

MAY 2021

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

# Endocrine news

## TRIGGER Warning

### Is a New Diabetes Strain Emerging in the Wake of the COVID-19 Pandemic?

- New research explores the complex, push-pull relationship between COVID-19 and diabetes.
- Is the virus truly the cause of a new type of diabetes, or is it merely accelerating an inevitable development in susceptible patients?
- Are pancreatic beta cells providing an easy entry for the virus and threatening insulin production?
- The creation of a global registry of COVID-19-related diabetes will provide massive amounts of data for further study.

#### SAFE & SOUND:

Reducing transgender surgery side effects

#### ON HOLD:

Adjusting pheochromocytoma treatment during COVID-19

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## Robust Virtual ENDO 2021 Delivers Top-Flight Educational Programming

Even through a screen, you could feel the inescapable energy and excitement of more than 7,000 endocrinologists gathered for **ENDO 2021** in March. After weathering a year of the COVID-19 pandemic, we cherished the opportunity to share knowledge and network with our professional community more than ever.

**ENDO 2021** drew one of our largest meeting crowds to date and delivered a tremendous program on par with an in-person event. The program offered plenty to explore and discuss, with more than 200 live and on-demand sessions, six plenaries, four basic science pathways, 20 oral sessions, and 2,200 abstracts. We heard about the evolving endocrinology landscape directly from luminaries including Nobel Prize winner Brian Kobilka, PhD; National Institute of Diabetes and Digestive and Kidney Health Diseases (NIDDK) director Griffin Rodgers, MD, MACP; and director of Baylor College of Medicine's Center for Precision Environmental Health, Cheryl L. Walker, PhD.

We are so grateful for the hard work of the Annual Meeting Steering Committee — led by Felix Beuschlein, MD, Megan Haymart, MD, Jennifer Richer, PhD, and Bulent Yildiz, MD — and the more than 400 speakers who shared their time and expertise during the event.

The virtual format allowed attendees to join us from 90 countries, including sizeable contingents from Australia, Saudi Arabia, Argentina, Thailand, Brazil, the United Kingdom, Canada, the Netherlands, and Ireland. Forty-five percent of **ENDO 2021** attendees hailed from outside the U.S. About 2,000 attendees took part in the meeting for the first time.



Using the meeting platform's chat function and social media channels, we embraced new ways to interact and connect with each other. Close to 5,000 Twitter posts mentioned the meeting. Attendees engaged in serious conversations about diversity and inclusion, discussed fascinating research findings, and even shared photos of their home office arrangements and pets. Yoga and meditation sessions provided relaxing breaks.

Our Special Interest Groups (SIGs) held dedicated events to facilitate networking. Next generation professionals had a chance to practice their elevator pitches during our Early-Career SIG session, while the Entrepreneurship SIG session explored alternative funding sources. The



Adrenal and Pituitary SIG and Transgender SIG hosted breakout sessions where attendees could network in small groups. You can sign up to join the ongoing conversations in our online Community Connect platform at: <https://www.endocrine.org/membership/community-connect>.

“

**ENDO 2021's success demonstrated the power of virtual meetings to connect us and fuel important conversations about emerging science and evidence-based clinical practices. We hope to build on this experience and find new ways to deliver dynamic educational content to endocrine researchers and clinicians worldwide.**

”


ENDO 2021 offered thought-provoking sessions on diversity, equity, and inclusion, building on our more than 25-year commitment to embracing and encouraging diversity in our field. Sherita Golden, MD, MHS, delivered this year's Clark T. Sawin Memorial History of Endocrinology Lecture on the history of health disparities. Committee on Diversity and Inclusion Chair Bruno Ferraz-de-Souza, MD, PhD, chaired an illuminating conversation about institutional racism's impact on healthcare and how we can counter it featuring moderator Camille E. Powe, MD, and speakers Bryan Wilson, PhD, MBA, Joshua Joseph, MD, MPH, and Sherri-Ann M. Burnett-Bowie, MD, MPH.

Our virtual ENDOExpo hall introduced attendees to more than 580 product videos and resources. Attendees visited virtual booths and interacted with more than 50 industry and nonprofit exhibitors in our interactive exhibit hall. Product theaters delivered 17 live sessions about commercial discoveries revolutionizing patient care.

The world took notice of our successful event and the cutting-edge science that was presented. Nearly 1,000 separate news stories covered research presented at ENDO 2021, including news outlets such as the *Washington Post*, China National News, the *Times of India*, CNN, and the United Press International wire service.

ENDO 2021's success demonstrated the power of virtual meetings to connect us and fuel important conversations about emerging science and evidence-based clinical practices. We hope to build on this experience and find new ways to deliver dynamic educational content to endocrine researchers and clinicians worldwide.

Our bonds and connections have only grown stronger, despite the challenges the pandemic continues to pose. I look forward to one day soon being able to meet up with many of you in the plenary audience and convention center hallways once again. Remember to save the date for our upcoming meetings:

- ▶ Clinical Endocrinology Update — Sept. 10–12 (Virtual)
- ▶ Endocrine Board Review — Sept. 22–24 (Virtual)
- ▶ ENDO 2022 — June 11–14, 2022 

Carol H. Wysham, MD  
President, Endocrine Society



FROM THE **EDITOR**

## Research Roundup: Diabetes, Pheochromocytoma, Obesity, COVID-19, and More

**A**fter more than a year into this pandemic, the impacts of COVID-19 on general health as well as how care is administered will likely not be known for several years. During the earliest days of the pandemic, one of the biggest challenges in treating patients was COVID-19's effect on glycemic control, which caused some clinicians to ponder if the virus was actually causing diabetes or simply hastening its onset in people already susceptible. Or, worse, creating a new form of the disease. In "Over the Edge" on page 24, Eric Seaborg looks at this phenomenon, but Domenico Accili, MD, chief of the Division of Endocrinology at Columbia University's New York Presbyterian Hospital in New York, N.Y., says that if COVID-19 were actually causing diabetes, there would be a much larger incidence now that tens of millions of people have been affected all over the world. "A small number of patients develop diabetes when they develop COVID-19," he explains in the article. "But they were on the verge of developing it, and the disease pushed them over the edge. This is known to happen with many infectious diseases."

In keeping with the curious elements of diabetes, a new study from *The Journal of Clinical Endocrinology & Metabolism* explores the need for possibly adding more classifications to type 2 diabetes. Kelly Horvath talks to Michael P. Bancks, PhD, MPH, of the Wake Forest School of Medicine in Winston-Salem, N.C., one of the authors of "Association of Diabetes Subgroups with Race/Ethnicity, Risk Factor Burden and Complications: The MASALA and MESA Studies," which takes up the monumental task of unraveling the heterogeneity of type 2 diabetes in "No Two Ways About It" on page 16. "Categorizing finer classifications of diabetes subgroups has really gained a lot of momentum in the field, and a lot of people are doing great work in this area because it's an important issue," Bancks says. "But we also want to make sure that how we are preventing diabetes complications is equitable."

We return to the pages of JCEM for another study that details avoiding some of the riskiest transgender surgery side effects, namely venous thromboembolism. In "No Venous Thromboembolism Increase Among Transgender Female Patients Remaining on Estrogen for Gender-

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Affirming Surgery,” the authors say that there appears to be no difference in these blood clots when estrogen therapy was maintained during gender affirming surgery. In “Safe & Sound” on page 34, senior editor Derek Bagley speaks to the study authors about this new research and what it means going forward for patients undergoing these surgeries as well as for the clinicians who now have guidance that can help prevent transgender patients from suffering the severe side effects of suspending hormone therapy.

In “On Hold” on page 28, Horvath examines a study from the *Journal of the Endocrine Society* that details three patients with pheochromocytoma whose surgical treatments were delayed due to COVID-19 pandemic restrictions in New York. The study, “Management of 3 Cases of Pheochromocytoma During the COVID-19 Pandemic in New York City: Lessons Learned,” demonstrates how going beyond guideline recommendations and managing the patients’ self-monitoring procedures, the team could create tailored treatment protocols suited to each patient’s unique needs. According to the study’s lead author, Emily A. Japp, MD, from the Division of Endocrinology, Diabetes, and Bone Disease, Department of Medicine at Icahn School of Medicine in Mount Sinai, New York, N.Y., rare diseases such as pheochromocytoma are best managed by specialized centers with sufficient volume and expertise to manage the patients from the time of diagnosis through the postoperative period. “We learned that in select cases of pheochromocytoma, prolonged medical management is safe and effective,” she says, adding “This may serve as a guide in the future for these patients so that there is ample time and resources to refer them for their surgical management to centers of excellence for optimal outcomes.”

And there’s still much more: On page 20, Horvath delves into the accuracy of waist circumference and body mass index (BMI) measurements in certain populations in “Obesity-Related Health Risks: There’s More to Weigh”; EndoGear (p. 48) looks at cybersecurity threats in the laboratory; and Laboratory Notes (p. 40) takes a closer look at ultralow temperature freezers.

If there’s something you want to see on the pages of *Endocrine News*, feel free to send me an email at: [mnewman@endocrine.org](mailto:mnewman@endocrine.org). 

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



# CEU EBR

CLINICAL ENDOCRINOLOGY UPDATE  
ENDOCRINE BOARD REVIEW

# 2021

## SAVE THE DATE

### CLINICAL ENDOCRINOLOGY UPDATE

SEPTEMBER 10–12

[ENDOCRINE.ORG/CEU](https://endocrine.org/ceu)

### ENDOCRINE BOARD REVIEW

SEPTEMBER 22–24

[ENDOCRINE.ORG/EBR](https://endocrine.org/ebc)

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# Endocrine Society Condemns Efforts to Block Access to Medical Care for Transgender Youth

## Medical evidence, not politics, should inform treatment decisions

**L**ast month, the Endocrine Society announced that it opposes legislative efforts that do not conform to medical evidence and clinical practice to prevent transgender and gender diverse adolescents from accessing gender-affirming medical care.

Arkansas passed a law April 6 prohibiting gender-affirming care for minors, the first law of its kind in the U.S. Seventeen other states have introduced or are considering similar legislation. The proposals reflect widespread misinformation about the nature of gender-affirming medical care.

These policies criminalize physicians' efforts to provide needed medical care and disregard widely accepted medical evidence and clinical practice guidelines.

"The treatment of transgender and gender diverse youth

should be governed by the best available medical evidence, not politics," says Joshua D. Safer, MD, FACP, co-author of the Society's Clinical Practice Guideline and position statement on transgender medicine. "When caring for transgender and gender diverse youth, physicians and mental health professionals must be able to freely practice and choose the best available treatment options in consultation with the patients and their parents, as they would when treating any other condition."

Scientific evidence shows that there is a durable biological underpinning to our gender identity, and external forces have little impact on that identity.

When young children experience feelings that their gender identity does not match the sex recorded at birth, the first course of action is to support the child in living in their affirmed gender identity and to provide mental health support, as needed.

After transgender and gender diverse minors start puberty, prescribing treatment to suppress puberty is the recommended strategy if desired and if diagnostic and treatment criteria are met. Pubertal suppression is commonly used in children who experience early puberty. This treatment, which is reversible, gives adolescents more time to explore their options. Pubertal suppression helps transgender adolescents avoid distressing and even traumatic experiences in life and may help some avoid undergoing surgical procedures later in life.

Eliminating access to medical care will harm transgender and gender diverse individuals, who already face a disproportionately high rate of suicide. A study published in the journal *Pediatrics* last year found transgender and gender diverse youth who wanted access to pubertal suppression and could not access the treatment had higher rates of suicidal thoughts over their lifetimes than those who wanted the treatment and received it.

"Legislation should not interfere with physicians' efforts to provide their patients evidence-based medical care in line with the recommendations of the Endocrine Society and other respected international medical organizations," Safer says.

While the Society focuses its advocacy efforts at the federal level, it offers a toolkit for members and other advocates who are calling for evidence-based legislation at the state level.



Photo: Glynnis Jones/Shutterstock.com



## Drucker, Habener Receive 2021 Canada Gairdner International Award

MEMBERS  
in the  
NEWS

**E**ndocrine Society members Daniel J. Drucker, MD, and Joel F. Habener, MD, have been recognized with the 2021 Canada Gairdner International Award for their research on glucagon-like peptides that has led to major advances in the treatment of type 2 diabetes, obesity, and intestinal disorders.

Drucker, editor-in-chief of *Endocrine Reviews*, is a professor in the Department of Medicine at the University of Toronto, and senior scientist at the Lunenfeld-Tanenbaum Research Institute, Sinai Health, in Toronto, Ontario, Canada. Habener, a 2018 Endocrine Society Outstanding Mentor Laureate Award recipient, is a professor of medicine, Harvard Medical School, and director, Laboratory of Molecular Endocrinology, Massachusetts General Hospital, Boston, Ma. They share the award with Jens Juul Holst, MD, DMSc, professor, Department of Biomedical Sciences and group leader, Novo Nordisk Foundation Center for Basic Metabolic Research, and serves on the faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.

The independent and collaborative work of Drucker, Habener, and Holst enhanced the understanding of how gastrointestinal

organs function and created new classes of drugs for the treatment of metabolic disorders, specifically type 2 diabetes, obesity, and short bowel syndrome.

They discovered hormones called glucagon-like peptides (GLP-1 and -2) that control the levels of insulin and glucagon, which work together to maintain healthy sugar levels. They elucidated their biology and physiological function and played critical roles in the design and testing of therapies informed by their initial and subsequent discoveries.

Together, Drucker, Habener, and Holst made major contributions to endocrinology and changed the treatment of metabolic and gastrointestinal diseases. Their work is both basic and translational, a true example of bench to bedside research.

The Canada Gairdner Awards celebrate the world's best biomedical and global health researchers through seven annual awards. For more information, go to: [www.gairdner.org](http://www.gairdner.org).



## Introducing the Transatlantic Alliance Award

**T**he European Society of Endocrinology and the Endocrine Society have created a new joint initiative, the Transatlantic Alliance Award.

The Transatlantic Alliance Award will be presented to a recognized international leader who has made significant advancements in endocrinology research through work and collaboration in both the U.S. and Europe and is open to researchers across the basic and clinical spectrum.

The Award consists of a medal and a financial reward, which will either be presented at the European Congress of Endocrinology (ECE) or at the Society's ENDO, where the awardee will present one of the main lectures.

For details on how to nominate or self-nominate, go to: [www.endocrine.org/awards/transatlantic-alliance-award](http://www.endocrine.org/awards/transatlantic-alliance-award).

**Closing date is May 28, 2021.**

# Endocrine Society Urges Congress to Pass Legislation to Lower Insulin Prices

## Applauds reintroduction of H.R. 3, the Elijah E. Cummings Lower Drug Costs Now Act to improve access to affordable medications

**T**he Endocrine Society is calling on Congress to pass legislation to lower the price of insulin and applauds the efforts of Energy and Commerce Committee Chairman Frank Pallone Jr. (D-NJ), Ways and Means Committee Chairman Richard E. Neal (D-MA), and Education and Labor Committee Chairman Robert C. “Bobby” Scott (D-VA) to reintroduce H.R. 3, the Elijah E. Cummings Lower Drug Costs Now Act to improve access to affordable medications.

In January, the Society published a position statement on insulin access and affordability, which recommends policy makers include government negotiation as part of an overall strategy to reduce insulin prices.


The Society believes that Congress must act immediately to address the urgent issue of insulin affordability. More than 34 million Americans have diabetes, and another 88 million are at risk for developing the disease. For many people with diabetes, insulin is a life-saving medication. However, the price of insulin has nearly tripled in the past 15 years, making it difficult for people with diabetes to manage their chronic disease.



Low-income individuals, those on high-deductible health plans, beneficiaries using Medicare Part B to cover insulin delivered via pump, Medicare beneficiaries in the Part D donut hole, and those who turn 26 and must transition from their parents' insurance increasingly face difficult decisions about how to afford the insulin they require and avoid unnecessary complications and hospitalizations.

H.R. 3 would lower the cost of prescription drugs by:

- ▶ Empowering the Secretary of Health and Human Services to negotiate better prescription drug prices in Medicare and make those negotiated prices available to commercial health insurance plans;
- ▶ Capping Medicare beneficiaries' out-of-pocket spending on prescription drugs at \$2,000 per year;
- ▶ Reversing years of price increases by requiring drug manufacturers to pay a rebate back to the federal government if they increase prices faster than inflation; and
- ▶ Reinvesting federal cost savings in the National Institutes of Health and the Food and Drug Administration to support research and development of new breakthrough treatments and cures, as well as making investments in combatting the opioid crisis.

The lack of transparency in the drug supply chain has made it challenging to identify and address the causes of these soaring prices. The Society believes government negotiation of drug prices is one way to improve affordability and looks forward to working with Congress and the administration to address this critically important issue, which impacts millions of Americans. 





BY DEREK BAGLEY  
Senior Editor

## Postpartum Depression May Be Linked to EDC Exposure

**E**ndocrine-disrupting chemicals (EDCs) may influence hormonal shifts during pregnancy as well as contribute to postpartum depression, according to a small study recently published in *The Journal of Clinical Endocrinology & Metabolism*.

Researchers led by Melanie Jacobson, PhD, MPH, of the NYU Langone Medical Center in New York, N.Y., point out that postpartum depression (PPD) is a serious psychiatric disorder that affects up to 20% of child-bearing women, and while the cause remains unknown, PPD has been hypothesized to have an endocrine basis, since hormones fluctuate during pregnancy and after. What's more, pregnancy, childbirth, and postpartum leave women more susceptible to external factors such as environmental chemicals, according to the authors. "Bisphenols...and phthalates... are two classes of EDCs that are ubiquitous in the environment and detectable in nearly all U.S. pregnant women," the authors write. "In experimental studies, bisphenol A (BPA) was associated with decreased estradiol and

progesterone levels, and di-2-ethylhexyl phthalate and dibutyl phthalate inhibited estradiol and progesterone production in both cycling and pregnant rats, suggesting that these chemicals alter steroidogenesis."

Jacobson and her team write that for this study, they wanted to examine the associations between repeated measures of urinary bisphenols and phthalates in early- and mid-pregnancy and sex steroid hormones on the allopregnanolone pathway assessed in mid-pregnancy as well as PPD symptoms at four months after delivery. The researchers measured the levels of bisphenols and phthalates in urine samples and sex hormones in blood samples from 139 pregnant women. They assessed these women at four months postpartum using the Edinburgh Postnatal Depression Scale (EPDS) and found women with higher levels of phthalates in their urine were more likely to develop postpartum depression. The women also had lower levels of progesterone, a hormone that plays an important role in the menstrual cycle, in maintaining the early stages of pregnancy and in modulating mood.

"We found that phthalate exposure was associated with lower progesterone levels during pregnancy and a greater likelihood of developing postpartum depression," Jacobson says. "This research is important because phthalates are so prevalent in the environment that they are detectable in nearly all pregnant women in the U.S. If these chemicals can affect prenatal hormone levels and subsequently postpartum depression, reducing exposure to these types of chemicals could be a plausible avenue for preventing postpartum depression. These results need to be interpreted with caution as this is the first study to examine these chemicals in relation to postpartum depression and our sample size was small."



“

**This research is important because phthalates are so prevalent in the environment that they are detectable in nearly all pregnant women in the U.S.**

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**Our results indicate that ghrelin might play a broader role than previously acknowledged in human reward-related behavior and decision making, such as monetary choices.**

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ENDO2021

## Ghrelin Affects Monetary Decision Making

**H**igher levels of ghrelin predict a greater preference for smaller immediate monetary rewards over larger delayed financial rewards, according to a new study presented at ENDO 2021.

This research presents novel evidence in humans that ghrelin, the so-called “hunger hormone,” affects monetary decision making, says co-investigator Franziska Plessow, PhD, assistant professor of medicine at Massachusetts General Hospital and Harvard Medical School in Boston. She says recent research findings in rodents suggested that ghrelin may play a part in impulsive choices and behaviors.

“Our results indicate that ghrelin might play a broader role than previously acknowledged in human reward-related behavior and decision making, such as monetary choices,” Plessow says. “This will hopefully inspire future research into its role in food-independent human perception and behavior.”

Ghrelin signals the brain for the need to eat and may modulate brain pathways that control reward processing. Levels of ghrelin fluctuate throughout the day, depending on food intake and individual metabolism.

This study included 84 female participants ages 10 to 22 years: 50 with a low-weight eating disorder, such as anorexia nervosa, and 34 healthy control participants. Plessow’s research team tested blood levels of total ghrelin before and after a standardized meal that was the same for all participants, who had fasted beforehand. After the meal, participants took a test of hypothetical financial decisions, called the delay discounting task. They were asked to make a series of choices to indicate their preference for

a smaller immediate monetary reward or a larger delayed amount of money, for instance, \$20 today or \$80 in 14 days.

Healthy girls and young women with higher ghrelin levels were more likely to choose the immediate but smaller monetary reward rather



than waiting for a larger amount of money, the researchers reported. This preference indicates more impulsive choices, Plessow says.

The relationship between ghrelin level and monetary choices was absent in age-matched participants with a low-weight eating disorder. People with this eating disorder are known to have ghrelin resistance, and Plessow says their finding might be another indicator of a disconnect between ghrelin signaling and behavior in this population. <sup>EN</sup>

“

A major lesson learned related to the circumstances posed by the pandemic is how useful telemedicine has been as a tool to extend care to patients, especially in the field of endocrinology. **It appears that telemedicine will be more widely utilized to promote engagement with patients, especially those who are of underserved populations.**

— Emily A. Japp, MD, discussing how she and her team in the Division of Endocrinology, Diabetes, and Bone Disease of the Department of Medicine at the Icahn School of Medicine, Mount Sinai, in New York City, had to find new ways to treat three patients with pheochromocytoma just before the city was shut down, which delayed their surgical treatment in **“On Hold: Resetting the Clock on Pheochromocytoma Treatment”** on page 28.



55%

Percentage cybersecurity attacks on healthcare increased in 2020.

26 million

people in the U.S. whose protected health information was accessed in these hacks.

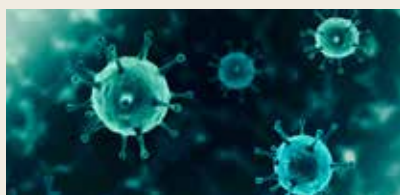
This has turned attacks on healthcare providers into a **\$13.2 billion** industry, with the average data breach cost per record rising to **\$499** last year.

— SOURCE: CPO MAGAZINE

14.4%

Percentage of people hospitalized with severe

COVID-19 who developed diabetes, according to a global analysis.



— SOURCE: DIABETES, OBESITY AND METABOLISM



A birthweight of **2.5 kg** or more is strongly linked to the risk of developing type 2 diabetes in adulthood.

— SOURCE: BMJ OPEN DIABETES RESEARCH & CARE



COVID-19 patients with a body mass index of 45 or higher — which corresponds to severe obesity — were 33% more likely to be hospitalized and 61% more likely to die than those who were at a healthy weight.

— SOURCE: CENTERS FOR DISEASE CONTROL AND PREVENTION

9%

Gestational weight gain contributes only 9% of the absolute changes in insulin sensitivity during pregnancy.

— SOURCE: JOURNAL OF THE ENDOCRINE SOCIETY



&gt;60%

The amount that fertility has dropped over the past 50 years worldwide.

— SOURCE: COUNT DOWN: HOW OUR MODERN WORLD IS THREATENING SPERM COUNTS, ALTERING MALE AND FEMALE REPRODUCTIVE DEVELOPMENT, AND IMPERILING THE FUTURE OF THE HUMAN RACE





## Steroid Hormones and Receptors in Health and Disease Conference

**May 25 – 27, 2021**

This FASEB Science Research Conference (SRC) is dedicated to exploring emergent knowledge on rapid and genomic actions of nuclear receptors in health and disease. This year, the conference is jointly organized by FASEB and the International Committee on Rapid Responses to Steroid Hormones (RRSH), which held its first bi-annual meeting in 1998 and has convened in Europe, North America, and Asia. This is the first conference organized by FASEB and RRSH and will be held virtually.

<https://src.faseb.org/shr>

## American Diabetes Association's 81st Scientific Sessions

**Virtual Event (Dates TBD)**

**June 2021**

The Scientific Sessions offer researchers and healthcare professionals an opportunity to share ideas and learn about the significant advances in diabetes research, treatment, and care. Over the course of five days, attendees will receive exclusive access to more than 2,800 original research presentations, take part in provocative and engaging exchanges with diabetes experts, and expand professional networks with more than 12,000 attendees from around the world.

<https://professional.diabetes.org/scientific-sessions>

## ASMBS 2021 Virtual Annual Meeting

**June 10 – 12, 2021**

The American Society for Metabolic and Bariatric Surgery's 2021 Annual Meeting is the largest gathering of surgeons and integrated health professionals practicing in the field of metabolic and bariatric surgery. Attendees can look forward to learning about the latest advances in the surgical treatment for obesity, networking with world-class faculty and industry experts, and much more. The future looks bright for the ASMBS Annual Meeting and for increasing the number of patients who could benefit from this life-saving and transformational surgery.

<https://asmbs.org/professional-education/annualmeeting>



## Virtual 2021 Clinical Endocrinology Update/Endocrine Board Review

**CEU 2021**

**September 10 – 12, 2021**

**EBR 2021**

**September 22 – 24, 2021**

Every year, the Endocrine Society holds the Clinical Endocrinology Update (CEU), which brings together hundreds of endocrine clinicians for a unique learning experience.

This year, due to concerns regarding the safety of both attendees and faculty stemming from the COVID-19 outbreak, the Endocrine Society is conducting these sessions in a virtual learning environment.

CEU 2021 offers an opportunity to stay up to date on the newest breakthroughs in clinical endocrinology. Expert faculty deliver a comprehensive three-day program covering a range of clinical practice areas using interactive, case-based learning.

The Endocrine Board Review (EBR) is an essential course for endocrinologists preparing to take the boards or practicing physicians seeking an intensive knowledge assessment. The virtual program is designed as a mock exam, with rapid-fire case-based questions emulating the format and subject matter of the ABIM's Endocrinology, Diabetes, and Metabolism Certification Examination. Attendees will have early access to topical on-demand presentations with detailed answer rationale (available in late August).

[www.endocrine.org/ceu2021](http://www.endocrine.org/ceu2021) • [www.endocrine.org/eb2021](http://www.endocrine.org/eb2021)

## 22nd Annual Harvard Nutrition Obesity Symposium: Global Food Systems and Sustainable Nutrition in the 21st Century

**Tuesday, June 15, 2021**

**8:00 a.m. – 5:30 p.m. (EST)**

The Nutrition and Obesity Research Center at Harvard will focus its 2021 virtual symposium on Global Food Systems and Sustainable Nutrition in the 21st Century that will feature an outstanding lineup of speakers who are experts in the fields of public health, global food systems, nutritional inequities, and sustainable nutrition. Registration is free of charge, but space is limited. Join thought leaders in the field for this signature event.

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

## Heart in Diabetes

**New York, New York**

**September 10 – 12, 2021**

This CME conference brings clinical leaders in diabetes and cardiovascular disease and practicing clinicians together to improve the care of patients at a high risk of cardiovascular, metabolic, and kidney diseases. This program is designed to evaluate the clinical science aspects of diabetes, obesity, and cardiovascular disease, focusing on the heart and kidney in diabetes. The goal is to develop appropriate, comprehensive clinical management plans aligning endocrinologists, cardiologists, nephrologists, and all other interested clinicians in their understandings of the impact of diabetes and CVD outcome trials on the clinical management of these very high-risk patients.

[www.heartindiabetes.com](http://www.heartindiabetes.com)

## 90th Annual Meeting of the American Thyroid Association®

**September 29 – October 3, 2021**

**Scottsdale, Ariz.**

This meeting is designed for the community of endocrinologists, basic scientists, internists, surgeons, nuclear medicine scientists, pathologists, trainees, nurses, physician assistants, advanced practice providers, and other health care professionals who wish to broaden and update their knowledge of the thyroid gland and its disorders.

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

## INTERNATIONAL ITINERARY

### eECE 2021

**May 22 – 26, 2021**

Join colleagues from all over the world for the 23rd European Congress of Endocrinology taking place online on our interactive virtual platform, ESE On Demand. Following feedback from our highly rated online Congress last year, we are introducing enhanced networking features; allowing attendees to connect and collaborate with their fellow endocrine professionals from across the globe. This year, e-ECE 2021's program will include: plenary and award lectures bringing you excellence in basic and clinical research; 30 symposia sessions from more than 90 international speakers; joint symposia with partner societies; Meet the Expert sessions; debate sessions; and more.

[www.eese-hormones.org/](http://www.eese-hormones.org/)

### Plenareno Diabetes, Obesity, and Cholesterol Metabolism Conference 2021 (PDOC 2021)

**May 24 – 25, 2021**

**Belgrade, Serbia**

PDOC 2021 will provide the platform for diabetologists, endocrinologists, nutritionists, and other related professionals to present their latest research. It aims for invaluable scientific discussions and contributes to the future innovations and recent trends in diabetes, obesity, and endocrinology and also will bring together an interdisciplinary and global team of research professionals. Keynote and plenary sessions followed by young researchers and poster sessions will allow for widespread participation of attendees at all career stages.

<https://metabolicdiseases.plenareno.com/>

### EndoBridge 2021

**Antalya, Turkey**

**October 21 – 24, 2021**

EndoBridge® is a unique initiative with the vision of bridging the world of endocrinology. EndoBridge® is co-hosted by the Endocrine Society and the European Society of Endocrinology in collaboration with the Society of Endocrinology and Metabolism of Turkey. The meetings are 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)



# *No* **TWO WAYS** *About It:*

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## **RECONCEPTUALIZING TYPE 2 DIABETES**

BY KELLY HORVATH

Drawing on years of prior research, a new paper published recently in *The Journal of Clinical Endocrinology & Metabolism* makes the case for a wider classification of a disease as complex as type 2 diabetes. A new series of subsets would take into account race and ethnicity, age at onset, and a host of other contributing factors.



**T**ype 2 diabetes, often called the “silent pandemic” is a complex disease with complex etiologies. Recently, researchers have called for approaches to management that better differentiate the “types” of type 2 diabetes, a move widely supported.

However, exacerbating the complexity of the disease and of its treatment are the long-established health disparities in disease progression, risk for comorbidities, outcomes, and response to treatment that occur across race and ethnicity, for which social determinants of health are largely responsible.

Published in January in *The Journal of Clinical Endocrinology & Metabolism*, “Association of Diabetes Subgroups with Race/Ethnicity, Risk Factor Burden and Complications: The MASALA and MESA Studies,” Michael P. Bancks, PhD, MPH, of the Wake Forest School of Medicine in Winston-Salem, N.C., and team take up the monumental task of “[unraveling] the heterogeneity” of type 2 diabetes. Bancks explains that this study draws on prior research over the past three years that stratified patients into subgroups comprising various differences in patient clinical characteristics and risk for complications. Those studies, though eye-opening, focused largely on White populations, whereas Bancks and team’s new study reaches much farther in terms of population sampling.

The team sought to answer, can the phenotypic data and clustering approaches previously used, for example, by Ahlqvist E, Storm P, Käräjämäki A, et al., among Scandinavians be applied in the U.S. to multiple ethnic groups — South Asians, Hispanics, African Americans, non-Hispanic Whites, and Chinese Americans? Secondly, can such subgrouping predict outcomes? “Our goal here was to make this important area of research applicable to a broader, racially, and ethnically diverse population,” Bancks says.

## One Size Doesn’t Fit All

From two prospective community-based cohort studies, the Mediators of Atherosclerosis in South Asians Living in America (MASALA) and the Multi-Ethnic Study of Atherosclerosis (MESA), the team comprising researchers from centers across the U.S., zeroed in on five diabetes subgroups among 1,293 South Asian, Hispanic, African American, non-Hispanic White, and Chinese American participants:



Categorizing finer classifications of diabetes subgroups has really gained a lot of momentum in the field, and a lot of people are doing great work in this area because it’s an important issue. But we also want to make sure that how we are preventing diabetes complications is equitable. **We were able to characterize these five subgroups that differ in their risk for complications, so really we’re seeing that not all type 2 diabetes are the same.”**

— MICHAEL P. BANCKS, PHD, MPH, WAKE FOREST SCHOOL OF MEDICINE, WINSTON-SALEM, N.C.

- ▶ Older age at diabetes onset (43%)
- ▶ Severe hyperglycemia (26%)
- ▶ Severe obesity (20%)
- ▶ Younger age at onset (1%)
- ▶ Requiring insulin medication use (9%)

Their suspicion from the outset was that the five clinical subgroups would comprise different ethnicities, and risk for complications would also vary.

“Across the diabetes subgroups, distribution of race/ethnicity was different. For example, among the older onset subgroup, there was not the same distribution of individuals from a particular ethnicity, and, on the flip side, individuals from a particular ethnicity were not equally allocated to each of the five subgroups,” Bancks explains. “Because of what we know about social determinants of health that lead to disparities in diabetes health outcomes, we hypothesized that the subgroups would be associated with race/ethnicity and that it would not be uniform across subgroups or race/ethnicity.” The

most common subgroup was older onset for four of the five ethnicities. For South Asians, severe hyperglycemia was most likely.

Data collection in MASALA and MESA occurred at in-person clinic visits that included completing health questionnaires, blood draws, and cardiac computed tomography (CT) scans to measure coronary artery calcium. Bancks and team compared intra- and inter-subgroup differences by race/ethnicity and sex as well as sociodemographic factors, health behaviors, and cardiovascular and renal complication risk factors.

In addition to confirming their first hunch that the subgroups would differ by race and ethnicity, importantly, they also found that these subgroups differ in their development of diabetes complications, as they thought would be the case. “One of the major take-home messages we found is that the risk or the probability that people develop a certain complication isn’t the same across diabetes subgroups,” Bancks says. “There are subgroups who have a greater risk for developing cardiovascular and renal complications.” The older age at diabetes onset subgroup was least at risk for those complications.

## Expanding the Taxonomy

These findings have big clinical implications: “If we observe that certain diabetes subgroups are at greater risk for certain complications, we need to really try to help those subgroups avoid complications. And if who fits a certain diabetes subgroup is not equal across race and ethnicity due to many various factors, we really need to not allow certain groups of individuals to get left behind,” Bancks says.

On the clinician–patient level, this might translate into stratifying patients — determining which subgroup they best align with — to both head off the complications that diabetes subgroup is most prospectively associated with and to tailor treatment. “What strategies can they implement there in the clinic with their patient to prevent subclinical complications, or for those already manifest, what can they do to prevent them from progressing further and ultimately becoming a major clinical event such as a heart attack?” Bancks asks.

There are research implications as well. In the coming years, it will be critical to understand what leads individuals to develop the characteristics that would align them with a certain diabetes subgroup. “There is likely an interplay between genetic, behavioral, social, and environmental characteristics and factors that usher people down the path toward a particular diabetes subgroup,” Bancks says.

“Categorizing finer classifications of diabetes subgroups has really gained a lot of momentum in the field, and a lot of people are doing great work in this area because it’s an important issue,” Bancks says. “But we also want to make sure that how we are preventing diabetes complications is equitable. We were able to characterize these five subgroups that differ in their risk for complications, so really we’re seeing that that not all type 2 diabetes are the same.”

Moreover, these more nuanced classifications could better inform how public health interventions, clinicians, and healthcare institutions manage diabetes in individuals of different race/ethnicities. **EN**

## AT A GLANCE



- ▶ Researchers stratified five type 2 diabetes mellitus subgroups (older age at onset, severe hyperglycemia, severe obesity, younger age at onset, and requiring insulin use) among an ethnically diverse population to investigate if and how these subgroups differed in their development of cardiovascular and renal complications.
- ▶ Some subgroups had greater risk for complications than others, even after accounting for racial/ethnic disparities in risk for these complications; therefore, clinicians might need to begin targeting their approaches based on diabetes subgroup.
- ▶ A finer classification of diabetes beyond types 1 and 2 would allow clinicians to be more efficient with treatment and prevention strategies as well as help eliminate disparities in diabetes development and complications.

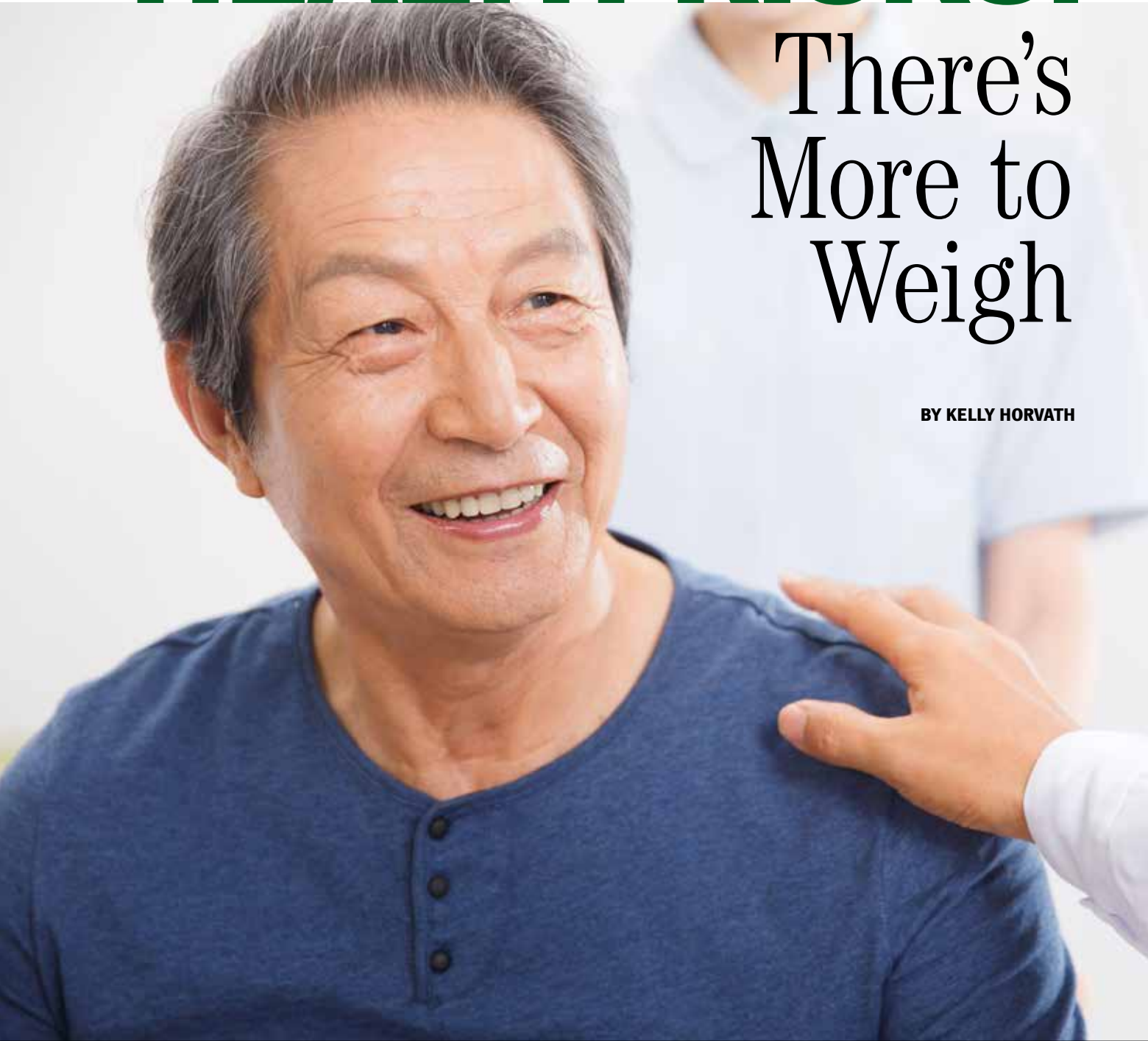
— HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. SHE WROTE ABOUT THE **ENDO 2021** PRESIDENTIAL PLenary SESSIONS IN THE JANUARY AND MARCH ISSUES.



# Obesity-Related **HEALTH RISKS:**

There's  
More to  
Weigh

BY KELLY HORVATH





## A recent Chinese study published in *The Journal of Clinical Endocrinology & Metabolism* seems to show that body mass index and waistline measurements do not tell the whole story when determining cardiometabolic risk factors in some ethnic groups.

According to the Hormone Health Network ([hormone.org](http://hormone.org)), as of January 2020, more than 2 billion adults have obesity — a global pandemic. No longer misconstrued as stemming from a simple “lack of self-control,” we now know that the pathophysiology of obesity is multifactorial, ranging from hormonal imbalance to genetics to environmental, cultural, and psychosocial components. As we continue to delve into these complexities, it starts to feel like the proverbial safe to which there is a combination, but the combination is locked up in the safe.

Nevertheless, researchers in China have unlocked one more clue. A team from the Shanghai Institute of Endocrine and Metabolic Diseases and the Shanghai National Center for Translational Medicine, Ruijin Hospital, of the Shanghai Jiaotong University School of Medicine, Shanghai, China, have found an association between Chinese ethnicity and greater risk of serious complications from obesity.

### Setting the Record Straight

In “Chinese Adults are More Susceptible to Effects of Overall Obesity and Fat Distribution on Cardiometabolic Risk Factors,” published in *The Journal of Clinical Endocrinology & Metabolism* (JCEM) in February, the team used 2010 data from the Noncommunicable Disease Surveillance Point System, a nationally representative sample of Chinese adults, and data collected in the U.S. from 2005 to 2016 in the National Health and Nutrition Evaluation Survey (NHANES) to compare the effects of waist circumference and body mass index (BMI) on risk for developing diabetes, high blood pressure, and heart disease among various ethnicities.

Waist circumference and BMI are the two most commonly used diagnostic indicators of obesity, yet they do not reveal the full picture, as they do not reflect the same level of fat mass and abdominal obesity or whether ethnic differences exist. So, Weiqing Wang, MD, PhD, and team (Ruizhi Zheng, Mian Li, Min Xu, Jieli Lu, Tiange Wang, Meng Dai, Di Zhang, Yuhong Chen, Zhiyun Zhao, Shuangyuan Wang, Hong Lin, Yufang Bi, Yu Xu, and Guang Ning) set out to determine whether overall obesity and fat distribution have ethnicity-specific effects on five different ethnic populations.

Piggybacking on prior studies that have demonstrated links between obesity metrics (in particular, waist circumference and BMI) and cardiometabolic risk factors, these





## “ Racial and ethnic differences in susceptibility of obesity-related health problems should be noticed **while screening for high-risk individuals using BMI and waist circumference.**”

— WEIQING WANG, MD, PHD, SHANGHAI INSTITUTE OF ENDOCRINE AND METABOLIC DISEASES; SHANGHAI NATIONAL CENTER FOR TRANSLATIONAL MEDICINE, RUIJIN HOSPITAL, OF THE SHANGHAI JIAOTONG UNIVERSITY SCHOOL OF MEDICINE, SHANGHAI, CHINA



researchers took another look at the data and came up with different findings. Whereas previous studies showed that a larger waist circumference was the main culprit in degree of risk, Wang and team saw flaws in how that finding was arrived at, given the knowledge that an association exists between waist circumference and BMI. This so-called multicollinearity of the study variables is an acknowledged pitfall of some regression analyses that causes grave errors and therefore untrustworthy results. This team wanted to set the record straight.

### Residual Value

They got around the multicollinearity problem by isolating the variables so their impacts could be independently assessed in two separate linear regression models: Waist circumference was the dependent variable, and BMI was the independent

variable. The key here is the new metric they developed out of their statistical analysis method: residual waist circumference. By removing the variation of BMI from waist circumference measures, they obtained the proportion of waist circumference not explained by BMI, in other words, the measurement of central obesity adjusted for overall adiposity.

From the two study populations, a total of 126,284 adult subjects were included: 98,532 Chinese, 5,316 Mexican Americans, 13,487 non-Hispanic Whites, 6,980 non-Hispanic Blacks, and 1,969 non-Hispanic Asians. Not surprisingly to the team, significant differences among the ethnic groupings emerged for systolic and diastolic blood pressure, hemoglobin A1c, triglycerides, and high- (HDL) and low-density lipoprotein (LDL) cholesterol. These differences included that Chinese and non-Hispanic Asians had lower BMI than the other three groups, non-Hispanic Blacks had the lowest triglyceride level, and Chinese had the lowest cholesterol levels. Chinese had the highest blood pressure levels but were lowest in terms of taking anti-hypertensive medicine. Also as expected, both obesity metrics were positively correlated with blood pressure, hemoglobin A1c, triglyceride, and LDL cholesterol and negatively correlated with HDL-cholesterol level among all ethnic groups.

Perhaps the biggest surprise was that although waist circumference was highly correlated with BMI in all ethnicities, residual waist circumference was uncorrelated with BMI in all groups. Yet, residual waist circumference was associated with all cardiometabolic risk factors in the Chinese group alone (although it was associated with some risk factors in non-Hispanic Whites and Blacks). “Our study demonstrated that Chinese adults were more susceptible to the effects of overall obesity and abdominal fat accumulation on blood pressure and triglycerides than those in other racial and ethnic



populations,” Wang stated in an Endocrine Society press release. The Chinese group tended to have more abdominal fat deposition, which can lead to dyslipidemia and cardiovascular disease.

## Noting Racial and Ethnic Differences

The upshot is, BMI and waist circumference do not take ethnicity into account, which could mean that risk for cardiovascular disease gets missed for certain ethnicities, such as Chinese adults who may have a comparatively low BMI and waist circumference, yet a proportion of abdominal fat deposition high enough to significantly raise their risk. “These racial and ethnic differences in susceptibility of obesity-related health problems should be noticed while screening for high-risk individuals using BMI and waist circumference,” said Wang in the press release.

Another takeaway from their study is a caution to researchers to account for multicollinearity when designing studies and interpreting results. Ignoring it can lead to important inaccuracies such as obfuscation of some results and unwarranted predominance of others. They also caution against overinterpreting their study results, calling for additional studies to continue investigating ethnicity-specific differences in obesity-related health complications. <sup>EN</sup>



## AT A GLANCE

- ▶ In a cross-sectional study of two large nationwide surveys in China and the U.S., the associations between waist circumference and BMI and cardiometabolic risk factors were compared among multiple ethnic groups.
- ▶ Residual waist circumference (the proportion of waist circumference not related to BMI) was significantly associated with all cardiometabolic risk factors in Chinese subjects, some of those factors in non-Hispanic Whites and Blacks, and none of them in Mexican Americans and non-Hispanic Asians.
- ▶ When using BMI and waist circumference to screen for obesity-related health risks, clinicians should consider ethnicity-specific susceptibility.

– HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. SHE WROTE ABOUT THE **ENDO 2021** PRESIDENTIAL PLENARY SESSIONS IN THE JANUARY AND MARCH ISSUES.



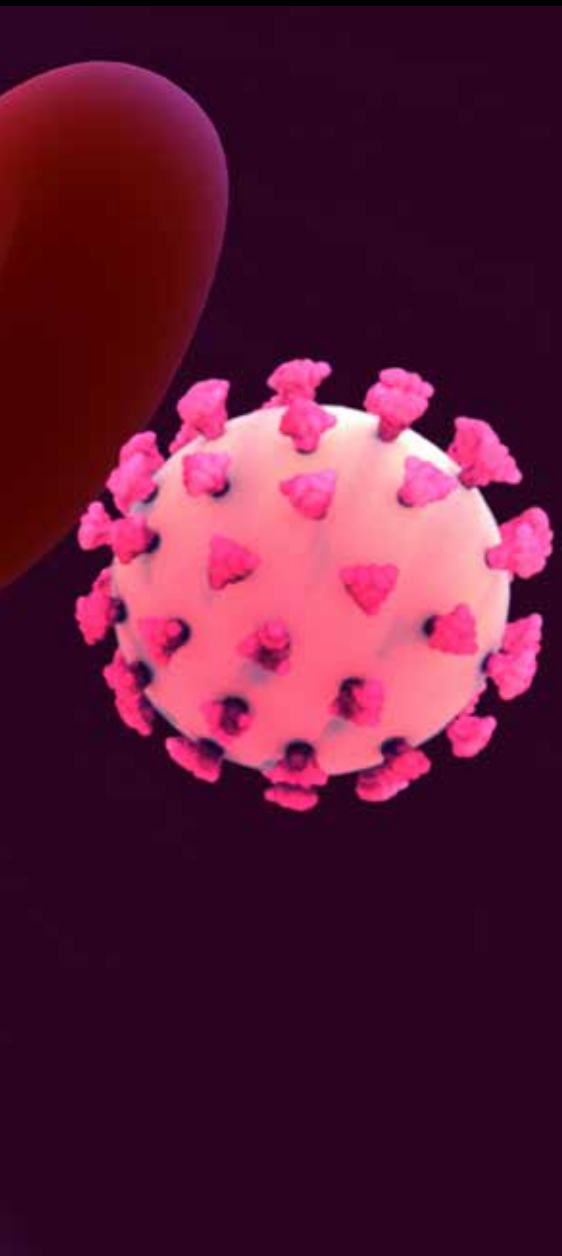


# Over the Edge:

## Is COVID-19 Introducing a *New Type* of Diabetes?

Researchers are exploring the complex, push-pull relationship between COVID-19 and diabetes. Is the virus truly the cause of a new type of diabetes, or is it merely hastening an inevitable development in susceptible patients?

BY ERIC SEABORG



**F**rom the earliest days of the COVID-19 pandemic, its effects on glycemic control have been among its challenges. Patients with diabetes are at high risk for severe disease, and the glycemic control of many patients would go haywire. Even patients with no known history of diabetes suddenly require large doses of insulin.

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Clinicians treating these patients began wondering, does COVID-19 actually cause diabetes — and perhaps even a new kind?

As the chief of the Division of Endocrinology at Columbia University's New York Presbyterian Hospital, Domenico Accili, MD, witnessed the earliest surge in this country. He says that from the “very first week” he was struck not only by the number of patients with symptoms of diabetes, but more unusually, by the number of patients with diabetic ketoacidosis, even in patients without type 1 diabetes.

“When I saw this, my first reaction was, maybe this virus is attacking the beta cells of the pancreas,” Accili says. With more experience, he has since tempered that reaction and considered the many ways a virus can affect glycemic control. With the millions of COVID-19 infections around the world, there is no clear evidence of a concomitant uptick in diabetes, he says.

## COVID-19 Diabetes Registry

But other experts continue to be concerned. In a letter to the editor in the August 20, 2020, *New England Journal of Medicine*, an international group of researchers led by Francesco Rubino, MD, announced the establishment of a global registry of COVID-19–related diabetes. The registry “is specifically designed to establish the extent and characteristics of new-onset, COVID-19–related diabetes, and to investigate its pathogenesis, management and outcomes,” according to its website.

By mid-February, 164 cases had been added to the registry, with the effort just beginning to get off the ground, according to Robert H. Eckel, MD, professor of medicine emeritus in the divisions of endocrinology, metabolism, and diabetes and cardiology at the University of Colorado Anschutz Medical Campus in Aurora, one of the signatories of the letter to the *New England Journal of Medicine*. (The registry can be found at: [covidiab.e-dendrite.com](https://covidiab.e-dendrite.com).)



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“Any viral infection or bacterial infection can make glucose control worse by causing an inflammatory state. And an inflammatory state is associated with cytokines and lipid breakdown, things that can cause insulin resistance.”

— DOMENICO ACCILI, MD, CHIEF, DIVISION OF ENDOCRINOLOGY,  
COLUMBIA UNIVERSITY'S NEW YORK PRESBYTERIAN HOSPITAL,  
NEW YORK, N.Y.

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## Betting on Beta Cells

There are several mechanisms by which COVID-19 could be disrupting glucose metabolism, and thereby causing — or causing symptoms similar to — diabetes.

The beta cells in the pancreatic islets have been an obvious focus, given their role in insulin secretion. The SARS-CoV-2 virus binds to angiotensin-converting enzyme 2 (ACE2) receptors as an entryway to cells, and it has been posited that the presence of these receptors on pancreatic islet cells could offer entrée to the virus, and hence cause damage. The *New England Journal of Medicine* letter says: “There are several precedents for a viral cause of ketosis-prone diabetes, including other coronaviruses that bind to ACE2 receptors. Greater incidences of fasting glycemia and acute-onset diabetes have been reported among patients with SARS coronavirus 1 pneumonia than among those with non-SARS pneumonia.”

Several researchers have looked for these and related receptors in beta cells, and some have reported finding them and others have not. Eckel had recently attended the virtual meeting of the Network for Pancreatic Organ Donors and reported: “Some researchers claim the ACE2 protein is relevant and functional and could be a cause of new-onset diabetes, and others feel that the technology is not adequate to say for sure that this protein is expressed in the beta cells or islets.”

## Inflammatory States

“Any viral infection or bacterial infection can make glucose control worse by causing an inflammatory state,” Accili says. “And an inflammatory state is associated with cytokines and lipid breakdown, things that can cause insulin resistance. There is also the release of hormones that are antagonistic to insulin, like glucocorticoids, catecholamines, glucagon, and growth hormone. The inflammatory state can also affect the beta cell and can cause what I would call a temporary blindness of the beta cell so that insulin is not released. However, this is not a permanent loss of the beta cell. It is functional damage that gets resolved if the inflammation is resolved.”

Eckel agrees that “a lot of new onset diabetes in hospitalized patients relates to the stress of the illness, so that could be what we are looking at.”

The treatment can also contribute to hyperglycemia. National Institutes of Health guidelines recommend that severely ill COVID-19 patients who are receiving supplemental oxygen be treated with dexamethasone or a similar steroid. These drugs tamp down inflammation but also raise glucose levels.

**Even patients with no known history of diabetes would suddenly require large doses of insulin.**

“ If this were causing diabetes, now that there are tens of millions of patients all over the world, we would have seen an increase in the incidence of diabetes which we have not seen. A small number of patients develop diabetes when they develop COVID-19. **But they were on the verge of developing it, and the disease pushed them over the edge. This is known to happen with many infectious diseases.**”


— DOMENICO ACCILI, MD, CHIEF, DIVISION OF ENDOCRINOLOGY, COLUMBIA UNIVERSITY'S NEW YORK PRESBYTERIAN HOSPITAL, NEW YORK, N.Y.

## A Push Over the Edge?

Although there have been reports of otherwise healthy people with no history of poor glucose control developing diabetes, Accili says that when he studied the hemoglobin A1c levels of his patients who developed diabetes, the vast majority already had poor glucose control. Many had undiagnosed diabetes or prediabetes. Because diabetes is a risk factor for severe COVID-19, that finding rather flips the perception of cause and effect in this discussion.

“If this were causing diabetes, now that there are tens of millions of patients all over the world, we would have seen an increase in the incidence of diabetes which we have not seen,” Accili says. “A small number of patients develop diabetes when they develop COVID-19. But they were on the verge of developing it, and the disease pushed them over the edge. This is known to happen with many infectious diseases.”

Accili does not dismiss the possibility that SARS-CoV-2 can cause diabetes but does not see the evidence for it at this point.

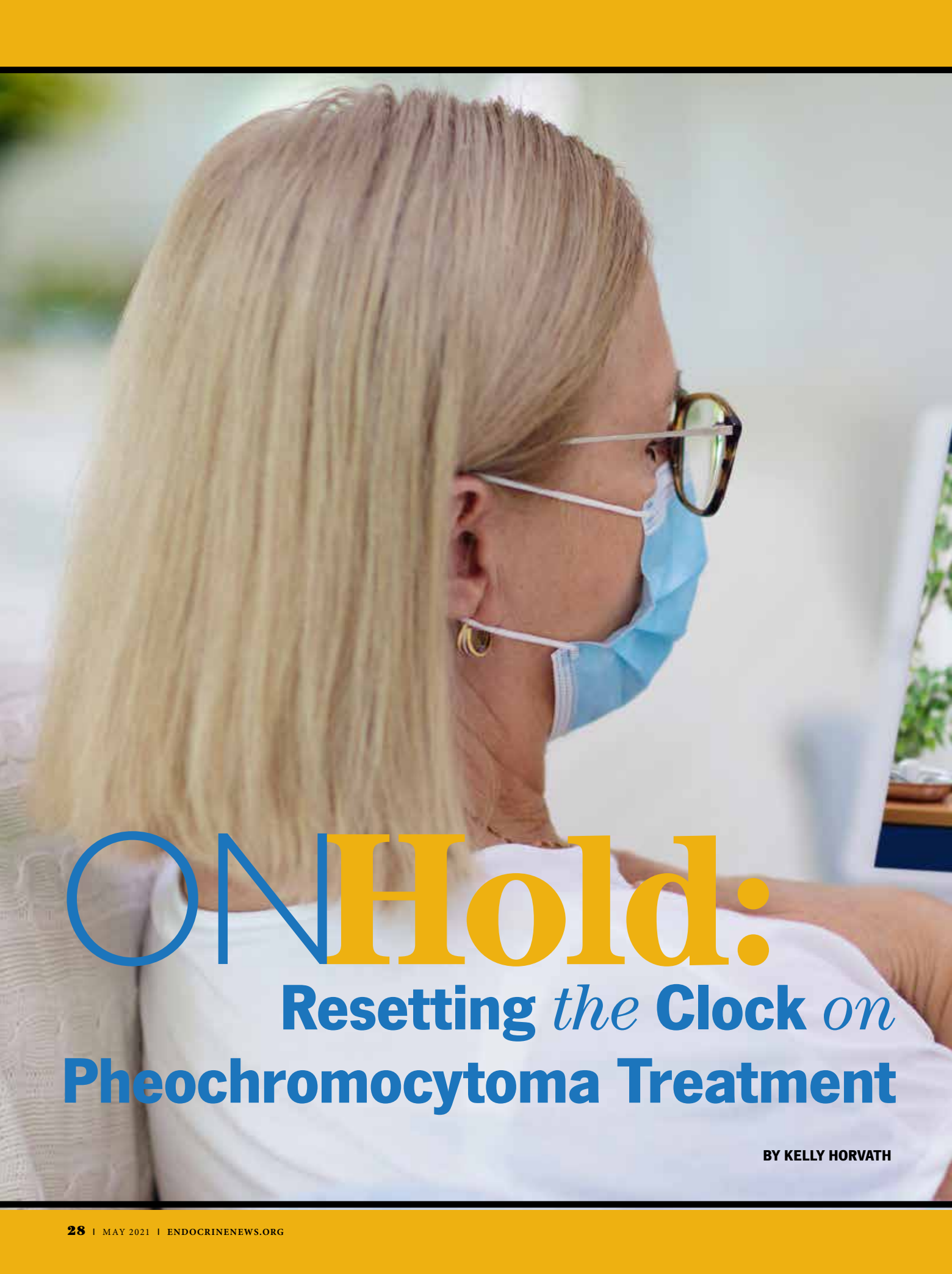
Eckel acknowledges that at this point there are still more questions than answers but hopes that the registry will provide some of the answers. As recognition of the heterogeneous nature of diabetes grows — with more varieties than type 1 and type 2 — the registry will provide a forum to analyze real-world data to see how COVID-19 fits into this picture. 

— SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. IN THE MARCH ISSUE, HE WROTE ABOUT HOW COVID-19 HAS IMPACTED THE USE OF CONTINUOUS GLUCOSE MONITORING IN A HOSPITAL SETTING.



## AT A GLANCE

- ▶ With hyperglycemia one of the biggest challenges in severely ill COVID-19 patients, an ongoing debate is examining whether the virus could be causing a new form of diabetes — or merely providing a final push in susceptible patients.
- ▶ Research on whether pancreatic beta cells offer an entry point for the virus — and hence a direct threat to insulin production — has led to conflicting results.
- ▶ A global registry of COVID-19–related diabetes has been established to study the extent, pathogenesis, and outcome of this emerging problem.



# ON Hold:

## Resetting *the* Clock on Pheochromocytoma Treatment

BY KELLY HORVATH





*When surgical treatment for three patients with pheochromocytoma was delayed due to COVID-19 restrictions, clinical endocrine fellow Emily A. Japp, MD, and team at the Icahn School of Medicine at Mount Sinai in New York City found a unique solution. Going beyond clinical guideline recommendations while closely monitoring the patients remotely resulted in a tailored treatment approach suited to each patient's unique needs and circumstances.*

COVID-19 upended just about everything in 2020, reshaping how we live, work, and interact. The ability to seek healthcare was part of this dramatic societal change. Unless a patient was in dire health straits, seeing a clinician in person was usually not possible, both because those in the healthcare field were already stretched so thin and because leaving the home for anything nonessential was prohibited.

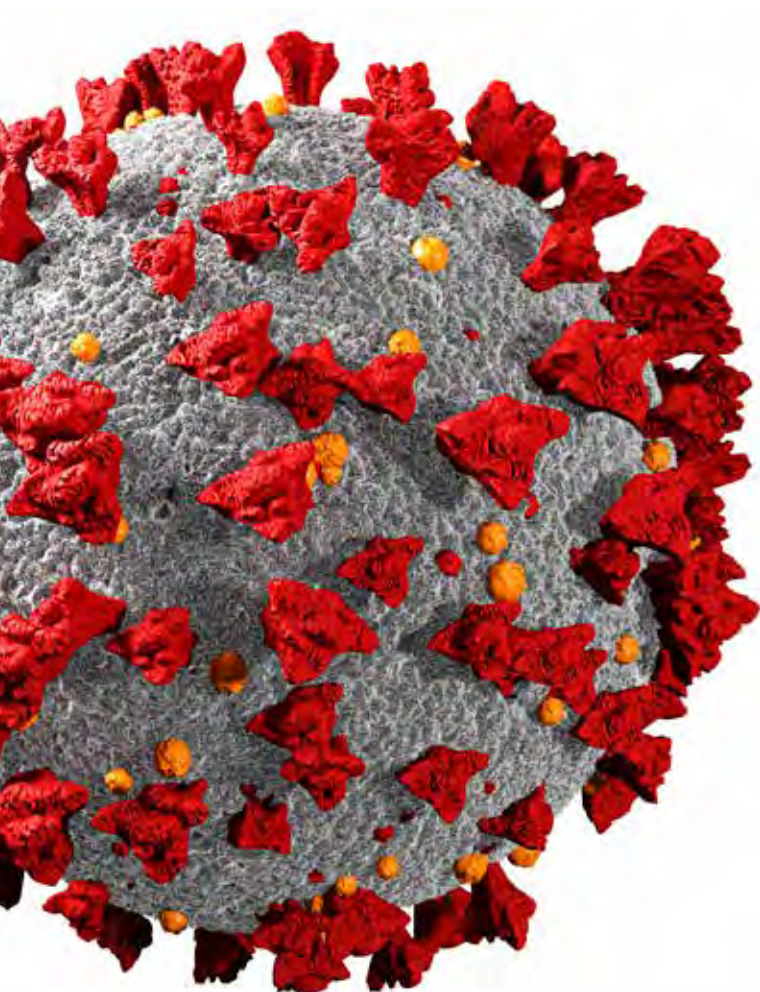
In “Management of 3 Cases of Pheochromocytoma During the COVID-19 Pandemic in New York City: Lessons Learned,” published in the *Journal of the Endocrine Society* in February, lead study author, Emily A. Japp, MD, and her mentor, Alice C. Levine, MD, both from the Division of Endocrinology, Diabetes, and Bone Disease, Department of Medicine at the Icahn School of Medicine at Mount Sinai, in New York, N.Y.,





“ We learned that in select cases of pheochromocytoma, prolonged medical management is safe and effective. **This may serve as a guide in the future for these patients so that there is ample time and resources to refer them for their surgical management to centers of excellence for optimal outcomes.**”

— EMILY A. JAPP, MD, DIVISION OF ENDOCRINOLOGY, DIABETES, AND BONE DISEASE, DEPARTMENT OF MEDICINE, ICAHN SCHOOL OF MEDICINE, MOUNT SINAI, NEW YORK, N.Y.



as well as coauthors Amanda Leiter, MD, and Effie A. Tsomos, MD, (both co-fellows of Japp) and medical resident Sarah A. Reda, MD, explore a ramification of COVID-19 that until now may have been overlooked — how do clinicians manage non-emergent disease that would normally be treated surgically during a pandemic?

### Hit Pause

Somewhat unusually, in this pandemic-related story, the lessons learned are positive, and some optimistic extrapolations can also be made. But let's start from the beginning. In March 2020, Japp and team met three patients presenting with newly diagnosed pheochromocytoma. That same month, “New York on Pause” went into effect, a statewide, 10-point executive order issued by New York Governor Andrew M. Cuomo, that among other things, mandated the temporary closing down of all nonessential businesses and urged those who were sick, immunosuppressed, or elderly to stay at home and use telemedicine to access healthcare. Although the definitive treatment for pheochromocytoma is adrenalectomy, in cases where the blood pressure is controllable with medications, this surgery is considered semi-elective so Japp and team had to get resourceful.

Fortunately, all three cases were uncomplicated, but, even so, pheochromocytoma has earned the nickname “ticking time bomb” because of its capacity to release large amounts of catecholamines into the system. “This adrenergic crisis can lead to life-threatening hypertension, cardiomyopathy, and pulmonary edema,” explains Japp. “Prompt medical



management in preparation for surgical adrenalectomy is necessary, because the adrenergic crisis can occur spontaneously or be triggered by stress, certain medications, trauma, and infection.”

Endocrine Society guidelines from 2014 suggest one to two weeks of medical management prior to adrenalectomy to minimize perioperative complications, and all three patients — females ages 60, 67, and 84 years — were on medication at presentation. “Case 2 had undergone the traditional medical management for pheochromocytomas, which is alpha-adrenergic blockade followed by beta-adrenergic blockade. Cases 1 and 3 were managed mainly with calcium-channel blockade, a regimen that has been cited by the Endocrine Society and some studies to be appropriate as monotherapy if patients have very mild preoperative hypertension,” Japp says. “Depending on the patient’s clinical presentation, alpha-adrenergic blockade or calcium-channel blockade are both options.” Under normal circumstances, after this brief period of medical therapy, patients with pheochromocytoma are advised to undergo semi-urgent adrenalectomy.

The daunting task before Japp and team was to safely prolong this medical management for an unknown duration until the three patients could safely be admitted for surgery. “The pandemic created a reliance on telemedicine and a delay in semi-elective surgeries,” she says. Moreover, they needed to personalize treatment based on individual patient characteristics (e.g., presenting symptoms, etc.). Their strategies involved having the patients monitor their symptoms, blood pressure, and heart rate daily at home and report in to a medical provider via telemedicine and biweekly phone calls. An endocrinology on-call service was available if alarming vital signs or symptoms emerged that might signal a catecholaminergic crisis.

With this close monitoring and tailored management, Japp and team were able to see their three patients through the shutdown until they could undergo surgery, at 7, 13, and 18 weeks post-presentation, respectively. “We learned through this case series that prolonged medical treatment of milder cases of pheochromocytoma is feasible and

## AT A GLANCE

- ▶ In March 2020, three patients with pheochromocytoma presented to Mt. Sinai Hospital in New York City, just before the city was shut down, necessarily delaying their surgical treatment.
- ▶ Endocrinologists successfully opted for medical management well beyond what current guidelines recommend as well as close patient self-monitoring and regular remote communication.
- ▶ The cases demonstrate that prolonged medical management is feasible and effective in pheochromocytoma patients with mild symptoms and well-controlled blood pressures.

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“ This adrenergic crisis can lead to life-threatening hypertension, cardiomyopathy, and pulmonary edema. Prompt medical management in preparation for surgical adrenalectomy is necessary, because the adrenergic crisis can occur spontaneously or be triggered by stress, certain medications, trauma, and infection.”

— EMILY A. JAPP, MD, DIVISION OF ENDOCRINOLOGY, DIABETES, AND BONE DISEASE, DEPARTMENT OF MEDICINE, ICAHN SCHOOL OF MEDICINE, MOUNT SINAI, NEW YORK, N.Y.

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can be safe with close monitoring and cooperation between the patient and the physicians,” she says.


## Every Minute Counts

These success stories are not the only lessons learned, however. The team does not rule out the possibility that an even longer duration of medical management might be possible. Also, even when the pandemic is over, some of what Japp and team implemented to get through the crisis may continue to be relied on: “A major lesson learned related to the circumstances posed by the pandemic is how useful telemedicine has been as a tool to extend care to patients, especially in the field of endocrinology. It appears that telemedicine will be more widely utilized to promote engagement with patients, especially those who are of underserved populations.”

Telemedicine is not without its limitations, of course, but is still an encouraging development in terms of reaching more patients. Telemedicine works best when patients are motivated. “In the management of pheochromocytoma,” Japp elaborates, “prolonged outpatient medical management of this disorder will only be feasible in cases where the patients are motivated, educated, and able to provide the essential data regarding their symptoms, blood pressures, and pulse rates.”

Although one lesson learned is not exactly new, the extenuating circumstances posed by the pandemic nevertheless brought it into stark relief — individualizing care leads to better outcomes. In endocrinology, says Japp, this means “[tailoring] medical management to patients depending on their ages, symptoms, signs, comorbidities, and biochemical profiles.”

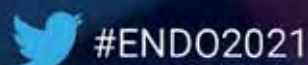
Finally, prolonging medical management past previously issued guidelines might become the new normal for mild cases, even when circumstances do not dictate. This approach would allow the patient to undergo surgery at a center with a team that includes anesthesiologists, endocrinologists, and surgeons with considerable experience and expertise in pheochromocytoma.

“Rare diseases such as pheochromocytoma are best managed by specialized centers with sufficient volume and expertise to manage the patients from the time of diagnosis through the postoperative period,” Japp explains. “We learned that in select cases of pheochromocytoma, prolonged medical management is safe and effective. This may serve as a guide in the future for these patients so that there is ample time and resources to refer them for their surgical management to centers of excellence for optimal outcomes.” 

— HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. IN THE MARCH ISSUE SHE WROTE ABOUT THE **ENDO 2021** SESSION, “DOES THE TREATMENT OF HYPERTHYROIDISM LEAD TO CANCER?”



# ENDO2021 HIGHLIGHTS



The Endocrinology community reunites - The **Official Highlights of ENDO 2021** is available worldwide.

With a global footprint, ENDO 2021 is the premier source of new information for endocrinologists. The **ENDO 2021 Highlights** focus on the latest finding in hormone science and breakthroughs in patient treatment.

**ENDO 2021 Highlights** is available to all and provides the opportunity to extend your knowledge and learn about the latest developments that can have an impact on your practice.

## ENDO2021 HIGHLIGHTS



**ENDO 2021 Highlights Editor**

**Raghu Mirmira, MD, PhD**

University of Chicago  
Chicago, IL, USA

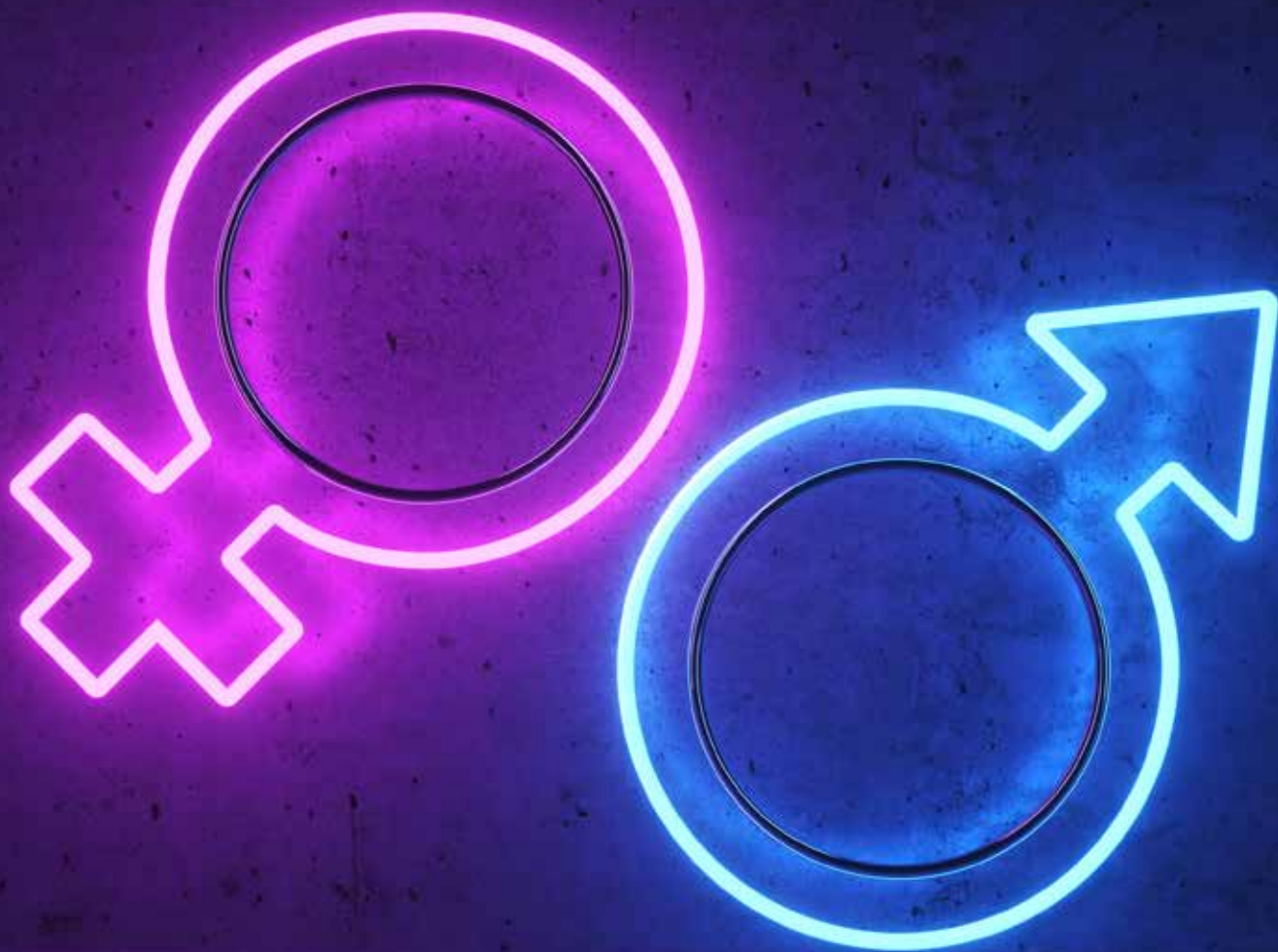


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# Safe & Sound:

## Reducing **Transgender Surgery** Side Effects

BY DEREK BAGLEY



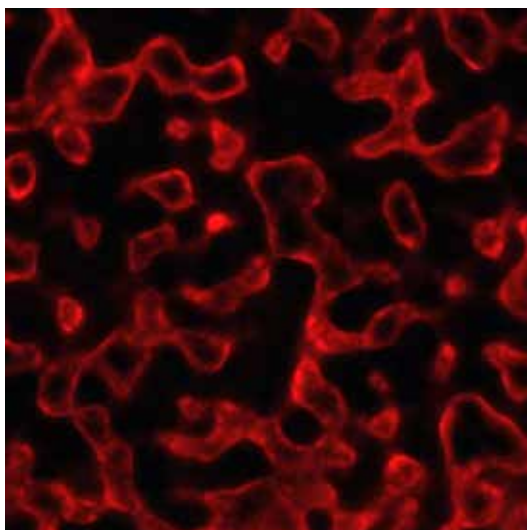
**T**ransgender medicine continues to grow and evolve — more and more people are presenting to clinics for hormone therapies and gender-affirming surgeries. A 2018 report from the American Society of Plastic Surgeons found that from 2017 to 2018, gender confirmation surgeries increased from 8,304 to 9,576, and those numbers have continued to rise. But, as with any kind of growth, there has been some pain.

Knowledge gaps persist. For instance, any surgery carries the risk of venous thromboembolism (VTE), but according to the authors of a paper recently published in *The Journal of Clinical Endocrinology & Metabolism*, little is known about VTE incidence in a transgender surgical patient, and that gap has led to providers separating into two camps about how to reduce the risk of VTE in these patients. One group advocates for withholding hormone therapy for two to four weeks prior to surgery, while the other group says there is little evidence to support suspending hormones.

So, a multidisciplinary team of researchers at the Icahn School of Medicine at Mount Sinai and Center for Transgender Medicine and Surgery in New York wanted to set the record straight since suddenly stopping hormone therapy in a transgender patient can result in withdrawal symptoms and significant psychological distress. Suddenly stopping estrogen therapy in a transgender woman could be just like stopping estrogen in a cisgender woman — severe menopause.

“The discomfort and the distress for our patients in stopping their hormone therapy is not insignificant harm,” says John Henry Pang, MD, assistant professor of Plastic and Reconstructive Surgery, Icahn School of Medicine at Mount Sinai and Center for Transgender Medicine and Surgery and senior author of the JCEM

As with most surgeries, venous thromboembolism is always a potential risk and transgender surgical procedures are no different. A new study published in *The Journal of Clinical Endocrinology & Metabolism* shows no increased clot risk while maintaining hormone therapy during gender affirming surgery.



Blood clots, shown here under a microscope, are a chief focus during surgery at Mount Sinai, according to John Henry Pang, MD.

“Precedent gives us a foundation from which we can question existing policies and practices, and then adjust them according to better data and experience as it comes along. And a willingness to question that and to adjust as we learn more is really the way that we can provide better care for our patients.”

— JOHN HENRY PANG, MD, ASSISTANT PROFESSOR OF PLASTIC AND RECONSTRUCTIVE SURGERY, ICAHN SCHOOL OF MEDICINE, CENTER FOR TRANSGENDER MEDICINE AND SURGERY MOUNT SINAI, NEW YORK, N.Y.

paper. “We really wanted to reassess our practices and better understand what it is we’re really trying to protect our patients from. Does this harm actually exist?”

## Improving Care and Safety

For this study, Pang and his team evaluated data from 919 transgender patients who underwent gender-affirming surgery at Mount Sinai’s Center for Transgender Medicine and Surgery between November 2015 and August 2019 — including 407 cases of transgender women who underwent primary vaginoplasty surgery. The researchers found no difference in blood clots when estrogen hormone therapy was maintained during gender-affirming surgery. Only one blood clot occurred during the entire period reviewed, in a patient who had stopped her estrogen for the surgery. The authors write that the VTE incidence in their patient cohort was comparable to the VTE incidence seen in patients undergoing benign gynecologic surgeries.

Pang points to how well Mount Sinai as an institution focuses on reducing clots in surgical patients, no matter what procedure they underwent, using medications to protect against clots, getting patients out of bed and moving around quicker, and modifying already-established risk factors for clots. “We focused our energies on things that we know actually do cause blood clots and modifying those versus focusing on things that may not directly impact the incidence of blood clots in our patient population,” he says.

The authors of the study note that there are some limitations, such as its retrospective nature, and the fact that these findings represent one institution, but that just means more large-scale multicenter studies are needed to reproduce the results of this novel study. “I’d say the power of publishing more about the surgeries and publishing more about our work with the community is to make it safer for our patients,” Pang says. “Because the more doctors and the more healthcare professionals are talking about how to better provide care and safe care for our patients, the better and safer care becomes. The more you talk about it, the more it becomes a known and safer practice. I think that’s the benefit of publishing data.”

## Questioning Precedents

The first rule of medicine is “Do no harm.” If a transgender woman can continue her estrogen therapy throughout her gender-affirming surgery, she shouldn’t be made to go through sudden, severe menopause or suffer psychological distress. Pang tells *Endocrine News* that not only have his patients responded positively to the idea, the authors of the JCEM paper have even received calls from other providers and medical directors at large healthcare systems throughout the U.S. wanting to talk about the paper’s findings and the researchers’ experiences. “Now they are rethinking their




“The weeks with sex hormone therapy suspended have been a source of misery for our patients. It is a relief that such an approach is not necessary. **The Mount Sinai study also adds to the literature that suggests that the risk of VTE from exogenous estrogens might be less than we’ve suspected for all women, not just transgender women.**”

— JOSHUA D. SAFER, MD, FACP, EXECUTIVE DIRECTOR,  
CENTER FOR TRANSGENDER MEDICINE AND SURGERY, MOUNT SINAI HEALTH SYSTEM;  
PROFESSOR OF MEDICINE, ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI, NEW YORK, N.Y.

policies in place,” Pang says. “They are with their surgeons now realizing, ‘Oh, this policy that we had in place may not be entirely necessary and we can also provide care that is not distressing to our patients.’ There is change occurring and that’s a very positive thing that we see.”

“The Mount Sinai study is a practice-changing advance in care for transgender people undergoing surgery,” says Joshua D. Safer, MD, FACP, FACE, executive director of the Center for Transgender Medicine and Surgery at Mount Sinai Health System, professor of medicine at Icahn School of Medicine at Mount Sinai and co-author of the JCEM paper. “The weeks with sex hormone therapy suspended have been a source of misery for our patients. It is a relief that such an approach is not necessary. The Mount Sinai study also adds to the literature that suggests that the risk of VTE from exogenous estrogens might be less than we’ve suspected for all women, not just transgender women.”

The meaning of “research” is to look again. Pang warns against physicians relying too much on precedent and to continue to ask questions about protocols and guidelines that are in place. Of course, there’s nothing wrong with a physician wanting to err on the side of caution. Until now, most surgical centers have taken a mixed-bag approach on advising their patients whether to stop or continue their hormone therapies prior to surgery.

Pang says he hopes this study can dispel any pervading fear of a harm that may not even exist. “Precedent gives us a foundation from which we can question existing policies and practices, and then adjust them according to better data and experience as it comes along,” he says. “And a willingness to question that and to adjust as we learn more is really the way that we can provide better care for our patients.” 

— BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. IN THE MARCH ISSUE, HE WROTE ABOUT HOW COVID-19 HAS MADE HEALTH DISPARITIES IN OBESITY TREATMENT EVEN MORE APPARENT.



## AT A GLANCE

- ▶ Because transgender medicine is still a relatively new field, knowledge gaps persist, leading to heterogeneity in the practice of whether doctors and surgeons advise transgender women to withhold their estrogen therapy before surgery.
- ▶ A new study in *The Journal of Clinical Endocrinology & Metabolism* shows no difference in blood clots when estrogen hormone therapy was maintained during gender-affirming surgery.
- ▶ The news has been positive for patients and physicians alike, since there is now guidance that can help prevent transgender patients from suffering the severe side effects of suspending hormone therapy.





# 2020 HINDSIGHT: Adjusting for an *Unexpected* Year

BY ISMAT SHAFIQ, MD, AND  
RICARDO CORREA, MD, EdD, FACP, FAPCR, FACMQ

While most organizations would have found 2020 a challenging year, the Endocrine Society's Adrenal and Pituitary Special Interest Group managed to thrive with the help of new technology, expert staff guidance, and a group of determined members.

The Endocrine Society's Adrenal and Pituitary Special Interest Group (AP-SIG) was created to connect physicians and scientists with expertise in adrenal and pituitary diseases to other Endocrine Society members. Since the chief goal was to bring ideas, programs, and projects proposed by the members into an educational experience and create potential scientific collaborations, communication would be a key component.

Then came 2020, a challenging year that nobody could have anticipated.

However, despite the obstacles and uncertainties caused by the COVID-19 pandemic, the AP-SIG kept the community connected through multiple webinars and other activities. Since in-person meetings were not going to take place any time soon, AP-SIG members hosted a series of educational webinars to take advantage of the new virtual landscape. The first allowed members to discuss "The Paper that Changed my Practice," while the second seminar was an "Ask the Experts" session with Mark Molitch, MD, PhD, and Valeria de Miguel, MD. Another webinar entitled "Microenvironments: The Science and the Clinical Implications" was hosted by Marta Korbonits, PhD, and Gerald Raverot, MD, and focused solely on basic science.

While we all hoped for an in-person connection during **ENDO 2021**, the second wave of the COVID-19 pandemic made that impossible. But all was far from lost; the AP-SIG committee and the dedicated Endocrine Society staff members coordinated a virtual networking event during **ENDO 2021** on Monday March 22, aptly titled "Adapting in Pandemic: Challenges and Lessons Learned." With more than 120 participants from all over the world, the event began with a brief introduction by Niki Karavitaki, MD, PhD, and Lauren Fishbein, MD, PhD. Attendees were then divided into four "breakout rooms" based on their interests. These sessions included Basic Science (hosted by Fishbein); Clinical and Translational Research (hosted by Karavitaki); and two Clinical Practice sessions hosted by Ricardo Correa, MD, EdD, and Sona Sharma, MD.


The result was a series of excellent discussions that addressed the challenges faced in the arenas of clinical practice, research, and education, as well as further facilitating strategic planning for activities throughout the next year:

► From a clinical perspective, the pandemic compelled us to try alternative methods to traditional in-person medicine. While patient care could have been compromised due to limited access, the silver lining turned out to be the large-scale implementation of telemedicine. As with any new technology, telemedicine did pose some technical challenges, but for the most part, the AP-SIG community felt that telehealth was not deleterious to clinical care and even improved emotional support to patients throughout the pandemic.

► On the scientific side, many research labs were closed, and resources for non-COVID-19 research proved scarce. This resulted in limited opportunities for teaching, training, and mentorship for many early-career researchers. However, the pandemic enforced independent scientific growth by young, enthusiastic future researchers. Likewise, networking and collaborating with leaders have been more effective and accessible through multiple web platforms. Several attendees commented that research institutions should start developing strategies to reduce the pandemic's impact on research disruption.

► On the education side, fellows training was the hallmark discussion in multiple subgroups. While fellows adapted quickly to providing care to their patients via telemedicine, most community members felt that they were losing a critical learning aspect of physical exams, especially with new patients and follow-up with complicated patients. Furthermore, the fellows felt that their clinical training was affected during the pandemic and requested a more robust mentorship in the adrenal and pituitary world.

Finally, we thank the Endocrine Society organizing team, including Claudia Barrett, Rodneikka Scott, and Courtney Neal, for making the AP-SIG and the **ENDO 2021** networking event a success. We also thank the AP-SIG community members for their valuable participation, support, and analytical inquiries on Community Connect. We guarantee that we listen and compile your questions, requests, and ideas to create potential educational and scientific experiences.

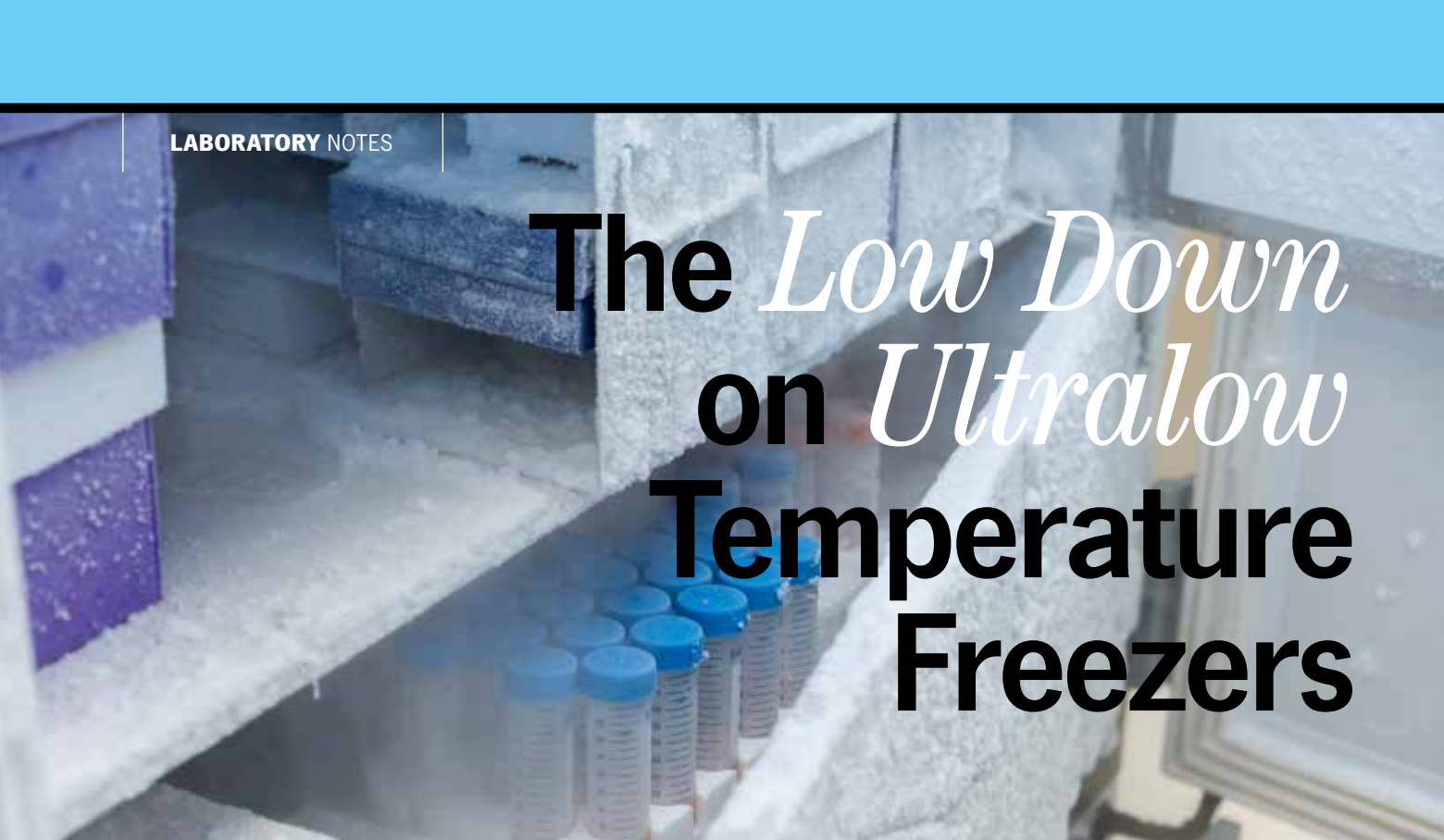
*The AP-SIG steering committee includes Niki Karavitaki, MD, PhD; Lauren Fishbein, MD, PhD; Roberto Salvatori, MD; Ricardo Correa, MD, EdD; Sona Sharma, MD; and Ismat Shafiq, MD. For more information go to: [www.endocrine.org/our-community/special-interest-groups](http://www.endocrine.org/our-community/special-interest-groups). *



Members of the AP-SIG Steering Committee are pictured (top, left to right): Sona Sharma, MD, Ismat Shafiq, MD, Roberto Salvatori, MD; (middle, left to right): Ricardo Correa, MD, EdD; Maria Ines Perez-Millan, PhD; (bottom, left to right): SIG Co-Chairs Lauren Fishbein, MD, PhD, and Niki Karavitaki, PhD, FRCP.

“ The result was a series of excellent discussions that addressed the challenges faced in the arenas of clinical practice, research, and education, **as well as further facilitating strategic planning for activities throughout the next year.**”

– SHAFIQ IS ASSOCIATE PROFESSOR OF MEDICINE AT THE UNIVERSITY OF ROCHESTER MEDICAL CENTER, ROCHESTER, N.Y. SHE HAS SERVED ON THE AP-SIG COMMITTEE SINCE 2019. CORREA IS PROGRAM DIRECTOR OF THE ENDOCRINOLOGY, DIABETES AND METABOLISM FELLOWSHIP AT THE UNIVERSITY OF ARIZONA COLLEGE OF MEDICINE, PHOENIX, ARIZ.



# The *Low Down* on *Ultralow* Temperature Freezers

**Ultralow temperature freezers aren't just for lifesaving vaccines; they're a common piece of equipment in most research labs. *Endocrine News* offers up a few tips on how to decide which ULT freezer is right for your laboratory.**

**W**hen the U.S. Food and Drug Administration (FDA) first approved the Pfizer-BioNTech COVID-19 vaccine, the application came with a major stipulation: The vaccine needed to be stored in ultra-cold temperatures until thawing just before use — meaning, freezing temperatures between  $-40^{\circ}$  and  $-80^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $123^{\circ}\text{F}$ ). The news set off immediate industry and media buzz about the technology of ultralow temperature (ULT) freezers.

While ULT freezers are common equipment in life sciences and clinical labs to safely store a variety of critical medical products and samples, these freezers are rarely, if ever, found in small clinics and pharmacies. State health agencies and hospitals anxious to provide the vaccine to their communities pushed the demand high for the special freezers and sparked a global purchase rush that backlogged the supply chain for several weeks.

Good news came in late February, however, when the FDA approved Pfizer's request for a change in policy that allowed its vaccine to be transported and stored in normal freezers for up to two weeks. This change made it easier for rural areas of the country and smaller clinics with limited resources to maintain the vaccine, making it more widely available to residents around the country.

Since this flurry of activity has put ULT freezers in the spotlight, Laboratory Notes explored some key points one should consider if in the

**BY GLENDA FAUNTLEROY SHAW**



market for the equipment, according to a recent six-part series in *Lab Manager*.

## Size and Capacity

There are two basic types of ULT freezers — upright and chest freezers. When considering your required freezer size, think of the number of sample boxes and racks you need to store. The larger the freezer volume, the costlier it is to operate. Upright freezers tend to be more popular because they take up less floor space in the lab, but many units can create height and mobility challenges for some staff members to access samples.

## Cost

The equipment is pricey. A brand-new freezer can range between \$12,000 and \$40,000, depending on the unit's size and dimensions and what options are included, reports *Lab Manager*. If you are open to owning a used unit, they can be found much cheaper.

## Temperature Control

How fast does the ULT freezer temperature recover to its  $-80^{\circ}\text{C}$  after warm air rushes in when someone opens the door? This is critical to consider when keeping precious samples protected. ULT freezers with multiple inner doors for different storage shelves instead of a single inner door for the entire freezer are optimal. This way, only the temperature of the shelf needed is affected when a door is opened, and it consumes less energy to resume to the freezer's inside temperature.



## Noise Level

Because of the intensive fan-cooling needed, ULT freezers can be loud in the lab and a definite distraction for researchers hard at work. The freezers are available in different noise levels but be aware that larger freezers produce more noise as they need to be cooled down more substantially to provide uniform temperature.

Check the manufacturer's information for the machine's decibel levels, which can range from less than 50 decibels to above 70. For comparison, a normal conversation and background music produces an average 60 decibels, while a vacuum cleaner averages 70 decibels.

## Monitoring Systems

While all ULT freezers have a built-in monitoring system, *Lab Manager* recommends upgrading to a more advanced system offered by the unit's manufacturer or a third-party company. Look for a system that offers cloud accessibility via smartphone or other remote devices for automatic temperature monitoring. If the freezer door is left open, for instance, the monitoring system sounds alarms and sends the user a text or email alert.

## Maintenance

Finally, ULTs tend to last about 10 years if maintained properly, so it is important to follow a few important steps to keep the freezer functioning well as long as possible:

- ▶ Read and follow the user manual.
- ▶ Clean filters, vents, and fans regularly.
- ▶ Remove frost from gaskets and shelves.
- ▶ Defrost or de-ice the freezer at least once a year (ice buildup can stop the door from closing properly and can damage the door latch and door alignment).

But if following a regular maintenance schedule proves too time-consuming for lab managers, experts advise purchasing a service plan from the company. <sup>EN</sup>

## Endocrine Society Condemns Efforts to Block Access to Medical Care for Transgender Youth

“

The treatment of transgender and gender diverse youth should be governed by the best available medical evidence, not politics.

”

On April 7, the state of Arkansas passed a law prohibiting gender-affirming care for minors, the first law of its kind in the U.S. Seventeen other states have introduced or are considering similar legislation. The proposals reflect widespread misinformation about the nature of gender-affirming medical care, criminalize physicians' efforts to provide needed medical care, and disregard widely accepted medical evidence and clinical practice guidelines.

In response to this growing number of state bills aimed at blocking access to medical care for transgender youth, the Endocrine Society issued a statement opposing legislative efforts that do not conform to medical evidence.

The Society's statement emphasized that scientific evidence shows there is a durable biological underpinning to our gender identity, and external forces have little impact on that identity and eliminating access to medical care will harm transgender and gender diverse individuals, who already face a disproportionately high rate of suicide.

“The treatment of transgender and gender diverse youth should be governed by the best available medical evidence, not politics,” says Joshua D. Safer, MD, FACP, co-author of the Society's Clinical Practice Guideline and position statement on transgender medicine. “When caring for transgender and gender diverse youth, physicians and mental health professionals must be able to freely practice and choose the best available treatment options in consultation with the patients and their parents, as they would when treating any other condition.”



We continue to share our clinical practice guidelines and position statement with policy makers and the media, and we are working with the Pediatric Endocrine Society, American Academy of Pediatrics, and others on providing medical evidence to the court in the expected legal challenges.

While the Society focuses its advocacy efforts at the federal level, we offer a toolkit for our members and other advocates who are calling for evidence-based legislation at the state level available on our website ([endocrine.org](https://endocrine.org)).

## President's Budget Proposal Boosts NIH Research, Diabetes

**O**n April 9, President Joe Biden released his proposed budget for domestic programs in fiscal year 2022. The Society was pleased the president's proposal reflects a commitment to biomedical research; includes our recommended funding increase of \$3 billion for the National Institutes of Health (NIH); and identifies diabetes research as a priority. The Endocrine Society has campaigned to ensure diabetes and endocrine research are at the forefront of health policy.

The president's \$1.52 trillion proposal includes:

- ▶ \$51 billion for the NIH to continue to support research;
- ▶ \$3 billion increase to the NIH's current budget, consistent with our funding recommendation; and
- ▶ \$6.5 billion of the \$51 billion total that will support the creation of the Advanced Research Projects Agency for Health (ARPA-H), which would invest in research and development spending in health.

The president's announcement states that ARPA-H will initially focus on diseases such as cancer, diabetes, and Alzheimer's. The agency's role will be to drive transformational innovation in health research and speed application and implementation of health breakthroughs. No further details about ARPA-H have been made available, but the Endocrine Society is trying to learn more and will share with members.

In the Society's outreach to the administration and Congress, we have advocated for increased funding for biomedical research and called attention to diabetes and other endocrine research. We thank all who have participated in our campaigns and congressional visits and urge all our U.S. members to join our online advocacy campaign to help ensure Congress passes these increases ([endocrine.org/advocacy/take-action](https://endocrine.org/advocacy/take-action)).



Photo: archna nautiyal/Shutterstock.com

## Medicare Physician Payment Updates Impact Endocrinologists

**L**ast month, several Medicare physician payment updates were announced that will affect endocrinologists:

### Senate Reaches Deal to Avert Medicare Cuts

— A 2% reduction in Medicare payments to providers was scheduled to go into effect on April 1. The Senate and House of Representatives overwhelmingly passed an agreement to avert these cuts. The legislation will delay these reimbursement cuts through the end of 2021. In anticipation of this possible congressional action, the Centers for Medicare and Medicaid Services (CMS) has instructed



the Medicare Administrative Contractors (MACs) to hold all claims with dates of service on or after April 1, 2021, for a short period without affecting providers' cash flow. This will minimize the volume of claims the MACs must reprocess when Congress extends the suspension of the Medicare cuts; the MACs also will automatically reprocess any claims paid with the reduction applied, if necessary.

### The Society Successfully Advocates for Important Change at CPT Panel

— In April, the American Medical Association's Current Procedural Terminology (CPT) Panel released technical corrections to the outpatient evaluation and



management (E/M) documents requirements, which included a change to remove proposed limits on how insulin would have been considered when being monitored. The Endocrine Society advocated for this change and worked with AACE to revise this language. These changes are retroactive to January 1, 2021.

**New Endocrine Society Resource: FAQs on Coding and Billing for 99091 and 99457** — We have worked to help our members determine how to appropriately bill for the work delivered to

patients with insulin pumps. Recently, we sent U.S. physician members information with clarification by CMS on coding and billing for remote physiologic monitoring (RPM) codes 99091 and 99457 and specifically how these codes could be used to reimburse for the care delivered to insulin pump patients. We have also developed an FAQs document to help you navigate these changes and answer any questions you may have about coding and billing for these codes available on our website at: [endocrine.org/improving-practice/macra](https://endocrine.org/improving-practice/macra).

## Endocrine Society Members Concerned about Information Blocking Rules

The Office of the National Coordinator for Health Information Technology (ONC) began implementation of the “Information Blocking Rule April 5, 2021.” The rule implements provisions of the 21st Century Cures Act requiring physicians to comply with new regulations on the access, exchange, and use of patients’ electronic health information (EHI).



Information blocking is defined as practices that are likely to interfere with, prevent, or materially discourage the access, exchange, or use of EHI. Physicians, hospitals, electronic health record (EHR) vendors, health information exchanges (HIE), and health information networks (HIN) are all subject to ONC’s rule and are collectively referred to as “actors.” Actors whose actions are likely to interfere with the access, exchange, or use of EHI could be considered information blockers and subject to penalties or disincentives. EHR vendors and HIE/HINs can receive up to \$1 million in civil monetary

penalties per violation. Penalties and other “disincentives” for physicians and other healthcare providers have yet to be determined by the U.S. Department of Health and Human Services (HHS). However, physicians participating in the Promoting Interoperability (PI) Program could see an impact to their Centers for Medicare and Medicaid Services Merit-based Incentive Payment System (MIPS) incentives if they are found to be information blockers.

We have heard concerns from Endocrine Society members who are physicians in practice about these new regulations, particularly the rule’s requirement that physicians release office notes and test results prior to physicians reviewing the information with the patient.

The American Medical Association (AMA) has provided resources for physicians to comply with the rule and is taking the lead in urging HHS to refrain from creating any new or additional physician penalties and working with the administration to address physician concerns.

Please see below for links to resources:

**ONC webinars:**

<https://www.healthit.gov/curesrule/resources/webinars>

**ONC fact sheets:**

<https://www.healthit.gov/curesrule/resources/fact-sheets>  
**Information Blocking Resource Center for physicians and other providers:**

<https://infoblockingcenter.org/>

**Information on how to file a complaint on information blocking actors—EHR vendors or otherwise (Report Information Blocking):**

<http://www.healthIT.gov/healthITcomplaints>

One of the Endocrine Society's recent panels included (clockwise from top left): director of the NIDDK Griffin P. Rodgers, MD; the Endocrine Society's chief professional and clinical affairs officer, Robert Lash, MD; Society member Mary Korytkowski, MD; director of the NIDDK Division of Endocrinology and Metabolism, William Cefalu, MD; and Society member Joshua Joseph, MD, MPH, FAHA.




## Endocrine Society Shares Endocrine Research Information with Congressional Offices

The Society has launched a series of educational briefings for congressional offices about endocrine research. On March 30, we hosted a virtual congressional briefing on COVID-19 and diabetes. Our panel included Congresswoman Kim Schrier (WA-08), the only U.S. representative living with type 1 diabetes and a pediatrician; director of the National Institutes of Diabetes, Digestive and Kidney Diseases (NIDDK) Griffin P. Rodgers, MD; director of the NIDDK Division of Endocrinology and Metabolism, William Cefalu, MD; and Endocrine Society members Joshua Joseph, MD, MPH, FAHA; and Mary Korytkowski, MD.

Congressional staff learned about how people with diabetes have more severe cases and poorer outcomes from COVID-19; the need to address racial and ethnic disparities in diabetes and COVID-19; what we now know about COVID-19 and diabetes; and what we need to further study. The Endocrine Society will continue to share the recording of the briefing along with our funding recommendations for the National Institutes of Health with congressional staff as we advocate for increased support for medical research.

On April 14, we hosted a “virtual” congressional briefing with the NIDDK to share recent advances and emerging opportunities with congressional staff. Congress is beginning the annual federal appropriations process of determining funding for all federal agencies, so this is an opportune time to make sure it is aware of the important research happening at all NIH institutes.

Our briefing included a panel of Rodgers, his three division directors, and a diabetes patient to talk about the important work occurring at the NIDDK and how the institute is addressing diversity, equity, and inclusion in the research workforce and in clinical trials. 



## Safe & Sound: Protecting Your Lab in Cyberspace

Is your lab vulnerable when it comes to cybersecurity? Growing threats call for increased security measures.

COMPILED AND WRITTEN BY COURTNEY CARSON

Over the past several years, the U.S. Food and Drug Administration (FDA) and manufacturers in healthcare have issued multiple warnings for malware, software intentionally designed to cause damage to a computer, server, client, or computer network. Malware has the potential to infect millions of medical devices and create vulnerabilities in connected devices. Even a decade ago, cybersecurity experts warned that insulin pumps could be hacked.

### Access Denied

Organizations storing patients' healthcare information online are most vulnerable to hackers, making these the most likely targets, but even scientific research labs could fall prey to cybersecurity hacks. Fortunately, there are ways to secure lab devices from these cyber threats.

The key to this security is all about controlling access to the network by implementing multifactor authentication and looking at how devices connect.

The National Institute of Standards and Technology offers guidance for securing internet of things (IoT) devices, which can serve as a reference on how to ensure labs are protected. And NISTIR 8259A, the Core Cybersecurity Feature Baseline for Securable IoT Devices, also known as "Core Baseline," is a starting point.

The main focus of labs when looking at the Core Baseline relates to recommendations for purchasing connected devices. Any device that is connected in the lab from IoT devices such as freezers to the coffee pot in the breakroom should include the following features or capabilities:



- ▶ **Identification:** It should have a unique address on computing networks.
- ▶ **Configurability:** A lab manager should be able to change or update its security software and firmware configuration.
- ▶ **Data protection:** Encryption or other data protection methods should be embedded into the device to protect it from unauthorized modification.
- ▶ **Limited network interfaces:** Devices should require user authentication to access the device, thus limiting their access to the local and wide area networks.
- ▶ **Software and firmware updates:** A secure, configurable way to update the software and firmware should be available, whether automatic or manual.
- ▶ **Event logging:** Cybersecurity events should be logged by the device to alert lab managers to vulnerabilities and to enable forensic analysis if hacked,

Fortunately, it is getting easier to find devices with those cybersecurity features. Unfortunately, there is no way to make a device 100% secure. Any device using software and connected to the internet could ultimately be at risk. But there are ways to further protect the lab by instilling a “zero-trust” cyber environment with multiple layers and segments in the wider institutional network.

### Constant Assessment

Bring in your IT specialists (or find an IT specialist who can help) to include updated security configurations on individual devices, close unused firewall ports, establish a lab VPN if one is not already in use, and update firmware and software on lab devices and also on the personal devices that, increasingly, are used to access labs remotely.

The key to staying on top of cybersecurity threats is by constantly accessing your risk. It is much easier to spot a vulnerability when it arises and put measures in place to ensure a hacker can't get their hands on your personal data than it is to handle the fallout that arises once your lab has been breached.

If it's time to upgrade some of your lab equipment and you are looking for devices that meet the Core Baseline for Securable IoT Devices, here are just a few options in the plethora of products available.



### Gate Scientific

#### smartSENSE® WiFi Precision Hotplate Stirrer

The wireless control station is the hub of the smartSENSE® platform. Armed with wireless communication and advanced processing power, the unit powers and communicates the stir bars, controls the temperature of the solution, logs the data, and hosts a web address for remote monitoring and control. The embedded RFID reader communicates with the smartSENSE® temperature and spin sensing stir bars. The stir bars provide real-time information about the temperature of the liquid, and the base unit will self-adjust the heat setting to maintain the pre-programmed specs. Leveraging the IoT for Labs capabilities, the setup may be accessed remotely from any device with web access. Software updates, available through [gatescientific.com](http://gatescientific.com), will keep the unit up to date as future sensing functionalities are introduced.

[www.gatescientific.com](http://www.gatescientific.com)



## Gilson

### Bluetooth Connected PIPETMAN M

PIPETMAN® M Connected is a Bluetooth®-enabled electronic pipette that offers accuracy and precision in both standard and repetitive pipetting modes. Requiring virtually no pipetting forces to aspirate and dispense samples, PIPETMAN M Connected helps reduce pipetting fatigue and increase pipetting efficiency. The pipette interacts in real time with TRACKMAN® Connected making planning and executing pipetting protocols faster, easier, and more reliable. Associated with TRACKMAN Connected and its PipettePilot™ application, PIPETMAN M Connected reduces the risk of human error by transferring verifiable pipetting parameters and commands in the pipette.

[www.gilson.com](http://www.gilson.com)



## Promethion

### ESA Environmental Sensor Array

The Environmental Sensor Array (ESA) is part of the Promethion system. The Promethion system captures synchronized metabolic and behavioral information of either mice or rats in the laboratory setting. The ESA provides the

unique ability to detect subtle or significant signals in the experimental operating environment that may influence research quality or confound its analysis. You will be able to see and document possible triggers for anomalous animal or cellular behaviors that typically go unexplained, including intrusive disturbances, variations in temperature or barometric pressure, and the impact of sound or light level. Information captured is integrated and synchronized with Sable's Promethion MetaScreen, CaloScreen, or SableScreen data collection and analysis software applications, allowing researchers to correlate environmental changes with study data. It can be teamed with any Promethion system for use in mouse and rat metabolic phenotyping, room calorimetry, genomics, metabolomics, cellular metabolism studies, and more.

[www.sablesys.com](http://www.sablesys.com)



## WTW

### ProfiLine Single- parameter Portable Conductivity Meter Series

The portable WTW ProfiLine meter series is available in three series versions: the 3110/3205-Basic series, 3210-Professional series, and 3310-Advanced series, each with a distinct level of sophistication for the independent measurement of pH, conductivity, or dissolved oxygen. All versions have a robust housing with IP 66/67 protection, large graphic display for excellent readability, sensor

status indicator informing users that sensors need either re-calibration or replacement, and an auto-read feature that "locks-in" the reading for precise measurements.

[www.geotecnv.com](http://www.geotecnv.com) 

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# EXAMINING THE OPTICS OF THYROID EYE DISEASE





THYROID EYE DISEASE (TED), ALSO KNOWN AS GRAVES' ORBITOPATHY IS AN AUTOIMMUNE CONDITION THAT AFFECTS THE EYE TISSUE.

THE MOST COMMON CAUSE TED IS GRAVES' DISEASE. 20% OF CASES OCCUR SIX MONTHS PRIOR TO DIAGNOSIS. HYPERTHYROIDISM IS PRESENT IN 40% OF CASES PRIOR TO AND AFTER DIAGNOSIS.



## SIGNS AND SYMPTOMS

Some patients diagnosed with TED may not have any symptoms, but at least half report symptoms:

-  Eyelid retraction is the most common sign
-  Inflammation and swelling of tissue around the eye
-  Dry eyes, itchiness, increased tearing, puffiness around the eyes, redness, double vision, and light sensitivity
-  Severe cases may lead to blindness

## RISK FACTORS

Family history, age, the female gender, cigarette smoking, and radioactive iodine are risk factors.

### DID YOU KNOW?

First, and second-hand smoking increases the risk of progression of TED. It also decreases the chances of having a successful treatment for TED.

## INACTIVE AND ACTIVE PHASES

Experts use a 7-point clinical activity score to determine if TED is in the active or inactive phases. The 7 points are eye pain, pain with eye movement, eye and eyelid redness, eyelid swelling, chemosis and caruncle edema.

A score of 3 or more suggests an active phase of TED. The active phase of TED can last two or three years, and requires careful treatment from an ophthalmologist.



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## TED AND GRAVES' DISEASE

Graves' disease is an autoimmune condition that attacks the thyroid gland. This causes the gland to secrete excess amount of thyroid hormone.

**40-50%** of patients with Graves' disease have signs and symptoms of TED

**30%** have moderate-severe disease

**5%** have sight threatening disease.

## TED AND HYPERTHYROIDISM

Hyperthyroidism and TED are due to the same underlying autoimmune process.








### YOUR EYES ARE SENSITIVE!

Receptors, such as the thyroid-stimulating hormone and insulin-like growth hormone 1, are located around the eye and are recognized as foreign by your body. Your body makes antibodies to attack these receptors which leads to swelling of the tissues around the eye.



## DIAGNOSIS AND TREATMENT OPTIONS

-  A physician will perform tests to assess vision, eyelid measurements, eye movement, and optic nerves.
-  A referral to an ophthalmologist and endocrinologist is encouraged. The goal of treatment is to restore the normal function and appearance of the eyes.
-  Treatment options for moderate to severe TED include steroids, radiation, teprotumumab, and other targeted therapies.
-  To alleviate symptoms at home, experts recommend artificial and eye ointment at bedtime. Experts also recommend avoiding cigarette smoking.
-  Other options include surgery.



VISIT [HORMONE.ORG](https://hormone.org)

You have questions. We have answers.

Editors: Debbie Chen, MD, Palak Choksi, MD, Andrea Kossler, MD, FACS, and Brandon Pham, PhD



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