

NOVEMBER 2022

THE LEADING MAGAZINE FOR ● ENDOCRINOLOGISTS

Endocrine news

Diabetes *Discourse*

This month, *Endocrine News* focuses on some of the more atypical components of diabetes treatment and research, as endocrinologists continue to play a vital role in finding a cure to this burgeoning epidemic.

- ▶ **Breaking Badly:** Bone fragility in diabetes ... and potential treatment and assessment solutions
- ▶ **The Name Game:** How rebranding diabetes insipidus can ease the confusion of both patients and caregivers.
- ▶ **Learning Curve:** What the pandemic has taught us about COVID-19 and diabetes.
- ▶ **Deterring Diabetes:** Christopher Holliday, PhD, on the CDC's diabetes prevention initiatives

FIRST LOOK:

Previewing the Endocrine Society's guideline on managing hypoglycemia in people with diabetes SIG

TRENDS & INSIGHTS:

New research on metformin, auranofin, and thiazolidinediones studies

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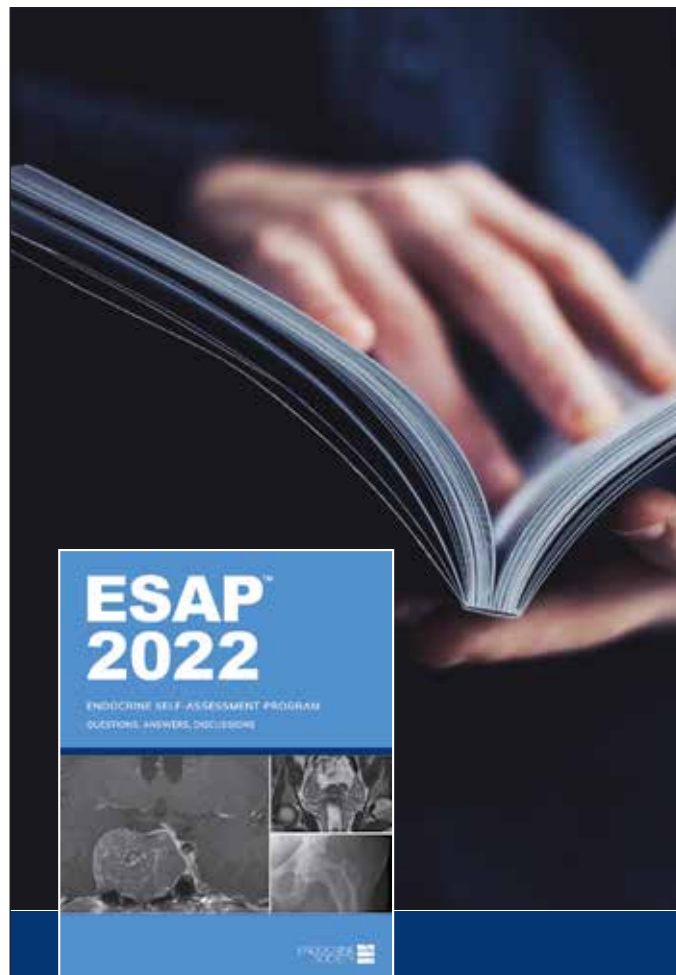
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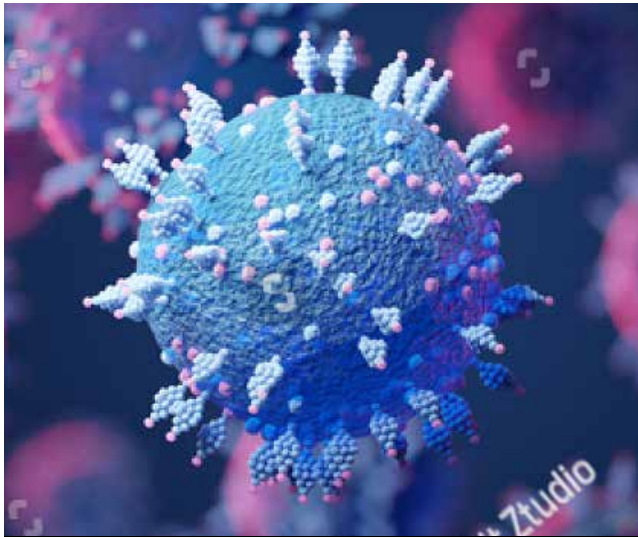
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30 | Diabetes and COVID-19: Some Lessons Learned

COVID-19 vaccination is safe, effective, and especially important in people with diabetes due to the risk of more severe outcomes. While a session at **ENDO 2022** emphasized the vaccine's safety in this population, more research is needed as to whether the virus is a causal factor to an increase in new-onset type 1 diabetes cases.

BY ERIC SEABORG

18 | An Ounce of (Diabetes)

Prevention A Conversation with Christopher Holliday, PhD, MPH, MA, FACHE, director of the CDC's Division of Diabetes Translation

Endocrine News sits down with **Christopher Holliday, PhD, MPH, MA, FACHE**, who is heading up the CDC's Division of Diabetes Translation, to discuss the complex relationship between COVID-19 and diabetes, the move to raise awareness of the pre-diabetes threat, and many more initiatives to combat this overwhelming scourge.

BY DEREK BAGLEY

22 | Bone Fragility in Diabetes New Research Focuses on Diabetic Bone Disease

People with diabetes have an increased risk of fractures, which is often underdiagnosed and impacts their mobility as well as their mortality. A new array of treatments and assessments — novel therapeutics, senolytics, revamped prescribing protocols, and more — are needed to better concentrate on diabetic bone disease.

BY KELLY HORVATH

26 | Q&A: Anthony L. McCall, MD, PhD, FACP, and David C. Lieb, MD, FACP

Endocrine News talks with **Anthony L. McCall, MD, PhD, FACP** and **David C. Lieb, MD, FACP**, co-chairs of the guideline development panel that created the latest Endocrine Society Clinical Practice Guideline on managing hypoglycemia in people with diabetes.

2 | PRESIDENT'S VIEWPOINT

The Endocrine Society's Ongoing Diabetes Advocacy

4 | FROM THE EDITOR

Running the Gamut of Diabetes Concerns This Month

6 | TRENDS & INSIGHTS

Could metformin be a potential atrial fibrillation treatment? Findings support repurposing auranofin for diabetes; and Thiazolidinediones linked to 22% reduced dementia risk.

BY DEREK BAGLEY

9 | INTOUCH

Meet the 2023 Laureates; Chrousos receives the Transatlantic Alliance Award.

15 | DASHBOARD

Highlights from the world of endocrinology

16 | ENDOCRINE ITINERARY

Scientific meetings of interest to endocrinologists from around the world

34 | PRACTICE RESOURCES WHAT'S IN A NAME? THE MOVE TO RENAME DIABETES INSIPIDUS GAINS MOMENTUM

There has been a movement afoot to change the name of diabetes insipidus to better reflect the condition's underlying pathophysiology. With an agreement on a new

name — "Arginine Vasopressin Deficiency" or "Arginine Vasopressin Resistance," depending on the etiology — an international coalition hopes to eliminate any ongoing confusion for patients and their caregivers.

BY DEREK BAGLEY

38 | ENDOGEAR IN THE PALM OF YOUR HAND

Patients with diabetes may be overlooking one of the most readily available resources to help manage their disease — their cell phone. By downloading (and using) a diabetes management app, patients can access countless tools that cover issues ranging from carb counts to insulin doses,

glycemic index to blood pressure, and more.

BY COURTNEY CARSON

43 | ADVOCACY

A look at Congress' to-do list post mid-terms; Society continues to work to advance INSULIN Act; and the Society's response to the European Commission's new EDC hazard class.

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The Endocrine Society's Ongoing Diabetes Advocacy

November is Diabetes Awareness Month, an important opportunity to raise awareness about the challenges facing over 37 million people who live with diabetes in the U.S. I am proud of the Endocrine Society's work advocating for improved prevention, more research, greater access, and lower insulin costs, as well as our contributions to sharing the latest science and improving clinical education. Our members have played a pivotal role in advancing our policy and advocacy priorities on this issue.

This year, we celebrated an important milestone in our years' long effort to make insulin more affordable. On August 16, President Joseph R. Biden, Jr., signed the Inflation Reduction Act into law. This legislation included a landmark measure to make insulin more affordable. The new law institutes a \$35 per month cap on out-of-pocket costs of insulin for Medicare beneficiaries, which will take effect in 2023. The law will also allow Medicare to negotiate the price of certain prescription drugs. This provision will not go into effect until 2026 because it will take time to set up this new program. This historic new law is the result of years of advocacy by the Society to make this lifesaving drug more affordable for people living with diabetes. The Society authored an insulin affordability position statement with recommendations to policymakers. We worked with members of Congress on both sides of the aisle, including the bipartisan leaders of the Congressional Diabetes Caucus, to build consensus for meaningful solutions to address this longstanding issue. We also conducted congressional briefings to educate policy makers, testified before Congress, conducted Hill Days, attended congressional meetings, and participated in grassroots advocacy. This work could not have been done without the participation of our members.



While this new law is an important step forward, more work needs to be done to make insulin more affordable for people not on Medicare. During the Senate consideration of the Inflation Reduction Act, a provision that would have applied the \$35 co-pay cap to the private insurance market was removed. Senate Majority Leader Chuck Schumer (D-NY) has committed to revisiting this issue before the end of the

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This funding will allow researchers to continue making groundbreaking discoveries in diabetes research and will continue funding for critical programs to prevent the onset of type 2 diabetes, such as the Diabetes Prevention Program.

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year. However, the end of the year will bring many competing legislative priorities. We will continue to urge the Senate to take up this legislation before the end of the year to expand the co-pay cap to the private insurance market. The Society remains committed to ensuring that all people with diabetes have access to affordable insulin.

As we look ahead to 2023, there will be more opportunities for the Society to raise awareness on issues related to diabetes. Funding for the Special Diabetes Program (SDP) will expire on September 30, 2023. The SDP is a critically important program that funds type 1 diabetes research and prevention programs for American Indians and Alaskan Natives (AI/AN). The SDP funding has been used to advance new technology to manage diabetes, such as the artificial pancreas. The SDP has also

helped to reduce the complications of type 2 diabetes in AI/AN populations. Congress will need to take action to reauthorize this critically important program. The Society will advocate for a full five-year reauthorization of the SDP. We will also be working to ensure that Congress passes an appropriations bill for FY 2023 that provides steady, sustainable increases in funding to the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC). This funding will allow researchers to continue making groundbreaking discoveries in diabetes research and will continue funding for critical programs to prevent the onset of type 2 diabetes, such as the Diabetes Prevention Program.

Finally, our work does not stop with Congress. We are also partnering with the NIH and the CDC to raise awareness of important issues impacting people with diabetes, and we are collaborating with the White House on this topic. Most recently, we provided input and recommendations to the White House on its National Strategy on Hunger, Nutrition, and Health. This national strategy, which included several of our recommendations to support diabetes and obesity prevention programs, was unveiled at a conference hosted by the White House in September.

While we have had tremendous success this year, our work will continue in 2023. Thanks to all of you who have helped advance these efforts. Your voices are critical components in the work we do to advocate for these issues. For those of you not yet involved, we encourage you to join us in advancing these important priorities.

To learn more about how you can participate in our diabetes advocacy, please contact us at: advocacy@endocrine.org. 

– Ursula B. Kaiser, MD
President, Endocrine Society



FROM THE **EDITOR**

Running the Gamut of Diabetes Concerns

As the leaves turn brilliant colors along the Mid-Atlantic, the focus of *Endocrine News* turns to our annual diabetes research and practice issue each November, to coincide with Diabetes Awareness Month. As usual, thanks to the plethora of research on this topic, we have a packed issue for you.

On page 34, Kelly Horvath delves into the topic of diabetic bone disease in **"Bone Fragility in Diabetes."** It has long been understood that people with diabetes have an increased risk factor for fractures, affecting both their mobility and their mortality. Horvath writes that, "Further confounding the situation, the gold standard for [bone mineral density] measurement, dual-energy x-ray absorptiometry (DEXA), does not adequately predict fracture risk in these populations, despite its efficacy in predicting fracture risk in the setting of postmenopausal and male osteoporosis." New treatments and other assessments such as novel therapeutics, revamped prescribing protocols, and much more could be used to better concentrate on this often underdiagnosed condition.

Since the many sessions presented in June at **ENDO 2022** are the "gifts that keeps on giving" in terms of valuable content and cutting-edge research, we are presenting some of that data in the article **"Diabetes and COVID-19: Some Lessons Learned"** by Eric Seaborg on page 42. Seaborg spoke to Ernesto Maddaloni, MD, PhD, assistant professor of endocrinology and diabetes at Sapienza University in Rome, Italy, regarding his session, "COVID-19 Vaccine in People with Diabetes: Safe and Effective?" and Francesco Vendrame, MD, PhD, assistant professor of medicine in the Division of Endocrinology at the University of Miami, on his session, "COVID-19 and Type 1 Diabetes: Lessons Learned." As the COVID-19 pandemic progresses, likely more and more questions will be raised regarding the safety of the vaccines in people with diabetes. According to Maddaloni, it can be said that the vaccine is as safe in this population as it is in people without diabetes. "There is no increased risk of side effects and no [other additional] risk in people with diabetes," he says in the article. "Vaccination is strongly suggested in people at high risk of complications, such as people with diabetes." Seaborg writes that even though it feels like the COVID-19 pandemic has been lingering forever, "in terms of learning about a new virus, it has still been a short time frame." Vendrame adds, "This is an evolving area and new studies are published continuously."

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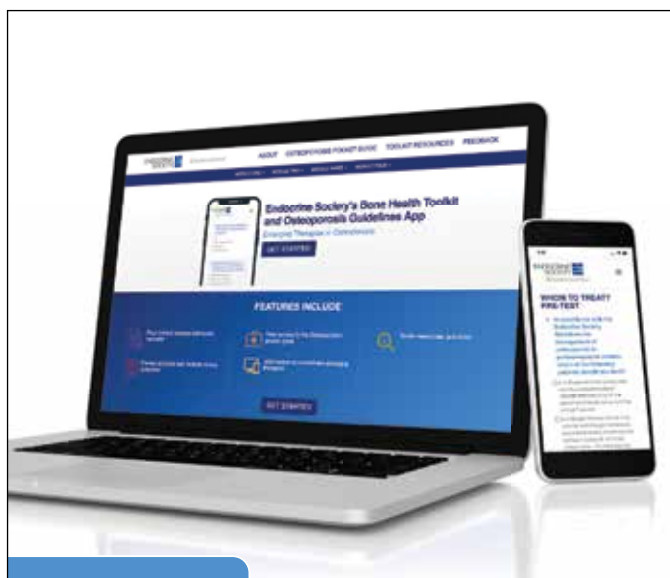
For many years, the burgeoning cases of diabetes have been at alarming — some would even use the phrase “pandemic” — levels. When the COVID-19 pandemic swept the planet, new solutions to combat diabetes were sorely needed.

Endocrine News senior editor Derek Bagley sits down with Christopher Holliday, PhD, MPH, MA, FACHE, the director of the Centers of Disease Control’s (CDC) Division of Diabetes Translation, to discuss the complex relationship between these conditions, the move to raise awareness of the pre-diabetes threat, and many more initiatives to combat diabetes. He goes into great detail about the CDC’s *Do I Have Prediabetes?* campaign, a condition that he refers to as a “wakeup call,” adding that “many people will be surprised to learn that more than one in three American adults, that’s 96 million people, have prediabetes, and 81% of them don’t even know they have it,” he says. “Prediabetes is a health condition that puts people at high risk for other serious conditions like heart attack, stroke, and type 2 diabetes. But the good news is that for most people, type 2 diabetes can be prevented or delayed.” Check out the edited conversation in “**An Ounce of (Diabetes) Prevention**” on page 30, and an extended version on the *Endocrine News* website.

Bagley also looks at the movement to rename the condition known as diabetes insipidus in “**What’s In a Name?**” on page 46. Based on a study from the Working Group to Rename Diabetes Insipidus that has garnered the support of the Endocrine Society as well as the Japanese Endocrine Society, the Society for Endocrinology, the European Society of Endocrinology, and other international associations, this article puts forth the reasons for the name change, most notably to eliminate confusion among patients and caregivers alike. According to John D. C. Newell-Price, MD, PhD, FRCP, professor of medicine, Department of Oncology and Metabolism, University of Sheffield, U.K., who was one of the Endocrine Society’s representatives on the working group, the call for a name change started some years ago due to some tragic outcomes for patients but has gathered a pace over the last 12 months due to an increased interest from this international group of endocrinologists and patient representatives.

If you have any thoughts, comments, or even ideas for future *Endocrine News* articles, please feel free to reach out to me at: mnewman@endocrine.org. 

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



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BY DEREK BAGLEY
Senior Editor



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There is a significant need for new treatments for atrial fibrillation as there have been no new drugs approved in more than a decade.

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TRENDS & INSIGHTS

Could Metformin Be a Potential Atrial Fibrillation Treatment?

Researchers have identified a common diabetes medication, metformin, as a possible treatment for atrial fibrillation, according to a study published in *Cell Reports Medicine*.

The study built on ongoing collaborative Cleveland Clinic research to support further investigation into metformin as a drug repurposing candidate. Researchers used advanced computation and genetic sequencing to determine that metformin's targets overlap significantly with genes dysregulated in atrial fibrillation.

“Finding drugs or procedures to treat atrial fibrillation is difficult because of potential serious side effects,” says Mina Chung, MD, senior author of the study who is in Cleveland Clinic's Department of Cardiovascular Medicine in the Heart, Vascular, and Thoracic Institute. “There is a significant need for new treatments for atrial fibrillation as there have been no new drugs approved in more than a decade.”

“It's not that we've found a new drug target where it takes 20 years to test this in individuals,” says Jessica Castrillon Lal, the study's first author and a fifth-year graduate student in the Cleveland Clinic Molecular Medicine program.

“We can cut off 10+ years in the drug development pipeline. We already have the information there. We just have to test it in a very computationally efficient way, such as artificial intelligence technology,” says Feixiong Cheng, PhD, co-senior author of the study and associate staff at the Genomic Medicine Institute in Cleveland Clinic's Lerner Research Institute.

The analysis found metformin targeted 30 genes associated with atrial fibrillation, with direct effects on gene expression for eight. Eight other candidate drugs surfaced in the analysis, but researchers were able to identify metformin as the most promising candidate through testing and reviewing outcomes in large stores of patient data.

Castrillon Lal conducts research in Cheng's lab, which uses network medicine approaches to find candidate drugs for repurposing, creating vast networks of molecular interactions. For this study, researchers winnowed down a list of 2,800 FDA-approved treatments by analyzing three data sources: a map of interactions between proteins called an “interactome”; a network of genes associated with atrial fibrillation; and each medicine's molecular or genetic targets.

This work is related to a recently awarded \$14.2 million grant from the NIH to investigate new atrial fibrillation treatments using genomic data. Researchers further supported results of the network analyses with experiments on live beating heart cells grown from human stem cells, showing favorable effects of metformin on gene expression.

“Our Electrophysiology section is one of the most advanced in the field and together with the Lerner Research Institute, we're pleased to see important research from this grant contributing to the field so quickly, especially since metformin is very safe and readily available,” says Oussama Wazni, MD, section head of electrophysiology and pacing at Cleveland Clinic.

Findings Support Repurposing Auranofin for Diabetes

The rheumatoid arthritis drug auranofin can potentially be repurposed to improve diabetes-associated symptoms, according to a recent mouse study published in *Cell Metabolism*.

Researchers led by Sean Hartig, PhD, associate professor of medicine-endocrinology, diabetes, and metabolism and molecular and cellular biology at Baylor College of Medicine in Houston, Texas, point out that although scientists have identified definitive associations between inflammation in white adipose tissue and insulin resistance in humans and rodents, broad anti-inflammatory treatments lack durable clinical efficacy on diabetes. In the current study, the researchers explored in more detail this association between inflammation and diabetes by looking for existing drugs that might affect both conditions.

“We computationally screened a small-molecule dataset and identified auranofin, an FDA-approved drug that has been used to treat rheumatoid arthritis, a condition involving inflammation,” says first and co-corresponding author Aaron R. Cox, PhD, instructor of medicine-endocrinology, diabetes, and metabolism at Baylor. “Auranofin exerts anti-inflammatory properties, which many people suspected would be beneficial in obesity and diabetes; however, nothing was really known about how it might affect metabolism.”

The team evaluated the metabolic effects of auranofin in a mouse model of diabetes in which the animals consume a high-fat diet.

“We discovered that auranofin has anti-inflammatory and anti-diabetic effects that

are independent from each other,” Hartig says. “Auranofin improved insulin sensitivity, or the body’s ability to respond to insulin to keep blood sugar at healthy levels. The drug also normalized obesity-associated changes such as hyperinsulinemia — blood insulin levels that are higher than normal — in the mouse model. In addition, we found that auranofin accumulation in white adipose tissue reduced inflammatory responses without altering body composition in obese mice.”

Looking into the mechanism of these metabolic changes, the team discovered that the anti-diabetic effects of auranofin involved reduction of leptin levels. Leptin is a hormone whose levels markedly increase in obesity, contributing to insulin resistance and diabetes. In addition, auranofin restored white adipose tissue’s ability to respond to catecholamines, which are signals that increase metabolic activities in adipose tissue, triggering the burning of lipids at a higher rate.

“These changes coupled together contribute to the overall improvement in insulin sensitivity of the mice, leading to blood glucose control, which is the ultimate goal of diabetes treatments,” Cox says. “High levels of glucose in the blood are detrimental to many tissues in the body. Uncontrolled, diabetes can lead to organ failure.”

“We are very excited about these findings; however, more research will be needed to determine an effective strategy to translate them to the clinic,” says Hartig.



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These changes coupled together contribute to the overall improvement in insulin sensitivity of the mice, leading to blood glucose control, which is the ultimate goal of diabetes treatments.

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The protective effects of TZD were more substantial for overweight or obese patients. Our findings provide additional information to aid clinicians' selection of ADMs for patients with mild or moderate type 2 diabetes and are at high risk of dementia.

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Thiazolidinediones Linked to 22% Reduced Dementia Risk

Use of thiazolidinediones (TZDs), is linked to a 22% reduced risk of dementia, according to a long-term study published in *BMJ Open Diabetes Research & Care*.

Researchers led by Jin J. Zhou, PhD, of the University of California, Los Angeles, point out that type 2 diabetes is associated with an elevated risk of dementia, including Alzheimer's and vascular dementia, and that there have been studies looking at the use of antidiabetic medications (ADMs) to treat dementia, with varying results and inconsistently observed associations. To shed further light on this, the researchers compared dementia risk in older people with type 2 diabetes and treated with either a sulfonylurea or a TZD with those treated with metformin alone.

The researchers drew on the electronic health records of 559,106 people diagnosed with type 2 diabetes from the national Veteran Affairs (VA) Health System, spanning the period from January 2000 to December 2019. Only older patients (age at least 60) and given a first prescription of metformin, or a sulfonylurea (tolbutamide, glimepiride, glipizide, or glyburide), or a TZD (rosiglitazone or pioglitazone) between January 2001 and December 2017 were included (559,106) in the study. Their health was tracked for an average of nearly eight years.

After at least one year of drug treatment, use of a TZD alone was associated with a 22% lower risk of dementia from any cause, compared with the use of metformin alone. Specifically, it was associated with an 11% lower risk of Alzheimer's disease and a 57% lower risk of vascular dementia. Given that vascular diseases increase the risk of Alzheimer's disease, TZDs may also help to reduce dementia

and Alzheimer's disease in part through their favorable effects on the vascular system, say the researchers.

While the risk of dementia from any cause was 11% lower for the use of metformin and TZD combined, it was 12% higher for the use of a sulfonylurea drug alone, prompting the researchers to suggest that supplementing a sulfonylurea with either metformin or a TZD may partially offset these effects.

Further in-depth analysis indicated that those younger than 75 benefited more from a TZD than older patients, highlighting the importance of early prevention for dementia, note the researchers. And these drugs also seemed to be more protective in overweight or obese patients.

This is an observational study, so definitive conclusions can't be drawn about cause and effect. And the researchers acknowledge that certain potentially influential information wasn't available, including kidney function and genetic factors, and that study participants were predominantly male and White. But they suggest that future studies for repurposing diabetes drugs for dementia prevention might want to consider prioritizing TZDs, based on their findings.

“In summary, TZD users had a lower risk of dementia, and SU users had a higher risk of dementia than MET users among type 2 diabetes participants,” the researchers conclude. “The protective effects of TZD were more substantial for overweight or obese patients. Our findings provide additional information to aid clinicians' selection of ADMs for patients with mild or moderate type 2 diabetes and are at high risk of dementia.” ^{EN}

Endocrine Society Names 2023 Laureate Award Winners

The Endocrine Society today announced it has chosen 13 leading endocrinologists as winners of its prestigious 2023 Laureate Awards, the top honors in the field.

These professionals have achieved breakthroughs in scientific discoveries and clinical care benefiting people with hundreds of conditions, including diabetes, thyroid disorders, obesity, hormone-related cancers, growth problems, osteoporosis, and infertility.

Established in 1944, the Society's Laureate Awards recognize the highest achievements in the endocrinology field, including groundbreaking research and innovations in clinical care. The Endocrine Society will present the awards to the winners at **ENDO 2023**, the Society's annual meeting. Look for a full-length feature in the January 2023 issue of *Endocrine News*.

The Endocrine Society's 2023 Laureate Award winners are:



Mitchell A. Lazar, MD, PhD
**FRED CONRAD KOCH LIFETIME
ACHIEVEMENT AWARD**

The Society's highest honor, this annual award recognizes lifetime achievements and exceptional contributions to the field of endocrinology. Lazar is the Willard and Rhoda Ware Professor in Diabetes and Metabolic Diseases

at the Perelman School of Medicine at the University of Pennsylvania in Philadelphia, and the founding director of the university's Institute for Diabetes, Obesity, and Metabolism. He is one of the world's leading figures in the field of endocrinology and diabetes research. Lazar is an endocrinologist and physician-scientist whose findings relate to the basic mechanisms of nuclear receptor action and their role in obesity and diabetes, most notably the discovery of the hormone resistin. His work has uniquely and reproducibly linked the fields of transcriptional regulation, epigenomics, circadian rhythms, and metabolism from the vantage point of

endocrine physiology. Lazar has been elected to the National Academy of Medicine, the American Academy of Arts and Sciences, and the National Academy of Sciences. He has been selected as an editorial board member of *Endocrine Reviews*, *Endocrinology*, and the *Journal of the Endocrine Society* and has received many awards, including two Method to Extend Research in Time (MERIT) Awards from the National Institutes of Health, the Karolinska Institute's 2019 Rolf Luft Award, and the Richard E. Weitzman Memorial and Gerald D. Aurbach Awards from the Endocrine Society. He has served on the Board of Scientific Councilors of the National Institutes of Diabetes, Digestive, and Kidney Diseases and on the Endocrine Society's Board of Directors.



Holly A. Ingraham, PhD
**EDWIN B. ASTWOOD AWARD FOR
OUTSTANDING RESEARCH IN
BASIC SCIENCE**

Originally awarded in 1967 and renamed to honor the scientific contributions of the late Dr. Edwin B. Astwood, MD, this award recognizes individuals who have made significant contributions to

the field of endocrinology via their outstanding basic science research. Ingraham is the Herzstein Endowed Professor in Molecular Physiology at the University of California, San Francisco in San Francisco, Calif. As a world leader in hormone signaling, Ingraham has illuminated basic molecular processes controlling endocrine development and physiology, with recent emphasis on understanding the cellular and molecular basis of diseases that exhibit a sex-bias in women. A few of her most notable contributions to the basic science field include being the driving force in identifying one of the first tissue-specific regulators, Pit-1, a founding member of the POU-homeodomain transcription factor family. Ingraham also demonstrated that the nuclear receptor Steroidogenic Factor 1 (SF-1) is a major determinant of gonadal sex-differences. Her most recent study of a novel hormone-dependent node illuminates the power of estrogen in motivating behavior and maintaining an active lifestyle in females.

GERALD D. AURBACH AWARD FOR OUTSTANDING TRANSLATIONAL RESEARCH

This annual award recognizes outstanding contributions to research that accelerates the transition of scientific discoveries into clinical applications.



► **Myles Brown, MD** — Brown is the Emil Frei III Professor of Medicine at Dana-Farber Cancer Institute and Harvard Medical School in Boston, Mass. He is an expert in oncology and a talented physician-scientist whose contributions have fundamentally reformulated the mechanistic

understanding of hormone dependence of breast and prostate cancers, which has enabled the development of new therapies for these diseases. He has been honored with several awards, including the Endocrine Society's 2010 Edwin B. Astwood Award. He also was elected to the National Academy of Sciences in 2016, the American Academy of Arts and Sciences in 2017, and the National Academy of Medicine in 2020. He has been a member of the Endocrine Society since 2002 and served on the Editorial Board for the Endocrine Society's journal, *Molecular Endocrinology*, which was incorporated into the journal *Endocrinology* in 2017.



► **Márta Korbonits, MD, PhD, DSc, FRCPD** — Korbonits is the professor of endocrinology and metabolism at Queen Mary University of London. She is one of the top clinician scientists on the clinical, translational, and experimental aspects of pituitary tumorigenesis and familial isolated

pituitary adenomas. Furthermore, she has pioneered work on the metabolic effects of various hormones. Her strength is the ability to set up basic science experiments based on key clinical questions and then translate these back to clinical studies. In addition, she looks after patients with endocrine diseases at St. Bartholomew's Hospital, undertakes wide-ranging teaching activities and supervises MSc and PhD students. She currently serves on the Endocrine

Society's Annual Meeting Steering Committee and as president-elect of the Society for Endocrinology. She also received the Endocrine Society's 2015 Delbert A. Fisher Research Scholar Award.



Tasnim Ahsan, MRCP, FRCP, FCPS

INTERNATIONAL EXCELLENCE IN ENDOCRINOLOGY AWARD

This award is presented to an endocrinologist who has made exceptional contributions to the field in geographic areas with underdeveloped resources for hormone health research,

education, clinical practice, or administration. Ahsan is the professor emerita at the Jinnah Postgraduate Medical Centre and the founding dean of the Medicell Institute of Diabetes Endocrinology & Metabolism in Karachi, Pakistan. She is an internationally renowned clinician and educator who has contributed to the establishment and growth of the field of endocrinology in Pakistan. She started the first endocrinology practice in a public-sector hospital in Pakistan at the Jinnah Postgraduate Medical Centre in 1993 and has trained over 100 postgraduate trainee doctors in internal medicine and endocrinology. She is dedicated to expanding access to care and treats a large transgender community at the Medicell Institute. She also is a founding member of the Pakistan Endocrine Society.



Peter J. Snyder, MD
OUTSTANDING CLINICAL INVESTIGATOR AWARD

This annual award honors an internationally recognized clinical investigator who has contributed significantly to understanding the pathogenesis and therapy of endocrine and metabolic diseases. Snyder is a

professor of medicine at the Perelman School of Medicine at the University of Pennsylvania. He has made outstanding contributions to the field of male reproductive endocrinology. His discoveries have helped establish the standard treatment for infertility in men with hypogonadotropic hypogonadism. He also was the first to recognize and characterize gonadotroph pituitary adenomas. As principal investigator of the landmark Testosterone Trials, he led the largest, most comprehensive

trials of the efficacy of testosterone. He currently serves on the Endocrine Society's Testosterone Therapy in Men with Hypogonadism Guideline Writing Committee and the Testosterone Therapy in Adult Men with Androgen Deficiency Syndromes Task Force



Mihail Zilbermint, MD, MBA
**VIGERSKY OUTSTANDING
 CLINICAL PRACTITIONER
 AWARD**

This annual award recognizes extraordinary contributions by a practicing endocrinologist to the endocrine and/or medical community.

Zilbermint is an associate professor of clinical medicine at the Johns Hopkins University School of Medicine and the chief and director of endocrinology, diabetes, and metabolism at the Johns Hopkins Community Physicians Suburban Hospital in Bethesda, Md. He is an outstanding clinician, well recognized for his excellent clinical care and strong program-building skills, and who is passionate about quality inpatient diabetes care and research. He established the Endocrine Hospitalist and Inpatient Diabetes Management Service at Suburban Hospital, a specialized clinical consultation program designed to promote better glycemic control in hospitalized patients. This initiative has saved his hospital hundreds of thousands of dollars by reducing the length of stay of patients with diabetes. Zilbermint was also one of the first to deploy inpatient diabetes telemedicine during the COVID-19 pandemic. He has held many service positions at the Endocrine Society, including being a member of the Quality Improvement Subcommittee, the EndoCares® 2021 District of Columbia, Maryland, Virginia Steering Team, and the *Endocrine News* editorial advisory board.



David Stephen Cooper, MD
**OUTSTANDING EDUCATOR
 AWARD**

This annual award recognizes exceptional achievement as an educator in the discipline of endocrinology and metabolism. Cooper is a professor of medicine and radiology at the Johns Hopkins University School of Medicine

in Bethesda, Md. He has been a faculty member at Johns Hopkins for more than 30 years and is an international leader

in the thyroid and endocrine community for his work treating Graves' disease and subclinical thyroid disease, and various aspects of the diagnosis and management of thyroid cancer. He is most passionate about teaching the next generation of endocrinologists and leads by example, showing tremendous compassion and care for his patients. He has high expectations for his trainees and is a strong advocate for their education. He was recognized with the Endocrine Society's 2016 Outstanding Scholarly Physician Award and has served as the chair of the Society's Endocrine Board Review and as a member of its In-Training Exam Steering Group.



William Rainey, PhD
OUTSTANDING MENTOR AWARD

This annual award recognizes a career commitment to mentoring and a significant positive impact on mentees' education and career. Rainey is the Jerome W. Conn Professor of Molecular & Integrative Physiology and Internal Medicine at the University of Michigan

in Ann Arbor, Mich. He is a renowned adrenal investigator and mentor who invests wholeheartedly in the next generation of endocrinologists. Rainey has elevated the career trajectory of numerous trainees, with his dedication to teaching and his transformational influence on their scientific thinking and writing. He is proactive in crafting customized career-development plans for each of his mentees, and he selflessly supports them through their transition to independence by providing guidance, creating key networking opportunities, and offering unrestricted access to his laboratory resources and personnel. He has contributed to the Endocrine Society as a board member of the *Journal of the Endocrine Society* and *Endocrinology*, and a member of the Annual Meeting Steering Committee.



Bryan Haugen, MD
**OUTSTANDING PUBLIC SERVICE
 AWARD**

This annual award recognizes outstanding contributions to the practice of clinical endocrinology in academic settings. Haugen is a professor of medicine and pathology at the University of Colorado School of Medicine in

Aurora, Colo., and a recognized leader in the evaluation and

management of thyroid cancer. He played a key role in studies that showed the effectiveness of recombinant human thyroid-stimulating hormone as a tool for monitoring patients with thyroid cancer. He also was instrumental in developing a novel Gene Expression Classifier diagnostic panel that significantly enhances the accuracy of diagnosing thyroid cancer. He has written and lectured extensively to clinicians worldwide on the use of molecular diagnostic testing in the evaluation of thyroid nodules. He oversaw the development of the 2015 American Thyroid Association Guidelines for the Management of Thyroid Nodules and Differentiated Thyroid Cancer. These guidelines are now used by virtually every clinical endocrinologist in the U.S. in the day-to-day management of thyroid cancer.



Rana K. Gupta, PhD
RICHARD E. WEITZMAN
OUTSTANDING EARLY CAREER
INVESTIGATOR AWARD

This annual award recognizes an exceptionally promising young clinical or basic investigator. Gupta is a professor of medicine at Duke University School of Medicine in Durham, N.C. Gupta spent a

decade building a research program at the University of Texas Southwestern that has earned international recognition for its novel contributions to the field of adipose tissue development and function. He is one of the preeminent investigators in the field of adipose biology, especially as it relates to pathogenesis of cardiometabolic diseases and the regulation of metabolic homeostasis. He is a thought leader in the field of adipose tissue progenitors and has contributed several authoritative review articles on this topic. Gupta is an active participant on the National Institutes of Health study sections focused on the work in the field of diabetes, obesity, and metabolism.



Joseph Bass, MD, PhD
ROY O. GREEP AWARD FOR
OUTSTANDING RESEARCH

This annual award recognizes meritorious contributions to research in endocrinology. Bass is the Charles F. Kettering Professor of Medicine at Northwestern University Feinberg School of Medicine in Chicago, Ill. He is one of

the world's leaders in circadian biology and endocrinology. His creativity and insights as an endocrinologist were instrumental in his discovery that a mutation in a core circadian clock

gene lead to abnormal glucose metabolism, hyperphagia, and alterations in the control of feeding time in mice. This pioneering work provided the molecular underpinning for current thinking about how shift work leads to obesity and diabetes and set the stage for studies on how meal timing affects health. Bass next innovatively asked the converse question of whether metabolism reciprocally influences the clock and established that the macronutrient content of diet directly modulates circadian behavior and rhythmic physiology. Most recently, he has elucidated the biochemical basis for NAD⁺-SIRT1 regulation of core clock function, opening insight into senescence of sleep/wake and metabolic rhythms during aging.



Beverly M.K. Biller, MD
SIDNEY H. INGBAR
DISTINGUISHED SERVICE AWARD

This award recognizes distinguished service to the Endocrine Society and the field of endocrinology. Biller is a professor of medicine at Harvard Medical School and a physician at Massachusetts General Hospital in Boston, Mass. She has been

a dedicated and tireless leader of the Endocrine Society for more than a quarter century, deeply impacting the Society and the field of endocrinology. This is reflected in her work on numerous Society committees, working groups, and task forces, including serving as a Council/Board of Directors member, Clinical Science chair, and overall chair of the Annual Meeting Steering Committee, Scientific and Educational Programs Core Committee chair, and an associate editor of JCEM. She was instrumental in developing the Society's Committee on Diversity and Inclusion, which develops programs and strategies to create a more diverse Society and increases awareness around health disparities in endocrinology. In her role as a member of the Nominating Committee, she advocated for underrepresented clinicians, researchers, and educators to be selected for Board of Director and Presidential positions.

Nominations are being accepted for the 2024 Laureate Awards cycle until Friday, January 20, 2023. Any submissions received after January 20 will be considered for the following year.

Chrousos Named Winner of Transatlantic Alliance Award

The Endocrine Society and the European Society of Endocrinology (ESE) have jointly awarded the 2023 Transatlantic Alliance Award to Professor. George P. Chrousos, MD, ScD.

Chrousos is professor emeritus of pediatrics and endocrinology at the National and Kapodistrian University of Athens (NKUA) School of Medicine in Athens, Greece. He also is the UNESCO Chair on Adolescent Health Care and the director of the University Research Institute on Maternal and Child Health and Precision Medicine, both at the NKUA School of Medicine.

The Transatlantic Alliance Award, which was launched in 2021, recognizes an international leader who has made significant advancements in endocrine research on both sides of the Atlantic — in Europe and the U.S.

Chrousos has made outstanding and broad contributions to endocrinology and metabolism, especially in the fields of stress biology and medicine and in the diseases of the hypothalamic-pituitary-adrenal (HPA) axis. He made seminal observations in the glucocorticoid signaling system of the cell and deciphered some of its key biological and clinical implications. His work has opened new horizons in our understanding of a wide spectrum of complex human disorders, including anxiety and depression, eating disorders, obesity, metabolic syndrome, sleep disorders, and inflammatory autoimmune and allergic diseases.

In 2011, Chrousos held the prestigious John Kluge Distinguished Chair in Technology and Society at the U.S. Library of Congress in Washington, D.C., studying the conceptual history of stress and its major impact in human societies since antiquity. Chrousos also spent more than two decades working at the National Institutes of Health's Eunice Kennedy Shriver National Institute of Child Health and Human Development, where he became chief of the Pediatric and Reproductive Endocrinology Branch.

"We are thrilled to be honoring Prof. Chrousos for his impressive research contributions and his track record in

training physician-scientists and researchers at NICHD," says Endocrine Society President Ursula B. Kaiser, MD. "We look forward to recognizing his accomplishments at our annual meeting."



George P. Chrousos, MD, ScD

"George Chrousos is an outstanding scientist, a 'giant in the field.' He has authored over 1,000 original scientific papers, and his work has been cited more than 180,000 times. He introduced the concept of glucocorticoid resistance and hypersensitivity causing common human diseases, both because of generalized and/or target tissue-specific alterations, which along with his work on the endocrinology of stress and the HPA axis, made him one of the 100 most cited physician-scientists internationally," says ESE president Martin Reincke, MD.

"As a senior investigator and chief of the Pediatric and Reproductive Endocrinology Branch, National Institutes of Health, and subsequently as chairman of the Department of Pediatrics at the University of Athens, Prof. Chrousos has run two of the best scientific training programs in the world and fostered the careers of over 60 distinguished, award-winning, world-class physician-scientists and scientists, many of them from Europe. The European Society and the Endocrine Society are proud to award such a distinguished personality the Transatlantic Award 2023. His lifetime accomplishments in Greece and Europe perfectly match those in the U.S."

Chrousos will present his award lecture, "The Endocrine Basis and Implications of Stress and Its Management," at **ENDO 2023**, which will take place from June 15 – 18 in Chicago, Ill. Chrousos also will speak at ECE, the 25th European Congress of Endocrinology in Istanbul, Turkey, May 13 – 16, 2023.

Nominations for the 2024 Transatlantic Alliance Award will open later this year. **EN**

2024 LAUREATE AWARDS

CALL FOR NOMINATIONS

DEADLINE: JANUARY 20, 2023

NOMINATE TODAY!

Our Laureate Awards are the highest honors bestowed in recognition of the paramount achievements in the endocrinology field including, but not limited to, seminal research, clinical investigation, translational research, mentorship, and non-traditional activities to support developing countries.

Nominate on your own schedule—nominations for the 2024 awards cycle are now being accepted until January 20, 2023.

Get started now by visiting endocrine.org/laureate.

Questions? Contact us at laureate@endocrine.org.

Fred Conrad Koch Lifetime
Achievement Award

Gerald D. Aurbach Award
for Translational Research

International Excellence
in Endocrinology Award

Edwin B. Astwood Award
for Outstanding Research in
Basic Science

Outstanding Clinical
Investigator Award

Outstanding Educator Award

Outstanding Innovation Award

Outstanding Leadership
in Endocrinology Award

Outstanding Mentor Award

Outstanding Scholarly
Physician Award

Richard E. Weitzman
Outstanding Early Career
Investigator Award

Roy O. Greep Award
for Outstanding Research

Sidney H. Ingbar Award
for Distinguished Service

Vigersky Outstanding Clinical
Practitioner Award

“Treatment will remain the same, but patients will have a better understanding of the condition that is being treated by their physician. **In the past, every time a new diagnosis of diabetes insipidus was established, I would have to explain to patients why ‘this diabetes’ is different from the ‘other diabetes.’**”

— Mihail “Misha” Zilbermint, MD, MBA, associate professor of clinical medicine at the Johns Hopkins University School of Medicine, and chief of endocrinology, diabetes, and metabolism, Suburban Hospital, Bethesda, Md., discussing the potential name change of diabetes insipidus in “What’s in a Name?” on page 46.

\$275,000

Average annual salary for a clinical endocrinologist

— SOURCE: MEDSCAPE PHYSICIAN COMPENSATION REPORT 2022

10,000

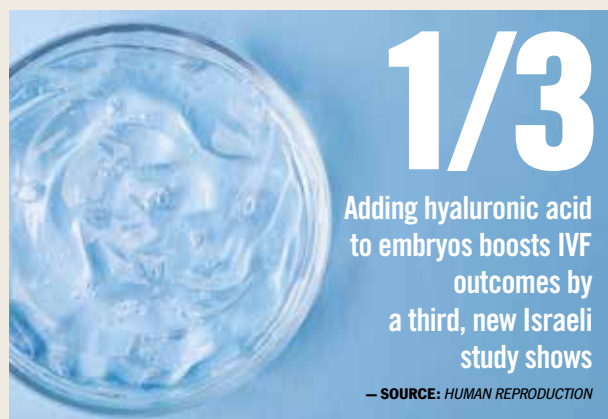
The number of steps per day needed to reduce the risk of death for those who have trouble regulating their blood sugar.

— SOURCE: DIABETES CARE



Children of women with gestational diabetes and obesity may be **twice** as likely to develop attention-deficit/hyperactivity disorder (ADHD) compared to those whose mothers did not have obesity.

— SOURCE: THE JOURNAL OF CLINICAL ENDOCRINOLOGY & METABOLISM



Adding hyaluronic acid to embryos boosts IVF outcomes by a third, new Israeli study shows

— SOURCE: HUMAN REPRODUCTION

High blood pressure may accelerate osteoporosis and bone aging, according to a study presented at the 2022 American Heart Association’s Hypertension Scientific Session.



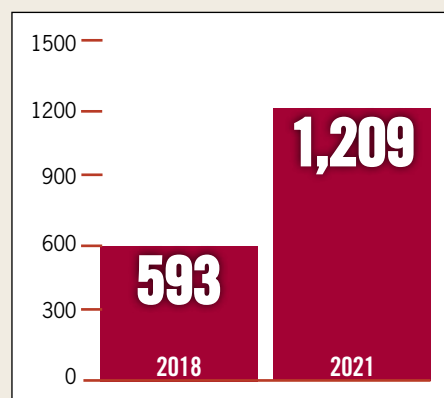
In the study, young mice with induced high blood pressure had:

A **24%** reduction in bone volume.

An **18%** reduction in thickness of the sponge-like trabecular bone at the end of long bones, such as femurs or the spinal column.

A **34%** reduction in the estimated ability of bones to withstand different types of force, called failure force, which can lead to weaker bones and fractures later in life.

— SOURCE: HEALTHLINE



Florida saw the number of transgender Medicaid recipients seeking gender-affirming treatment almost double in recent years.

— SOURCE: AGENCY FOR HEALTH CARE ADMINISTRATION

ENDO 2023

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

REGISTRATION OPENS: January 11, 2023

ABSTRACT DEADLINE: December 19, 2022

We hope to see you at **ENDO 2023**, taking place June 15 – 18, 2023, in Chicago, Ill. With over 7,000 attendees, nearly 2,000 abstracts, and over 200 other sessions, **ENDO** is the top global meeting on endocrinology research and clinical care. **ENDO** provides the opportunity to collaborate with an unparalleled list of endocrinologists, healthcare practitioners, and leading scientists from around the world. Through sharing our experience, advice on patient care, and new advances in research, we move the needle forward in hormone health and science. Our outstanding slate of world-renowned speakers will showcase the most cutting-edge advances in research and medicine, with presentations spanning the spectrum of science, clinical care, and social implications. www.endocrine.org/endo2023



3rd Annual Mayo Clinic Thyroid and Parathyroid Disorders Course 2022

Orlando, Florida

November 10 – 12, 2022

This three-day CME course offers a comprehensive review of diagnostic techniques and medical and surgical management of thyroid and parathyroid disorders. Topics of discussion include the assessment of benign thyroid diseases as well as pre- and postoperative management of thyroid cancer and parathyroid disorders.

Discussions include review of cutting-edge imaging modalities and diagnostic methods such as molecular testing for evaluation of thyroid nodules as well as therapeutic options for the management of benign and malignant thyroid and parathyroid conditions. This course consists of a combination of lectures and panel discussions, as well as roundtable small group discussions with various experienced speakers.

<https://ce.mayo.edu/endocrinology/>

Multidisciplinary Thyroid Cancer Symposium: Clinical Updates in Management of Thyroid Nodules and Cancer Virtual

November 12, 2022

This course is designed to cover the most recent advances in thyroid cancer therapy including methods of detection, treatment, and research. Upon completion of this activity, learners from several disciplines should be able to discuss current strategies and updates in diagnosis and



Neuroscience 2022 – Society for Neuroscience (SfN)

San Diego, California

November 12 – 16, 2022

Neuroscience 2022 will be held in-person in San Diego, Calif., November 12 – 16. Each year, scientists from around the world congregate to discover new ideas, share their research, and experience the best the field has to offer. Attend so you can: Present research, network with scientists, attend session and events, and browse the exhibit hall. Join the nearly half a million neuroscientists from around the world who have propelled their careers by presenting an abstract at an SfN annual meeting – the premier global neuroscience event.

<https://www.sfn.org/meetings/neuroscience-2022>

management of thyroid nodules and cancer, based on the latest guidelines and newest technology.

<https://cce.upmc.com/>

43rd American Association of Endocrine Surgeons Annual Meeting

Birmingham, Alabama

April 29 – May 3, 2023

The 2023 AAES Annual Meeting will be an in-person event in Birmingham, Ala. All presentations (podium and poster) will be given in person. New for #AAES2023 is an entire Scientific Session dedicated to health equity. Examples include but are not limited to: healthcare workforce disparities; differences in patient access based on social and cultural determinants of health; population-level factors: socio-economic determinants, disparities in healthcare coverage, individual-level variables (genetic predisposition, behavioral risks to health, etc.); and more.

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

Obesity Research Conference

Los Angeles, California/Virtual

May 1 – 3, 2023

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

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

INTERNATIONAL ITINERARY

3rd Euro Diabetes and Endocrinology Congress

Paris, France

November 28, 2022

The 3rd Euro Diabetes and Endocrinology Congress is a unique forum for diabetologists and endocrinologists with comparable levels of experience and education to present, exchange ideas, and develop collaborative networks in both academia and industry. It further provides opportunities for physicians and young researchers to meet and discuss ideas from a small group of eminent, field-leading scientists in an informal and friendly atmosphere. EDE Congress 2022 will combine many aspects of diabetes and endocrinology research, including metabolic disorders, weight management, cardiac risks, and advancement treatments with a focus on emerging new technologies and a view to generate cross-disciplinary ideas and foster potential early-career researcher collaboration. All attendees are expected to actively participate in the congress, either by giving an oral/poster presentation or as a delegate.

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

ATTD 2023

Berlin, Germany

February 22 – 25, 2023

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

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

WCO-IOF-ESCEO 2023

Barcelona, Spain

May 4 – 7, 2023

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

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

An Ounce of (Diabetes) Prevention

A Conversation with Christopher Holliday, PhD, MPH, MA, FACHE, director of the CDC's Division of Diabetes Translation



Christopher Holliday
PhD, MPH, MA, FACHE

Endocrine News sits down with Christopher Holliday, PhD, MPH, MA, FACHE, who is heading up the CDC's Division of Diabetes Translation, to discuss the complex relationship between COVID-19 and diabetes, the move to raise awareness of the pre-diabetes threat, and many more initiatives to combat this overwhelming scourge.

BY DEREK BAGLEY

In the past three years, the COVID-19 pandemic has disrupted just about everything. Ask anyone around, and they'll have a story about how the virus impacted them or their loved ones. But the pandemic shone a light on some fissures in the healthcare community, gaps that have required some rethinking and innovation in how to approach patients who become sick from COVID-19, especially those patients living with one or more chronic disease.

The pandemic also exposed the fact that chronic disease and infectious disease are more closely related than previously recognized. Research has shown time and again that people with diabetes are at higher risk for hospitalization, needing ventilation, and even death, should they become sick from the novel coronavirus. In 2016, the Centers for Disease Control and Prevention (CDC), the American Medical Association, and the Ad Council partnered to launch the national *Do I Have Prediabetes?* public service campaign that takes a look at prediabetes and how to reverse it. This year, a national communications effort to raise

awareness highlighted the serious complications from COVID-19 people with diabetes can face.

Christopher Holliday, PhD, MPH, MA, FACHE, is the director of the Division of Diabetes Translation (DDT) in the CDC's National Center for Chronic Disease Prevention and Health Promotion. He is one of the experts leading teams that spearhead the *Do I Have Prediabetes?* campaign, and conduct applied research and surveillance studies to better understand the impacts of COVID-19 on people with diabetes.

Holliday joined the CDC in 2021 and has been working for more than a decade to prevent type 2 diabetes, reduce health disparities, and improve the health of all people with diabetes. *Endocrine News* caught up with Holliday to talk about the wake-up call that is prediabetes, reducing the impacts of social determinants of health, and the complicated — and at times confounding — relationship between diabetes and COVID-19.

Endocrine News: One of the DDT's main missions is to advance health equity for everyone with diabetes. What are some things that can be done in the clinic and at a policy level to eliminate health disparities for all Americans who are living with diabetes or who are at risk of type 2 diabetes?

Christopher Holliday: I'm so glad you asked that. Health disparities present a major obstacle to preventing and managing diabetes in the U.S. Many factors, including lower income or lack of access to healthcare, make it difficult for people to get and stay as healthy as possible.

We follow the science to carry out our work. We measure how diabetes affects populations; study interventions that work best in communities; translate those findings into strategies; and then help partners put those strategies into action in their communities. Some specific examples of key efforts include increasing access to services, like the National Diabetes Prevention Program (National DPP) and Diabetes Self-Management Education and Support (DSMES), that help people prevent and manage diabetes.

EN: What are some of the strides that the DDT has made in reducing health disparities in diabetes? What are some upcoming initiatives you're excited about?

CH: I'm excited about our new strategic plan because it embeds health equity in all our work. And one of our top goals is to reduce the impact of the social determinants of health, like poor access to services and unhealthy food environments, that contribute to the onset of diabetes. We're taking the steps I just described to accomplish that.

One example of work that is already underway is our partnership with community health workers. Community health workers are trusted members of their communities, and they understand the very real challenges their communities experience. With CDC support, states are implementing and evaluating strategies to manage diabetes and prevent type 2 diabetes in communities that are medically underserved. Many states are training community health workers in Diabetes Self-Management Education and Support and helping them become coaches for the National Diabetes Prevention Program, thereby increasing access to these services in culturally and linguistically appropriate ways. And that's just two examples of how this work directly affects diabetes management and prevention in communities.

I also want to quickly mention our work with the Native Diabetes Wellness Program. American Indian and Alaska Native people are more likely to have type 2 diabetes than any other racial or ethnic group in the U.S. This program promotes diabetes prevention and overall health, while honoring a balance of cultural practices and Western science.

EN: Tell me a little about the impetus of the *Do I Have Prediabetes?* campaign.

CH: Prediabetes serves as a wake-up call. Many people will be surprised to learn that more than one in three American adults, that's 96 million people, have prediabetes and 81% of them don't even know they have it. Prediabetes is a

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In some cases, COVID-19 infection might directly increase diabetes risk. Or it might have an indirect impact, such as steroid treatments during hospitalizations that could lead to transient hyperglycemia or pandemic-associated increases in body mass index. **More research can help us better understand the link between COVID-19 and diabetes risk.”**

— CHRISTOPHER HOLLIDAY, PHD, MPH, MA, FACHE, DIRECTOR, DIVISION OF DIABETES TRANSLATION, NATIONAL CENTER FOR CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION, CENTERS FOR DISEASE CONTROL AND PREVENTION

health condition that puts people at high risk for other serious conditions like heart attack, stroke, and type 2 diabetes.

But the good news is that for most people, type 2 diabetes can be prevented or delayed. We knew we needed to spread that message far and wide, so we launched the *Do I Have Prediabetes?* campaign to help people learn their risk for prediabetes and type 2 diabetes. Through the campaign, we encourage people to go to **DoIHavePrediabetes.org** and take a one-minute risk test to know where they stand and be able to take action.

EN: Having diabetes certainly puts patients at higher risk for worse COVID-19 outcomes, but studies are starting to suggest that COVID-19 infection can trigger diabetes. Is that something you're seeing as well? Does that again speak to the need to prevent diabetes?

CH: Chronic diseases and infectious diseases are often thought of as separate lanes in public health, but the COVID-19 pandemic has highlighted how intimately related those two lanes really are. For example, a study published in the *Morbidity and Mortality Weekly Report* shows that people under the age of 18 with COVID-19 were more likely to be newly diagnosed with diabetes in the months after infection than those without COVID-19. In some cases, COVID-19 infection might directly increase diabetes risk. Or it might have an indirect impact, such as steroid treatments during hospitalizations that could lead to transient hyperglycemia or pandemic-associated increases in body mass index. More research can help us better understand the link between COVID-19 and diabetes risk.

We also know that the COVID-19 pandemic influenced people's health in at least a few ways that could affect someone's risk for prediabetes or type 2 diabetes, including more sedentary lifestyles, disruptions in regular medical care, and restricted food choices. And, as you mentioned, people with diabetes are three times more likely to experience severe illness when testing positive for COVID-19. It will still be years before we understand the full impact of the pandemic on our nation and our health, but it's clear that COVID-19 has underscored how critically important it is to prevent chronic diseases like type 2 diabetes whenever possible.

EN: Can you share a little about the CDC's applied research and surveillance studies in diabetes? Have there been any surprising or eureka moments?

CH: These efforts are at the core of everything we do. Mitigating risk factors is critical in preventing type 2 diabetes, and our


applied research efforts help us to not only identify risk factors but determine what types of interventions are most effective. There have been major findings over the past few years, and some of the most compelling include data on diabetes among young people.

For example, findings from the 20-year SEARCH for Diabetes in Youth study showed that cases of type 1 and type 2 diabetes are surging in people under age 20. The number of young people living with type 2 diabetes almost doubled from 2001 to 2017. These numbers are troubling, particularly because young people are more likely to have diabetes complications at an earlier age than those diagnosed as adults.

EN: What's the main thing Endocrine Society members and others who treat diabetes should know about the CDC's work in this area?

CH: Diabetes can reduce quality of life and its complications can be devastating; yet, in many cases, type 2 diabetes, the most common form of diabetes, is preventable. Healthcare providers are often the first line in screening patients at high risk for type 2 diabetes and getting them to critical help they need to prevent or delay progression from prediabetes to type 2 diabetes. We encourage healthcare providers to refer at-risk patients to the National DPP. This is a CDC-recognized lifestyle change program that has been proven by research to cut the risk of type 2 diabetes by more than half, and it can improve patients' overall health.

We also want all healthcare providers to be aware of Diabetes Self-Management Education and Support and refer patients to these services. It's unrealistic to expect people with diabetes to make lifestyle changes without support, and we know that DSMES improves health outcomes. Still, less than 7% of patients participate within the first year of diagnosis. Providers are vital in linking their patients to DSMES to help them sustain behaviors needed to self-manage their diabetes. We urge healthcare professionals to learn how they can refer their patients to the National DPP and DSMES.

To learn more about DSMES and DPP, go to: <https://www.cdc.gov/diabetes/professional-info/health-care-providers.html>. 

This article has been edited for brevity. An extended version can be found on the *Endocrine News* website at: www.endocrinenews.endocrine.org.

— BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE ENDOCRINE SOCIETY'S NEW TELEHEALTH CONSENSUS STATEMENT IN THE OCTOBER ISSUE.

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BY KELLY HORVATH

People with diabetes have an increased risk of fractures, which is often underdiagnosed and impacts their mobility as well as their mortality. A new array of treatments and assessments — novel therapeutics, senolytics, revamped prescribing protocols, and more — are needed to better concentrate on diabetic bone disease.



Bone Fragility in Diabetes

New Research Focuses on Diabetic Bone Disease

An emerging complication of both type 1 and type 2 diabetes is confounding clinicians and prompting new research into its pathophysiology as well as its prevention and treatment: increased fracture risk as a result of bone fragility. In older adults, this risk is compounded by the risk for falls and fractures inherent to their age.

The proposed mechanism underlying this increased risk in type 1 diabetes is relatively straightforward — because type 1 diabetes commonly manifests in childhood or adolescence before the individual has attained peak bone mass, and the insulin deficiency associated with type 1 diabetes reduces anabolic bone formation, lower overall bone mass results, predisposing the individual to fracture. But the increased risk in type 2 diabetes in individuals with normal bone mass/normal bone mineral density (BMD) poses a seeming paradox (although the risk of hypoglycemia with insulin or sulfonylureas does increase the risk of falls).

Regardless, individuals with either type of diabetes experience 32% more fractures than those without, especially of the hip. That number jumps to a five-fold higher risk in type 1 diabetes alone. Other differences include that atypical femoral fractures as seen with antiresorptive osteoporosis therapy are

twice as common in type 1 diabetes, and, in type 2 diabetes, men are more at risk than women for fractures at all sites. The latter finding is as yet unaccounted for but may stem from a negative gender bias with men seeking medical care less frequently or later, and having poorer lifestyle habits and a higher prevalence of cardiovascular disease.

Further confounding the situation, the gold standard for BMD measurement, dual-energy x-ray absorptiometry (DEXA), does not adequately predict fracture risk in these populations, despite its efficacy in predicting fracture risk in the setting of postmenopausal and male osteoporosis.

To get to the bottom of some of these conundrums, Professor Lorenz C. Hofbauer, MD, of the Universitätsklinikum an der Technischen Universität Dresden, in Germany, and team reviewed existing studies of individual aspects of bone health in diabetes to aggregate findings and offer a clearer overall picture in “Bone fragility in diabetes: novel concepts and

clinical implications,” published in January in *The Lancet Diabetes & Endocrinology*. “In this Review, authors that were all members of the European FIDELIO research consortium took a comprehensive look. This included the massive progress of cell and molecular biology connecting the skeleton and diabetes, the latest imaging techniques, novel biomarkers, and recent clinical trials,” says Hofbauer. FIDELIO stands for “Training network for research into bone Fragility In Diabetes in Europe towards a personalised medicine approach.”

Pathogenesis of Bone Disease in Diabetes

Even before undertaking their review, Hofbauer and team knew that the areal 2D-measurement of DEXA does not provide precise information about actual bone strength and sought a more tailored approach to assessing and preserving bone health in these individuals. “For example,” says Hofbauer, “some newer high-resolution techniques, such as high-resolution peripheral quantitative computed tomography (HRpQCT), better depict



Lorenz C. Hofbauer, MD

“Some newer high-resolution techniques, such as high-resolution peripheral quantitative computed tomography, **better depict the structural impairment at the cortical and trabecular bone compartments brought on by type 2 diabetes and bone quality aspects in general.**”

— LORENZ C. HOFBAUER, MD, UNIVERSITÄTSKLINIKUM AN DER TECHNISCHEN UNIVERSITÄT DRESDEN, DRESDEN, GERMANY



the structural impairment at the cortical and trabecular bone compartments brought on by type 2 diabetes and bone quality aspects in general.”

Histomorphometry in diabetic bone disease reveals a variety of cellular and molecular changes, adds Martina Rauner, PhD, a Dresden-based bone biologist and senior author, including:

- ▶ Bone matrix accumulation of advanced glycation end products (AGEs) that render bone less resistant to fractures;
- ▶ Increased sclerostin and Dickkopf-1 production that inhibit Wnt signaling and as a consequence bone formation;
- ▶ Suppressed osteoblast function, impairing their ability to differentiate;
- ▶ Increased pro-inflammatory adipocytes in bone instead of osteoblasts;
- ▶ Impaired mechanosensing of osteocytes and thus repair mechanisms leading to accumulation of micro-damage;
- ▶ Osteocyte senescence that leads to reduced bone turnover;
- ▶ Cortical porosity associated with microvascular damage, leading to bone fragility; and
- ▶ Efferocytosis inhibition, leading to accumulation of apoptotic cells and a pro-inflammatory profile.

Some of these detrimental alterations provide opportunities for therapeutic or lifestyle interventions. Others are not detectable with standard techniques, thus underscoring the need for novel imaging approaches. Currently, BMD is the accepted correlate

for bone strength; however, diabetes represents an exception, in which normal BMD does not reveal underlying bone fragility. Here, bone quality is a better predictor, encompassing additional factors like collagen characteristics and bone tissue mechanical properties, but better imaging tools and biomarkers are warranted.

Assessment Approaches

Hofbauer and team advise clinicians to begin with assessing diabetes-specific risk factors for bone fragility, such as disease duration; vascular complications; poor glycemic control; and treatment with sulfonylureas, thiazolidinediones, or insulin. Here, another seeming paradox emerges that Hofbauer explains this way: “Although insulin is an (osteo)-anabolic factor, and switching a patient with type 2 diabetes from a conventional insulin therapy to an intensified insulin regimen with four injections per day benefits the glycemic control and the skeleton alike, amongst the larger group of patients with type 2 diabetes, those who require insulin rather than, say, metformin or just diet, have *a priori* more severe type 2 diabetes and experience more frequent falls and fractures.”

Once a comprehensive evaluation for the presence of the above risk factors has been done, the team adopts the International Foundation of Osteoporosis’s recommendations for next steps. The most important message for clinicians, says Hofbauer, is “include bone health assessment in all patients with type 1 diabetes and patients with type 2 diabetes for more than five years.” Correct interpretation of BMD is challenging. To overcome these obstacles, the team proposes applying a “correction factor” in the FRAX score: Instead of using -2.5 as the intervention threshold, in type 2 diabetes, that threshold becomes -2.0 . “Large data analyses indicate that as for other secondary causes of osteoporosis, such as glucocorticoid-



induced osteoporosis, diabetes also requires adjustment to obtain a refined assessment and more precise prediction of fracture risk,” explains Hofbauer. In addition, evaluation of vertebral fractures, which individuals with type 2 diabetes have a 35% higher risk for, and trabecular bone score should also be done.

Prevention and Treatment

Regarding management, diet and physical activity are key, as in any diabetes management plan. Physical activity in this setting, however, has the additional advantages of preventing sarcopenia and frailty. Furthermore, combined resistance and endurance training might lower sclerostin concentrations and improve glucose control, muscle health, and fall prevention.

Those individuals with diabetes with serum vitamin D levels below 20 ng/mL should take vitamin D supplements to prevent bone fragility; calcium supplementation may also be warranted. The efficacy of typical anti-osteoporotic agents is unknown in this specific population, but the team found evidence that anabolic therapy such as with teriparatide, abaloparatide, or romosozumab might be of benefit. In addition, following up with antiresorptive therapy could have synergistic and sustained effects on BMD, but this has not yet been proven in individuals with diabetes.

A Word on Senolytics

Given that long-standing type 1 and type 2 diabetes are characterized by impaired bone cell activity and bone repair driven partly by increased osteocyte senescence, as demonstrated by Sundeep Khosla, MD's team from the Mayo Clinic, some researchers have likened diabetes to accelerated aging. Enter the senolytics, a novel class of drugs that target senescent cells.

“Senescent cells can be detected in metabolic, neurodegenerative, and prototypic age-related disease, and have been preclinically linked to several metabolic bone disease, in particular bone disease due to diabetes, radiation, and periodontitis. Given their involvement in many age-related diseases, they are promising, and clinical development is ongoing,” says Hofbauer. ^{EN}

AT A GLANCE

- ▶ People with diabetes have a significantly increased risk of fractures, a finding that is commonly underrecognized and underdiagnosed, with important implications for their mobility and mortality.
- ▶ On the cellular and molecular level, diabetes is characterized by incorporation of AGEs into the bone matrix, microvascular impairment, and a proinflammatory state, all leading to increased bone fragility.
- ▶ New assessments and treatments are needed to address diabetic bone disease, including improved 3D-imaging techniques like high-resolution peripheral quantitative computed tomography, adjusted FRAX scores, novel therapeutics such as senolytics, and possibly new prescribing approaches, including an anabolic-antiresorptive treatment sequence.

– HORVATH IS A BALTIMORE, MD.-BASED FREELANCE WRITER. IN THE SEPTEMBER ISSUE, SHE WROTE ABOUT SOME OF THE COVID-19 STUDIES PRESENTED AT **ENDO 2022**.

Q&A

Endocrine News talks with **Anthony L. McCall, MD, PhD, FACP**, and **David C. Lieb, MD, FACP**, co-chairs of the guideline development panel that created the latest Endocrine Society Clinical Practice Guideline on managing hypoglycemia in people with diabetes.



Anthony L. McCall, MD, PhD, FACP

David C. Lieb, MD, FACP

In the past decade or so, the amount of progress made in treating people with hypoglycemia has been nothing short of remarkable. Because of these developments, the Endocrine Society is updating one of its earlier guidelines on managing hypoglycemia. However, this new guideline is solely focused on managing hypoglycemia in people with diabetes.

The new guideline, “Management of Individuals with Diabetes at High Risk for Hypoglycemia: An Endocrine Society Clinical Practice Guideline,” will be published online in December and will appear in the December 2022 print issue of *The Journal of Clinical Endocrinology & Metabolism*. This guideline updates a previous guideline from 2009, “Evaluation and Management of Adult Hypoglycemic Disorders: An Endocrine Society Clinical Practice Guideline.” However, that guideline included both people with and without diabetes whereas this latest version is only for treating those people who have diabetes as well as hypoglycemia.

Anthony L. McCall, MD, PhD, FACP, professor of medicine and endocrinology (Emeritus) University of Virginia School of Medicine, Charlottesville, Va.; and David C. Lieb, MD, FACP, the Aaron I. Vinik Professor of Medicine in Endocrinology and Diabetes; associate chair for education, Department of Internal Medicine; and program director, Endocrinology, Diabetes,



“Hypoglycemia affects everyone living with diabetes, and it remains the major barrier for safe diabetes control in many people. **This guideline will give updated, evidence-based recommendations involving the prevention and management of hypoglycemia to those in healthcare who provide diabetes-related services.**”

— DAVID C. LIEB, MD, FACP, THE AARON I. VINIK PROFESSOR OF MEDICINE IN ENDOCRINOLOGY AND DIABETES; ASSOCIATE CHAIR FOR EDUCATION, DEPARTMENT OF INTERNAL MEDICINE; AND PROGRAM DIRECTOR, ENDOCRINOLOGY, DIABETES, AND METABOLISM FELLOWSHIP, EASTERN VIRGINIA MEDICAL SCHOOL, NORFOLK, VA.

and Metabolism Fellowship at Eastern Virginia Medical School in Norfolk, Va., are the co-chairs of the guideline development panel that authored this guideline.

McCall and Lieb shared their thoughts with *Endocrine News* about how they hope this guideline will provide the latest in evidence-based recommendations for treatment and how it should be a valuable tool for primary care physicians and other practitioners.

***Endocrine News:* What was the main reason for the publication of the hypoglycemia guideline — what drove the decision and why now?**

Anthony L. McCall, MD, PhD: In the past decade, we have seen dramatic changes in the management of hypoglycemia in persons with diabetes. Available technology allowing for the identification of, and prevention of, hypoglycemia has improved significantly, with more accurate continuous glucose monitoring devices that can identify both symptomatic and unrecognized hypoglycemia, and new sensor-augmented insulin pumps. There are effective and easier-to-use formulations of glucagon as well, and new analog insulin preparations that are associated with less hypoglycemia. Finally, there are new and better systems for reducing inpatient hypoglycemia, and updated information involving hypoglycemia reduction through outpatient education programs. The previous Endocrine Society Clinical Practice Guideline from 2009 included both those with diabetes and those without diabetes. Given all of these pertinent updates, it was important to develop a guideline focused on those with diabetes at risk for hypoglycemia.

“

Most persons with diabetes do not see an endocrinologist but have many other healthcare providers. Therefore, it's important that all of those who care for individuals with diabetes, including those in primary care specialties, surgical specialties, and mental health have a strong medical knowledge in both how to prevent and how to manage hypoglycemia.”

— ANTHONY L. MCCALL, MD, PHD, FACP, PROFESSOR OF MEDICINE AND ENDOCRINOLOGY (EMERITUS) UNIVERSITY OF VIRGINIA SCHOOL OF MEDICINE, CHARLOTTESVILLE, VA.

EN: What are your hopes for the impact of the guideline on endocrine standards of care for individuals with diabetes at high risk for hypoglycemia?

David C. Lieb: Hypoglycemia affects everyone living with diabetes, and it remains the major barrier for safe diabetes control in many people. This guideline will give updated, evidence-based recommendations involving the prevention and management of hypoglycemia to those in healthcare who provide diabetes-related services. Both people with diabetes and their caregivers and diabetes specialists will benefit from a better understanding of best practices, including what works well and how much benefit can be expected from various interventions.

EN: How do you expect other medical specialties to be affected by the Guideline Development Panel's recommendations?

ALM: Diabetes affects over 400 million people worldwide, and many, if not all, of these individuals either deal with or have concerns about hypoglycemia. Most persons with diabetes do not see an endocrinologist but have many other healthcare providers. Therefore, it's important that all of those who care for individuals with diabetes, including those in primary care specialties, surgical specialties, and mental health have a strong medical knowledge in both how to prevent and how to manage hypoglycemia. This, of course, includes all clinicians — including nurse practitioners, physician associates, diabetes care and education specialists, physicians, and others.

EN: What are the key take-home messages for patients in this guideline?

DCL: We want persons with diabetes to know how many new and exciting therapeutic advances there have been with regard to hypoglycemia in the last decade! New insulins and new glucagon formulations, and continued advancements in CGM and insulin pump technology, are doing much to help identify, prevent, and treat hypoglycemia. These all help improve glucose time-in-range, and importantly, improve quality of life. **EN**

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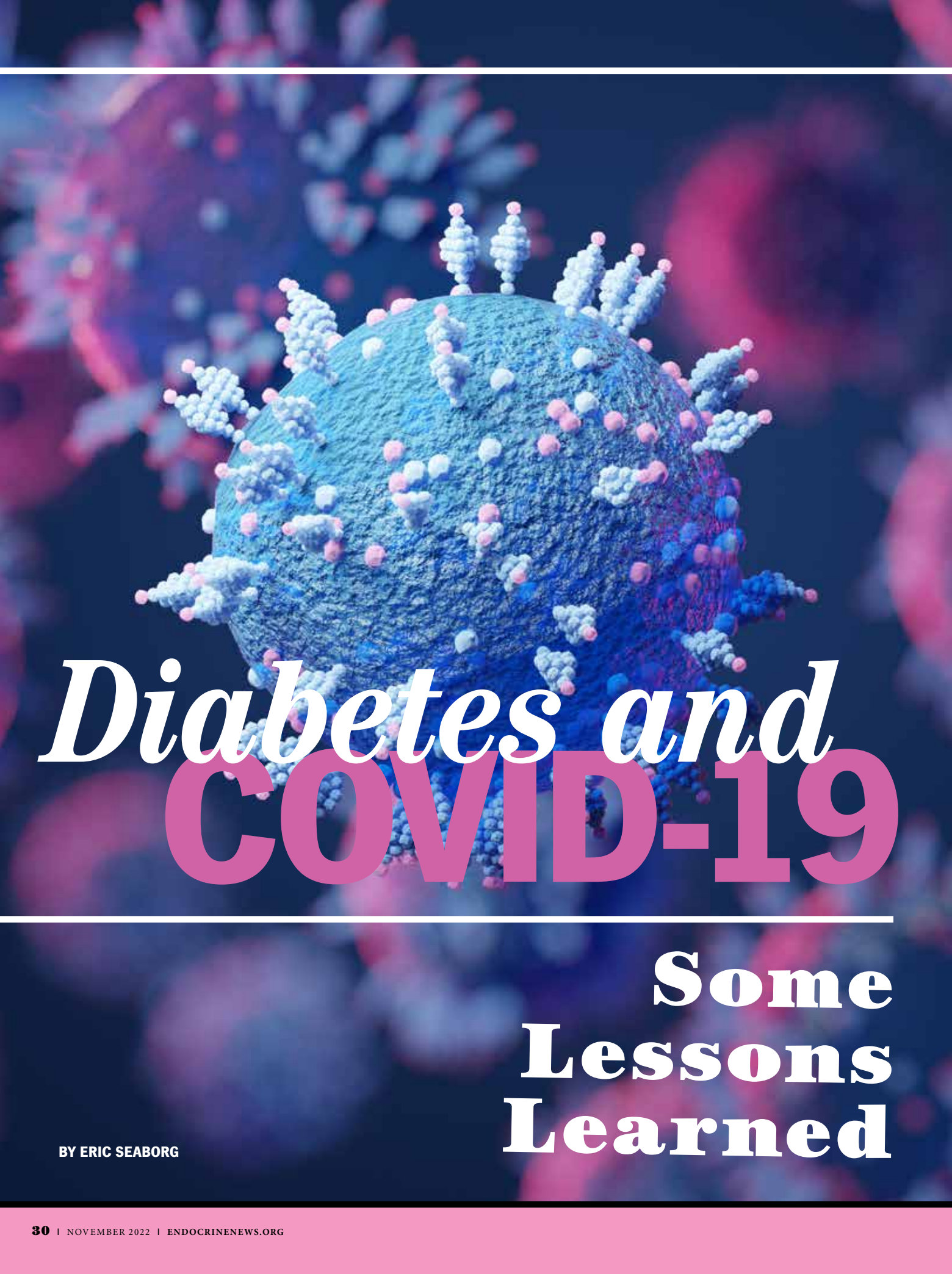
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AWARDS WILL BE PRESENTED AT ENDO 2023:
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Diabetes and **COVID-19**

**Some
Lessons
Learned**

BY ERIC SEABORG

**COVID-19
vaccination is
safe, effective,
and especially
important in people
with diabetes due
to the risk of more
severe outcomes.
While a session
at ENDO 2022
emphasized the
vaccine's safety
in this population,
more research
is needed as to
whether the virus
is a causal factor
to an increase in
new-onset type 1
diabetes cases.**

Get vaccinated, and keep your blood sugar in tight control. That's the best advice to give patients with diabetes to avoid the worst consequences of COVID-19 infection.

From the start of the pandemic, it was clear that people with diabetes and associated comorbidities need to be particularly vigilant about prevention because they are at increased risk of worse outcomes from COVID-19, including increased mortality. In the intervening time, researchers and clinicians have learned a great deal about the interplay between diabetes and COVID-19, and this new knowledge was the subject of a session at **ENDO 2022** that took place both virtually and in-person in Atlanta, Ga., in June.

Endocrine News interviewed two of the speakers to get the highlights: Ernesto Maddaloni, MD, PhD, is assistant professor of endocrinology and diabetes at Sapienza University in Rome, Italy. Francesco Vendrame, MD, PhD, is assistant professor of medicine in the Division of Endocrinology at the University of Miami in Florida.

Vaccination Safety

"There were a lot of questions about vaccination in people with diabetes," Maddaloni says. "But we can say now that it is as safe as in people without diabetes. There is no increased risk of side effects and no [other additional] risk in people with diabetes. Vaccination is strongly suggested in people at high risk of complications, such as people with diabetes."

Maddaloni says that several studies have suggested that diabetes patients can get the best results from vaccination by having their blood glucose levels under good control before and immediately after vaccination. "Having good metabolic control could help in having vaccination work better," he says.

Vaccine side effects are similar in people with and without diabetes, with no evidence of a temporary worsening of glycemic control. Although a few cases of hyperglycemic emergencies have been reported, these are isolated, individual cases, and there is no proven cause-and-effect relationship between these episodes and vaccination. "The benefits are really much higher than the risks," Maddaloni says.

A Fight for Control

As in every aspect of diabetes, good glucose control is beneficial, and can even contribute to better outcomes when infected

COVID-19 infection is associated with hyperglycemia and increased insulin resistance even in patients without diabetes prior to infection.

There are several potential pathways by which the SARS-CoV-2 virus could disrupt glucose metabolism and downregulate the insulin-signaling pathway, according to Vendrame.

Early on, analysis of its molecular structure revealed that the SARS-CoV-2 virus has a spike protein on its surface that can bind to receptors on enzymes, such as angiotensin-converting enzyme 2 (ACE2), dipeptidyl peptidase-4 (DPP-4), and others, to gain entry into the beta cells of the pancreas. For example, ACE2 is an important enzyme for degrading angiotensin II. In downregulating ACE2, SARS-CoV-2 leads to more unopposed actions of angiotensin II, including more inflammatory activity.

The cytokine storm COVID-19 can induce can also downregulate the insulin-signaling pathway, and immune cells activated by the virus can downregulate insulin receptors in skeletal muscle cells.

“

There were a lot of questions about vaccination in people with diabetes. But we can say now that it is as safe as in people without diabetes.

There is no increased risk of side effects and no [other additional] risk in people with diabetes. **Vaccination is strongly suggested in people at high risk of complications, such as people with diabetes.”**

— ERNESTO MADDALONI, MD, PHD, ASSISTANT PROFESSOR, ENDOCRINOLOGY AND DIABETES, SAPIENZA UNIVERSITY IN ROME, ITALY



Hospitalized patients are often treated with corticosteroids to quell the cytokine storm, and this treatment itself can contribute to hyperglycemia.

All these factors can lead to greater insulin resistance and hyperglycemia even in patients without diabetes prior to COVID-19 infection.

Viruses and Autoimmune Diseases

Researchers have raised concerns about COVID-19 being associated with an increase in new onset type 1 diabetes, Vendrame says. Viruses can trigger an autoimmune response, and there are several other autoimmune conditions that have been related to COVID-19 infection, including autoimmune thyroid disorders, Guillain-Barre syndrome, immune thrombocytopenic purpura, autoimmune hemolytic anemia, and Kawasaki disease.

Vendrame notes that a viral infection might trigger an autoimmune response through several possible mechanisms:

- ▶ In molecular mimicry, some viral antigens have a structure similar to self-antigens that cause a cross-reactive response, in which the immune system targets not only the virus but also the patient's own body.
- ▶ Bystander activation is a nonspecific, over-reactive immune response to a viral infection, in which self-antigens released from damaged tissue can stimulate autoreactive T cells in the vicinity, triggering autoimmunity.



- ▶ Epitope spreading is a related mechanism in a persistent viral infection, in which continued tissue damage triggers the release of more self-antigens and activation of additional autoreactive T cells.

Despite these various possible mechanisms of inducing autoimmunity, the question of whether COVID-19 has led to an increased number of cases of type 1 diabetes is unsettled. A meta-analysis published in the *Journal of Medical Virology* in July said that “the COVID-19 pandemic has significantly increased the risk of global pediatric new-onset type 1 diabetes” and that these cases seem to present with greater severity, including more diabetic ketoacidosis.

However, a study in *Diabetes Care* in September of the worldwide SWEET registry looked at new-onset type 1 diabetes in the context of the general worldwide increase in cases in recent years. It found that “the numbers of children with newly diagnosed type 1 diabetes increased significantly in the participating centers around the world in all age groups over the past four years with an unchanged slope” during the COVID-19 pandemic. COVID-19 “gave the appearance of more cases by pushing up the regular seasonality of increased cases. The typical seasonality of more cases during winter season was delayed, with a peak during the summer and autumn months.”

“Longer follow-up studies are needed to address the change in type 1 diabetes incidence,” Vendrame says.

Success of Telemedicine

One of the big lessons from the pandemic came from the sudden tremendous increase in the use of telemedicine in response to the lockdowns, Vendrame says. This shift has been shown to be successful in terms of glucose control. Many studies have found that there was no general disruption in glucose control during the lockdown, including in measures such as hemoglobin A1c, time-in-range, and episodes of hypoglycemia.

Another important finding was that the use of technology such as glucose monitors and insulin pumps was associated with fewer adverse outcomes, including a lower incidence of patients presenting with diabetic ketoacidosis, Vendrame says.

Although at times it feels as if the COVID-19 pandemic has been happening for a long time, in terms of learning about a new virus, it has still been a short time frame. “This is an evolving area and new studies are published continuously,” Vendrame says. ^{EN}

AT A GLANCE

- ▶ COVID-19 vaccines are as safe among patients with diabetes as they are among the general population.
- ▶ Because COVID-19 is associated with more adverse outcomes, including higher mortality, among patients with diabetes, vaccination is that much more important.
- ▶ Viral infections are implicated in triggering auto-immune responses, and some researchers have raised concerns about COVID-19 being associated with an increase in new-onset type 1 diabetes cases, but this issue is far from settled.

– SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HIS INTERVIEW WITH TRANSATLANTIC ALLIANCE AWARD RECIPIENT, SHLOMO MELMED, MD, APPEARED IN THE SEPTEMBER ISSUE.

The Move to Rename Diabetes Insipidus Gains Momentum



What's In a NAME?

There has been a movement afoot to change the name of diabetes insipidus to better reflect the condition's underlying pathophysiology. With an agreement on a new name — “Arginine Vasopressin Deficiency or Resistance,” depending on the etiology — an international coalition hopes to eliminate any ongoing confusion for patients and their caregivers.

The name “diabetes insipidus” should be changed to help protect patients’ lives and reduce confusion about the condition, according to a joint position statement recently co-published across multiple titles, including *The Journal of Clinical Endocrinology & Metabolism*.

The statement, issued by a global, cross-organizational Working Group for Renaming Diabetes Insipidus, outlines the need for a name change that reflects the underlying pathophysiology of diabetes insipidus to prevent its confusion with diabetes mellitus among non-endocrine healthcare professionals, which can have serious adverse outcomes for patients.

The authors of the editorial write that there are several reasons for changing the name of diabetes insipidus. “First and foremost,” they write, “although the terms mellitus and insipidus do differentiate between the

clinical characteristics of these two very different causes of polyuria, and clearly are not eponyms, the use of the common term ‘diabetes’ in both has unfortunately led to confusion for both patients and their caretakers. This confusion with diabetes mellitus has been to the detriment of patients with diabetes insipidus when they are under the care of non-endocrine specialists.”

Patient Approved

What’s more is that patients themselves support changing the name. A recent survey published in *The Lancet Diabetes & Endocrinology* found that out of more than 1,000 patients with central diabetes insipidus, 85% of them preferred the name to be changed, pointing to experiences with healthcare professionals who confused the disorder with diabetes mellitus. “Eighty-seven percent of patients felt that this lack of knowledge and the resulting clinical confusion affected the management of their condition, e.g., repeated blood sugar measurements or prescription of medication for diabetes mellitus during hospitalization,” the Working Group authors write.

“Patients experience harm due to healthcare professionals confusing the two,” says John D. C. Newell-Price, MD, PhD, FRCP, a clinical researcher and professor of medicine in the Department of Oncology and Metabolism at the University of Sheffield in the United Kingdom and one of the representatives for the Endocrine Society in the Working Group. “The call for a name change started some years ago due to some tragic outcomes for patients but has gathered a pace over the last 12 months due to a working group of endocrinologists representing different endocrine societies around the world, and patient representatives.”

However, the change in the name does not mean a change in treatment protocols. “Treatment will remain the same, but patients will have a better understanding of the condition that is being treated by their physician,” according to Mihail “Misha” Zilbermint, MD, MBA, associate professor of clinical medicine at the Johns Hopkins University School of Medicine, and chief of endocrinology, diabetes, and metabolism, Suburban Hospital, Bethesda, Md. “In the past, every time a

“Treatment will remain the same, but patients will have a better understanding of the condition that is being treated by their physician. **In the past, every time a new diagnosis of diabetes insipidus was established, I would have to explain to patients why ‘this diabetes’ is different from the ‘other diabetes.’**”

— MIHAIL “MISHA” ZILBERMINT, MD, MBA, ASSOCIATE PROFESSOR OF CLINICAL MEDICINE AT THE JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, AND CHIEF OF ENDOCRINOLOGY, DIABETES, AND METABOLISM, SUBURBAN HOSPITAL, BETHESDA, MD.

“

The call for a name change started some years ago due to some tragic outcomes for patients **but has gathered a pace over the last 12 months due to a working group of endocrinologists representing different endocrine societies around the world, and patient representatives.”**

— JOHN D. C. NEWELL-PRICE, MD, PHD, FRCP, PROFESSOR OF MEDICINE,
DEPARTMENT OF ONCOLOGY AND METABOLISM,
UNIVERSITY OF SHEFFIELD, UNITED KINGDOM

new diagnosis of diabetes insipidus was established, I would have to explain to patients why ‘this diabetes’ is different from the ‘other diabetes.’”

Worldwide Consensus

The authors write that they believe the names of medical disorders should reflect the underlying pathophysiology. Diabetes insipidus is well known to deficient secretion and/or end-organ effects of the hormone arginine vasopressin, the authors write, so the Working Group proposes that the name diabetes insipidus should be changed to “Arginine Vasopressin Deficiency (AVP-D)” for central etiologies, and “Arginine Vasopressin Resistance (AVP-R)” for nephrogenic etiologies. They note that this proposal has been endorsed by the following societies represented by the working group members: Endocrine Society, European Society of Endocrinology, Pituitary Society, Society for Endocrinology, European Society for Paediatric Endocrinology, Endocrine

Society of Australia, Brazilian Endocrine Society, and Japanese Endocrine Society, and is under review at several other societies.

“We are proud to be working with other societies and professional healthcare bodies across the world to make this important name change, to ‘arginine vasopressin deficiency (AVP-D)’ for central etiologies, and ‘arginine vasopressin resistance (AVP-R)’ for peripheral nephrogenic etiologies,” the Society for Endocrinology Clinical Committee said in a statement.

“One more rare condition — a transient diabetes insipidus in pregnancy caused by excessive vasopressinase activity, an enzyme expressed by placental trophoblasts, metabolizing arginine vasopressin, should also be addressed, and perhaps, renamed,” Zilbermint says.

Eliminating Confusion

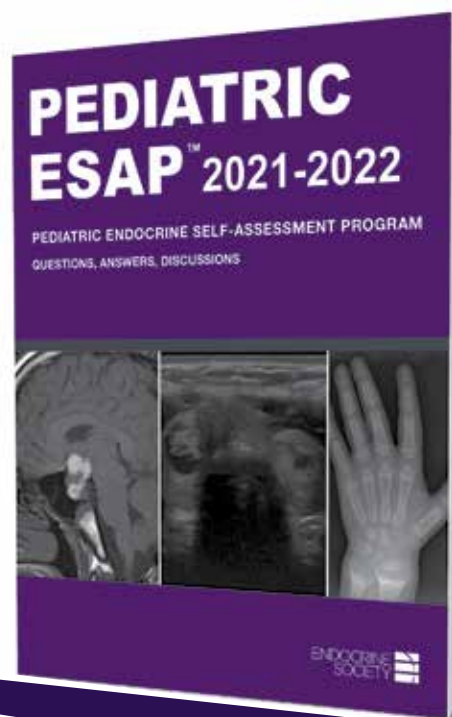
In their conclusion, the Working Group authors acknowledge that a name change can be difficult to implement, but they write that rheumatologists changed Wegener’s granulomatosis to Granulomatosis with Polyangiitis and therefore hope those in the medical community recognize and accept the rationale for changing the name of diabetes insipidus, “both in the interest of scientific accuracy, but more so for the benefit and safety of our mutual patients with diabetes insipidus so that their disease and its treatment will no longer be confused with diabetes mellitus.”

The move to change the name from “diabetes insipidus” to “Arginine Vasopressin Deficiency or Resistance” for central and nephrogenic DI, respectively, is driven by a desire to improve patient safety, Newell-Price tells *Endocrine News*. “In a survey of over 1,000 patients with diabetes insipidus, 85% were keen for a name change: The reason for this being the confusion that arises between ‘diabetes insipidus’ and ‘diabetes mellitus.’”

Zilbermint adds that it will take time for clinicians and patients to get used to the new nomenclature, perhaps a decade or more. “Textbooks would have to be rewritten,” he says. “It may add some additional confusion short term, but I see a beneficial result long term.” ^{EN}

— BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE ENDOCRINE SOCIETY’S NEW TELEHEALTH CONSENSUS STATEMENT IN THE OCTOBER ISSUE.

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In The Palm of Your Hand

Patients with diabetes may be overlooking one of the most readily available resources to help manage their disease — their cell phone. By downloading (and using) a diabetes management app, patients can access countless tools that cover issues ranging from carb counts to insulin doses, glycemic index to blood pressure, and more.

**COMPILED AND WRITTEN BY
COURTNEY CARSON**

Mobile devices and apps allow patients to become more active in looking after their health. This fosters better communication with healthcare professionals and increased awareness of their health in general. The key is finding the right app that addresses concerns and makes managing diabetes easier. Here, we look at some of the resources available to your patients to aid in the management of their care.



◀ Diabetes:M

Diabetes:M is a cloud-based app for patients with diabetes or prediabetes and a remote monitor software platform for medical professionals. On the logbook screen, patients can enter

glucose readings, insulin injections, and carbohydrate amounts. Additional values that can be added include weight, ketones, HbA1c, cholesterol, blood pressure, pulse, and physical activities. A very useful feature is the ability to track the insulin injection zones on the body and the test sites on the fingers when blood sugar is checked. Diabetes:M has a Bolus Advisor screen where patients can calculate the insulin units for a meal based on carbohydrates, fat, and protein intake. The Bolus Advisor notifies patients when additional carbohydrates are needed or when to delay a meal due to high blood sugar. Diabetes:M also offers detailed reports that can easily be shared with specialists including entries log, distribution by category, summary report including all the statistics and charts, and more.

www.diabetes-m.com

▼ OneTouch Reveal

The OneTouch Reveal® mobile app allows patients to set up and track goals and visualize progress over time. These goals include blood glucose tracking to identify patterns,

monitoring the number of steps walked each day, regularly logging carbohydrates eaten to see the correlation between food intake and blood sugar levels, and more. Personalized diabetes management tools include reminders to stay on top of patterns, medications, food, and exercise, while the Blood Sugar Mentor™ feature offers guidance, insight, and encouragement to help patients understand and manage blood sugar.

ColorSure® technology transforms data into colorful snapshots that connect blood sugar with food, insulin, and activity allowing users to see progress at a glance with a simple 14-, 30-, and 90-day overview of blood sugar results.

www.onetouch.com





◀ Bezy T2D

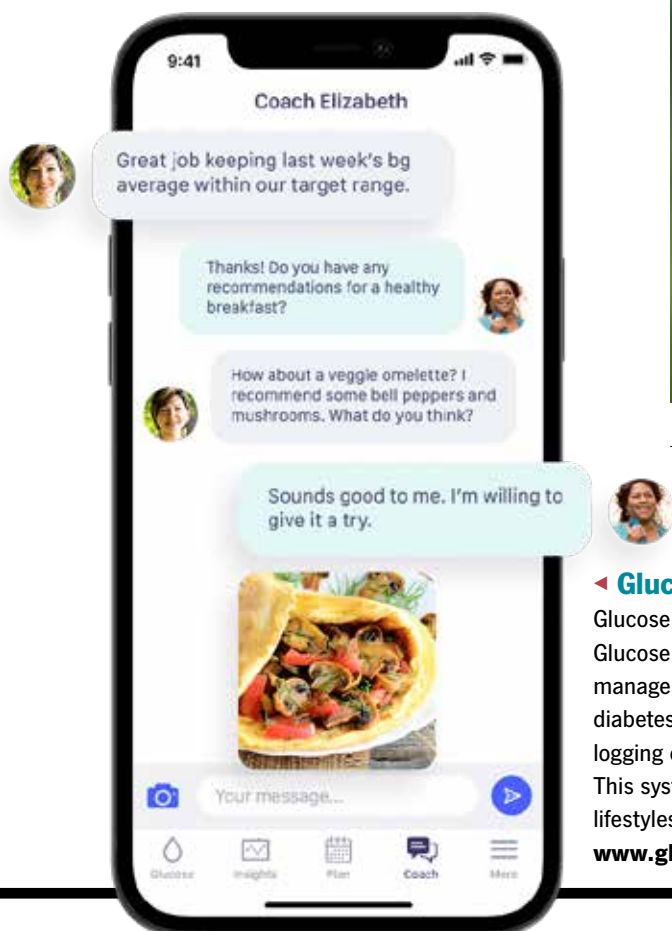
Humans are hardwired for connection — feeling safe and thriving in a community. The goal of Bezy T2D is to bring about community among those diagnosed with type 2 diabetes with one-to-one chats and conversation forums. Bezy is self-described as “a safe place to find and receive advice, to seek and offer support, and to discover the authentic stories of members, just like you.” Bezy T2D is a free online platform aiming to create an experience where everyone feels seen, valued, and understood; everyone’s story matters; and shared vulnerability is the name of the game. The app also includes articles and stories offering perspectives and tips from people who know what it’s like to live with diabetes.

www.bezyt2d.com

▼ mySugr

mySugr is made by people with diabetes, for people with diabetes. The mySugr app stores all the important diabetes data from connected devices, integrations, and manual entries, in one convenient place. In the mySugr app, patients can log important therapy data such as blood sugar, meals, activity, insulin, and more using features like the photo function and entry customization. Through device connection, data are automatically imported including fitness data from Google Fit® or Apple Health® trackers and blood glucose meter readings. Additional features include mySugr Bolus Calculator, mySugr Estimated HbA1c, and more.

www.mysugr.com



◀ Glucose Buddy

Glucose Buddy is a diabetes management service. In addition to the app, the Glucose Buddy system includes connected SMART meters for blood sugar management, test supplies delivered to the user’s door, and certified one-on-one diabetes coaching. Glucose Buddy’s intuitive interface simplifies the process of logging carbohydrate intake, medication, exercise, and blood glucose readings. This system features custom insights to help patients understand how their lifestyles impact the management of diabetes.

www.glucosebuddy.com

► Carb Manager

Carb Manager focuses on tracking carbs, as well as protein, fat, and calories, with a database of foods and a barcode scanner. Patients can also log meals with photos and voice memos. Patients can set a weight loss goal and track progress, while also logging exercise through synced fitness trackers. By adding the subscription service, patients are also able to track blood glucose and insulin values.

www.carbmanager.com

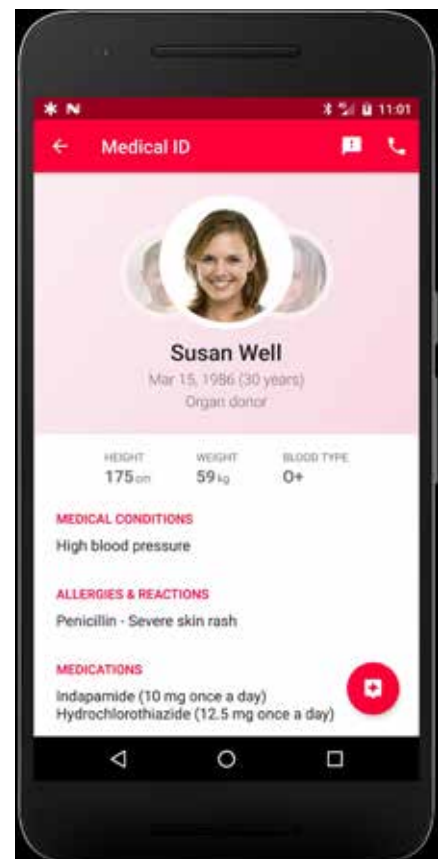


► Medical ID

If a patient can only access one app, Medical ID should be the one. In an emergency, Medical ID helps first responders access critical medical information from the lock screen on a cell phone without needing a passcode. They can see information such as allergies and medical conditions as well as who to contact in case of an emergency. The medical profile is part of the Health app that comes standard on iPhones, but patients using an Android device must download the app from Google Play.

www.apps.apple.com (Apple);

www.medicalid.app (Android)



To assist patients in identifying the right app, remind them to look for one that addresses most of the diabetes management criteria they're looking for. Examples include health information, recipes, carb counting, tracking blood glucose levels, or just keeping medical information organized.

It is also important to look for user-friendly features and integration with other devices, as some apps will integrate with an insulin pump, smartwatch, or other high-tech tools already being used to manage a person's diabetes. As you direct your patients to a diabetes management app, keep in mind that the goal of the app is to take work away from the patient, not create more work.

DISCLAIMER INCLUSION IN THIS COLUMN DOES NOT SUGGEST AN ENDORSEMENT BY *ENDOCRINE NEWS* OR THE ENDOCRINE SOCIETY.

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SUPPORTING NEW LEADERS IN CLINICAL CARE

PHYSICIAN LEADERSHIP IS THE FUTURE OF HEALTHCARE

The Excellence in Clinical Endocrinology Leadership (ExCEL) program offers comprehensive leadership training and mentorship to early career physicians of communities underrepresented in medicine and science. Whether you are just beginning as an endocrine fellow or navigating the next steps in your career beyond fellowship, the ExCEL program will help you build leadership skills, explore opportunities for advancement, and expand your network of peers and colleagues.

ExCEL PROGRAM COMPONENTS

LEADERSHIP SKILLS BUILDING:

ExCEL awardees will participate in developing key leadership competencies and management training through a multi-day Clinical Endocrine Career and Leadership Workshop.

BUILDING PARTNERSHIPS AND EXPANDING NETWORKS:

ExCEL's mentoring network will connect fellows with a core team of mentors, provide quarterly virtual check-ins, and deliver continued training through seminars intended to continue skills development and community building.

LEADERSHIP SKILLS IN PRACTICE:

We will assist ExCEL awardees in enhancing their professional credentials through opportunities to volunteer within the Endocrine Society, travel awards to attend and network at the annual meeting, ENDO, and enhance speaking abilities and near-peer mentoring through a Visiting Physician Faculty series.

We are accepting applications for 2023 program until December 9, 2022.
PLEASE VISIT [ENDOCRINE.ORG/EXCEL](https://endocrine.org/excel) TO APPLY.



Post Mid-Term Elections, Congress Looks to a Long List of Legislation to Complete by Year's End

Following the mid-term congressional elections, the legislative back burner is packed with a long list of things that Democratic leadership hopes to achieve during the “lame duck” session once some steam is let out from the mid-term elections’ political pressure cooker. The idea being that once control of each chamber is settled by voters, winners and losers might be more willing to take politically contentious votes.

NEED IT BY END OF YEAR

- ▶ **FUNDING THE GOVERNMENT:** Government funding will run dry in mid-December. Congress needs to put together and pass a massive omnibus spending package before the December 16 deadline. That will take up a lot of Capitol Hill attention. The Endocrine Society will work to ensure increased funding for the National Institutes of Health (NIH) and Centers for Disease Control and Prevention (CDC).
- ▶ **NATIONAL DEFENSE AUTHORIZATION:** Another major legislative issue is outside of the health arena but will take up time in Congress is action on the National Defense Authorization Act that was slated for consideration during the scrapped October session. This will distract from debate and passage of health legislation.

PROBABLE (BUT NO PROMISES)

- ▶ **INSULIN AFFORDABILITY:** Last fall the House and Senate passed the Inflation Reduction Act, which included

a provision to implement a \$35 a month cap on out-of-pocket expenses for insulin for people with Medicare. A provision that would have extended that cap to people younger than age 65 with private insurance was removed, but senators on both sides of the aisle have expressed interest in revisiting. This will be the top priority for the Endocrine Society and will require finding at least 10 Republican senators willing to support it.

- ▶ **HURRICANE HELP:** Florida is going to need significant federal aid to recover from Hurricane Ian. The funding could get attached onto the omnibus funding package.
- ▶ **ELECTORAL COLLEGE REFORM:** Both chambers want to modernize the 19th-century Electoral Count Act, designed as a safeguard against future attempts to challenge fairly decided elections. But Senate Republicans are already opposed to the House Democratic legislative proposal, so this looks like it could become gridlocked.
- ▶ **MARRIAGE EQUALITY:** The House already has passed its own same-sex marriage bill. Senate Majority Leader Charles Schumer (D-NY) is planning to bring up a bipartisan same-sex marriage deal after shelving the bill ahead of recess instead of risking a Republican filibuster. Chief sponsor Senator Tammy Baldwin (D-WI) remains confident that this will pass. She and other backers are betting Republican support grows once the midterms are over.
- ▶ **TAX EXTENDERS:** There will be taxes on the table. Democrats want to revive the Child Tax Credit

enhancement. Republicans want to revive a tax benefit for businesses that allowed them to immediately write off their research expenses. Those are just two items on a larger slate of tax breaks that could be in play in the lame duck, plus further incentives for retirement savings.

UNLIKELY (BUT WE'VE BEEN SURPRISED BEFORE)

► **SPECIAL DIABETES PROGRAM:** The Special Diabetes Program (SDP) has two parts. The first is funding for the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK) to support research on type 1 diabetes;

the second is funding for type 2 diabetes prevention and treatment for Alaskan Native and American Indian communities. The program technically expires in 2023, but the omnibus funding bill could provide a vehicle to reauthorize the program this year. The Endocrine Society is advocating for a five-year reauthorization at \$200 million a year for each program.

► **COVID-19 AND MONKEYPOX AID:** We expect another Democratic push for the long-stalled COVID-19 and Monkeypox aid money.

Endocrine Society Responds to European Commission Proposal for New EDC Hazard Class

In October, the European Commission issued a draft regulation to amend the regulation on Classification, Labeling, and Packaging (CLP) for hazardous chemicals and mixtures. The draft regulation proposes to add new hazard classes, one of which is a class of endocrine disruptors for human health or the environment. The regulation would also establish two categories within this class, based on the strength of the evidence for adverse effects.

The Endocrine Society welcomes the draft regulation, as we have long called for endocrine-disrupting chemicals (EDCs) to be treated as a specific hazard class due to the myriad ways that chemicals can interfere with endocrine systems and the unique features of endocrine disruption that are often not

captured in conventional regulatory approaches. Furthermore, we are very pleased to see multiple categories based on the strength of the evidence; the Society has consistently argued for the establishment of such categories to enable regulators to incorporate new evidence as it is generated by researchers.


The final regulation will be informed by feedback received as part of a public consultation, launched alongside the draft regulation announcement. The Endocrine Society submitted comments to the consultation, suggesting improvements to the text that would enable the final regulation to better allow swift and accurate identification of hazardous EDCs while supporting the general approach.



Society Working with Senate Leaders to Advance INSULIN Act

The Endocrine Society is working closely with key senators to advance the bipartisan INSULIN Act, which would cap the monthly cost of insulin for people with private insurance.

In August, President Joe Biden signed the Inflation Reduction Act (IRA) into law that institutes a \$35/month cap on out-of-pocket costs of insulin for Medicare beneficiaries. However, a provision that would have also applied the insulin cap to the private insurance market was removed. Senate Majority Leader Charles Schumer (D-NY) has promised that the Senate will address the co-pay cap for the private market. However, an updated cost analysis of the legislation will be necessary to secure the support of the 10 Republican senators needed to pass the bill.

We continue to work with Schumer's office to move this bill forward. We are also closely coordinating with Sens. Jeanne Shaheen (D-NH) and Susan Collins (R-ME), the sponsors of the INSULIN Act. It is critical that every U.S. senator hear from constituents about the importance of this legislation and the need to address insulin affordability now. Please visit endocrine.org/takeaction to learn more and join our campaign. 

INSULIN GUIDE Current Status of Insurance Coverage & Pricing Options

Types of Insurance	Insulin Coverage	Price
Medicare	Effective January 1, 2023, there will be \$35/month cap on out-of-pocket costs for costs insulin under Part B and Part D (no deductible applies).	Price determined by Medicare plan formulary, which can change during the year. In 2026, some insulin products will be subject to Medicare price negotiation and will be significantly less expensive.
Medicaid	Coverage varies by state. Visit GETINSULIN.org for more information.	Price determined by state formulary, which can change during the year.
Younger than age 65 with private insurance	Depends on insurance plan ▶ Co-pay cards are available for those who need help paying for insulin. Visit GETINSULIN.org for more information. ▶ The Endocrine Society is working to expand the Medicare insulin cap to the private market. Visit endocrine.org/takeaction to learn more and join our campaign.	Price determined by plan's formulary. The Endocrine Society is working to lower insulin prices. Visit endocrine.org/takeaction to learn more and join our campaign.
Uninsured	Patient assistance programs provide access to insulin at little or no cost but are sometimes difficult to enroll in. Visit GETINSULIN.org for more information. ▶ Patients can also visit a community health center to get reduced cost insulin.	Price is heavily subsidized or covered by assistance program.

*Note that VA Health and TRICARE coverage are not included in this chart because they have specific coverage rules that vary based on beneficiary circumstances.

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