THE LEADING MAGAZINE FOR **ENDOCRINOLOGISTS** Enclocrine

**INTERNATIONA** 

**AUGUST 2019** 

## & Restless **BPA, Circadian** Rhythms & **Hyperactivity**

news

From obesity to autism, the effects of bisphenol A (BPA) during pregnancy and childhood are well known. However, new research shows that BPA exposure during pregnancy at levels once considered safe could disrupt circadian rhythms as well as lead to hyperactivity later in life.

## **PARALLEL LIVES:**

Endocrine research sheds light on gender dysphoria and gender affirmation.

## WITHIN REACH:

ENDO 2019 Speaker Cori Bargmann on endocrinology's role in curing ALL disease.



Hormone Science to Health

# Endocrine

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# *Treatment of Diabetes in Older Adults*

## A NEW STANDARD FOR CARE

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**Recommendation Highlights:** 

- Simplify medication regimens and tailor glycemic targets in older adults with diabetes and cognitive impairment (i.e. dementia) to improve compliance and prevent treatment-related complications.
- Target blood pressure levels of 140/90 mmHg to decrease the risk of cardiovascular disease outcomes, stroke, and progressive chronic kidney disease.
- Establish clear blood sugar targets for older adults with diabetes in hospitals or nursing homes while avoiding hypoglycemia.

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## An Early Preview of an Exciting ENDO 2020

his continues to be a busy and productive time for the Endocrine Society, and my letter this month touches on two important activities: ENDO 2020 and our enhanced nomination process to identify the next leaders of our Society.

**ENDO 2020** — San Francisco, California, March 28-31 – is poised to deliver another exceptional learning experience that will empower us with the knowledge, tools, and networking opportunities to help us thrive in our current work environments and to position us for the future across multiple missions, such as research, patient care, education, advocacy,

## **Nominations Update**

We would like to provide a brief update on governance changes that have been implemented in the past two months following approval of the Governance Task Force recommendations:

- A Call for Nominations for Nominating Committee (NC) appointments took place in late April – mid-May 2019. In June 2019, the Board appointed six new Nominating Committee members (expanding the committee from nine to 15 members and increasing its diversity).
- The Call for Nominations for Board positions closed in mid-July, including an enhanced process to obtain more information from nominees earlier in the process.
- The NC is currently reviewing nominations and will be finalizing the selection of the Board At Large and early-career members and president-elect candidates in mid-September.

Thank you to all who have participated in the nominations process, either by nominating yourself or a colleague, or by writing a letter of support for a nominee. If you have any questions, comments. or feedback about this new nominations process, please submit to the NC chair at **election@endocrine.org**. and leadership development. This premier conference is our Society's largest, most visible activity and reflects the breadth, depth, and diversity of endocrine research and clinical practice.

As Endocrine Society president, I am proud to share that our Annual Meeting Steering Committee (AMSC) is curating a top-notch program that you cannot miss. The AMSC is committed to delivering an exceptional scientific and clinical program that showcases leading-edge research and the most contemporary guidance, including significant clinical challenges in endocrinology and evidence-based guidelines presented by top scientists and clinicians. I applaud them for flexing beyond scientific and clinical breakthroughs and investing in designing an environment that stimulates curiosity, provides new knowledge and skills, and presents you the opportunity to see friends and develop new collaborations. We want **ENDO** to be your professional home.

A few highlights of ENDO 2020 include:

- ► An outstanding Presidential plenary with Atul Butte, MD, PhD, as he discusses how harnessing the power of big data can drive healthcare decisions, healthcare policy, and strategy, while Griffin Rogers, MD, shares the opportunity of leveraging big data in the laboratory, as well as his perspective on the challenges that remain to be overcome and the strategic vision for the future of the National Institutes of Health research for endocrinology and diabetes;
- While one Nobel Laureate would be noteworthy, ENDO 2020 will have a plenary highlighting the work by two Nobel Laureates, Brian Kobilka, MD, and Robert Lefkowtiz, MD, who will share their story of G proteincoupled receptors;

- All new and highly interactive Meet-the-Professor sessions, clinical guidelines presentations, and innovative symposia, all developed with your learning in mind;
- The nucleus of our meeting, abstracts reporting new endocrine science and medicine, will be available and incorporated into the program to increase their impact;

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ENDO 2020 is poised to deliver another exceptional learning experience that will empower us with the knowledge, tools, and networking opportunities to help us thrive in our current work environments.

## "

- Debates examining SGLT2 Inhibitors in patients with type 1 diabetes and a pediatric-focused discussion on whether we should use GnRH agonists in early puberty;
- World-class, career-shaping information and leadership development for our clinical and basic science trainees;
- Meet-the-Scientist sessions relevant for endocrine investigation, such as examining chromatin landscapes and a bench-to-bedside discussion about bringing drugs from the lab to the patient;
- Expansion of the highly popular science pathways to include diabetes and metabolism, neuroendocrinology, nuclear receptors and gene regulation, and reproductive endocrinology. These highly focused learning tracks allow you to easily network with colleagues with similar interests; and

Celebration of 25 years of leadership and commitment to increasing diversity in our global endocrine community, as I discussed in detail in my last letter.

**ENDO 2020** provides an opportunity for our community to come together in a vibrant city and continue our personal and professional journeys. Please mark your calendars to be in San Francisco, Calif., from March 28 – 31, 2020. If you have any questions or comments, please contact me at **president@** endocrine.org.

— E. Dale Abel, MB, BS, DPhil, MD, PhD President, Endocrine Society



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FROM THE EDITOR



## *Endocrine News* Scoops Mainstream Media on Insulin Pump Hacking Dangers

n late June, several mainstream news outlets had similar headlines: "Medtronic recalls some insulin pumps as FDA warns they can be hacked." The issue at hand was due to insulin pumps that had cybersecurity issues that could neither be updated nor patched, resulting in the company recalling them.

Granted, this is a rare occurrence but shouldn't be a surprising development considering how quickly the technology is evolving in this arena. The recalled pumps were those that connect wirelessly to various diabetes-related technologies such as glucose meters, monitoring systems, and other controls that pump insulin.



The story was carried by CNBC, CBS, CNN, *Wired, Fast Company*, and more. However, in the November 2018 issue of *Endocrine News*, we ran an article by Eric Seaborg entitled "Pump it Up," which specifically addressed keeping patients' data safe. Seaborg spoke to David Klonoff, MD, medical director of the Diabetes Research Institute at Mills-Peninsula Medical Center in San Mateo, Calif., who chaired the standards development committee of the Diabetes Technology Society. Klonoff spoke of two standards, DTSec, for information that goes to or comes from a connected diabetes device, and DTMoSt to "help manufacturers understand what types of security features are needed when you have a mobile phone controlling a device a situation so new that there is not even a product on the market yet that would need it," Klonoff said in the article. **AUGUST 2019** 

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Klonoff lamented that if "you give enough people enough time and enough equipment they can hack into anything." The notion that any medical device that shares information can be unhackable is impossible, Klonoff said, adding that ideally the best a device can be is essentially extremely difficult to compromise. The new standards for these devices should go a long way in ensuring patient privacy.

Thanks to Seaborg's intrepid reporting and the availability of experts in this area who are willing to share their expertise with the readers of *Endocrine News*, we were able to raise awareness of this potential issue seven months before the FDA issued a recall.

The complete article is available at: www.endocrine.org/ pumpitup.

However, it should be further noted that Seaborg also wrote about how a Medtronic MiniMed 722 insulin pump's vulnerability to hacking enabled one patient with diabetes to create her own closed-loop system in the article "Girl Power" from July 2018. The article detailed how Virginia tween Claire Engler and her dad, David, created the DIY artificial pancreas by cobbling together the MiniMed, a Dexcom G5 continuous glucose monitor, an Intel Edison pocket-sized computer, and an iPhone. While Pamela Reese, a Medtronic spokesperson assured *Endocrine News* that "newer insulin pump models have more advanced security features," it's interesting to note how a vulnerability can also be an opportunity. (This article can be found at: **www.endocrine.org**/ **girlpower**).

- Mark A. Newman, Editor, Endocrine News

## Members On The *News*

One evening while watching *NBC Nightly News* I happened to catch a familiar face; Endocrine Society member Shalender Bhasin, MD, of Brigham and Women's Hospital in Boston, who was discussing how the acrobatic parkour can help older people reduce falls. To see the full report: *https://nbcnews.to/325R7Ku* 





Eunice Kennedy Shriver National Institute of Child Health and Human Development

Dear Colleagues,

We are writing to inform you of a new clinical trial designed to investigate the safety and efficacy of pegvisomant (Somavert), a growth hormone receptor antagonist, in children with gigantism. For this study, we seek patients 2-18 years of age with growth hormone excess and inadequate response to transsphenoidal surgery or radiation therapy, or patients deemed inappropriate candidates for these treatments.

The study involves the administration of pegvisomant for 12 months. Pegvisomant is already approved by FDA for medical therapy of acromegaly in adults and it is listed as one of the initial adjuvant medical therapies on acromegaly at the latest Endocrine Society Guidelines. The studies in adults have shown significant improvement of the IGF-1 levels after pegvisomant administration, with up to 97% of patients achieving normalization of the IGF-1 levels. However, there are currently no studies on the safety or efficacy of the medication in children.

During the study the patient will need to travel to the NIH for three visits (baseline, 6 months and 12 months). Additional blood tests and height/weight measurements are required between these visits.

NIH will cover the expenses for all the laboratory and imaging studies. Pfizer (who is one of the funding agents of the study) will provide the medication at no cost for the participant. Additional coverage of the expenses for travel to and from the NIH will be provided for the patient and one adult legal guardian.

We would be happy to discuss any further questions you may have. Please contact either of us at the email addresses below. We look forward to hearing from you.

Best wishes,

Christina Tatsi, MD, PhD Senior Clinical Fellow, Pediatric endocrinology NICHD, NIH Tel: 301-451-7170 Fax: 301-480-4465 Email: <u>christina.tatsi3@nih.gov</u>

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## Sharing & Caring: Endocrine Society Hosts Collaboration Roundtable

ast month, the Endocrine Society hosted stakeholders representing each of the nation's major primary care associations for a roundtable aimed at identifying the best ways to collaborate — sharing resources and supporting one another in order to improve patient care.

Representatives from six medical associations — the American Academy of Family Physicians (AAFP), the American Association of Nurse Practitioners (AANP), the American Academy of Physician Assistants (AAPA), the American College of Osteopathic Family Physicians (ACOFP), the American College of Physicians (ACP), and the Endocrine Society — presented their organizations' educational priorities and discussed working together to benefit patients and physicians alike.

Collaboration is a top priority for the Endocrine Society, given how widespread endocrine disease is. Diabetes and obesity rates continue to climb. There are only 7,200 endocrinologists in the U.S., and not all of those are practicing full time, and as the Society's chief professional and clinical affairs officer Robert Lash, MD, said at the meeting, endocrine disease is too big a problem for any one group. Endocrinologists do a surprising amount of primary care and vice versa. "However, collaboration is at the core of good clinical care," Lash said. "There's no way that 7,200 endocrinologists can care for the 30 million people with diabetes or the 78 million people with obesity. That's why it's so important for us to work with our colleagues in primary care. Each of our groups is doing great work, and the opportunity to share it with each other is an important first step in developing meaningful collaborations."

Over the course of the day, it became clear just how similar each association's goals were to one another, from focusing on physicians' well-being and avoiding burnout



Pictured left to right: Chris Urena, MBA, CAE, chief learning officer, Endocrine Society; Bob Moore, MA, CAE, executive director, ACOFP; Lisa Gables, interim chief executive officer, AAPA; Michel Farhat, PhD, chief strategic partnership officer, Endocrine Society; Leigh Schmidt, MSN, RN, director of accreditation, AANP; Dana Nolte, division director, Strategic Engagements & Innovation, AAFP; Marie-Michele Leger, MPH, PA-C, director, clinical education, AAPA; Robert Lash, MD, chief professional and clinical affairs officer, Endocrine Society; Michele McKay, NP, education specialist, Program Development, AANP; Robert Deluca, DO, president, ACOFP; Tabassum Salam, MD, FACP, vice president, Division of Medical Education, ACP; Melanie Bird, PhD, clinical policies strategist; Amir Kasseem, MD, PhD, vice president, Clinical Policy, ACP

### INTOUCH





to reducing redundancy and even conflicting information in guidelines. Everyone agreed there are simply too many guidelines circulating, and as Robert Deluca, DO, president of ACOFP, pointed out, in order to keep up to date on the literature just on diabetes, it would take a physician as many as 28 hours of reading a day. Meaningful collaboration would improve the quality of education and practice and unify the many voices of internal medicine and its subspecialties.

After the presentations, the representatives workshopped ideas for collaboration, starting even with the simple question of why collaborate in the first place. All agreed that they can achieve more together, and they can even change the course of disease through collaborative efforts. "It was a unifying — and energizing — opportunity to connect with other healthcare leaders who are equally invested in tackling the pervasive endocrine-related diseases and conditions of our modern era," says Christopher Urena, the Endocrine Society's chief learning

The Endocrine Society's chief professional and clinical affairs officer Robert Lash, MD, (upper left) told the group that endocrine disease is too big a problem for any one discipline, adding that endocrinologists do a surprising amount of primary care. Christopher Urena (lower left), the Society's chief learning officer, emphasized the importance of a continuous dialogue among all specialties to ensure progress.

officer. "Together, we explored provocative moonshot goals, pragmatic near-term approaches, and everything in-between. Most importantly, we're committed to continuing the dialogue, and ultimately want to architect a pathway towards progress."

Some moonshot goals included shifting the paradigm in patient care — fewer patients with comorbidities and better outcomes — true patient-centered care, decluttering information in the literature by reducing the number of guidelines (associations could co-publish guidelines rather than endorsing each other's guidelines), and even working to make sure physicians get home at a decent hour each day. But all agreed that for now, even something as simple as publishing an infographic could be a foundation on which to build. From there, associations could form a coalition and compile the top resources and survey data from each organization.

The objective of this roundtable was to understand collectively, in the primary care environment, where the gaps are. But the representatives were aware of the pitfalls of these kinds of meetings, namely that participants often go home and get busy with other things and fall out of touch, so it's necessary to stay connected to continue the dialogue. Still, all agreed that collaboration is needed to address gaps in patient care and physician well-being.

The roundtable itself was the beginning of an important conversation; just by attending the meeting at the Endocrine Society's headquarters in Washington, D.C., these associations' representatives took a first step toward improving healthcare.

"The willingness of the leading primary care associations to engage with the Endocrine Society in a conversation about collaboration and to commit to continue the dialogue is a great first step towards what we hope will lead to tangible outcomes that benefit all our members and the patients they serve," says Michel Farhat, the Endocrine Society's chief strategic partnerships officer.

-Derek Bagley

## TRENDS & INSIGHTS



BY DEREK BAGLEY Senior Editor



Assessing the impact of antidepressants (ATDs) on mortality in patients with comorbid depression and [diabetes] has significant clinical relevance.

## Antidepressants Reduce Risk of Mortality in Patients with Diabetes

ntidepressants reduce deaths by more than a third in patients with diabetes and depression, according to a study published in *The Journal of Clinical Endocrinology* & Metabolism.

Researchers led by Vincent Chin-Hung Chen, MD, PhD, of Chiayi Chang Gung Memorial Hospital and Chang Gung University in Puzi, Taiwan, point out that the incidence of major depressive disorder in people with diabetes is much higher



than in the general population, and depression is associated with excess mortality resulting from suicide, accidental or violent causes, and diseases. "Consequently, [diabetes] and depression each independently contribute to increasing total mortality," the authors write. "Therefore, assessing the impact of antidepressants (ATDs) on mortality in patients with comorbid depression and [diabetes] has significant clinical relevance."

The authors write that while several studies have reported an association between ATD use and increased risk of diabetes diagnosis, the effect of ATD use on mortality in patients with diabetes has not been sufficiently studied. "In the present study, we sought to determine the effect of ATD on mortality in persons with diabetes and depression," they write.

In this large population-based study, researchers used the National Health Insurance Research Database in Taiwan to identify 53,412 patients diagnosed with diabetes and depression since 2000. The researchers followed this population until 2013 to see if antidepressants reduced the death rate. They found that antidepressants significantly reduced mortality by 35%.

The researchers write that the mediators of mortality reduction in their sample aren't known, but they hypothesize that it could be due to disparate factors including but not limited to inflammation. They also point to several limitations to their study the specific cause of death for each individual wasn't known, they didn't include comorbid conditions such as smoking and obesity, and they write that these results may not be generalized to the population beyond patients with diabetes in Taiwan. "Further studies are warranted to explore whether the findings can be replicated among [non-diabetes] patients or in other countries with different prescription pattern of antidepressants," the authors write.

And while the authors write about the limitations, they also note the study's several strengths, including the large sample size and minimized selection bias. The large database allowed them to analyze seven classes of antidepressants. "We limited the assessment to these persons who had a relatively recent diagnosis of diabetes, which minimizes the influence of their [diabetes] course on the mortality," the authors write. "Additionally, we limited the enrollment in our sample to these with a recent diagnosis of depression, which provided opportunity to evaluate cumulative-dose calculation and the time-dependent model."

**Findings:** Based on their findings, the authors conclude: "This data provides further rationale for the screening and treating of depression in persons who have [diabetes]. In future research, it should be further clarified the different effect of ATDs among different diseases, as the present opposite effect found in [diabetes] and heart failure patients."

## High Blood Sugar Increases Pancreatic Cancer Rate

igh fasting glucose levels may increase the risk of pancreatic cancer, according to a study recently published in *The Journal of Clinical Endocrinology & Metabolism*.

Researchers led by Cheol-Young Park, MD, PhD, of Kangbuk Samsung Hospital in Seoul, Korea, point out that a recent case-control study showed that patients diagnosed with pancreatic cancer had hyperglycemia for 36 to 60 months prior to diagnosis, but whether the risk of pancreatic cancer is different according to glucose levels in the general population was not clear. "Therefore, we used prospectively collected national cohort data in Korea to investigate the association between fasting glucose levels and pancreatic cancer risk in the general population," the authors write.

"Diabetes is one of the established risk factors for pancreatic cancer," Park says. "When we evaluated the pancreatic cancer incidence according to fasting glucose levels using a national cohort database, we found the number of pancreatic cancer cases rose as fasting glucose levels increased. This was true in people who had diabetes as well as those who did not."

In this nationwide study, researchers evaluated pancreatic cancer incidence in Korea according to blood sugar levels using a national cohort database of more than 25 million patients who had participated in a preventive health check-up between 2009 and 2013. They found that as blood sugar levels rose, the rate of pancreatic cancer significantly increased not only in diabetic populations but also in those with prediabetes or normal range of blood sugar levels. "The risk of pancreatic cancer increased continuously with elevating fasting glucose levels," the authors write. "The incidence of pancreatic cancer increased significantly with increasing fasting blood glucose levels even after adjusting for age, sex, smoking, drinking, exercise, body mass index, and diabetes duration."

The number of patients with diabetes in Korea has risen from 6% to 10% in the past 10 years, according to the authors, and early detection of hyperglycemia could lower the risk of pancreatic cancer. "Therefore, efforts made toward early detection of hyperglycemia and lifestyle modification to improve glucose profile may provide a practical strategy to reduce the increasing risk of pancreatic cancer," the authors write.

This study has several strengths, including its prospective nature with a large national population, specific fasting glucose category, and adjustment for well-known confounding risk factors for pancreatic cancer. However, the authors note a few limitations as well: The duration of diabetes could not be underestimated as there was no available data before the first check-up, and the researchers did not evaluate the mortality of pancreatic cancer, since the National Health Insurance Service (NHIS) database did not provide exact information on whether a patient's death was associated with prediagnosed cancer. "[W]e could not evaluate the correlation between the HbA1c levels of diabetic populations and pancreatic cancer incidence since the NHIS database did not collect the HbA1c levels; therefore, further study should be warranted whether the diabetic patients who are more intensively treated have a lower incidence of pancreatic cancer using a comparison of glucose levels and HbA1C levels," the authors write.

**Findings:** Based on their findings, the authors conclude that the cumulative incidence rate of pancreatic cancer significantly increased with elevating fasting glucose level in both diabetic and prediabetic populations, including those with a normal range of fasting blood glucose levels. "Our research implies that early detection of hyperglycemia in health checkups and lifestyle modification to improve glucose profile might offer a critical opportunity for lowering the risk of pancreatic cancer," Park says.



The incidence of pancreatic cancer increased significantly with increasing fasting blood glucose levels even after adjusting for age, sex, smoking, drinking, exercise, body mass index, and diabetes duration.



## Study Finds Long-Term Increased Risk of Cancer Death Following Common Treatment for Hyperthyroidism

Findings from a study of patients who received radioactive iodine (RAI) treatment for hyperthyroidism show an association between the dose of treatment and long-term risk of death from solid cancers, including breast cancer. The study, led by researchers at the National Cancer Institute (NCI), part of the National Institutes of Health, was published in JAMA Internal Medicine.

"We identified a clear dose-response relationship between this widely used treatment and longterm risk of death from solid cancer, including breast cancer, in the largest cohort study to date of patients treated for hyperthyroidism," says Cari Kitahara, PhD, of NCI's Division of Cancer Epidemiology and Genetics, lead author of the study. "We estimated that for every 1,000 patients treated currently using a standard range of doses, about 20 to 30 additional solid cancer deaths would occur as a result of the radiation exposure."

The new findings are from the Cooperative Thyrotoxicosis Therapy Follow-up Study, a long-term study of a large cohort of people with hyperthyroidism (mainly Graves' disease) who were treated with radiation between 1946 and 1964. In the new analysis — which included nearly 19,000 people from the original cohort, all of whom had received RAI and none of whom had had cancer at study entry — the researchers used a novel, comprehensive method of estimating radiation doses to each organ or tissue.

The researchers observed positive dose-response relationships between the dose absorbed by an organ and mortality from cancer at that site. The relationship was statistically significant for female breast cancer, for which every 100 milligray (mGy) of dose led to a 12% increased relative risk of breast cancer mortality, and for all other solid tumors considered together, for which relative risk of mortality was increased by 5% per every 100 mGy. Based on these findings, the researchers estimated that for every 1,000 patients ages 40 years with hyperthyroidism who were treated with the radiation doses typical of current treatment, a lifetime excess of 19 to 32 radiation-attributable solid cancer deaths would be expected.

The findings for breast cancer mortality are particularly relevant for the large population of women treated for hyperthyroidism, Kitahara says. "We found the increased risks of death from solid cancer overall and from breast cancer more specifically to be modest, but RAI is still a widely used treatment for hyperthyroidism," she says. "It's important for patients and their physicians to discuss the risks and benefits of each available treatment option. The results of our study may contribute to these discussions."

**Findings:** The researchers write that additional research is needed to more comprehensively assess the risk-benefit ratio of radiation versus other available treatment options for hyperthyroidism. Furthermore, because the types of anti-thyroid drugs administered to patients in the original cohort were different from those prescribed more recently, the researchers wrote that more studies are needed to evaluate long-term health effects of current anti-thyroid drugs, including in comparison to RAI treatment.

The researchers estimated that for every 1,000 patients ages 40 years with hyperthyroidism who were treated with the radiation doses typical of current treatment. a lifetime excess of 19 to 32 radiationattributable solid cancer deaths would be expected.





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## 2019 Clinical Endocrinology Update/ Endocrine Board Review

CEU East: Miami, Florida, Sept. 5 – 7, 2019

CEU West/ EBR: Seattle, Washington, Sept. 17 – 21, 2019 Once again this year, endocrine clinicians from around the world will have a choice about which Clinical Endocrinology Update (CEU) they choose. CEU East will take place in Miami while CEU West/Endocrine Board Review (EBR) will land on the West Coast in Seattle.

Miami's Intercontinental Hotel will be the location of the 2019 CEU East on September 5 – 7, and the Hyatt Regency Seattle will be where the joint meeting of the EBR and CEU West take place on September 17 – 21. Each year CEU brings together hundreds of endocrine clinicians for a unique learning experience and opportunities to network with expert faculty and colleagues. Attend the 71st CEU to receive the most trusted and clinically relevant information about recent advances in the field of endocrinology. The educational programming at CEU appeals to clinicians at all levels of practice, as well as fellows and other members of the clinical practice team. Unlike other board preparation meetings, the Endocrine Society's EBR offers a comprehensive mock-exam format with case-based American Board of Internal Medicine-style questions forming the bulk of the presentations. Each section follows the ABIM blueprint for the board exam, covering the breadth and depth of the certification/recertification examination. Each case will be discussed in detail, with the correct and incorrect answer options reviewed. The mock exam appeals to endocrine fellows who have completed or are nearing completion of their fellowship and are preparing to take the board certification exam. Practicing endocrinologists may appreciate the EBR's comprehensive self-assessment of endocrinology either to prepare for recertification or to update their practice.

www.endocrine.org/ceu www.endocrine.org/ebr/2019

### The American Society for Bone and Mineral Research (ASBMR) 2019 Annual Meeting

### Orlando, Florida September 20 – 23, 2019

The ASBMR Annual Meeting boasts nearly 100 education sessions and 1,100 poster presentations in four informationfilled days. The conference includes hands-on workshops focused on the latest technologies and research tools using model datasets, meet-the-professor sessions, the ASBMR Discovery Hall, an exhibition hall that provides attendees with a truly immersive experience, with access to new science, new knowledge, new tools, and new contacts all in one location. www.asbmr.org

### Assisted Reproductive Technology (ART) World Congress 2019

New York, New York October 10 – 11, 2019

The New Hope Fertility Center in New York will host the Assisted Reproductive Technology World Congress bringing together researchers, physicians, clinicians, and specialists to discuss cutting-edge research and procedures in reproduction assistance. Topics of this year's conference will include oocyte and embryo cryopreservation — a critical view, the assessment of embryo ploidy using timelapse imaging system and conventional morphological grading, automated and semi-automated vitrification and rewarming, and awakening follicles in POI women. art2019.cme-congresses.com

### Cardiometabolic Health Congress

Chicago, Illinois October 11 – 13, 2019 CMHC is the largest, U.S.-based,

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multidisciplinary conference that is solely focused on the management of cardiometabolic risk and the prevention of cardiovascular and metabolic disease. This event allows today's busy healthcare professionals a uniquely exclusive opportunity to learn, internalize, and integrate real-world solutions into their toolboxes, and ultimately, their clinical practices and patient care.

www.cardiometabolichealth.org/2019/ chicago-14th-annual-cmhc.html

### 89th Annual Meeting of the American Thyroid Association

### Chicago, Illinois

### October 30 - November 3, 2019

The ATA Annual meeting is open to the community of endocrinologists, internists, surgeons, basic scientists, nurse practitioners, and other healthcare professionals who wish to broaden and update their knowledge of the thyroid and thyroid cancer. www.thyroid.org/89th-annual-meeting-ata/



### The 37th Annual Meeting of The Obesity Society

Las Vegas, Nevada, November 3 – 7, 2019 The Obesity Society (TOS) will hold its 37th Annual Meeting at ObesityWeek<sup>SM</sup>—a unique, international event focused on the basic science, clinical application, surgical intervention, and prevention of obesity. ObesityWeek brings together world-renowned experts in obesity to share innovation and breakthroughs in science unmatched around the globe. This year, the international conference will focus on diabetes. Attendees will enjoy the diverse educational opportunities, networking events, and scientific synergies offered in sessions, and joint symposia with numerous peer-related organizations. https://obesityweek.com/

### INTERNATIONAL ITINERARY

## IBPS Summer School on Endocrine Disruptors

### Paris, France, August 25 – 31, 2019

Organized by the Institut de Biologie Paris-Seine, this international summer school is targeted primarily, but not exclusively, to PhD students and post-docs focusing on the topic of endocrine disruptors. Over the course of five days, attendees will attend lectures and collaborate on work focused on the research of endocrine disruptors. In addition to the coursework and networking opportunities, guests will have the opportunity to explore Paris with others in their field.

https://sites.google.com/view/ibps-summer-school-disruptors/home

### **European Thyroid Association Annual Meeting** Budapest, Hungary, September 7 – 10, 2019

The Thyroid Section of the Hungarian Society of Endocrinology and Metabolism will host the 42nd Annual Meeting of the European Thyroid Association for the first time in its history. The four-day conference, which has been accredited by the European Accreditation Council for Continuing Medical Education for a maximum of 24 European CME credits, will include poster sessions, meet-the-expert panels, award presentations, and more.

www.eta2019.com

## Pisa International Diabetic Foot Courses

### Pisa, Italy, October 2 – 5, 2019

The Pisa International Diabetic Foot Courses are based on the knowledge and structure of treatment offered by the specialized diabetic foot clinic at the University Hospital of Pisa. The courses are used as a basis for building up an international educational network and for raising political awareness of the challenges related to treatment and prevention of the diabetic foot. By combining lectures from different specialists and individual training in the clinic, the courses offer insight into both the theory of the field and the practical methods used in the clinic.

#### EndoBridge 2019

#### Ayatall, Turkey, October 24 - 27, 2019

Jointly organized by the Endocrine Society, European Society of Endocrinology and the Society of Endocrinology and Metabolism of Turkey, EndoBridge focuses on "bridging the world of endocrinology" and will provide a comprehensive update in the field of endocrinology. This meeting is designed for the clinical endocrinologist. The official language of the meeting is English, but simultaneous translation will be available in Russian, Arabic, and Turkish.

http://endobridge.org

### International Prader-Willi Syndrome Conference

#### Havana, Cuba, November 13 – 17, 2019

The 10th international meeting of the International Prader-Willi Syndrome Organisation (IPWSO) is a unique event focused solely on Prader-Willi Syndrome. The event is a multi-disciplinary event for networking, sharing knowledge, and collaboration opportunities for a vast audience including scientists, caregivers, physicians, policymakers, and more.

www.ipwsoconference.org

# **EXPANDING HORIZONS:** A Look at the Endocrine Society's Evolving Minority Outreach

The Endocrine Society's minority outreach has steadily evolved from simply a "good idea" 20 years ago into a life-changing program for hundreds of minority endocrinologists for generations to come.

### **BY GLENDA FAUNTLEROY SHAW**

hat started as a vision of Thomas Landefeld, PhD, in the late 1990s has changed the life trajectories of hundreds of minority research scientists across the country. Landefeld is credited with developing the Endocrine Society's first Minority Affairs Committee to address the lack of minority members in the endocrine specialty. Now a professor of biology and pre-health adviser at California State University, Dominguez Hills, he recalls the first committee initiative that's impact is still felt today — the endocrine "short courses."

"A lot of schools, especially some of small schools and the minorityserving institutions, don't have an endocrinology course so the short courses allowed for members of the Endocrine Society to volunteer to teach two to five days at one of these institutions," he explains. The courses were made possible by a grant from the National Institute of General Medical Sciences (NIGMS). Landefeld says it soon became obvious the short courses made an impression on more than just the students.

As one of the volunteer faculty at a short course held at the University of Hawaii at Manoa, Mary Frances Lopez, PhD, an assistant professor of pediatrics at Harvard Medical School, taught the endocrine system, function, and diseases. She emphasized the importance of certain hormones such as steroids and the use in sports, or insulin and its role in diabetes in minority communities.

"Students enjoyed learning about the practical and everyday aspects of endocrinology," Lopez recalls. "I tried to make typically confusing and



complex topics 'cool' by showing how the endocrinology field has practical impacts in various aspects and stages of our lives."

"I also spent half of the day mentoring students one-on-one," she adds. "This was one of the most memorable part of the short course to me. I learned about the students' background, experiences, and struggles. In turn, I was able to give each of the students individualized advice."

Gary D. Hammer, MD, PhD, president-elect of the Endocrine Society, was a short course instructor both in 2000 at Texas

A&M, Corpus Christi, and in 2001 at the University of Guam. He reflected on the message he and other faculty stressed to the participating students.

"The immediate message that we certainly hoped, and still hope, would resonate was the overall sense that 'Can Do' was more than a catch phrase," says Hammer, director of the Endocrine Oncology program at the University of Michigan, Ann Arbor.

"I think that even the short courses catalyzed a real sense of empowerment in these young people," he continues. "Such



Steven Anderson back row, (far left) and Minority Access Program (MAP) students at ENDO 2013. Anderson has said that MAP was one of his most significant contributions to the scientific community, and he and Mark Lawson remain in frequent contact with past program participants and still offer them career advice.



Students enjoyed learning about the practical and everyday aspects of endocrinology. I tried to make typically confusing and complex topics 'cool' by showing how the endocrinology field has practical impacts in various aspects and stages of our lives."

- MARY FRANCES LOPEZ, PHD, ASSISTANT PROFESSOR OF PEDIATRICS, HARVARD MEDICAL SCHOOL, BOSTON, MASSACHUSETTS

empowerment requires first showing what a life in science and in healthcare is, then showing what is possible, then empowering them that they can, too. The spirit of seeing 'what is' and that 'they can' was palpable. They heard and saw that from the speakers and felt the possibility in each other."



Mark Lawson and MAP participant Tamara Escajadillo, who received her PhD in biomedical sciences from UC San Diego

### New Program, Same Goal

When the NIGMS grant funding ceased in 2006, the Minority Affairs Committee was tasked with reframing the short courses into a more structured education program, leading to the launch of the Minority Access Program (MAP) in 2008 under then-president Margaret (Peggy) Shupnik, PhD.

MAP was designed as a two-year summer internship program offered to undergraduates from underrepresented backgrounds. It provided consecutive research and career development training in the labs of Society members at six endocrine training institutions: Baylor College of Medicine; University of California, San Diego; University of Colorado Anschutz Medical Campus; University of Virginia; Emory University; and the University of Wisconsin. MAP also provided students GRE preparation courses and travel expenses to attend **ENDO** for two consecutive summers.

Mark Lawson, PhD, and Steven Anderson, PhD, served as co-directors of MAP and visited 12 – 20 schools each year to recruit participants.

"MAP was very impactful and more effective than other similar programs in increasing minority participation/pursuit of biomedical research careers," says Lawson, professor of Reproductive Medicine at the University of California, San Diego. "Educational consultants discovered that twice as many undergraduates entered professional school in the health sciences compared to traditional summer research programs."

Carlos Perez Kerkvliet participated in MAP during the summers of 2011 and 2012 while earning his bachelor's at the University of Puerto Rico at Cayey.



"Dr. Steve Anderson would visit my undergraduate institution every year to recruit talented individuals interested in endocrinology and research," Kerkvliet explains. "I decided to interview for MAP and am eternally grateful for being accepted to participate in this program. I did the first summer in the University of

Colorado and worked with Dr. Jennifer Richer and the second summer I was under the supervision of Dr. Margaret Shupnik at the University of Virginia."

Andrew La'Pelusa first heard about MAP from a fellow student while attending Morehouse College, a historically black college in Atlanta, Georgia. He participated in MAP at the University of California, San Diego the summers of 2013 and 2014 and is now pursuing a dual degree (Pharmacology and Toxicology MD/MS) at Wright State University Boonshoft School of Medicine. Dayton, Ohio.

He believes it's "a disservice" to call those who are responsible for MAP just faculty because they are like "family."

"That's just how much they cared," La'Pelusa says. "The greatest strength of the MAP program and the Endocrine Society has been the continued support throughout the years. From my first poster presentation to my medical school application and beyond, they have always been there to help and direct me when I felt aimless."



I owe the [Minority Access Program], the Endocrine Society, and those who made the program possible, a debt that I will never be able to pay off. No matter where I go, I will advocate for the need for such programs. Programs that expanded the range of what is perceived to be possible."

cancer and stem cells with Abdel Flores (left) and other students.

- ANDREW LA'PELUSA, FORMER MAP PARTICIPANT CURRENTLY PURSUING DUAL MS/MD DEGREES AT WRIGHT STATE UNIVERSITY BOONSHOFT SCHOOL OF MEDICINE, DAYTON, OHIO



Chelsea Saito (left), postdoctoral fellow, Chaminade University, and Elizabeth Wellberg (right), assistant professor, University of Colorado Anschutz Medical Center; and (opposite page) Monica Rivera, University of Puerto Rico, Cayey, at work in Steve Anderson's Lab at the University of Colorado School of Medicine in Denver, during their time in the MAP program.

## **Changing Lives Yesterday and Tomorrow**

MAP was also supported by an NIGMS grant and ended in 2015 when funding expired. Participants of the short courses and MAP agree, however, that diversifying the endocrine specialty is an ongoing effort and reviving the programs should be considered.

"Since the numbers of underrepresented minorities in medicine and other health careers, including endocrinologists, are embarrassingly low, there is definitely still a need today," Landefeld says. "These [programs] could stimulate and motivate more underrepresented undergraduate minorities, just as it did back then."

La'Pelusa, in fact, says he would not be in medical school today if not for the MAP program.

"I owe the MAP program, the Endocrine Society, and those who made the program possible, a debt that I will never be able to pay off," he says. "No matter where I go, I will advocate for the need for such programs. Programs that expanded the range of what is perceived to be possible."

Perez Kerkvliet echoes the sentiment.

"After my participation in MAP, I decided to pursue an MD/ PhD program," he says. "Today, I am part of the MD/PhD program at the University of Minnesota and more importantly, my mentor Dr. Carol A. Lange, has been instrumental in my participation in the Endocrine Society and for the success of my training."

Lawson says he has been approached multiple times by NIGMS staff to re-start MAP.



MAP was very impactful and more effective than other similar programs in increasing minority participation/ pursuit of biomedical research careers. Educational consultants discovered that twice as many undergraduates entered professional school in the health sciences compared to traditional summer research programs."

- MARK LAWSON, PHD, PROFESSOR, REPRODUCTIVE MEDICINE, UNIVERSITY OF CALIFORNIA, SAN DIEGO



I think that even the short courses catalyzed a real sense of empowerment in these young people. Such empowerment requires first showing what a life in science and in healthcare is, then showing what is *possible*, then empowering them that they can, too. **The spirit of seeing 'what is' and that 'they can' was palpable. They heard and saw that from the speakers and felt the possibility in each other."** 

- GARY D. HAMMER, MD, PHD, PRESIDENT-ELECT, ENDOCRINE SOCIETY; DIRECTOR, ENDOCRINE ONCOLOGY PROGRAM, UNIVERSITY OF MICHIGAN, ANN ARBOR

"MAP has indeed been missed, and I am frequently asked about its future," adds Anderson, vice chair for research in the Department of Pathology at the University of Colorado School of Medicine. "I feel this was one of my significant contributions to the scientific community." Both Anderson and Lawson remain in frequent contact with MAP participants and continue to offer career advice.

In an interview with *Endocrine News* in March, Sherri-Ann Burnett-Bowie, MD, then chair of the Society's Committee on Diversity and Inclusion (CoDI), said, there is a "tremendous investment on the Society level in CoDI's programming," and it is committed to addressing the gaps in minority representation within the endocrine community.

Lawson believes, however, these minority outreach programs go beyond creating more endocrinologists.

"The MAP program demonstrated that a partnership between a professional society, Research 1 universities, and minorityserving institutions is both impactful and cost-effective," he explains. "The [Society] is particularly suited due to its membership that includes clinical scientists, basic scientists, and partners from the private sector. This presented an array of career options and opportunities to young undergraduates that they were completely unaware of and opened their eyes to what they could do with their own careers."

As demonstrated here and in previous articles, the Endocrine Society continues to embrace and promote diversity in as many ways as possible. Another program that the Society has fostered



is the Future Leaders Advancing Research in Endocrinology (FLARE) program, which reaches out to basic scientists, clinical research trainees, and junior faculty who have shown achievements in research and come from underrepresented minority communities.

Look for more about FLARE in an upcoming issue of *Endocrine News*.

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



When Cori Bargmann, PhD, president of science of the Chan Zuckerberg Initiative, spoke at ENDO 2019 in New Orleans, she explained how endocrine science and practice can play a vital role in curing or at least managing all disease by the year 2100.



**BY DEREK BAGLEY** 

# How Can Endocrinology Help Cure All Diseases?

**Here** ere's an ambitious goal: Cure, prevent, or manage all diseases by the end of the century. On its face, this goal seems like something out of a science fiction story about a utopian society or at least a bumper-sticker affirmation. But the end of the century is 81 years away, and when you think about the advances medicine has seen in the past 80 to 100 years, this goal doesn't seem so lofty after all. Insulin was discovered 98 years ago, which isn't ancient history. Before that scientific leap, people diagnosed with diabetes died young of ketoacidosis, virtually unheard of just a few decades later.

This past March, during **ENDO 2019** in New Orleans as part of a session entitled "Utilizing Big Data in Science and Clinical Care," Cori Bargmann, PhD, head of science of the Chan Zuckerberg Initiative, expanded on exactly why this goal is more within our grasp than we think, but achieving it will require robust collaboration not only among fundamental, translational, and applied sciences, but interdisciplinarity across all medical fields — and endocrinology is uniquely positioned to be the linchpin of it all.

Bargmann, a neuroscientist and geneticist, is renowned for her work studying *C. elegans*, or transparent roundworms, researching how the nervous system and behavior respond to motivational and emotional states. And it's here that Bargmann says endocrinology has been one of the most important ways that she and her colleagues have gained insight into human behavior. "Endocrinology very much represents an area where behavior and emotion and motivation intersect," she says. "My feeling about this field in general is that it's been tremendously important in linking science and medicine, and that's only going to be more true in the future as we understand them."

## **A Tangled Superhighway**

The Chan Zuckerberg Initiative (CZI) was founded in 2015 by Priscilla Chan and Mark Zuckerberg with the aim of facilitating social progress by focusing on three core areas education, justice and opportunity, and science — and either funding projects through grants, helping build software tools and apps and other technologies, and collaborating with ongoing projects. In science, CZI funds basic biological research, builds technological tools with and for scientists, and supports collaborations between interdisciplinary experts. "At the Chan Zuckerberg Initiative, we are trying to think broadly about how to give scientists the tools that they need to move the field forward," Bargmann says. "And that could be in any field. That could be an infectious disease, that could be in neurology, and it could be endocrinology."

Bargmann points to diabetes as an example of what she and her colleagues at CZI and the other scientists who collaborate with them are addressing, since many of the mysteries of diabetes have yet to be unlocked. Sure, physicians know the risk factors and can offer various forms of treatment, but the Endocrinology very much represents an area where behavior and emotion and motivation intersect.
My feeling about this field in general is that it's been tremendously important in linking science and medicine, and that's only going to be more true in the future as we understand them."

- CORI BARGMANN, PHD, HEAD OF SCIENCE, CHAN ZUCKERBERG INITIATIVE, REDWOOD CITY, CALIFORNIA

## Chan Zuckerberg Initiative®

For more information on what the Chan Zuckerberg Initiative is working on, go to: https://chanzuckerberg.com/ disease process is still a work in progress. "We have a good understanding of genetic risk, but we haven't moved from a genetic risk that might be present in your body for your entire life to you developing type 2 diabetes and being informed of that by your ophthalmologist when you're 50 years old," she says.

Between those two endpoints is a twisting, tangled superhighway of cell biology and physiology and endocrinology, complete with offramps that lead to unexpected avenues, which will require input from many different disciplines to navigate. For example, patients with cancer who are treated with immunotherapies can develop autoimmune diseases, such as type 1 diabetes. "This is obviously something that we would like to limit," Bargmann says. "It also provides an opportunity to understand better what the early stages of those diseases are in a way that has not been possible. And that's an example of putting together insights from different fields to make progress in all of them. We want immunooncology, we want to treat tumors, and we don't want those people to develop diabetes."

To address this issue, CZI supports the Human Cell Atlas, a global collaboration to map and characterize the more than 37 trillion cells in the healthy human body — including how cells communicate with each other — as a resource for studies of health and disease. CZI is partnering with groups such as the Broad Institute, the European Bioinformatics Institute, the Wellcome Sanger Institute, the University of California, Santa Cruz, and many more to support this effort. Endocrinology is fundamentally about a signal released from one cell and then detected by another, even at a distance. "One of the things that is emerging from the Human Cell Atlas project is an understanding of all the different secreted factors made by different cell types, and the expression patterns of their receptors on all different cell types," Bargmann says.

## Taking Risks, Making Mistakes

None of the work CZI or the Human Cell Atlas consortium is doing is aimed specifically at endocrinology, or any other specialty, but that's the point. Sometimes the best discoveries in science are born out of other seemingly unrelated work. Discoveries are often made by accident. Aspirin worked before anyone understood how it worked.

When Bargmann was a graduate student at MIT, she studied how genetic changes give rise to cancer, and she discovered an oncogene mutated in an obscure class of rat tumors, neu/Her2, that could be rejected by the immune system. "That particular gene does not play a role in human neuroblastoma, but following my work, a clinical scientist at UCLA discovered that that same gene was altered in human breast cancer," Bargmann says. "And following that work, the drug company Genentech developed an antibody [Herceptin] because they knew from the earlier work that, in rats at least, antibodies could be used to reject that cancer."

In fact, Bargmann says that it was sessions she attended at **ENDO** that got her thinking about what other diseases endocrinologists could help cure, prevent, or manage, even a disease such as Alzheimer's. Treatments for Alzheimer's





During her talk at **ENDO**, Bargmann stressed the importance of collaboration and taking risks, even making mistakes, when it comes to advancing science. This starts with building a foundation that allows healthcare providers to intervene and generate prevention or treatment for different kinds of disease states — knowing the terrain before beginning the journey. Still, she recognizes the long, winding road ahead before the century is over. "If we want to make progress on disease, we have a long path that starts with fundamental understanding that builds toward a deeper understanding through recognizing what the healthy human body does, and then recognizing how that is altered in disease," she says. "And that ultimately then leads to the development of drugs, to clinical trials, and interventions. This is a long path, and it's too long a path for any one person to take on their own."

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- CORI BARGMANN, PHD, HEAD OF SCIENCE, CHAN ZUCKERBERG INITIATIVE, REDWOOD CITY, CALIFORNIA

- BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE LINK BETWEEN SCREEN TIME AND SNACKING AND PEDIATRIC OBESITY IN THE JUNE ISSUE.



# **PARALLEL LIVES:**

The road to gender affirmation just got smoother, thanks to research from two studies presented at ENDO 2019. Millions of transgender people experience gender dysphoria, the profound incongruence between the gender a person is assigned at birth and the gender with which that person identifies. Gender-affirming surgery (GAS) and cross-sex hormone therapy (CSHT) help to ease some of that conflict by better aligning the outward body and the inner self.

Although making that alignment happen can be fraught with obstacles, researchers are finding ways to hurdle them and bring both transgender women (male to female) and transgender men (female to male) closer to living the lives they want to lead.

## Optimal Brain Function in Transgender Women

In "The Effects of Estradiol on the Resting-State Functional Connectivity of Transwomen Following Gender Affirming Surgery," lead researcher Maiko Abel Schneider, PhD, of McMaster University in Hamilton, Ontario, Canada, and team looked at what happens to the brain during the transient period of hypogonadism that transgender women experience after undergoing GAS. Although estradiol is typically administered prior to GAS, many transgender women discontinue it post-surgery, possibly due to

Two studies from **ENDO 2019** shed new light on gender dysphoria for patients undergoing genderaffirming surgery (GAS). A study of transgender women demonstrated the importance of hormone replacement after GAS, while another study of transgender men showed that preserving ovarian reserve could allow for future reproduction. LIVES Endocrine Research & Gender Affirmation

**BY KELLY HORVATH** 

66 There's a lot of concern in menopause for mood disorders, fine motor asymmetry and lack of motor control, emotion regulation, or other maladaptive functioning of the brain if estradiol is not replaced after ovarian failure, which usually doesn't occur until after age 50. Transgender women, on the other hand, face a potentially much longer period without sex hormones if they don't replace them."

> - MAIKO ABEL SCHNEIDER, PHD, MCMASTER UNIVERSITY, HAMILTON, ONTARIO, CANADA

inconvenience, cost, or other factors. "My question was, if these individuals don't institute estradiol after surgery, and they don't have testosterone due to the gonadectomy, what would happen to the brain in the short term?" Schneider says. "So, we aimed to figure out how important it would be to replace estradiol instead of having no sex hormones after surgery."

Furthermore, although CSHT is known to affect brain anatomy and connectivity before the completion of GAS, investigation of these effects has, until now, been lacking. Schneider and team therefore evaluated the impact of CSHT on resting-state functional connectivity (rs-FC) in 18 post-GAS transgender women, using 3T functional magnetic resonance imaging (fMRI) both 30 days after CSHT washout and then again at 60 days following estradiol reinstitution. They used two approaches. First, they tested paired brain areas that they hypothesized would exhibit changes in connectivity patterns pre- and post-estradiol institution, specifically, the thalamus and the sensory motor cortex. As a second approach, they used a machine-learning algorithm, itself a two-step analysis, to identify which areas of the whole brain were more or less activated.



For part one of the study, they found that estradiol increased the coupling of the thalamus — the relay center for sensory and motricity stimuli — with the somatosensory cortex — the motor command high cortical areas of the brain. "When we tested the amount of oxygen that was consumed in these areas, we were looking for how similarly they are working — how connected they are. Our conclusion here is that replacing estradiol is important because it might avoid long-term clinical symptoms of hypogonadism that might be related to the 'decoupling' between those respective brain areas," Schneider says. "There's a lot of concern in menopause for mood disorders, fine motor asymmetry and lack of motor control, emotion regulation, and other maladaptive functioning of the brain if estradiol is not replaced after ovarian failure, which usually doesn't occur until after age 50. Transgender women, on the other hand, face a potentially much longer period without sex hormones if they don't replace them.

For part two of the study, the whole brain analysis, they identified brain regions that were more or less activated when replacing estradiol and found that the subcallosal gyrus (midbrain region) had a decreased activation in parts of the anatomical region when estradiol was replaced. Next, they looked at which other regions of the brain this medial cluster region was connected or disconnected. "We found that after replacing estradiol, not only was activation within this region of the brain lower than in other areas, we also found that this region was decoupled from another medial frontal region that is also involved in emotions," Schneider explains.

The team's next step will be working with clinical trials to test a larger sample size for a longer term as well as different types and formulations of hormones (e.g., oral versus transdermal formulations, pure estradiol versus estradiol plus progestin), and a long-term comparison of clinical effects, not just 30 days of hypogonadism versus replacing sex hormones. "We expect similar results — that replacing sex hormones will be healthier for the brain and that brain aging can be delayed with hormone replacement therapy in transgender women, which could be potentially translated to menopausal women," Schneider says. "This might be a good opportunity to translate knowledge, not only knowledge for the transgender population but also for non-transgender women."

## Fertility in Transgender Men

In "Evidence for Preserved Ovarian Reserve in Transgender Men Receiving Testosterone Therapy: Anti-Müllerian Hormone Serum Levels Decrease Modestly After One Year of Treatment," lead investigator, Yona Greenman, MD, chair of the Institute of Endocrinology and Metabolism at Tel Aviv-Sourasky Medical Center in Israel, and team studied markers of ovarian reserve in a

## AT A GLANCE

- In 18 transgender women given estradiol replacement after gonadectomy, brain regions involved in sensory and motricity processing demonstrated good connectivity, indicating the importance of sex hormone replacement after GAS.
- In the same study, by contrast, brain regions related to emotion regulation and depressive symptoms were decoupled, which not only underscores the importance of sex hormone replacement after GAS but also has potential implications for menopausal women who may not have otherwise considered hormone replacement therapy.
- In an Israeli study of transgender men undergoing testosterone treatment, ovarian reserve was preserved, as indicated by continuing normal AMH levels and an unchanged antral follicular count, with implications for possible future reproduction, if desired.

## **66** Fertility issues should be addressed in transgender men, preferably before hormonal treatment initiation, but also subsequently, according to the patient's wishes."

- MAIKO ABEL SCHNEIDER, PHD, MCMASTER UNIVERSITY, HAMILTON, ONTARIO, CANADA

cohort of 52 transgender men. Although successful pregnancies in transgender men have been reported, this study is the first to look closely at how long-term testosterone therapy affects fertility, a very important consideration for transgender men.

Of the cohort, 32% were in a stable relationship, 17% expressed desire to have children, 50% were unsure about future parenthood, and 7% had already undergone fertility preservation procedures (egg retrieval and cryopreservation).

In the course of 12 months of treatment, participants received either intramuscular injections of 250 mg of testosterone enanthate about every three weeks, with dose adjustments depending on serum levels of testosterone, or transdermal treatment with daily testosterone gel application. Researchers took blood samples to measure anti-Müllerian hormone (AMH), gonadotropins, and sex steroid serum levels as well as determined endometrial thickness and antral follicular count by pelvic ultrasound at baseline and at the 12-month treatment mark.

In the 32 participants for whom complete data was available, AMH levels decreased slightly from about 5.65 ng/ml at baseline to about 4.89 ng/ml, and antral follicular count and endometrial thickness did not change. As the researchers expected, testosterone levels increased from about 0.84 ng/ml to 7.0 ng/ml, and estradiol levels decreased from about 90.8 pg/ml to 55.4 pg/ml during therapy. These changes brought a concomitant decrease in luteinizing hormone level from about 7.56 mIU/ml to 3.8 mIU/ml, but not a significant decrease in follicle-stimulating hormone level. "According to



our data, fertility seems to be preserved during the first year of testosterone treatment," Greenman says.

However, what this ultimately means for fertility potential remains to be explored. "Our plan now is to analyze the whole cohort, which was enlarged since our report at **ENDO 2019**," Greenman says. "In addition, we collected data from patients being treated for different periods of time in our department. This will be a cross-sectional analysis in which we will see if there is any correlation between AMH levels and treatment length."

An incidental finding of the current study was that 9% of participants who initially were sexually attracted to women became bisexual during testosterone treatment. This, too, might become a future area of exploration.

The bottom line is that this is an area of tremendous significance for individuals and couples and has implications for the clinicians who treat them. "Fertility issues should be addressed in transgender men, preferably before hormonal treatment initiation, but also subsequently, according to the patient's wishes," Greenman says.

- HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. SHE WROTE ABOUT THE LINK BETWEEN OBESITY AND PRECOCIOUS PUBERTY IN BOYS IN THE JULY ISSUE.

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# by derek bagley **Restless:**

BPA, Circadian Rhythms, & Hyperactivity From obesity to autism, the effects of bisphenol A (BPA) during pregnancy and childhood are well known. However, new research shows that BPA exposure during pregnancy at levels once considered safe could disrupt circadian rhythms as well as lead to hyperactivity later in life.

B isphenol A (BPA) is, unfortunately, everywhere – a seemingly indelible substance in the environment, leaching into food through plastic containers and cans or into homes through equipment designed to minimize dangers and neutralize threats. BPA appears in the National Institute of Environmental Health Sciences' list of environmental agents that may cause adverse effects alongside arsenic and lead and pesticides. California's Proposition 65 includes BPA in its list of "chemicals known to cause cancer, birth defects, or other reproductive harm."

BPA has been implicated in obesity, non-alcoholic fatty liver disease, and even autism. Infants and children appear to be the most vulnerable, and recent mouse studies have shown the profound impact BPA can have on fetuses, even at low "safe" levels. Last year, at **ENDO 2018** in Chicago, Deborah Kurrasch, PhD, associate professor at the University of Calgary in Calgary, Alberta, Canada, presented her team's mouse study that showed BPA can alter brain development and behavior later in life. The researchers found that neurons were born too early in BPA-exposed brains, which meant these neurons could migrate to the wrong places and form incorrect connections.

"The public is becoming well educated on the debate surrounding BPA safety, as well as other chemicals," Kurrasch said at the time. "Although there is still work to be done to translate these findings in rodents to human pregnancy, this research could provide expectant mothers with important information that they might consider when thinking about what to avoid during pregnancy."

Kurrasch and her team's work indeed continued, and they returned for **ENDO 2019** in New Orleans to present a new mouse study showing BPA also disrupts circadian rhythms, which can lead to hyperactivity. Kurrasch says that as they've studied BPA's effects on the developing hypothalamus in zebrafish, mice, and now even human cohorts — and tried to understand how maternal exposure to BPA can alter connectivity in the fetal brain, they have found that hyperactivity later in life is often a result of exposure to BPA.

"We have also found that the hypothalamus appears to be specifically susceptible to developmental disruption even with extremely low doses of BPA," Kurrasch says. "Given that the hypothalamus contains the suprachiasmatic nucleus, the brain region important for controlling circadian signalling, investigating whether BPA can alter circadian rhythms was a clear next step in our research."

## **Mouse Trap**

Kurrasch and her team a few years ago established an experimental paradigm for these studies, tailoring a diet for mice that results in measurable elevation in BPA that's in range of what's been measured in humans, and they feed this diet to pregnant dams during gestation only. "We do this to control the amount and duration of BPA



The field is rapidly transitioning to using lower doses and conducting more precise measurements to elucidate exactly what organs and systems are most susceptible to BPA disruption. This understanding is critical to properly evaluating the BPA risk profile and ensuring that the regulations we have in place are appropriate for the potential effects."

- DEBORAH KURRASCH, PHD, ASSOCIATE PROFESSOR, UNIVERSITY OF CALGARY, CALGARY, ALBERTA, CANADA

exposure to ascertain the specific effects of maternal transfer to the developing fetus," Kurrasch explains.

For this study, the researchers placed three- to four-month-old mice pups in special cages fitted with an exercise wheel to gauge activity, and the team modified the mice's sleep/wake cycles, starting the pups out on a normal 12 hours of light and 12 hours of dark for four weeks and then transitioning the mice to 24 hours of dark for four weeks. During the 24-hour dark cycle, the pups were subjected to light pulses to examine their ability to adjust their rhythms in response to unexpected stimuli. "We found a number of changes as a result of BPA exposure," says Dinu Nesan, a postdoctoral researcher in the Kurrasch Lab.

The researchers observed almost twice as much daily activity in BPA-exposed mice during the normal light cycle, especially in the last third of the dark period. Mice are nocturnal creatures, so they of course were active just after darkness fell, and Kurrasch and her team found that BPA-exposed pups were more active during the dark period than the control mice. Disruptions of circadian rhythms were exaggerated during the all-dark conditions, with BPA-exposed mice remaining far more active for far longer than controls and acting as if their intrinsic "day" was shorter.

"Finally we found that BPA-exposed mice entrain more quickly to altered light conditions, both in the change from light/dark to dark/dark and when we exposed them to transient light pulses after acclimation to total darkness, suggesting that their suprachiasmatic nucleus is more responsive and/or sensitive to light exposure," Nesan says.

"Overall," the authors write in their ENDO abstract, "we conclude that low-dose gestational BPA exposure alters

circadian rhythms under various conditions, the first such finding in a mammalian model in vivo, and that this may be a contributing factor to the observed hyperactivity in BPAexposed mice."

## **Unpredictable Doses**

And yet, the effects of low-dose BPA remain underappreciated. North American and European governments continue to view low doses of the endocrine-disrupting chemical (EDC) as safe and acceptable, while the body of evidence suggesting otherwise continues to grow. "The field is rapidly transitioning to using lower doses and conducting more precise measurements to elucidate exactly what organs and systems are most susceptible to BPA disruption," Kurrasch says. "This understanding is critical to properly evaluating the BPA risk profile and ensuring that the regulations we have in place are appropriate for the potential effects."

But here's where things get complicated. BPA doesn't follow the normal dose response observed for other chemicals. For most toxicants, the dose and the subsequent harmful effects share a linear relationship — the higher the dose ingested, the more harmful the effects. Kurrasch says that this leads to experiments where a minimal threshold is identified and then government agencies can proclaim a dose lower than that threshold safe.

But BPA and some other EDCs aren't as predictable. "Instead, BPA and other EDCs exhibit non-monotonic dose curves, which can be unpredictably shaped with multiple peaks or with a u-shape where extremely low doses may have more pronounced effects than higher doses," Kurrasch says. "Studies like ours will help to better understand these dose curves and allow for more nuanced regulations to better protect the public." Kurrasch and her team a few years ago established an experimental paradigm for these studies, tailoring a diet for mice that results in measurable elevation in BPA that's in range of what's been measured in humans, and they feed this diet to pregnant dams during gestation only.

## **Regulatory Upgrades**

Kurrasch and her team will next study the specific changes to the suprachiasmatic nucleus that can cause these effects, looking especially at the alterations in hypothalamic structure and/or expression of neuropeptides and other factors that are changed by gestational BPA exposure. "Our plan is to gain as complete of an understanding as possible of the mechanistic effects of BPA on the developing hypothalamus," she says.

For now, Kurrasch says that this current study is further evidence that BPA might be harmful on developing as well as mature brains. This study is an indictment of even very low doses of BPA, since the researchers here administered doses far below what North American and European government agencies consider safe.

"Although we recognize that regulatory policy is complex and has to take in a variety of factors," Kurrasch says, "we believe that the current regulations are not taking into account the large and growing body of research evidence that low-dose BPA exposure has harmful effects and that safety guidelines should be re-examined."

## AT A GLANCE

- Exposure to bisphenol A during pregnancy can lead to changes in offspring circadian rhythms, which may lead to hyperactivity later in life.
- BPA was shown to disrupt circadian rhythms even at levels far lower than what North American and European governments consider safe.
- BPA exhibits unpredictable dose curves, which government agencies should recognize and craft more nuanced regulations to protect the public.

-BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE LINK BETWEEN UNHEALTHY SNACKING AND SCREEN TIME TO OBESITY IN TEENS IN THE JULY ISSUE.



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## **Q&A:** James L. Rosenzweig, MD



*Endocrine News* talks with James Rosenzweig, MD, chair of the writing committee that developed the latest Endocrine Society Clinical Practice Guideline on Preventing Cardiovascular Disease and Type 2 Diabetes in Patients at Metabolic Risk.

new Endocrine Society clinical practice guideline states that measuring waistline, blood pressure, cholesterol, and blood sugar during doctor's visits could possibly play a role in preventing heart disease and diabetes.

"Primary Prevention of CVD and T2DM in Patients at Metabolic Risk: An Endocrine Society Clinical Practice Guideline" was published online and will appear in the September 2019 print issue of *The Journal of Clinical Endocrinology & Metabolism*, more than a decade after the original guideline was published in 2008. This revised version offers a new take on metabolic risk and presents recommendations that reflect more recent trial data on blood pressure and lipids. The guideline prioritizes lifestyle and behavioral interventions and discusses new medical treatment options. Although the recommendations target patients ages 40 to 75, it can be used for patients at other ages as well.

James L. Rosenzweig, MD, of the Hebrew Rehabilitation Hospital in Boston, Mass., chaired the writing committee that developed the guideline and says that measuring the waistline during doctor's visits can often help clinicians spot patients at metabolic risk earlier and prevent more cases of heart disease

66 Our definition of metabolic risk in this guideline includes those people with the metabolic syndrome who

do not yet have either cardiovascular disease or diabetes **but are at increased risk for both conditions.**"



**66** The healthcare providers that can be most influenced by our recommendations are in primary care, general internal medicine, and geriatrics."



ALT	-k
GGT	
HbA1C mps/Glucose	-
Lipid Profile	299 H
- Cholesterol	250 H
- Triglyceride	62 H
- HDL-C	210
- LDL-C	T



and diabetes. "We emphasize the importance of lifestyle, dietary and behavioral changes as the first line treatment," he says. "However, treatment with medication is appropriate if goals are not met with lifestyle changes alone."

Rosenzweig shares his thoughts with *Endocrine News* about how this new guideline will emphasize advances in treatment, as well as the importance of various lifestyle and behavioral aspects, all of which contribute to improved metabolic health in these patients.

**ENDOCRINE NEWS:** What was the main reason for the development of a guideline on treating patients at metabolic risk? What drove the decision and why now?

**JAMES ROSENZWEIG:** There has been a dramatic increase in people at risk for developing atherosclerotic cardiovascular disease and type 2 diabetes in both the developed and developing world. This is a growing public health problem that needs to be addressed by medical providers. The risk factors for these two conditions tend to cluster together in many patients, so common interventions can reduce risk for both conditions and increase longevity and quality of life.

The term "metabolic syndrome" has been used to describe these clustered risk factors, which include obesity, high blood pressure, elevated triglycerides, low HDL "good" cholesterol, and abnormal elevation of blood sugar. Our definition of metabolic risk in this guideline includes those people with the metabolic syndrome who do not yet have either cardiovascular disease or diabetes but are at increased risk for both conditions.

This Endocrine Society Guideline has been revised and updated to reflect our more current knowledge of the benefits of lifestyle and behavioral interventions and new options for medical treatment. We focus on persons ages 40 to 75, for whom the supporting evidence is highest, for whom prevention is most critical, and interventions can have the greatest impact. However, our recommendations can be used to help guide health care decisions in patients outside of this age range.

**EN:** What impact do you anticipate the guideline recommendations will make on endocrine standards of care of patients at metabolic risk?

**JR:** The focus is on early assessment and prevention. Measurement of waist circumference can improve our identification of risk. We emphasize the importance of lifestyle, dietary and behavioral changes as the first line of action for prevention of atherosclerotic cardiovascular disease. Treatment with medications is to be used if the goals are not met with behavioral interventions.

**EN:** How do you see the guideline influencing medical specialties other than endocrinology?

**JR:** Endocrinologists tend to see patients after they have already developed diabetes and its complications. The healthcare providers that can be most influenced by our recommendations are in primary care, general internal medicine, and geriatrics.

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

**JR:** You can reduce your risk of getting heart disease and diabetes with healthy food choices and exercise.

Your doctor can help identify your risk by checking your waist circumference, blood pressure, lipid profile, and blood glucose.

Medications can be added for improvement of these risk factors if your diet and behavior efforts are not able to reach the appropriate targets.

## ESSENTIAL POINTS

From the "Primary Prevention of CVD and T2DM in Patients at Metabolic Risk: An Endocrine Society Clinical Practice Guideline"

- Measure waist circumference as a routine part of the clinical examination;
- Check blood pressure annually, and, if elevated, at each subsequent visit;
- Prioritize lifestyle modification as the first-line therapy;
- Set a minimum target of 5% loss or more of initial body weight over the first year for individuals at metabolic risk with excess weight;
- Perform a 10-year global risk assessment for coronary heart disease or atherosclerotic cardiovascular disease to guide the use of medical or pharmacological therapy; and
- Prescribe lifestyle modification before drug therapy in patients with prediabetes to reduce blood sugar levels.

This Clinical Practice Guideline was co-sponsored by the American Diabetes Association and the European Society of Endocrinology.

66 We focus on persons ages 40 to 75, for whom the supporting evidence is highest, for whom prevention is most critical, and interventions can have the greatest impact."



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## **Take Action During August Recess!**

ugust in Washington, D.C., can be hot and muggy. It's also the quietest time of the year on Capitol Hill. Each year at this time, members of Congress travel back to their home districts and states for a legislative break known as "August Recess." However, this doesn't mean that their work stops.

August Recess has been a tradition since 1791 and was originally created as a way for members of Congress to escape the oppressive summer heat in Washington, D.C. But as legislative calendars became longer and more arduous, the Recess became a statutory requirement with the passage of the Legislative Reorganization Act of 1970.

This year's Recess will span from August 5 to September 6. With members of Congress in their local areas, this is a great time to connect with your representative and senators and advocate for issues important to you.

The Endocrine Society has a variety of online resources to make you an effective advocate. Face-to-face meetings are the most effective way to share your message with your member of Congress. A trip to Washington, D.C., may not be feasible for you, but our District Visit Guide (https://www.endocrine. org/advocacy/home-district-visit-guide) helps you make the most of a unique opportunity to engage with your member of Congress he or she is in your area. Using our guide, we walk you through how to reach out to your member of Congress' local office, schedule a meeting, and meet with your member of Congress or his or her staff.



A Town Hall Toolkit (https://www.endocrine.org/advocacy/townhall-toolkit) is also readily available to help you identify and prepare for public town hall meetings that members of Congress often use to connect with their constituents. These meetings are a direct way to engage with your member of Congress on an issue important to you and ask him or her to take a public stance.

Constituents can learn more about their member of Congress, the issues they care about, and any events they may be holding in their district by visiting their member of Congress' website. All members of Congress have their own web page that allows their constituents to stay up to date with the latest legislative issues and bills their member is focused on.

To learn more about our advocacy resources and how to become involved in our advocacy efforts, visit us at **endocrine.org/advocacy** or contact our Government & Public Affairs coordinator Grace Kranstover at **gkranstover@endocrine.org**.

## Endocrine Society Works with Organization for Economic Cooperation and Development to Guide EDC-Focused Policies

s part of the Society's commitment to improving public health by reducing exposure to endocrine-disrupting chemicals (EDCs), our members work with international organizations and participate in many international meetings to provide advice and guidance to regulators and policymakers worldwide. One example is the Organization for Economic Cooperation and Development (OECD), which has worked since the 1990s to advance the testing of chemicals for effects on the endocrine system by publishing standardized test guidelines and providing other tools and resources for regulatory authorities. The Society's EDC Advisory Group has prioritized our engagement with OECD by establishing a special task force charged with managing the Society's relationship with OECD and providing guidance on their EDC-focused projects.

Projects related to EDCs are managed by several groups at OECD. This past June, Endocrine Society member and EDC expert Scott Belcher, PhD, participated in meetings of the Working Party on Hazard Assessment (WPHA) and the Expert Advisory Group on Molecular Screening and Toxicogenomics (EAGMST) in Paris, France. During the meetings, OECD shared plans for the development of new tools and guidance to assist regulators in screening and assessing chemicals for hazardous properties, including the ability to interfere with the endocrine system. We previously weighed in on several of the guidance documents and projects discussed during the meeting. During the meeting, Belcher also contributed to discussions on these issues and other hot-button topics such as per- and poly-fluoroalkyl substances (PFAS) and how to evaluate combined exposures to mixtures of chemicals. "Participating at the OECD meetings was a great opportunity to share how endocrine science can inform decision makers and help them make health-protective choices," Belcher says.

Belcher's contributions as a scientist were appreciated by OECD and by representatives from various non-governmental organizations and national regulatory agencies in attendance.

Participants expressed interest in continuing to work with expert members of the Endocrine Society on EDCs and potentially expanding our engagement to participate in meetings in the EU addressing other big-picture sciencepolicy issues. The Society's OECD, Task Force will continue to lead our work with OECD, and we look forward to additional opportunities to raise the profile of endocrine science around the world. **66** Participating at the OECD meetings was a great opportunity to share how endocrine science can inform decision makers and help them make health-protective choices."

- SCOTT BELCHER, PHD, DAVID CLARK LABORATORIES, NORTH CAROLINA STATE UNIVERSITY, RALEIGH, N.C.

## Congress Must Act to Renew Funding for the Special Diabetes Program as Clock Ticks Down to September 30 Deadline, Endocrine



The Special Diabetes Program is only funded until September 30, 2019, so it's imperative to act now and contact your members of Congress to tell them how vital this program is.

## 66

Critical research on a cure for type 1 diabetes and the continuation of important prevention and disease management programs for AI/ANs will be in jeopardy if Congress fails to act by the deadline.

"

## **Society Ramps Up Advocacy**

eauthorizing the Special Diabetes Program (SDP) is critical in continuing important type 1 diabetes research and programs to effectively prevent and treat diabetes in vulnerable populations.

Since 1997, the SDP has made significant strides in addressing the diabetes epidemic in the U.S. The program funds type 1 diabetes research at the National Institutes of Health, increasing our understanding of how to improve outcomes, accelerating progress on an artificial pancreas, advancing therapies to reverse vision loss, and discovering nearly 50 genes that influence the risk of developing type 1 diabetes. This research is the frontline not only for improving care for those already diagnosed with diabetes but also in finding a cure for the disease.

In addition to type 1 research, SDP also implements evidence-based treatment and prevention programs for Alaska Natives and American Indians (AI/AN), two communities at the highest risk for developing type 2 diabetes. Through this program, obesity and diabetes rates in AI/ AN youth have not increased in more than 10 years, while diabetes rates have not increased among the adult population since 2011. SDP has successfully reduced A1c levels, cardiovascular disease, and promoted healthy lifestyle behaviors. Diabetic eye disease has decreased by 50%, reducing vision loss and blindness. Kidney failure rates have decreased by 54%, reducing the need for dialysis. These positive clinical outcomes among participants has reduced the risk for blindness, amputations, kidney failure, and prevented or delayed the onset of type 2 diabetes.

SDP, however, is only funded until September 30. Critical research on a cure for type 1 diabetes and the continuation of important prevention and disease management programs for AI/ANs will be in jeopardy if Congress fails to act by the deadline. Consequently, the Endocrine Society is working with the Congressional Diabetes Caucus and other key diabetes stakeholders to ensure these programs receive adequate funding for the next five years. It is critical, however, that Congress hears from researchers and clinicians from around the country, so we hope all of our U.S. members will join our online campaign. The more members join us in sending an email to Congress, the more likely it is that Congress will act. To help us urge members of Congress to take action before September 30, please visit **endocrine.org/takeaction**.

ADVOCACY



Speaker of the House of Representatives, Nancy Pelosi (D-CA)

## Congressional Budget Deal Down to the Wire; Endocrine Society Advocates to Protect Biomedical Research as NIH Funding Is in Jeopardy

s this issue of *Endocrine News* goes to press, congressional leaders and the Trump administration are scrambling to reach an agreement on the budget and debt ceiling. House Speaker Nancy Pelosi (D-CA) and Treasury Secretary Steve Mnuchin have held several meetings and phone calls to make headway on reaching a deal. Adding to the urgency are new projections that show the Treasury Department could exceed its borrowing limit in the first half of September.

Speaker Pelosi and fellow Democrats are urging the White House to package a debt ceiling increase with a two-year deal that would raise the current statutory budget caps for defense and nondefense discretionary programs, which would allow for increases. The Speaker previously rejected the White House's contingency plan to temporarily raise the debt ceiling on a shortterm basis if the negotiations fail. Speaker Pelosi is also insisting that a deal recognize the need for additional funding for veterans.

Meanwhile, White House officials, who are pushing for offsets to proposed caps increases, have expressed uncertainty about whether the Speaker can garner the Democratic support for a budget compromise. Speaker Pelosi must thread the needle between far left members of the Democratic caucus who could oppose a deal because they see the defense level as too high and the domestic level as too low, and moderate Democrats who flipped Republican, fiscally conservative districts in 2018 who may be concerned about the overall costs of the package. Despite this challenge, both Speaker Pelosi and House Minority Leader Kevin McCarthy (R-CA) have expressed optimism that negotiators will be able to come to a deal. Regardless of when an agreement is reached, it is more than likely that a short-term extension will be needed in September to keep the government open and funded. Senate Appropriations Chairman Richard Shelby (R-AL) has said that there are three options for lawmakers to consider: 1) government shutdown at end of September (not likely during an election year); 2) move spending bills to sequestration levels in absence of a spending cap agreement (this would be extremely detrimental cutting programs such as the National Institutes of Health [NIH] by more than 10%); or 3) utilize short-term continuing resolutions (CR) to buy more time (this would at most flatline funding for federal programs). Many seem to think that if a deal is not made before Congress adjourns for its August recess, a CR will be used to run through the end of 2019.

While there is a lot at stake for many federal programs, the Endocrine Society continues to stay on message advocating for an increase for the NIH. We encourage all U.S. members to join our online advocacy campaign at **www.endocrine.org/ takeaction** to urge Congress to raise the budget caps and support a \$2 billion increase for the NIH. We also will participate in a Rally for Medical Research Hill Day with other research and patient advocacy organizations on September 19.

For the latest information about NIH funding, please visit *Endocrine News* online.



## *Pharmacological Management of Osteoporosis in Postmenopausal Women*

## A NEW STANDARD FOR CARE

Get the latest recommendations on how to promptly diagnose, treat, and provide ongoing care for postmenopausal women to help prevent osteoporosis and reduce the likelihood of fractures.

## **Recommendation Highlights:**

- Treat postmenopausal women at high risk of fractures with pharmacological therapies, as the benefits outweigh the risks.
- > Prescribe initial treatment with bisphosphonates to reduce fracture risk.
- Reexamine fracture risk after three to five years in women taking bisphosphonates. Women who remain at high risk of fractures should continue therapy, while those who are at low-to-moderate risk should be considered for a "bisphosphonate holiday."

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# 2019 Early Investigators Award Winners

Roundtable

Each year at ENDO, the Endocrine Society recognizes endocrine researchers who are in the blossoming stages of their research careers with Early Investigator Awards. *Endocrine News* rounded up this year's recipients to ask them about their research, their labs, and how the award will help them reach their research goals.

**BY GLENDA FAUNTLEROY SHAW** 

### LABORATORY NOTES



The Early Investigator Award is just one of several given out by the Endocrine Society each year at **ENDO**.

Precognition of their work is welcomed inspiration. Each year, the Endocrine Society bestows its Early Investigators Awards and thus inspires its recipients.

The awards were established to aid in the development of earlycareer investigators and to spotlight their accomplishments in endocrine-related research. *Endocrine News* spoke with the five 2019 winners to learn more about their goals and what the award will mean to their work.

This year's winners are: Subhamoy Dasgupta, PhD, of the Roswell Park Cancer Institute in Buffalo, N.Y.; Caroline Gorvin, DPhil, of the University of Birmingham in the United Kingdom; Mary Ellen Vajravelu, MD, of Children's Hospital of Philadelphia, Pennsylvania; Monica Laronda, PhD, of the Ann & Robert H. Lurie Children's Hospital of Chicago, Illinois; and Joanna Spencer-Segal, MD, PhD, of the University of Michigan in Ann Arbor.

*Endocrine News*: To get an idea of who comprises our "early investigators," at what stage are you in your academic fellowship or year as faculty?

**Subhamoy Dasgupta:** I am an assistant professor of oncology and started my laboratory at Roswell in July 2017.

I'm an early-career investigator faculty who has received their terminal degree within the past 10 years.

**Caroline Gorvin:** I moved to the University of Birmingham, UK, in January 2018, to begin my research group and have spent the intervening period establishing my independent research program and applying for funding. Prior to this, I spent nine years at the University of Oxford, initially as a PhD student, then as a post-doctoral researcher.

Mary Ellen Vajravelu: I am in my second year as faculty.

**Monica Laronda:** I started my assistant professor faculty position in the fall of 2016.

**Joanna Spencer-Segal:** I am in my first year as an assistant professor.

*EN*: What inspired you to apply for the award? What was your reaction when you learned the news?

**Dasgupta:** I came to know about the award from my postdoc mentor who encouraged me to apply. This is such a distinguished award for early-career investigators — I felt so excited and honored to be chosen as one of the recipients.



66 My laboratory is interested in understanding the molecular complexities associated with endocrine cancers that are highly aggressive and resistant to drugs. We have identified certain adaptations that allow tumors to escape therapeutic intervention and emerge as a recurrent cancer."

- SUBHAMOY DASGUPTA, PHD, ROSWELL PARK CANCER INSTITUTE, BUFFALO, N.Y.

**66** At a broad level, my research focuses on fundamental aspects of trafficking and signaling of membrane proteins, and how their impairments contribute to endocrine and metabolic disease."



- CAROLINE GORVIN, UNIVERSITY OF BIRMINGHAM, BIRMINGHAM, UK

**Gorvin:** What really inspired me to apply for the award was the opportunity to attend **ENDO 2019** as there are limited funds available for junior faculty to attend international meetings. I'd been to several **ENDO** meetings in previous years and always found the poster sessions to be an excellent forum for networking and the focused symposia to be very informative. I also realized that I was probably in the perfect position to apply having recently taken up my independent position and had a very productive final year in Oxford.

**Vajravelu:** As a junior investigator, it can be easy to get lost in the crowd. I was excited to learn about this award and the Endocrine Society's support of early-career investigators, and I felt honored to have been chosen as a recipient.

**Laronda:** While I belong to several different societies that span the main topics of my research, I consider the Endocrine Society to be my primary professional society. I was very excited to hear that my research would be recognized by a society that I respect.

**Spencer-Segal:** I was inspired by seeing other distinguished colleagues receive the award in the past. I

knew that it would be a privilege to be counted among this group. I noted that the Society takes care to spotlight the work of these early investigators, which can help boost their careers.

### EN: Tell us about your research.

**Dasgupta:** My laboratory is interested in understanding the molecular complexities associated with endocrine cancers that are highly aggressive and resistant to drugs. We have identified certain adaptations that allow tumors to escape therapeutic intervention and emerge as a recurrent cancer.

**Gorvin:** At a broad level, my research focuses on fundamental aspects of trafficking and signaling of membrane proteins, and how their impairments contribute to endocrine and metabolic disease. In recent years, this has focused on two distinct areas: Investigating how mutations in the prolactin receptor contribute to hyperprolactinaemia and prolactinoma.

**Vajravelu:** My current research is focused on pediatric type 2 diabetes and prediabetes. I have a background in health services research and quality improvement science, and



I am grateful for the recognition provided by the Early Investigator Award, which was a helpful confidence-booster at a much-needed time as I transitioned from fellowship to faculty."

- MARY ELLEN VAJRAVELU, MD, CHILDREN'S HOSPITAL OF PHILADELPHIA, PENNSYLVANIA



66 Those in both clinical and foundational endocrinology research look to the Endocrine Society for support in advocacy, educational tools, practice guidelines, and research resources. Recognition by such a prestigious group adds weight to my lab's research topics and highlights our efforts to provide options for fertility and hormone preservation and restoration."



- MONICA LARONDA, PHD, ANN & ROBERT H. LURIE CHILDREN'S HOSPITAL, CHICAGO, IL.

am interested in the use of behavioral economic-informed approaches to challenging problems such as addressing obesity in youth at risk for type 2 diabetes.

**Laronda:** I am interested in how support cells and the surrounding microenvironment can influence gametogenesis. My lab is particularly interested in the ovarian matrisome and how we may use this foundational knowledge to engineer a bioprosthetic ovary to restore fertility and hormone function in patients with diseases or treatments that cause premature ovarian insufficiency.

**Spencer-Segal:** My lab is interested in the neuroendocrine mechanisms of vulnerability to stress. Specifically, we currently focus on the long-term consequences of severe immune stress, such as sepsis, on the brain, behavior, and regulation of the stress response. We work in a mouse model of sepsis, cecal ligation and puncture, and we seek to determine how brain dysfunction is disrupted in sepsis survivors and what role hormones play in this process.

Our work is really cross-disciplinary and translational. I hope to increase the awareness among endocrinologists of the long-term consequences of stress in general and severe illness in particular. Many of our findings can be considered in the context of the patients."



- JOANNA SPENCER-SEGAL, MD, PHD, UNIVERSITY OF MICHIGAN, ANN ARBOR

### *EN*: How was the *Excellence in Endocrinology* event at ENDO 2019 in New Orleans?

**Dasgupta:** It was an outstanding event where I got the opportunity to meet with my peers in the field.

**GOIVIN:** ENDO 2019 as usual was a great meeting, with fantastic scientific content and many opportunities to catchup with old friends and collaborators. New Orleans was an ideal location, and it was nice to escape the murky March weather in the UK for a bit of Louisiana sunshine.

**Laronda:** It was a great event. It was fun to share a dinner with other award recipients, including my mentor Teresa Woodruff, who received the Delbert A. Fisher Award.

**Spencer-Segal:** It was such an honor to be recognized at this event! Just sitting among all the giants in the field was such a humbling and inspiring experience.

## *EN*: What are your future research plans, and how do you hope this award will help support your goals?

**Dasgupta:** Our goal is to find a cure for endocrine tumors by blocking the escape routes that support cancer growth. We have identified metabolic alterations in tumors as a major player in therapeutic resistance, and current strategy in the laboratory is to identify the important players that could be targeted. The award brings national recognition to my laboratory for the recent discoveries made, and also provides strong motivation and inspiration to continue our work.

**Gorvin:** I am in the process of expanding my research program to investigate how endocrine signals are integrated by GPCRs to affect appetite, food intake, and obesity. I was recently awarded the Academy of Medical Sciences Springboard Award to pursue this research and will be using state-of-the-art imaging techniques and advanced signaling assays to achieve this. The Early Investigator Award has helped keep me updated with the latest research in my field by providing me with complimentary membership to the Endocrine Society and assisted my attendance at the **ENDO 2019** meeting.

**Vajravelu:** I will continue to develop my research program at the Children's Hospital of Philadelphia while applying for an individual career development award. I am grateful for the recognition provided by the Early Investigator Award, which was a helpful confidence-booster at a much-needed time as I transitioned from fellowship to faculty.

**Laronda:** Those in both clinical and foundational endocrinology research look to the Endocrine Society for support in advocacy, educational tools, practice guidelines, and research resources. Recognition by such a prestigious group adds weight to my lab's research topics and highlights our efforts to provide options for fertility and hormone preservation and restoration.

**Spencer-Segal:** Our work is really cross-disciplinary and translational. I hope to increase the awareness among endocrinologists of the long-term consequences of stress in general and severe illness in particular. Many of our findings can be considered in the context of the patients we treat every day. My lab is unique not only as one of the first groups studying this important area of stress biology but also because of our broad approach to sepsis survivors. I hope to increase the recognition of our group and the topic in general, including the important role of the endocrine system.

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

This is a sample of a patient education infographic.

## Familial chylomicronemia syndrome

Familial chylomicronemia syndrome (FCS) prevents the body from breaking down fats. Eating even a little fat can be dangerous, and the condition can lead to potentially fatal pancreatitis.

**Familial** = Genetic



FCS is a genetic disorder passed down from parents.

## $Chylomicronemia = \frac{Buildup \text{ of fats in}}{the blood}$

Lipoprotein lipase helps the body break down structures called chylomicrons, which contain triglycerides.

What is

> People who have FCS either don't have lipoprotein lipase, or it is broken. This causes a buildup of fats (and triglycerides) in their blood.



**How high?** Normal levels are less than 150 mg/dL. If you have FCS, triglyceride levels can exceed 10,000 mg/dL.

Syndrome = FCS has a group of symptoms that usually occur together, including:

- Severe pain in the abdomen, often including back pain
- Acute or chronic pancreatitis
- Xanthomas, fatty deposits in the skin

## **Commonly reported symptoms of FCS are:**

## **Cognitive:**

- Difficulty concentrating
- "Brain fog"
- Forgetfulness
- Impaired judgment
- Recent memory loss

## **Physical:**

- Bloating
- Generalized abdominal pain
- Asthenia weakness or lack of energy
- Fatigue
- Indigestion

## **Emotional:**

- Uncertainty about experiencing an attack of pain or pancreatitis
- Anxiety, fear, worry about health due to FCS
- Feeling out of control/powerless about health due to FCS

## **Patients with FCS also experience:**

- Vomiting or diarrhea
- Blood, when drawn, appears "milky"
- Numbness in feet or legs
- Memory loss or "foggy-headedness"
- Feelings of depression and social isolation



## A delayed diagnosis delays proper care and treatment.

Patients on average visited **5** physicians before being diagnosed.

**67%** were misdiagnosed before being correctly diagnosed with FCS.

## Impact on employment:

**95%** of FCS patients surveyed said that FCS had an impact on their career choices.

Full and part-time employees missed an average of 30 days of work because of FCS.

A complication of FCS is pancreatitis, or pancreas inflammation, because very high levels of triglycerides are a major risk factor. A recent study found...



## **If FCS is suspected:**

- **1.** Document symptoms and share with your health care provider.
- **2.** Find a physician who can diagnose you.
- **3.** Learn about FCS by seeking patient education on FCS nutrition and lifestyle.

## Patients have questions. We have answers.

The Hormone Health Network is your trusted source for endocrine patient education.



 $\label{eq:Visit} \textit{www.FCSFocus.com} \ \textit{for more information, support and resources} \ .$ 

**CLASSIFIEDS** 

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Ames, Iowa is a family friendly town that offers top quality education with the best school district in the state. Home to Iowa State University, this Big 12 city has been voted the "Best College Town" by Livability.com. Our proud community boasts the cultural, recreational, and entertainment amenities of a big city while maintaining the charm that you have come to expect from small-town living. Become part of Ames, a place that will quickly become your hometown.

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**Contact Doug Kenner** 866.670.0334 or dkenner@mountainmed.net McFarland Clinic Extraordinary Care, Every Day

## Endocrinologist MINNEAPOLIS/ST. PAUL, MINNESOTA

HealthPartners Medical Group is one of the largest multi-specialty physician practices in the Upper Midwest. Our talented Endocrinology group has an exciting, fulltime practice opportunity for a BC/BE Endocrinologist interested in serving a diverse patient population, treating a variety of endocrine disorders, participating in resident/ fellow education and monthly educational forums, rounding at our Level 1 trauma center – Regions Hospital in St. Paul, and enjoying access to opportunities via our Research Institute and International Diabetes Center.

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Priya Menon, MD Endocrinologi



## ENDOCRINE.ORG/SEATTLE

SEATTLE, WA, USA SEPTEMBER 19-21

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