT. My graduate study was in Molecular Biology at the same university and my postdoctoral research tenure was at the University of Nebraska Medical Center in Omaha, Nebraska; Temple University School of Medicine in Philadelphia; and JFK University Medical Center at Edison from January 2009 to July 2014. After my postdoctoral career, I joined as an Assistant Research Professor at the Department of Biomedical Engineering, New Jersey Institute of Technology. In approximately two years of tenure at NJIT, I was an advisor for a master's thesis and mentored undergraduate and graduate students and postdocs. I have conducted research in Cellular and Molecular mechanisms of pathogenesis of TBI and published papers as the first and senior author. Later in March 2016, I moved to JFK Neuroscience Institute and established my independent laboratory and established research on molecular and cellular mechanisms underlying axonal regeneration, neuronal repair, and survival after traumatic brain injury (TBI) with the objective of developing effective therapeutic strategies. Another emphasis of the studies is to unravel the signaling mechanisms behind constraints in neuronal regeneration in the central nervous system (CNS) after injuries. We are highly interested in exploring inter/intracellular signaling pathways and various regulatory factors of neuronal growth in TBI. The ultimate goal of the study is to develop successful therapeutic strategies for improving recovery from CNS injuries. We use in vivo model of TBI (fluid percussion model), and in vitro stretch injury model to study the mechanisms and therapeutic strategies in CNS injury. Besides, we employ various in vitro and in vivo research approaches, including blocking of repulsive signaling pathways using pharmacological methods, virus vector-mediated gene transfer to the brain, CRISPR/Cas9 gene deletion, creation of conditional knockout animals, in vitro stretch injury, survival animal surgeries, and behavioral evaluations including cognitive functions in rodents.

(Cont'd)

FEATURED RESEARCHER:
Mohammed Abdul Muneer, MSc, Ph.D. *(Cont'd)*

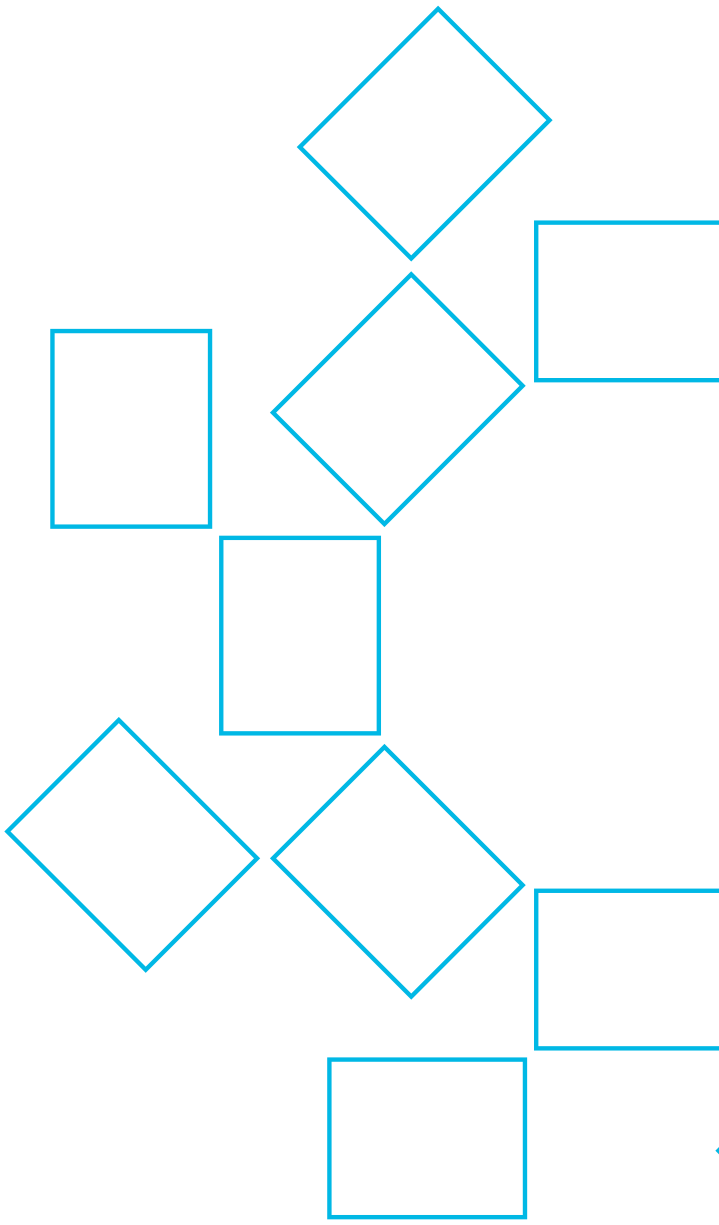
Numerous changes have taken place over the last couple of decades (or even the last few years) in neuroscience. To what do you attribute those advances?

Like cancer research, the neuroscience research field is also fast growing with several new findings. Most of the laboratory moved to translational research in neuroscience. Even though there are a few successes in the clinical trials for neurodegenerative diseases like Alzheimer's disease, and Parkinson's disease, none of the clinical trials worked out for CNS injury. This opened the door for many laboratories for developing small molecules/peptide/gene therapies against CNS injury. In recent years, peptide-based drugs have emerged and are witnessed as a major class of therapeutics in their effectiveness, and currently, several natural and synthetic peptides are advancing toward clinical trials. My lab's two recent National Institute of Health (NIH)-funded projects are all about the development of peptide therapeutic strategies for brain injury. Using a bioinformatics approach to define the conserved functional elements within the sequence of different targeted proteins, we have designed small peptides to block the critical activity domain of that particular protein and demonstrated that systemic treatment of these peptides was highly active for promoting neuroprotection and functional recovery in a mouse model of TBI.

In the NIH-funded R01 project, we are targeting peptidyl arginine deiminase type 4 (PAD4), which has a significant role in the formation of neutrophil extracellular traps (NET), impairment of neovascularization, NET-induced thrombosis, inflammation, and cognitive and sensory-motor deficits in a TBI victim. It has been demonstrated that activation of leukocytes especially neutrophils cause the release of nuclear and granular contents to form an extensive web-like structure of DNA called NET. NET is an innovative emerging research field and has been associated with stroke, autoimmune disorders, cardiovascular and pulmonary diseases, inflammation, thrombosis and cancer.

Next, we introduced gene therapy strategies in our research. In a recently published paper from our lab, the Laboratory Central Nervous System Injury and Molecular Therapy, in the Journal of Neuroscience, we developed a gene therapy strategy using the CRISPR/Cas9 tool. Here, we removed a gene called ICAM-1, which plays a significant role in the transmigration of leukocytes to the brain, and neuroinflammatory cascades that lead to sensorimotor deficits and psychological stress. We validated our results by treating the cells and animals with ICAM-1 CRISPR/Cas9 and in ICAM-1-/- (knockout) mice. In our NET project too, we introduce gene therapy by deleting the PAD4 gene using the CRISPR/Cas9 tool. Moreover, we study the role of different brain cells in the pathogenesis of TBI by creating conditional knockout mice by breeding flox strains with specific brain cell Cre strains, which is an emerging field in biomedical research.

Previously, we developed a gene therapy strategy for spinal cord injury in a NJ state-funded project. Here, we used a gene called growth differentiation factor 10 (GDF10) to promote axonal regeneration and functional recovery after spinal cord injury. We enhanced the level of GDF10 by introducing GDF10 gene via an adeno-associated virus vector tailored with a super promoter and green fluorescent protein into sensorimotor cortex and dorsal raphe nucleus of a spinal cord injured by hemisection in mice to evaluate GDF10's role in promoting axonal regeneration. To validate the role of GDF10 in axonal regeneration, we use the CRISPR/Cas9 gene deletion technology to remove GDF10 gene.



FEATURED RESEARCH ADMINISTRATOR

SPRING 2024

The CDI Experts: Alla Rabinovich Makes the Business of Science an Art form

Over the course of just five years, the Hackensack Meridian Center for Discovery and Innovation (CDI) has ascended to become a premier regional hub for translational research. With a robust infrastructure boasting 32 laboratories and nearly 200 dedicated scientists and support personnel, backed by an impressive tally of 60 NIH grant awards, including two national centers of excellence, the CDI stands at the forefront of scientific advancement.

While CDI's rapid success reflects its outstanding scientists, every member of the CDI will tell you that it is the research operation that is the true star that fosters and nurtures great science. Constructing a sophisticated research enterprise to support CDI's mission during a rapid growth phase with adversity posed by a pandemic was a major challenge and required a master architect and implementor. Enter Alla Rabinovich, MBA, vice president and chief operating officer for the CDI, who with vision, leadership, and unwavering determination built a world-class organization within HMH to meet the high demand of modern science, while infusing operational and organizational innovations that rival the science emanating from the CDI.

Alla is no stranger to building and operating efficient research organizations within complex environments. Prior to joining CDI, she held a similar position at the Public Health Research Institute (PHRI), which is part of New Jersey Medical School - Rutgers University. Working in concert with Dr. David Perlin at PHRI for more than 16 years, they built an entrepreneurial model for innovative and nimble biomedical research that was grounded in sound business principles and operational practices, which ultimately provided the foundation for the creation of the CDI.

Perlin commented: "It was apparent that to realize the vision for CDI, we needed a business-savvy professional with a strong background in finance and operational management who could build a robust organization that addressed the real-time demands of academic researchers, while effectively navigating the complexities of the HMH landscape. Recruiting Alla Rabinovich to lead this effort was critical to our success."

Alla accepted the challenge. With a strong vision and sense of purpose, she set to work more than one year prior to the CDI opening its doors to build organizational capacity within HMH by establishing the core business elements required to support CDI science through partnership and strategic recruitment of an experienced management team.

Building a cohesive organization is about creating a business community with shared goals, values, and purpose. As a firm believer that culture matters, Alla embraces an organizational environment based on transparency, honesty, hard work, accountability, respect, empowerment of colleagues and communal spirit.

These core values very much reflect her family upbringing and immigrant background. She spent her early childhood in Kyiv, Ukraine, and then emigrated to the U.S. with her family at the age of 9. Like many refugees from the former Soviet Union, immigration and assimilation in a new country was not easy. Growing up in Chicago, she learned the virtues of self-reliance and motivation. She also benefited from the love and support of family, as her parents worked hard to build a life for their family. While we are all shaped by our past, Alla embraces her roots, which established core values for success in life. However, she does not overly dwell on the past; she is very much about the present and the future.

Alla is inspired by creativity and energy, which likely accounts for her work with innovative scientists over the past several decades, as well as her embracing New York City as home since the 1990s. She is a tenacious problem solver and thrives on quickly creating logical and innovative solutions to difficult challenges. After rapidly working through a solution that impresses her experienced staff, she will say "It's just logical and makes sense." Perlin says: "Her thought process and execution is pure artistry."

Alla comprehends deeply that "change is inevitable" in life, whether it involves relocating from one's homeland, maneuvering through a pandemic, societal disruptions, or adjusting to new leadership. However, what truly counts is not the change itself, but rather our ability to adapt and transform it into a positive force that benefits everyone.

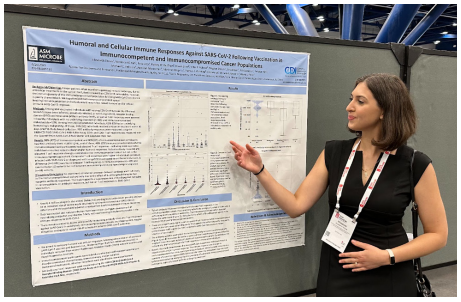
As Alla continues to create enterprise-wide innovations on behalf of the CDI, HMHRI and HMH, she leads by example. But her true goal is to inspire and empower those around her to keep building a better academic research setting for all.

ACADEMICS BULLETIN

SPRING 2024

Preparation Meets Opportunity: Biologist-Turned-Med Student Publishes COVID-19 Vaccine Study

It's not every day a person's experience, education and training converge into professional success so early in one's career.



That day came, however, for first-year, Hackensack Meridian School of Medicine (HMSOM) student **Elizabeth Titova,** whose background in phlebotomy and scientific research led her clinical study around COVID-19 vaccination to be published in *Microbiology Spectrum,* an open-access ASM Journal.

Titova, of Fair Lawn, NJ, was a scientist and clinical research coordinator for two years at Hackensack Meridian *Health*'s Center for Discovery and Innovation (CDI), completing her 2023 research study before beginning her medical school career. She recruited more than 600 patients to assess T-cell and antibody responses in COVID-19-vaccinated patients with special focus on immunocompromised individuals.

Her research was completed in partnership with HMH's John Theurer Cancer Center (JTCC) and with clinical laboratory firm Quest Diagnostics.

"I was ecstatic to hear that all our efforts have finally come to fruition," said Titova. "These are important results that we collected and analyzed during a global health crisis. We have done our part to bolster the scientific literature."

In her study, Titova found that while naturally stronger in immunocompetent individuals, the immunocompromised population —"especially cancer patients undergoing treatment"— still received a "robust immune response" from the vaccine, indicating protection against SARS-CoV-2. This response would impact both likelihood of infection, as well as the possibility of the disease's progression into its potentially-deadly complications, most prevalent in those with comorbidities including immune deficiency.
Read more

Student Research and Innovation Inspires on Medical Student Research Day

Students from across the Hackensack Meridian School of Medicine (HMSOM) showed off their new ideas and long hours of inquiry during the school's third annual Medical Student Research Day.

The 130-some abstracts spanned a wide gamut of health related topics, from how certain diseases affect groups across America differently due to the social determinants of health, down to the level of single molecules in other pathologies.

Welcome and introductions were made by Jeffrey Boscamp, M.D., president and dean of HMSOM; and also Vice Dean Stanley R. Terlecky, Ph.D., and Assistant Dean Zhiyong Han, Ph.D.

The keynote speaker was Lewis C. Cantley, Ph.D., professor of cell biology at Harvard Medical School and longtime biotech researcher. His talk, "Developing an Atlas of the Substrate Specificity of All; Human Protein-Tyrosine Kinases," introduced a new technology which allowed clinicians to determine key proteins in tumor biopsies, allowing better targeting of key drugs.

Two featured student presentations were offered by second-year students. Shady Barsoom described the "Demographic and Socioeconomic Disparities in Acute Pancreatitis Stratified by Etiology" - a project showing how different racial and socioeconomic factors among groups manifested differently in the condition. Mai Hatazakis presented work showing that retinoic acid may be an important new treatment option for tracheal stenosis, a pathological accumulation of granulation tissue in the airway. Both students worked extensively with clinical mentors from within the Hackensack Meridian *Health* network.

The poster session took place in five separate sessions spanning the afternoon. Among the highlights of the 130-plus research posters:

"A Case of Transient Brain Death," by student Liem Pham working with mentor Haralabos Zacharatos, D.O., explored a case history of a patient who appeared to have lost all brainstem reflexes - but then spontaneously regained a cough and gag reflex later that same day.
(Cont'd)

ACADEMICS BULLETIN *(Cont'd)*

"A Novel Technique for Transabdominal Cerclage with an Endoscopic Suturing Device," was produced by student Kiana Cruz working with mentor Antonia Oladipo, M.D., MSCI. Together they determined that cervical cerclage, a surgery to prevent mid-trimester pregnancy loss, could better be supplemented by using an endoscopic suturing device.

Multiple projects focused on injury reports from the National Football League, including: video analysis of reported concussions; the impact of spinal surgery on NFL player career length and performance; assessing the impact of concussions on offensive performance using fantasy football point; and other questions.

"Does AI Have Utility in Surgical Medical Education? A Comparative Analysis of Chatbots in Answering Standardized Surgical Multiple Choice Questions," assessed whether ChatGPT can assist medical education. It was a collaboration between student Natalia DaFonte working with mentor Burton Surick, M.D., and multiple other colleagues from HMH.

"Effectiveness of Calcium Channel Blockers in Patients with Traumatic Brain Injury Requiring Operative Intervention," calls for a re-evaluation of calcium channel blockers preoperatively for traumatic brain injury treatment, based on data showing poorer outcomes. The project brought together student Tianrun Pan with mentor Stephanie Bonne, M.D., and colleagues.

"Quick Service Restaurant Prevalence and its Relation to Obesity and Chronic Comorbidity Rate," drew connections between the availability of fast food and other potentially-unhealthy restaurant choices, and the rates of obesity, hypertension and diabetes in certain areas. The student researcher was Patrick Adly-Gendi, and the clinical mentor was Aziz Merchant, M.D., FACS.

"The Impact of the COVID-19 Pandemic on Emergency General Surgery Outcomes: A Retrospective Analysis of Seven Procedures," found a rise in complications for emergency general surgery coinciding with the rise of the COVID-19 pandemic. The results were based on data from the American College of Surgeons National Quality Improvement Program, spanning from 2018 to 2021. The student researcher was Nihal Sriramaneni, in collaboration with mentor Aziz Merchant, M.D., FACS.

New HMSOM Elective Equips Students for Strategic Planning, Knowledge to Become Physician Leaders

A new elective at the Hackensack Meridian School of Medicine aims to train medical students for overall health care strategy, and to prepare the next generation of physician-leaders for the challenges and opportunities of the 21st century.

"Strategic Planning in Health Care" is a semester-long part-time elective course providing students with a comprehensive overview of health care strategy. Students will learn the principles and frameworks of strategic planning in health care, as well as the challenges and opportunities facing the health care industry. The elective will also cover a variety of topics related to health care strategy, including market dynamics, delivery models, service line growth, research and innovation and financial planning. Students will develop a project in one area of their choice.

The goal is to prepare students to: define health care strategy; analyze the industry to determine trends; better understand market dynamics and use market analysis tools; evaluate and compare different delivery models; develop strategies for growth and development; assess the role of research and innovation for the future; and apply financial planning principles to health care organizations.

The elective features a number of guest speakers who are notable leaders in the current market including Social Determinants of Health, Pharmacy, Patient Experience, Quality, Managed Care, Strategy and Business Development from Hackensack Meridian *Health* and beyond. This elective is essential for medical students who want to become future physician leaders. By understanding the principles and frameworks of health care strategy, students will be better prepared to lead and manage health care organizations in a rapidly changing health care landscape.

"This elective has given me a deeper appreciation for the complexities required in steering a health care organization," said one student recently. "The guest speakers have brought the curricular concepts to life with their real-world expertise."

This semester the elective was open to a limited number of students. After this pilot is done and feedback is incorporated into improvements, more students will be added next year. For more information about this elective, please contact Mohammed Quadri, M.D., at mohammed.quadri@hmhn.org.

Another Successful Resident Fellow Research Day In the Books

Resident Fellow Research Day (RFRD), an annual event that provides opportunities for residents and fellows affiliated with Hackensack Meridian *Health* to present original research studies and vignettes to the academic and professional communities, was held virtually on May 21. The day kicked off with remarks from Drs. David Kountz, Ihor Sawczuk and Robin Winter.

The opening remarks were followed by three poster presentations, which had been selected based on scores assigned by independent raters prior to the event. The remaining posters were presented in separate breakout rooms in shorter poster sessions.

Finally, an inspiring keynote presentation titled, "How to Create an Innovative Clinical Research Program: A Thoracic Perspective" was delivered by Dr. Thomas Bauer, the chair of the Department of Surgery at JSUMC. During his talk, he described his personal journey to becoming involved in research and offered guidance to other physicians potentially interested in becoming investigators.

More details about the day will be shared in the summer edition of this newsletter.

Spring 2024 Chief Resident Summit

Hackensack Meridian *Health* held the 2024 Spring Chief Resident Summit on May 7.

Dozens took part at the annual event, at HMH's Training Center at 499 Thornall Street in Edison.

Congratulations to all.

ACADEMIC AFFAIRS ROUNDUP

SPRING 2024

North Region

- New HUMC Psychiatry Residency Program application submitted; Accreditation site visit scheduled April 10, 2024.
- New Pediatrics Residency Program Director appointed effective July 2024 - Megan McCabe, M.D.
- Neurosurgery Residency site visit took place on March 13. We expect a response from ACGME in early May 2024.

Central Region

- Central region administration is finalizing plans for the move of the Internal Medicine Residency Program (primary site) from RBMC to JFKUMC.

South Region

- Faculty and staff in several academic departments at JSUMC have started transitioning to the hospital to create more patient beds.
- New Forensic Psychiatry Fellowship Director appointed at OUMC on March 20, 2024 - Nina Ross, M.D.
- Nominations are open for the 2024 Eileen Masterson M.D. Award at JSUMC. This initiative is funded by former JSUMC physician Dr. Eileen Masterson to provide four (4) $10,000 awards to interns who are dealing with student debt but demonstrate Dr. Masterson's commitment to humanism and professionalism.

QUARTERLY QUESTION

SPRING 2024

Which entities are possible recipients of reportable event submissions?

a. The Institutional Review Board
b. HMH Research Integrity Office
c. The Sponsor
d. OHRP, FDA, NIH and other external agencies, depending on the funder
e. All of the above

To answer the question, please click here.

The first person to submit the correct answer will receive a Hackensack Meridian *Health* gift.