

FEBRUARY 2023

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

# Endocrine news

## *Assessing* **ACROMEGALY**

### A Fresh Look at Holistic Treatment

**Eliza B. Geer, MD**, an endocrinologist specializing in pituitary and neuroendocrine diseases, discusses a comprehensive approach to treating this challenging condition.

- How a multidisciplinary, team-based methodology can be vital to long-term success.
- The importance of getting both physical and psychological symptoms addressed.
- The value of including the patient as a dynamic member of the team.

#### **OUT OF PRACTICE**

Why retirement shouldn't be a deterrent to seeing patients.

#### **HYPERCALCEMIA OF MALIGNANCY**

The Endocrine Society releases the first guideline on treating this condition.

# Endocrine news

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

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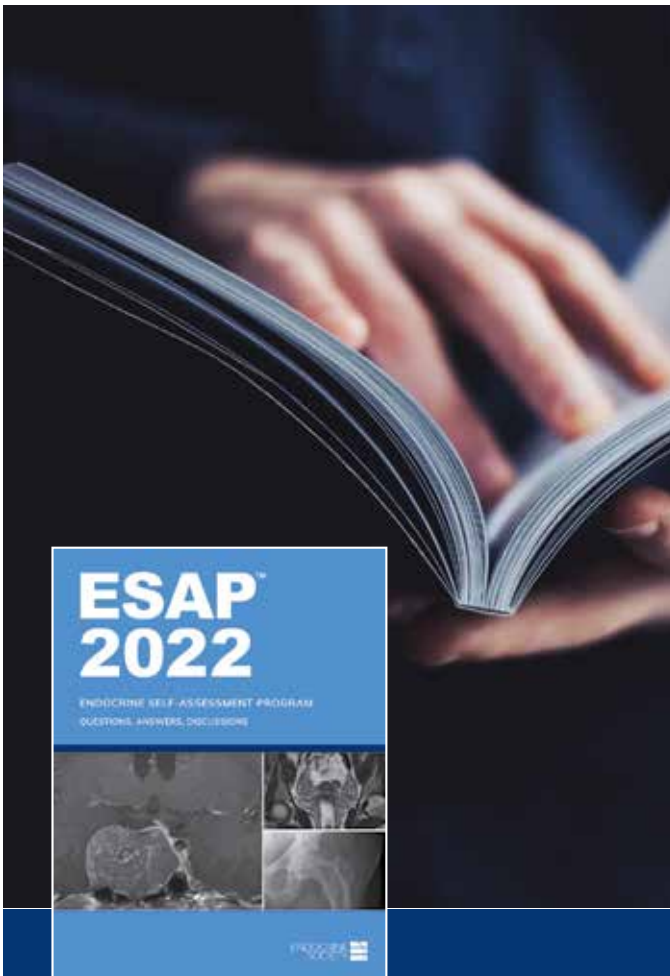
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## 14 | Out of Practice

### Why Retirement Doesn't Always Mean You Stop Seeing Patients

When Endocrine Society past-president Richard J. Santen, MD, achieved “emeritus” status at the University of Virginia in Charlottesville, he was far from being done with practicing medicine. That’s when he decided to continue seeing patients throughout southwest Virginia from the comfort of his home and with help from telehealth technology and the federally funded community health centers program.

BY DEREK BAGLEY

## FIRST PERSON

### 20 | The Importance of Symptom Control: A Holistic Approach to Treating Acromegaly

Despite successful medical intervention, people with acromegaly don't always share their clinician's optimistic outlook. Eliza B. Geer, MD, director of Memorial Sloan Kettering's Multidisciplinary Pituitary & Skull Base Tumor Center, takes us through a holistic approach to treating this often-confounding condition and how a team-based methodology is frequently the key to success.

BY ELIZA B. GEER, MD

### 26 | Endocrine Society Publishes First Hypercalcemia of Malignancy Guideline

A new Endocrine Society guideline details how to treat adult patients with hypercalcemia of malignancy, the most common metabolic cancer complication. Despite its high morbidity and mortality rates, this is the very first guideline that directly addresses this condition and confirms the efficacy of denosumab and bisphosphonates.

BY ERIC SEABORG

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BY DEREK BAGLEY

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The Endocrine Society's 2023 Laureate Richard E. Weitzman Outstanding Early Career Investigator Award recipient, Rana K. Gupta, PhD, talks to *Endocrine News* about his research, his parents'

influence, his advice to young investigators, and why his “happy place” is at the bench.

BY GLENDA FAUPTLERROY SHAW

## 32 | PRACTICE RESOURCES

### PLAYING DOCTOR: HIGH SCHOOL STUDENTS EXPLORE A FUTURE IN MEDICINE

To overcome the potential looming dearth in the next generation of endocrinologists, Suburban Hospital in Bethesda, Md., is using a unique interactive method to inspire and engage young minds. The Medical Exploring Program gives high school students hands-on experiences over

the course of a school year that could feasibly create the clinicians — and clinician scientists — of tomorrow.

BY GLENDA FAUPTLERROY SHAW

## 36 | CLASSIFIED AD

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ENDOCRINE SOCIETY

Hormone Science to Health



## Championing the Development of Early-Career Members

One of the most rewarding aspects of our work is mentoring the next generation of endocrine researchers and clinicians. It is so gratifying to see promising young professionals establishing productive careers in our field.

We have several initiatives underway to support professionals entering the field. Next month, we will host workshops for promising researchers and clinicians from underrepresented groups. We have selected 17 fellows to take part in our Future Leaders Advancing Research in Endocrinology (FLARE) program. They will meet in Los Angeles, Calif., next month with mentors to learn about leadership development, lab management, and the grant application process, among other topics.

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Nine young professionals will take part in our Excellence in Clinical Endocrinology Leadership (ExCEL) clinical endocrine career and leadership workshop in Arlington, Va., next month. Our faculty and ExCEL awardees will discuss topics that will help early-career physicians successfully transition into clinical care and endocrinology. We plan to reunite our FLARE and ExCEL awardees at networking lunches at **ENDO 2023**.


Our Training and Career Development Core Committee (TCDCC) is working hard to develop a slate of early-career offerings for **ENDO 2023**. We will host a robust Early Career Forum and 11 Professional Development Workshops on site in Chicago, Ill., where select faculty members and leaders in endocrinology will share their expertise and experiences regarding careers in academia, industry, and private practice during these sessions. The Early Career Forum drew more than 100 attendees last year, and we look forward to similar success in 2023.

If you are interested in travel awards for **ENDO 2023**, we are launching the Future of Endocrinology video competition to introduce undergraduate students, graduate students, medical students, residents, and clinical and research fellows to our field. Applicants can submit a video or written essay for a chance to win free registration to

**ENDO 2023** and our Early Career Fair in Chicago. Be sure to send your submissions by March 15.

We received an impressive number of applications for our 2023 Research Experiences for Graduate and Medical Students (REGMS) program. The program offers graduate and medical students opportunities to take part in collaborative research in laboratories, build professional networks, and receive expert advice from dedicated mentors. The 2022 cohort of nine students spent last summer working in laboratories with mentors and attended a career development webinar series hosted by the TCDCC. I am looking forward to seeing the posters they present at **ENDO 2023!**

Building on these opportunities, the TCDCC and Early Career Special Interest Group are identifying new ways for members to engage year-round. I encourage everyone to join the newly launched group mentor/mentee program hosted on DocMatter. This online community provides a space for mentees to pose career-related questions and for mentors to respond to questions of interest. We also would like to gather general advice for early-career endocrinologists as they reach new milestones in their career journeys. If you have any advice to share on starting a new residency, fellowship, or postdoctoral program, please reach out to our staff at [community@endocrine.org](mailto:community@endocrine.org).

I am grateful to the TCDCC members, the Early Career SIG, and all of you who have volunteered your time to share your experiences and perspectives with new professionals entering our field. Developing a strong leadership pipeline ensures that our field will continue to advance endocrine science and health for years to come. 

*– Ursula B. Kaiser, MD  
President, Endocrine Society*

## ELECTION LAUNCHED

The election for our president-elect candidates launched in early January. We have two outstanding candidates on the ballot, and I encourage all our voting members to participate in this very important activity. To facilitate the voting process, a link to the electronic ballot is available on the Society's website (<https://www.endocrine.org>). Please remember to cast your vote and remind your colleagues as well. This is your Society, and your participation in the election is important! The polls will close on February 28, 2023.



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FROM THE **EDITOR**

FEBRUARY 2023

# Endocrine news

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

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*Endocrine News* informs and engages the global endocrine community by delivering timely, accurate, and trusted content covering the practice, research, and profession of endocrinology.

## Staying a Step Ahead

**A**s many of you reading this column are aware, there are publications in the endocrinology/diabetes space other than *Endocrine News*. However, unlike these other publications, *Endocrine News* has a secret weapon stockpile the others do not: the expertise, accomplishments, and passion of Endocrine Society members!

Nowhere is that more evident than in a quick rundown of this month's stories:

- ▶ Former Endocrine Society president Richard J. Santen, MD, talks to senior editor Derek Bagley about how even though he's achieved well-earned emeritus status at the University of Virginia in Charlottesville, he's still seeing patients. In "Out of Practice" on page 14, Santen details how he started "treating" patients in rural and underserved parts of

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southwest Virginia via telehealth technology, with an assist from the federally funded community health centers program.

- ▶ On page 20, we have a "First Person" article written by Endocrine Society member Eliza B. Geer, MD, director of Memorial Sloan Kettering's Multidisciplinary Pituitary & Skull Base Tumor Center in New York City, who describes the holistic approach she and her team take when treating people with acromegaly. According to Geer, virtual education programming has been shown to have positive effects on acromegaly patients' perceptions of their disease and should be incorporated as part of a multidisciplinary model of long-term care for this condition, adding that clinicians "should have a thorough



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The mission of the Endocrine Society is to advance excellence in endocrinology and promote its essential and integrative role in scientific discovery, medical practice, and human health.

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discussion with their patients about their treatment options to ensure the patient's adherence and comfort, followed by regular follow-up conversations to gather honest assessments of their patient's symptoms."

▶ More of the Endocrine Society's members' expertise comes into play in "Endocrine Society Publishes First Hypercalcemia of Malignancy Guideline" that details the first treatment guideline of its kind for this condition. On page 26, Eric Seaborg speaks with guideline committee chair Ghada El-Hajj Fuleihan, MD, MPH, of the Department of Internal Medicine, American University of Beirut in Lebanon, who says that treatment of hypercalcemia of malignancy substantially and rapidly alleviates symptoms, improves quality of life, and, importantly, provides an opportunity to administer life-saving therapies targeting the primary malignancy," she says, adding, "Despite the widespread availability of efficacious medications, evidence-based recommendations to manage this debilitating condition have been lacking."

▶ Finally, on page 30 as part of our Laboratory Notes department, Glenda Fauntleroy Shaw talks to 2023

Endocrine Society Laureate Richard E. Weitzman Outstanding Early Career Investigator Award recipient, Rana K. Gupta, PhD, about his research, how his parents and his AP biology teacher impacted his career choice, and why the lab is his "happy place" in "The Pursuit of Happiness."

As you can see, once again we have an extremely packed issue, thanks to the contributions and expertise of a variety of Endocrine Society members, which is the chief reason we will always remain a step ahead of the competition.

If you have any ideas for future stories, feel free to drop me a line at: [mnewman@endocrine.org](mailto:mnewman@endocrine.org). 

— Mark A. Newman, Executive Editor, *Endocrine News*

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#### Correction

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In the article "A Congenital Scientist" in the January issue, Alexandros Vgontzas, MD, was at Penn State College of Medicine in Hershey, Pa., not at the University of Pennsylvania.

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BY DEREK BAGLEY  
Senior Editor

## TRENDS & INSIGHTS

# Study Reveals Obesity-Related Trigger that Can Lead to Diabetes



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**This enzyme is not *the* answer, but it's *an* answer, and it appears we have some promising tools that might keep some people with prediabetes from developing diabetes.**

”

People with elevated levels of insulin also have defects in an enzyme important to the processing of a key fatty acid from the diet, according to research recently published in *Cell Metabolism*. The study may help explain how excess weight can contribute to diabetes and may provide researchers with a target to help prevent or delay diabetes in some of those at risk.



Researchers led by Clay F. Semenkovich, MD, director of the Division of Endocrinology, Metabolism & Lipid Research at the Washington University School of Medicine in St. Louis, Mo., point out that when a person has too much body fat, it signals beta cells in the pancreas to secrete more insulin. When insulin levels become elevated and remain high, the body can become resistant to insulin, and eventually the beta cells that secrete insulin can fail, leading to diabetes.

Studying tissue samples, the researchers found that the overproduction of insulin involves palmitoylation, the process by which cells attach the fatty acid palmitate to proteins. Thousands of human proteins can be attached to palmitate, but the researchers found that when this fatty acid isn't removed from proteins in beta cells, diabetes is the end result. Examining tissue samples from people who were thin or overweight, and with and without diabetes, the researchers found that the

people with diabetes were deficient in an enzyme that removes palmitate from beta cells.

The research team also genetically engineered a mouse that was deficient in the enzyme called APT1, an enzyme responsible for palmitate removal from proteins. The engineered mice went on to develop diabetes. Because impaired APT1 function contributed to diabetes risk, the researchers worked with the university's Center for Drug Discovery to screen and identify compounds that can increase the activity of the APT1 enzyme.

Although the new findings identifying APT1 as a target are an important step, Semenkovich says that APT1 is only one treatment target among many. "There are several ways that type 2 diabetes may develop," he says. "This enzyme is not *the* answer, but it's *an* answer, and it appears we have some promising tools that might keep some people with prediabetes from developing diabetes."



# Gut Bacteria May Play a Role in Diabetes

One type of bacteria found in the gut may contribute to the development of type 2 diabetes, while another may protect from the disease, according to early results from an ongoing, prospective study recently published in *Diabetes*.

Researchers led by Mark Goodarzi, MD, PhD, director of the Endocrine Genetics Laboratory at Cedars-Sinai Medical Center in Los Angeles, Calif., point out that for years, investigators have sought to understand why people develop diabetes by studying the composition of the microbiome. “Studies have implicated genetic factors, unhealthy diet, insufficient physical activity, suboptimal sleep, and obesogenic environmental factors. A recent addition is dysbiosis of the gut microbiome,” the authors write. “The Microbiome and Insulin Longitudinal Evaluation Study (MILES) seeks to define the effect of the gut microbiome on the three insulin homeostasis traits whose dysfunction leads to type 2 diabetes.”

Investigators involved in MILES have been collecting information from participating Black and non-Hispanic white adults between 40 and 80 years of age since 2018. An earlier cohort study from the MILES trial found that birth by cesarean section is associated with a higher risk for developing prediabetes and diabetes.

For the most recent study to come out of this ongoing trial, investigators analyzed data from 352 people without known diabetes who were recruited from the Wake Forest Baptist Health System in Winston-Salem, N.C. Study participants were asked to attend three clinic visits and collect stool samples prior to the visits. Investigators analyzed data collected at the first visit. They conducted genetic sequencing on the stool samples to study the participants’ microbiomes, and specifically look for bacteria that earlier studies have found to be associated with insulin resistance. Each participant also filled out a diet questionnaire and took an oral glucose tolerance

test, which was used to determine ability to process glucose.

Investigators found 28 people had oral glucose tolerance results that met the criteria for diabetes. They also found that 135 people had prediabetes.

The research team analyzed associations between 36 butyrate-producing bacteria found in the stool samples and a person’s ability to maintain normal levels of insulin. They controlled for factors that could also contribute to a person’s diabetes risk, such as age, sex, body mass index, and race. *Coprococcus* and related bacteria formed a network of bacteria with beneficial effects on insulin sensitivity. Despite being a producer of butyrate, *Flavonifractor* was associated with insulin resistance; prior work by others have found higher levels of *Flavonifractor* in the stool of people with diabetes.

Investigators are continuing to study samples from patients who participated in this study to learn how insulin production and the composition of the microbiome change over time. They also plan to study how diet may affect the bacterial balance of the microbiome.

Goodarzi emphasizes, however, that it is too early to know how people can change their microbiome to reduce their diabetes risk. “As far as the idea of taking probiotics, that would really be somewhat experimental,” says Goodarzi, who is also the Eris M. Field Chair in Diabetes Research at Cedars-Sinai. “We need more research to identify the specific bacteria that we need to be modulating to prevent or treat diabetes, but it’s coming, probably in the next five to 10 years.”



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As far as the idea of taking probiotics, that would really be somewhat experimental. We need more research to identify the specific bacteria that we need to be modulating to prevent or treat diabetes, but it’s coming, probably in the next five to 10 years.

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## Testosterone Therapy Sites Often Fail to Convey Potential Risks



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**A new Northwestern Medicine study published in *JAMA Internal Medicine* found that many of these platforms are not providing care in concordance with the American Urological Association (AUA) and Endocrine Society guidelines for the safe and effective management of men on testosterone therapy.**

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**D**emand for testosterone therapy has soared in the U.S., with more men seeking to increase hormone levels in hopes of enhancing virility, strength, and energy. Testosterone therapy has become a burgeoning business with direct-to-consumer men's health platforms proliferating online in recent years. While testosterone therapy benefits some men, it can be harmful for others, making it critical that patients understand the benefits and risks before starting the therapy.

A new Northwestern Medicine study published in *JAMA Internal Medicine* found that many of these platforms are not providing care in concordance with the American Urological Association (AUA) and Endocrine Society guidelines for the safe and effective management of men on testosterone therapy.

Using a secret shopper, the study authors evaluated seven U.S.-based online companies that provide testosterone therapy in all 50 states. Utilizing a script to inquire about and initiate testosterone therapy, the secret shopper identified himself as a 34-year-old man with hypogonadal symptoms, including low energy and low libido, who was interested in future fertility. For each of the platforms, he completed the intake evaluation, required laboratory diagnostic testing, and initial telemedicine consultation, which was conducted by either a nurse practitioner, physician assistant, or non-medically licensed individual.

The authors found that online platforms are offering therapies to men who do not meet guidelines for testosterone deficiency, while also failing to convey the risks and benefits of

therapy. The study identifies guideline-discordant practices by direct-to-consumer testosterone therapy platforms, with the following findings:

- ▶ 85.7% of the platforms offered testosterone therapy despite the secret shopper having normal total testosterone (TT) and free testosterone levels and desiring future fertility.
- ▶ Only one of the seven platforms asked the secret shopper about recent cardiovascular events or his desire for future fertility.
- ▶ Criteria for offering testosterone therapy were discordant with AUA and Endocrine Society (ES) guidelines with one platform only offering treatment for men with TT below 450 ng/dL (normal range = 264 – 916 ng/dL), while the other six have no threshold for treatment initiation.
- ▶ Half of the platforms quoted a treatment goal of more than 1,000 ng/dL TT levels and did not discuss fertility risks of testosterone therapy.
- ▶ 83.3% did not discuss the risks of polycythemia.
- ▶ In addition to testosterone therapy, the secret shopper was also offered a broad range of off-label medications.

As the popularity of direct-to-consumer testosterone therapy grows, the authors hope that future policy initiatives will facilitate more consistent and guideline-based care by these entities. **EN**

## Endocrine Society Awards Baxter Prize to Innovator in Endocrine Drug Discovery



**R** Scott Struthers, PhD, has been awarded the Endocrine Society's John D. Baxter Prize for Entrepreneurship for his contributions to drug discovery and development programs for endocrine diseases.

The John D. Baxter Prize for Entrepreneurship was established to recognize the extraordinary achievement of bringing an idea, product, service, or process to market. This work ultimately elevates the field of endocrinology and positively impacts the health of patients.

Struthers is recognized also for his entrepreneurship in founding companies, including Crinetics Pharmaceuticals, and leading the team that created a first-in-class therapy for the treatment of endometriosis and uterine fibroids during his time at Neurocrine Biosciences, Inc.

"I'm so happy to give this award to Dr. Struthers on behalf of the Endocrine Society. He is an excellent entrepreneur and endocrine scientist who has dedicated his career to developing successful drugs for endocrine patients," says Endocrine Society President, Ursula B. Kaiser, MD. "He is passionate about providing effective therapies to patients with rare endocrine diseases and is constantly in search of solving the next challenge in endocrine care."

As a founder and CEO of Crinetics Pharmaceuticals, Inc., Struthers built a company that is developing much-needed therapies for people with endocrine disorders such as acromegaly, carcinoid syndrome, Cushing's disease, congenital adrenal hyperplasia, and congenital hyperinsulinism. He is also a founder of Radionetics Oncology, which focuses on novel radiotherapeutics to treat a wide range of cancers. Struthers also co-founded the San Diego Entrepreneurs Exchange, a

nonprofit organization that provides networking and resources for early-stage start-ups.

"I am honored to be recognized with this award and am humbled to be in the company of its previous recipients. In accepting, I want to recognize the many members of our drug discovery and development teams that have made these ideas and companies a reality," Struthers says. "John Baxter, with one foot in his academic role and another in founding multiple companies, was an icon for the key role that entrepreneurship can play in advancing the field of endocrinology. My hope is that this award honoring him will continue to help unite endocrinologists in all settings, biopharmaceutical and academic, towards advancing and translating endocrinology for the benefit of our patients around the world."

Struthers will receive the Baxter Prize at **ENDO 2023**, which is taking place June 15 – 18, 2023, in Chicago, Ill. The \$50,000 prize is awarded biennially to recognize scientists or healthcare practitioners who have demonstrated entrepreneurship by leveraging endocrine research to improve patient care.

The Baxter Prize was established in memory of Endocrine Society Past President John D. Baxter, MD, who was a world-renowned scientist known for being the first to clone the human growth hormone gene. During his career, he made many fundamental medical discoveries and translated them into clinical therapies that had far-reaching implications in the fields of biotechnology and genetic engineering, benefiting the health and welfare of patients worldwide. He passed away in 2011. The Baxter family endowed the prize in his memory. **EN**



# VOTE

## 2023 ELECTION FOR PRESIDENT-ELECT POSITION



**John Newell-Price, MD,  
PhD, FRCP**  
University of Sheffield  
Sheffield, United Kingdom



**Paul Stewart, MD, FRCP**  
University of Leeds  
Leeds, United Kingdom

We encourage you to vote for our 2023 President-Elect. Visit [endocrine.org/election](https://endocrine.org/election) to learn more about the candidates and cast your vote.

**Questions?** Contact [election@endocrine.org](mailto:election@endocrine.org) or +1.202.971.3636 (or toll-free at +1.888.363.6274).

**Ballots will be accepted through February 28, 2023.**

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Given the complexities of acromegaly’s impact on quality of life, our multidisciplinary care teams must not lose sight of each patient’s well-being and symptom burden. **Providers should maintain open two-way communication and consideration of all available treatment options as part of a patient-centered approach.**”

— Eliza B. Geer, MD, director of Memorial Sloan Kettering’s Multidisciplinary Pituitary & Skull Base Tumor Center, in “The Importance of Symptom Control: A Holistic Approach to Treating Acromegaly” on page 20.



### EPA Sued by Coalition of Nonprofits

The plaintiffs in the lawsuit are the Sierra Club; the Center for Biological Diversity; Air Alliance Houston; Texas Environmental Justice Advocacy Services; Citizens for Pennsylvania’s Future; and the Clean Air Council.

**25** The number of years the Environmental Protection Agency (EPA) has failed to properly test for endocrine-disrupting chemicals found in many food products as mandated by Congress, a coalition of nonprofits claim in a lawsuit against the EPA.

**96%** The percentage of registered pesticides on which testing has not yet been initiated by the EPA

**\$10 Billion** The amount of estimated funds earmarked as part of President Biden’s American Jobs Plan that would be used in part to monitor and remediate PFAS EDCs in drinking water

— SOURCE: COURTHOUSE NEWS SERVICE



**10,700 vs. 6,000**

People who average 10,700 steps per day are 44% less likely to develop type 2 diabetes than those averaging 6,000 steps daily according to a new study.

— SOURCE: THE JOURNAL OF CLINICAL ENDOCRINOLOGY & METABOLISM

**60%**

The percentage by which childhood diabetes rates are expected to rise by 2060

— SOURCE: THE CENTERS FOR DISEASE CONTROL AND PREVENTION



**65 million**

The number of Americans who will now pay lower premiums and deductibles as a result of landmark legislation designed to bring down the runaway cost of prescription drugs

— SOURCE: AARP



**82%**

The percentage of Americans who think it’s important that the government allow telehealth to continue to flow freely with eased restrictions that went into effect at the beginning of the pandemic

— SOURCE: INC.COM

# ENDO 2023

June 15 – 18, 2023 • Chicago, Illinois/Virtual Event

**EARLY REGISTRATION PRICING EXPIRES: March 8, 2022**

We hope to see you at **ENDO 2023**, taking place June 15 – 18, 2023, in Chicago, Ill. With more than 7,000 attendees, nearly 2,000 abstracts, and more than 200 other sessions, **ENDO** is the top global meeting on endocrinology research and clinical care. **ENDO** provides the opportunity to collaborate with an unparalleled list of endocrinologists, healthcare practitioners, and leading scientists from around the world. Through sharing our experience, advice on patient care, and new advances in research, we move the needle forward in hormone health and science. Our outstanding slate of world-renowned speakers will showcase the most cutting-edge advances in research and medicine, with presentations spanning the spectrum of science, clinical care, and social implications.

[www.endocrine.org/endo2023](http://www.endocrine.org/endo2023)



## 3rd International Conference on Diabetes, Endocrinology and Obesity

Virtual Event

March 20 – 21, 2023

This conference focusing on the latest and most exciting innovations in all areas of diabetes research offers a unique opportunity for investigators across the globe to meet, network, and learn about new scientific innovations. This year's annual congress highlights the theme, "New Technologies and Practical Approaches: Diabetes and Endocrine Disorders," which

reflects the innovative progress in diabetes disease research. The two-day conference includes special keynote sessions conducted by eminent and renowned speakers who excel in the field of diabetes.

<https://www.diabetesmeet.com/>

## 43rd American Association of Endocrine Surgeons Annual Meeting

Birmingham, Alabama

April 29 – May 3, 2023

The 2023 AAES Annual Meeting will be an in-person event in Birmingham, Ala.

All presentations (podium and poster) will be given in person. New for #AAES2023 is an entire Scientific Session dedicated to health equity. Examples include but are not limited to healthcare workforce disparities; differences in patient access based on social and cultural determinants of health; population-level factors, such as socioeconomic determinants and disparities in healthcare coverage; and more.

<https://www.endocrinesurgery.org/2023-annual-meeting>



## Endocrine Society Webinars

The Endocrine Society holds webinars throughout the year on many topics, from clinical practice and basic research to career development, advocacy, and more. Check below for information on upcoming webinars and links to previous events. Visit our Center for Learning for a full list of Society educational offerings.

Past webinars have included The Complexities of Cushing's Syndrome: Diagnosing and Managing Patients; Utilizing Nurse Practitioners and Physician Assistants to Optimize Patient Care: How to Build Effective Teams; Genetics in Pituitary Disease; Facts and Controversies of Testosterone Replacement Therapy in Male Hypogonadism; and so much more! Most of the webinars are free for Endocrine Society members, but some do require a small registration fee.

<https://education.endocrine.org/Public/Catalog/Main.aspx>

## INTERNATIONAL ITINERARY

### Obesity Research Conference Los Angeles, California/Virtual May 1 – 3, 2023

The main objective of this conference is to bring researchers together to share their ideas and provide a critical review of the present state of the field. It is designed in such a way that it provides an opportunity to meet up with people from both industry and academia and establish a scientific network between them. The 7th annual meeting (ORC-2023) will feature the same high-quality lectures as in past years, discussing the current trends in treatment options for obesity, chronic diseases associated with obesity, the epidemic of childhood obesity, the prevention methods, and the care and management of obese patients. This three-day online event will provide a dedicated platform to share cutting-edge scientific findings, medical practices, and caregiver initiatives related to obesity and various chronic diseases associated with it. It is dedicated to creating a stage for exchanging the latest research results and advanced research methods.

<https://obesity.unitedscientificgroup.org/>

### 18th International Pituitary Congress Chicago, Illinois June 12 – 14, 2023

The 18th International Pituitary Congress will present an exciting group of speakers expert in normal and disordered pituitary function. Our faculty includes distinguished clinicians and investigators, fellows in training, and basic scientists. As usual, we will present cutting-edge in-depth topics that will permit our attendees to become familiar with the latest trends in pituitary endocrinology. The plenary format of the meeting is intended to facilitate maximum interaction and free exchange of ideas among participants and speakers.

<https://www.pituitarysociety.org/events>

### ATTD 2023

**Berlin, Germany**

**February 22 – 25, 2023**

The 16th International Conference on Advanced Technologies & Treatments for Diabetes (ATTD 2023) to be held on February 22 – 25, 2023, in Berlin, Germany, is the leading international forum where clinicians, diabetes care providers, researchers, industries, start-ups, investors, reimbursement authorities, regulators, and people with diabetes; assemble with the goal to improve the care of people with diabetes at the fastest possible pace. Presentations and discussions will be given by many distinguished professionals in the field and will include topics such as artificial intelligence–based decision support systems; glucose sensors; closed-loop systems; artificial pancreas; devices for diabetic prevention; new medications for the treatment of diabetes, insulins, delivery systems, and insulin pumps; and many more.

<https://attd.kenes.com/>

### 50th European Calcified Tissue Society Congress

**Liverpool, UK**

**April 14 – 18, 2023**

The European Calcified Tissue Society (ECTS) and Bone Research Society (BRS) join forces to provide a unique platform for sharing the most relevant and cutting-edge science and innovation in calcium, bone and mineral metabolism in Europe. We aim to provide excellent learning and networking opportunities to basic, translational and clinical scientists, specialists, trainees, and allied health professionals.

<https://www.ects2023.org/>

### WCO-IOF-ESCEO 2023

**Barcelona, Spain**

**May 4 – 7, 2023**

After more than two years of virtual editions, the World Congress on Osteoporosis, Osteoarthritis, and Musculoskeletal Diseases will take place from May 4 – May 7, 2023, in Barcelona, Spain. The members of the Committee of Scientific Advisors of the International Osteoporosis Foundation (IOF) and the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) are developing a scientific program that will bring together the world's best in the field of musculoskeletal health and disease. It is hoped that this Congress will move the field one step forward on all fronts, from new understanding of bone metabolism and pathology to new strategies and options in prevention, diagnosis, and treatment.

<https://www.wco-iof-esceo.org/>

### EndoBridge 2023

**Antalya, Turkey**

**October 19 – 22, 2023**

Co-hosted by the Endocrine Society and the European Society of Endocrinology in collaboration with the Society of Endocrinology and Metabolism of Turkey, EndoBridge will be held in English with simultaneous translation into Russian, Arabic, and Turkish. Accredited by the European Accreditation Council for Continuing Medical Education (EACCME), this three-day scientific program includes state-of-the-art lectures delivered by world-renowned faculty and interactive sessions covering all aspects of endocrinology. EndoBridge® provides a great opportunity for physicians and scientists from around the world to interact with each other, share their experience and perspectives, and participate in discussions with global leaders of endocrinology.

[www.endobridge.org](http://www.endobridge.org)



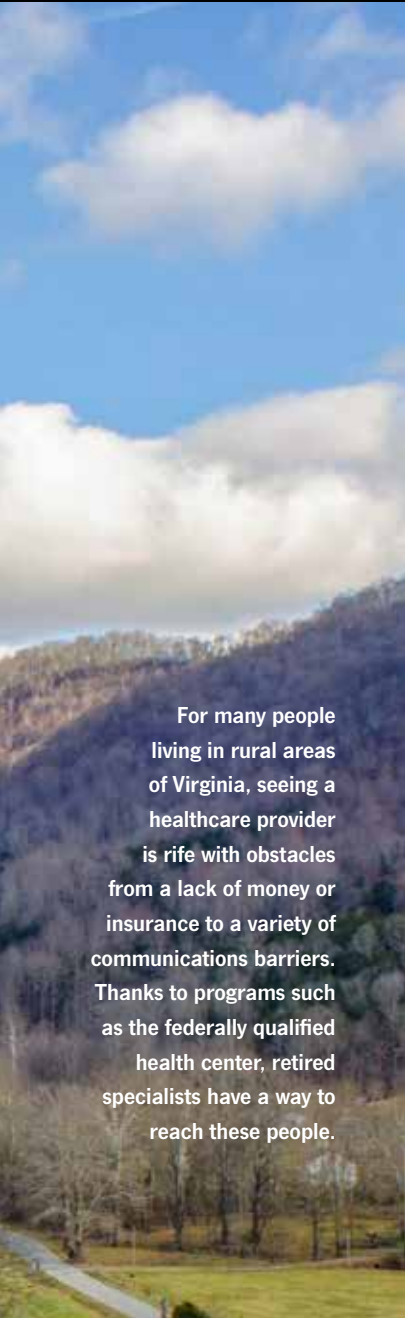
# Out of PRACTICE

## Why Retirement Doesn't Always Mean You Stop Seeing Patients

*When Endocrine Society past-president Richard J. Santen, MD, achieved “emeritus” status at the University of Virginia in Charlottesville, he was far from being done with practicing medicine. That’s when he decided to continue seeing patients throughout southwest Virginia from the comfort of his home with help from telehealth technology and the federally funded community health centers program.*

**BY DEREK BAGLEY**



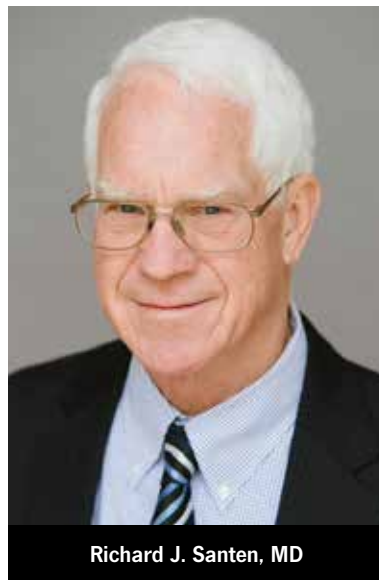


For many people living in rural areas of Virginia, seeing a healthcare provider is rife with obstacles from a lack of money or insurance to a variety of communications barriers. Thanks to programs such as the federally qualified health center, retired specialists have a way to reach these people.

About six years ago, Emma Eggleston, MD, a medical fellow working with Richard J. Santen, MD, professor emeritus of endocrinology and metabolism at the University of Virginia in Charlottesville, pointed her car in the direction of southwest Virginia to attend a health fair and treat patients. She reported back how little exposure and access the patients had to endocrinologists and other specialists, so Santen decided that during his phased retirement he would return to the area himself to take care of patients with diabetes.

Southwest Virginia is a rural, mountainous region with beautiful vistas and welcoming people, but this is also an area where incomes are below the national average (more than half the households are below the poverty line), and there is little to no internet. But the clinics there are federally funded and have some infrastructure that can be built upon, and it struck Santen that a telemedicine program could in fact be implemented, maybe just not conventionally.

So, Santen and his wife took two cell phones — one on T-Mobile and one on Verizon — and drove around southwest Virginia testing the cell phone towers. Santen then talked to a company called Telcare, which allows patients with diabetes to stick their finger and download their glucose level that resides on the meter until they can reach a cell phone tower. “That was the eureka moment,”



Richard J. Santen, MD

“You talk to anybody who’s retired, and they’re okay for a couple of years — play golf, play bridge, take trips. They miss interacting with patients. **And giving those individuals the opportunity to come back and interact with the patients again, in a situation where you’re not really pressed for time and you can get to know people, it’s beneficial for the retirement process also.**”

— RICHARD J. SANTEN, MD, PROFESSOR EMERITUS OF ENDOCRINOLOGY AND METABOLISM, UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE, VA.



Advances in telehealth technology have greatly improved since the COVID-19 pandemic deemed it necessary. A side benefit is that now this technology can help retired endocrinologists connect with patients in rural areas who would otherwise have no other healthcare options. Here, Santen confers with a patient in rural Virginia from his home office in Charlottesville.

Santen says. “That’s how we got around the problem of having no internet there.”

For the past six years, Santen has run a telemedicine clinic from Charlottesville where he can treat patients at six rural clinics in southwest Virginia that are part of a program called federally funded community health centers. There are about 1,400 more of these federally funded community health centers in underserved areas across the country. Santen’s goal is for other retired and semi-retired endocrinologists to join him and help rebuild, or at least reinforce, the endocrinology workforce to better treat these patients. “This is a real opportunity to improve the health of a group in the United States that is quite unhealthy and underserved,” Santen says.

## Mitigating the Gap

In 2014, a paper by Vigersky, et al., appeared in *The Journal of Clinical Endocrinology & Metabolism* that concluded, “There are insufficient adult endocrinologists to satisfy current and future demand. A number of proactive strategies need to be instituted to mitigate this gap.” A 2022 paper in *JCEM* by Tsai, et al., reported that there are about 8,000 currently active endocrinologists in the United States, “which amounts to 41,460 individuals in the general population who may receive potential care by each endocrinologist.”

Santen tells *Endocrine News* that compounding the problem is that many endocrinologists will want to go work in big cities such as New York City or Los Angeles — places with more resources where they can make more money — as opposed to rural areas. That’s where the proactive strategy of bringing endocrinologists out of retirement comes in — he calls this “rebooting.” Physicians can retire in New York or anywhere in the country and treat patients in their home without ever having to step foot out of their front door.

“The opportunity is to fill that gap without having to train another whole generation of endocrinologists,” Santen says. “To some extent, it’s a stopgap. But it allows another population of endocrinologists to continue to benefit patients. When an endocrinologist retires, that’s 40 years of wisdom in taking care of patients, which then is not utilized to help anybody. The opportunity is that when a retired physician can come back, not have the hassles of a big hospital and its pressure, and not have the hassles of electronic medical records. They can treat patients from their homes or their studies.”

## The Geography of It All

Santen again points to the federally qualified community health centers program as the framework for this endeavor. This is a \$29 billion program that hires physicians, nurse practitioners,

nurse educators, nutritionists, and psychiatrists; has cameras for retinopathy; and takes care of patients who don't have insurance or even money. "The infrastructure from [the six clinics in southwest Virginia] makes it possible that I can call the patient, make an evaluation, then have a liaison with two spectacularly good, certified diabetes nurse educators who then serve as a liaison between myself and the physicians," Santen says. "What I'd like to do is to roll out this program around the country using the template that I've set up."

And Santen knows there may be some hesitation among his retired colleagues. In a piece he submitted to the *Journal of the American Medical Association* for the special feature "A Piece of My Mind," titled "Rebooting Retirees," Santen writes that whenever he suggests this idea to fellow physicians, "I'm usually met with a cautious nod of agreement and then a pause as I see them ponder the seemingly obvious dilemma." He acknowledges the geography of it all, but he also knows that some retired endocrinologists may also be apprehensive about learning a technology they're not familiar with, or how they're going to make money.

To the first point, Santen says that the telemedicine part is quite simple. Visits can be done over Zoom or Jabber, or a doctor can simply talk to a patient on the phone: The patient reads off their blood sugar numbers, and the nurse educator can take it from there. Santen also suggests having someone he calls a "navigator" to deal with the managerial side of things (renewing medical licenses, etc.).

As for the finances, Santen says that he sees this as more of an altruistic venture, but he notes that most retired physicians have pensions, and he believes that most would be willing to help these patients pro bono. Santen was hired by the federally qualified health center, and they pay him a monthly salary. "It's enough money to pay for my medical malpractice insurance, my dictating equipment, revising my medical license, and everything else," he says. "It doesn't make money for me. It's neutral."

## Overcoming Communication Barriers

Over the course of six years, 268 patients have been referred to Santen's telehealth clinic by their primary care providers.

## PASTORAL PRACTICE: FEDERALLY QUALIFIED HEALTH CENTERS

Added as a Medicare benefit in 1991, federally qualified health centers (FQHCs) have been quite literal lifesavers for patients in medically underserved areas and populations. Health Resources and Services Administration (HRSA) — funded health centers are community-based and patient-directed organizations that deliver affordable, accessible, quality, and cost-effective primary health care services to patients regardless of their ability to pay. Nearly 1,400 health centers provide primary health care to more than 30 million people — 1 in 11 nationwide — in every U.S. state, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and the Pacific Basin, including:

1. One in three people living in poverty;
2. One in five people living in rural communities;
3. One in nine children; and
4. Nearly 400,000 veterans.

"Health centers play a critical role in improving health outcomes for millions of patients across the country, providing affordable, accessible, quality, and cost-effective primary healthcare services, regardless of their ability to pay. This includes more than 2.6 million patients with diabetes," says Jim Macrae, associate administrator

of the HRSA Health Center Program. "Health centers excel in reaching patients in their communities, and as a result, nearly 70% of diabetic health center patients have controlled diabetes (A1c below 9)."

In 2021:

1. Health center staff conducted more than 124 million visits, including 26.1 million virtual visits.
2. Health centers employed 711 specialty physicians, a category that includes endocrinologists.
3. These specialty physicians delivered healthcare services through more than 2.2 million patient visits, including more than 181,000 virtual visits.

Health centers may employ endocrinologists on staff or refer their patients with diabetes to outside endocrinologists. If a health center refers to an outside endocrinologist, the health center then follows up with the patient to ensure continuity of care.

To learn more about a health center near you, please visit HRSA's Find-a-Health-Center tool at: <https://findahealthcenter.hrsa.gov/>

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“To some extent, it’s a stopgap. But it allows another population of endocrinologists to continue to benefit patients. When an endocrinologist retires, that’s 40 years of wisdom in taking care of patients, which then is not utilized to help anybody. **The opportunity is that when a retired physician can come back, not have the hassles of a big hospital and its pressure, and not have the hassles of electronic medical records.**”

— RICHARD J. SANTEN, MD, PROFESSOR EMERITUS OF ENDOCRINOLOGY AND METABOLISM, UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE, VA.

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Fifty patients remain in the program, while 139 patients have completed the program after reducing their hemoglobin A1C levels from 10.3% to 7.8% on average. After the six-month, self-management program, the patients are returned to the care of their primary care physicians or nurse practitioners. About 30% of patients were discharged prematurely because of noncompliance.

One of the problems Santen ran into early on was phone tag with patients. “For the first three years, I was really frustrated,” he says, “I would have to call people back, and we had phone tag. Finally, I said to myself, ‘What I should do is give the patient a telephone call appointment, a specific day, and a specific time. They would call me, and I would then be ready with their records.’”


Santen says for the 70% of patients who have completed or remain in the program, the calls were regular and substantive. But 30% of those patients called maybe once or twice, realized how intensive the program is, and weren’t motivated to continue. “They’re human beings,” he says.

Santen goes on to say that lack of education or not being fluent or proficient in English remain barriers, and that financially challenged patients can grow frustrated after navigating a healthcare system without insurance and therefore providers who could take care of them, and they feel pushed around.

## Rebuild, Reignite

In 1973, the television series *The Six Million Dollar Man* premiered, with the catchphrase: “We can rebuild him; we have the technology.” There’s a similar feeling in the endocrine space here in 2023; we now have the technology to rebuild the endocrinology workforce, from telemedicine to glucose meters that talk to cell phones and other devices to computer algorithms that can tell physicians just how much insulin their patients should be on.

For Santen, this technology can also help retired physicians continue their wisdom and reignite their passion for treating patients, on their own terms, and on their own schedule. These endocrinologists can dedicate as much time as they wish to seeing their patients, from three hours to 20.

“You talk to anybody who’s retired, and they’re okay for a couple of years — play golf, play bridge, take trips,” he says. “They miss interacting with patients. And giving those individuals the opportunity to come back and interact with the patients again, in a situation where you’re not really pressed for time and you can get to know people, it’s beneficial for the retirement process also.” 

— BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT HOW ANTONIO BIANCO, MD, IS RETHINKING HYPOTHYROIDISM IN THE JANUARY ISSUE.

THE ENDOCRINE SOCIETY IS  
THRILLED TO ANNOUNCE AND CONGRATULATE THE

## 2023 LAUREATE AWARDS WINNERS

**FRED CONRAD KOCH LIFETIME ACHIEVEMENT AWARD**

Mitchell A. Lazar, MD, PhD

**EDWIN B. ASTWOOD AWARD FOR OUTSTANDING RESEARCH IN BASIC SCIENCE**

Holly A. Ingraham, PhD

**GERALD D. AURBACH AWARD FOR OUTSTANDING TRANSLATIONAL RESEARCH**

Myles Brown, MD and Márta Korbonits, MD, PhD, DSc, FRCP

**INTERNATIONAL EXCELLENCE IN ENDOCRINOLOGY AWARD**

Tasnim Ahsan, MRCP, FRCP, FCPS

**OUTSTANDING CLINICAL INVESTIGATOR AWARD**

Peter J. Snyder, MD

**VIGERSKY OUTSTANDING CLINICAL PRACTITIONER AWARD**

Mihail Zilbermint, MD, MBA

**OUTSTANDING EDUCATOR AWARD**

David Stephen Cooper, MD

**OUTSTANDING MENTOR AWARD**

William Rainey, PhD

**OUTSTANDING SCHOLARLY PHYSICIAN AWARD**

Bryan Haugen, MD

**RICHARD E. WEITZMAN OUTSTANDING EARLY CAREER INVESTIGATOR AWARD**

Rana K. Gupta, PhD

**ROY O. GREEP AWARD FOR OUTSTANDING RESEARCH**

Joseph Bass, MD, PhD

**SIDNEY H. INGBAR AWARD FOR DISTINGUISHED SERVICE**

Beverly M.K. Biller, MD

AWARDS WILL BE PRESENTED AT ENDO 2023:  
THE ANNUAL MEETING & EXPO IN CHICAGO, IL, JUNE 15-18, 2023.



# *The* Importance of Symptom Control: A HOLISTIC APPROACH TO TREATING ACROMEGALY

Despite successful medical intervention, people with acromegaly don't always share their clinician's optimistic outlook. **Eliza B. Geer, MD**, director of Memorial Sloan Kettering's Multidisciplinary Pituitary & Skull Base Tumor Center, takes us through a holistic approach to treating this often-confounding condition and how a team-based methodology is frequently the key to success.

**R**ecently, I was reviewing an acromegaly patient's test results in preparation for her upcoming visit. I was pleased with our treatment plan: Her tumor had been successfully surgically debulked, and the remnant was stable and not encroaching on surrounding critical structures; and her recent IGF-1 levels were within the normal range on ongoing monthly somatostatin receptor ligand injections.

I was looking forward to sharing the good news with her, but when I walked in the exam room, the expression on her face did not match my optimistic perspective. As we talked about her symptoms, she reported that she had ongoing joint pain that was impacting her ability to go hiking, which was one of her favorite hobbies, and the monthly clinic injections were painful and challenging to schedule with her work and family obligations. While she was pleased to hear about her reassuring test results, she still struggled with ongoing symptoms and concerns that were impacting her quality of life.

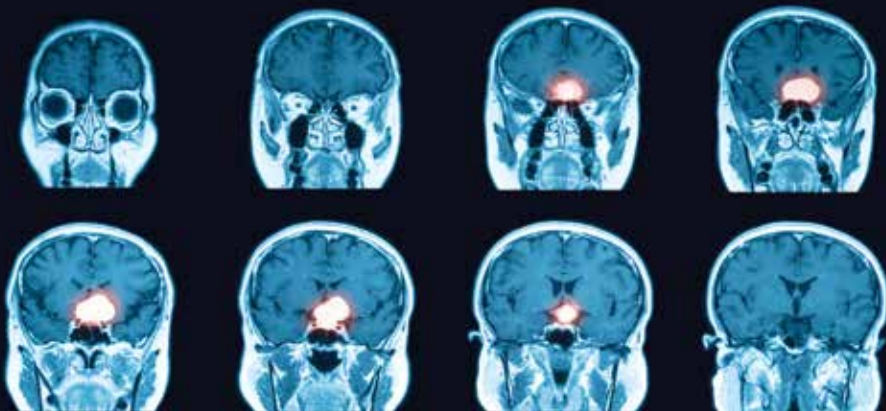
This discrepancy between objective markers of successful treatment for acromegaly, and the acromegaly patient's daily experience living with this chronic condition, is dishearteningly common.

## A Diagnostic Challenge

Acromegaly typically results from a growth hormone (GH)-secreting pituitary adenoma, causing excess circulating GH and resulting high insulin-like growth factor-1 (IGF-1) levels. The insidious onset and slow progression of associated signs, including facial changes and enlargement of the hands and feet, coupled with non-specific symptoms such



The insidious onset and slow progression of associated signs, including facial changes and enlargement of the hands and feet, coupled with non-specific symptoms such as headaches and joint pain that may be attributed to stress, aging, or other conditions, creates a challenge for achieving a timely diagnosis.



### About the AUTHOR

**ELIZA B. GEER, MD**, is the medical director of Memorial Sloan Kettering's Multidisciplinary Pituitary & Skull Base Tumor Center and an associate professor of medicine and neurosurgery. She is an endocrinologist who specializes in caring for people with pituitary and neuroendocrine diseases.

Her research interests focus on characterizing long-term outcomes in patients with acromegaly and Cushing's, as well as achieving a better understanding of how pituitary tumors develop. She has conducted various studies investigating body composition, adipose tissue regulation, and appetite in patients with Cushing's disease, and is involved in clinical trials investigating new medical therapies for patients with Cushing's and acromegaly.

She completed her internship and residency at the New York-Presbyterian Hospital/Columbia Medical Center, and fellowship in endocrinology and metabolism at the Icahn School of Medicine/Mount Sinai Medical Center, after which she was a member of the faculty for a decade before moving to Memorial Sloan Kettering.

An active member of the Endocrine Society and the Pituitary Society, Geer has over 50 publications to her credit. She is board-certified in internal medicine and endocrinology, diabetes, and metabolism.

**“ If physicians focus solely on achieving normal IGF-1 levels, they may unintentionally fail to capture a complete picture of the ongoing symptom burden their patients may experience day to day. Physicians must take into consideration their patients’ characterizations of their symptoms and overall well-being alongside biochemical control to determine treatment plans.**



Some studies have documented fluctuating degrees of symptom control in patients receiving once monthly or less frequent injectable SRLs. In these cases, different oral agents or supplemental injections may provide more consistent control of acromegaly symptoms.  
Photo credit: Aloha Hawaii/Shutterstock

as headaches and joint pain that may be attributed to stress, aging, or other conditions, creates a challenge for achieving a timely diagnosis.

Diagnosis is often delayed by several years and, as a result, patients often present with significant disease burden and advanced comorbidities including sleep apnea, type 2 diabetes, and cardiovascular disease.

Psychological symptoms are also an important aspect of acromegaly. These can include depression and functional deficits resulting from both psychological and somatic symptoms, such as difficulties in social situations or maintaining relationships due to self-consciousness surrounding visible body changes.

## A Multidisciplinary Approach

Effective treatment of acromegaly requires a multidisciplinary team of specialists who work together to manage the many aspects of this disorder, including reducing tumor volume, normalizing GH and/or IGF-1 levels, minimizing associated comorbidities, addressing symptoms, and improving quality of life.

First-line treatment for acromegaly typically consists of surgery to debulk the pituitary tumor. Overall, approximately half of patients have persistent disease after surgery and require ongoing medical therapy to achieve biochemical remission. Medical therapy options include somatostatin receptor ligands (SRLs) such as octreotide, lanreotide, or pasireotide; the GH-antagonist pegvisomant; or a dopamine agonist like cabergoline. Radiation therapy may be indicated particularly for aggressive tumors.

As with many endocrine disorders, the treatment burden in acromegaly can be significant. For instance, pituitary tumor resection may result in hypopituitarism, and injectable SRL use commonly requires administration in a healthcare setting and carries the inherent challenges of injection treatment (including pain, swelling, bruising, and nodules). Even monitoring the disorder with blood draws, MRIs, and other appointments can cause anxiety and discomfort, and require the patient to spend time away from work and family — all obvious burdens that should not be discounted.

A multidisciplinary team of physicians developing an optimal treatment and management plan for each patient must consider both the burden of acromegaly itself, as well as the burden of the treatment.

## Assess Patient-Reported Symptoms

After patients receive a diagnosis and begin a course of treatment, many quickly experience improved or resolved symptoms — soft tissue swelling decreases, and headaches may subside. However, certain phenotypic changes, symptoms, and comorbidities, especially musculoskeletal disorders, may be irreversible or difficult to manage even with treatment. Joint pain, for instance, often remains difficult to address with current therapies, as well as sleep apnea.

In the context of patient-centered care, it is important to remember that physicians must not only emphasize biochemical control — which is typically measured as normalization of serum IGF-1 levels — but also consider patient-reported symptom control. Biochemical control is, of course, a valuable and critical marker, as IGF-1



Pictured (l to r): Jenna Longo, RN, Geer, Viviane Tabar, MD, chair, Department of Neurosurgery; and Mark A. Cohen, MD, MPH, surgical director, Pituitary & Skull Base Tumor Center.

Photo credit: Memorial Sloan Kettering Cancer Center/John Karsten Moran



normalization has been shown to correlate with reduced mortality and improved long-term patient outcomes. However, established normal ranges of IGF-1 levels are based on population-level statistics that don't always reflect individual variability. IGF-1 normalization is also not an ideal proxy for qualitative well-being at the level of individual patients, as it does not strongly correlate with improvement in patient symptoms.

If physicians focus solely on achieving normal IGF-1 levels, they may unintentionally fail to capture a complete picture of the ongoing symptom burden their patients may experience day to day. Physicians must take into consideration their patients' characterizations of their symptoms and overall well-being alongside biochemical control to determine treatment plans.

## Understanding Symptom Burden

As it stands, there is a documented discrepancy between how acromegaly patients report the nature and severity of their symptoms and how their physicians perceive those symptoms. As part of my recent research into the dynamics between physicians and their acromegaly patients, relative to patients' self-reported symptoms, physicians

## FOR FURTHER READING

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**“ A multi-disciplinary team of physicians developing an optimal treatment and management plan for each patient must consider both the burden of acromegaly itself, as well as the burden of the treatment.**

tended to report fewer instances of several symptoms (including mental fog, joint pain, and headache), reported fatigue and weakness more often, and rated symptoms as “severe” less often than patients did for most of the symptoms surveyed.

In addition to the need for a better understanding of patients’ overall symptom burden, some studies have documented fluctuating degrees of symptom control in patients receiving once monthly or less frequent injectable SRLs. In these cases, different (e.g., oral octreotide or pegvisomant) or additional agents (e.g., supplemental injections, cabergoline, pegvisomant) may provide more consistent control of acromegaly symptoms.

In addition, virtual education programming has been shown to have positive effects on acromegaly patients’ perceptions of their disease and should be incorporated as part of a multidisciplinary model of long-term care for this condition. Physicians should have a thorough discussion with their patients about their treatment options to ensure the patient’s adherence and comfort, followed by regular follow-up conversations to gather honest assessments of their patient’s symptoms.

Given the complexities of acromegaly’s impact on quality of life, our multidisciplinary care teams must not lose sight of each patient’s well-being and symptom burden. Providers should maintain open two-way communication and consideration of all available treatment options as part of a patient-centered approach. **EN**



Even monitoring the disorder with blood draws, MRIs, and other appointments can cause anxiety and discomfort, and require the patient to spend time away from work and family — all obvious burdens that should not be discounted.

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# Endocrine Society Publishes First **Hypercalcemia of Malignancy Guideline**

A new Endocrine Society guideline details how to treat adult patients with hypercalcemia of malignancy, the most common metabolic cancer complication. Despite its high morbidity and mortality rates, this is the very first guideline that directly addresses this condition and confirms the efficacy of denosumab and bisphosphonates.

**BY ERIC SEABORG**



**A**dults with hypercalcemia of malignancy should be treated with an injection of denosumab or intravenous bisphosphonate, with a possible slight preference for denosumab. Those are the top two findings of the new “Treatment of Hypercalcemia of Malignancy in Adults: An Endocrine Society Clinical Practice Guideline.”

Hypercalcemia of malignancy is the most common metabolic complication of cancer, so it was timely to scrutinize the available evidence and develop this first-of-its-kind guideline on the topic, according to guideline committee chair Ghada El-Hajj Fuleihan, MD, MPH, of the Department of Internal Medicine, American University of Beirut in Lebanon: “Over the last 10 or 20 years, two different kinds of very potent drugs that affect bone resorption have been available, so we really needed to scrutinize the evidence for their efficacy in this disease.”

The guideline committee reviewed the evidence to answer eight key questions related to hypercalcemia of malignancy, and El-Hajj Fuleihan says that the committee members were surprised at the scarcity of strong evidence. Because the committee had to rely on evidence that was indirect and of low certainty, almost all of its findings are rated as “suggestions.” Only the first point rose to the level of a “recommendation,” and that was because — despite the low-quality of the evidence — it dealt with a benefit in a life-threatening situation.

## The Cancer Is the Cause

The guideline notes that the primary objective is to treat the patient’s cancer: “Treatment of the primary malignancy is instrumental for controlling hypercalcemia and preventing its recurrence.”

“The cornerstone is managing the primary disease, either surgically or medically,” El-Hajj Fuleihan says, noting that the mortality associated with hypercalcemia of malignancy has declined markedly with the introduction of more effective chemotherapeutic drugs.

But the condition is still associated with high morbidity and mortality, which is the underpinning for the guideline’s first recommendation — that it be treated with denosumab or a bisphosphonate rather than not be treated.

“

Over the last 10 or 20 years, two different kinds of very potent drugs that affect bone resorption have been available, so we really needed to scrutinize the evidence for their efficacy in this disease.”

— GHADA EL-HAJJ FULEIHAN, MD, MPH, DEPARTMENT OF INTERNAL MEDICINE, AMERICAN UNIVERSITY OF BEIRUT, BEIRUT, LEBANON

## Etiology, Symptomatology, and Severity

El-Hajj Fuleihan says that the guideline addressed eight clinical scenarios encountered in hypercalcemia of malignancy, and that the specific etiology, clinical symptoms, and severity framed the recommendations. The guideline includes a workflow to implement its suggested treatment approaches. “What one would choose to treat mild hypercalcemia is different from what one would choose to treat moderate or severe hypercalcemia, or from what one would choose for refractory or recurrent hypercalcemia,” El-Hajj Fuleihan says.

Furthermore, in addition to the universal use of potent anti-resorptive medications such as IV bisphosphonates and subcutaneous denosumab, there can be a role for disease-specific drugs such as calcimimetics for parathyroid carcinoma and glucocorticoids for some tumors such as lymphomas.

## Six Suggestions

In addition to the top two recommendations previously mentioned — that the hypercalcemia be treated and that denosumab may be the preferred choice — the other six suggestions from the guideline are:

- ▶ In the initial treatment of adults with severe hypercalcemia of malignancy, which is defined as serum calcium of >14 mg/dL (3.5 mmol/L), the guideline suggests that calcitonin be combined with IV bisphosphonate or denosumab, rather than using the bisphosphonate or denosumab alone.

However, calcitonin treatment should be limited to 48 to 72 hours because of tachyphylaxis.

- ▶ In adults with refractory/recurrent hypercalcemia of malignancy who are receiving IV bisphosphonate, the guideline suggests adding denosumab.
- ▶ In adults with tumors associated with high calcitriol levels, such as lymphomas, who are already receiving glucocorticoid therapy but who continue to have severe or symptomatic hypercalcemia, the guideline suggests adding IV bisphosphonate or denosumab.
- ▶ In patients whose hypercalcemia is due to a parathyroid carcinoma, the guideline suggests treatment with either a calcimimetic, IV bisphosphonate, or denosumab. It notes that IV bisphosphonate and denosumab have faster onsets of action and generally better tolerability profiles compared



Ghada El-Hajj Fuleihan,  
MD, MPH

“ Treatment of hypercalcemia of malignancy substantially and rapidly alleviates symptoms, improves quality of life, and, importantly, provides an opportunity to administer life-saving therapies targeting the primary malignancy. **Despite the widespread availability of efficacious medications, evidence-based recommendations to manage this debilitating condition have been lacking.**”

— GHADA EL-HAJJ FULEIHAN, MD, MPH, DEPARTMENT OF INTERNAL MEDICINE, AMERICAN UNIVERSITY OF BEIRUT, BEIRUT, LEBANON



## AT A GLANCE

- ▶ Hypercalcemia of malignancy is the most common metabolic complication of cancer and is associated with high morbidity and mortality, but this is the first clinical practice guideline addressing its treatment.
- ▶ Adults with hypercalcemia of malignancy should be treated with an injection of denosumab or an intravenous bisphosphonate, with denosumab suggested as a possible first choice.
- ▶ The treatment approach depends on the hypercalcemia's etiology, symptomatology, and severity.

with calcimimetics. It also warns that adverse events are common with higher doses of calcimimetics.

- ▶ In patients whose hypercalcemia is due to a parathyroid carcinoma that is not adequately controlled despite treatment with a calcimimetic, the guideline suggests the addition of IV bisphosphonate or denosumab.
- ▶ In patients whose hypercalcemia is due to a parathyroid carcinoma and is not adequately controlled with IV bisphosphonate or denosumab therapy, the guideline suggests the addition of a calcimimetic.

### Making the GRADE

As with other recent Endocrine Society guidelines, this one was done with a re-vamped emphasis on the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) methodology. “A multidisciplinary panel of clinical experts, together with experts in systematic literature review, identified and prioritized eight clinical questions related to the treatment of hypercalcemia of malignancy in adult patients. The systematic reviews queried electronic databases for studies relevant to the selected questions,” the guideline says.

El-Hajj Fuleihan notes that the reviews were wide-ranging, and they also considered “contextual factors, such as resources needed, acceptability, feasibility, equity, and cost-effectiveness, and included a systematic review of patient and physician values and preferences.”

Clinical practice guidelines have been published that focus on the treatment of cancer patients with bone metastases, multiple

myeloma, and parathyroid carcinoma, but no guidelines had looked specifically at hypercalcemia.

“Treatment of hypercalcemia of malignancy substantially and rapidly alleviates symptoms, improves quality of life, and, importantly, provides an opportunity to administer life-saving therapies targeting the primary malignancy,” El-Hajj Fuleihan says. “Despite the widespread availability of efficacious medications, evidence-based recommendations to manage this debilitating condition have been lacking.” This guideline is the first to address this need.

Other members of the Endocrine Society writing committee that developed this guideline include: Matthew T. Drake and M. Hassan Murad of the Mayo Clinic in Rochester, Minn.; Gregory A. Clines and Catherine Van Poznak of the University of Michigan in Ann Arbor, Mich.; Mimi I. Hu of the University of Texas’ M.D. Anderson Cancer Center in Houston, Texas; Claudio Marcocci of the University of Pisa in Pisa, Italy; Thomas Piggott of McMaster University in Hamilton, Ontario, Canada, Queens University in Kingston, Ontario, and Peterborough Public Health in Peterborough, Ontario; and Joy Y. Wu of Stanford University School of Medicine in Stanford, Calif.

The guideline was co-sponsored by the American Society for Bone and Mineral Research and the European Society of Endocrinology. It was published online in December 2022 and will appear in the March 2023 print issue of *The Journal of Clinical Endocrinology & Metabolism*. <sup>EN</sup>

– SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HE WROTE ABOUT THE NEWLY RELEASED “MANAGEMENT OF INDIVIDUALS WITH DIABETES AT HIGH RISK FOR HYPOGLYCEMIA: AN ENDOCRINE SOCIETY CLINICAL PRACTICE GUIDELINE” IN THE JANUARY ISSUE.

## LABORATORY NOTES

# The Pursuit of HAPPINESS



Rana K. Gupta, PhD

## Q&A with Rana K. Gupta, PhD

The Endocrine Society's 2023 Laureate Richard E. Weitzman Outstanding Early Career Investigator Award recipient, Rana K. Gupta, PhD, talks to *Endocrine News* about his research, his parents' influence, his advice to young investigators, and why his "happy place" is at the bench.

**T**he research lab became his "happy place" as a young undergraduate. Fast forward several years, and Rana K. Gupta, PhD, has been named the recipient of the 2023 Laureate Outstanding Early Career Investigator Award and still finds the same joy in the lab.

Gupta joined the faculty at Duke University in 2022 as a professor in the Department of Medicine and Division of Endocrinology and Metabolism. He began his independent research career at the University of Texas Southwestern in 2012, after completing postdoctoral training in the laboratory of Harvard's Bruce Spiegelman, PhD. He is recognized as one of the preeminent investigators in the field of adipose biology, especially as it relates to pathogenesis of cardiometabolic diseases and the regulation of metabolic homeostasis.

Named in honor of the late Richard E. Weitzman, MD, the Laureate award recognizes an exceptionally promising young clinical or basic investigator. *Endocrine News* asked Gupta about his early motivations to pursue a career in research and the long-term goals for his laboratory discoveries.

***Endocrine News:* What did winning the Early Investigator Award, named after Dr. Richard Weitzman, mean for you?**

**Rana K. Gupta:** I am truly honored and humbled by receiving this award named after Dr. Weitzman. In a short period of time, Dr. Weitzman built an outstanding research program that was internationally recognized. By all accounts, he was a critical thinker and rigorous scientist as well as an outstanding member of the scientific and medical community.



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“Taking on too many unrelated problems too early can lead to diminishing returns. I found that by drilling deeper into one problem at the beginning allowed us to move our research program slowly and organically in new directions.”

— RANA K. GUPTA, PHD, PROFESSOR, DEPARTMENT OF MEDICINE AND DIVISION OF ENDOCRINOLOGY AND METABOLISM, DUKE UNIVERSITY, DURHAM, N.C.

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I have been studying endocrine cells and attending the Endocrine Society annual meetings since my time as a graduate student at the University of Pennsylvania. I remember watching many receive this award on stage. Many of the past recipients are now scientific heroes of mine, including past and current mentors. I am truly honored and somewhat amazed that I am now amongst this group.

I view this award in two ways. First, as a recognition of the hard work that my laboratory colleagues and I put in over the years. Second, I see this as a call to action. This award makes me even more motivated to make advances in our field and train future scientists.

**EN: At what point in your educational span did you know scientific research was your career path?**

**Gupta:** I was exposed to science at a young age. My father, now retired, was a chemical engineer. My late mother was a laboratory analyst at an environmental testing company in New Jersey until the time of her passing. During my high school years, I realized that I, too, was destined for a career in science. We had a wonderful AP biology teacher in high school who made science fun. In college, I realized


that I was meant to work in a laboratory. The research lab I volunteered in as an undergraduate was my “happy place.” I loved performing experiments, seeing new data emerge, and witnessing exciting discoveries being made all around me. The idea of discovering something that perhaps no one else in the world knew was always truly exciting.

**EN: Your research has shaped how we understand adipose tissue development and function. What are the ultimate research goals of your laboratory, say in the next five or 10 years?**

**Gupta:** The most amazing thing to me about adipose tissue is the degree to which it can change in size, appearance, and function, as it adapts to changing environmental and physiological conditions. This ability to change, or its “plasticity,” is critical to maintain health in adulthood and is what is often lost in the setting of disease.

Our group’s short-term goals are to unravel the natural mechanisms that build and maintain functional adipose tissue and identify how disruption of these mechanisms can lead to metabolic disease. In the long run, we hope that we will be able to identify factors that predict or influence susceptibility to metabolic disease and perhaps even devise therapeutic strategies to treat obesity and associated disorders.

**EN: What’s one thing you would tell other future young investigators on how to excel?**

**Gupta:** The best advice I can offer is the advice I independently received from both my mentor and my program officer at the National Institutes of Health. The advice to new investigators is to identify one problem or question that you feel is important and then remain focused on drilling deep into the question. Taking on too many unrelated problems too early can lead to diminishing returns. I found that by drilling deeper into one problem at the beginning allowed us to move our research program slowly and organically in new directions. 

— FAUNTLEROY SHAW IS A FREELANCE WRITER BASED IN CARMEL, IND. SHE IS A REGULAR CONTRIBUTOR TO *ENDOCRINE NEWS*.



The Spring 2019 class of Medical Explorers during the cardiothoracic surgery session where they experienced the operating room.

BY GLENDA FAUNTLEROY SHAW

# Playing DOCTOR

To overcome the potential looming dearth in the next generation of endocrinologists, Suburban Hospital in Bethesda, Md., is using a unique interactive method to inspire and engage young minds. The Medical Exploring Program gives high school students hands-on experiences over the course of a school year that could feasibly create the clinicians — and clinician scientists — of tomorrow.

## High School Students Explore a Future in Medicine

**S**uturing pigs' feet is always a big hit. But for the high schoolers enrolled in the Medical Exploring Program at Suburban Hospital, getting past the initial "gross out" comes first.

"I personally find it very helpful to combine this type of experience with some type of hands-on practicum, so we purchase pigs' feet from the local supermarket and teach students how to do some simple suturing," says Leo C. Rotello, MD, director of Clinical Care at Suburban Hospital located in Bethesda, Md. "It always goes over very well, and both the students and teachers have a lot of fun with it."

Medical Exploring is a yearlong, interactive educational program offered at Suburban Hospital, a community hospital, to high school students interested in healthcare, medicine, or research.

“

I believe we need to build a positive relationship that has the potential to change the course of a teen’s professional path. **Perhaps, a few of them would even become endocrinologists and help to take care of our community.”**

— MIHAIL ZILBERMINT, MD, CHIEF OF ENDOCRINOLOGY, DIABETES, AND METABOLISM, SUBURBAN HOSPITAL, BETHESDA, MD

“We try to give students an idea of different opportunities that are available to them if they are interested in pursuing a career in the medical sciences,” explains Rotello, who has volunteered to lead a Medical Exploring session such as the suturing lab session for more than 10 years. “The range is very broad and can include physicians, nurses, physician assistants, nurse practitioners, nurse anesthetists, and more. We try to give students a realistic idea of what it takes to be successful and what a typical day in the life of each of these professions might look like.”

The Medical Exploring Program began in partnership with the Boy Scouts of America nearly 30 years ago at Suburban, which is a member of Johns Hopkins Medicine. The Boy Scouts is headquartered not too far from the hospital.

“Given that Medical Exploring was already a part of the Boy Scouts of America curriculum when they were looking for a healthcare partner to expose youth to the fields of medicine and science, it was a natural fit that two like-minded partners come together,” says Monique Sanfuentes, administrative director of Community Affairs and Population Health at Suburban.

**Rotello giving the 2019 class lessons on suturing by using pig feet. These were the last in-person sessions before the COVID-19 pandemic.**

Rotello says he experienced similar exposure to medicine during his years as a former Boy Scout. “Some of those experiences were very powerful in helping me formulate a career plan for myself,” he says. “I hope to provide a similar venue for the young adults in the Medical Exploring Program as they look to develop the next steps in life.”

Medical Exploring is open to all high school students regardless of their grade point average. Cost for the Program is just \$35, and financial assistance is available for students in need. The program’s ground rules are simple — students are expected to attend 80% of the sessions and must personally RSVP in advance for each session they plan to attend.





We try to give students an idea of different opportunities that are available to them if they are interested in pursuing a career in the medical sciences. **We try to give students a realistic idea of what it takes to be successful and what a typical day in the life of each of these professions might look like.**

— LEO C. ROTELLO, MD, DIRECTOR, CLINICAL CARE, SUBURBAN HOSPITAL, BETHESDA, MD

Due to ongoing COVID-19 restrictions for in-person activities in hospital settings, Medical Exploring sessions are now held remotely on Zoom two or three evenings a month from October through May.

Prior to the pandemic, the program integrated at least two field trips, and past trips have included tours to the Walter Reed Medical Museum, Consumer Product Safety Commission, and the National Library of Medicine at the National Institutes of Health.

Ninety-six students are enrolled in this year's program. "Switching to a remote format has proven to be successful as it has allowed for more students to join us," says Kate McGrail, program manager, Population Health Integration at Suburban Hospital. "The remote access eliminates the need for many students to travel to the hospital by bus in the evening.

"The virtual format also has allowed us to partner with our Johns Hopkins Health System partner, All Children's Hospital in St. Petersburg, Fla.," McGrail adds. "Suburban Hospital doesn't have an obstetrics department, but we can partner with All Children's who has a similar medical exploring program, and we trade sessions. They will participate in our cardiothoracic session, and we will join in their pediatrics."

Seventeen sessions, each led by a healthcare provider at Suburban, are planned for the 2022 – 2023 school year

and the vast list of lecture topics include, Medicine for the Greater Good, Emergency Medicine & Trauma Care, Leadership in Healthcare, Anatomic Pathology, and Clinical Collaboration & Teamwork.

McGrail says recruiting providers to lead the sessions is an ongoing effort but it's never difficult to find volunteers. "Every time that we meet a new provider, we're always thinking where we can plug them in for the best fit?" she says. "We constantly keep a rolodex of engaged staff and we rotate them in. I already know who I'm going to invite for next year."

Mihail Zilbermint, MD, is chief of Endocrinology, Diabetes, and Metabolism at Suburban Hospital, and has led the session on "Endocrine, Diabetes, and Metabolism Services" for the past three years. "I usually teach them about diabetes, insulin, and continuous glucose monitors," Zilbermint says. "I've also partnered with a patient who was able to demonstrate how to check glucose and inject insulin using an insulin pen. These high school students are fascinated with modern diabetes technology 'toys.'"

Zilbermint fondly recalls participating in a similar program during his high school years in his native home of Chisinau, Moldova, where the highlight was a visit to the surgical theatre of Republican Clinical Hospital to watch physicians conduct a real surgical procedure — a stomach resection.

"I am sure that experience solidified my decision to go to medical school to become a surgeon," he says. "Our classes



**Tet Chan, MD, a critical care specialist at Suburban Hospital, demonstrates suturing techniques on pig's feet and oranges.**

were taught by a fantastic nurse practitioner, and this Medical Exploring Program is my opportunity to give back.”

A comprehensive outreach process is in place to spread awareness of the program to area high schools, which includes reaching out to counselors and principals of both private and public schools and including information in Suburban Hospital’s monthly electronic newsletter.

“We’ve seen a lot of our fellow employees enroll their children in the program,” Sanfuentes says. “So, internally, as our colleagues’ children get to high school, they are looking forward to this. Every year, we get a lot of feedback from our colleagues, which I consider the most critical and powerful feedback as medical professionals who really inspire their children.”

Many Medical Explorers enjoy the program so much that they return for a second or third year, says Sanfuentes. “We are cognizant that many students want to return so every year we try to change the program a little bit with different speakers,” Sanfuentes adds. “There’s always something new to learn, and we can’t cover it all in one year.”

“We typically have returning students who sign themselves up without their parents,” Sanfuentes continues. “We are getting very motivated high school students who really find something very valuable in the material and see the value

of having an opportunity for one-on-one question and answer sessions.”

Explorers who attend for a second year and achieved 80% attendance the previous year are encouraged to apply to become a student officer, an opportunity that allows for additional leadership roles that offer more preparation for the healthcare workforce.

“Once Suburban Hospital sets up the speakers, our student officers run the show from there on out,” McGrail explains. “This is their opportunity to lead, so they are staying on top of the schedule. They also invite the students to go through the RSVP process, they write the bios for each speaker, they’re writing follow-up thank you notes, and they’re facilitating during the session. It’s an opportunity for the students to shine and show how responsible they are, on top of being eager to learn.”

Zilbermint, who received the Endocrine Society’s 2023 Vigersky Clinical Practitioner Laureate Award, says that investing in people who are passionate about science and medicine is more important than ever before, especially as the landscape of diabetes and other endocrine disorders continues to change. “I believe we need to build a positive relationship that has the potential to change the course of a teen’s professional path,” he says. “Perhaps, a few of them would even become endocrinologists and help to take care of our community.” <sup>EN</sup>

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