

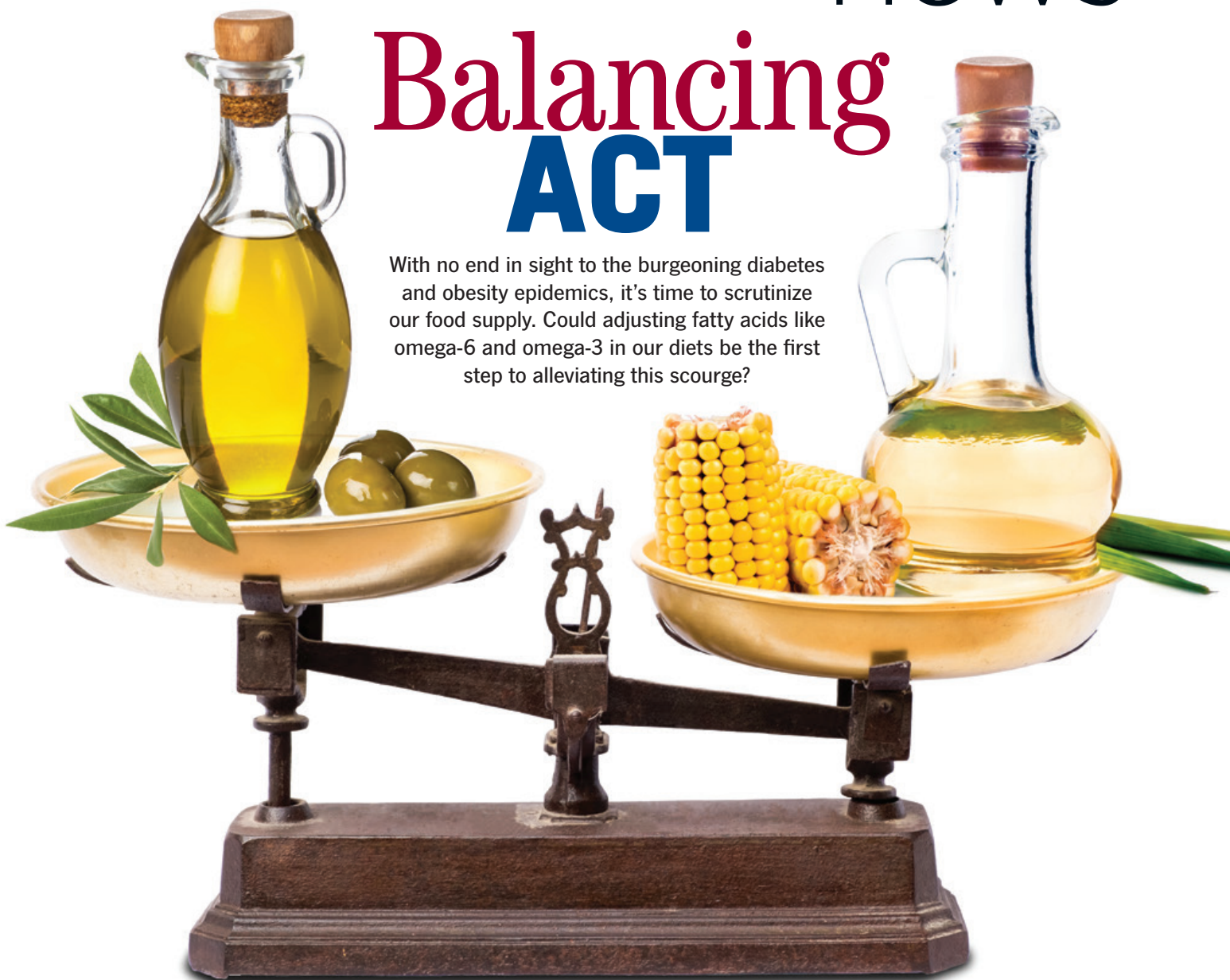
OCTOBER 2017

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

# Endocrine INTERNATIONAL news

## Balancing ACT

With no end in sight to the burgeoning diabetes and obesity epidemics, it's time to scrutinize our food supply. Could adjusting fatty acids like omega-6 and omega-3 in our diets be the first step to alleviating this scourge?



### COMPOUNDING INTERESTS:

The risks of bioidentical hormones

### SECOND OPINIONS:

A look at networking sites for clinicians

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# Endocrine news

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COVER STORY

## 24 | Balancing Act

As the diabetes and obesity epidemics continue to flourish, a closer look at our food supply is needed. A new study suggests that getting the right amounts of fatty acids – especially omega-6 and omega-3 – back into our diets is the first vital step.

BY DEREK BAGLEY



FEATURE

## 20 | Teresa Woodruff

**Named Editor-in-Chief of *Endocrinology***

The Endocrine Society's oldest peer-reviewed journal will get its new editor-in-chief in January. Woodruff aims to make *Endocrinology* a vital resource for all science "within and beyond the borders of endocrinology."

BY DEREK BAGLEY

FEATURE

## 30 | Compounding Interests

According to an Endocrine Society Scientific Statement, patients need to be counseled about the risks of custom-compounded bioidentical hormones. The preferred treatments should have been vetted by the U.S. Food and Drug Administration, not Oprah.

BY ERIC SEABORG

SPECIAL Q&A

## 37 | Wylie C. Hembree, MD

*Endocrine News* talks with Wylie C. Hembree, MD, chair of the task force that created the latest Clinical Practice Guideline on Transgender Care. He discusses why it was important for the Endocrine Society to release a practice guideline on this topic now and why he thinks it will impact the care patients receive in the future.





FROM THE **EDITOR**

## Talking Twitter in NYC

**I** RECENTLY HAD THE OPPORTUNITY TO SPEAK TO MEMBERS of the New York Society of Association Executives (NYSAE) in New York City about how *Endocrine News* has effectively used Twitter in recent years. You may not realize this, but we've actually been lauded by many in our field for how well we've managed to use Twitter.

Held at the headquarters of the American Heart Association in the historic Chanin Building, I was asked to speak after a NYSAE member saw me as part of a similar talk at the Association Media & Publications annual conference in Arlington, Va., last June where I was amazed to see how few association magazines were using Twitter. The thing I stressed to both groups is that Twitter is such an easy way to communicate with members as well as the world at large. The time commitment is minimal and, most importantly, it's free!

Aside from discussing how Twitter can be used to disseminate information, I also discussed the importance of using it as a resource to find information. Many of the groups, associations, and individuals that *Endocrine News* follows on Twitter post links to interesting articles and other content that would be of interest to Endocrine Society members and others who follow *Endocrine News* on Twitter. It's been an ideal source for us to find a variety of interesting studies that we can use in our feature articles as well as statistics, charts, and other data that we can retweet to our followers and even use in the magazine.

Another benefit of using Twitter occurred quite by accident at **ENDO 2017** in Orlando. While I was "live tweeting" during a Presidential Plenary, I noticed that others in attendance were doing the same thing when I saw #endo2017 show up in my Twitter feed. I followed up with the "Tweeters" to see if they would be interested in contributing to the magazine.

This resulted in two international early-career members who were very interested in being a part of *Endocrine News*. These were members whose paths I would not normally have crossed but they have both not only contributed comments to the **ENDO 2017** wrap up article in the May issue, but they've also contributed to the "Why Endocrinology?" column. Twitter has proven to be an ideal way to connect with members and have them share their stories in *Endocrine News*. Giving members a voice is vital for any association magazine and Twitter is a unique way to do that.

Currently, *Endocrine News* has over 1,200 followers and can be found at [@Endocrine\\_News](https://twitter.com/Endocrine_News). **EN**

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

OCTOBER 2017

# Endocrine news

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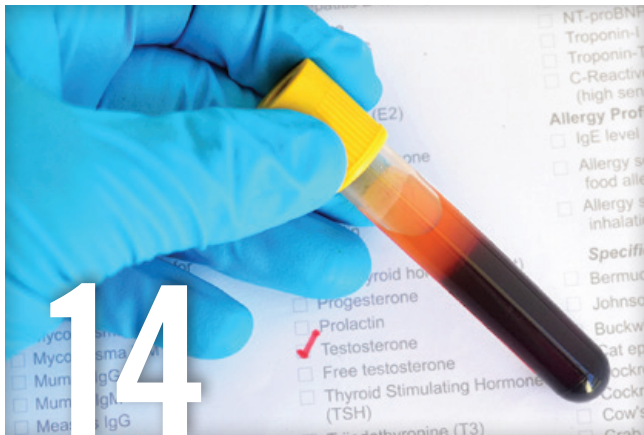
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# IN THIS ISSUE

OCTOBER 2017



## 2 | FROM THE EDITOR

Talking Twitter in NYC

## 4 | PRESIDENT'S VIEWPOINT

The Society's Strategic Plan is Moving Forward

## 6 | INTOUCH

Society releases transgender treatment guideline; 2018 Laureate Awards; EndoCares: Diabetes makes impact in Peru, Argentina; Society staff tours NIH; Pete Meyers honored by the Sierra Club, Early Investigators Award winners.

## 11 | ENDOCRINE ITINERARY

Scientific meetings of interest to endocrinologists from around the world.

## 12 | WHY ENDOCRINOLOGY?

A Tale of Testosterone

BY MICHAEL S. IRWIG, MD

## 14 | TRENDS & INSIGHTS

Elderly onset diabetes pathologically distinct; Exposure to high-fat diet in utero reprograms liver; Review looks at implications of free testosterone measurements; Link revealed between PCOS & type 2 diabetes.

## 18 | DASHBOARD

Highlights from the world of endocrinology.

## 40 | PRACTICE RESOURCES: SECOND OPINIONS: ARE PHYSICIAN NETWORKING WEBSITES USEFUL?

Online information-sharing sites especially designed for physicians could be an ideal opportunity to not only get answers but also share your knowledge with others.

BY CHERYL ALKON

## 42 | LABORATORY NOTES:

### Q&A: ALEXANDER KAUFFMAN, PHD

While Alexander Kauffman, PhD, and his laboratory try to unlock the secrets of puberty, his lab provides a once-in-a-lifetime opportunity to underprivileged interns, allowing them to unlock the secrets to their own scientific discoveries.

BY GLENDA FAUNTLEROY

## 44 | ENDO GEAR: BEAD BATHS & BEYOND

## 47 | ADVOCACY

Members rally for medical research; Society attends high-level EDC meetings in Europe; Capitol Hill goes to the diabetes-detecting dogs.

## 51 | HORMONE HEALTH NETWORK

Hormones and Breast Cancer: What you need to know

## 53 | CLASSIFIEDS

Career opportunities

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## Moving Forward: The Society's Fourth Strategic Plan is Right on Track

**T**HE SOCIETY ALWAYS INVITES YOUR QUESTIONS, comments, and solutions for improvement. This year especially, we proactively sought input into our Fourth Strategic Plan (SP4). We surveyed our membership, held focus group meetings (targeting international members and past leaders), and interviewed “lapsed” members and outside stakeholders (e.g. insurers, deans, pharma). The resulting input fed into the past and future assumptions that underlie SP4. Overall, we found that members have a high level of satisfaction with the Society and its offerings. However, this was not universal. All perspectives should and did inform SP4 during our June planning meeting and September task force meeting.

I'd like to update you on the SP4 progress. In September, the task force focused on the future, discussing core beliefs about what will position our Society to thrive, assumptions about the external environment (e.g. healthcare delivery, funding of investigation) that will impact the Society, and a future vision for endocrinology. Taken together with the stakeholder input, the group brainstormed about short-term (three to five years) goals that would move us toward that envisioned future, and developed specific objectives that would support each goal.

As you will recall, the task force had broad representation of our members' demographics and career paths. Everyone showed a strong commitment to the Society writ large, rather than just to a specific segment of our membership, and the discussions were passionate and far-reaching. While the nascent plan is currently undergoing review by Council and the June planning group, some broad themes can be shared with you. These include:

- The fundamental need for basic investigation related to endocrinology, the strength of the continuum from basic to clinical investigation to clinical care, and the need to support our diverse membership in their career paths;
- The global nature of our Society — both geographically and in terms of the reach of endocrinology research, career paths, and healthcare delivery; and


- The importance of innovation and technology in achieving breakthroughs in discovery and cure.

We anticipate that the final plan will be approved by Council in December, and that Council will use its goals to direct our activities, prioritize projects, and judge their outcomes. We will continue to update you as SP4 nears completion.

### Reminders and Thanks

- **PLEASE VOTE** for incoming Officers and Council Members. The ballot for the 2018 Endocrine Society Election will remain open until October 18. To facilitate the voting process, a link to the electronic ballot is now available in the Society's website. Please cast your vote and remind your colleagues as well. This is *your* Society, and your participation in the election is important!
- **ENDO 2018** will occur in Chicago, Ill., March 17 – 20, 2018. The deadline to submit abstracts is November 6, 2017. Bring your colleagues and family for a great meeting and a chance to see the Chicago River dyed green for St. Patrick's Day. I plan to find time for the always highly anticipated debates — this year including what diet is best for weight loss, and another featuring Bill Young and Paul Stewart over whether pre-operative adrenal vein sampling is needed in primary hyperaldosteronism.

“  
Overall, members have a high level of satisfaction with the Society and its offerings. However, this was not universal.  
”

- The September Clinical Endocrinology Update (CEU) and Endocrine Board Review (EBR) meetings were a record-breaking success, with a 30% increase in attendance. My personal thanks to the Chair, Janet Schlechte, and the entire CEU Steering Committee for developing a fantastic program. 

— Lynnette Nieman, MD, President, Endocrine Society

# LAST CALL



# VOTE

## 2018 ELECTION FOR OFFICERS AND COUNCIL

**TIME IS RUNNING OUT TO VOTE.**

Who will be your future Endocrine Society leadership? Cast your vote today at [endocrine.org/election](http://endocrine.org/election)

Questions should be directed to [election@endocrine.org](mailto:election@endocrine.org) or call 202.971.3636

**Votes must be submitted by October 18, 2017**

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## EndoCares: Diabetes Makes Significant Impact in South America



Guillermo Umpierrez, MD, leading the Diabetes Pre-Congress for healthcare providers in Lima, Peru.

**A**fter a stellar launch last year in Peru, EndoCares: Diabetes — the Society's first global outreach program — returned to Lima as well as launching in Argentina in August.

For the second year in a row, the Society held an EndoCares: Diabetes program in partnership with the Sociedad Peruana de Endocrinología, Asociación de Diabetes del Peru, and Liga Peruana de Lucha Contra la Diabetes in Lima, Peru. In addition, several Society members participated as speakers during the Peruvian Congress which was held from August 9 to 12: Lynnette Nieman, MD, Guillermo Umpierrez, MD, Bart Clarke, MD, Kathryn Martin, MD, and Joao Salles, MD.

This year's EndoCares program was divided into two programs: One targeted to healthcare providers and one for patients and their families. A first provider-focused session was held on August 9, and targeted approximately 30 primary care physicians interested in learning about diagnosing diabetes, management and care of patients, and prevention using the team approach (physicians, nurses, and

nutritionists). On August 11, the Society led a Symposium on Diabetes for approximately 900 endocrinologists. Two concurrent patient-focused sessions were held on August 13: One focused on type 2 diabetes and the other on type 1 diabetes patients. As a new addition to this year's program, attendees had the opportunity to receive free eye examinations, glucose and lipids measurements, and participate in a technology workshop where new tools to help with continuous glucose monitoring were demonstrated. Together these sessions reached an audience of approximately 600 patients and their families.

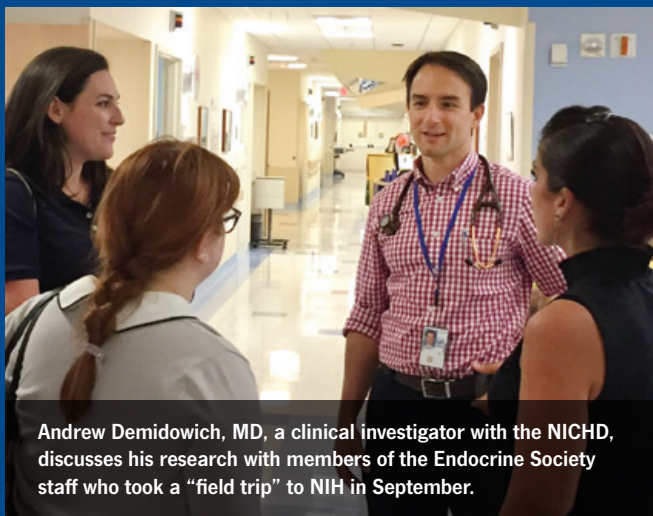
On August 23, the Society launched EndoCares: Diabetes in Buenos Aires, Argentina through an unprecedented partnership with the Sociedad Argentina de Diabetes. This program was led by Society members Guillermo Umpierrez, MD, Helard Manrique, MD, and Kenneth Cusi, MD. It included a series of workshops aimed for general healthcare providers and patients with type 1 and type 2 diabetes. Topics included nutrition and exercise, hypoglycemic events, diabetes, prediabetes, and current treatment options for type 2 diabetes. These workshops reached an audience of approximately 250 participants. On August 24, the Endocrine Society led a symposium and roundtable discussion for 1,000 diabetologists and endocrinologists on fatty liver disease and the use of thiazolidinediones in the treatment of diabetes.

Based on the success of both programs, the Society looks forward to continuing to strengthen the partnerships with its colleagues in Peru and Argentina. In addition, the Society is excited to share the launch of EndoCares: Diabetes in Brazil this coming November.

In July, EndoCares was recognized by the American Society of Association Executives with a Power of A Silver Award.



Patients attend a workshop in Lima to learn about continuous glucose monitoring, fairly new technology for Peru.



Andrew Demidowich, MD, a clinical investigator with the NICHD, discusses his research with members of the Endocrine Society staff who took a “field trip” to NIH in September.

## Endocrine Society Staff Visits NIH

Some of the Endocrine Society staff last month visited the National Institutes of Health (NIH) campus in Bethesda, Md., meeting several members and touring their labs, in the first of a series of “field trips” designed so that staff can see where members in the Washington, D.C., area do their work.

Staff met with Constantine Stratakis, MD, Jenny Blau, MD, and Andrew Demidowich, MD, three clinical investigators with the National Institutes of Child Health and Human Development (NICHD). The three physicians described what they do, as well as talked more broadly about ongoing clinical investigations and the NIH in general.

The members showed the staff the pediatric floor of the Clinical Research Center, including the “day hospital” where children can come for things like ACTH stimulation tests, a feature unique to NIH. They also pointed out that NIH physicians all gather in conference rooms to meet about patients — the endocrinologists, surgeons, radiologists, etc. — so that treatment “is not so piecemeal.” And since the NIH is where patients with rare diseases come to be treated, they are able to meet with one another, something that might not have been possible in their respective hometowns. This creates a support network not just for the children, but for their parents and families as well.

From there, the staff toured the Porter Neurosciences Research Center, where they met with Chris McBain, PhD, Vincent Schram, PhD, and Mark Stopfer, PhD. There, they saw high-tech and high-powered microscopes used in life-saving research. And then it was on to Stopfer’s lab where he studies insect brains to better understand how the human brain works, and he showed the staff some of his subjects: locusts and moths.

Again, this was the first in a series of visits, and it was an educational and enlightening visit. If you would like to show off your lab or clinic and the work you’re doing, please reach out to Alexa Stout, coordinator of Strategy and Membership Development, at [astout@endocrine.org](mailto:astout@endocrine.org).



## Sierra Club Honors Pete Myers

The Endocrine Society congratulates John Peterson “Pete” Myers, PhD, a leading voice in publicizing the dangers of endocrine-disrupting chemicals (EDC), who was honored with a Distinguished Service Award from the Sierra Club at a ceremony on September 15 in Washington, D.C.

A recipient of the 2016 Endocrine Society Laureate Award for Outstanding Public Service, Myers is the founder, CEO, and chief scientist at Environmental Health Sciences. He began his career as a research scientist working on shorebird ecology and conservation, from the Arctic to Tierra del Fuego. One of his early accomplishments was co-founding the Western Hemisphere Shorebird Reserve Network.

In 1987, Myers left his tenured research position to become senior vice-president for science at National Audubon. Three years later, he became director of the W. Alton Jones Foundation, which he led for 12 years, awarding grants to small and large organizations working on biodiversity, climate, contamination, and nuclear arms control. While at the foundation, he helped launch the scientific field of endocrine disruption, and with Theo Colborn and Dianne Dumanoski wrote the best-seller *Our Stolen Future*, introducing endocrine disruption to the general public.

In 2002, Myers created Environmental Health Sciences and its daily publication, *Environmental Health News*, providing the public, journalists, and environmentalists with sound scientific information from the field and through journalism. Environmental Health Science’s two publications, *Environmental Health News* and *The Daily Climate*, will reach 70 million page views this year.

Myers’ goal was to close the gap between the lab and the layman, and this is what he is doing. Today, thousands of readers rely on Environmental Health Science’s publications for important information and original stories examining environmental impacts from industry and developing complications from a shifting climate.

In 2016, Myers was one of 12 individuals honored by the National Institutes of Health with its first-ever Champion of Environmental Health Research Award. Myers joins a list of previous Sierra Club honorees that includes Edmund Muskie, Gaylord Nelson, and Pete Seeger, among others. “It is very humbling — if not scary — to be added to this list of legends,” he says.

## Endocrine Society Announces 2018 Laureate Award Recipients

In March 2017, the Laureate Awards Committee had the daunting task to review 100 nomination packages, of which only 14 distinguished men and women were selected to receive the Society's highest honors.

"I had the honor to chair this year, reviewing the life's work of our peers, mentors, and worldwide experts in the field of endocrinology," says Susan Sherman, MD, Laureate Awards Committee Chair. "It is with immense pride and a sense of awe that this committee evaluated such diverse contributions of our nominees who advance the field of endocrinology, both for our patients now and in the future."

These awards, 14 distinct categories, recognize endocrinologists around the world for their seminal discoveries, outstanding research, translation of science to clinical applications, innovation, dedication to education and mentoring, and so much more. The 2018 esteemed Laureates join an impressive list of past winners whose discoveries and dedication have improved the health around the world:

- **Fred Conrad Koch Lifetime Achievement Award:**  
Elizabeth Barrett-Connor, MD, *UC San Diego School of Medicine*
- **Gerald D. Aurbach Award for Outstanding Translational Research:**  
V. Craig Jordan, OBE, PhD, DSc, *University of Texas MD Anderson Cancer Center*
- **International Excellence in Endocrinology Award:**  
Paul M. Stewart, MD, FRCP, FMedSci, *University of Leeds*
- **Outstanding Clinical Investigator Award:**  
Christos Mantzoros, MD, DSc, PhD, hc mult, *Harvard University*
- **Outstanding Clinical Practitioner Award:**  
Marcello D. Bronstein, MD, PhD, *Hospital das Clinicas, University of S. Paulo, Endoclinica de S. Paulo*
- **Outstanding Educator Award:**  
Carolyn Becker, MD, *Brigham and Women's Hospital*



Susan Sherman, MD,  
Laureate Awards Committee Chair

- **Outstanding Innovation Award:**  
Barry Komm, PhD
- **Outstanding Leadership in Endocrinology Award:**  
Lawrence A. Frohman, MD, *University of Illinois at Chicago*
- **Outstanding Mentor Award:**  
Joel F. Habener, MD, *Massachusetts General Hospital, Harvard Medical School*
- **Outstanding Public Service Award:**  
Irl B. Hirsch, MD, *University of Washington School of Medicine*
- **Outstanding Scholarly Physician Award:**  
Shlomo Melmed, MD, *Cedars-Sinai Medical Center*
- **Richard E. Weitzman Outstanding Early Career Investigator Award:**  
Greg Steinberg, PhD, *McMaster University*
- **Roy O. Greep Award for Outstanding Research:**  
Robert V. Farese, Jr., MD, *Harvard Medical School*
- **Sidney H. Ingbar Award for Distinguished Service:**  
Leonard Wartofsky, MD, MACP, *MedStar Washington Hospital Center, Georgetown University School of Medicine*

Please join the Society in congratulating the achievements of the newest Laureates. They will be honored at **ENDO 2018** in Chicago and featured in the January 2018 issue of *Endocrine News*.

To learn more about the award recipients and to submit nominations for 2019, visit [www.endocrine.org/laureate](http://www.endocrine.org/laureate)



# Endocrine Society Issues New Gender-Affirmation Treatment Guideline

**L**ast month, the Endocrine Society issued a Clinical Practice Guideline (CPG) on the treatment for gender-dysphoric/gender-incongruent persons to develop the physical characteristics of the affirmed gender.

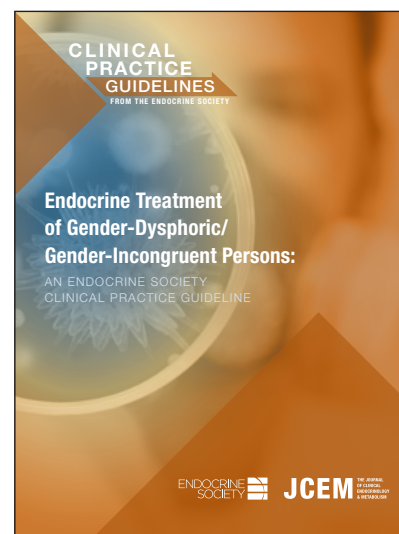
The CPG, entitled “Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline,” was published online and will appear in the November 2017 print issue of *The Journal of Clinical Endocrinology & Metabolism (JCEM)*.

Over the last few decades, there has been a rapid expansion in the understanding of gender identity along with the implications for the care of transgender and gender incongruent individuals. The new guideline establishes a framework for the appropriate treatment of these individuals and standardizes terminology to be used by healthcare professionals.

“Diagnosing clinicians, a mental health provider for adolescents, and mental health professional for adults should be knowledgeable about the diagnostic criteria for gender-affirming treatment, have sufficient training and experience in assessing psychopathology, and be willing to participate in the ongoing care throughout the endocrine transition,” says Wylie Hembree, MD, of the College of Physicians and Surgeons at Columbia University and chair of the task force that authored the guideline.

The Endocrine Society recommends gender-dysphoric/gender-incongruent persons receive a safe and effective hormone regimen that will suppress endogenous sex hormone secretion, determined at birth and manifested at puberty, and maintain levels of exogenous steroid that are within the normal range for the person’s affirmed gender.”

Because many barriers to improving the health and well-being of transgender patients remain, the Endocrine Society also issued a position statement that calls on federal and private insurers to cover medical interventions for transgender individuals as prescribed by a physician.



The position statement highlights a durable biological underpinning to gender identity that should be considered in policy determinations and furthermore calls for increased funding for national research programs to close the gaps in knowledge regarding transgender medical care.

Other members of the Endocrine Society task force that developed this CPG include: Peggy T. Cohen-Kettenis, PhD, and Louis Gooren, MD, PhD, VU University Medical Center, Amsterdam, Netherlands; Sabine E. Hannema, MD, PhD, Leiden University Medical Centre, Leiden, Netherlands; Walter J. Meyer, MD, University of Texas-Medical Branch at Galveston, Galveston, Tex.; M. Hassan Murad, MD, Mayo Clinic Evidence-based Practice Center, Rochester, Minn.; Stephen M. Rosenthal, MD, University of California San Francisco, Benioff Children’s Hospital, San Francisco, Calif.; Joshua D. Safer, MD, Boston University School of Medicine, Boston, Mass.; Vin Tangpricha, MD, PhD, Emory University School of Medicine, Atlanta, Ga.; and Guy G. T’Sjoen, MD, PhD, Ghent University Hospital, Ghent, Belgium.

The new guideline is co-sponsored by the American Association of Clinical Endocrinologists, American Society of Andrology, European Society for Paediatric Endocrinology, European Society of Endocrinology, Pediatric Endocrine Society, and the World Professional Association for Transgender Health.

*Turn to page 37 for a Q&A with Hembree. An in-depth feature discussing the recommendations of the new guideline is scheduled for the November Endocrine News.*



## Endocrine Society Announces Early Investigators Award Winners

**O**n October 3, the Endocrine Society announced 22 new recipients for its Early Investigators Awards.

The Early Investigators Awards provide monetary support to assist in the development of early career investigators and recognition of their accomplishments in areas of general endocrinology. Recipients will receive a monetary award, one-year complimentary membership to the Society, one-year complimentary access to the Society's online journals, and public recognition of research accomplishments in various Society platforms.

The following individuals won the award from Amgen, Inc. for metabolic bone research:

- **Phillip Wong, MBBS, PhD**, Hudson Institute of Medical Research, Victoria, Australia
- **Andrea Palermo, MD, PhD**, University Campus Bio-Medico, Rome, Italy
- **Kyoung Min Kim, MD, PhD**, Seoul National University Bundang Hospital, Seongnam, South Korea
- **Konstantinos Toulis, MD, MSc, PhD**, AHEPA University Hospital, Thessaloniki, Greece
- **Marlene Chakhtoura, MD, MSc**, American University of Beirut, Lebanon
- **Marc Gregory Yu, MD**, Philippine General Hospital, Manila, Philippines
- **Vibha Singhal, MD**, Massachusetts General Hospital, Boston, Mass.

The following individuals won the award from Lilly USA, LLC, for diabetes research:

- **Anne Bantle, MD**, University of Minnesota, Minneapolis, Minn.
- **Bharath Mani, DVM, PhD**, University of Texas Southwestern Medical Center, Dallas, Texas
- **Teresa Mezza, MD**, Catholic University, Rome, Italy
- **Petter Bjornstad, MD**, Children's Hospital Colorado, Aurora, Colo.
- **Mauricio Dorfman, PhD**, University of Washington, School of Medicine at South Lake Union, Seattle, Wash.

- **Emily K. Sims, MD**, Indiana University, Indianapolis, Ind.
- **Matthew Lynes, PhD**, Joslin Diabetes Center, Boston, Mass.
- **Amin Ardestani, PhD**, University of Bremen, Bremen, Germany
- **Kavaljit Chhabra, MPharm, PhD**, University of Michigan, Ann Arbor, Mich.
- **Ernesto Maddaloni, MD**, University Campus Bio-Medico, Rome, Italy

The following individuals won the award from the Endocrine Society for endocrine research:

- **Charu Baskaran, MD**, Massachusetts General Hospital, Boston, Mass.
- **Laura Dichtel, MD**, Massachusetts General Hospital, Boston, Mass.
- **Marco Medici, MD, MSc**, Erasmus Medical Center, Rotterdam, Netherlands
- **Maria Perez-Millan, PhD**, The National Scientific and Technical Research Council (CONICET), Buenos Aires, Argentina
- **Natalie Shaw, MD**, National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, N.C.

The Early Investigators Awards were established to recognize the achievements of early career investigators in endocrine research. The winners will be honored at the Endocrine Society's 100th Annual Meeting & Expo, **ENDO 2018**. The meeting will be held March 17–20, 2018, in Chicago, Ill. <sup>EN</sup>

### ELIGIBILITY CRITERIA

- Hold an MD, PhD, or MD/PhD;
- Be a third or fourth year post-doctoral fellow or a newly appointed faculty within 10 years from the terminal degree granting date; and
- Only one nomination per research mentor.

Additional information on this award and the recipients is located at [www.endocrine.org/earlycareerawards](http://www.endocrine.org/earlycareerawards).

# ENDO2018

Chicago, Ill.

March 17 – 20, 2018

[www.endocrine.org/endo-2018](http://www.endocrine.org/endo-2018)



With over 7,000 attendees, nearly 2,000 abstracts, and over 200 other sessions, **ENDO 2018** is the leading global meeting for endocrinology research and clinical care. Join us for the most well attended and valued translational endocrinology meeting in the world. Bringing together leading experts, researchers, and the most respected clinicians in the field, **ENDO 2018** represents a convergence of science and practice that highlights and facilitates breakthrough discoveries in the field of endocrinology. Spend time connecting with peers and colleagues, exchanging ideas and information, and getting out in front of the latest trends and advancements in hormone health. The meeting also hosts other satellite and pre-conference events.

## Key Dates:

- **Abstract Submission:** September 6 – November 6, 2017
- **Early Registration:** October 18 – November 30, 2017
- **Advance Registration:** December 1, 2017 – January 16, 2018
- **Late-Breaking Abstract Submission:** January 11 – February 5, 2018
- **Housing Deadline:** February 22, 2018.

## EndoBridge 2017

**Antalya, Turkey, October 19 – 22, 2017**

Jointly organized by the Endocrine Society, the European Society of Endocrinology, and the Society of Endocrinology and Metabolism of Turkey, EndoBridge 2017 will provide a comprehensive update of recent advances in the full spectrum of endocrinology including diabetes and lipid disorders. The program involves state-of-the-art lectures delivered by world-renowned faculty as well as interactive case discussion sessions. The official language of the meeting is English and simultaneous translation in Russian, Arabic, and Turkish will be provided.

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

## Obesity Week

**Washington D.C., October 29 – November 2, 2017**

The world's largest obesity-centric conference presents cutting-edge research, medical advances, surgical practices, public policy, and more as it continues to bring together world-renowned obesity experts to share innovations and breakthroughs in obesity treatment.

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

## 9th Cuban Congress of Endocrinology

**Havana, Cuba, November 8 – 10, 2017**

Sponsored by the Cuban Society of Endocrinology, the Cuban Section of Diabetes Mellitus, and the Reproductive Health Section, this three-day congress will include a wide variety of experts for a vital exchange of ideas as well as the latest updates on treating various endocrine disorders.

[endoped@infomed.sld.cu](mailto:endoped@infomed.sld.cu)

## 19th ASEAN Federation of Endocrine Societies 2017

**Yangon, Myanmar, November 9 – 12, 2017**

ASEAN Federation of Endocrine Societies (AFES) is an association of seven endocrine societies in Southeast Asia with a conference held every two years. With an extensive program covering a broad array of topics, various networking opportunities, poster sessions, continuing medical education, updates on new products and technologies at the AFES Expo, keynote speakers, and more, AFES 2017 is a "must-attend" event in Asia and one of the most recognized congresses among the clinicians and researchers in endocrinology.

[www.afes2017myanmar.com](http://www.afes2017myanmar.com)

## Translational Reproductive Biology and Clinical Reproductive Endocrinology 2017

**New York, N.Y., November 16 – 19, 2017**

The objective of this conference is to offer an authoritative 2017 update for reproductive clinicians and researchers, focusing on new translational developments in the field of reproductive biology and physiology, as well as clinically relevant patient-care issues. The conference aims to offer basic scientists and clinicians a unique and intimate framework for interactions and exchanges of ideas around paradigm changes and imminent new developments of significance.

<http://frm2017.cme-congresses.com>

## IDF 2017

**Abu Dhabi, UAE, December 4 – 8, 2017**

The global diabetes community will again unite at the IDF 2017 Congress in Abu Dhabi, UAE. The event will include more than 200 speakers, both world-renowned and newcomers, 230 national diabetes associations from 170 countries and high-level participation from the Health Authority Abu Dhabi (HAAD) and other health organizations.

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





## WHY ENDOCRINOLOGY?

# A Tale of Testosterone

**BY MICHAEL S. IRWIG, MD**, Associate Professor of Medicine & Director, Center for Andrology, George Washington University, Washington, D.C.

**I**t is true... the names of my two cats are Andro and Gen. The effects of androgens on the brain as they relate to gender differences was one of the major reasons that led me to become fascinated with the field of endocrinology. Other reasons that led me to choose endocrinology as a career were the interesting patients I was exposed to as a resident at the University of Virginia, the vast variety of conditions and organs involved in the field, possibilities for research, the intellectual stimulation of making and managing complex diagnoses, and a preference for outpatient medicine.

I migrated from Charlottesville, Va., to Seattle to pursue my endocrine training at the University of Washington (UW). My initial “big decision” was to choose between basic and clinical research. Having already been involved in clinical research on nutrition in adolescents in Costa Rica as a medical student, I wanted to explore the world of basic science which was unknown to me as a Spanish major at Vanderbilt University. I spent a year in a physiology laboratory at UW working with postdocs and PhD students looking at the effects of kisspeptin in male rats. After experiencing both types of research, I realized that my true calling in medicine was what had led me to medicine in the first place — patient care. I also envisioned myself as clinician educator, wanting to give back to the field by contributing to the education of future generations of physicians and endocrinologists. As a fellow, I began to practice my teaching skills by volunteering to speak on male hypogonadism and other similar topics at local community hospitals.

My first “real job” took me back to the East Coast to Sinai Hospital of Baltimore, a large community hospital with an internal medicine residency program. In addition to the teaching opportunities, I chose Sinai Hospital because of the amazing colleagues I would have including David Cooper and Sally Pinkstaff. They provided invaluable mentorship and remain close friends despite my move to Washington, D.C., in 2007 (In fact, David and I just recently visited the 122nd floor of the Burj Khalifa skyscraper in Dubai during a break at the Emirati Diabetes & Endocrine Congress.)

“  
**I feel very lucky to have found such a good match with both the field of endocrinology and my colleagues ... doing something that you really like makes going to work more of a privilege rather than a chore.**  
”

My second job at George Washington University in Washington, D.C., has been a great mix of patient care but also teaching and clinical research. I consider myself a general endocrinologist with a particular interest in androgens. The controversies regarding when to prescribe testosterone for male hypogonadism has provided a fun and rewarding niche for clinical care, teaching, and research. I credit my time at UW for providing me with the skill set needed to critically analyze research studies. Teaching and directing the two-week endocrine module for the second-year medical students at GW has also been very fruitful.

Over the last few years I have adopted transgender medicine as a major focus. Making a meaningful difference in the lives of one of the most marginalized populations has been a humbling experience. Witnessing first-hand the tremendous changes in society regarding this community been tremendous. I love

As the Endocrine Society embarks on its second century, *Endocrine News* will continue to tell the stories of how endocrinologists chose this remarkable field. If you would like to share your story with our readers around the world, contact Editor Mark A. Newman at [mnewman@endocrine.org](mailto:mnewman@endocrine.org).

giving talks on transgender care as the audience is often highly engaged and interested in the topic. Of note, I thank Dr. Vin Tangpricha of Emory University for opening many doors for me in this arena.

In addition to endocrinology as a career, the field has opened the door to several friendships and collaborations from one continent of the world to another. Some of the connections were formed through working with others on committees and task forces of the Endocrine Society and other professional groups. Other connections were made by simply searching the membership directories of the Endocrine Society and other associations. For example, during a recent trip to Oman

following the congress in Dubai, I met with Dr. Abdullah Al-Futaisi who introduced me to his colleagues at Sultan Qaboos University in Muscat, Oman. Similarly, a few years ago I had the pleasure of meeting Dr. Alvaro Fortich in Cartagena, Colombia and Dr. Luz Angela Casas Figueroa and her associates in Armenia, Colombia.

For the reasons above, I feel very lucky to have found such a good match with both the field of endocrinology and my colleagues. Despite some of the challenges of practicing medicine in the U.S. healthcare system, doing something that you really like makes going to work more of a privilege rather than a chore. <sup>EN</sup>

**EDITOR'S NOTE:** The opinions and views of the author do not necessarily represent those of *Endocrine News* or the Endocrine Society.



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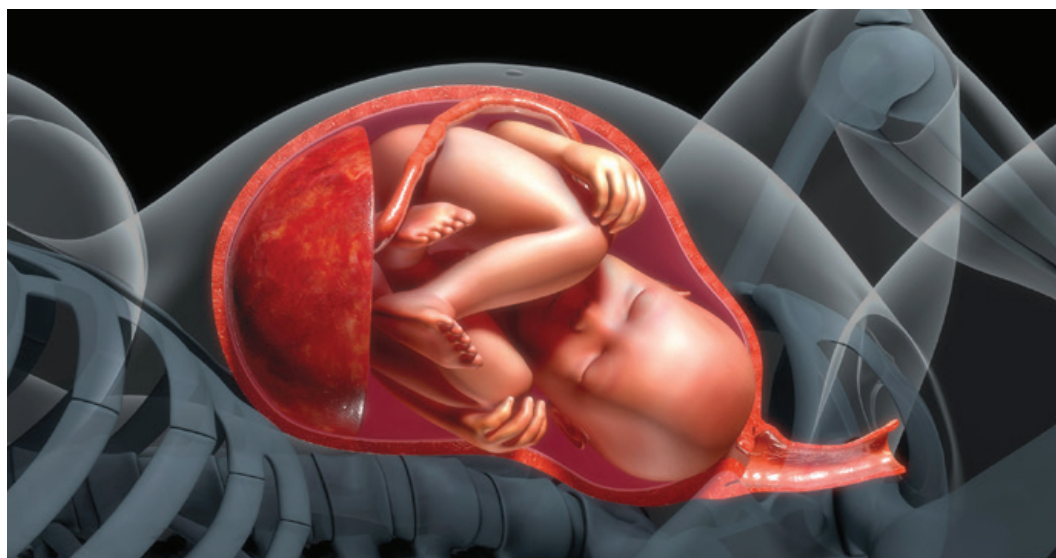
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BY DEREK BAGLEY  
Senior Editor

## TRENDS & INSIGHTS

# Exposure to High-Fat Diet In Utero Reprograms Liver and Leads to Metabolic Disease, Mouse Model Shows



“  
Using our established model of in utero programmed metabolic syndrome, we sought to determine whether genome-wide changes in DNA methylation occur in liver of offspring exposed to a maternal HF diet.  
”

In utero exposure to a high-fat diet reprograms the liver, leads to long-term gene dysregulation, and ultimately to metabolic disease, according to the results of an animal study recently published in *Endocrinology*.

Researchers led by Maureen J. Charron, PhD, of Albert Einstein College of Medicine in the Bronx, N.Y., point out that it's already known that in utero exposure to a high-fat diet is associated with increased incidence of cardiovascular disease, diabetes, and metabolic syndrome later in life. But why that is, isn't particularly well understood. “Although models of fetal programming of metabolic disease have described changes in DNA methylation,” the authors write, “evidence supporting this hypothesis remains limited. Thus, using our established model of in utero programmed metabolic syndrome, we sought to determine whether genome-wide changes in DNA methylation occur in liver of offspring exposed to a maternal HF diet.”

In their analysis, the researchers found 3,360 differentially methylated loci, “most of which (76%) were hypermethylated and distributed preferentially to hotspots on chromosomes 4 [atherosclerosis susceptibility quantitative trait loci (QTLs) 1] and 18 (insulin-dependent susceptibility QTLs 21),” they write. From those hotspots, the researchers found six differentially methylated genes that are associated with metabolic disease and remain altered through adulthood. “Most of the hypermethylated genes in these hotspots are associated with cardiovascular system development and function,” the authors write.

**Findings:** Charron and her team conclude that these results support the hypothesis that a maternal high-fat diet causes changes in the liver and DNA that carry over into adulthood and cause metabolic disease. Still, they write, future studies are needed to include characterization of DNA methylation in different hepatic cell types.





## Elderly Onset Type 2 Diabetes Pathologically Distinct, Researchers Find

**R**esearchers in Japan have found that elderly onset type 2 diabetes (eT2DM) is distinct from middle-age-onset type 2 diabetes (mT2DM), according to a study published recently in *The Journal of Clinical Endocrinology & Metabolism*.

The investigators, led by Hiroki Mizukami, MD, PhD, of the Hirosaki University Graduate School of Medicine, Hirosaki, Japan, point out that as people are living longer, clinicians are beginning to see more cases of eT2DM. Japan especially, where these researchers are based, has a large elderly population, since the life expectancy is so long there. “Japan is a country with a superaged society composed of >25% of people aged ≥65 years,” the authors write. “Such a superaged society itself experiences high frequencies of a variety of age-related diseases with a reduced population of active workers.” The authors also note that while eT2DM does differ in clinical presentation, they wanted to look at the specific pathological features of what makes that so.

The team collected pancreata from 13 young nondiabetic patients (age, 20 to 29 years), 27 patients with mT2DM (age, 45 to 87 years), 22 middle-age subjects without T2DM, 15 subjects with eT2DM (age, 85 to 100 years), and 30 elderly subjects. The team analyzed the tissue samples from these donors, looking at islet cells and amyloid deposition.

They found that in the eT2DM group, the average age of diabetes onset was about 81 years, and in the mT2DM group, the average age of diabetes onset was about 50 years. The older patients’ pancreases weighed less and had reduced islet cell mass. Their pancreases showed duct obstruction with epithelial hyperplasia, marked acinar atrophy, fibrosis, and amyloid deposition in the islet. “The amyloid volume density correlated inversely with the  $\beta$ -cell volume density but not with the body mass index in the eT2DM group,” the authors write. “Laboratory data showed mild elevation of serum amylase in the eT2DM group, although clinical signs and symptoms of pancreatitis were not apparent.”

**Findings:** Based on these findings, the researchers conclude that eT2DM is distinct from mT2DM. They also write that there could be an exocrine component in the disease course of eT2DM, “and/or that it shares some features with pancreatic diabetes but that it does not truly resemble the diabetes that develops secondary to profound exocrine pancreatic disease.” They also admit that they would have liked to compare eT2DM patients with patients who were the same age but developed diabetes in middle age, but it’s impossible since the latter patients unfortunately don’t live long enough.

“

The amyloid volume density correlated inversely with the  $\beta$ -cell volume density but not with the body mass index in the eT2DM group. Laboratory data showed mild elevation of serum amylase in the eT2DM group, although clinical signs and symptoms of pancreatitis were not apparent.

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**Total testosterone, which can be measured with high accuracy using LC-MS/MS assays in CDC-certified laboratories, and free testosterone are highly correlated, and it is only in individuals with altered binding-protein concentrations that the associations begin to diverge.**  
”

## Review Looks at Implications of Free Testosterone Measurements



**T**he number of testosterone prescriptions is growing, so a paper recently published in *Endocrine Reviews* seeks to offer some best practices for the application of free testosterone measurements in patients with androgen disorders.

The paper, by Ravi Jasuja, PhD, of Harvard Medical School, et al., points out that as the number of prescriptions written for testosterone has increased over the past 10 years, the medical community has refocused its attention on the critical need to accurately measure free testosterone in men with androgen disorders, as well as careful monitoring of these patients and rational dosing. Their review documents the evolution “of our understanding of the binding and bioavailability of testosterone to circulating binding proteins” attempts to offer a critical appraisal of the prevailing models of testosterone binding to these circulating proteins, discusses recent advances, and provides a contemporary perspective on the free hormone hypothesis and its clinical implications.

The Endocrine Society guidelines suggest measuring free testosterone in men whose total testosterone concentrations are in the lower end of the normal range and in men with conditions that make total testosterone measurements less reliable. “If the free hormone hypothesis is correct,” the authors of this review write, “free testosterone should serve as the benchmark for biochemical confirmation of hypogonadism. Accurate determination of free testosterone

values is therefore central to an accurate diagnosis of hypogonadism.”

The authors write that direct analogue assays are inaccurate and should not be used. They also write that while equilibrium dialysis is the reference method for measuring free testosterone, this method isn’t readily available, and because of the lack of standardization across laboratories, this method makes it difficult for endocrinologists to accurately measure free testosterone levels.

“Total testosterone, which can be measured with high accuracy using LC-MS/MS assays in CDC-certified laboratories,” the authors write, “and free testosterone are highly correlated, and it is only in individuals with altered binding-protein concentrations that the associations begin to diverge.” Therefore, they continue, they recommend following current Endocrine Society guidelines: Measure total testosterone, and if the man has suspected alterations in sex hormone-binding globulin, then measure free testosterone with equilibrium dialysis.

**Findings:** “Efforts are underway to standardize the procedures for free testosterone measurement and to generate harmonized reference ranges,” the authors conclude. “Until that time, clinicians should be aware that inaccuracies in free testosterone measurements and calculations and poorly defined reference ranges can increase the risk of misclassification in the diagnosis of androgen disorders.”

# Researchers Reveal Link Between PCOS, Type 2 Diabetes



**W**omen who have polycystic ovary syndrome (PCOS) have a higher risk of developing type 2 diabetes and are diagnosed at an earlier age with the condition, according to a new study published in *The Journal of Clinical Endocrinology & Metabolism*. The nationwide study is the first to show a connection between type 2 diabetes development and PCOS.

“Many women with PCOS are obese, but the risk for the development of diabetes in PCOS is unknown,” says one of the study’s authors, Dorte Grintborg, MD, PhD, of the Odense University Hospital in Denmark. “In this study, we found that the risk of developing diabetes is four times greater and that diabetes is diagnosed four years earlier in women with PCOS compared to controls.”


To determine the risk of type 2 diabetes development in women with PCOS, researchers studied two populations with PCOS: All pre-menopausal Danish women with a diagnosis of PCOS in the National Patient Registry (18,477 women) and a local subgroup of 1,162 women with PCOS who were examined at Odense University Hospital in Denmark. The local participants were tested for insulin and glucose levels, cholesterol, triglycerides, and testosterone levels. Women with PCOS were compared with age-matched females who did not have the disorder, nor a previous diagnosis of type 2 diabetes. Three women without PCOS were randomly selected from the National Patient Registry for each woman with PCOS.

Researchers found that women with PCOS were four times more likely to develop type 2 diabetes

compared to their counterparts who did not have the disorder. The average age for women with PCOS who received a diagnosis of type 2 diabetes was 31 years. The average age for women without PCOS and diagnosed with type 2 diabetes was 35 years.

Researchers also examined various factors related to type 2 diabetes development in PCOS such as age, body mass index (BMI), number of pregnancies, and prescriptions for oral contraceptives. Researchers used diagnosis codes in the Danish National Patient Registry and medical prescriptions from the National Prescriptions Registry to make their findings.

BMI, insulin and glucose levels, and triglycerides were positively associated with development of type 2 diabetes, whereas a higher number of births were negatively associated with the development of type 2 diabetes.

**Findings:** “The study’s authors note that BMI and fasting blood glucose levels are the best predictors of the development of type 2 diabetes in patients with PCOS. Increasing age, however, should not be included in future guidelines as a risk factor because most cases of diabetes in this study were found before the age of 40. The authors add that further research is needed to evaluate the effect of oral contraceptives and number of births for the risk of type 2 diabetes development in PCOS. “The increased risk of developing type 2 diabetes in PCOS is an important finding,” Grintborg says. “Diabetes may develop at a young age and screening for diabetes is important, especially in women who are obese and have PCOS.” 

“

Many women with PCOS are obese, but the risk for the development of diabetes in PCOS is unknown. In this study, we found that the risk of developing diabetes is four times greater and that diabetes is diagnosed four years earlier in women with PCOS compared to controls.

”



“As a member of the Endocrine Society I feel very strongly that the Society should take a leadership role in the prevention and management of obesity since it is a metabolic disorder that affects the endocrine system and all aspects of human metabolism. **Furthermore, the endocrinologists are in the best position to expand both the nutritional and genetic aspects of endocrine disorders.**”

— ARTEMIS SIMOPOULOS, MD, Center for Genetics, Nutrition, and Health, Washington, D.C., discussing the need to address the human food supply in “Balancing Act” on page 24.

FROM THE CENTURY OF  
ENDOCRINOLOGY TIMELINE

## 1923: *Estrin Isolated*



Edgar Allen (Society President, 1941-1942) and Edward A. Doisy (Society President, 1949-1950) isolated estrin, which led to the beginning of a new era in the study of female reproduction.

For more about the  
Century of Endocrinology, go to:  
[www.ESCentennial.org/timeline](http://www.ESCentennial.org/timeline).

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CHRISTIAN DE DUVE  
(1917 – 2013), Nobel  
Prize-winning Belgian  
cytologist and biochemist



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schools that offer  
students the  
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nutritional  
training.

— SOURCE: ACADEMIC MEDICINE

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Estimated  
cost of annual  
obesity-related  
healthcare.

— SOURCE: OBESITY SOCIETY/  
OBESITYWEEK.COM

## Cost Burden of Thyroid Cancer

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Estimated cost overall cost  
of care in 2013 (Patients  
diagnosed after 1985)

# \$3.1-\$3.5 BILLION

Expected cost cost of care in 2019  
(90,000 new cases)

— SOURCE: ENDOCRINEFACTS.ORG

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# TERESA WOODRUFF

## *Named* Editor-in-Chief of *ENDOCRINOLOGY*

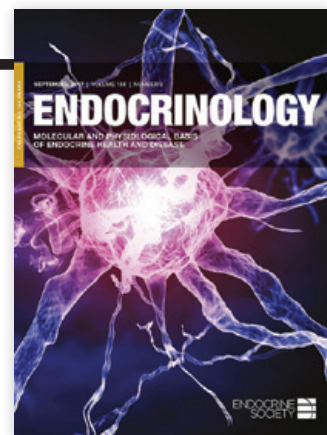
BY DEREK BAGLEY



The Endocrine Society's oldest peer-reviewed journal will get a new editor-in-chief in January. Woodruff aims to make *Endocrinology* a vital resource for all science "within and beyond the borders of endocrinology."



## Endocrine Society past-president Teresa Woodruff, PhD, of Northwestern University in Chicago, has had quite the past couple of months.



**F**irst, she was named dean of The Graduate School and associate provost for graduate education at Northwestern, which was effective September 1, 2017. Then, she was named editor-in-chief of the Endocrine Society's journal *Endocrinology*, beginning January 1, 2018.

"*Endocrinology* is the flagship for our discipline of endocrinology," Woodruff says. "It's where science that is relevant to the biological strategies of communication between organs and the hormones that do this work are published. The pages of *Endocrinology* are the Rosetta Stone of health and disease providing the clues that can be translated from the language of the bench to the terminology of diagnosis and treatment."

As editor-in-chief of *Endocrinology* Woodruff succeeds Andrea Gore, PhD, professor of pharmacology and toxicology at the University of Texas in Austin, and Stephen Hammes, MD, PhD, professor of medicine at the University of Rochester, who have led *Endocrinology* through a merger and enriched many areas of science including endocrine-disrupting hormones, sex inclusion policies, and methods to enrich the reproducibility of endocrine science.

"I am delighted that Dr. Woodruff has agreed to take the helm of the Endocrine Society's flagship basic science journal, *Endocrinology*," says Gore. "As a basic and translational researcher, and a real visionary, Dr. Woodruff is the perfect person to lead the journal in its second century of publication."

"I have known Teresa Woodruff for many years and I think that she is an outstanding choice for the next editor-in-chief of *Endocrinology*," Hammes says. "She is a wonderful person and a terrific scientist who has the uncanny ability to both sweat the details but also appreciate the big picture, which is exactly what you want in an editor."

"I really applaud what the current editors have done," Woodruff says. "*Endocrinology* will use the solid foundation that Andrea Gore and Stephen Hammes have built in order to grow further. I will focus on big impact and breadth of readership. If we do those two things, we can become an indispensable publication vehicle as well as resource for all of science, within and beyond the borders of endocrinology. Those are the pillars upon which we will build our science house."

In moving forward, Woodruff lays out her plan to bring impact factors up, as well as giving authors all the support they need, pointing to things that can be done, as well as things the Society is already doing. "I think to increase the journal's reputation, visibility, and rate of submission," she says, "we have to move our impact factors up. Impact factors can be criticized, but I think there's a threshold that needs to be met in order for the broader world to understand how valuable endocrine science is. And part of this is mechanistic. It's not that our science is below the threshold, it's the way our journal articles are externally counted, divided, and metric'd that's below the threshold. Part of my goal, which is shared by the associate editors and Endocrine Society staff, is to make sure we have the

“ The pages of *Endocrinology* are the Rosetta Stone of health and disease providing the clues that can be translated from the language of the bench to the terminology of diagnosis and treatment.”

— TERESA WOODRUFF, PHD



recognition that is already deserved by the papers that are within the journal. We're going to make sure we highlight scientific discovery as we move forward."

In terms of vision, Woodruff says she wants to make sure that the Endocrine Society keeps pace with the way publication works mechanistically, "which is part of our discussion about impact factors," she says. "While we have our eye on the metric ball, we also want to make sure our authors are well served with a fair and rapid peer-review system. And, I am going to ask the community to join with me to make certain our science is linked to the wider community through commentaries and other vehicles that I'll be rolling out in January. Some of the new tools at my disposal are electronic but most are by partnering with Endocrine Society members. We are the best communicators of complicated signaling pathways and negative and forward feedback systems — and I want to amplify those voices in connecting the science dots!"

First published in 1917 and now moving to online-only in 2018, *Endocrinology* is the Endocrine Society's oldest journal, first edited by R.G. Hoskins, PhD. "Historically, first and foremost," Woodruff says. "It led to all of the other journals of the Society, from *JCEM* to *Molecular Endocrinology* to *Endocrine Reviews*, to the *Journal of the Endocrine Society* and indeed to all of our discipline's

'competing' journals. It is the definitive reference for everything that we know about fundamental endocrinology from its origins to the present."

"I still see *Endocrinology* similar to the vision of the first editor-in-chief of *Endocrinology*, Hoskins, in 1917," she says. "I want this journal to represent the width and the depth of the field of *Endocrinology* as it emerges." To enable this, Woodruff has invited 12 outstanding associate editors who "share with me a vision for *Endocrinology* that represents our collective future."

Woodruff served as president of the Endocrine Society from 2013 to 2014 and is the Thomas J. Watkins Professor of Obstetrics and Gynecology and director of the Women's Health Research Institute at Northwestern. She's a pioneer in ovarian biology and introduced the concept of "oncofertility" to describe the merging of oncology and fertility studies. She was awarded the Presidential Award for Excellence in Science Mentoring from President Barack Obama in an Oval Office ceremony. She holds 10 U.S. patents. In 2013, she was named to *Time* magazine's "Most Influential Persons" list. <sup>EN</sup>

BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE DOCTABLET ONLINE EDUCATION PORTAL IN THE AUGUST ISSUE.

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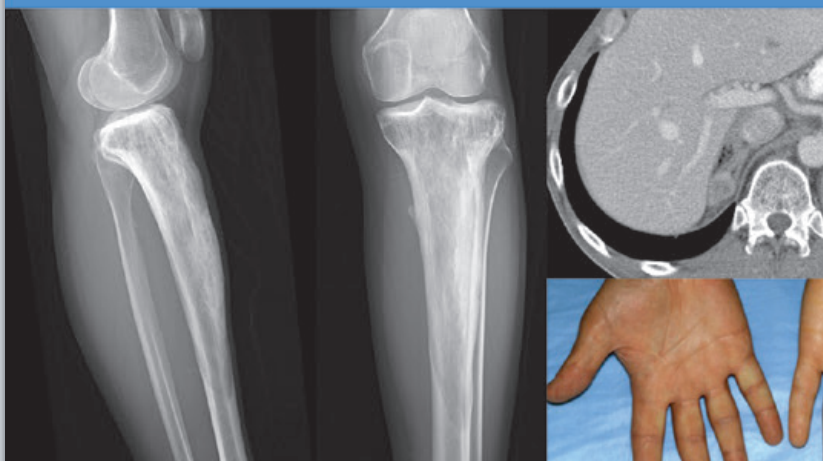
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As the diabetes and obesity epidemics continue to flourish, a closer look at our food supply is needed. A new study suggests that getting the right amounts of fatty acids – **especially omega-6 and omega-3** – back into our diets is the first vital step.

The food industry began to undermine olive oil about 30 years ago and promote extensively omega-6 rich vegetable oils, such as corn oil, as being “lighter” and gave the impression to doctors and their patients they had fewer calories.





# Balancing Act

BY DEREK BAGLEY



Last year, the *British Medical Journal's* online journal *Open Heart* published an editorial by Artemis Simopoulos, MD, of the Center for Genetics, Nutrition, and Health in Washington, D.C., and James DiNicolantonio, PharmD, of Saint Luke's Mid America Heart Institute in Kansas City, Mo., that concluded that all calories are not equal, and that to combat the growing obesity epidemic, we should focus more on restoring the correct balance of omega-6 and omega-3 fatty acids in our food supply.

As it stands, 1.5 billion people worldwide are overweight, while 500 million people are obese, leading the authors to conclude that the current "calories in and energy out" approaches have "failed miserably over the past 30 years." Simopoulos and DiNicolantonio argue that we should be working to rebalance the ratio of omega-6 and omega-3 fatty acids to 1 or 2:1, since that was the ratio in the foods humans consumed as they evolved.

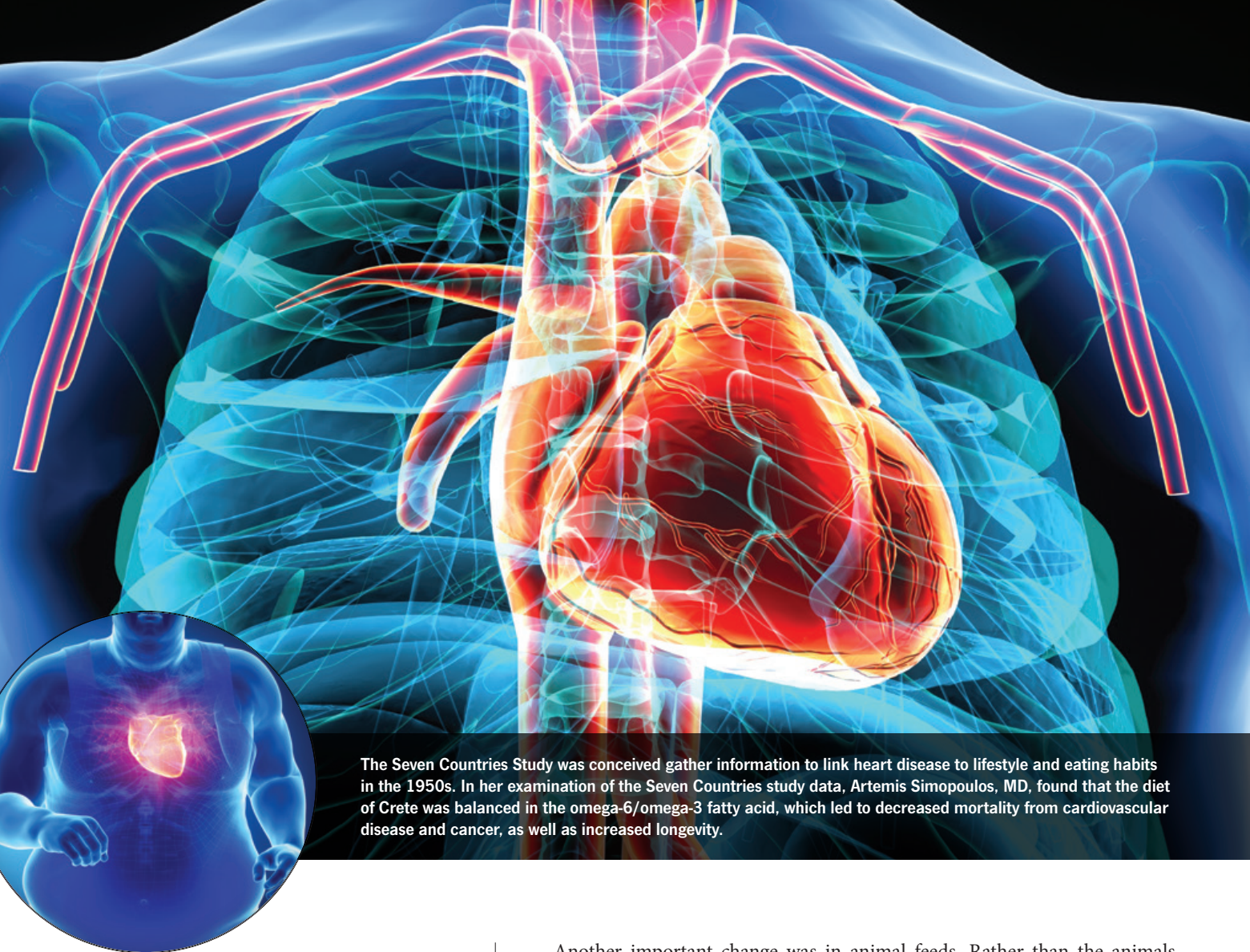
"Human beings evolved on a diet that was balanced in the omega-6/omega-3 fatty acids," says Simopoulos. "During evolution, the ratio was about 1 or 2:1 whereas today it is at least 20:1 and in fact in some situations, even more than that."

The authors point out that too much omega-6 promotes inflammation and is prothrombotic. In animal experiments, a high omega-6 intake leads to decreased insulin sensitivity and muscle and promotes fat accumulation in adipose tissue. Nutritional approaches with dietary omega-3 fatty acids reverse the dysregulation of the system, improve insulin sensitivity, and control body fat.

"The time has come to return the omega-3 fatty acids in the food supply and decrease the omega-6 fatty acids by changing the cooking oils and eating less meat and more fish," the authors write. "The composition of the food supply must also change to be consistent with the evolutionary aspects of diet and the genetics of the population."

## Domino Effect

After World War II, the food industry increasingly featured oils from corn, safflower, sunflower, cottonseed, and soybeans in their products, because these oils were cheap. But these oils are high in omega-6 fatty acids. The hydrogenation of these cheap oils into trans fatty acids also led to increased production of trans fats, which the FDA limits today.



The Seven Countries Study was conceived to gather information to link heart disease to lifestyle and eating habits in the 1950s. In her examination of the Seven Countries study data, Artemis Simopoulos, MD, found that the diet of Crete was balanced in the omega-6/omega-3 fatty acid, which led to decreased mortality from cardiovascular disease and cancer, as well as increased longevity.

**“If you consider obesity an endocrine disease, which it is, then the Endocrine Society’s role should be to gather the data and put out guidelines talking about what has happened to the food supply.”**

— CAROLINE APOVIAN, MD, BOSTON MEDICAL CENTER, BOSTON, MASS.

Another important change was in animal feeds. Rather than the animals grazing, farmers started feeding the livestock grains chock full of omega-6, which led to changes in their muscle composition, which affected meat and dairy products.

Simopoulos points to Ancel Keys and his misinterpretation of the Seven Countries Study data as the tipping point for this change. Keys, a psychologist from Minnesota, conceived The Seven Countries Study to gather information from research around the world that linked heart disease to lifestyle and eating habits in the 1950s. “In my examination of the Seven Countries study data,” she says, “the diet of Crete was balanced in the omega-6/omega-3 fatty acid, which led to decreased mortality from cardiovascular disease and cancer, as well as increased longevity.”

The people of Crete used olive oil in their diet and ate sardines or herring, wild plants rich in omega-3 fatty acids, and their livestock were not grain-fed, not even the chickens. “My studies on the composition of the Greek egg clearly showed that non-grain-fed chickens (which is the normal way for chicken produced eggs) are balanced in the omega-6/omega-3 ratio, whereas the standard USDA egg from grain-fed chickens has a ratio of 20:1,” Simopoulos says.

These enormous changes in the oils used in the food supply were made not because there was any evidence of their importance to health, but because they were cheap, tasteless, and were much “lighter” in terms of appearance. “The food industry began to undermine olive oil about 30 years ago and promote extensively omega-6 rich vegetable oils as being ‘lighter’ and gave the impression to doctors and their patients they had fewer calories,” Simopoulos says.

## In the Blood

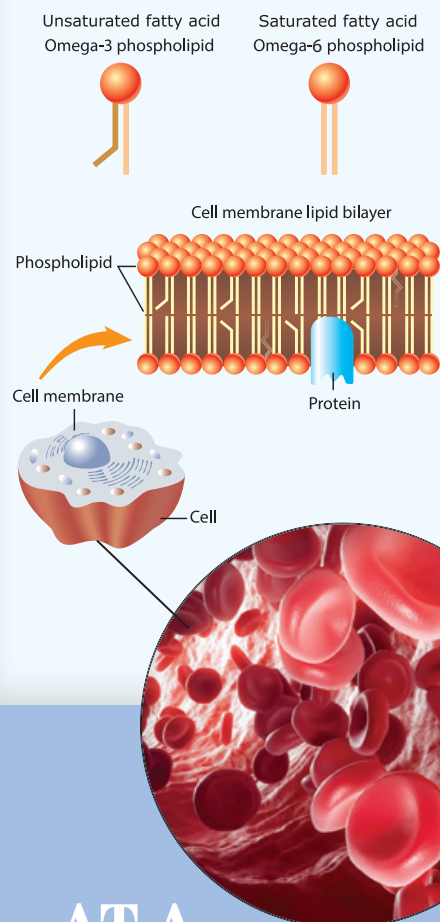
Simopoulos says that recent studies have shown that perinatal exposure of mice to a high omega-6 fatty acid diet (similar to Western diets) results in a progressive accumulation of body fat across generations, which is consistent with the fact that in humans, overweight and obesity have steadily increased in the past decades and emerge earlier in life. In human studies, high intake of omega-6 fatty acids during the perinatal period is associated with increased adiposity in the offspring, and the level of arachidonic acid in adipose tissue is associated with the BMI and overweight status of children.

But human studies can give conflicting results because they are based on dietary questionnaires. “People don’t remember exactly what they ate or how much,” Simopoulos says. “And depending on who is taking the history, you can get all kinds of responses and then do an analysis as to the amount of the omega-6 and omega-3 fatty acid content.”

“It’s hard to measure the ratio in a long-term study,” says Caroline Apovian, MD, an obesity expert with the Boston Medical Center, who was not involved in this editorial. “You have to know exactly what everyone is eating.” She describes her own study, in which the researchers delivered food to participants and had them keep food records for six months, but she says it’s impossible to know what the participants were eating in the meantime or if they were even eating the food that was prepared for them. Any further or more tightly controlled study would be incredibly expensive.

However, Simopoulos sees a solution. A paper published in the *European Journal of Nutrition* last year by Lu Wang et al., detailed a prospective analysis to determine the association of baseline red blood cell (RBC) membrane phospholipids of omega-3 fatty acids, omega-6 fatty acids, and the omega-6/omega-3 ratio and trans fatty acids with the longitudinal changes in body weight and the risk of becoming overweight or obese during a mean of 10.4 years follow-up. The researchers found that omega-3 fatty acids are inversely associated with weight gain, while omega-6 fatty acids, the omega-6/omega-3 ratio, and trans fatty acids are positively associated with longitudinal weight gain.

“The human study based on the Women’s Health Initiative by Wang et al., is the best study that could have been done and that really was the impetus to do the editorial,” Simopoulos says. “The best biomarker is the analysis of omega-6 and omega-3 fatty acids of red blood cell membrane phospholipids, which tells you not only the amount of omega-6 and omega-3 from food intake, but also endogenous production due to genetic differences in the FADS1 and FADS2 desaturases. Furthermore, the amount measured that way indicates the amount in the body for at least three to three and a half months since a red cell survives 120 days.



## AT A GLANCE

- ▶ One way to combat obesity is to restore the balance of omega-6 and omega-3 fatty acids in our diet, researchers says.
- ▶ Humans evolved eating a diet of 2:1 omega-6 to omega-3 fatty acids. The food industry has changed that to about 20:1.
- ▶ Clinicians should measure omega-6/omega-3 ratio of red blood cell membrane phospholipids at baseline and during clinical intervention.





After World War II, farmers started feeding the livestock grains chock full of omega-6, which led to changes in their muscle composition, which affected meat and dairy products.

“As a member of the Endocrine Society I feel very strongly that the Society should take a leadership role in the prevention and management of obesity since it is a metabolic disorder that affects the endocrine system and all aspects of human metabolism. **Furthermore, the endocrinologists are in the best position to expand both the nutritional and genetic aspects of endocrine disorders.**”

— ARTEMIS SIMOPOULOS, MD, CENTER FOR GENETICS, NUTRITION, AND HEALTH, WASHINGTON, D.C.

“All patients should have their omega-6 and omega-3 fatty acid determined in RBC both at the baseline and during clinical intervention,” she continues.

## Moving Forward

Simopoulos and DiNicolantonio write in the editorial that it is “the responsibility of the governments and international organizations to establish nutrition policies based on science and not continue along the same path of focusing exclusively on calories and energy expenditure.”

Some of these international organizations appear to have taken notice. Simopoulos spoke at two international conferences on the subject of this balancing act: The 4th International Congress: Science in Nutrition-Positive Nutrition in Milan, Italy in May, and the 10th Anniversary of the International Symposium on Immunonutrition in Madrid, Spain in July. The paper was also translated into Chinese and distributed at a conference in Chongqing.

Simopoulos details what needs to be done from here:

1. Doctors should understand the importance of nutrition in the prevention of obesity and other chronic diseases, and consider the contribution of evolutionary aspects of diet to health.
2. How many times are doctors going to see obese patients lose and gain weight and continue with the same method? No government has been able to prevent or cure obesity based on this approach. The scientific evidence of animal and human studies clearly shows that the current Western diet is not consistent with the diet humans evolved and for which our genes were programmed to respond.
3. Forget the old concepts that obesity can be treated by controlling energy intake. It is now very well established scientifically that all calories are not the same. For example, fructose stimulates the appetite center and a calorie of fructose is not equivalent to a calorie of glucose because people who consume beverages high in fructose cannot stop eating, therefore have a much higher intake of calories.
4. I think the government will understand regardless of politics that obesity is a major chronic disease that leads to cardiovascular disease and diabetes and will break the healthcare delivery system. The emphasis should be on prevention, and there is plenty of scientific evidence to get started now by changing the oils in the food supply, along with decreasing fructose intake, which is another man-made problem.





5. Finally, the FDA should consider labeling the omega-6 and omega-3 fatty acids separately and not as PUFA (polyunsaturated fatty acids), since these two families of omega-6 and omega-3 are metabolically and physiologically distinct.

For now, there seems to be a shift happening. More and more organic foods are popping up in grocery stores. More people are turning back to olive oil, and industry is working to reduce the omega-6 content of vegetable oils by making high monounsaturated sunflower oil. “It will mean that the food industry will have to reformulate some of their products, and they’re already doing that,” Simopoulos says. “But there is enormous interest worldwide in having a healthy diet for the prevention of chronic diseases. The most difficult part will be changing animal feeds because it is so much cheaper to feed the animals grains.”

Of course, this would just be one front in the attack on obesity. Other problems remain. Sugar intake still comprises 30% of calories, and 7% of total calories are sugar-sweet beverages, according to Apovian. And the underserved

population is being hit the hardest, since they cannot afford to buy extra virgin olive oil, she says. But Simopoulos says, “There are many high monounsaturated oils available i.e., hazelnut oil and macadamia nut oil. It is not necessary to buy expensive extra virgin olive oil. Regular olive oil will do, or a combination of olive oil and canola oil.”

“Moving forward,” Apovian says, “the Endocrine Society’s role should be informing the public about what kinds of macronutrients are helpful to maintain a healthy body weight. If you consider obesity an endocrine disease, which it is, then the Endocrine Society’s role should be to gather the data and put out guidelines talking about what has happened to the food supply.”

“As a member of the Endocrine Society I feel very strongly that the Society should take a leadership role in the prevention and management of obesity since it is a metabolic disorder that affects the endocrine system and all aspects of human metabolism,” Simopoulos says. “Furthermore, the endocrinologists are in the best position to expand both the nutritional and genetic aspects of endocrine disorders.” <sup>EN</sup>



**According to an Endocrine Society Scientific Statement, patients need to be counseled about the risks of custom-compounded bioidentical hormones. The preferred treatments should have been vetted by the Food and Drug Administration, not Oprah.**





BY ERIC SEABORG

# Compounding INTERESTS

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Physicians may need to take time to explain to patients the potential risks of using “bioidentical hormone” formulations made by compounding pharmacies, say the authors of an Endocrine Society Scientific Statement.

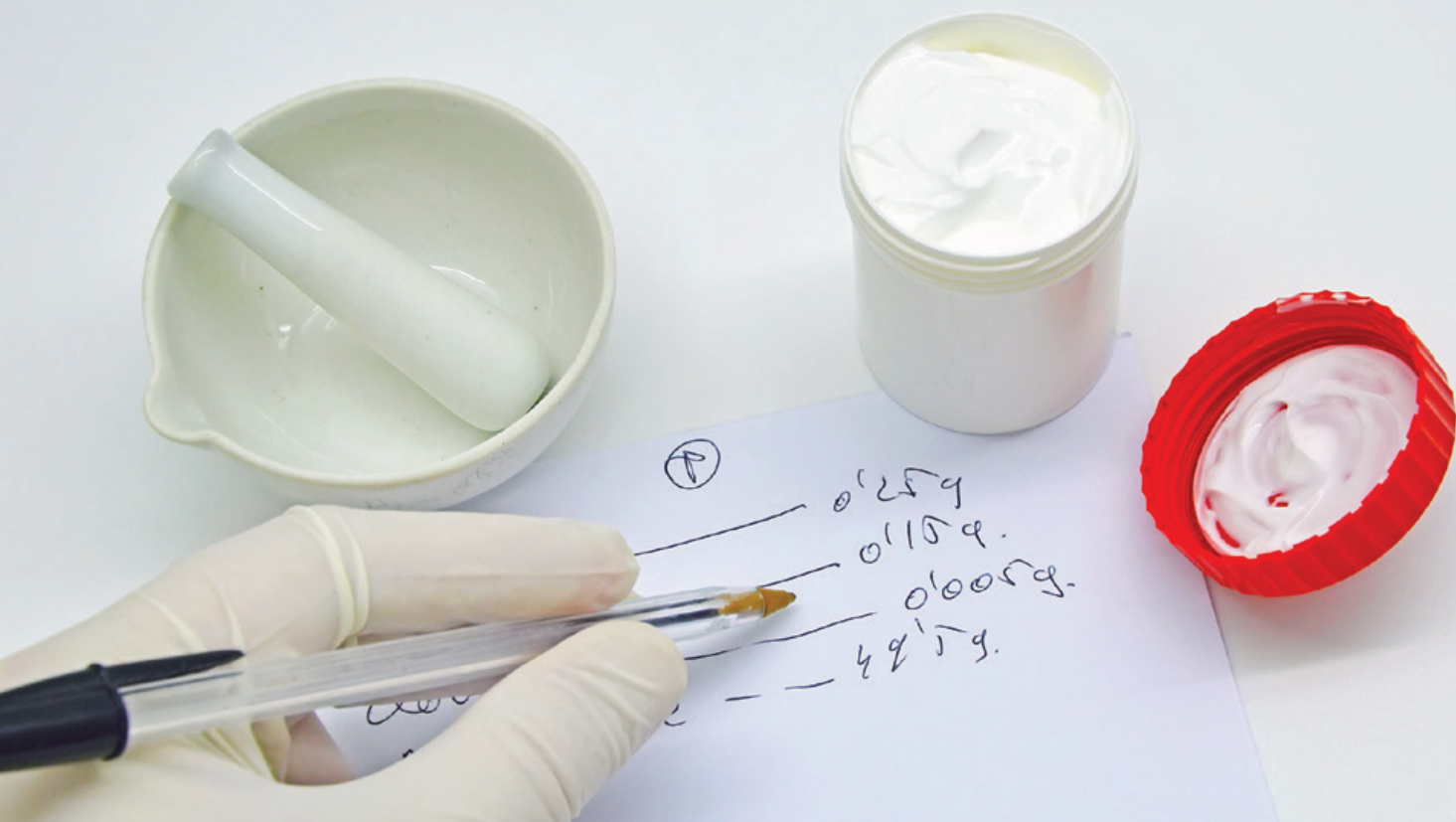
**M**any practitioners and patients find the subject confusing because of misleading information from the Internet and endorsements for alternative menopausal replacement hormones from celebrities such as Oprah Winfrey and Suzanne Somers. The compounded formulations are touted as “natural” and tailored to an individual’s needs, but “bioidentical hormones” is better understood as a marketing term to sell products that are not approved by the Food and Drug Administration (FDA), according to Nanette Santoro, MD, chair of the task force that wrote the scientific statement.

Patients need to understand that FDA-approved hormones from pharmaceutical companies offer protections of purity, controlled manufacturing processes, and evidence from clinical trials that products from less-regulated compounding pharmacies do not. In addition, many of the newer FDA-approved formulations can be described as bioidentical because they are the same molecules as hormones found in the body.

## UNKNOWN MANUFACTURING CONDITIONS

Patients are attracted to that “natural” label, but they can’t know the conditions under which the formulations are produced. An extreme example of the danger





**“The message that we would like to get to women and to prescribers is that they should only consider a compounded hormone therapy if they can’t tolerate a government-approved therapy, or if they need a dose or formulation that is not commonly available in a government-approved therapy.”**

— JOANN PINKERTON, MD, EXECUTIVE DIRECTOR, NORTH AMERICAN MENOPAUSE SOCIETY; PROFESSOR, OBSTETRICS AND GYNECOLOGY, UNIVERSITY OF VIRGINIA HEALTH SYSTEM, CHARLOTTESVILLE

of the less-regulated environment of compounding pharmacies occurred in 2012, when more than 60 people died from fungal meningitis after receiving injections of tainted steroids supplied by the New England Compounding Center. The head of that pharmacy was recently found guilty of racketeering charges.

But another worrisome problem is that compounding pharmacists can, for example, introduce excipients with unknown effects on absorption of the hormone.

“The conditions under which it is produced and the exact excipients that are put into that substance are going to affect its absorption, and may affect whether or not it causes you harm,” says Santoro, who chairs the Department of Obstetrics and Gynecology at the University of Colorado Anschutz Medical Campus, in Aurora. “No matter how carefully it is prepared, it is impossible to know the product’s pharmacokinetics. So, I don’t know if my patient is getting a peak at one hour, two hours, five hours, six hours, or never because the excipient is blocking absorption.”

## **MILLIONS OF WOMEN?**

The number of women using these products appears to be huge, according to a study by Santoro and JoAnn Pinkerton, MD, executive director of the North American Menopause Society and professor of obstetrics and gynecology at the University of Virginia Health System in Charlottesville. The study estimated that 1.0 million to 2.5 million U.S. women ages 40 years and older are using compounded hormone therapy. “It seems to be a bigger part of the market than

we thought before. A quarter to a third of the market for hormone therapy products is in the custom-compounded realm,” Santoro says.

The study also found that many women are not aware that the custom-compounded products have not been evaluated by the FDA. “These custom-compounded products require prescriptions,” Pinkerton says. “Many women believe that if they are given a prescription, it means that the product is government-approved. So, when asked in the survey, many women couldn’t tell whether or not what they were taking was a government-approved or nongovernment-approved therapy.”

## THE MYTH OF SALIVA TESTING

Another tactic used by compounded products marketers is the notion that through saliva testing, they can provide each individual a perfect match of hormone needs, another claim that the scientific statement seeks to knock down. “The custom compounders for menopause [hormones say that] ‘everybody is a special snowflake, and you need your special recipe of hormones, and we can do that for you,’” Santoro says.

“The Scientific Statement makes the point that salivary testing is unreliable,” Pinkerton says. “Patients pay significant costs to receive data that they believe is individualized to them, when in reality, dosing for hormone therapy is done based on symptoms, not based on blood levels or salivary testing,”

A patient whose hot flashes are gone is on the correct dose, Santoro agrees: “Only in rare cases, if they are outliers on the pharmacokinetic curve, do you need to measure blood levels. Saliva testing adds a level of complexity that doesn’t need to be there.”

## THYROID HORMONES

In addition to the menopausal hormones, thyroid insufficiency is the other main condition for which bioidentical hormones are marketed. Santoro says that “somewhere between 1 in 10 to 1 in 20 people do not do well” on replacement of levothyroxine (T4), and some seem to do better with a combination of T4 and triiodothyronine (T3). She says that marketers in the bioidentical field seize on this to push “the belief that if you got it from a biological source it is better. That has led to people taking things like porcine thyroid” because it contains both T4 and T3.

Treatment guidelines from organizations like the American Thyroid Association recommend avoiding these “natural” extracts from pig thyroid glands because they raise safety concerns — in particular because of their ratio of T4 to T3, with T3 levels being much too high. And it should be noted that the standard drugs for replacing T4 and T3 are in fact bioidentical — the exact same molecules as the hormones.



## AT A GLANCE

- ▶ Huge numbers of women are taking hormones from compounding pharmacies, so endocrinologists need to be prepared to deal with their requests for “bioidentical hormones.”
- ▶ The term “bioidentical hormones” engenders considerable confusion because of the way it is used to market hormone preparations made by custom-compounding pharmacies that do not have to meet FDA requirements. But there are FDA-approved bioidentical hormones, as well.
- ▶ Because custom-compounded hormone preparations are not required to meet the strict purity and efficacy requirements of FDA-approved pharmaceutical preparations, the Endocrine Society and other professional societies recommend FDA-approved formulations as first-line treatments.

“**There are reasons to use compounding, but there is not a reason for a third of American women to be using it as a preferred form of hormone therapy.** Maybe 1% of people will have a reaction to all forms of hormone therapy and might do better with compounding.”

— NANETTE SANTORO, MD, CHAIR, DEPARTMENT OF OBSTETRICS AND GYNECOLOGY, UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS, AURORA

## SUCCESSFUL COMMUNICATION

Santoro and Pinkerton regularly encounter patients who request compounded bioidentical hormones, often because they are afraid of traditional hormone therapy.

Part of their worry stems from the spin that the compounding marketers put on the preliminary release of results from the Women's Health Initiative (WHI) more than a decade ago about risks of menopausal hormone replacement therapy. One fallout from the WHI was that FDA-approved estrogen therapies must include boxed warnings about potential dangers. The less-regulated compounded therapies are not required to include these warnings, which can lead women to make the unwarranted assumption that they have no risks.

“A lot of these marketers build on a small truth and then make it much more broadly applicable in an inappropriate way,” Santoro says, such as claiming that women experienced problems because they were not using “natural products.”

For example, the fourth hit from a Google search of the term, “bioidentical hormones,” turns up a website that makes the false statement: “There is an overwhelmingly large body of evidence that supports the claim that bioidentical hormone therapy is safer and more effective than synthetic hormone replacement.” There is in fact no such evidence, the Scientific Statement emphasizes.

Santoro and Pinkerton both explain to patients influenced by such claims that there are FDA-approved products that can be defined as bioidentical. “I know it is going to be another 10 minutes of education added to the visit,” Santoro says. “I have to explain that what they are getting is much more reliable if we use an FDA-approved compound, so I feel much more comfortable giving that to them. There are real safety issues

and efficacy issues with using something that is compounded, so it would not be my first recommendation for them, it would be my last, if nothing else worked.”

“The message that we would like to get to women and to prescribers is that they should only consider a compounded hormone therapy if they can't tolerate a government-approved therapy, or if they need a dose or formulation that is not commonly available in a government-approved therapy,” Pinkerton says. “The majority of women are very willing to try a government-approved bioidentical hormone therapy once they understand that it is available, and the difference in the safety between government-approved vs. compounded.”

“There are reasons to use compounding, but there is not a reason for a third of American women to be using it as a preferred form of hormone therapy,” Santoro says. “Maybe 1% of people will have a reaction to all forms of hormone therapy and might do better with compounding.”

## A CONSENSUS

In addition to the Endocrine Society's statement, Pinkerton says that “the majority of the key medical societies, including the North American Menopause Society, the American Congress of Obstetrics and Gynecology, and the American Society for Reproductive Medicine, as well as several international societies, all recommend the use of government-approved hormone formulations that provide many options without the unique risks of compounded hormone therapy.” <sup>EN</sup>

“Compounded Bioidentical Hormones in Endocrinology Practice: An Endocrine Society Scientific Statement” was published in *The Journal of Clinical Endocrinology & Metabolism* in April 2016 and is available at: [www.endocrine.org/BioidenticalHormones](http://www.endocrine.org/BioidenticalHormones)

SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HE WROTE ABOUT THE INCREASE IN HIP FRACTURES IN THE MAY ISSUE.



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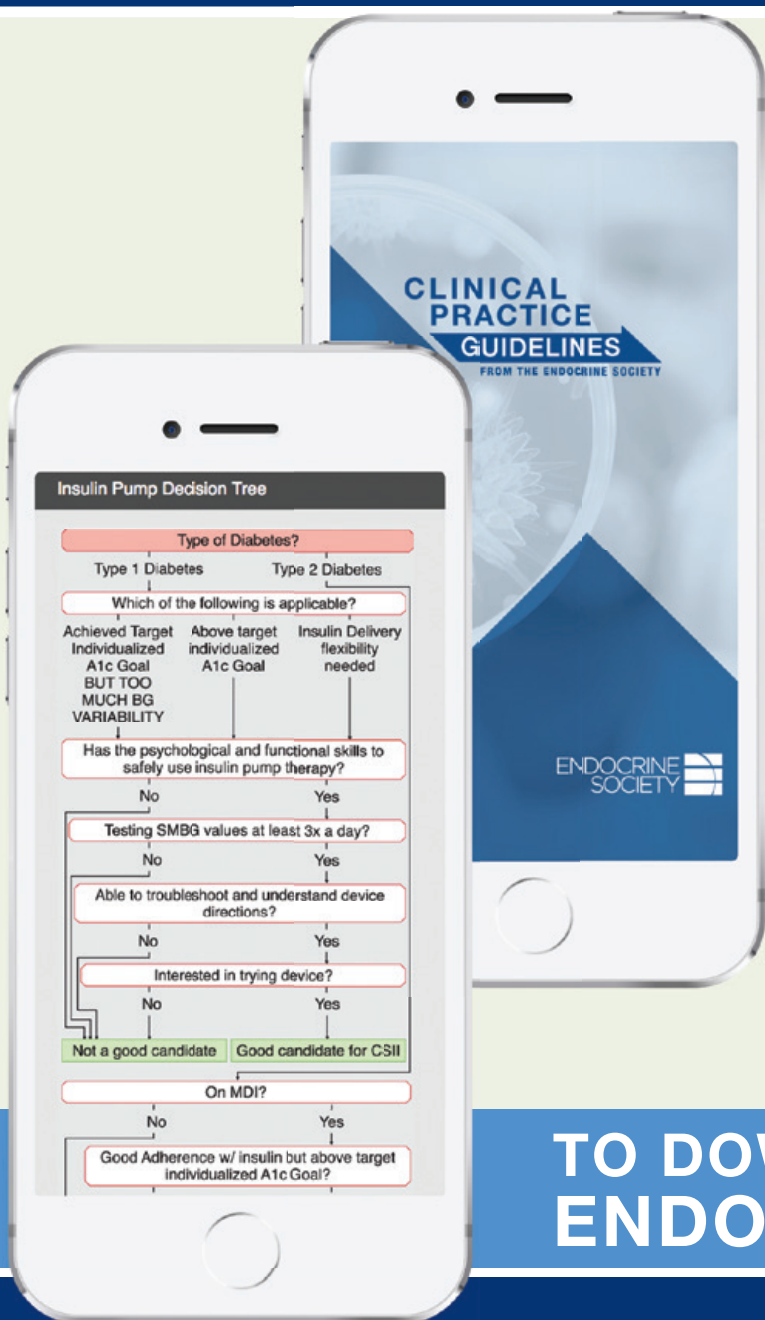
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# Q&A:

Wylie C. Hembree



*Endocrine News* talks with Wylie C. Hembree, MD, chair of the task force that created the latest Clinical Practice Guideline on transgender care. He discusses why it was important for the Endocrine Society to release such a guideline on this topic now and why he thinks it will impact the care patients receive in the future.



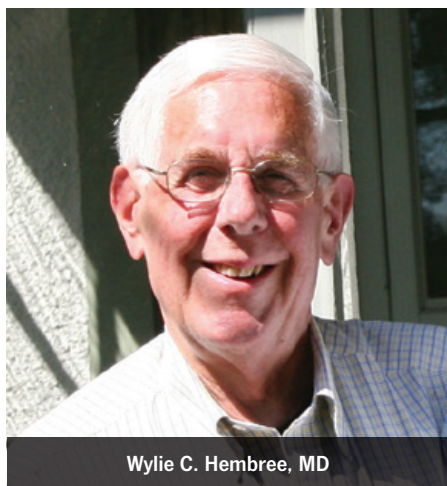
## In September, the Endocrine Society issued a Clinical Practice Guideline on gender dysphoria/gender incongruence, the first guideline addressing transgender patient care since 2009 and the first one to emphasize the importance of care for adolescents.

**T**itled “Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline,” the guideline was published online and will appear in the November 2017 print issue of *The Journal of Clinical Endocrinology & Metabolism (JCEM)*.

Over the past few decades, there has been a rapid expansion in the understanding of gender identity along with the implications for the care of transgender and gender incongruent individuals. The new guideline establishes a framework for the appropriate treatment of these individuals and standardizes terminology to be used by healthcare professionals.

*Endocrine News* spoke with Wylie C. Hembree, MD, of the College of Physicians and Surgeons at Columbia University in New York, and the chair of the task force that authored the guideline, to find out how this guideline will help dispel some of the myths that exist about treatment of this condition, as well as a closer look at treating younger patients and the differing protocols for treating adults and adolescents.

**“It is clear that a new Clinical Practice Guideline is required to aide those who participate in the transition of transgender persons.”**



Wylie C. Hembree, MD

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

**Wylie C. Hembree:** The initial 2009 Clinical Practice Guideline on Transgender Care was occasioned by the publication of a series of new clinical protocols designed to treat both adolescent and adult transgender men and women as well as by an increased number of treatment centers in the U.S. and Europe. Since that time, more than 3,000 publications have been published that clarify the natural history of gender dysphoria/gender incongruence. We are now aware that dissatisfaction with assigned gender may occur in childhood, in a small percentage, may persist into adolescence and, if not treated, will persist into adulthood. Treatment protocols for adolescents and adults are more precise, the role of mental health professionals is well defined, fertility options are available, the role of informed consent is defined, and options for gender-affirming surgery have improved and are more widely available. Laws and regulations have facilitated the social transition of transgender men and women. It is clear that a new Clinical Practice Guideline is required to aide those who participate in the transition of transgender persons.

**EN: What are your hopes for the impact of the guideline on endocrine standards of care of the patient with gender incongruence/gender dysphoria?**

**WCH:** The new guideline is designed to provide a better understanding of the presentation of gender dysphoria so that treatment protocols for adolescents and adults, their risks and benefits, and integration with surgery and social integration will be carried out more smoothly.

**A full-length feature that delves into the details of the guidelines recommendations and what it means for clinicians and patients will be published in the November issue of *Endocrine News*.**


The Guideline is designed to provide criteria for precise diagnosis as well as treatment options for use of sex steroids. Risks and adverse effects are well defined, especially with regard to protocols for suppression of endogenous sex steroids and steroid treatment to achieve complete transition to the appropriate gender.

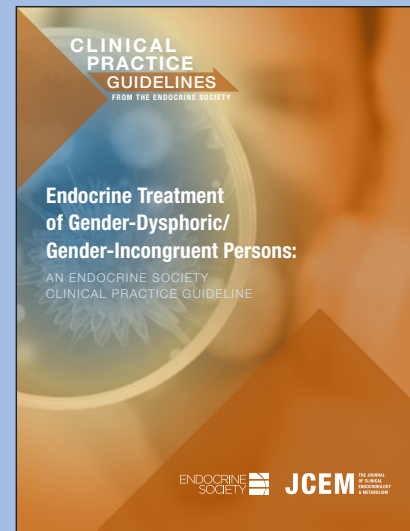
**EN:** How do you expect other medical specialties to be affected by the task force's recommendations?

**WCH:** It is hoped that the endocrine protocols can be appropriately used by non-endocrine physicians treating transgender persons and by surgeons providing procedures to aide in the transition. Furthermore, monitoring and adverse effects of this type of endocrine treatment must be understood by physicians and surgeons providing care for transgender persons. There are two aspects of the endocrine treatment for persons with gender dysphoria. The first may be designed either to prevent secretion of endogenous sex steroids at puberty or later in puberty, or in adults to suppress the sex steroid secretion that was determined by their natal sex. The second is to administer the sex steroids that achieve the body changes of the desired gender and to determine that the hormone levels are maintained within the normal physiologic range for the person's affirmed gender. In some cases, giving only one sex steroid, e.g., testosterone, may be enough both to suppress estrogen and virilize a transgender man. In transgender women, giving only estrogen may not be sufficient to suppress the testosterone secreted by their testes. An additional hormone may be required.

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

**WCH:** Transgender persons should understand that neither suppression nor administration of sex steroids should be given without discussions of informed consent, reversibility of treatment, and discussions of the impact upon or future options for fertility. Patients should discuss their desire for the types and timing of surgery.

Transgender persons must understand the reasons for the type of steroid hormones circulating in their bloodstream, what the risks and benefits are, and how they must be monitored. In adolescents, if the gonads that were suppressed at puberty are present, not only must the dose of the sex steroid of the desired gender be monitored, but persistent gonadal suppression must be determined. In late adolescents and adults whose gonads were suppressed, the sex steroids of the natal sex must be monitored as well as the sex steroid of the desired gender. If the gonad of a transgender person has been removed, only periodic measurement of the administered sex steroid levels is necessary and potential adverse effects should be monitored. 



## GUIDELINE RECOMMENDATIONS

- ▶ Hormone treatment is not recommended for pre-pubertal gender-dysphoric/gender-incongruent persons;
- ▶ For the care of peri-pubertal youths and older adolescents, an expert multi-disciplinary team comprised of medical professionals and mental health professionals should manage treatment;
- ▶ For adult gender-dysphoric/gender-incongruent persons, the treating clinicians (collectively) should have expertise in transgender-specific diagnostic criteria, mental health, primary care, hormone treatment, and surgery, as needed by the patient;
- ▶ Removal of gonads may be considered when high doses of sex steroids are required to suppress endogenous secretion, and/or to reduce steroid levels in advanced age; and
- ▶ During sex steroid treatment, clinicians should monitor, in both transgender males (female to male) and/or transgender females (male to female), prolactin, metabolic disorders, bone loss, and cancer risks when surgical removal is incomplete.

The guideline was published online at [www.endocrine.org/GenderDysphoricCPG](http://www.endocrine.org/GenderDysphoricCPG) ahead of print.

# Second Opinions: Are Physician Networking Websites Useful?

Online information-sharing sites tailored to physicians could be an ideal opportunity to not only get answers but to share your knowledge with others.

BY CHERYL ALKON

For Quang T. Nguyen, DO, FACE, FTOS, using a physician networking site has helped him gain insights from doctors outside his office walls. “I appreciate the chance to run an interesting case by my colleagues,” says Nguyen, the medical director of Las Vegas Endocrinology who has used the site SERMO, a worldwide network of more than 650,000 physicians that’s been around since 2005, one of several resources aimed at the medical community.

“Sometimes you get strange and unhelpful remarks from other physicians but when you use the network enough, you know who you can trust,” he says. “I recently had a law-related case that I had never encountered before. Running the case on SERMO helped at least solidify that I am not alone during the crisis. If I have to pick one feature I like the most, it is the ability to share difficult cases with colleagues.”

SERMO, along with other sites such as Doximity and Quantia MD, position themselves as places where doctors and other medical professionals can mix with their peers. They allow users the opportunity to consult others on particular cases, reach out to peers and colleagues, job hunt, produce informational podcasts, and take continuing education courses, among other features. Are they useful for those in the endocrinology world?

## Know Your Sources

For some, using the sites is a way to share their own knowledge.

Eric L. Johnson, MD, the assistant medical director of the Altru Diabetes Center and associate professor of family and community medicine at the University of North Dakota School of Medicine and Health Sciences in Grand Forks, began doing podcasts for Quantia MD after the site invited him to create diabetes content. He likes how Quantia MD is easy to navigate and that its participants are well-known.

“

**Real networking is done on a face-to-face basis. Take what you read online with a grain of salt. The real advice comes from the ones you respect, and you will know who that is most of the time.**

”

“I’m always looking to see what a lot of others who do diabetes have to say, and I like to see those who encounter those patients,” Johnson says. Other sites, he found, were too easy to get lost in. “You can search for information by topic more easily in Quantia MD, and it gets updated fairly routinely.”

Johnson appreciated Quantia MD members’ name recognition. “I started out by looking at topics I had a particular interest in or felt like I had to increase my knowledge, and some of the commenters I recognized as national leaders in the field,” he says. “I think they have a good

mix of national-stage professionals as well as those like me who are more regionally known.”

## The Yelp of Medication

SERMO recently announced its Drug Ratings feature. Consider it a “Yelp for prescription medications,” where physicians rate and comment on different drugs based on their own prescribing experience with the drugs’ efficacy, safety, accessibility,





adherence, and toxicity, says Peter Kirk, SERMO's CEO. It is the first crowdsourced medication rating system of its kind, "and we believe this is the new truth," Kirk says. People have long been able to rate and review things like toasters on sites like Amazon.com and elsewhere, he says, so "Why haven't we done it with drugs?"


Since the Drug Ratings feature launched in May 2017, Kirk says the site features more than 275,000 ratings of different medications; of those, 7,500 ratings are on diabetes drugs, the site's largest category. SERMO's Drug Ratings allow physicians' voices to rise above any marketing messages directly from pharmaceutical companies. "We give them what the doctors think, through real-world experience," he says.

## Cutting Through the Clutter

"There's a real signal-to-noise problem in medicine today," says Nate Gross, the co-founder of Doximity. While staying up-to-date on medical research is crucial, it's hard not to drown in the wave of information available each day. His site offers an active medicine newsfeed that uses algorithms to tailor articles and abstracts to each Doximity user based on clinical search terms. "You can have

a personalized list of articles and medical research that is likely to be exactly what their patients will need that month," Gross says. Doximity also offers users the ability to securely send faxes and other medical information from a mobile app. This way, Gross says, users can use medical-grade security to communicate with one another, as well as "use their iPhones on the go, rather than hang out by the fax machine on the other side of the hospital." Everything the site offers, he adds, is to help doctors be more efficient and effective.

"We feel for our doctors, and every single feature we design is only to save them time," Gross says. And time is often in short supply, so it's important not to waste it.

It can be easy to lose track of time when using such sites, but they can be a useful adjunct to in-person networking, says Las Vegas Endocrinology's Nguyen. "Real networking is done on a face-to-face basis. Take what you read online with a grain of salt. The real advice comes from the ones you respect, and you will know who that is most of the time." 

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

ALKON IS A FREELANCE WRITER BASED IN MASSACHUSETTS. SHE IS ALSO THE AUTHOR OF THE BOOK, *BALANCING PREGNANCY WITH PRE-EXISTING DIABETES: HEALTHY MOM, HEALTHY BABY*.



## Q&A: Alexander Kauffman, PhD

BY GLENDA FAUNTLEROY



**While Alexander Kauffman, PhD, and his laboratory try to unlock the secrets of puberty, his lab provides a once-in-a-lifetime opportunity to underprivileged interns, allowing them to unlock the secrets to their own scientific discoveries.**

Alexander Kauffman, PhD, is an associate professor in the Department of Reproductive Medicine at the University of California San Diego. He started the Kauffman Lab in 2009 to study how the brain and hormones coordinate the control of reproduction and the reproductive system. His lab is working on many projects, but on the day *Endocrine News* caught up with him, Kauffman just received notice of his new five-year NIH Research Grant (R01) to continue his work on the brain's role in puberty.

**Endocrine News:** So what do we know so far about why puberty kicks in at certain ages?

**Alexander Kauffman:** No one has a clue. Why do girls go through puberty at age 10 or 11? Why do boys go through puberty at 12 or 13, and by extension, why do boys begin puberty later than girls?

So, the main questions that we're going to study are what parts of the brain are involved in regulating normal puberty, how does this differ between males and females, and what are the specific molecular and cellular players involved, whether they're the proteins or neurotransmitters? What specific factors are involved, and where and when is this happening in the brain?

We have some exciting preliminary evidence and now we want to get into the brain and study the specific brain areas that are influencing puberty to see when and how they "work." Also, can this inform us about causes of reproductive pubertal disorders? There are some pubertal disorders, one of which is called precocious puberty (puberty at age seven or even much earlier). That disorder is very unfortunate, and it, interestingly, afflicts girls more than boys. So, again, we have this very interesting pubertal sex difference.

We study this in mouse models, so it's not human clinical studies, it's more translational research. But this allows us to use some cutting-edge genetic and molecular techniques in numerous mouse models to tease this all apart and get into the brain. We can look at what's changing in the brain or intentionally change the brain to see if we can alter puberty.

**EN:** What other fascinating reproductive mysteries are you researching?

**AK:** We have another grant from the National Science Foundation (NSF) on how stress inhibits reproduction. As it does with our animal models, women who are chronically stressed have trouble conceiving. Their menstrual cycles can shut off and they fail to ovulate in some cases. We know this is due to stress and stress hormones, but we don't know how this works. In the future, if someone can't conceive and has very high stress hormone levels, the dream is to develop a treatment that would be able to block that inhibition. We actually just published a paper on the topic of stress and infertility (JA Yang et al., *Endocrinology*, 2017).

**EN:** How many researchers are in your lab searching for these answers?

“

For multiple years now, I've run outreach programs to local high schools so sophomores or juniors can get direct exposure to lab research techniques and do in-depth internships for multiple weeks. In almost all cases, the high schoolers are underrepresented minorities from financially disadvantaged backgrounds. Our program puts them in the lab, puts pipettes in their hand, and gets them cutting brain tissue, analyzing DNA samples, generating data, and seeing what it's like to be a scientist.

”

**AK:** I typically have two to three postdocs and a lab tech, and then I always have a lot of undergrads getting their hands and feet wet for the first time in research. Also, for multiple years now, I've run outreach programs to local high schools so sophomores or juniors can get direct exposure to lab research techniques and do in-depth internships for multiple weeks. In almost all cases, the high schoolers are underrepresented minorities from financially disadvantaged backgrounds. Sometimes their parents have never gone to college, so they would be the first in their families to do so. Our program puts them in the lab, puts pipettes in their hand, and gets them cutting brain tissue, analyzing DNA samples, generating data, and seeing what it's like to be a scientist. As you know, we need more minorities in science, and it's always a struggle to figure out ways we can achieve this.

At the end of every internship, the high schoolers give a presentation back at their school, and it's emotional. Several have been in tears about how much they learned about themselves and about this opportunity, and it's very fulfilling. **EN**



# Bead Baths & Beyond

COMPILED AND WRITTEN BY COURTNEY CARSON



## LSE 6L Digital Water Baths

The Corning LSE Digital Water Bath is a personal-sized bath constructed from corrosion-resistant stainless steel. The seamless chamber can accommodate up to six liters of water or can serve as a dry bath when using thermal beads.

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



## Aluminum Bead Bath XL

Labconco's Aluminum Bead Bath XL features blue anodized aluminum blocks that will hold tubes of various sizes. The aluminum construction promotes the conduction of heat or cold, ensuring sample temperatures are maintained while offering an eco-friendly and low-maintenance alternative to traditional wet baths.

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



## Lab Armor DryTemp

While bath beads can be used in most stationary water baths, Lab Armor baths are specifically designed for use with beads. The all-new DryTemp with Bead Block controls the temperature of samples in metal beads instead of water or other liquid. This avoids possible contamination from water or other liquid warming mediums while allowing for easier sample organization without the need for racks or clamps. An added bonus, DryTemp bead baths are easier to maintain as they do not need to be cleaned.

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



## Bead Block

Created for use with any standard commercially available dry bath, Bead Block replaces common drilled-out aluminum heat blocks. Rather than being designed around a solid block, the bead block is designed around beads providing optimal temperature uniformity and accuracy while incubating common lab vessels, including microfuge tubes, test tubes, and even microplates and slides.

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

## Cool Beans Chill Bucket Bag Kit

The Chill Bucket™ is a laboratory ice bucket that works without ice. It chills while keeping everything dry and in place, eliminating concerns of water-borne contamination or losing track of samples. In addition to the insulated bucket, the kit includes two chill packs for up to eight hours of cooling and a bead bag for toting beads to and from the freezer.

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



## Walkabout Tray

The replacement for old, uninsulated tube racks, the Walkabout Tray is a quarter the size of a traditional lab bucket making it easy to use under the hood or in tight benchtop spaces. With its superior insulative properties, it keeps samples and reagents at the desired temperature after removing them from the bead bath, incubator, or the refrigerator.

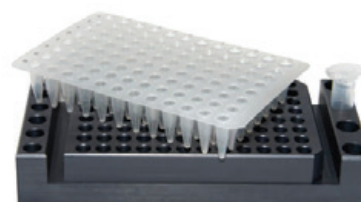
[www.shellab.com](http://www.shellab.com)



## Thermal Metallic Beads

Thermal Metallic Beads by Major Science offer an alternative to the dry bath aluminum blocks. These small, dry, metallic beads are designed to replace water in laboratory water baths and ice in ice buckets. Since the beads are dry, they are naturally more resistant to microbial growth than water and therefore less likely to harbor and contribute to transmitting microorganisms in the laboratory.

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



## Cool Block

The Cool Block by Chemglass is a solid aluminum metal chamber designed to keep PCR tubes and plates cold during sample preparation. The metal chamber was created to be cooled on thermal beads which retains uniform temperature across the block while providing a stable platform for PCR plates and tubes.

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

## Germinator 500

Cell Point Scientific's Germinator 500 quickly decontaminates micro-dissecting instruments between procedures. The stainless steel glass bead bath remains at a constant 500°F and decontaminates most instruments within 15 seconds. The Germinator 500 eliminates messy chemicals and the need for open flames in the lab.

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



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## Endocrine Society Attends High-Level Meetings in the EU on EDCs

**I**n September, members of the Endocrine Society's Endocrine-Disrupting Chemicals (EDC) Advisory Group and European Union EDC Criteria Task Force participated in several high-level meetings and workshops to ensure that policy decisions in the European Union (EU) related to EDCs include the perspectives of endocrine researchers with expertise in hormonal systems.

On September 14, EDC Advisory Group Chair Angel Nadal, PhD, participated in a workshop sponsored by the European Food Safety Authority (EFSA) on a revised hazard assessment protocol for bisphenol A (BPA). The objective of the meeting was to gather interested parties, scientific experts, and EFSA staff to discuss input received on the hazard assessment protocol during a previous public consultation. The Endocrine Society also submitted comments on the revised protocol during the consultation; in our comments, we expressed appreciation for improvements to the protocol, but highlighted several important issues that needed to be addressed prior to adopting the final protocol. For instance, we encouraged EFSA to broaden the analysis of sources of exposures for infants, and to assess the activity of BPA when co-exposure occurs with endogenous hormones. Nadal explained the Society's concerns to EFSA during his presentation and took questions from the audience.

On September 26, Barbara Demeneix, PhD, DSC, and GianCarlo Panzica, PhD, joined Nadal in a series of bilateral meetings with members of the European Parliament and European Commission staff to discuss implementation of the European Commission's proposed criteria to identify EDCs. On June 15, the European Commission released long-awaited criteria to identify EDCs. However, the criteria would set an extremely high bar for identification, resulting in very few EDCs being identified and regulated, at a high cost to public health. During the meetings, we expressed our concern with the criteria and explained why it will be necessary for endocrine researchers to stay involved throughout implementation of the criteria.

At the time this article was written, the European Parliament had not yet voted to approve the criteria; however, we anticipate that the criteria will be approved in their current form. The Endocrine Society will remain involved as the regulatory agencies implement the new criteria in the context of applicable laws on biocides and pesticides. The European Commission has expressed interest in applying the criteria across other categories, such as consumer products and toys, and the Endocrine Society will keep members informed of any developments.

## Endocrine Society Hosts Capitol Hill Diabetes Briefing



“Becky Causey brought in a five-month-old yellow Labrador retriever named Olive, who is learning to smell a hypoglycemic event. Causey has a waiting list four years long for her diabetes alert puppies, because she says the parents and children want an added safety net, since hypoglycemia is so dangerous.”



On September 14, the Endocrine Society hosted a briefing on Capitol Hill titled “Diabetes in America: Research Accomplishments and Clinical Challenges,” sponsored by Rep. Buddy Carter (GA-01). The briefing featured presentations from Judith Fradkin, MD, of the National Institutes of Health, who shared accomplishments in diabetes research; Shivani Agarwal, MD, MPH, of the University of Pennsylvania, who showed the audience the clinical challenges of treating diabetes; and Becky Causey, who gave a unique perspective of not only the mother of a child with type 1 diabetes, but also her profession, which is raising and training diabetes alert dogs.

Fradkin pointed out that while type 1 diabetes rates are highest in the white population, the rates are growing fastest in the Hispanic population. She says that research efforts now are trying to determine what triggers type 1 diabetes in a child. Is it a virus? Could it have something to do with diet or hygiene? Is it genetic? These are the questions diabetes researchers are trying to answer.

Fradkin then turned to type 2 diabetes, and talked about how researchers are fighting not only this disease — which hits American Indians and people in the deep South the hardest — but also all the comorbidities that come along with it. For example, she says, one quarter of the people who have type 2 diabetes develop kidney disease but there have been no new therapies for kidney disease. However, there’s now a trial testing gout medicine to treat kidney disease.

Agarwal then described the enormous challenges that endocrinologists and their patients face when it comes to diabetes. She talked about the shortage of endocrinologists, a significant deficit in the face of the skyrocketing diabetes rates. On top of that, physicians only have about 15 or 20 minutes to visit with each patient, not nearly enough time to explain a complicated disease.

For the patient, simply having diabetes is already a struggle. There are other chronic conditions that come along with diabetes, such as cardiovascular problems, depression, the aforementioned kidney disease, and so on. But patients





also face astronomical costs associated with diabetes. Insulin prices continue to climb. Patients have to purchase dozens of other supplies that insurance may or may not cover, or the insurance companies could decide to switch the formularies on a whim, and now the physicians have to spend part of that 15-minute visit teaching patients how to use a new product. “We have all these amazing products and technology,” Agarwal says, “but no access to them.”

Finally, Becky Causey brought in a five-month-old yellow Labrador retriever named Olive, who is learning to smell a hypoglycemic event. Causey has a son with type 1 diabetes, and she was able to collect some saliva once when her son was hypoglycemic, and put that saliva in a container for Olive to smell. Olive smells the container and Causey gives the dog a treat. Causey then delays the treat, and Olive bumps her nose to the container until she is finally rewarded. Causey has a waiting list four years long for her diabetes alert puppies, because she says the parents and children want an added safety net, since hypoglycemia is so dangerous.

— Derek Bagley



## Endocrine Society Members Join Rally for Medical Research


**O**n September 14, members of the Endocrine Society joined over 400 research advocates in Washington, D.C., to visit members of Congress and call for increased funding for biomedical research as part of the Rally for Medical Research.

Endocrine Society members Heather Patisaul, PhD, Benson Tokunbo Akingbemi, PhD, DVM, T. Rajendra Kumar, PhD, MSC, and Lindsey Trevino, PhD met with members of Congress and staff to ensure that elected representatives understand the importance of endocrine research and the need to provide steady, sustainable increases in funding for the National Institutes of Health (NIH).

The rally came at an important time in the federal budget process. In September, the White House and Democratic leadership reached a deal on a three-month Continuing Resolution (CR) to keep the government funded through December 8. The CR was packaged with a suspension of the debt limit, also until December 8, and emergency funding to deal with the impacts of Hurricane Harvey. While these measures were critically important to give the government more time to reach a deal that both raises the debt ceiling and the budget caps imposed by the Budget Control Act (BCA), more work needs to be done to ensure that NIH receives an increase in FY 2018 consistent with the growth trajectory achieved over the previous two fiscal years.

During the Rally, research advocates including clinicians, researchers, and patients went to offices all over Capitol Hill to make sure that Members of Congress heard three consistent messages loud and clear:

- ▶ We appreciate increases in NIH funding for FY 2016 and 2017.
- ▶ We need a \$2 billion increase for NIH in FY 2018, consistent with steady, sustainable increases in funding.
- ▶ We ask for a bipartisan, bicameral budget agreement for FY 2018 that lifts the caps on non-defense discretionary spending imposed by the BCA.

**TAKE ACTION:** All U.S. members of the Endocrine Society can help achieve these goals! To join your colleagues and make a difference, please see the NIH funding advocacy campaign on the Society’s advocacy webpage at [www.endocrine.org/advocacy](http://www.endocrine.org/advocacy). By taking less than a minute of your time to complete the form and send an email to your representative and senators you can help obtain funding needed to support lifesaving biomedical research. 





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# HORMONES AND BREAST CANCER

## WHAT YOU NEED TO KNOW

The endocrine system is a network of glands and organs that produce, store, and secrete hormones. Women, over the course of a lifetime, are exposed to many hormones. From her first period until menopause, a woman makes, estrogen and progesterone, which support normal breast cells. But, this lifetime of exposure to hormones may place women at an increased risk for breast cancer.

### BREAST CANCER FACTS

**Breast cancer** is one of the most common cancers in American women, especially for those who start their periods before age 12 or reach menopause after age 55. It is more common among women who:

- Are older
- Have no children
- Didn't get pregnant until after age 30
- Take birth control pills
- Have used hormone replacement therapy for more than five years
- Have a family member, such as a mother, sister, or daughter, who has had breast cancer
- Are obese and/or have dense breasts
- Drink alcohol to excess



### BREAST CANCER CAUSES

Your genes and your hormones play a role in breast cancer but we don't know exactly how. We know that **estrogen** (the major female hormone) and progestin (a synthetic form of **progesterone**, another female hormone) can cause breast tissue to grow faster than normal. Cancer usually appears in tissue that grows fast.

### COMMON SYMPTOMS

Most people will initially only notice one or two symptoms, and the presence of these do not always mean you have breast cancer. If, however, you notice one of these symptoms, you should check with your healthcare provider:

- A lump in the breast
- A change in the size or shape of the breast
- Puckering, dimpling, and redness of the breast skin
- A nipple discharge from one breast but not the other
- Bloody discharge from a nipple

**Visit [hormone.org](http://hormone.org) for more information.**

Additional Editing by Richard J. Santen, MD,  
*University of Virginia Health System*



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## DID YOU KNOW?



Breast pain during the menstrual cycle occurs in up to 80% of women but it is important to know that breast pain is not a symptom of breast cancer



Lifestyle changes, such as regular exercise, maintaining a normal weight, and avoiding excess alcohol, may be helpful in preventing breast cancer



1 in 8

About 1 in 8 women will develop breast cancer during her lifetime



More than 3 million women are living with breast cancer in the US



The 5-year survival rate for breast cancer that hasn't spread to other parts of the body is 98.8%

*Source: National Institutes of Health  
National Cancer Institute*

## PREVENTION AND DIAGNOSIS

It's important to diagnose breast cancer early as when it's caught early, your chances of a cure are much greater. Imaging tests can often find breast cancer before you notice any symptoms:

- **Mammograms** x-ray the breasts to get a closer look for changes in breast tissue
- **Breast ultrasound**, or sonography, uses sound waves to look at breast changes, such as those that can be felt but not seen on a mammogram
- **Magnetic resonance imaging (MRI)** uses radio waves and magnets to note patterns in breast tissue and look for cancer

A **breast biopsy** is the only way to know for sure if breast changes are cancerous. For a biopsy, a sample (tiny piece) of the area is removed and tested in a lab.

## TREATMENT

The choice of treatment is based on the type of breast cancer and other factors. Surgery is performed to remove cancerous tissue. The surgery may remove part or all of the breast depending on the stage of the cancer.

Radiation therapy, high-energy rays to destroy cancer cells, and chemotherapy, which treats the whole body, are also used, depending on the stage and severity of the breast cancer. Targeted biologic therapy is also now available.

## TIPS FOR STAYING HEALTHY

- Begin mammogram screening at age 50 (age 40, if you're at a higher risk)
- Limit alcohol use
- Control your weight
- Stay physically active
- For menopausal women with symptoms, use hormone therapy at lowest dose and for a limited period of time unless there is an increased risk of breast cancer or heart disease

A white question mark inside a dark purple circle, which is part of a clipboard graphic.

?

### 4 QUESTIONS TO ASK YOUR DOCTOR

- What is my risk for breast cancer?
- If I'm at high risk, should I take medication to prevent breast cancer?
- How often should I get a mammogram?
- Should I seek genetic testing?



## Patients have questions. We have answers.

The Hormone Health Network is your trusted source for endocrine patient education. Our free Menopause Map™ is available at [menopausemap.org](http://menopausemap.org).



Hormone Health  
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FROM THE ENDOCRINE SOCIETY



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- Potential teaching opportunities available through the Aspirus Wausau Family Medicine Residency program and the Medical College of Wisconsin both onsite
- Above average compensation package that includes income guarantee and production bonuses
- Other incentives: potential for residency stipend, loan repayment of up to \$200,000 and sign-on bonus options
- J1 and H1-B visa possibilities
- We pride ourselves on excellence: Aspirus Wausau Hospital recently received recognition as one of the 100 Best Hospitals in America for 2016
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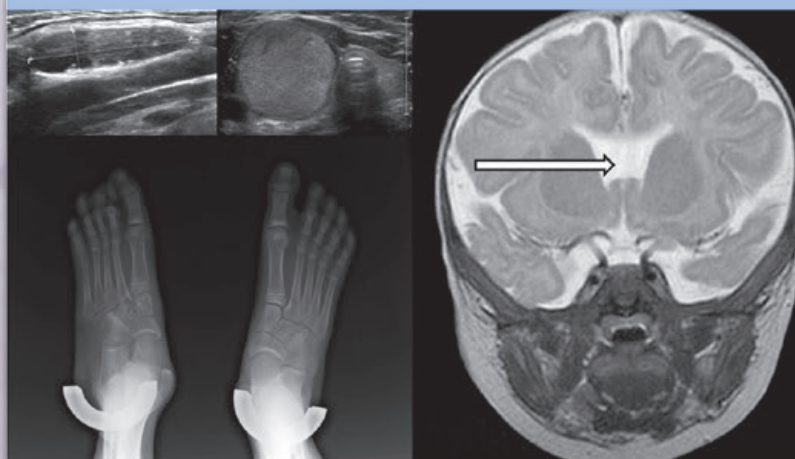
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