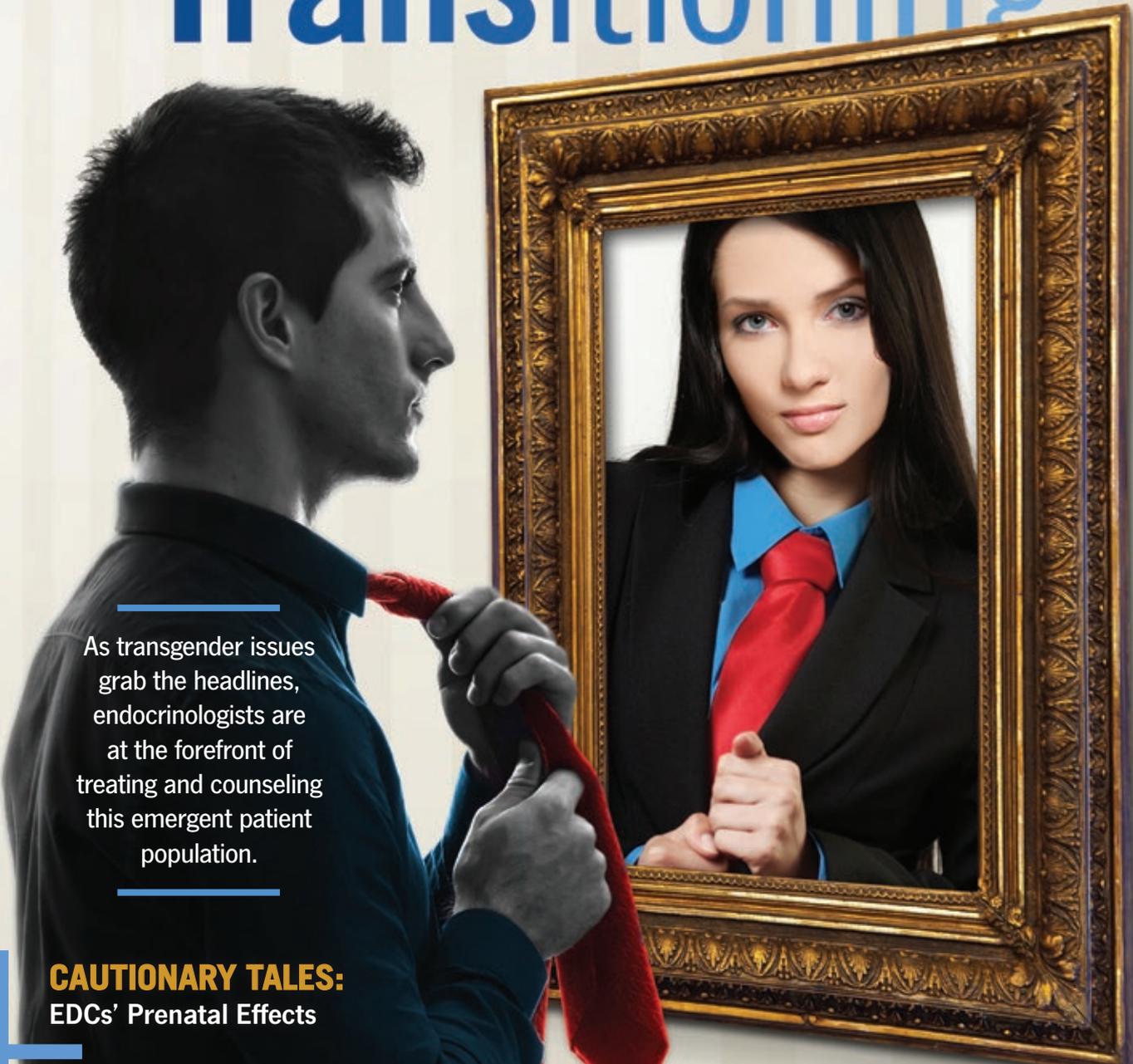


OCTOBER 2015

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

Endocrine news

Transitioning



As transgender issues grab the headlines, endocrinologists are at the forefront of treating and counseling this emergent patient population.

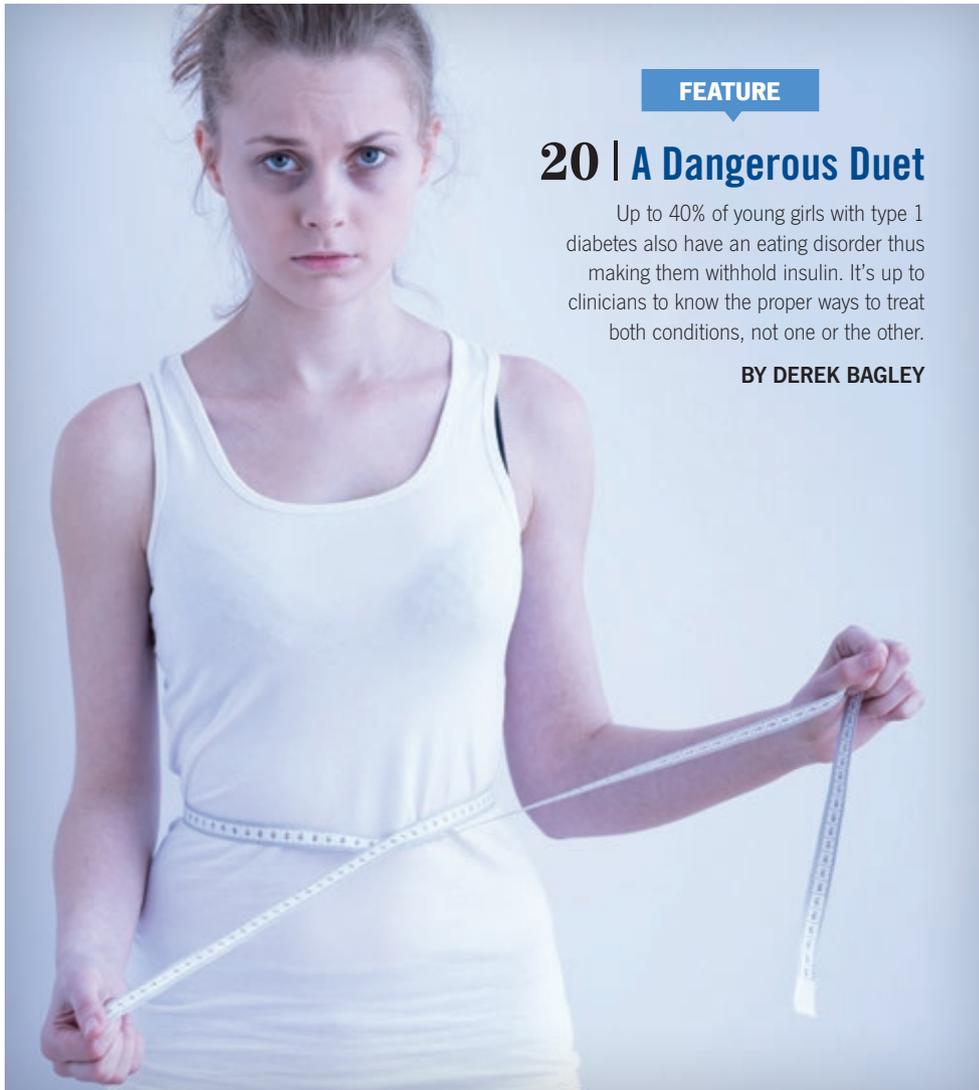
CAUTIONARY TALES:
EDCs' Prenatal Effects

A DANGEROUS DUET:
Treating T1D & Eating Disorders

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ENDOCRINE SOCIETY

Hormone Science to Health



Hormone Health Network Embraces New Technology

A S ONE OF THE FOUNDING BOARD MEMBERS FOR the Hormone Foundation — now called the Hormone Health Network — it was exciting developing a new area for the Endocrine Society that would focus on patients' educational needs. Now, almost 20 years later, the growth and extensive portfolio of educational resources and activities that have been developed are impressive.

In today's healthcare system, technology has become a primary focus. The Hormone Health Network has two programmatic initiatives currently in development that will allow the Society to provide information to patients and their families, helping them to assess and understand endocrine-related treatment options.

Last year, the Hormone Health Network received approval from the Council to develop an interactive computer program, *Journey through the Endocrine System* (JTTES), that will tell a comprehensive story of the endocrine system and its related conditions. Why did the Council decide to invest in a tool like this? Today patients and the public benefit from many forms of education and with a tool like the JTTES we can provide patients with knowledge that enables them to understand endocrine-related disorders in order to make important decisions about their health. Additionally, this tool will provide members with patient education resources they can use in their practice. The Society now has a tool that can be integrated into existing products to expand our global impact.

I'm excited to share that the first phase of JTTES, an integrated 3D animation of the endocrine system, is now available to tour at hormone.org. There will also be a mobile application for healthcare providers launching at ENDO 2016.

This November, the Network will be adding a new e-learning course to its portfolio, *D.A.I.L.Y. (Diabetes Awareness Information for Loved Ones and You)* for individuals with type 2 diabetes and their caregivers. This course is being created through a sponsorship from BI Lilly Diabetes Alliance and Janssen Pharmaceuticals. The main goal of this course is to provide a way for people with type 2 diabetes to improve their knowledge, skills, and confidence, enabling them to take increasing control of their own condition and integrate effective self-management into their daily lives. Providers will have the option to enroll their patients in this program.

“
The Hormone Health Network has two programmatic initiatives currently in development that will allow the Society to provide information to patients and their families, helping them to assess and understand endocrine-related treatment options.”

The Hormone Health Network has come a long way since its inception and is shifting its strategy to expand beyond offering 100+ bilingual fact sheets and patient guides. It is looking at new, creative, and innovative opportunities to increase engagement. As members of the Society, we have access to the educational tools produced by the Hormone Health Network, which are thoroughly vetted by our members who are experts in each area. Please be sure to take advantage of these great new tools and existing resources.

The Hormone Health Network staff would love to receive feedback from you on the current product portfolio. They would also like to hear from you if there are particular resources or ideas you have for developing new patient-related tools and if you are interested in getting involved with Hormone Health Network activities. Please feel free to email at hormone@endocrine.org. 

Lisa H. Fish MD

Lisa H. Fish, MD
President, Endocrine Society



FROM THE **EDITOR**

Patients are a Virtue

ASIDE FROM THE NEW LOOK OF *ENDOCRINE NEWS* IN BOTH PRINT and online (www.endocrinenews.org), we are now actively involved in the social media realm; we're tweeting every day from @Endocrine_News, and we plan to engage readers on other platforms as well. So far Twitter has not only proven to be an effective means to get the word out, but we have also found story topics, sources, and even contributors for future issues.

If you're one of our Twitter followers, you no doubt saw the live tweets by associate editor Derek Bagley from the American Association of Diabetes Educators in New Orleans in August. While there, he met Asha Brown and pediatric nurse Marcia Meier, RN, CDE; Brown has type 1 diabetes and had an eating disorder in her youth and Meier manages a program at the Melrose Center in St. Louis Park, Minn., where the two first met. Among the hundreds of AADE attendees milling about them, they discussed the phenomenon of treating diabetes in concert with eating disorders, a malady that is not as rare as you might think. In "A Dangerous Duet" (p. 38), they give their opinions on the most useful approaches to dealing with these fragile patients, both from the caregiver's perspective and the patient's. The bottom line is that physicians with these complicated patients need to be adept at treating both conditions, not just one or the other.

"A Dangerous Duet" is also a new type of article that will find a place more often in the pages of *Endocrine News*. We feel it's important to not only get the opinions of those who treat patients but also hear what the patients themselves have to say about their condition, treatments they receive, and more. This is a vital component in the mission of *Endocrine News* to tell the whole story so our audience can be informed from a number of angles, not just what the literature says or studies have proven. These articles put a human face and real emotions to the conditions endocrinologists have to deal with on a daily basis. If you have a suggestion for such an article, please don't hesitate to contact me at mnewman@endocrine.org to discuss.

Largely owing to the media frenzy around Olympic champion Bruce Jenner opening up and becoming Caitlyn Jenner, the phenomenon of transgender treatment has been a huge presence over the last few months. In our cover story, "Transitioning" (p. 26), writer Melissa Mapes discusses how, much like the transgender patients, physicians who treat them are also on a learning curve as this unique condition takes the spotlight. "The good news is that [transgender identity] is pretty easy to treat if you follow the guidelines," Vin Tangpricha, MD, PhD, associate professor at Emory University in Atlanta, says, adding that, "there are no conflicting recommendations out there and every pharmacy has these hormones." Endocrinologists, of course, are certainly ready to be a part of history as this new patient population emerges. **EN**

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

OCTOBER 2015

Endocrine news

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

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

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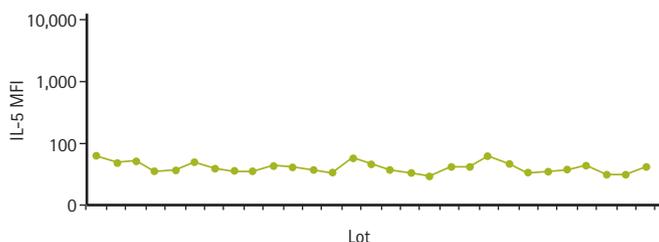
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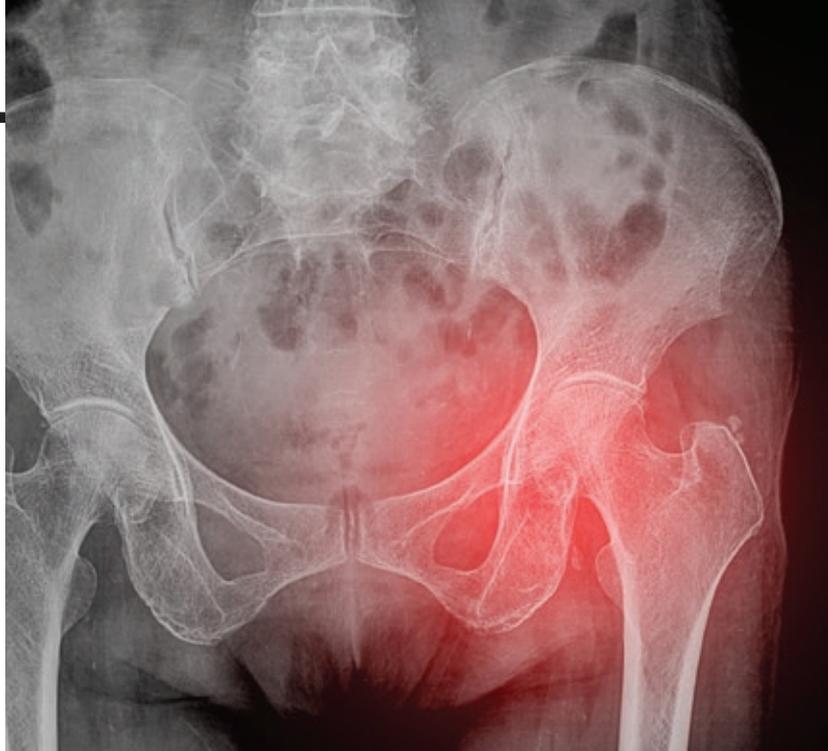


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Growth Hormone Reduces Risk of Osteoporosis Fractures in Older Women



Ten years after it was administered, growth hormone (GH) continued to reduce the risk of fractures and helped maintain bone density in postmenopausal women who had osteoporosis, according to a new study published in *The Journal of Clinical Endocrinology & Metabolism*.

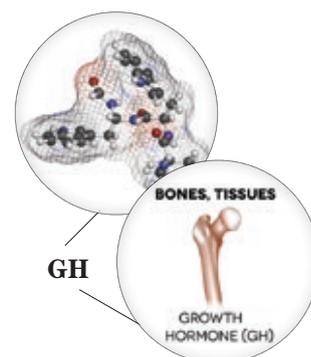
Researchers led by Emily Krantz, MD, of Södra Älvsborgs Hospital in Borås, Sweden, pointed out that pituitary function, especially the GH secretion, often measured as serum IGF-1, decreases with age, indicating a somatopause. So they conducted a follow-up of an 18-month-long, randomized, double-blind trial in which 80 postmenopausal women with osteoporosis received daily injections of either placebo, a single unit of growth hormone, or a 2.5-unit dose of growth hormone. The women were between the ages of 50 and 70 years when they were recruited for the decade-long study.

After 18 months, the women who received the placebo halted the injections. Women who received growth hormone continued to receive injections for another 18 months. The researchers continued to follow up with the women for seven years after the growth hormone treatment was halted to monitor their bone density, fractures, and perception of their quality of life (QoL).

The researchers then compared the participants' bone density and rate of fractures to those of a group of 120 women who did not have osteoporosis. The controls were identified using the city census in Gothenburg, Sweden.

A decade after the study began, the women who received the larger growth hormone dose still had higher bone mineral density levels than the participants who received the lower dose or the placebo. The authors write, "After 10 years the number of fractures decreased from 56% to 28% ($P = .0003$) in patients evenly distributed between groups." However, the rate of fractures rose four-fold in the control group as some of those women were diagnosed with osteoporosis. "In controls," they write, "fractures increased from 8% to 32% ($P = .0008$)."

BY DEREK BAGLEY



Findings: The researchers conclude that GH treatment was beneficial for bone and fracture outcome after 10 years but did not affect self-reported QoL in women with postmenopausal osteoporosis. "Our study is the largest and longest controlled study of growth hormone treatment for osteoporosis in postmenopausal women to date," Krantz says. "Years after treatment stopped, women who were treated with growth hormone still experienced improved bone density and reduced fracture risk."



Phase 2 Trial Results Show Volanesorsen Reduces ApoC-III and Triglycerides

Positive clinical data for an RNA-targeted antisense therapy called volanesorsen (formerly ISIS-APOCIII Rx) were recently published in the *New England Journal of Medicine*. In a Phase 2 study, this therapy significantly reduced ApoC-III and triglyceride levels in patients, leading to improvement in glucose parameters in patients with type 2 diabetes. Volanesorsen — an antisense drug in development intended to treat patients with severely high triglycerides either as a single agent or in combination with other triglyceride-lowering agents — is part of Isis Pharmaceuticals' lipid franchise, which is being developed and commercialized by Akcea Therapeutics.

Researchers led by Daniel Gaudet, MD, PhD, of the Université de Montréal conducted a double-blind, randomized, placebo-controlled 13-week study designed to assess the safety and activity of volanesorsen in patients as a monotherapy and as an add-on to fibrates. A total of 57 patients were treated in the ISIS 304801 monotherapy cohort (41 received active agent, and 16 received placebo), and 28 patients were treated in the ISIS 304801-fibrate cohort (20 received active agent, and eight received placebo). Patients treated with volanesorsen achieved mean reductions of up to 80% in ApoC-III and up to 71% in triglycerides and average increases of up to 46% in HDL-C.

Findings: The authors write that they “found that treatment with ISIS 304801 was associated with significant lowering of triglyceride levels, among patients with a broad range of baseline levels, through selective antisense inhibition of APOC3 synthesis.”

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Antibiotic Use Linked to Type 2 Diabetes Diagnosis

Developing type 2 diabetes (T2D) is linked to taking more antibiotics in the years leading up to the diagnosis than people who do not have T2D, according to a study recently published in *The Journal of Clinical Endocrinology & Metabolism*.

Researchers led by Kristian Hallundbæk Mikkelsen, MD, of Gentofte Hospital in Hellerup, Denmark, and Anton Pottegaard, PhD, University of Southern Denmark, conducted a population-based case-control study, tracking antibiotic prescriptions for 170,504 people who had T2D and for 1.3 million people who did not have diabetes between January 1, 2000 and December 31, 2012. The team identified the subjects using records from the Danish National Registry of Patients, the Danish National Prescription Registry, and the Danish Person Registry.

People who had T2D filled 0.8 prescriptions a year, on average. The rate was only 0.5 prescriptions a year among the study's control subjects. The researchers found that those who filled more prescriptions were more likely to be diagnosed with T2D. Many types of antibiotics were associated with a higher risk of diabetes, but there was a stronger link with the use of narrow-spectrum antibiotics such as penicillin V.

Past research has shown that antibiotic treatments can alter the bacteria in an individual's gut. Studies suggest certain gut bacteria may contribute to the impaired ability to metabolize sugar seen in people with diabetes. This may explain why higher rates of antibiotic use are associated with the development of T2D, but more research is needed to explain the findings, Mikkelsen says.

Findings: The authors write that their results could support the possibility that antibiotics exposure increases type T2D risk. However, the findings may also represent an increased demand for antibiotics from increased risk of infections in patients with yet-undiagnosed diabetes. "In our research, we found people who have T2D used significantly more antibiotics up to 15 years prior to diagnosis compared to healthy controls," Mikkelsen says. "Although we cannot infer causality from this study, the findings raise the possibility that antibiotics could raise the risk of T2D. Another equally compelling explanation may be that people develop T2D over the course of years and face a greater risk of infection during that time."



High Blood Sugar of Diabetes Can Cause Immune System Malfunction

Researchers may have uncovered a molecular mechanism that sets into motion dangerous infection in the feet and hands often occurring with uncontrolled diabetes, according to a recent study in *PLOS One*. It appears that high blood sugar unleashes destructive molecules that interfere with the body's natural infection-control defenses.

A team led by Janna Kiselar, PhD, of Case Western Reserve University School of Medicine, in Cleveland, Ohio, discovered how two dicarbonyls — methylglyoxal (MGO) and glyoxal (GO) — alter the structure of human beta-defensin-2 (hBD-2) peptides, hobbling their ability to fight inflammation and infection.



“ In the petri dish of hBD-2 treated with dicarbonyl, we saw a roughly 50% reduction in the ability of hBD-2 to inhibit growth or kill the bacteria. It was a significant loss of function, and we saw this effect quite visually.”

“Our *in vitro* findings alone could have a significant impact on development of more effective antimicrobial treatment strategies for patients with uncontrolled diabetes,” Kiselar says. “The findings also emphasize the importance of lowering high blood sugar and keeping it under control.”

Kiselar and senior author Wesley M. Williams, PhD, collaborated on experiments that compared the mass spectra, the bacterial-killing potential, and the immune cell-attracting ability of dicarbonyl-treated hBD-2 with untreated hBD-2. This beta-defensin was initially exposed to the activities of two key dicarbonyls — MGO and GO, both of which are known to increase in humans with high blood sugar. Mass spectral analysis showed that MGO was the more reactive of the two dicarbonyls, so subsequent bacteria-killing and chemotactic experiments were performed by exposing hBD-2 to MGO.

First, the investigators compared the mass spectra for the dicarbonyl-exposed hBD-2 with untreated hBD-2. In the dicarbonyl-exposed hBD-2, they found that in addition to binding to several other amino acid residues, the dicarbonyl irreversibly binds to two positively charged arginine amino acids located near the surface of the hBD-2 peptide.

Then the investigators compared dicarbonyl-treated hBD-2 to untreated hBD-2 in their ability to kill gram-negative bacteria. The untreated hBD-2 is quite

effective in killing gram-negative bacteria, while dicarbonyl-exposed hBD-2 greatly impaired this defensin’s ability to stop the onslaught of bacteria.

“In the petri dish of hBD-2 treated with dicarbonyl, we saw a roughly 50% reduction in the ability of hBD-2 to inhibit growth or kill the bacteria,” Williams says. “It was a significant loss of function, and we saw this effect quite visually. Experiments were repeated multiple times using several bacterial strains, and we found a loss of function in all cases. It establishes that the antimicrobial function was being significantly impeded by the MGO dicarbonyl.”

Finally, investigators examined the effects of MGO on hBD-2’s critical role in an early-stage immune system response. Defensins such as hBD-2 not only inhibit entry into the body of microbes, such as bacteria and viruses, but they also post an alert to the immune system about the invader. The adaptive and innate features of the immune system can then identify the microbe for destruction now and into the future. Defensins work, in part, through chemoattraction of specific immune cells in order to activate the next stage of the immune response, called adaptive immunity.

To test the chemoattraction effect, Kiselar and Williams, in collaboration with George Dubyak, PhD, examined the effects of dicarbonyl on the chemoattraction capabilities of hBD-2.

Usually, specific human immune cells are responsive and attracted by hBD-2. In the cells exposed to the MGO-treated hBD-2, the beta-defensin lost much of its ability to initiate chemoattraction.

Studies in animal models or human tissues will be needed to verify the *in vitro* findings about the harmful effects of dicarbonyl on the beta-defensin family of antimicrobial peptides, particularly among people with diabetes who have uncontrolled hyperglycemia. Additionally, human antimicrobial peptides other than the beta-defensins may also be affected negatively by a dicarbonyl attack, thus reducing both their antimicrobial and chemoattractive functions.

Findings: “The body does have defense mechanisms against molecules such as dicarbonyl, but with a chronic disease such as diabetes, the effectiveness of these defense mechanisms responsible for keeping dicarbonyl levels under control may be overwhelmed,” Williams says. “The result may be dicarbonyl accumulation that could eventually overwhelm the ability of beta-defensins to effectively control inflammation and infection.” For now, control of blood sugar through diet and medicine can hold the dicarbonyl-beta defensins dynamic at bay. The need is great for the development of effective antimicrobial peptides and antihyperglycemia drugs and medications with fewer or more tolerable side effects that would help to neutralize the dicarbonyl pathway. 

Transgender issues have moved to the forefront of society's collective consciousness in a way never before seen thanks to several high-profile trans celebrities.



Trans- *itioning*

BY MELISSA MAPES



This newfound recognition has suddenly placed endocrinologists squarely on the front lines to treat and counsel this new emergent patient population.

After decades of hiding in plain sight, former Olympic champion Bruce Jenner — a man who was once viewed as an epitome of masculinity and athleticism — announced earlier this year that he would be living out the remainder of his life as his true self: a woman named Caitlyn. She is now one of the most famous transgender individuals in the world, and her story is part of a growing cultural awareness of what it means to be “transgender.”

In the medical community, endocrinologists are at the forefront of the movement to expand and improve care for transgender patients (historically called *transsexual*). Due to the critical role that hormonal treatments play in the transition between sexes, more and more patients are turning to endocrine experts for help when their gender identity does not match their natal sex.

The Hormone Health Network produced the first patient guide for the *Endocrine Treatment of Transsexual Persons* in 2009, which aimed to answer many of the questions facing both patients and their providers. Since then, some important factors have changed. Experts are still finalizing updates to the guidelines, which they expect to publish in 2016, but several general trends have emerged.

SHEER NUMBERS

“The prevalence is much higher than previously thought,” says Vin Tangpricha MD, PhD, associate professor at Emory University and coauthor of the guidelines.

No solid statistics on the transgender population in the U.S. exist yet, but many suspect numbers to be far larger than the 0.3% to 0.5% stated in past studies. Numerous factors, including concerns of discrimination, have made it difficult for researchers to conduct accurate surveys of these groups.

Call me

Chaz Lavan
Caitlyn Laverne

The proper use of pronouns and descriptive words has been a hot topic of discussion surrounding gender identity. While the general rule advocated by Gay & Lesbian Alliance Against Defamation (GLAAD) is to simply ask how an individual prefers to be described, the advocacy group also outlines some important differences between the terms *transgender* and *transsexual*.

- ▶ **Transgender (adjective)** is an umbrella term that encapsulates the many variations of gender identity that differ from the typical characteristics of the sex one was born with. Not all transgender persons wish to undergo hormone therapy or surgery, but for some it is medically necessary.
- ▶ **Transsexual (adjective)** is an older medical term, which has been used to specifically describe individuals who have permanently transitioned to the sex they identify with. It includes only those who have changed their bodies through medical intervention. Many people in this group still prefer to be called *transgender* instead of *transsexual*.

When the 2009 guidelines were created, the terms *transsexual* and *gender identity disorder* (GID) were the accepted phrasing of the medical community. In 2013, the American Psychiatric Association replaced GID with *gender dysphoria* and updated the diagnosis criteria, making the former term defunct. *Transsexual* has also fallen out of popular use because of its rigid definition.

In recent years, the terms *gender non-conforming* and *gender incongruent* have come into use, which encompass a broad population of individuals with gender expressions that differ from conventional ideas of masculinity and femininity. These terms are not synonyms for *transgender*, as people may identify with one group and not the other.

- ▶ **More terminology and definitions related to gender identity can be found at www.glaad.org/reference/transgender.**

Fortunately, more and more individuals are coming forward and social acceptance appears to be gradually rising. As a result, people with gender dysphoria (previously termed “gender identity disorder”), seem better equipped to recognize relevant characteristics within themselves and to face fears about transitioning.

“I certainly believe that a greater awareness in society is resulting in more individuals, including adolescents, becoming self-aware and better able to articulate their situation,” says Joshua D. Safer, MD, FACP, associate professor at Boston University and also a coauthor of the guidelines.

At the same time, Safer has observed a rise in comfort level among physicians when it comes to treating transgender patients. He believes that there is still more progress to be made on this front but that significant strides have occurred in the last half dozen years.

Tangpricha agrees.

“I think there’s definitely been increased acceptance by the medical community. The Endocrine Society guidelines helped validate gender dysphoria as a condition that physicians should treat, and medical schools are now incorporating it into their curriculums,” he explains.

GATEKEEPERS

The medical path to transitioning for transgender individuals has evolved as well. The traditional method follows a very cautious and staged timeline, which relies heavily on the mental health provider to approve therapies.

“In transgender medical treatment, there was a sense that the safety was unclear in this new area,” Safer says. “Because of that, a very, very conservative approach has been advocated over the years.”

People who felt that they might be transgender would first visit a mental health center where they would be evaluated. If determined to indeed be transgender, the mental health provider would work with the patient and consult with the necessary medical specialists to find an appropriate intervention, such as hormones and surgery. Transgender health specialists refer to this as the “gatekeeper model”

“**The various clinicians will consult each other in their respective specialties, and the mental health aspects and hormone therapy can move forward in parallel.**”

— JOSHUA D. SAFER, MD, FACP, ASSOCIATE PROFESSOR, BOSTON UNIVERSITY, BOSTON, MASS.



because the mental health provider plays the central role in treatment-related decisions.

“Today, the diagnosis is clearer and more straightforward,” Safer says.

Because many individuals have developed a sophisticated understanding of their gender identity — thanks in large part to increased awareness of the transgender population — the approach has become more flexible and customized.

“The various clinicians will consult each other in their respective specialties, and the mental health aspects and hormone therapy can move forward in parallel,” Safer continues.

The conservative model outlined in the 2009 guidelines recommended at least a year of “real-life experience” for most patients, during which the person “lives full-time in the desired gender role before starting irreversible physical treatment.” In some cases, this experience might run simultaneously with medical treatments, but patients would generally need to complete the full year before moving forward.

“The waiting period will be shorter — in many individuals, anyway,” Safer explains. “The idea that you would wait one year prior to starting on hormones is no longer the typical situation.”

Instead, he believes that the transition plan should be individualized to fit each patient’s situation. Some people may already live entirely in the desired gender and feel ready to add hormones to their regimen. Others might start both simultaneously, while certain individuals may be better suited to taking hormones in advance. “It can be very different depending upon people’s circumstances and what seems to work best,” he says.

TRANSITIONING

AT A GLANCE

- ▶ **The medical community is getting more comfortable with treating transgender patients, and employers are starting to offer insurance coverage.**
- ▶ **Treatment plans are becoming more customized rather than following the same conservative approach.**
- ▶ **Adolescents that have a sophisticated understanding of their gender identity may be prescribed adult-like interventions prior to 16 years old.**
- ▶ **Little has changed in terms of hormone regimens, but much work remains to be done to further medical care for the transgender community.**



“**The good news is that [transgender identity] is pretty easy to treat if you follow the guidelines.** There are no conflicting recommendations out there, and every pharmacy has these hormones.”

— VIN TANGPRICHA MD, PHD, ASSOCIATE PROFESSOR, EMORY UNIVERSITY, ATLANTA, GA.

STARTING YOUNG

This customized treatment also applies to adolescents. Until recently, young adults were rarely — if ever — prescribed hormone therapy prior to the age of 16. Many transgender patients start feeling as though they were born into the wrong sex in early childhood, but the normal course of therapy avoids physical treatments until these individuals near adulthood. Instead, they may be given the option of suppressing puberty with a GnRH (gonadotropin-releasing hormone) analogue, as its effects are considered reversible.

“There are certainly some young adults who are relatively unsure or unable to articulate if they are transgender, or unsure of what approach they want to take,” Safer says. “The timeline then would obviously be much slower, and we would avoid permanent changes until the person is sure and the various physicians are sure.”

However, some adolescent patients are very clear on the fact that they are transgender. In the U.S., these individuals are starting to be treated with a more progressive paradigm.

“We see mature adolescents who are ready to proceed with adult-like interventions prior to the age of 16,” Safer explains.

He hesitates to describe any specific criteria for evaluating the readiness of a transgender youth for more permanent changes. “I don’t think we’re in a position to broadly state what defines these individuals,” he says. “We just know it’s true because we can think of examples.”

Instead, Safer anticipates that the updated guidelines will recognize a range of therapeutic pathways and recommend that transgender youth be seen by multidisciplinary teams where mental health providers play a pivotal role in diagnosis.

Thus, the suggested paradigm for youth will likely continue to follow the more conservative gatekeeper approach because of the expertise required to make necessary judgments.

The American medical community seems to be recognizing that there are exceptions to the rule; many transgender children may not be prepared for physical treatments during adolescence, but a subset requires earlier intervention.

“In the new revised guidelines, there will probably be much more flexibility,” Tangpricha says. “As long as the child has been appropriately evaluated, it may be deemed medically necessary that they start hormones sooner.”

In Europe and some other areas of the world, this has not yet become a widely accepted idea, and the age of 16 is still a requirement.

MONEY MATTERS

Socioeconomic status has also restricted the ability of transgender individuals to obtain care due to the substantial costs involved. A person needs access to sufficient financial resources to cover and sustain treatments. Although this remains an issue for many transpersons, more U.S. insurance companies are offering coverage for transgender-related therapies, and an increasing number of employers are electing to provide this benefit.

“I think they’re starting to see that people shouldn’t be discriminated against if they have a condition that needs to be treated,” Tangpricha says.

Past studies have shown that the majority of transgender individuals do not regularly access medical care. It can



A KATZ / SHUTTERSTOCK.COM

be challenging for transpersons to find providers with transgender patient experience. This and other obstacles lead many transgender people to seek hormones from alternative sources, such as friends, street dealers, and the Internet.

Though much work remains to be done, the stigma against transpersons appears to be lessening. These individuals are finally finding easier and better access to medical care to treat their condition. Tangpricha emphasizes the importance of the role of endocrinologists in providing such care and encourages everyone in the endocrine community to make sure they are educated on the subject.

STEADY REGIMEN

Despite new trends and progress in the overall schema of the transgender world, little has changed in regards to the hormone therapies themselves. Both Safer and Tangpricha claim that the regimens are substantially similar to what has been prescribed for decades.

“The good news is that [transgender identity] is pretty easy to treat if you follow the guidelines,” Tangpricha says. “There are no conflicting recommendations out there, and every pharmacy has these hormones.”

Still, the National Institutes of Health (NIH) are currently soliciting input from the scientific community as to how transgender hormone therapies may be advanced through research. As such initiatives move forward, physicians also hope to obtain more thorough and reliable data on the incidence of gender dysphoria and the social issues that transgender individuals face. Like so many other health conditions, access to care will continue to be key. 

MAPES IS A WASHINGTON, D.C.-BASED FREELANCE WRITER AND A REGULAR CONTRIBUTOR TO *ENDOCRINE NEWS*. SHE WROTE ABOUT THE HUMAN EPIGENOME IN THE AUGUST ISSUE.

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As more and more data stack up arguing the dangers of endocrine-disrupting chemicals on human health, three new studies emphasize the damage they can do during pregnancy.





BISPHENOL A



Cautionary TALES

BY KELLY HORVATH

As endocrine-disrupting chemicals (EDCs) gain notoriety for the havoc they wreak on human body systems, three new studies shed light on what adverse effects EDCs can have during pregnancy for the mother, the placenta, and the child. The bad news is, not only is exposure to EDCs unavoidable, their power to do damage is exponentially greater during this critical developmental stage.

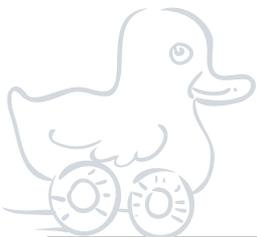
LONG-TERM METABOLIC RISKS FOR MOTHERS

In “Bisphenol-A Treatment during Pregnancy in Mice: A New Window of Susceptibility for the Development of Diabetes in Mothers Later in Life,” published in *Endocrinology*, researchers including Paloma Alonso-Magdalena, PA-M, PhD, of the Universidad Miguel Hernández de Elche, in Alicante, Spain, investigated what exposure to low-dose bisphenol-A (BPA), a widespread EDC with proven estrogenic activity, caused in pregnant mouse dams in the long term. “Up to now, the focus has been centered on how exposure to endocrine disruptors during pregnancy increases metabolic disorders in offspring, but this is among the first studies to analyze how they affect the mother’s glucose homeostasis,” says Alonso-Magdalena. The dams began to exhibit overweight and altered glucose metabolism by four months after delivery as well as impaired pancreatic β -cell function and mass by month seven postpartum, with clear implications for disrupted insulin secretion in response to glucose.



“ From the 50,000-foot view, I don’t think you can play around with TH function during pregnancy and not have some problem, but saying specifically what those problems are and what these measurements reveal is difficult.”

— R. THOMAS ZOELLER, PHD,
UNIVERSITY OF MASSACHUSETTS,
AMHERST, MASS.

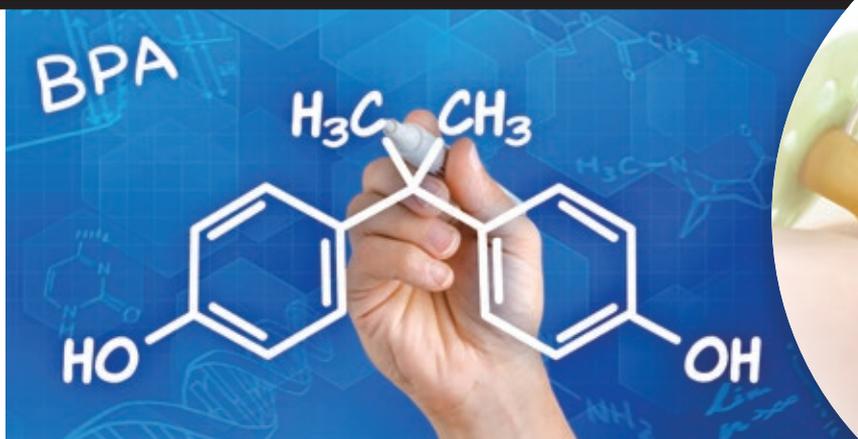


Importantly, the researchers treated non-pregnant dams with the same dosages of BPA and found no subsequent metabolic alteration, suggesting that pregnancy presents a critical window for susceptibility to harmful BPA effects, including the risk of developing metabolic syndrome and diabetes later in life. This is possibly due to increased stress on pancreatic β cells, related to the abnormal estrogenic activity during gestation caused by BPA exposure. Alonso-Magdalena and colleagues found that, “A more rapid deterioration of the pancreatic β cell with aging occurs in those mothers exposed and, therefore, an impaired control of blood glucose.” This study shows that the problems inherent in the near-ubiquitous BPA exposure among humans cannot be underestimated. If mouse models are any indication, women may face the long-term risks of weight gain and critical metabolic disruptions after exposure during pregnancy.

PLACENTAL BIOACTIVATION

In “Endocrine Disruption in Human Placenta: Expression of the Dioxin-Inducible Enzyme, CYP1A1, Is Correlated with that of Thyroid Hormone-Regulated Genes,” published in *The Journal of Clinical Endocrinology & Metabolism*, R. Thomas Zoeller, PhD, of the University of Massachusetts, in Amherst, and colleagues proved a principle that they had been investigating for the last 10 years, starting with cells in culture followed by animal studies. They showed that some polychlorinated biphenyl (PCB) congeners could activate the expression of an enzyme that altered the structure of other PCB molecules, which could in turn activate the thyroid hormone receptor (THR). “This was a *coup* we were not expecting, but it made a lot of sense,” Zoeller says. “In culture, we could take apart the pathway and prove what was required in each step — an enzyme gets induced that essentially bioactivates specific PCBs, which can then drive THR function.”

To replicate this two-step process in humans, in whom PCBs bioaccumulate over the lifetime, the researchers had to find an accessible tissue with certain biochemical elements — first, that the enzyme CYP1A1 is inducible within it, and second, it has known targets of TH action. “The placenta was it,” Zoeller says. They isolated mRNA from 132 placentas from healthy, vaginal deliveries obtained from the GESTE study looking for whether the same two-step process would occur — that CYP1A1 would be induced and that its increased activity would change molecules in the placenta to form THR activators. “That’s exactly what we saw,” Zoeller says. “The main observation here is that CYP1A1 expression was very tightly correlated with the expression of genes known to be regulated by the THR. Essentially what we are showing is a correlation at a molecular level.” After seeing that what they had predicted would happen did actually happen, the researchers systematically ruled out every potential confounding variable to be sure that their data stood up to scrutiny and that they were not simply willing this causative relationship into being.



In another “surprising predictability,” a subset of their original 164 placentas that had been set aside because of a lack of measurable CYP1A1 expression next turned out to be vitally important to their findings. These 32 samples showed a correlation between TH in the cord blood and the expression of TH response genes in the placenta, thus exhibiting normal interaction. The 132 CYP1A1 placentas, however, showed no correlation of TH and the expression of these genes. “To me, that’s the definition of disruption,” Zoeller says. “There’s a chemical or chemicals in there that can interfere with the ability of TH to do its normal thing.” In women who smoked, the CYP1A1 levels were considerably higher.

Given that women with low TH levels give birth to offspring with lower birth weights, lower IQs, and any number of other problems, the implications of this study are potentially profound, although whether or not the mechanism the researchers have identified will lead to some kind of adverse effect is as yet unknown. “The genes that are being regulated are probably affecting the functionality of the placenta,” Zoeller says. “From the 50,000-foot view, I don’t think you can play around with TH function during pregnancy and not have some problem, but saying specifically what those problems are and what these measurements reveal is difficult.”

The next place to investigate is probably muscle, where form and function is tightly linked; moreover, TH plays an important role in muscle development. Such future plans will mean going back to animal studies, but returning to their existing data to view it in light of additional information is a distinct possibility in the meantime. A co-researcher in this study, Larissa Takser, from the University of Sherbrooke Medical Center, in Québec, Canada, is currently working on characterizing the cognitive function of the children born from the 132 pregnancies with CYP1A1 placenta expression. “If our measurements are predictive of impacts on TH function in the fetal brain and maybe even later in development, we might expect a relationship between what we could call a ‘measure of disruption’ and cognitive function,” Zoeller says.

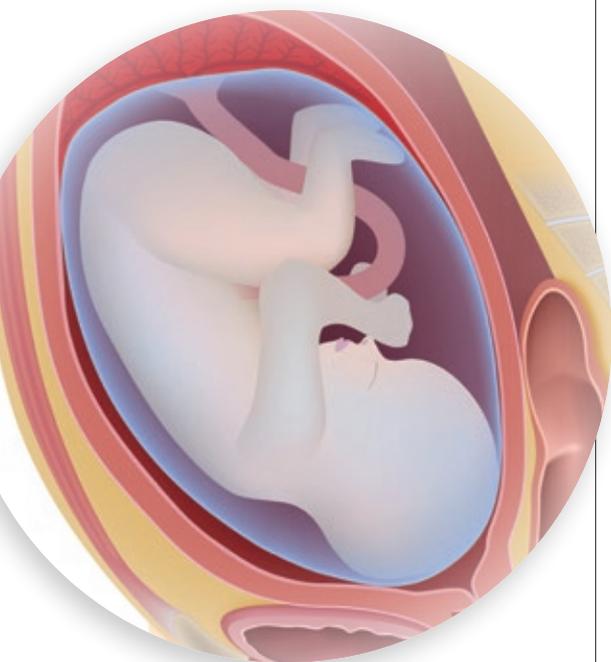


AT A GLANCE

- ▶ **In pregnant mice, BPA leads to postpartum insulin sensitivity, weight gain, and disrupted glucose metabolism in the long term.**
- ▶ **CYP1A1 mRNA expression, which allows PCBs to interact directly with the THR, is correlated with the expression of TH-regulated human placental lactogen and human growth hormone V in the placenta.**
- ▶ **Phthalate exposures may induce changes in hormone synthesis and secretion in the first trimester of pregnancy, leading to such effects on fetal development as changes in anogenital distance.**

“ This research is going in the direction of being able to offer clinicians **methods and types of measures early in pregnancy that can be used to assess not just genetic risk but also environmental risk.**”

— JENNIFER JOAN ADIBI, SCD,
UNIVERSITY OF PITTSBURGH
GRADUATE SCHOOL OF
PUBLIC HEALTH,
PITTSBURGH, PA.



FETAL REPRODUCTIVE DEVELOPMENT DISRUPTION

In “Human Chorionic Gonadotropin Partially Mediates Phthalate Association with Male and Female Anogenital Distance,” to be published soon in the *Journal of Clinical Endocrinology & Metabolism*, Jennifer Joan Adibi, ScD, and her colleagues at the University of Pittsburgh Graduate School of Public Health in Pennsylvania, studied prenatal exposure to phthalates and subsequent fetal developmental pathway disruption to ultimately look at short- and long-term outcomes in the children.

Animal models demonstrate that phthalate exposure during the fetal period can cause defects in male reproductive tract development and various aspects of reproductive health and function. “Now studies are going beyond to suggest that these exposures can increase risk of neurobehavioral and metabolic disorders, obesity, and even eczema and asthma,” Adibi says.

The researchers took genital and phthalate measurements from 541 infants from The Infant Development and Environment Study (TIDES) subjects, specifically, the distance from the anus to the genitals. They found an association with human chorionic gonadotropin (hCG) measured in maternal blood in the first trimester with maternal exposure to phthalates. Higher levels were associated with longer anogenital distance in females and shorter anogenital distance in males.

Although it was historically thought that exposure damage happens directly within the fetus, these researchers wanted to determine whether the placenta responds uniquely to the exposure — that is, whether the placenta’s response at the molecular level can change or contribute to change within the fetus. “It is a nuance, but it shifts the emphasis from waiting until the child is born and has grown up to measure effects to measuring the placenta’s response directly. This gives us a much stronger understanding of what these EDCs are doing,” Adibi says.

“The benefit of our findings is that they show that we could do more to directly assess environmental effects on pregnancy, whereas most prenatal screening currently addresses genetic defects,” Adibi says. “This research is going in the direction of being able to offer clinicians methods and types of measures early in pregnancy that can be used to assess not just genetic risk but also environmental risk.” ^{EN}



HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. SHE WROTE ABOUT ENDOCRINE-DISRUPTING CHEMICALS’ EFFECTS ON FEMALE REPRODUCTION IN THE JULY ISSUE.



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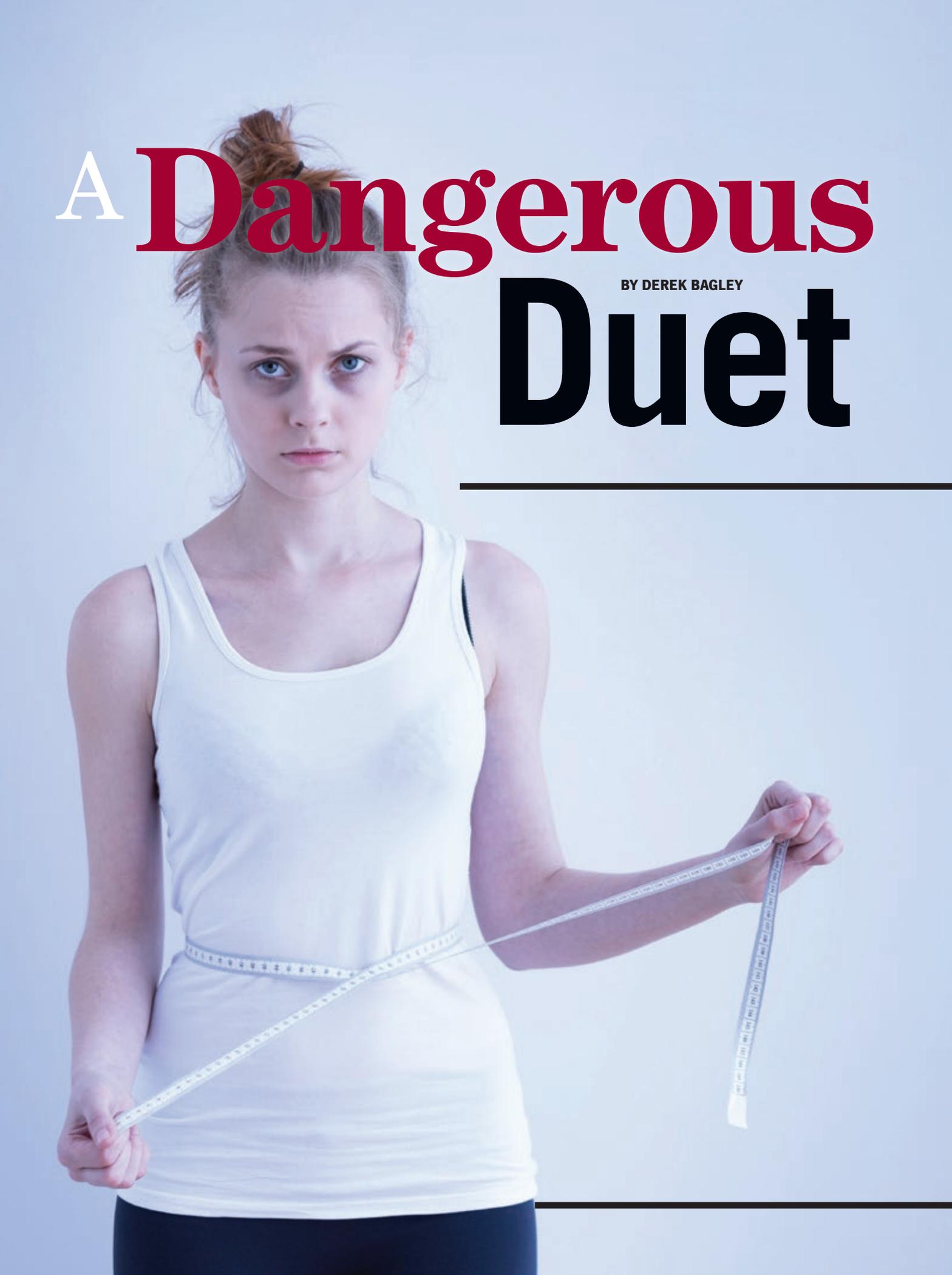
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A Dangerous

BY DEREK BAGLEY

Duet

Up to 40% of young girls with type 1 diabetes also have an eating disorder thus making them withhold insulin. It's up to clinicians to know the proper ways to treat both conditions, not one or the other.

When Asha Brown started withholding her insulin at 15, she was tired of being different, and she was determined not to let her type 1 diabetes hold her back from performing as a dancer and actress.

“For a number of reasons, I realized that, to me, it would make more sense to keep my blood sugars high because then no one would think I was weak or fragile, I wouldn't be having lows while performing,” she says. “I didn't want diabetes to get in the way, and I was starting to feel really angry that my diabetes was going to prevent me from being successful.”

Around this time, Brown was also inundated with poorly explained or flat out wrong information about weight and weight loss, especially when it comes to insulin. Her doctors, the magazines, and articles she read, all implicated insulin as the “fat hormone,” since it causes patients with T1D to initially gain weight. “When you hear that and you're 16,” she says, “you're like *what?!?*”

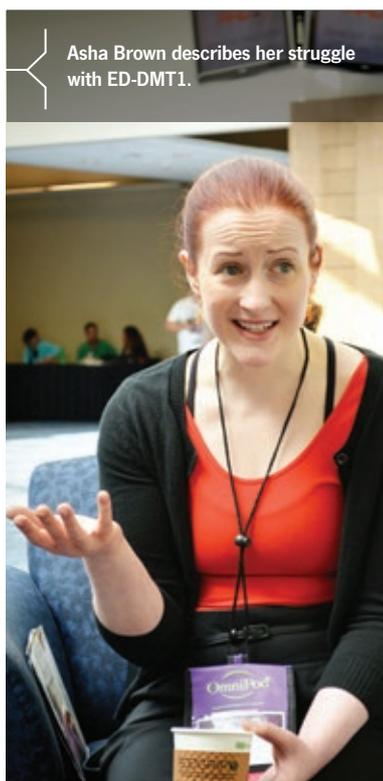
Brown began to obsess over maintaining a healthy weight, and that, compounded with her anger at her disease, caused her to start omitting insulin to lose weight, as well as numb her to all the anxieties that come with a chronic condition. That began a 10-year cycle of withholding her insulin then binging, then withholding again, along with the crippling guilt and vows to never do it again.

“I struggled with variations of an eating disorder, including insulin omission, for a decade, and I got to a point where I very much realized how much it was preventing me from living my life,” Brown says. The irony is that she was so worried that her diabetes would hold her back, but the way she coped with it is what hurt her acting reputation and began to ruin her marriage. “I realized I needed help,” she says.



“ We don’t need any more proof that this is a real thing. It’s time to stop having that argument, and it’s not an endocrinologist’s responsibility to fix all this, but they do need to know where to send them and where to get more information.”

— ASHA BROWN, FOUNDER AND EXECUTIVE DIRECTOR OF WE ARE DIABETES



Asha Brown describes her struggle with ED-DMT1.

PHOTOS BY BETH BAGLEY

“DIABULEMIA”

As many as 40% of young girls and women with T1D have developed or will develop an eating disorder, and stories like Brown’s shed light on a familiar and not uncommon pattern. Decreasing insulin doses, withholding insulin entirely, or even tampering with the insulin to try to render it ineffective to lose or control weight is called eating disorder-diabetes mellitus type 1 (ED-DMT1) or “diabulimia,” although the latter term is controversial since it is not medically recognized or completely accurate. It’s an extremely dangerous combination as it can lead to ketoacidosis and earlier and severe diabetes complications like blindness, kidney disease, heart disease, and nerve damage, as well as an increased mortality risk.

Another problem is that medical providers may often not be aware that their patients have an eating disorder, they may dismiss the disorder entirely, or they may simply be insensitive when it comes to discussing these issues with their patients. Providers also tend to get frustrated with these patients, because some of the classic signs of ED-DMT1 could be written off as simple noncompliance.

“A lot of physicians can be focused on numbers,” says Dawn Taylor, PsyD, LP, of the Melrose Center, a specialized treatment center in St. Louis Park, Minn., that deals with eating disorders. “Eating disorders can mimic depression, and these patients have low coping skills. It’s important to remember that you can’t just treat one or the other.”

Brown echoes Taylor’s sentiments. “Those numbers are inside a human body, with feelings and emotions,” she says. “I’ve had doctors who acted like I was wasting their time; there was nothing human about our conversations. If any doctors I had seen in those 10 years had said, ‘Are you struggling with some sort of body issue or eating disorder? Does that have something to do with why your blood sugar is so high?’ I think I would have burst into tears.”

HELP ME

When Brown realized that ED-DMT1 was controlling and destroying her life, in 2009, she went to the Melrose Center for treatment. There she met Marcia Meier, RN, CDE, a psychiatric nurse with experience in pediatric endocrinology. Meier is a manager of the program that treats patients with ED-DMT1, a joint effort between the Melrose Center, the International Diabetes Center, and the adult and pediatric endocrinology clinics at Park Nicollet in Minneapolis. The program — started by a grant from the parents of a daughter with ED-DMT1 — is now in its 11th year, and they’ve seen about 300 patients with the dual diagnosis of T1D and an eating disorder.



Marcia Meier, RN, CDE, and Asha Brown discuss the best approaches to treating ED-DMT1.

“We look at these things differently than just out-of-control diabetes,” Meier says. “Endocrinologists and diabetes educators tend to become really frustrated in seeing patients that come in time after time and they’ve talked about the same things and no change is made. They’re frustrated and don’t know what to do.”

When Brown arrived at the Melrose Center, she was admitted to their inpatient treatment program, in which she built a relationship with Meier; they talked openly and honestly about ED-DMT1. “Don’t be afraid to start asking some questions,” Meier says. “You can’t do that if you don’t know somebody, but you’re going to know them if they’re coming in for endocrinology and education appointments. First of all, just acknowledge that it’s great that they’re there for their appointment. Don’t find everything that they’ve done wrong.”

Meier stresses that things could be done differently when treating someone with ED-DMT1. For instance, it’s not necessary to weigh a patient with an eating disorder every time she or he first comes in. “Right off the bat, there’s a number they hate,” she says. “They don’t care what it says, they hate it.”

Patients who use meters also have the ability to present their lives to their providers, right there in the black and white of a printed report. A patient with an eating disorder might show that they’ve had the background insulin running, but they show very few tests, and then there might suddenly be a four-day period of many tests. “It’s better to ask what happened in those four days, rather than say ‘why didn’t you test on this day’ because then you’d turn off the person to respond to you,” Meier says.



AT A GLANCE

- ▶ **The combination of type 1 diabetes and an eating disorder is not uncommon, especially in young girls and women, and it’s extremely dangerous, leading to earlier and more severe diabetes complications.**
- ▶ **Medical providers are often not properly equipped to successfully treat these patients.**
- ▶ **Both diseases must be treated in concert, as they can fuel one another and lead to cycles that harm the patient.**

THE SIGNS OF “DIABULEMIA”

Those who treat people with T1D should look for these warning signs of ED-DMT1 in any individual with T1D, particularly teenage girls and young women:

- ▶ **Poor metabolic control** — Wide fluctuation of hyperglycemia or elevated A1C levels despite reported compliance is a red flag that a patient may be restricting insulin.
- ▶ **Weight loss** — Maintaining or losing weight despite eating more food is common.
- ▶ **Recurrent hospitalizations** — It’s impossible to maintain healthy blood glucose levels when restricting insulin, so people with ED-DMT1 typically have frequent incidences of diabetic ketoacidosis, often resulting in hospitalization.
- ▶ **Lapses in testing** — Patients who formerly were model patients often start testing their blood glucose less routinely, sometimes saying they “forgot.” They may neglect to bring their meters or records to appointments.
- ▶ **Fear of lows** — Some patients express concern over hypoglycemia (low blood glucose), noting they don’t like the feeling of lower energy or feeling “down.”
- ▶ **Long stretches between appointments** — Not wanting to be lectured about poor blood glucose control, patients with ED-DMT1 may schedule fewer appointments.
- ▶ **Scale anxiety** — People with eating disorders often don’t like getting weighed because no matter how much weight they lose, it’s never enough.
- ▶ **Dry skin and loss of hair** — Unhealthy weight loss can cause skin to become drier and hair to fall out.
- ▶ **Classic symptoms of diabetes** — Excessive urination, extreme thirst, and constant hunger are signs of uncontrolled diabetes, which occurs when patients don’t take their insulin correctly.
- ▶ **Classic symptoms of eating disorders** — Excessive exercise, fatigue, weakness and lethargy, being overly critical of appearance, and lack of a regular menstrual period are some of the common signs of an eating disorder.



One of Meier’s patients is a woman who works with kids and frequently takes them on camping trips. On those trips, Meier can see that the patient completely takes care of herself; it’s reflected in her meter. “So I asked how we can build on that, on those trips, to do that when [she gets] back home. You’re always looking for ways to build on what it is that they’re doing right.”

Brown stayed in the program for a year — two weeks of inpatient care, then weekly outpatient appointments, and then monthly. She is now the founder and executive director of We Are Diabetes, an organization whose mission is to spread awareness about ED-DMT1 and support those who suffer from it. “Some of my clients have told their doctors [they suspect they have ED-DMT1], and [the doctors] have just been like ‘Oh’ or ‘That’s not a real thing,’” Brown says. “We don’t need any more proof that this is a real thing. It’s time to stop having that argument, and it’s not an endocrinologist’s responsibility to fix all this, but they do need to know where to send them and where to get more information.”

HELP YOU

The Melrose Center gets patients from all over the country because those patients have exhausted their options in their respective areas. Medical professionals in those areas may not yet be aware of ED-DMT1, or they may lack the resources to properly care for those patients. But the problem is that once patients leave the program at the Melrose Center, they have to either return home or move to Minnesota.

Treating the combination of diabetes and an eating disorder requires professional help for both. “It’s important to understand how connected diabetes and eating disorders are,”



Taylor says. “Diabetes and eating disorders collide and fuel each other. You have to deal with the collision of the two.”

These patients are looking for some kind of escape from their diabetes, according to Taylor. “Patients constantly say, ‘I just want a vacation from my diabetes,’” she says. And they feel like they can achieve that by keeping their blood sugars high. It’s obviously a very dangerous way of thinking, so it’s important to navigate these waters carefully.

Brown, Meier, and Taylor all agree that the first step is asking the right questions and focusing on what the patient is doing correctly, rather than chastising them for things they might be doing wrong or neglecting when it comes to caring for themselves. Building comradery and a trusting relationship is key, as well as building a network of like-minded providers. “One of the things we’ve seen with both sides — the diabetes side and the eating disorder side — is that if they don’t know the language of the other disease, a person loses trust in them right away,” Meier says.

It’s also important to understand why these patients are doing the things they’re doing, and try to avoid frustration as best as you can. “Don’t just get mad or frustrated with them if they forget their records or are noncompliant,” Taylor says. “Ask why they might be doing those things.”

Meier agrees: “Ask what is going right today, and get away from thinking that this person is coming in and just never doing what they should do. The other way of thinking is that this person has tried to do the best they can do with what they have available to them.” ^{EN}

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BAGLEY IS THE ASSOCIATE EDITOR OF *ENDOCRINE NEWS* AND CONDUCTED MOST OF THE INTERVIEWS AND RESEARCH FOR THIS ARTICLE WHILE AT AADE15 IN NEW ORLEANS IN AUGUST. HE WROTE ABOUT ENDOCRINOLOGISTS' PROBLEM-SOLVING SKILLS IN THE AUGUST ISSUE.

Mad Scientists

SELF-EXPERIMENTATION HAS A LONG AND NOBLE — AND NOBEL PRIZE-WINNING — HISTORY IN MEDICAL BREAKTHROUGHS. HOWEVER, DUE TO COLLABORATIVE STUDIES AND IMPROVED TECHNOLOGY, THESE METHODS HAVE BEEN LARGELY RELEGATED TO LATE-NIGHT MOVIES... JUST ASK DR. JEKYLL!

BY MELISSA MAPES



As any scientist knows, getting a new drug, device, or procedure to the human trial stage requires a Herculean effort. It can take years — even decades — to overcome the associated regulatory hurdles. In the quest for discovery, some researchers decide to circumvent the rules and test their hypotheses on just one person: themselves.

While certainly more ethical than experimenting on unknowing or disenfranchised populations, making oneself the human subject can go wrong in many, many ways. Death, disease, and dismemberment are just a few of the obvious reasons that self-experimentation is a dangerous game.

However, numerous important medical advances over the centuries involved scientists experimenting on themselves. So where does the line fall between reckless insanity and daring genius?

NOBEL APPROACH

Most Nobel Prize winners in the categories of physiology and medicine achieve their breakthroughs with research that involves lab animals — proving that self-experimentation is not needed to attain great discoveries. Only occasionally has a Nobel laureate turned to self-experimentation as a last resort.

In the case of Ralph Steinman, MD, he felt he had nothing to lose after he was diagnosed with pancreatic

cancer and told that he had only a 5% chance of living longer than a year. He plunged into eight different experimental therapies based on his “dendritic cells” research.

With the help of colleagues and traditional chemotherapy, he lived four and a half more years. Steinman died three days before the Nobel Committee awarded him the 2011 prize for his discovery of the dendritic cell type.

Barry Marshall, AC, an Australian physician and 2005 Nobel Prize winner, proved his theory to the scientific world through a self-inflicted infection that he was confident could be cured. He and a colleague, Robin Warren, AC, had strong evidence that a bacteria strain, which they dubbed *Helicobacter pylori*, was at the root of most peptic ulcers and gastritis.

Facing skepticism from the medical community and a lack of suitable animal models, Marshall chugged a cocktail of the bacteria. He was diagnosed with gastritis within a week but eliminated his symptoms with a round of antibiotics — offering the first effective cure for stomach ulcers and gastritis.

The risks taken by Steinman and Marshall may seem rational, given their specific circumstances. But several decades earlier, Werner Forssmann, a German urologist, conducted a procedure on himself that could be called crazy.

Forssmann developed the first method of cardiac catheterization, which requires the insertion of a catheter into the heart to assess whether or not surgery is necessary. He wanted to replicate the procedure in a human after it had been successfully completed in a horse in 1861. After being denied his request due to the level of danger involved, Forssmann forged on with himself as the patient.

He anesthetized his own arm and pushed the catheter 30 cm into his vein, then walked up two flights of stairs to the x-ray room before inserting it the rest of the way into his heart. His work went relatively unrecognized until André Frédéric Cournand, MD, and Dickinson W. Richards, MD, refined his technique. They subsequently shared the Nobel Prize with him in 1956.

CHANGING TIMES

In addition to several Nobel Prizes, self-experimentation has played a role in numerous landmark findings, including the mosquito-borne nature of yellow fever, the development of ibuprofen and anesthesia medications, asthma remedies, the link between hygiene and diseases like cholera, and the ABO blood group system — just to name a few.

A review in the *Texas Heart Institute Journal* examined 465 documented occurrences of self-experimentation in medicine over the past two centuries to see what trends emerged. Most cases of self-experimentation took place around the first half of the 20th century. Among these instances, eight deaths took place.

The author noted that quite a few of these scientists went on to enjoy successful careers. He highlighted the importance of their contributions to modern medicine but found that self-experimentation has been in steady decline despite such accomplishments.

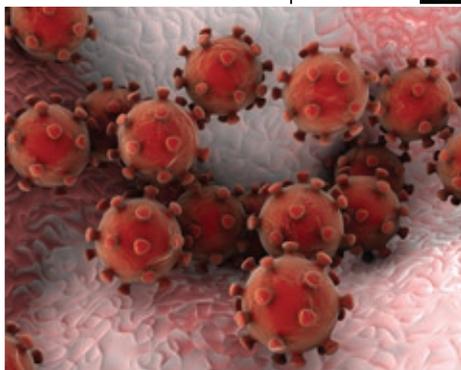


FAST STATS ABOUT SELF-EXPERIMENTATION

In the review by Allen B. Weisse, MD, which was published in the *Texas Heart Institute Journal*, a number of interesting statistics are illuminated about the who, what, when, where, and why behind self-experimentation. For example, during the past two centuries:

- ▶ The most popular field of self-experimentation was infectious diseases.
- ▶ Only 12 women were among these experimenters, five of whom were Russian.
- ▶ The U.S. comprised 33% of self-experiments, followed by Germany (15%) and the U.K. (13%).
- ▶ Twelve of these researchers went on to win Nobel Prizes, though the award was unrelated to their self-experimentation work for five of them.
- ▶ In 89% of these cases, the experiments achieved “positive results in support of a hypothesis or valuable data that had been sought.”
- ▶ Of eight deaths, all but one was due to infectious disease–related experiments. Alexander Bogdanov passed away in 1928 after a blood transfusion experiment went awry.

The most popular field of self-experimentation was infectious diseases.



“
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”

The cause of this decrease is likely due to improved alternative research options, better technology, and the large collaborative studies that are growing in prevalence. Through these resources, scientists are less likely to find themselves facing desperate measures like self-experimentation.

“The trend in recent years toward collaborative studies, often on a massive scale, makes self-experimentation by a single individual, tucked away in his laboratory, seem almost quaint, a relic of the past,” the author explains.

Governing bodies have been reticent to take a firm stance for or against self-experimentation. The positive results yielded in the past make it difficult to condemn the practice. Simultaneously, the enormous risks involved make it impossible to endorse.

The U.S. Food and Drug Administration does not officially recognize a difference between self-experimentation and any other human trial. The approval of an institutional review board and other measures are considered necessary before a scientist can include themselves in their research. This means that investigators can volunteer for their study like any other qualifying participant, given that the research proposal gets the green light for human subjects.

Self-experimentation is likely to remain an ethical gray area in science. Some would argue that a researcher is ultimately responsible for whatever tests he or she chooses to endure, while others would say that there is an inherent bias when including oneself in an experiment and that the results are likely to be unreliable.

Although research is trending away from self-experimentation, medicine has been undeniably bolstered by the gutsy — and perhaps mad — undertakings of such scientists. 

MAPES IS A WASHINGTON, D.C.-BASED FREELANCE WRITER AND A REGULAR CONTRIBUTOR TO *ENDOCRINE NEWS*. SHE WROTE ABOUT THE HUMAN EPIGENOME IN THE AUGUST ISSUE.

A Love/Hate Relationship

WHETHER YOU VIEW ELECTRONIC HEALTH RECORDS AS A LIFESAVER OR A NECESSARY EVIL, THEY ARE HERE TO STAY. WHILE NONE HAVE BEEN DEEMED “PERFECT,” FEEDBACK SHOWS THAT THEY ARE GAINING ACCEPTANCE, BEGRUDGINGLY OR NOT.

BY MELISSA MAPES

The vast majority of U.S. providers and hospitals have completed the arduous task of converting their health records to digital. According to a Medscape survey of about 18,500 U.S. physicians, 83% are using electronic health records (EHR). The transition was often messy in the beginning, but how does the medical community feel about electronic systems now that they are the norm?

The answer to this question can be quite varied depending on the system a physician uses. The EHR market continues to be widely fragmented, with a whopping 22% of physicians using a system that has less than 1% of the market share. Epic holds the greatest market share at 23%, and the remaining 55% of physicians use one of 17 systems that hold market shares ranging from 1% to 9%.

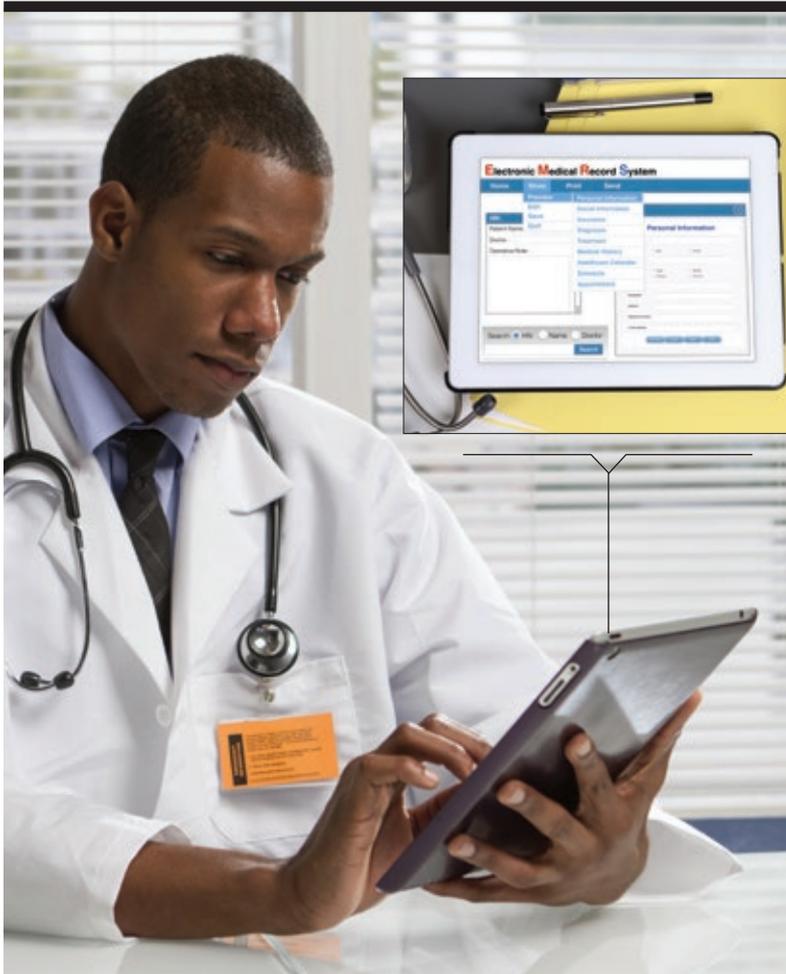
While each of the many EHR programs has perks and quirks, a few consistent areas of feedback from physicians have emerged.

PRACTICE OPERATIONS

Despite the tedious aspects of data entry, 63% of physicians surveyed think that the EHR has improved documentation at their practice. The ability to build detailed, searchable records has proven useful in making more precise decisions about patient care. Such documentation is especially important for diseases like diabetes that require constant monitoring and individualized treatment plans.

EHR systems can track data about a patient's A1C levels, for example, and help identify relevant trends. This functionality proves enormously useful for a multitude of conditions ranging from asthma to obesity.

In addition to charting health indicators, better documentation allows for a more streamlined coding process. The increased efficiency bolsters revenue by saving time and ensuring that the necessary codes are all reported. Structured templates may further improve coding and billing.



TOP 10 EHR SYSTEMS

Medscape asked survey participants to rate their favorite EHR systems based on ease of use, vendor support, and several other variables. The products were rated on a scale of one to five, with five equaling “excellent” and one meaning “poor.”

- | | | | |
|---|--|----|-----------------------------|
| 1 | VA-CPRS (Veterans Administration EHR) - 3.9 | 6 | aetnahealth - 3.4 |
| 2 | Practice Fusion - 3.7 | 7 | Epic - 3.4 |
| 3 | Amazing Charts - 3.7 | 8 | Nextech - 3.4 |
| 4 | MEDENT - 3.5 | 9 | eClinicalWorks - 3.2 |
| 5 | e-MDs - 3.5 | 10 | Sage - 3.1 |

The surveyed physicians were divided over the effect of EHRs on patient service, however. Although 32% felt that the digital system improved patient service, 38% thought that their EHR worsened service. A similar discrepancy applies to the clinical side, with 34% of physicians saying it betters clinical operations and 35% saying it worsens them.

Some physicians commented on specific aspects of EHR systems related to operations. “E-prescribing is awesome,” wrote one individual. Others claimed that electronic records are “more organized” and legible, and liked that the systems are “accessible from home after hours” and that they save all data in one place.

DOCTOR-PATIENT RELATIONSHIPS

In a major change from previous surveys, physicians felt overwhelmingly negative about the effects of EHR systems on patient encounters. Seventy percent claimed that electronic records decreased face-to-face time with patients. Although EHRs can increase efficiency in other areas, 57% of participating physicians also said that their digital system decreased their ability to see more patients.

These negative changes are due to increased documentation time, which cuts into both appointments with patients and any available work time outside of appointments.

A decade ago, a team of researchers predicted that documentation time would continue to be a major issue with electronic records. They published a review of 23 time-efficiency papers in the *Journal of the American Medical Informatics Association* and found that bedside and point-of-care systems added 17.5% documentation time, while the use of central station desktops increased work time from 98.1% to 328.6% per physician shift.

“A goal of decreased documentation time in an EHR project is not likely to be realized,” the authors stated.

A 2014 study from Northwestern University gave more insight into how EHRs reduce patient interaction. The research

showed that physicians using paper charts spent only 9% of the appointment time looking at the chart, while those using electronic records spent one-third of the visit looking at a computer screen. The study recommends making patients part of the EHR documentation process to increase interaction, rather than hiding the screen from them.

Finding a happy medium between accurate, thorough documentation and face-to-face time with patients remains one of the biggest EHR-related challenges. On the bright side, the survey showed that 35% of physicians feel they are better able to respond to patient issues and 33% think they more effectively manage patient treatment plans thanks to electronic records — compared to 27% and 26% who felt the opposite, respectively.

DOWN THE EHR ROAD

Once physicians get used to an EHR, they seem to like it a lot more. With many late adopters finally going digital due to meaningful use deadlines, much of the negative feedback in the survey could be tied to frustrations of learning a new system. Over time, 81% of physicians surveyed said that they felt more comfortable with their EHR while 78% had already attested for stages one or two of meaningful use.

Additionally, 42% are somewhat or very satisfied with their EHR vendor, 17% are neutral, and 9% do not interact with their vendor — leaving a minority of 32% of providers who are unhappy with their vendor. Nonetheless, only 16% intend to change vendors for any reason.

Despite significant qualms with documentation inefficiencies, patient interaction, and the privacy concerns that come with any digital system, EHRs continue to increase in popularity. Physicians are certainly not 100% happy with the EHRs available to them, but seem to have accepted the loss of paper records. With any luck, the ongoing competition for market share among vendors will motivate improvements and upgrades. 

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At the September 16 briefing about how chemicals in cosmetics may impact health, Endocrine Society member and professor at North Carolina State University Heather Patisaul (far left) and Environmental Working Group senior scientist Johanna Congleton listen to the briefing moderator Scott Faber field questions from Senate staff.

Society Educates U.S. Senate about EDCs in Personal Products



Congress Debates Federal Funding, Government Shut Down Looms as *Endocrine News* Goes to Press

As this issue of *Endocrine News* goes to press, the U.S. Congress had still not reached final agreement how to fund the federal government, and the country was facing a federal “shut down” beginning October 1. For the latest news on federal funding, shut down, and temporary funding measures, please visit *Endocrine News* online at www.endocrinenews.org.

Some chemicals in cosmetics and other personal products (shampoo, soap, toothpaste, etc.) have been linked to a variety of serious health effects in women, men, and children. Currently, the U.S. Food and Drug Administration (FDA) has very limited authority and resources to regulate cosmetics, so the agency is not screening for chemicals that could be harmful to the public’s health.

On September 16, the Endocrine Society joined with the Environmental Working Group (EWG) and the Society for Women’s Health Research (SWHR) to brief Senate offices about endocrine-disrupting chemicals (EDCs) that are contained in personal care products. The briefing, entitled “Chemicals In Your Cosmetics May Be Hurting You,” focused on how certain chemicals in our cosmetic products pose serious health risks and possible steps the Senate could take to better protect the public’s health.

Endocrine Society member and professor at North Carolina State University, Heather Patisaul, PhD, spoke at the briefing and explained how hormones work in the body and how exposure to certain chemicals can disrupt what they do.

Over the past several months, Endocrine Society members have worked with the office of Senator Dianne Feinstein (D-CA) on legislative efforts to improve the regulatory oversight of personal care products. On April 20, Senator Feinstein and Senator Susan Collins (R-ME) introduced S. 1014, the Personal Care Products Safety Act. The bill prioritizes several chemicals commonly used in personal care products for immediate review by the FDA. One of the priority chemicals, propyl paraben, is highlighted as an EDC that can mimic estrogen and is “linked to a wide range of health effects, including reproductive system disorders.”



Heather Patisaul, PhD, discussing EDCs in personal care products.

Endocrine Society member Jason Wexler and other physicians, researchers, and patients from Maryland meet with Representative Chris Van Hollen (D-MD) to discuss NIH funding.



Endocrine Society Rallies for Medical Research



Endocrine Society CEO Barbara Byrd Keenan shows her support for the #IRallyFor_____ hashtag.

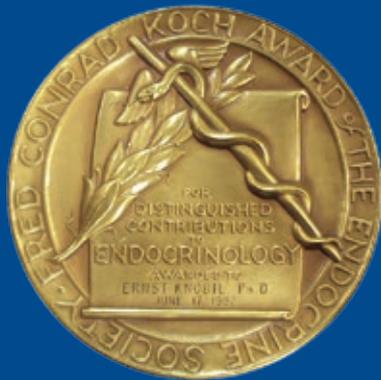
On September 17, the Endocrine Society helped sponsor the 3rd annual “Rally for Medical Research Hill Day” in Washington, D.C. The event proved to be an extraordinary day on Capitol Hill with nearly 300 people from more than 120 different organizations coming together, from 40 states, plus Washington, D.C., to visit House and Senate offices and urge Congress to make funding for the National Institutes of Health (NIH) a national priority. The goal of the event was to speak with a unified voice to House and Senate offices about the importance of investing in NIH and getting Congress to agree on a new budget framework that will support stronger investments in the NIH.

Several members of the Society’s Advocacy & Public Outreach and Research Affairs Core Committees participated in the Hill Day making the Endocrine Society and endocrine-related research very visible as they were able to share stories about endocrine research with congressional offices. Participants included: Ruth Keri, PhD, Daniel Oppenheim, MD, PhD, Cynthia Stuenkel, MD, Corrine Welt, MD, and Jason Wexler, MD.

For those not able to come to Washington to participate in the Rally Hill Day meetings, the Society developed an online advocacy campaign (www.endocrine.org/contactcongress) so that they also could communicate the importance of NIH funding to their members of Congress.

We were pleased that Society members from all over the country took part. In addition, the Society joined a social media effort in which members posted “selfies” to Twitter and Facebook with the hashtag #IRallyFor_____. Members added “endocrine research,” “diabetes research,” “thyroid cancer research,” “women’s health,” and several other descriptors that increased the visibility of endocrinology throughout the Rally Day. Endocrine Society members might be interested to note that the Society staff also participated in the social media campaign showing their support for what our members do.

By the end of the day, participants had visited hundreds of congressional offices to share our message and heard from several key leaders in the House and Senate: Senator Dick Durbin (D-IL) who serves as Assistant Minority Leader (whip), the second highest position in the Democratic Party leadership in the Senate; Senate Labor-Health and Human Services-Education Appropriations Subcommittee Ranking Member Patty Murray (D-WA); and House Labor-Health and Human Services-Education Appropriations Subcommittee Chairman Tom Cole (R-OK). All of these speakers shared their commitment to seeing robust increases in NIH funding and their hope that with grassroots help we can influence the U.S. Congress to not only increase funding in 2016, but, more importantly, get a budget deal that will allow increases in future years. **EN**



The 2016 Laureate Award recipients are:

Fred Conrad Koch Lifetime Achievement Award

*Benita S. Katzenellenbogen, PhD
John A. Katzenellenbogen, PhD*

Gerald D Aurbach Award for Outstanding Translational Research

Steven K. Grinspoon, MD

International Excellence in Endocrinology Award

Ghada El-Hajj Fuleihan, MD, MPH

Outstanding Clinical Investigator Award

Robert H. Eckel, MD

Outstanding Clinical Practitioner Award

M. Carol Greenlee, MD

Outstanding Educator Award

Steven M. Anderson, PhD

Outstanding Innovation Award

Richard A. Heyman, PhD

Outstanding Leadership in Endocrinology Award

Anthony R. Means, PhD

Outstanding Mentor Award

Nanette F. Santoro, MD

Outstanding Public Service Award

*Jean Pierre Bourguignon, MD, PhD
Andrea C. Gore, PhD
John Peterson Myers, PhD
R. Thomas Zoeller, MS, PhD*

Outstanding Scholarly Physician Award

David S. Cooper, MD

Richard E Weitzman Outstanding Early Career Investigator Award

X. Shirley Liu, PhD

Roy O Greep Award for Outstanding Research

Gerard Karsenty, MD, PhD

Sidney H Ingbar Award for Distinguished Service

Dolores M. Shoback, MD

2016 Laureate Award Winners Announced

The Endocrine Society has announced the 2016 Laureate Award recipients and congratulates each on his or her outstanding accomplishments and contributions to the field of endocrinology. The Endocrine Society's Laureate awards are presented in recognition of extraordinary achievements in the field of endocrinology.

“Every year as the committee convenes to select the next class of Laureate Award recipients, I am constantly reminded and amazed by the number of worthy, gifted, and exceptional professionals who are nominated, many of whom are members of the Endocrine Society,” says Laureate Awards Committee chair, Alvin Matsumoto, MD. “Each year we don't simply present these awards to outstanding recipients — which they are — but we are giving these awards to those individuals who have proven to be living superstars on the world stage of endocrinology.”

Award recipients are the top clinical and basic scientists, innovators, leaders, educators, and practitioners whose dedication and accomplishments are unmatched. The winners will be honored at ENDO 2016 in Boston, Massachusetts, April 1 – 4, 2016.



“We are giving these awards to those individuals who have proven to be living superstars on the world stage of endocrinology.”

— ALVIN MATSUMOTO, MD, LAUREATE AWARDS COMMITTEE CHAIR

2017 LAUREATE AWARDS CALL FOR NOMINATIONS

Accepting nominations October 1 through December 18, 2015 (Midnight EST)

www.endocrine.org/awards/laureate-awards

Richard O'Grady Named Endocrine Society's Chief Publications Officer



Richard T. O'Grady, PhD, CAE, has joined the Endocrine Society as Chief Publications Officer. In this newly created role, he will oversee all aspects of the Society's publishing endeavors, both in print and online.

"Richard's background and expertise is a perfect match for our current and future publications strategy," says Endocrine Society CEO Barbara Byrd Keenan. "His experience as a publisher, editor-in-chief, research scientist and author, and CEO complements our staff team beautifully! I know everyone will give him a warm ES welcome!"

O'Grady has 25 years combined experience in nonprofit and for-profit scholarly publishing and executive management and joins us from the American Institute of Biological Sciences where he served as publisher and CEO. During his tenure with AIBS, he co-founded the BioOne nonprofit publishing company in conjunction with society, university, and library partners to place more than 180 scientific journals in an online, subscription-based/open access hybrid model that has generated more than \$30M in revenue for the partnering society publishers to date. He transformed AIBS's monthly peer-reviewed journal, *BioScience*, from print-only publishing at a loss to online publishing at a profit with an open access option. He oversaw a revenue program within the Scientific Peer Advisory and Review Services Division of AIBS to review client grant proposals in medicine, biotechnology, and advanced technologies and launched ActionBioscience.Org, a bilingual website publishing peer-reviewed articles in genomics, biotech, and science policy.

"I look forward to putting my experience in scientific publishing and membership association programs to work

with the rest of the Society's team to have its publishing and communications activities build on strengths and move ahead on savvy and strategic innovations that can benefit all aspects of the organization's goals," O'Grady says. "Above all, I want to see the Society increase the impact, content breadth, and global audience of its peer-reviewed publications while providing its membership and readership communities with new and better tools for research, discovery, education, and collaboration."

He also served as a VP at Taylor & Francis Publishers, managing 80 STM books and journals annually and specializing in business development and acquisitions. He has broad experience as a publisher and editor-in-chief, directing multi-journal programs in print and online, budgeting, tracking performance, managing contractors and consultants, supporting editorial, production and sales teams, and working with authors, EICs, and editorial boards.

The author of more than two dozen peer-reviewed scientific research articles himself, he earned his BSc and PhD in biology from the University of British Columbia in Vancouver, Canada, his MSc in Biology from McGill University in Montreal, Canada, and was a Postdoctoral Research Fellow at the Smithsonian Institution, National Museum of Natural History, in Washington DC.

"It is a real thrill to be at the Endocrine Society at such an exciting time in its history — 100 years next year!," O'Grady continues, adding that "with a role in seeing that the organization continues to thrive and becomes even more successful than it already is in its mission to advance the science and application of endocrinology for the public good."



This tool will provide members with patient education resources that they need in a more user-friendly format.

New Interactive Tool Gives Patients a Virtual Endocrine System Tour

In 2014, the Hormone Health Network (HHN) received approval from the Endocrine Society's Council to develop an interactive 21st-century solution (*Journey through the Endocrine System*) that will enhance the understanding of the intricacies of the endocrine system through the use of contemporary technology to tell a comprehensive story of the endocrine system and its related conditions.

The *Journey through the Endocrine System* (JTTES) helps patients to visualize the anatomy, disease, treatments, and general health information related to the endocrine system — all in an interactive 3D format. The first phase of this project was to create a tour of the endocrine system to replace the static images that highlighted the endocrine system on hormone.org. The basic endocrine tour is now available on the Network's website to help patients gain a better understanding of what the endocrine system is and what it does.

“Today, patients and the public benefit from many forms of education and by the Society investing in a tool like the JTTES we can provide patients with knowledge that enables them to understand endocrine-related diseases and disorders to make important decisions about their health,” says HHN director Cheretta Clerkley. “Additionally, this tool will provide members with patient education resources that they need in a more user-friendly format, and the Society now has a tool that can be integrated into existing products to expand our global impact.”

Phase two of the JTTES will begin in November 2015, with a mobile app expected to launch as part of the Centennial celebration. The JTTES iPad app will focus on clinician and patient use, leverage the existing endocrine tour, and add new features such as HHN and Society content. The tour can be accessed at www.hormone.org/hormones-and-health/the-endocrine-system.

If you are interested in sharing your additional thoughts and ideas for what you would like to see included in the mobile application, we encourage you to email us at hormone@endocrine.org.

Endocrinology to Feature Special Series on Prenatal Programming

Highlights of the PPTOX IV meeting sponsored by the Endocrine Society and held last October in Boston will be published as a special series in the October issue of *Endocrinology*.

PPTOX (Prenatal Programming and Toxicity) refers to the role of environmental stressors on hormones during pregnancy and the increased probability of disease or dysfunction of the fetus as a result of early exposure. This concept is the theme of the special series of articles that were selected from the PPTOX IV meeting that included topics of interest for a wide spectrum of professional backgrounds applicable to individuals interested in the developmental origins of endocrine diseases and mechanisms of developmental programming across the lifespan and between generations.

The article compilation — entitled “Developmental Programming, Stress, and Disease: Highlights of the Prenatal Programming and

Toxicity (PPTOX) IV Meeting” — can be accessed in the October issue of *Endocrinology* in print and online. The website also hosts other resources on PPTOX and the related topic of endocrine-disrupting chemicals including a podcast discussion of the state of the science of DOHaD (Developmental Origins of Health and Disease) with Philippe Grandjean, MD, MMSc, organizer of the 2014 PPTOX meeting, and Andrea Gore, PhD, editor-in-chief of *Endocrinology*.

PPTOX is one of the premier international venues for scientists to evaluate current knowledge and guide forward momentum for this burgeoning field. PPTOX V will take place November 13 – 16, 2016, at the Kitakyushu International Conference Center in Fukuoka, Japan.

Visit <http://press.endocrine.org/pptoxiv> to see all the articles featured from the PPTOX IV meeting.

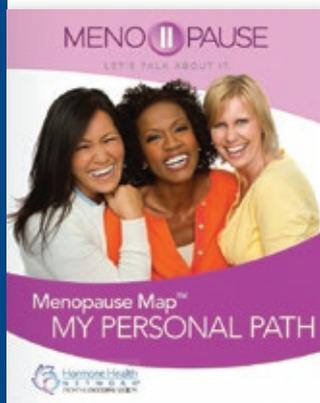
Council Approves Goals for Engaging the Next Generation of Endocrinologists

The Next Generation Task Force (NGTF) report, which was approved by Council on March 3, presented strategies that will be important for the Society to adopt in its efforts to empower and support the next generation of endocrinologists.

The Trainee and Career Development Core Committee (TCDDC) has taken the lead to oversee the implementation and monitoring of the NGTF recommendations, which will impact leadership development, new program development, endocrine careers education, and enhanced marketing and communications to early career professionals.

The TCDDC met last July to begin its work to create relevant and valuable programming that will continue to attract and engage next generation members. Throughout the day's discussions, TCDDC members considered initiatives around the NGTF recommendations and examined opportunities for the integration of technology, public awareness, and diversity and inclusion into key programs and activities. The committee looks forward to completing the development of a comprehensive education and training initiative that crosses common themes in career development, integrates live and online learning tools, networking sessions, and education resources, and enhances the overall learning experience for young scientists wishing to advance their careers.

For more information, go to www.endocrine.org/intraining.



HHN Publication Wins National Magazine Award

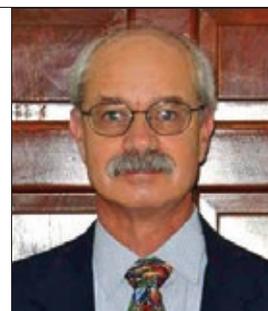
The Hormone Health Network's *Menopause Map™ My Personal Path* magazine is the 2015 Silver Award Recipient of the Best Consumer Magazine from the National Health Information Awards program, which honors high-quality consumer health information.

“This award honors the hard work and dedication of the members of the Hormone Health Network Committee who worked so diligently to ensure that the information provided to patients and consumers not only provides them with the necessary education but also empowers women to be advocates for themselves when speaking to their healthcare professional armed with accurate and reliable information so that they can actively participate in the conversation with their provider,” says Cheretta Clerkley, director, Hormone Health Network. “We couldn’t be happier that the magazine was recognized in this category.”

To order the print version of the magazine, go to www.mypersonalpath.com/order.php.

Ron Margolis to Maintain a Part-Time Presence at NIDDK Post-Retirement

After 26 years at the National Institute of Diabetes, Digestive, and Kidney Diseases (NIDDK) at the National Institutes of Health (NIH), Society member Ronald Margolis, PhD, has retired from his role as senior advisor for molecular endocrinology in the Division of Diabetes, Endocrinology and Metabolic Diseases and co-lead, BD2K Data Discovery Index, as of September 25.



However, he will not be leaving entirely; he returned on September 28 as a part-time NIH employee in the Office of the Associate Director for Data Sciences continuing his work on biomedical big data. “With NIDDK I have had the privilege of working with the Society membership and staff to communicate the mission of NIDDK as it relates to that of the Endocrine Society,” he says. “This has entailed presentations at annual meetings, the NIH Lounge, lectures, and workshops — all focused on defining and creating synergies for members.”

Margolis says that the experience has been a “two-way street” since he has always learned from these interactions, with the added bonus of bringing back to NIDDK the real concerns of the membership over grants funding, NIH policies and procedures, and the general state of the research enterprise. “The Endocrine Society is also my professional home,” he says, adding “I’ve been an active member since 1981 and attended meetings as a student and fellow prior to becoming a member.”

As a long-time member, Margolis has always been concerned about the health and vitality of the Society. “Over the years I have contributed to strategic planning and have worked with all presidents since joining the NIH in 1989,” he says. “All-in-all it has been a pleasure to serve two masters — the NIH and the Endocrine Society. I look forward to continuing my membership as I move ahead with this coming transition.”

ENDO 2016

A Historic Occasion

REGISTER NOW AT ENDO2016.ORG.

NEW ABSTRACT DEADLINE

**ENDO 2016 hits
Boston April 1 – 4
(Friday – Monday)**

Be sure to submit
your abstract by
November 10, 2015.

2016 MARKS 100 YEARS

since the Endocrine Society's founding, and ENDO 2016 is sure to be a celebration fitting of the Society's Centennial. Over 9,000 endocrinologists from across the world will converge in Boston for the most highly anticipated and attended endocrinology event of the year. The hundreds of presentations promise to provide four days' worth of new knowledge, education, and networking.

With so much happening April 1 – 4, you won't want to miss a second. Early registration is officially open, so register before January 13, 2016, to secure your spot — and benefit from savings on registration.

New to ENDO: Science Pathways

Attendees who want to customize their ENDO experience this year can choose from concentrated tracks in three topic areas: nuclear receptors, G-protein-coupled receptors (GPCRs), and neuroendocrinology. These tracks represent some of the most in-demand areas of science today and feature coordinated session locations, complementary programming, and a unique opportunity to network with like-minded peers.

Plenaries Kick Off ENDO 2016

This year's plenary sessions will feature a historic overview of the science. The Presidential Plenary will start the meeting and will highlight one of the most historic findings of the past 100 years — the discovery of insulin. The Nobel Prize-winning work paved the way for many modern breakthroughs, and **ENDO 2016's** Presidential Plenaries examine some of the most recent developments in diabetes research.

Doug Melton of Harvard University and the Howard Hughes Medical Institute will discuss the next frontier of treatment in "iPSC-Derived β -Cells: How Close Are We to a Cure?". And Edward Damiano of Boston University will present "Outpatient Studies Testing Automated Glycemic Control with a Bionic Pancreas."

The remainder of the plenary slate promises to be just as exciting, as experts from across endocrinology cover today's most pressing issues for researchers and practitioners with an acknowledgement to this history of the field.

DID YOU KNOW?

ENDO Trivia

The Society was originally named The Association for the Study of Internal Secretions. The Endocrine Society became the official name in 1952, and the name was slightly modified in 2014 to Endocrine Society.

New Staff Reflect the Society's Ongoing Growth

As the Endocrine Society realigns various departments, a variety of staff changes have taken place throughout the organization. Several new employees have come on board in the last few weeks, demonstrating the Society's remarkable growth in a variety of departments and initiatives.



MICHELLE KLINKE joined the Society in August as the new director, Education. Klinke has extensive association education experience having worked at the American Society of Hematology, the American College of Cardiology, and most recently at the American Society for Radiology. Michelle is expected to hit the ground running to help with ENDO and our various education products.

ANTOINETTE WRIGHTON is the new senior managing editor in the Publications Department. She joined the Society in September. Aside from having an extensive background in publications (journals, articles, books, supplements), she has worked as a technical editor, director of editorial services, and production editor. She is also a seasoned manager who takes pride in mentoring and developing staff. Wrighton comes to us from NIH (NIHMS editorial team) where she has been for two years, after previous roles with the Optical Society of America and W.B. Saunders Company.



ANU PRABHALA also came on board in September as the marketing manager, Publications. She is an experienced publishing professional with more than 10 years' experience managing editorial and marketing initiatives in nonprofits/associations including the American Association on Intellectual and Developmental Disabilities and the Council for Exceptional Children, as well as Agora Publishing. She has a demonstrable track record of developing and implementing strategic marketing plans that have resulted in increased publication and product visibility and corresponding annual revenue growth.

DENNIS HARRIS has been promoted to associate director, Content Strategy & Outcomes, after more than two years as manager, Educational Research and Outcomes. When he first started at the Society, Harris worked independently to create a new outcomes reporting framework that highlight our success to faculty, planning committee members and funders. Last fall he served as the staff leader for the very successful PPTOX meeting, which had record attendance and generated more than 80 new members from the endocrine-disrupting chemicals field. In addition, Harris has contributed greatly to the Society's fundraising successes through his grant writing efforts, including more than \$1 million dollars in CMES programs in just the last year. 



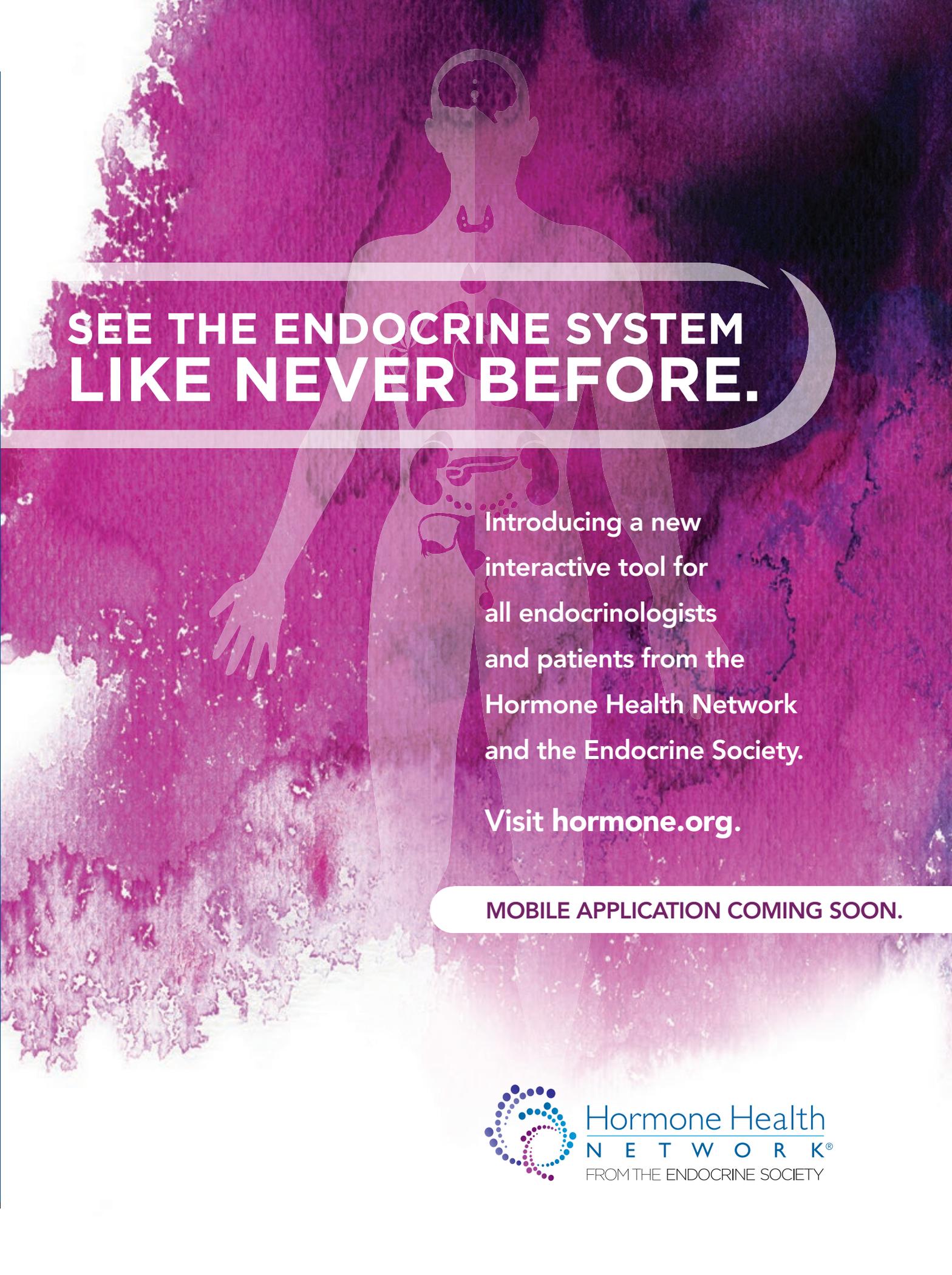
HHN's Cheretta Clerkley Honored by USAE

Cheretta A. Clerkley, MBA, CASE, CME, director, Hormone Health Network (HHN), has been selected as an honoree for USAE's and Association Forum of Chicagoland's Forty Under 40 Awards.

The award recognizes association and nonprofit professionals under the age of 40 who have demonstrated high potential for leadership roles in the association management profession. Many high-caliber applicants were considered to receive this honor but only the top 40 best-of-the-best were selected.

"It means so much to be recognized for my work in associations over the last 10 plus years," Clerkley says. "The gift of being a part of associations is the gift of creating value, helping your community, and growing greatness in other people. Throughout my career I've learned that we are all capable of great things through the greatness of others."

Clerkley will be featured in the special Forty Under 40® issue of USAE's publication, and in December she'll be honored during the award reception in Chicago.



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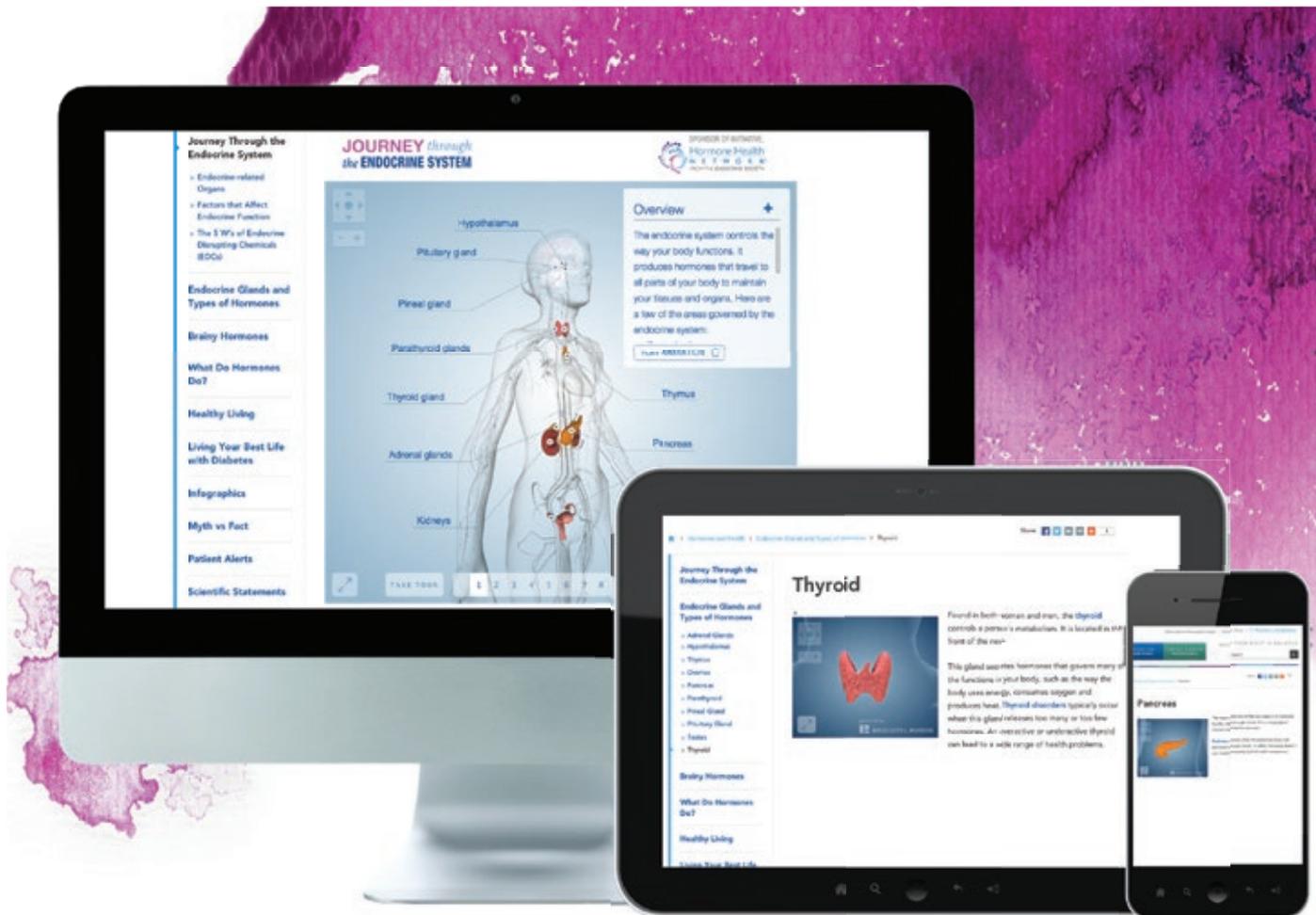
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The idea is to create an interactive fly-through animation of the glands and organs of the endocrine system. This is not a simple point and click interactive map, but it enables the user to travel through the body with the hormone (i.e., insulin, estrogen, testosterone, etc.) and see the effect it has on the human body. In addition to offering a web-based version, there will

also be a mobile application to make it easy for providers to communicate with their patients and for patients to understand their conditions. These applications can also be used in educational settings to teach and inform students about the importance of the endocrine system and the pivotal role it plays in the body.

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ACADEMIC ENDOCRINOLOGIST AND/OR GENETICIST

The Bone Disorders and Osteogenesis Imperfecta Clinic at Kennedy Krieger Institute is seeking an Academic Endocrinologist and/or Geneticist at the Instructor or Assistant Professor level who is board-certified or board-eligible in endocrinology and/or genetics (adult and/or pediatric). In addition to clinical work focused on a wide variety of genetic and metabolic bone disorders, this position provides the opportunity for clinical, translational, and/or basic research in a highly collaborative academic setting. Faculty appointments are through the Kennedy Krieger Institute and the Johns Hopkins University School of Medicine.

The Kennedy Krieger Institute in Baltimore, MD, is an internationally recognized institution dedicated to improving the lives of individuals with disorders of the brain, spinal cord, and musculoskeletal system. Our innovative research is leading the way in the understanding, prevention, and treatment of a wide range of developmental disabilities.

The Kennedy Krieger Institute offers outstanding benefits, including a tuition grant for dependent children and tuition remission at Johns Hopkins University for faculty, spouses and dependent children.

Requirements:

- Board-certified or Board-eligible in Endocrinology and/or Genetics: Adult and/or Pediatric
- Must have experience with bone disorders

Tina M. Schmitt, PHR, CHCR, SHRM-CP

HR Recruitment Manager, Kennedy Krieger Institute, (443) 923-5815

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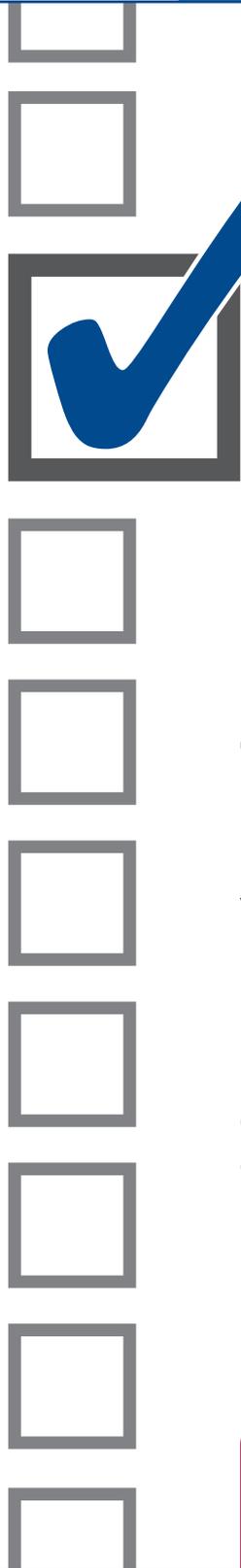
town is seeking a BC/BE Endocrinologist to join a busy Endocrinology department. Excellent opportunity leading to partnership. Fax CV to Joan Hagadorn at 609-430-9481, or email CV to jhagadorn@msn.com

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LAST CALL VOTE

2016 ELECTION

TIME IS RUNNING OUT TO VOTE.

Election ballots were sent to members with voting privileges in early September 2015. Information for online voting can be accessed by visiting endocrine.org/election.

Questions should be directed to Elizabeth Kan at 202.971.3621 or ekan@endocrine.org.

**ELECTRONIC VOTES MUST BE RECEIVED
BY MIDNIGHT EST ON OCTOBER 12, 2015.**