

APRIL 2020

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

# Endocrine news

## ENDOCRINOLOGY in the Time of COVID-19

How are your colleagues  
coping with the  
Coronavirus in their labs  
and practices?

### EMPTY CHAIRS AT EMPTY BENCHES

Endocrine researchers and scientists discuss how their lives have changed in the face of this outbreak as well as the future of their own research.

### BEHIND THE MASK

A hospital-based endocrinologist details his daily life on the front lines of the pandemic and how technology has made treatment possible for some patients.

### NONSTOP:

Ongoing benefits from CGM use in older patients

### BONES OF CONTENTION:

How cancer treatments can impact bone health

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# Endocrine news

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## 26 | Viral Load: A Look at One Endocrinologist's Practice During the COVID-19 Crisis

Via an online video conference with *Endocrine News*, Mihail "Misha" Zilberment, MD, discusses how the COVID-19 virus has changed the way he practices medicine in a hospital setting, and how his approach to treating patients may be changed forever.

BY MARK A. NEWMAN



### FEATURE

## 30 | Bare Benches: Research During the COVID-19 Outbreak

As the COVID-19 virus has spread around the world, more and more people are told to work from home. That includes scientists, researchers, lab techs, PhD students, and others who have had to leave the bench behind. *Endocrine News* reached out to researchers and basic scientists to see how life in their labs has changed, how they have adjusted, and what it means for their future research.

BY GLENDA FAUNTLEROY SHAW

### FEATURE

## 34 | Nonstop: Ongoing Benefits from Continuous Glucose Monitoring in Older Patients

Two years after Medicare began covering the use of continuous glucose monitors by seniors, the advantages are becoming clear. However, patient education on the proper use of these systems is vital to their success.

BY ERIC SEABORG

### FEATURE

## 42 | Bones of Contention: The Unintended Effects of Cancer Therapy on the Bones

Therapies that can extend the life of cancer patients often have a negative impact on the skeleton, especially in those being treated for hormone-sensitive cancers. Evidence shows improvements in bone health when bisphosphonates and denosumab are administered.

BY KELLY HORVATH



## Introducing the New President: Gary D. Hammer, MD, PhD

**T**he Endocrine Society is pleased to welcome its president for 2020–2021, Gary D. Hammer, MD, PhD, who took office at the Society's virtual business meeting on April 6. As director of the Endocrine Oncology Program at the University of Michigan Rogel Cancer Center in Ann Arbor, his work on adrenal homeostasis focuses on progenitor cell biology in health and disease with research including genomic studies of adrenal neoplasia and the development of targeted therapies for adrenal cancer.

“

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Hammer succeeds E. Dale Abel, MD, PhD, as the Society president, a position that rotates yearly to broadly represent our core missions (science — both basic and clinical, education, and clinical care) on our executive team composed of our current president, immediate past-president, and president-elect. But Hammer steps into this new role during a frantic time — the spread of COVID-19 (the so-called coronavirus) has disrupted virtually every part of daily life around the world including San Francisco where **ENDO 2020** was canceled for the first time since World War II.

“I am honored to assume the role of president of the Endocrine Society during this exciting albeit tumultuous time,” Hammer says, “with the remarkable challenges that COVID-19 has presented to the world, our society has also been profoundly affected.”

“Nonetheless, with a robust financial portfolio, a deep team of outstanding professional staff and volunteer leaders, the Endocrine Society is well-equipped to handle the challenges,” Hammer continues.

He says that in 2020, it will be increasingly important for us to be nimble as we re-assess our societal and global priorities. “In particular,” Hammer says, “we must keep steady focus on our scientists, clinicians, and our patients with a constant finger on the pulse of our advocacy efforts throughout this difficult time.”

### Advancing the Patient's Voice

Hammer received his medical degree from Tufts University School of Medicine in 1992, then headed west to the University of California, San Francisco, for his residency and his fellowship in endocrinology and metabolism. Throughout his career, he has remained deeply committed to endocrine science and clinical care across the spectrum of basic science, translational science, clinical science, and endocrine care. “While we have a robust outward-looking Hormone Health Network, I'm particularly interested in more deeply advancing the patient perspective in our society,” Hammer says, “with deeper levels of patient engagement across every aspect of our societal mission.”

The patient voice is growing louder every year. “Whether it's engagement in our governance structure, our annual meetings throughout the year, and of course, our advocacy efforts, it is clear that patients are playing a much more active role in everything from healthcare policy on Capitol Hill to setting

agendas at funding agencies to raising funds themselves to find cures for rare endocrine diseases,” Hammer says.

### **Bridging Oncology & Endocrinology**

Hammer, an endocrinologist who specializes in endocrine oncology, serves as the Millie Schembechler professor of adrenal cancer (named for the wife of the legendary University of Michigan football coach Bo Schembechler — Millie passed away from adrenal cancer), says that cancers of hormone-producing organs have been routinely managed by endocrinologists or occasionally nuclear medicine doctors. “With very few approved therapies for endocrine cancers, there was little enthusiasm for engagement,” Hammer says. “Historically, oncologists were only involved in the care of endocrine cancer patients when all other therapies failed.”

“As targeted therapies have become front and center in the care of all oncology, we find endocrine scientists and endocrinologists front and center in discovery efforts and care. Most of the new targeted therapies ‘target’ endocrine receptors, hormone receptors, or growth factor receptors, which fall smack in the domain of endocrinology,” Hammer continues. “We see the continued development of bona fide endocrine neoplasia programs around the world usually led by endocrine scientists and clinical endocrinologists.” As such, Hammer sees the Endocrine Society taking center stage in coordination of international multidisciplinary, multi-institutional cooperative groups such as the A5 (American Australian Asian Adrenal Alliance) dedicated to research efforts, clinical care, and advocacy of patients who suffer from rare endocrine cancer.”

### **Regenerative Medicine Renaissance**

Over the next two years and beyond, the Society will champion the emerging fields of regenerative medicine and gene-based therapy and the role of artificial intelligence at both the bench and bedside. “The recent FDA approval of CAR T cells as

immunotherapy for cancer, and gene-based therapies for muscular dystrophies have opened the floodgates, finally, for a deeper dive into regenerative and genetic therapies across the healthcare landscape,” Hammer says.

According to Hammer, most big pharmaceutical companies and many universities have had regenerative medicine programs or divisions for more than a decade. “They’ve all

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”

been engaged primarily in basic science but have been waiting for the day that the doors open for developing gene and cell tissue-based therapies,” he says. “That gate is now open, and we will see increasing investment in this space at both the level of big pharma and our national governmental funding agencies.”

And endocrinology — and especially the Endocrine Society — has a vital role to play in this regenerative renaissance. Hormones are crucial to cell- and tissue-based therapies, since

Hammer getting in the spirit of  
ENDOMania when **ENDO 2017**  
shared the Orlando Conference Center  
with Wrestlemania.

hormones and growth factors are critical mediators of the regenerative response, Hammer says.

He goes on to explain that the regeneration of endocrine organs is actually some of the lowest hanging fruit in the regenerative landscape because of the unique fact that endocrine tissues secrete hormones into the blood and do not always rely on an organ's in situ position in the body. "This is

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why parathyroid tissue has traditionally been transplanted into the forearm, because you simply need the cells to sense calcium and phosphorus and to secrete PTH into the bloodstream,” Hammer says.

“I would posit that the Endocrine Society should be front and center in the regenerative arena as it pertains to the cell- and tissue-based therapies for endocrine dysfunction,” he continues.

### “Dance of Discovery”

So here in 2020, this is where the field of endocrinology is headed. Hammer points out that many of our members already



recognize the need for and benefits of regenerative medicine when it comes to diabetes and regenerating beta cells, but why shouldn't this area work for all failing endocrine organs?

For instance, Hammer says that we will someday have the capacity to remove defective progenitor cells of an endocrine organ, replace the genetic defect with the new CRISPR CAS technology and re-implant those cells back on the adrenal gland as a regenerative and gene therapy-based approach to cure the disease. “An example of this approach could be congenital adrenal hyperplasia, in which a single gene defect can potentially be corrected ex vivo and implanted in vivo for cure,” he says.

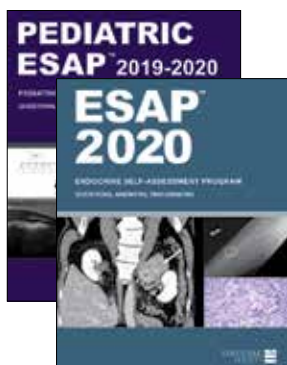
But to do this will take engagement from the entire Society — scientists, clinicians, organizations, government and industry, even patients. “The Endocrine Society will continue to play a central role in the iterative dance of discovery and advancement of care through working with patients, scientists, industry, and the government together to make a difference for the lives of our patients,” Hammer says.

And as for the cancellation of **ENDO 2020**, Hammer is already looking forward to next year. “We envision that the meeting in 2021 will be a culmination of two years of outstanding endocrine science development, endocrine innovation, and clinical care,” he says. “We will celebrate.” **EN**

– Derek Bagley

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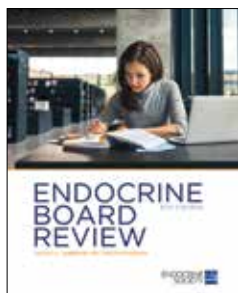
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FROM THE **EDITOR**

## And Now for Something Completely Different...

If you're reading this, you are no doubt disappointed that **ENDO 2020** in San Francisco did not take place this year due to the impact of COVID-19. Those of us at *Endocrine News* are equally disappointed. Not only is it our chance to see so many of you in person, but we use the research and information presented at **ENDO** each year as a basis for so much of our content throughout the year.

The cancellation of **ENDO 2020** was just the beginning; the entire Endocrine Society staff has been working offsite from their respective homes since March 16. As a magazine editor, it's easy for me to telecommute since so much of my job is via the computer, email, online, etc. However, it has been difficult being isolated from everyone else. Thankfully, we've found a solution via the use of teleconferencing; aside from daily departmental meetings, we were able to hold our Society-wide all-staff meeting on March 19 with over 70 staffers connected to one another.

Teleconferencing hasn't just proven to be a boon for those of us at the Endocrine Society, it's been a much-needed tool for medical practitioners and researchers during this unprecedented time. For one clinician, teleconferencing — or telemedicine — has become a solution that has enabled him to continue to do his job.

Mihail "Misha" Zilbermint, MD, spoke with me on March 20 via the Zoom teleconferencing app to discuss how his daily life has been impacted by COVID-19 and how telemedicine has been a savior of sorts for him, his colleagues, and, especially, his patients. It has enabled them to get the care they need while not putting themselves or others at risk. Read more about what Zilbermint's daily life has become in "Viral Load" on page 26.

But speaking of **ENDO 2020**: Even though the main event was canceled, all is not lost. **ENDO Online 2020** is a FREE special online version taking place June 8–22, 2020. There will still be some amazing sessions regardless of your specialty and topics designed for both clinicians and researchers. Go to [www.endocrine.org/ENDOOnline2020](http://www.endocrine.org/ENDOOnline2020) for more information.

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The *Endocrine News* staff has all pitched in during this unprecedented time to compile information from those of you out there on the front lines to see how you're coping with this new health threat. On page 30, we have a roundtable of scientists from around the world discussing how their labs are coping since so much research has been deemed "nonessential." In "Bare Benches," endocrine researchers have not only shared with us **how** their day-to-day research lives have changed, but what they hope for — or in some cases, fear — for the future.

The struggles, hopes, and fears are real during this trying time for the field of endocrinology, the field of healthcare, as well as for human health around the world. To that end, the Endocrine Society has created a website of resources for clinician and scientist members alike where you can find some

guidance and information for what you may be facing during this outbreak. The website can be found at: [www.endocrine.org/covid19](http://www.endocrine.org/covid19).

These are difficult times, but I have no doubt that we will get through them together. My Twitter feed is full of endocrine clinicians and scientists around the world showing that they — and you — represent the best of the best. But we already knew that. Stay safe. Stay healthy.

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

As usual, if you have your own treatment or research stories to share with the readers of *Endocrine News*, feel free to contact me at [mnewman@endocrine.org](mailto:mnewman@endocrine.org). 



## NYT Publishes Column by J. Larry Jameson, MD, PhD

**O**n March 24, the *New York Times* published an Opinion column by *Journal of the Endocrine Society* editor-in-chief J. Larry Jameson, MD, PhD, entitled "7 Medical Leaders to Politicians: Save Lives, Not Wall Street."

Jameson, dean of the Perelman School of Medicine at the University of Pennsylvania in Philadelphia, wrote on "behalf of six other leaders of large academic health systems in some of America's Covid-19 'hot spots'" implored elected officials to maintain "social distancing" standards rather than rushing too

fast back to an ordinary lifestyle in order to prevent the COVID-19 virus from spreading even further.

"The cure is not worse than the disease. Our country has made strides to enforce social distancing, and this is not the time to let up," Jameson writes. "The job before us as health care workers is clear: Save lives. Please, help us ensure that we can."

*The entire column can be found at: [www.endocrine.org/NYTJameson](http://www.endocrine.org/NYTJameson) (subscription required).*



BY DEREK BAGLEY  
Senior Editor



“

The curvature of the pancreatic duct affects the behavior of cells. We could culture these cancer cells on a petri dish, but because the dish is flat, we wouldn't see the same behavior.

”

## Pancreatic Cancer ‘Time Machine’ Reveals Heterogeneous Nature of the Disease

A pancreatic cancer “time machine” has revealed that the disease is even more unpredictable than previously thought: Cancer cells promote each other's invasiveness when they grow together, according to a paper recently published in *Small*.

Researchers led by Stephen Konieczny, PhD, professor of biological sciences, and Bumsoo Han, PhD, professor of biomedical sciences, both from Purdue University, point out that pancreatic cancer's complex and heterogeneous environment makes it challenging to discover new therapeutic targets. Pancreatic cancer has one of the worst survival rates among cancers. Patients can expect as low as a 9% chance to live for at least five years after being diagnosed.

For this study, a group led by Konieczny developed the pancreatic cell line in a mouse model. Han's team then loaded the cell line through the microfluidic channels of the artificial pancreatic duct. Once inside, the cell lines fill the duct and start growing.

The “time machine” is a hollow tube of collagen that realistically mimics the microanatomy of a pancreatic duct. By injecting cancer cell lines into microfluidic channels within the artificial duct, the researchers can use the system as a model for observing how pancreatic cancer behaves over time.

Typically, it takes 10–20 years for pancreatic cancer to develop in a patient. Even in an animal model, the process is several months long. This pancreatic tumor model condenses cancer development to just two weeks. “We can observe what happens over a long period of time. This helps us to see trends that we wouldn't normally see,” Han says.

The tumor model speeds up time because researchers can load in cell lines from an animal model or patient without waiting for gene mutation

to happen first. The life-like structure of the tumor model allows the researchers to reconstruct the mutation as it would happen in the body. The researchers then rewind footage taken by imaging equipment from the side of the artificial duct — going back in time.

What makes the tumor model so realistic is its shape. “The curvature of the pancreatic duct affects the behavior of cells. We could culture these cancer cells on a petri dish, but because the dish is flat, we wouldn't see the same behavior,” Han says.

The researchers saw that after two different cancer cell types merged into the pancreatic tumor model device, these cells became more invasive and sprouted from the duct to form tumors. Since cancer is technically a group of diseases, and pancreatic cancer involves four major driver mutations, Han's team plans to further explore how each of these mutations interacts with each other. The tumor model also can be used as a prescreening tool to discover new drug targets for better drugs, Han says.

Since the paper's publication, the researchers also have found drug resistance in cancer cell types originating from two drug-sensitive ones.

A patent has been issued for the pancreatic tumor model via the Purdue Research Foundation Office of Technology Commercialization.

*This work was partially supported by grants from the National Institutes of Health (grants U01 HL143403, U11 TR002529, R01 CA211098, and R01 CA124586), a Challenge Award from the Purdue University Center for Cancer Research (P30 CA023168), and the Walther Embedding Program in Physical Sciences in Oncology. Some of this research took place at the Bindley Bioscience Center, located in Purdue's Discovery Park.*

# Ongoing Trial of Aflibercept Shows Promise for Patients with Diabetic Retinopathy

**A**n ongoing trial is evaluating how effectively the drug aflibercept treats moderately severe to severe non-proliferative diabetic retinopathy (NPDR). In February, the company sponsoring the trial, Regeneron Pharmaceuticals, Inc., announced positive two-year results from its Phase 2 PANORAMA trial — showing that aflibercept reduced the risk of patients developing vision-threatening events by 75%. Regeneron is marketing the drug as EYLEA, and they announced these results at the Angiogenesis, Exudation, and Degeneration 2020 meeting in Miami, Fla.

The two-year pre-specified exploratory data demonstrate that untreated moderately severe and severe NPDR can lead to vision-threatening events, which includes vision-threatening complications (VTCs; proliferative diabetic retinopathy or anterior segment neovascularization) and center-involved diabetic macular edema (CI-DME). Based on a Kaplan-Meier analysis, more than half (58%) of patients in the untreated sham arm developed a VTC or CI-DME within two years of entering the trial, while EYLEA treatment was shown to reduce the likelihood of these vision-threatening events by at least 75% (nominal  $p < 0.0001$ ).

The two-year results also showed a greater benefit for EYLEA patients treated at regular intervals compared to patients who received EYLEA treatment less frequently. Per the protocol, the group of trial patients who received EYLEA every eight weeks in the first year were switched to receive it when their doctor determined they needed it in the second year (i.e., the eight-week/PRN group). The proportion of these patients with a >2-step improvement from baseline in Diabetic Retinopathy Severity Scale (DRSS) scores decreased in the second year (80% improvement at 52 weeks and 50% at 100 weeks).



By comparison, in patients who continued to receive EYLEA every 16 weeks (i.e., the 16-week group), the >2-step DRSS scores remained consistent (65% at 52 weeks vs. 62% at 100 weeks). In the second year, patients received an average of 1.8 injections in the eight-week/PRN group (out of a possible six); a review of data from the independent reading center of investigator PRN decisions suggests that some of these patients may have been under-dosed based on the protocol rules of the trial. Patients in the 16-week group received 2.6 injections (out of a possible three) in the second year.

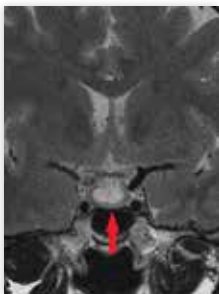
During the two-year PANORAMA trial, adverse events were consistent with the known profile of EYLEA. Serious ocular adverse events in the study eye occurred in 2% and 0% of the EYLEA eight-week/PRN and 16-week groups, respectively, and 2% of patients in the sham group. Ocular inflammation occurred in 2% and 1% of patients in the EYLEA treatment groups, respectively, and 1% of patients in the sham group. Anti-platelet trialists' collaboration (APTC)-defined arterial thromboembolic treatment emergent events occurred in 3% and 6% of patients in the EYLEA treatment groups, respectively, and 5% of patients in the sham group.



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The two-year results also showed a greater benefit for EYLEA patients treated at regular intervals compared to patients who received EYLEA treatment less frequently.

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By helping patients achieve normal cortisol levels, this medication is an important treatment option for adults with Cushing's disease.

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## FDA Approves New Drug to Treat Cushing's Disease



**T**he Food and Drug Administration (FDA) last month approved osilodrostat oral tablets to treat adult Cushing's disease patients who cannot undergo pituitary gland surgery or who have had the surgery but still have the disease. Novartis is marketing the new drug as Isturisa.

“The FDA supports the development of safe and effective treatments for rare diseases, and this new therapy can help people with Cushing's disease, a rare condition where excessive cortisol production puts them at risk for other medical issues,” Mary Thanh Hai, MD, acting director of the Office of Drug Evaluation II in the FDA's Center for Drug Evaluation and Research, says in a statement. “By helping patients achieve normal cortisol levels, this medication is an important treatment option for adults with Cushing's disease.”

Isturisa's safety and effectiveness for treating Cushing's disease among adults was evaluated in a study of 137 adult patients (about three-quarters women) with a mean age of 41 years. The majority

of patients either had undergone pituitary surgery that did not cure Cushing's disease or were not surgical candidates.

In the 24-week, single-arm, open-label period, all patients received a starting dose of 2 mg of Isturisa twice a day that could be increased every two weeks up to 30 mg twice a day. At the end of this 24-week period, about half of patients had cortisol levels within normal limits. After this point, 71 patients who did not need further dose increases and tolerated the drug for the past 12 weeks entered an eight-week, double-blind, randomized withdrawal study where they either received Isturisa or a placebo. At the end of this withdrawal period, 86% of patients receiving Isturisa maintained cortisol levels within normal limits compared to 30% of patients taking the placebo.

The most common side effects reported in the clinical trial for Isturisa were adrenal insufficiency, headache, vomiting, nausea, fatigue, and edema (swelling caused by fluid retention). Hypocortisolism, QTc prolongation, and elevations in adrenal hormone precursors and androgens may also occur in people taking Isturisa.

Isturisa is taken by mouth twice a day, in the morning and evening as directed by a healthcare provider. After treatment has started, a provider may re-evaluate dosage, depending upon the patient's response.

Isturisa received Orphan Drug Designation, which is a special status granted to a drug intended to treat a rare disease or condition. **EN**



## Endocrine Society to Hold ENDO Online 2020

# ENDOOnline2020

**O**n March 30, the Endocrine Society announced that it will host its largest-ever online meeting in June to ensure endocrine researchers and clinicians continue to have access to the latest scientific information, despite the COVID-19 pandemic.

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Many endocrine investigators, clinicians and trainees have indicated their desire to continue to advance their clinical knowledge and to be exposed to emerging science. We are proud to support them by virtually delivering the content they need during this challenging period.”

— E. DALE ABEL, MD, PHD, 2019-2020 PRESIDENT, ENDOCRINE SOCIETY

**ENDO Online 2020** will feature a mixture of on-demand and live programming for both clinical and research audiences. The event will take place from June 8 to 22.

Since the COVID-19 pandemic forced last month's cancellation of **ENDO 2020**, the Society's annual meeting, the Society's

leadership has decided to offer complimentary registration for this year's event to healthcare providers who may treat and scientists who investigate endocrine conditions.

“We recognize that many of the members of our field have been mobilized and are actively responding to the COVID-19 pandemic, and we also acknowledge that many have had to close their offices and labs,” says outgoing Society President E. Dale Abel, MD, PhD, of the University of Iowa, Carver College of Medicine, Iowa City, Iowa. “We have received feedback that many endocrine investigators, clinicians and trainees have indicated their desire to continue to advance their clinical knowledge and to be exposed to emerging science. We are proud to support them by virtually delivering the content they need during this challenging period.”

**ENDO Online 2020** will feature:

- ▶ On-demand sessions focused on clinical topics,
- ▶ Live programming dedicated to basic science,
- ▶ Continuing medical education sessions,
- ▶ Programming for early-career professionals, and
- ▶ A digital exhibit hall where endocrine scientists and researchers can access resources and set up appointments to chat with exhibitors.

**ENDO 2020** was slated to draw 9,500 people to San Francisco, Calif., in late March. The cancellation marks only the third time in the Society's 104-year history, that **ENDO** was not held. The other two cancellations occurred during World War II.

For more detailed information on the sessions and how to register, go to: [www.endocrine.org/ENDOOnline2020](http://www.endocrine.org/ENDOOnline2020).



**COVID-19**  
MEMBER RESOURCES AND COMMUNICATIONS

COVID-19 resources for endocrine scientists and clinicians as well as the general public are available at: [www.endocrine.org/covid19](http://www.endocrine.org/covid19).



## JCEM Editors: Individuals taking Certain Steroid Medications Have High COVID-19 Risk

Individuals taking a class of steroid hormones called glucocorticoids for conditions such as asthma, allergies, and arthritis on a routine basis may be unable to mount a normal stress response and are at high risk if they are infected with the virus causing COVID-19, according to a new editorial published in the Endocrine Society's *Journal of Clinical Endocrinology & Metabolism* (JCEM).

Glucocorticoids are a class of medications used to treat a variety of inflammatory conditions and administered by many different routes, including tablets, topical creams, and inhaled medications.

“

**In our professional lives, we have not witnessed a healthcare crisis of this magnitude and severity.**

”

Patients taking these medications may be more susceptible to COVID-19 as a result of the medication suppressing the immune system. They may also experience more severe disease once infected because these medications suppress their own steroid response to infection. Injectable supplemental glucocorticoid therapy in this setting can reverse the risk of potentially fatal adrenal failure and should be considered in every case.

Individuals with known primary adrenal insufficiency, also known as Addison's disease, and secondary adrenal insufficiency occurring in hypopituitarism should also take extra precautions. If patients develop symptoms such as a dry continuous cough and fever, they should double their oral glucocorticoid dose immediately and continue doing so until the fever has subsided. They, too, will require injectable glucocorticoid therapy should their condition worsen.

Endocrinologists can play a key role in recognizing, managing, and implementing these measures, according to the authors.

According to the World Health Organizations, there are more than 413,000 confirmed cases of COVID-19. More than 18,000 people have died from the disease as of March 25.

“In our professional lives, we have not witnessed a healthcare crisis of this magnitude and severity,” the authors wrote.

Among individuals with diabetes who contract COVID-19, the severity of the illness appears to be worse than in individuals who do not have diabetes, according to the authors. Published research from the Wuhan province in China found those with diabetes and high blood pressure were overrepresented among severely ill patients and those who died.

Scientists have already helped to uncover how the virus responsible for COVID-19 enters cells and spreads from one individual to another. Some have already made preliminary observations regarding the virus' interactions with the endocrine system.

“Endocrine-related targets are at the forefront of discovery science as we collectively tackle this pandemic,” the authors write.

The editorial's authors include JCEM editor-in-chief Paul M. Stewart, MD, FRCP, and deputy editors Ursula B. Kaiser, MD, and Raghavendra G. Mirmira, MD, PhD.

The editorial, “*Our response to COVID-19 as endocrinologists and diabetologists*,” was published online, ahead of print: [www.endocrine.org/jcemcovid19](http://www.endocrine.org/jcemcovid19).

For more information on addressing the COVID-19 outbreak, go to: [www.endocrine.org/covid19](http://www.endocrine.org/covid19)



## Joshua Joseph, MD, FAHA, Recognized as NMQF 40 Under 40 Leader

**J**oshua Joseph, MD, FAHA, is being recognized as one of the National Minority Quality Forum's 40 Under 40 Leaders in Minority Health for his accomplishments in the

healthcare field and his potential to continue positively impacting minority communities. His efforts stood out among hundreds of applications from healthcare professionals across the country.

"This award is thanks to all of our collective efforts as endocrinologists to improve the lives of people every day," Joseph says. "I would like to thank Dr. Darrell Gray for sponsoring me and my wonderful team of collaborators, partners, trainees, sponsors, mentors, friends, and family for all of your support in improving diabetes prevention, treatment, and care!"

Joseph is an Endocrine Society FLARE alumnus where he learned the tools to be an effective leader and physician scientist, and he

now serves as a mentor to other students in the program looking to expand their careers.

FLARE stands for the Future Leaders Advancing Research in Endocrinology program of the Endocrine Society, which is for basic science, clinical research trainees, and junior faculty from underrepresented minority communities who have demonstrated significant achievement in endocrine research. FLARE provides a structured leadership development and in-depth, hands-on training in topics ranging from grantsmanship to lab management.

Joseph is currently an assistant professor of medicine at the Ohio State University Wexner Medical Center where he researches risk factors for the development of obesity and type 2 diabetes in diverse populations. He has also been working to shed light on racial and ethnic differences and other lifestyle factors in the development of diabetes.

— Colleen Williams



## Genevieve S. Neal-Perry, MD, PhD, Named Chair of UNC School of Medicine

**G**enevieve S. Neal-Perry, MD, PhD, is heading to Chapel Hill, N.C., this month to begin her new role as chair of the University of North Carolina (UNC) School of Medicine Department of Obstetrics and Gynecology.

An Endocrine Society member for nearly two decades, Neal-Perry has served on a variety of committees and task forces, including the Special Programs Committee, the Research Affairs Core Committee, the ENDO Editorial Board, among many others and currently holds a leadership role on the Society's Board of Directors. She also serves as an associate editor of *The Journal of Clinical Endocrinology & Metabolism*.

"I am honored by the opportunity to lead this great department and excited to join our outstanding faculty to achieve the highest levels of clinical care, research, and education for the people of North Carolina," Neal-Perry says.

Neal-Perry was a part of the Endocrine Society's Texas Roadshow in 2018, and visited Baylor College of Medicine and UT Southwestern (UTSW) to discuss career development and different

opportunities with the Society. Her research talk at UTSW attracted a standing-room-only crowd of graduate and postdoctoral students, and she was also able to meet with endocrine leadership at both institutions.

Her research is designed to understand how nutrition, aging, and ovarian hormones regulate fertility and brain function. Neal-Perry's clinical interests include the treatment of infertility, oncofertility, disorders of the ovary, disorders of menses, disorders of the pituitary and hypothalamus that

affect reproduction, recurrent pregnancy loss, menopause, and disorders of puberty. She also has a passion for mentoring women and other underrepresented individuals in medicine.

Prior to her new role at UNC, Neal-Perry served as a professor of obstetrics and gynecology at the University of Washington, Seattle.

– Colleen Williams

## Endocrine Society Announces 2020 Early Investigators Award Winners



**T**he Endocrine Society has selected five recipients for its 2020 Early Investigators Awards. The Early Investigators Awards were established to assist in the development of early-career investigators and to provide greater recognition of their accomplishments in endocrine-related research.

The Society's 2020 Early Investigators Award winners are:

- ▶ **Mehmet Furkan Burak, MD**, of Brigham and Women's Hospital in Boston, Mass. His research focuses on general endocrine practice, diabetes and glucose metabolism, lipids, and obesity.
- ▶ **Dionysios Chartoumpakis, MD, PhD**, of the University of Patras in Patras, Greece. His research interests include thyroid, lipids, obesity, endocrine cancer and neoplasia, signaling, and diabetes.
- ▶ **Hisham Mohammed, PhD**, of Oregon Health Sciences University in Portland, Ore. His research focuses on understanding the fundamentals of epigenetic and transcriptional regulation in hormone-driven cancers such as breast and prostate cancer.
- ▶ **Hongxia Ren, PhD**, of the Indiana University School of Medicine in Indianapolis, Ind. Her research interests include obesity, diabetes and glucose metabolism, endocrine genetics, aging, signaling, and neuroendocrinology.
- ▶ **Domenico Trico, MD**, of the University of Pisa in Pisa, Italy. His research interests include diabetes and glucose metabolism, obesity, nutrition, and cardiovascular endocrinology.

Recipients received a monetary award, one-year complimentary membership to the Society, one-year complimentary access to the Society's online journals, and public recognition of research accomplishments in various Society platforms.

Additional information on this award and the recipients is located on the Society's website at: <https://www.endocrine.org/awards/early-investigators-awards>.

The new application cycle opens in September 2020.



# Society Members Recognized by the American Diabetes Association


**T**hree Endocrine Society members have been recognized by the American Diabetes Association® (ADA) as recipients of its 2020 National Scientific and Health Care Achievement Awards.

The awards recognize academics, healthcare providers, and educators who have contributed to tangible advances in the field of diabetes care and research. Each recipient has shown outstanding commitment to achieving the vision of the ADA: life free of diabetes and all its burdens.

The following award recipients will be recognized at an awards ceremony scheduled to take place at the ADA's 80th Scientific Sessions, June 12–16, 2020, in Chicago, Ill.:

► **Jiandie Lin, PhD**, is the recipient of the 2020 Outstanding Scientific Achievement Award, which recognizes research in diabetes that demonstrates particular independence of thought and originality. Lin has contributed to our understanding of inter-organ crosstalk of emerging endocrine hormones and has performed pioneering work in chromatin control of metabolic gene programs.

► **Bernard Zinman, CM, MD, FRCPC, FACP**, is the recipient of the 2020 Outstanding Achievement in Clinical Diabetes Research Award, which recognizes exceptional contributions in patient-oriented clinical outcomes research that have had a significant impact on diabetes prevention and treatment. Zinman's research accomplishments, including serving as lead investigator in several large international trials such as the Diabetes Control and Complications trial (DCCT), have had significant impact on the management of both type 1 and type 2 diabetes.

► **Elizabeth R. Seaquist, MD**, is the recipient of the 2020 Albert Renold Award, which is presented to an individual whose career is distinguished by outstanding achievements in the training and mentorship of diabetes research scientists and in the development of communities of scientists to enhance diabetes research. Seaquist has trained and mentored a generation of junior faculty who are now emerging leaders in the field of diabetes research. 



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## ENDOOnline2020

**ENDO Online 2020 • June 8 – 22, 2020**

The Endocrine Society will host its largest-ever online meeting in June to ensure endocrine researchers and clinicians continue to have access to the latest scientific information, despite the COVID-19 pandemic. **ENDO Online 2020** will feature a mixture of on-demand and live programming for both clinical and research audiences.

Sessions will address a wide-ranging variety of endocrine topics. There will be both clinical and basic science content, as well as professional development sessions.

[www.endocrine.org/ENDOOnline2020](http://www.endocrine.org/ENDOOnline2020)



## 2020 Clinical Endocrinology Update/ Endocrine Review Board

**CEU East/EBR:**  
**Miami, Florida,**  
**Sept. 8 – 12, 2020**

**CEU West:**  
**San Diego, California,**  
**Oct. 23 – 25, 2020**

Every year, the Endocrine Society holds Clinical Endocrinology Update (CEU), which brings together hundreds of endocrine clinicians for a unique learning experience and opportunities to network with expert faculty and colleagues. This year, CEU will once again be offered on two dates — and on the East and West coasts.

CEU 2020 East will be held in Miami, Fla., on September 10 – 12, 2020. CEU 2020 West will be held in San Diego, Calif. October 23 – 25, 2020.

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

Endocrine Board Review (EBR) 2020 will take place in conjunction with CEU on September 8 – 9, 2020, in Miami. EBR is a case-based course designed as a mock exam, with rapid-fire questions emulating the format and subject matter of the ABIM's Endocrinology, Diabetes, and Metabolism Certification Examination. EBR provides a consolidated review for endocrine fellows planning to take the upcoming 2020 endocrine board exam and offers an early start for trainees preparing for the 2021 exam. It is also an ideal tool for practicing physicians preparing to re-certify or for those seeking an intensive knowledge assessment.

Learn more about these can't-miss events at [www.endocrine.org/meetings-and-events/ceu](http://www.endocrine.org/meetings-and-events/ceu).



**ENDO**2021

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SAN DIEGO CONVENTION CENTER

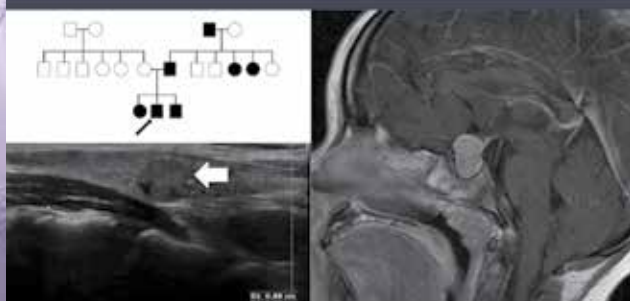
[ENDO2021.ORG/ENDO2021](https://endo2021.org)



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Before you make any travel plans, check with the sponsoring organization to make sure the events are taking place as scheduled.

## American Diabetes Association's 80th Scientific Sessions

Chicago, Illinois

June 12 – 16, 2020

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

[professional.diabetes.org/scientific-sessions](https://professional.diabetes.org/scientific-sessions)

## 21st Annual Harvard Nutrition and Obesity Symposium

Boston, Massachusetts

June 30, 2020

The Nutrition and Obesity Research Center at Harvard will focus its 2020 symposium on Nonalcoholic Fatty Liver Disease. An educational, all-day event, this event will feature internationally recognized speakers addressing topics including the genetics behind the disease, the global and clinical burden, and mechanisms and novel therapeutics for Nonalcoholic Fatty Liver Disease. Registration is free of charge, but space is limited. Join thought leaders in the field for this signature event!

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

## Heart in Diabetes

New York, New York

August 7 – 9 2020

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

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

## INTERNATIONAL ITINERARY

### 23rd French American Meeting in Endocrinology

Bobigny, France

May 14 – 16, 2020

The French American Meeting in Endocrinology (FAEM) offers an exceptional program of continuing medical education and updates. In addition, clinical cases will also be presented interactively. The special theme for this year's meeting will focus on pregnancy and endocrine diseases.

<https://faem.weebly.com/>

### 4th Annual World Congress on Diabetes and Obesity

Dublin, Ireland

May 25 – 26, 2020

Diabetes Conference 2020 will provide a platform for the diabetologists, endocrinologists, and experts both from industry and academia working in various subdomains of diabetes, obesity, endocrinology, and metabolism. This meeting will include new research prospects that focus on subjects including nanotechnology in diabetes treatment, stem cell therapy in diabetes, challenges of diabetes healthcare, diabetes in young adults, cardiovascular risks in obese, clinical researches in diabetes, physiotherapy in diabetes, bariatric surgery, and endocrine glands and hormones apart from the broad areas of research in the field.

<https://diabetesconference.euroscicon.com/>

### ICE 2020: 19th International Congress of Endocrinology

Buenos Aires, Argentina

October 4 – 7, 2020

19th International Congress of Endocrinology (ICE 2020), 4th Latin American Congress of Endocrinology (CONLAEN) and 13th Congress of the Argentine Federation of Endocrinology Societies (FASEN) is organized by MCI Group – Argentina. Topics to be discussed include: Big data and its impact in health, human diseases, artificial intelligence and big data mining; thyroid cancer diagnosis and treatment; advances in pheochromocytomas and paragangliomas; the tsunami of diabetes in lower- and middle-income countries; preserving reproduction in cancer patients; and so much much more.

[www.ice-2020.com](http://www.ice-2020.com)

### EndoBridge 2020

Antalya, Turkey

October 22 – 25, 2020

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

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



# *Pharmacological Management of Osteoporosis in Postmenopausal Women*

## A STANDARD FOR CARE UPDATE

Improve patient care with our new guideline update which recommends romosozumab under selective criteria as another pharmacological therapy to prevent osteoporosis and reduce fracture risk in postmenopausal women.

**READ THE GUIDELINE UPDATE AT  
[ENDOCRINE.ORG/2020OSTEOPOROSIS](https://endocrine.org/2020osteoporosis)**

**“As an endocrinologist and public health advocate, my interest is in making CGM more widely available. We’ve shown that it works from babies through seniors, across the ages, but it still needs to be coupled with education, support, and training on how to use it. I also want to increase its use in primary care. So getting it approved and proven that it works for seniors has been really important.”**

— ANN PETERS, MD, director, University of Southern California Clinical Diabetes Program, Los Angeles, Calif., who discusses the importance of having Medicare cover continuous glucose monitors for elderly patients in the article “Nonstop: Ongoing Benefits from Continuous Glucose Monitoring in Older Patients” on page 38.



**Estimated worth of the global diabetes market by 2021 from \$125 billion in 2016.**

— SOURCE: GLOBAL MARKETS FOR DIABETES THERAPEUTICS AND DIAGNOSTICS



**Increase in the cases of type 2 diabetes in Scotland over the past decade.**

— SOURCE: DIABETES SCOTLAND

## Native American Adults & Diabetes

The Indian Health Service, a division of the U.S. Department of Health and Human Services, has a Special Diabetes Program for Native



**Americans that focuses on prevention and treatment.**

**2x** Native Americans are twice as likely as non-Hispanic white adults to have diabetes

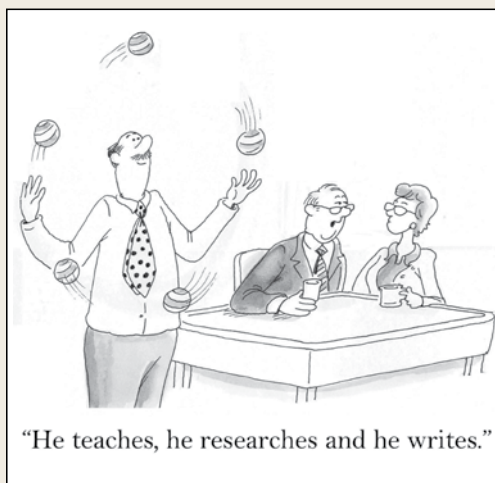
**50%** Native Americans are 50% more likely to be affected by obesity than non-Hispanic white adults

**90%** more than 90% of people with type 2 diabetes are affected by some degree of obesity

**54%** end-stage kidney failure has decreased by 54% in the Native American population through the Special Diabetes Program

**50%** diabetic eye disease increased by 50% in the Native American population through the Special Diabetes Program

— SOURCE: CDC AND NAVAJO-HOPI OBSERVER



**Percentage of hypothyroidism patients who don't know how to perform a thyroid self-exam for thyroid lumps or enlargements, putting them at a higher risk for thyroid cancer.**

— SOURCE: P&T COMMUNITY PEER JOURNAL



# Viral LOAD:

A photograph of a healthcare worker, likely an endocrinologist, standing in a hospital hallway. The worker is wearing a blue protective gown, a blue surgical mask, clear face shields, and blue gloves. They are looking down at their hands. The hallway has a polished floor, a door on the left, and medical equipment and storage units in the background.

A Look at One  
Endocrinologist's  
Practice During the  
COVID-19 Crisis

BY MARK A. NEWMAN



Via an online video conference with *Endocrine News*, Mihail “Misha” Zilbermint, MD, discusses how the COVID-19 virus has changed the way he practices medicine in a hospital setting, and how his approach to treating patients may be changed forever.



One of the common terms that has been used to describe everything from the way we do our jobs to how we get our groceries during the advent of COVID-19 has been “the new normal.” Clinicians, nurses, techs, support staff, and others on the front lines of patient care have been vital in tamping down the spread of this new virus as well as treating those who have become infected.

Due to the “all hands on deck” nature in practices and hospitals across the country, many endocrinologists have found themselves face to face with treating the influx of new patients while also tending to their regular practices. As Mihail “Misha” Zilbermint, MD, shares his firsthand experiences, it’s clear that there are new methods of practicing medicine that may evolve from this worldwide healthcare crisis.

Zilbermint, the chief of endocrinology, diabetes, and metabolism at Suburban Hospital in Bethesda, Md., established the Inpatient Diabetes Service at the hospital five years ago, which is composed of a specialized multidisciplinary team trained to treat diabetes patients. In this capacity, he aides his colleagues in managing patients with diabetes who are in the hospital for a variety of health issues, from heart attack or stroke to major trauma surgery. “And of course, I do all other endocrine work as well,” he says, adding that includes complications with calcium levels, thyroid issues, and other endocrine-related conditions.

### Telemedicine: Minimizing Risk

But as the virus has encroached upon his hospital, Zilbermint has had to adapt to treating patients in a new, safer way, namely telemedicine. However, the implementation has not been as smooth as he had hoped, at least on the inpatient side. “We are looking to give patients a tablet or an iPad so you can talk to the patient or maybe patient’s family members,” he explains. “The idea is that the nurses can



**Aside from his duties as chief and director of Endocrinology, Diabetes, and Metabolism at Suburban Hospital in Bethesda, Md. (above), Mihail “Misha” Zilbermint, MD (left), is also an assistant professor of medicine, Division of Endocrinology, Diabetes, and Metabolism, Johns Hopkins University School of Medicine.**

check the patient’s vital signs, you can review the blood tests from home or remotely, and you can figure out, for example, what dose of insulin can be given.”

But, Zilbermint says “we are not there yet. I’ve installed the software on my computer, and I’m ready to go as soon as we are given the go-ahead, but we just aren’t there yet. We know that from an endocrinology standpoint, a lot of the inpatient diabetes management can be done remotely. But unfortunately, the inpatient billing process is not clear [for telemedicine], and the practice may become less profitable.”

Zilbermint relates a story regarding a colleague at a local outpatient endocrinology office who has been practicing endocrinology for almost three decades and only recently implemented telemedicine. “She just started telemedicine two days ago and is trying to bill,” he says. “She’s worried that they are not billing correctly or if they’re going to get reimbursed. Even though they are scared about not being able to bill [for telemedicine appointments] they are going through with them because they need to see the patients, but they don’t want the patients in the office.”

Zilbermint adds that one of the reasons he became an endocrinologist is being able to meet with a patient and look them in the eyes. “But in the modern reality, which is changing day to day, I find myself actually trying to spend as little time

with the patients as possible,” he says. “Every extra minute you’re spending with the patient [in the hospital], you’re putting yourself at risk.”

## Changing Roles During an Outbreak

Another one of the issues facing Zilbermint at Suburban Hospital is the need to devote time to the waves of patients coming in to be treated for COVID-19. In other words, donning his internist scrubs (more on that later) and helping out wherever he’s needed. In Italy, where the virus has hit particularly hard, Zilbermint has heard from his colleagues — endocrinologists who are also internists — who have been deployed to hospitals en masse.

“They don’t practice endocrinology any longer and have switched to internal medicine because it’s a war,” he says he was told, adding that thousands of final-year medical students were suddenly graduated in order to help out in the hospitals. “‘Your medical school is over,’ they were told. ‘You are now a doctor.’”

According to Zilbermint, this happened the week of March 15 and added that if the “curve is not flattened [see box], there will be hundreds of patients coming in the next few weeks. I’m glad that I kept all of my credentialing, and I’ve been working as a hospitalist a few times a year. I do a couple of hospitalist shifts in the emergency room to keep up with my skills. I even approached some of my ICU colleagues to ask them how to operate the ventilator.”

When Zilbermint spoke to Endocrine News via Zoom from his office at Suburban Hospital on March 20, he had not been deployed at that time but “the initial conversation happened with the hospitalist director about deploying the physicians who are also internists if we’re going to achieve what we see in Italy.”

## Extra Precautions

Before he arrives at the hospital, Zilbermint has implemented his own social distancing regarding his commute. Rather than take mass transit or even an Uber or a Lyft (to avoid fellow travelers as well as coughing drivers), he bikes the route to Suburban Hospital. As an associate investigator, he is also involved in research projects at the National Institutes of Health (NIH), which, fortunately, is just across the street from the hospital, so he also spends a fair amount of time traversing Old Georgetown Road in Bethesda.

Once at work, his entire routine has changed lately: “My routine is I come to work, I immediately shower, I put my scrubs on and then before leaving work I just swore to my wife that I’ll shower for sure. So I shower again and then when I come home I shower again,” Zilbermint explains. “I try not to bring anything from work because it’s all high risk.”

### WHAT IS FLATTENING THE CURVE?

In epidemiology, the curve refers to the projected number of new cases over a period of time.

In contrast to a steep rise of coronavirus infections, a more gradual uptick of cases will see the same number of people get infected, but without overburdening the healthcare system at any one time.

The idea of flattening the curve is to stagger the number of new cases over a longer period, so that people have better access to care.

It explains why so many countries are implementing social-distancing guidelines, “shelter in place” orders, restrictive travel measures, and asking citizens to work or engage in schooling from home.

Source: CNBC

Zilbermint even started wearing gloves while typing. “On my computer in my little office, I don’t use gloves because I clean everything,” he says. “But on those computer stations around the hospital, I use gloves because I don’t know who used this machine five minutes before me.”

The crisis has even seen a shortage of protective gear, according to Zilbermint: “As we expected, the amount of supplies on hand is fluctuating. We were asked to reuse the masks, and we are doing so,” he says as he holds up his protective mask, his name clearly written across the bottom. “In the past, it would be use it once and throw it away.”

## Only the Beginning for New Technology

Despite the fears of patients and their families and even those of medical caregivers on the front lines dealing with this virus, Zilbermint believes that in the long term, the way care is delivered is going to change drastically. “Telemedicine is going to win, and it’s going to grow, and we are going to develop and incorporate it into our daily lives,” Zilbermint says.

He adds that because of what clinicians and patients and their families have had to deal with regarding receiving treatment and care during the COVID-19 outbreak, there will be a new appreciation for telehealth and the benefits it provides. These benefits have been reported on in the pages of *Endocrine News* in the past (“Remote Control,” December 2013; “Long Distance Relationship,” September 2015; “In Living Color,” October 2019) and have been long known by healthcare practitioners, both as a means to communicate with each other as well as a noninvasive method to see and treat patients. Unfortunately, as with any new technology, it’s often difficult to get some patients to adopt and use something new and unfamiliar.

“This outbreak will end at some point and as we look back, we are going to all see the importance of telemedicine and telehealth. And I am absolutely delighted by that,” Zilbermint says. “It should have happened a long time ago.” <sup>EN</sup>





# *Bare*

BY GLENDA FAUNTLEROY SHAW

# BENCHES:

**RESEARCH  
DURING THE  
COVID-19  
OUTBREAK**



As the COVID-19 virus has spread around the world, more and more people are told to work from home. That includes scientists, researchers, lab techs, PhD students, and others who have had to leave the bench behind. *Endocrine News* reached out to researchers and basic scientists to see how life in their labs has changed, how they have adjusted, and what it means for their future research.

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**T**he outbreak of the Coronavirus disease 2019 (COVID-19) pandemic has caused millions of people around the globe to encounter landscapes both at work and home that are dramatically altered. Research institutions are charting new and unfamiliar territory with establishing guidelines that comply with state or federal governments' executive orders for a crisis that changes weekly — sometimes daily. For institution officials, these are difficult and regrettable decisions.

Many research institutions have determined that in order to protect the health and safety of their communities, only “essential research activities” are allowed to continue during the COVID-19 crisis. Some have deemed essential research as those that include, for example: if the work directly relates to preventing, containing, or treating COVID-19; directly relates to national security; and if discontinuing would result in loss of significant data and samples.

*Endocrine News* asked several of the leading international endocrine researchers — many of whom are recent Laureate Award winners — about their COVID-19 experience thus far to learn how it's impacting their valuable work.

Sharing their experiences are Christopher Newgard, PhD, professor in the departments of Medicine and Pharmacology & Cancer Biology at Duke University School of Medicine; Mark Nixon, PhD, University of Edinburgh Centre for Cardiovascular Sciences, U.K.; Laura Alonso, MD, chief of the Division of Endocrinology, Diabetes and Metabolism at Weill Cornell Medicine; Andrea Gore, PhD, professor and Vacek Chair of Pharmacology, University of Texas; Daniel J. Drucker, MD, professor of medicine, Lunenfeld-Tanenbaum Research Institute, Mt. Sinai Hospital, University of Toronto in Ontario, Canada; and editor-in-chief, *Endocrine Reviews*; Eugene D. Albrecht, PhD, professor, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland School of Medicine, Bressler Research Laboratories, Baltimore, Md.; and Rob Fowkes, BSC, PHD, PGCAP, FHEA, associate dean for Post-Graduate Teaching & Learning, Endocrine Signaling Group, Department of Comparative Biomedical Sciences, Royal Veterinary College, London, U.K.



**Andrea Gore, PhD,**  
Professor and Vacek Chair of  
Pharmacology, University of Texas,  
Austin, Texas

“

Our studies are longitudinal, and an extended delay pushes us back by months.

The uncertainty of this, along with uncertainty of the trajectory of the virus, is creating anxiety for my personnel — for example, graduate students trying to finish up.

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**Daniel J. Drucker, MD,**  
Professor of Medicine, Lunenfeld-Tanenbaum Research Institute, Mt. Sinai Hospital, University of Toronto in Ontario, Canada; editor-in-chief, *Endocrine Reviews*

“

Once we get through this, we need to take all reasonable measures to help the trainees and colleagues most affected bounce back. Hopefully, one enduring consequence of COVID-19 will be a greater respect for the importance of funding science in our global societies.

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### **Endocrine News: Is your university closed to only essential faculty/staff due to COVID-19? If so, when did the shutdown begin?**

**Andrea Gore, PhD:** Last week, my university announced that our spring break (which was scheduled for this week) would be extended by a week. This would give professors time to switch their courses to online webcasting or making videos, and to figure out alternatives to office hours. After the two-week spring break, courses will begin remotely.

On Friday (March 13), the university closed for the day due to two COVID-19 cases in UT personnel. We have since reopened with restrictions. Labs are allowed to do research, but all buildings are locked, only authorized personnel have permission to work, and we have sign-in/sign-out sheets on the lab doors. For my own



lab, I asked that only those personnel doing rat work and other ongoing work that is time-dependent to work in lab. Others may work at home. I have also put a moratorium on starting anything new until more normalcy is restored.

**Daniel Drucker, MD:** As a member of a research institute embedded within an acute care hospital that was a frontline facility for SARS, we have direct experience in preparing for and dealing with worst case unknown viral epidemic scenarios.

Of course, COVID-19 is different, and the plans (in the hospital research institute, city, province, country) change multiple times daily. Our labs are virtually shut down, with staff designated for only emergency maintenance operations, whether that is looking after mice, liquid nitrogen, or related essential services.

**Eugene Albrecht, PhD:** As of March 14, University of Maryland – Baltimore (UMB) is only open to essential faculty and staff, e.g., clinical staff providing patient care, research faculty, and technicians who take care of and conduct studies on laboratory animals and perform experiments in the laboratory.

**Rob Fowkes, BSC, PHD, PGCAP, FHEA:** Yes. [March 16] was the date from which everyone was encouraged to work from home. As of yesterday [March 24], only those delivering essential services and patient care are allowed to travel to work. All labs should have shut down last week; I closed mine last week.



Many research institutions have determined that in order to protect the health and safety of their communities, only “essential research activities” are allowed to continue during the COVID-19 crisis, leaving many laboratories empty.

**Christopher Newgard, PhD:** Yes, Duke activated its shutdown of all non-essential research activity on Friday, March 20.

**Mark Nixon, PhD:** At the minute, and of course this is a fluid process so may and most likely will change, the University of Edinburgh and indeed our research institute remains open. However, we have been advised that only essential work is to be carried out onsite, and if it is possible to work from home then we should. To achieve this, we have stopped planning and implementing new experiments, and are focused on completing those that are currently running. The bigger impact here is on those researchers running clinical trials that have been halted.

**Laura Alonso, MD:** Yes, Weill Cornell Medicine is currently allowing only faculty and essential staff members to have access to our research laboratories. This policy was disseminated during the week of March 16 and was fully implemented by March 20.

**EN: How many researchers in your laboratory are affected by the shutdown?**

**Gore:** Right now, we have 12 people in my lab. Because it is spring break most of the undergraduates are home. Of the rest of the researchers, most are working on a modified schedule.

**Drucker:** As a mouse-focused laboratory, we have had to curtail and terminate many ongoing projects, losing valuable time, and precious animals, thereby severely delaying the



**Eugene D. Albrecht, PhD,**  
Professor, Department of  
Obstetrics, Gynecology and  
Reproductive Sciences, University  
of Maryland School of Medicine,  
Bressler Research Laboratories,  
Baltimore, Maryland

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If the impact of  
COVID-19 continues  
for many months, this  
will very likely lead to  
economic problems in  
the country, potentially  
including the NIH  
budget going forward.

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**Rob Fowkes, BSC, PhD,**  
**PGCAP, FHEA,**  
Associate Dean for Post-  
Graduate Teaching & Learning,  
Endocrine Signalling Group,  
Department of Comparative  
Biomedical Sciences, Royal  
Veterinary College, London, U.K.

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I'm sad and  
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progress of our research. This is most difficult for our trainees, whose immediate future critically depends on generating results, finishing projects and papers, etc. However, even senior scientists are painfully affected by a sudden shut down in ongoing research, which has been put into effect within the last few days. We have a lab of about 10 persons, and perhaps three are now designated to be essential, permitting them to maintain and finish some concluding experiments but certainly all non-urgent ongoing and all new studies were prematurely terminated. We can analyze data and write some papers and grants off site, but as a “wet lab,” 95% of what we do happens with animals and assays at the bench, so remote work does not really help us meaningfully.



**Christopher Newgard, PhD,**  
Professor in the Departments of  
Medicine and Pharmacology &  
Cancer Biology at Duke University  
School of Medicine, Durham, N.C.

“

Huge concerns about loss of momentum, the chaos involved in getting back to ‘normal,’ disruption of funding, and the possibility of future outbreaks as are now occurring in Hong Kong.

”



**Mark Nixon, PhD,**  
University of Edinburgh Centre for  
Cardiovascular Sciences, U.K.

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Our biggest concerns are naturally around the impact that “shutting down” will have on our research and funding positions. Being unable to set up new experiments and possibly having to re-establish mouse colonies, etc., once this has passed will eat into grant times and costs, meaning a delay in publications and an inability to apply for future grants.

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**Albrecht:** Six of the individuals involved with my research program have been affected by the UMB/UMMS COVID-19 response.

**Fowkes:** One PhD student, one MSc student, four undergraduate project students (final year dissertations), and three incoming final year veterinary students for their dissertation projects. NONE of them will complete/start their intended projects.

**Newgard:** There are about 160 total staff at our Duke Molecular Physiology Institute (DMPI), of which about 80% are researchers (faculty, fellows, students, and technical staff). All admin staff are now working remotely. On the research side, we are still working out plans for continuing a few essential



Staying connected is a big challenge. The strategy many laboratories are using is to maintain at least once-weekly in-person updates via Zoom, plus many emails.

Essential research is being allowed in the lab, but following the six-foot distancing rules.

activities, with an anticipation of engaging no more than 15 people who will work in shifts to avoid contact.

**Alonso:** All researchers in my laboratory are profoundly affected by this shutdown. One example is of an assistant professor working closely with me has had to stop experiments he needs to finish the data sets for two papers. My laboratory moved last fall, and we had only just successfully re-expanded our mouse colonies to the point where we could set up some of his important in vivo experiments. These experiments are now on hold indefinitely.

**EN:** Have you had to devise a plan for onsite and remote work for your team? If so, what does the plan entail? How are you communicating with your team members who are now remote?

**Gore:** I am in daily or even more frequent communication (via email) with everyone in my lab. Everyone’s situation is different, and the rules keep getting updated by the university, so I have literally spent about five to six hours a day since Friday (March 13) just in communications.

**Drucker:** We communicate with email, phone, Zoom, the usual electronic resources.

**Albrecht:** We have a nonhuman primate colony of baboons at the UMB that requires daily experimental treatments (e.g., hormone administration), blood draws, fetal and placental





ultrasound imaging, and cesarean section for delivery of the fetus and placenta at different stages of pregnancy. The research staff responsible for this work are considered essential and thus are permitted by UMB to enter the campus and conduct this work. Since this research also involves tissue collection and various time-dependent analyses, faculty and technicians are permitted on campus in the laboratory but must apply the six-foot social distancing rule to perform this work. Non-essential staff, e.g., administrative assistants, financial, procurement, and grant administrative staff, are required to stay at home, and I communicate with them via the internet/teleworking.

**Fowkes:** We have setup Microsoft Teams and Whatsapp groups for basic discussions and a journal club. Most of the student support can now be done by email, as their work is transitioning to writing, so I am marking draft versions of theses, etc.

**EN: Leaders across the country are coping with the challenges of staying connected with staff who are working from home, perhaps for the first time in their careers. Do you have any strategies in mind?**

**Gore:** My team members are already used to communicating by email, Skype, etc. It's more challenging to have meetings, but we are undertaking to use some programs such as Zoom or WebEx for lab and committee meetings.



**Laura Alonso, MD,**  
chief of the Division of  
Endocrinology, Diabetes and  
Metabolism at Weill Cornell  
Medicine, New York, N.Y.

“

Most importantly, I am concerned for the health and safety of all of our Division members, especially those working at the front lines of this crisis, and their loved ones.

”

**Drucker:** A major challenge is morale. Older full-time scientists are disrupted, but there is less emotional and career impact, for obvious reasons. If you are a trainee, the uncertainty, disruption, anxiety, and subsequent stress, for many reasons, is understandably greatly magnified.

**Albrecht:** The above policies are essential to limit the number of people in this country infected by COVID-19, and I fully support the responses taken by UMB and the federal and state governments. Of course, these steps have created problems with conducting the laboratory animal and experimental studies, e.g., procuring supplies, conducting collaborative studies with scientists external to our institution, coordination of the teleworking related to submission of research papers for publication, etc. At this point I do not have other strategies in mind to limit the challenges.



Some have deemed essential research as those that include, for example: if the work directly relates to preventing, containing, or treating COVID-19; directly relates to national security; and if discontinuing would result in loss of significant data and samples.

**Fowkes:** Get some fresh air when you can. We are still allowed to go out and exercise once a day — I've been running with my 16-year-old son (I run, he tuts at how slow I am).

**Newgard:** It appears that essentially all of our staff is able to connect to Duke email, and our IT staff should be commended for making sure that everyone has VPN linkage.

**Alonso:** Staying connected is a big challenge. The strategy my laboratory is using is to maintain at least once-weekly in-person updates via Zoom, plus many emails.

**EN: What are your chief concerns about how COVID-19 will impact your laboratory and future work?**

**Gore:** Of course, I'm most concerned about the health of my personnel.

A big concern is that we have received notification that our animal facilities may halt the ordering of any new animals. If that happens, we cannot start the next round of experiments (scheduled to begin later in March). Our studies are longitudinal, and an extended delay pushes us back by months. The uncertainty of this, along with uncertainty of the trajectory

of the virus, is creating anxiety for my personnel — for example, graduate students trying to finish up.

On a personal note, I take an immunosuppressive medication, putting me in a very high-risk category for COVID-19 and keeping me home. That is very frustrating to me as a PI of a lab, where I cannot be there to assist during this time when we are short-handed.

**Drucker:** We will suffer large financial setbacks in terms of wasted resources, major delays to projects, lost opportunities, delays to career progression.

However, maintaining perspective is critical. We, society, and the healthcare institutions, are at war with a deadly, poorly understood enemy. There are many casualties of war. My greatest respect and daily thoughts are allocated to our brave frontline healthcare workers who are battling COVID-19 daily, on our collective behalf. Once we get through this, we need to take all reasonable measures to help the trainees and colleagues most affected bounce back. Hopefully, one enduring consequence of COVID-19 will be a greater respect for the importance of funding science in our global societies.


**Albrecht:** If the impact of COVID-19 continues for many months, this will very likely lead to economic problems in the country, potentially including the NIH budget going forward. If this occurs, I believe that the universities and the NIH should (1) reduce the overhead/indirect costs associated with research grants by decreasing the number of university administrative personnel and money spent on activities not directly benefiting the research; (2) limit the costly large multi-investigatory program project type research grants and focus on the individual R01-type research grants; and (3) expand use of the live tele-meeting option to maintain annual scientific society meetings, and research grant review.

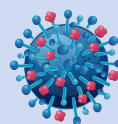
**Fowkes:** I'm sad and frustrated for the students who cannot either complete or, in some cases, start their lab projects. We've also cancelled our incoming Study Abroad cohort of 20 U.S. college students, who normally work in our labs in the summer. Personally, I'm not as affected, as I was having to think about relocating my lab later this year, so I would have had to start thinking about shutting down at some point.

**Newgard:** Huge concerns about loss of momentum, the chaos involved in getting back to "normal," disruption of funding, and the possibility of future outbreaks as are now occurring in Hong Kong.

**Nixon:** Our biggest concerns are naturally around the impact that "shutting down" will have on our research and funding positions. Being unable to set up new experiments and possibly

having to re-establish mouse colonies, etc., once this has passed will eat into grant times and costs, meaning a delay in publications and an inability to apply for future grants. Given the short-term nature of academic researchers' contracts, this will be a challenging and difficult time for us, and indeed for everyone!

**Alonso:** I am very concerned about the long-term impact of COVID-19 on my laboratory and research output of the Division. Although some scientists are now able to submit research papers they didn't have time to get to before, since I am leading a clinical division in a busy hospital I have had no time at all to work on science. I worry about productivity lapses on my NIH grants and subcontracts. Although NIH grant duration can be extended, the amount awarded is not increased. Weak grant productivity will impact my ability to successfully renew my current grants or apply for new ones. I'm concerned for my students and postdocs, and the impact that delaying their research might have. Finally, and most importantly, I am concerned for the health and safety of all of our Division members, especially those working at the front lines of this crisis, and their loved ones. 



**COVID-19**  
MEMBER RESOURCES AND COMMUNICATIONS

## Member Resources

To address the new set of circumstances both clinicians and scientists are facing due to the COVID-19 virus, the Endocrine Society has created an information page for members at: **[www.endocrine.org/covid19](http://www.endocrine.org/covid19)**.


*Check back often as the page will be updated regularly.*

We, society, and the healthcare institutions, are at war with a deadly, poorly understood enemy.

SHAW IS A FREELANCE WRITER BASED IN CARMEL, IND., AND A REGULAR AND FREQUENT CONTRIBUTOR TO *ENDOCRINE NEWS*. SHE WROTE ABOUT THE ENDOCRINE SOCIETY'S 25 YEARS OF DIVERSITY ACTIVITIES IN THE MARCH ISSUE.

ADDITIONAL REPORTING BY *ENDOCRINE NEWS* EDITOR MARK A. NEWMAN AND SENIOR EDITOR DEREK BAGLEY.





Two years after Medicare began covering the use of continuous glucose monitors by seniors, the advantages are becoming clear. However, patient education on the proper use of these systems is vital to their success.



Both CGM devices are factory-calibrated, and therefore do not require fingersticks for calibration.

Newer Freestyle Libre (next spread) models go 14 days without calibration; the Dexcom G6 (above) goes 10 days. The freedom from fingersticks alone is a major benefit for patients who have been sticking themselves for years. *All images this spread courtesy of Dexcom.*



# NonSTOP:

BY ERIC SEABORG

## Ongoing Benefits from Continuous Glucose Monitoring in Older Patients

**S**ome two years after Medicare began covering the use of continuous glucose monitors (CGM), seniors are increasingly reporting benefits, and a clinical trial has provided evidence that the monitors improve glucose control and reduce hypoglycemic events.

“Medicare access has made a huge difference,” says Anne Peters, MD, director of the University of Southern California Clinical Diabetes Program. “The thing that surprised me is how willing most seniors have been to adopt the new technology.”

“The majority of my patients are using it and seeing benefits,” says Grazia Aleppo, MD, professor of medicine and director of the Diabetes Education Program at Northwestern University. “They really feel much more confident and comfortable, and [appreciate that] they do not have to check their blood glucose [with fingersticks].”

### Hard Evidence of Benefits

Results from the Wireless Innovation for Seniors with Diabetes Mellitus (WISDM) trial were previewed at an American Diabetes Association meeting last year by Richard Pratley, MD, the Crockett Chair in Diabetes Research at AdventHealth in Orlando, Fla. The study randomized patients over age 60 with type 1 diabetes to two groups and followed them for six months. One group used the Dexcom G5 CGM and the other used standard blood glucose meters. The CGM group spent less time in hypoglycemia (below 70



mg/dL) and two more hours per day in their target glucose range. The CGM group experienced significantly fewer severe hypoglycemia events. CGM use also significantly reduced hemoglobin A1c levels in an already well controlled cohort, Pratley says.

“The data is compelling that using CGM in older adults tremendously reduces hypoglycemia compared to people using a glucose meter,” Aleppo says.

### Monitors Wrapped in Red Tape

Aleppo and Peters agree that the first step in introducing a patient to the technology — meeting the requirements to qualify for Medicare coverage — can be burdensome. The requirements include that the patient keep a 60-day log



“Training for older people is paramount, because once they actually understand it, they use CGM very successfully. But if we underestimate the training, patients don’t do well. **Some patients who are older are very capable and self-sufficient and can use this with minimal training.**”

— GRAZIA ALEPPO, MD, PROFESSOR OF MEDICINE; DIRECTOR, DIABETES EDUCATION PROGRAM, NORTHWESTERN UNIVERSITY, CHICAGO, ILLINOIS

of four-times-a-day blood glucose measurements. Patients also need to be taking at least three insulin injections a day.

“There is the hassle of people getting used to the paperwork. There is a bureaucracy to it and a learning curve for patients and providers, but we have gotten a lot of the kinks worked out,” Peters says.

## Choosing a System

A next step is choosing a system, and that choice tends to turn on the question of whether or not a system with alerts and alarms is appropriate for the patient. For the vast majority of users, the choice still comes down to the Dexcom G6 and the Abbott Freestyle Libre.

The Dexcom G6 communicates readings directly and automatically with a smartphone or other device, and features alarms and alerts that can highlight fast-changing glucose levels and approaching hypoglycemia. Medicare has changed a former controversial policy and now allows the Dexcom results to be shared among family members or caregivers via a smartphone. “Although it is not very common, those who do share like it a lot, and so do their families,” Aleppo says.

The Freestyle Libre is an intermittent scanning monitor that the patient must scan with a sensor to record readings. It does not provide any alarms or alerts, which many patients find simpler and less intrusive to use.

Both devices are factory-calibrated, and therefore do not require fingersticks for calibration. Newer Freestyle models go 14 days without calibration; the Dexcom G6 goes 10 days. The freedom from fingersticks alone is a major benefit for patients who have been sticking themselves for years, Aleppo says.

“I discuss with patients what the most appropriate device is for them,” Aleppo says. It is the patient’s choice, but she recommends the Dexcom with its alarm features for type 1 patients, especially those who have hypoglycemic unawareness, and type 2 diabetes patients with comorbidities who are at increased danger of hypoglycemia.

“I have patients who sleep with the receiver under their pillow because they like getting an alarm if they go too low,” Peters says. Because patients are older, it may be necessary to turn up the volume on the alarms.

## Importance of Training

“One thing that we have learned is that training is very important for these patients,” Aleppo says. “Training for older people is paramount, because once they actually understand it, they use CGM very successfully. But if we underestimate the training, patients don’t do well. Some patients who are older are very capable and self-sufficient and can use this with minimal training. Others require more. Even though they might have a smartphone, they might not know how to use it.” Some patients get “flustered”



The choice of CGM tends to turn on the question of whether or not a system with alerts and alarms is appropriate for the patient. For the vast majority of users, the choice still comes down to the Dexcom G6 (previous page) and the Abbott Freestyle Libre (this page). All images this spread courtesy of Abbott.

by seeing the little up and down arrows displays and need to learn the combinations of signals from their sensors.

And some patients on the Freestyle Libre must be trained on the importance of scanning it regularly. “But once they use it properly, they really are benefiting from these tools,” Aleppo says. She cites examples of patients who used to have severe hypoglycemic events that required ambulance rides to the emergency room — something that has not happened for years since they started on CGM.

Aleppo says that a noteworthy drawback of the Medicare rules “is that Medicare does not cover sensors when patients are in a hospital or in a nursing home or rehabilitation facility, so that has caused interruptions of CGM service to some patients.” The nurses and other staff at these facilities are often unfamiliar with the devices, so patients and their families need to have a plan of action to deal with this contingency. “We need to train the nursing staff and ancillary staff [in these facilities] because patients don’t want to be without these devices, especially when they are in the hospital or rehab facility,” Aleppo says.

“As an endocrinologist and public health advocate, my interest is in making CGM more widely available,” Peters says. “We’ve shown that it works from babies through seniors, across the ages, but it still needs to be coupled with education, support, and training on how to use it. I also want to increase its use in primary care. So getting it approved and proven that it works for seniors has been really important.” <sup>EN</sup>



## AT A GLANCE

- ▶ Since Medicare began covering continuous glucose monitors, more seniors are using the devices and reporting benefits in well-being and glucose control.
- ▶ The WISDM clinical trial demonstrated that CGM use by seniors with type 1 diabetes can improve glycemic control, increase time in range, and reduce hypoglycemic events.
- ▶ Best results depend on working with the patient to choose an appropriate device and providing adequate training.

— SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HE WROTE THE MARCH COVER STORY ABOUT BIG DATA AND ITS IMPACT ON ENDOCRINOLOGY.



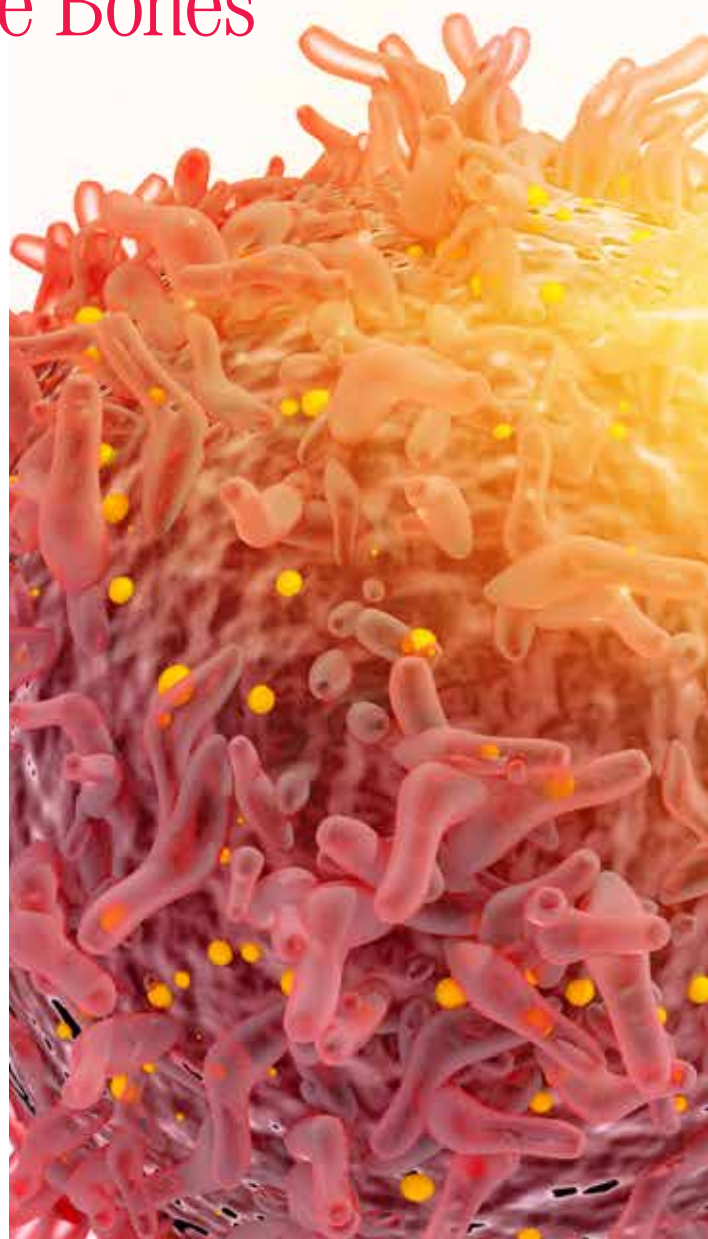
# BONES OF CONTENTION:

## The Unintended Effects of Cancer Therapy on the Bones

BY KELLY HORVATH

**P**atients diagnosed with cancer are living longer, with some unanticipated ramifications. According to *Facts & Figures 2018*, published by the American Cancer Society (ACS), the death rate from cancer in the U.S. has declined steadily since 1991, by about 2% annually, in fact. ACS reports that, in terms of lives, this means 2.4 million people survived cancer in a roughly 20-year period. Much of this increased survivorship, of course, can be attributed to advances in cancer treatment.

Unfortunately, increased survival does not always translate to quality of life maintenance. In addition to the health problems the cancer itself causes a patient, the treatment to manage that cancer can have damaging consequences or exacerbate underlying problems — affecting the skeleton, in particular, and increasing the risk for bone loss as well as fracture. The problem is threefold: Patients with cancer have decreased bone mineral density (BMD) on dual x-ray absorptiometry (DXA) scan; the drug therapies used to treat cancer (e.g., chemotherapy drugs, glucocorticoids, aromatase inhibitors [AIs], and anti-androgen drugs) induce bone loss, according to the Endocrine Society's Hormone Health Network; and cancer commonly metastasizes to bone, further accelerating bone loss in addition to precipitating other harmful effects. The compounded insult to BMD greatly increases the risk of fracture, which can seriously impair quality of life by causing







Therapies that can extend the life of cancer patients often have a negative impact on the skeleton, especially in those being treated for hormone-sensitive cancers. Evidence shows improvements in bone health when bisphosphonates and denosumab are administered.



debilitating pain; incurring great expense; and, depending on severity, possibly leading to social isolation brought about by increasing immobility, the need for assisted living or long-term nursing home care, or comorbidities or even death.

## Closer Look at the Problem

Although awareness is growing among the medical community that patients with endocrine-sensitive cancers like breast and prostate (which, by the way, are the cancers with the highest incidence in women and men, respectively, according to the ACS) need to be screened for bone changes, other types of malignancies have not been studied to the same extent, and even with the greater knowledge around breast and prostate cancer, vulnerable patients are not getting identified. So, a two-person team from the Mayo Clinic in Rochester, Minn., recently investigated these gaps in “The skeletal impact of cancer therapies,” published in the *British Journal of Clinical Pharmacology* in February 2019. Matthew T. Drake, MD, PhD, associate professor of medicine, and co-author Lucia Bedatsova (a research trainee and medical student visiting from Prague, Czech Republic) took a closer look at cancer therapies currently in use and their effects on

bone. They also explored what information currently exists for preventing these effects, primarily for hormone-sensitive cancers (as well as for blood cancers, which are beyond the scope of this article). “While providers of cancer therapies have been rightfully focused on optimizing cancer treatments for their patients, it is important that these same providers also proactively recognize that many of these same cancer treatments have unintended deleterious side effects on other organ systems. Indeed, the skeleton is one of the most important organs negatively affected by a wide array of cancer therapies,” Drake says.

Ann E. Kearns, MD, PhD, associate professor of medicine and chair of Quality and Safety in the Division of Endocrinology also at the Mayo Clinic, as well as an Endocrine Society expert on bone health, agrees: “As cancer survivorship improves, we begin to worry not about the imminently life-threatening, but *life-altering* things.”

## Breast Cancer and Bone Health

In their review, the team found that, despite clinical guidelines urging routine BMD measurements in women being treated



for breast cancer, in many cases, these patients are not being adequately managed. The anti-androgenic drugs used to treat breast cancer accelerate bone loss, and this is in a population usually of advanced age in which age-related bone loss due to age-related declines in estradiol is already occurring. “The highest risk for fracture is in the older people getting these types of treatments because they already have an increased risk, which we’re augmenting with the treatment,” Kearns says. “But, our oncology team here is quite astute at measuring the bone density in patients about to initiate either anti-estrogen therapy or anti-androgen therapy. They are very savvy about having that discussion with referred patients.”

In premenopausal women, the bone loss picture is not much better — they are sometimes treated with glucocorticoids for nausea in addition to hormonal and chemotherapies, combinations that co-act to reduce BMD.

AIs act to inhibit the effects of estrogen as well as to damage bone microarchitecture, resulting in BMD reductions at the lumbar spine that can reach more than 3% per year. Losses can be further increased when AIs are combined with other agents such as gonadotropin-releasing hormone (GnRH) agonists. Research has demonstrated that oral or intravenous bisphosphonates given concomitantly with the AI negates this loss of BMD from baseline in both premenopausal and postmenopausal women. “Some of the breast cancer patients do receive bisphosphonates — mostly zoledronic acid — here as part of adjuvant treatment for breast cancer,” Kearns says. “Such therapy has been associated with improved survival, thought to be from decreased bone metastases. Thus, the oncologist has two complementary reasons to give this drug: to improve survival and to decrease bone problems.”

## AT A GLANCE

- ▶ Improvements in cancer treatments have led to improved survival, which has, in turn, led to unintended negative consequences including fracture risk that is a function of age-related bone loss, medicine-induced bone loss, and cancer-associated bone-loss.
- ▶ To preserve skeletal health in patients being treated for hormone-sensitive cancers (as well as potentially other cancer types), clinicians should systematically and regularly measure BMD and initiate adjuvant bone-protective therapy accordingly.
- ▶ In both women and men with hormone-sensitive cancers, evidence has shown improvements in skeletal health outcomes with bisphosphonates and denosumab.

“ We have good drugs that can be pretty simple to take that have clearly been proven to lower that risk. **Cancer patients tend to be pretty motivated, so it’s usually not a very difficult conversation.**”

— ANN E. KEARNS, MD, PHD, ASSOCIATE PROFESSOR OF MEDICINE; CHAIR, QUALITY AND SAFETY, DIVISION OF ENDOCRINOLOGY, MAYO CLINIC, ROCHESTER, MINN.





**“ The early recognition of heightened risks for both bone loss and fractures, and the judicious implementation of practices to limit these off-target effects on bone is absolutely critical if we are to optimize the long-term health of our patients.”**

— MATTHEW T. DRAKE, MD, PHD, ASSOCIATE PROFESSOR OF MEDICINE,  
MAYO CLINIC, ROCHESTER, MINN.

In postmenopausal women taking AI therapy, the anti-osteoporosis drug denosumab has been shown to provide benefit. And, interestingly, on stopping AIs, some women see improvement in BMD, but such “AI holidays” have not been adequately studied.

Notably, the selective estrogen receptor modulator (SERM) tamoxifen reduces bone loss in postmenopausal women, but increases it in premenopausal women.

### **Prostate Cancer and Bone Health**

The treatment of prostate cancer induces many of the same bone-related problems in men as does treatment of breast cancer in women and does so by similar mechanisms. Androgen-deprivation therapy (ADT) can be achieved with GnRH agonists and antagonists, but these lead to increased fracture risk. Two new drugs, abiraterone acetate, which inhibits androgen biosynthesis, and enzalutamide, an androgen-receptor antagonist, have demonstrated efficacy for the treatment of prostate cancer without the fracture risk, but researchers do not yet know their effects on BMD and bone remodeling.



As with breast cancer, bisphosphonates and denosumab are effective in preventing further bone loss in men with prostate cancer. Because reducing testosterone levels also reduces estradiol levels in men and therefore provides another physiologic basis for bone loss, the SERM toremifene was studied for its potential to reverse the skeletal impact of ADT but was shown to increase the risk of venous thrombosis. Although no SERMs have yet been approved to treat bone loss in men, treatment with low-dose estradiol has been shown to reduce circulating bone turnover markers in ADT-treated men but has not been evaluated for fracture risk reduction.

## Bone Gaps

In both women with breast cancer and men with prostate cancer, starting bisphosphonates at the time cancer therapy is initiated achieves a better skeletal outcome than delaying treatment. Moreover, due to the demonstrated effectiveness of antiresorptive therapies when used in conjunction with cancer therapy, guidelines recommend a skeletal health evaluation at the start of cancer therapy and potentially earlier intervention with an antiresorptive adjuvant. Again, though, this critical evaluation is not happening as routinely as it should. Why?

“It’s probably just not knowing who is responsible for measuring that BMD,” explains Kearns. “For example, orthopedic surgeons fix fractures, but they don’t treat osteoporosis. Maybe primary care providers are not as aware of the effects on skeletal health that some of the treatments are having or potentially will have, so they are not picking up on that. Unfortunately, bone health kind of falls in the gap there. I would like to think that at least



oncology should be advising that the bone density be measured if they’re not taking it on themselves and actively treating skeletal health. If not, they should be alerting and working with a primary care team or a specialty practice to not let these patients fall through the gap. We see a similar gap with steroid-induced osteoporosis. The rheumatologist or primary care provider is prescribing the steroids over and over, and nobody thinks twice until a fracture occurs. So, it’s not unique to cancer treatment; it’s a common concern that the skeleton gets overlooked.”

## Optimizing Skeletal Care

After identifying a patient at risk for fracture, the next step is having a discussion with the patient about how fractures can contribute to morbidity, suffering, and lifestyle changes but that most fractures are preventable. “We have good drugs that can be pretty simple to take that have clearly been proven to lower that risk. Cancer patients tend to be pretty motivated, so it’s usually not a very difficult conversation,” Kearns says.

Drake and coauthor Bedatsova conclude that both initial and ongoing skeletal evaluations are critical to developing the right regimen for an at-risk patient, calling this “a cornerstone of care.”

“The early recognition of heightened risks for both bone loss and fractures, and the judicious implementation of practices to limit these off-target effects on bone is absolutely critical if we are to optimize the long-term health of our patients,” Drake says. <sup>EN</sup>

## Endocrine Society Researcher Hill Day Advocates for More NIH Funding, Special Diabetes Reauthorization



Endocrine Society advocates were one of the last groups allowed into the U.S. Capitol complex prior to access being restricted to visitors. Top: Heather Patisaul, PhD; Rebecca Riggins, PhD; Cyrus Desouza, MD; and FLARE Fellows Kayla Titillii-Torres and Rashaun Williams with type 1 diabetes patient Abigail Pepper outside Senate majority leader Mitch McConnell's office. Left: Rep. Gerry Connolly (D-Va.) and Riggins.

**O**n March 10, a small but mighty group of Endocrine Society members came to Washington, D.C., to meet with their congressional delegations.

Despite a number of other priorities requiring the attention of Congress, the federal appropriations process for FY 2021 must move forward, and this is the time to influence decisions about funding. We used our annual Researcher Hill day to advocate for \$44.7 billion for the National Institutes of Health (NIH), a \$3 billion increase over FY 2020. The COVID-19 pandemic impacting the world demonstrates that we must continue to invest in medical research.

In addition to the need to fund the government next year, Congress must also act by May 22 to reauthorize important public health programs, such as the Special Diabetes Program (SDP). This program, which supports research on type 1 diabetes and education on type 2 diabetes for Alaskan Natives and American Indians, has received bipartisan support since it was established in 1997. During our visits, we advocated for a continuation of funding of \$150 million per program per year with a five-year extension of the program.

Our advocates were part of the last group of the public who were let into the Capitol complex as Congress has now restricted all external visitors.

### Take Action

Even if you could not come to Washington, D.C., you can still lend your voice and join our online advocacy campaign to urge Congress to provide \$44.7 billion for the NIH in FY 2021. Visit [www.endocrine.org/takeaction](http://www.endocrine.org/takeaction) to write your member of Congress on this and other important issues.

# Trump Administration Announces New Plan to Cap Insulin Costs in Medicare



“  
The administration’s  
plan will have no  
impact on some of  
the people most  
vulnerable to rising  
insulin costs, such as  
those covered  
by high-deductible  
insurance plans or those  
who have no insurance  
at all and are forced  
to pay full price  
for their medicine.  
”

**H**igh drug prices have been a focus of Congress and the Trump administration for the past year, with insulin becoming the prime example of the negative impact increasing drug prices are having on patients.

To minimize the burden on seniors, the administration released a plan to cap insulin costs at \$35 per prescription/per month for Medicare Part D plans. The administration estimates the plan will save seniors \$466 per year, although research shows that this population pays much less for insulin over the course of a year than the administration’s analysis assumes and there is less saving than the administration expects. A recent report from the Henry

J. Kaiser Family Foundation found that in 2017 seniors spent approximately \$600 annually out of pocket for insulin, on average. If that is accurate, Trump’s plan could mean only very modest savings — about \$160 per year — for seniors. While the actual cost savings are unclear, the administration’s plan will provide seniors with more predictability in their insulin costs across the year.

The plan will begin implementation January 1, 2021, and not all seniors will benefit from it. As a demonstration project, insurers and drug manufacturers can volunteer to participate in the pilot.

The Endocrine Society has made addressing the high cost of insulin a priority for the past three years. We have urged the administration to take steps to minimize the burden on patients and appreciate this effort to assist Medicare beneficiaries. We note that this plan will not solve the problem of insulin affordability. The administration’s plan will have no impact on some of the people most vulnerable to rising insulin costs, such as those covered by high-deductible insurance plans or those who have no insurance at all and are forced to pay full price for their medicine.

We continue to advocate for policy changes to reduce out-of-pocket costs for people on high-deductible health plans, the uninsured, underinsured, and 26-year-olds who are no longer covered by their parents’ insurance. We continue to work with the Congressional Diabetes Caucus on additional recommendations that include reforming patent laws, other congressional leaders as they consider additional solutions to high drug prices, and drug makers to lower list prices and minimize the impact on people with diabetes.

For more information on the Society’s advocacy on insulin pricing, please visit: [www.endocrine.org/insulin](http://www.endocrine.org/insulin).



## Virtual Advocacy in COVID-19 World

**A**s this issue of *Endocrine News* went to press, President Donald Trump had just recommended closing schools, avoiding groups of 10 or more, and refraining from eating in restaurants, bars, and food courts.


Congress was at a stalemate with the fate of a package of aid measures to assist households affected by the COVID-19 pandemic up in the air. The House of Representatives was having trouble passing “technical” changes by unanimous consent, and the Republican Senate leadership warned it could not pass in that chamber as is.

Congress, the Supreme Court, the EU Parliament, and other governments have restricted access to the public for a minimum of weeks.

It is in this environment that the Endocrine Society is determining how it can represent our members’ interests and work effectively with policy makers while virtually advocating.

We have continued with regularly scheduled calls, turned face-to-face meetings into video conference calls, and provided policy makers with electronic information requested on diabetes, telemedicine, NIH funding, and physician payment. We have also had to cancel meetings, postpone events, and hold off on advocacy for which this is no longer the right time to weigh in. We are converting our April 20 Clinical Hill Day into a Virtual Advocacy Day.

We urge all of our members to stay tuned for alerts for when you can join us either in person or virtually in our advocacy efforts. It continues to be important for lawmakers to hear from their constituents about issues of concern.

For the latest information about our advocacy, please visit: [www.endocrine.org/advocacy-in-action](http://www.endocrine.org/advocacy-in-action). 



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# A Wave of Innovation

Since the burgeoning epidemic of diabetes shows no signs of slowing down, technology is keeping pace with a record number of new advances for patients.

COMPILED AND WRITTEN BY COURTNEY CARSON

A new report from the CDC — the *2020 National Diabetes Statistic Report: Estimates of Diabetes and Its Burden in the United States* — confirms that although Americans are living longer with diabetes, the number of patients diagnosed is on the rise, specifically in children younger than 18. In fact, 10.5% of the population (32.4 million people) has diabetes — 26.9 million diagnosed and 7.3 million undiagnosed. The report also found that diabetes was the seventh leading cause of death in the U.S.

New technologies for diabetes treatment are becoming essential for those who are living with the disease, and healthcare companies are responding to patients' needs with the largest wave of technological innovation in the history of diabetes treatment.

Here is a roundup up some of the newest and upcoming resources available to patients being treated for diabetes.

## AerBetic Noninvasive CGM ►

A so-called “digital diabetes alert dog,” AerBetic is a wearable noninvasive wristband continuous glucose monitor (CGM) that uses nanotechnology to detect blood sugar highs and lows. The idea was sparked by an actual diabetes alert dog named Wiley, adopted by AerBetic CEO Anar Thors. Wondering why wearable technology couldn't perform the same function that alert canines do, Thors set out to create a device that would do just that. The system uses a nano gas sensor to detect certain gases that human bodies emit via exhaled breath. The device connects to a smartphone app and can be linked to other smart home devices via Bluetooth and/or Wi-Fi, and allows users to manually enter glucose readings into the app, which help the system to “learn” the person's unique breath signatures over time. Although the device is not yet available for purchase, AerBetic is currently accepting Beta testers.

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



## ◀ Humalog® Mix75/25™ KwikPen®

The Humalog® Mix75/25™ KwikPen® is one of the newest additions to Lilly's lower-priced versions of their Humalog Kwikpen mealtime insulins. Available by mid-April, this KwikPen will feature a price tag 50% lower than the branded versions. This insulin is made of identical molecules to the branded versions and may be substituted at the pharmacy counter.

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







### ◀ Livongo for Dexcom

Livongo, a diabetes digital health platform, helps patients track glucose levels and connects them directly to diabetes educator coaches. The platform has been based on its own proprietary fingerstick (and test strips) until its recent partnership with Dexcom. Now, Livongo users who also wear a Dexcom G6 device will be able to sync the data from that CGM with the Livongo platform. Through the partnership, Livongo can now aggregate data from the Dexcom G6, cross-reference with proprietary blood pressure and weight data from its connected devices, and interpret that data to offer personalized health insights based on the patient's comprehensive health profile. Diabetes educator coaches are available 24 hours a day, seven days a week to offer support to Livongo patients.

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



### ◀ FORA 6 Connect

The FORA 6 Connect is one of the few meters on the market that tests for both blood glucose and ketone levels. The convenient Bluetooth-enabled device requires small sample sizes and features gold-standard test strips that are said to offer more precise, accurate results. The data syncs to iFora apps via Bluetooth, helping patients to easily track trends and averages.

[www.fora-shop.com](http://www.fora-shop.com)

### ▶ Pill Connect

Pill Connect is a smart pill bottle aiming to improve adherence to medications. The device was developed to prompt patients to take their medications on time as well as to let the doctor know if the patient has dispensed their medication. The prompt comes from an app on a patient's mobile phone, which, when acknowledged, ejects a pill from the smart bottle. The Pill Connect system provides not only a complete record for the healthcare professional of when and where the patient responded to the prompt on their phone and the successful ejection of the pill or tablet, but also allows an immediate intervention. If a dose is critical, the system alerts the healthcare professional to follow up with the patient by a call or text to find out if there is a problem or they need further prompting. If the patient is unwell or believes that they are suffering from a side effect of the medication, they have the option to not take the pill and alert their healthcare provider through the app. The bottle is even locked outside the prescribed times to prevent double dosing.

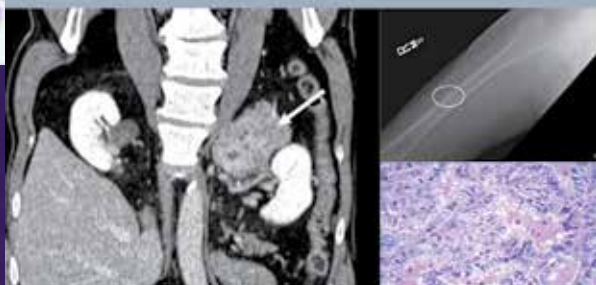
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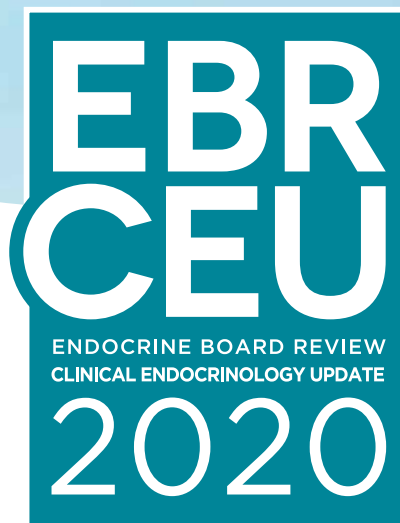
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