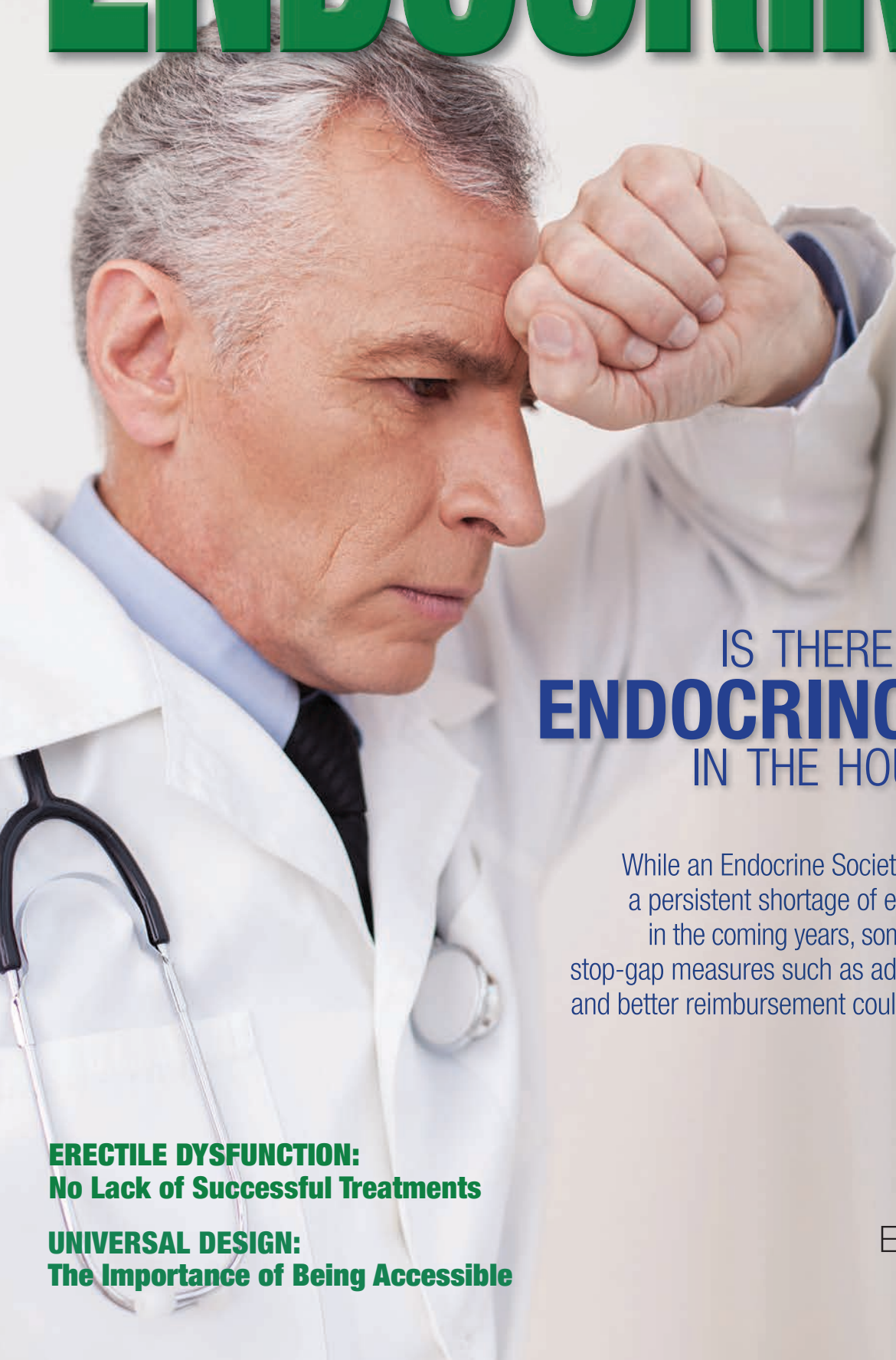


DECEMBER 2014

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

# ENDOCRINE<sup>TM</sup> NEWS



## IS THERE AN **ENDOCRINOLOGIST** IN THE HOUSE?

While an Endocrine Society study predicts a persistent shortage of endocrinologists in the coming years, some interesting stop-gap measures such as additional training slots and better reimbursement could make a difference.

**ERECTILE DYSFUNCTION:  
No Lack of Successful Treatments**

**UNIVERSAL DESIGN:  
The Importance of Being Accessible**

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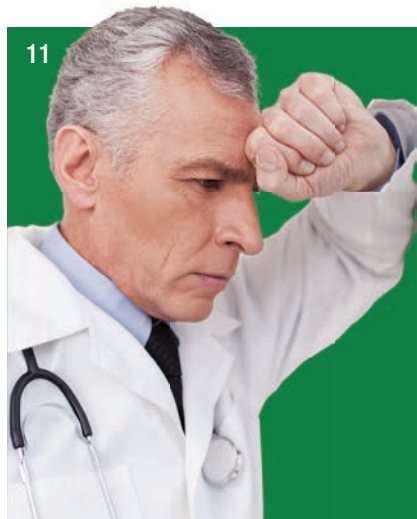


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**NO INCREASE IN MEMBERSHIP DUES FOR 2015!**

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# Transitions of Care



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Transitions of Care is provided by the Endocrine Society and a broad coalition of partnering organizations.

[endocrinetransitions.org](http://endocrinetransitions.org)



American Academy of Pediatrics



PEDIATRIC ENDOCRINE SOCIETY

This program is supported by educational grants from Lilly USA, LLC and Medtronic Diabetes.

# DRUM ROLL ANNOUNCING THE 2015 ELECTION RESULTS

The Endocrine Society's Nominating Committee is pleased to announce the results of the 2015 Election that concluded on October 20, 2014. Congratulations to the following Society leaders who will assume their new positions at the Society's Annual Business Meeting on March 8, 2015 during ENDO in San Diego, California.

**President-Elect** (Basic Scientist)  
Henry M. Kronenberg, MD

**Secretary Treasurer-Elect**  
Richard S. Legro, MD

**Vice President** (Clinical Scientist)  
Anthony L. McCall, MD

**Council** (Physician-in-Practice Seat)  
Alan C. Dalkin, MD

**Council** (At Large Seat)  
Beverly M.K. Biller, MD



[endocrine.org/electionresults](http://endocrine.org/electionresults)



## Improving the Practice of Endocrinology through Advocacy



Richard J. Santen, MD

Over the past few years, the evolving nature of healthcare delivery and the growing emphasis on improving quality and reducing costs have created both challenges and opportunities for practicing endocrinologists. To support clinicians, the Society has developed a number of tools, resources, and programs.

Throughout the implementation of healthcare reform, the development of federal incentive programs and new care models have provided a number of opportunities for the Society to advocate on behalf of its members. The Society has worked with federal agencies, including the Department of Health and Human Services (HHS) and the Centers for Medicare and Medicaid Services (CMS) to help shape quality improvement programs and to ensure coverage for services, like chronic care management, that cognitive specialists provide.

Through these efforts we've made progress. We successfully advocated for delays of meaningful use and the ICD-10 transition, and added exemptions for physicians who are unable to meet the federal quality program requirements. Going forward, we will continue this work to ensure that all endocrinologists are able to participate in these programs through the development of appropriate, risk-adjusted performance measures.

Disease prevention with appropriate physician reimbursement remains a key priority for the Society, and we have worked with Congress, CMS, HHS, and the White House on a host of issues impacting endocrinologists, including repealing and replacing the sustainable growth-rate formula, gaining Medicare coverage for continuous glucose monitors, the establishment of a National Diabetes Clinical Care Commission, and increased appropriations for the National Diabetes Prevention Program. The Society also continues to work with the U.S. Preventive Services Task Force on screening recommendations for endocrine conditions and expects continued success, like the expansion of screening for type 2 diabetes.

Enhancing clinical care through evidence-based resources, like the Society's clinical practice guidelines, is yet another way that the Society supports our physician members. In 2014, the Society published four new guidelines (Pheochromocytoma/Paraganglioma, Androgens in Women, Acromegaly, and Paget's Disease of the Bone) and expects to release six additional

guidelines in 2015. We've also been using these guidelines to serve as the basis for complementary resources, like performance improvement modules and educational programming, to enhance clinical care. We are planning to bring members new resources in the coming year.

The Society continues to advocate for our members at the American Board of Internal Medicine (ABIM), pressing for reform of its Maintenance of Certification (MOC) system. We believe that progress is being made and that ABIM is open to change. In particular, we are pleased that this summer ABIM added several of our nominees to its subspecialty boards and council, including Past President William F. Young, Jr; Vice President for Physicians in Practice, Susan Mandel; and Association of Program Directors in Endocrinology, Diabetes and Metabolism (APDEM) Past President Ashok Balasubramanyam. With these Society leaders working from within, we expect far more responsiveness from ABIM in the future.

In September, we again met with leaders from across internal medicine at ABIM for the Liaison Committee on Certification and Recertification. Building on our previous discussions, we provided recommendations to optimize communication with specialty organizations (leadership and members) and to improve the system for physicians by alleviating cost concerns, broadening the types of educational activities that will fulfill MOC requirements, and seeking third-party review of both the purported efficacy of MOC and the unintended workforce implications of this system. Finally, we continue to lead the call for ABIM to cease and desist publishing pejorative communications regarding MOC status, namely the statement "not meeting MOC requirements" with respect to those holding time-unlimited certificates.

The coming year brings great opportunities to enhance the Society's role in advocacy and education programming to improve the practice of endocrinology. I look forward to engaging with you further on these issues. If you have any questions or comments, please contact me at [president@endocrine.org](mailto:president@endocrine.org). **EN**

Richard J. Santen, MD  
President, Endocrine Society

DECEMBER 2014

# ENDOCRINE NEWS

THE LEADING MAGAZINE FOR ENDOCRINOLOGISTS

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*Endocrine News* informs and engages the global endocrine community by delivering timely, accurate, and trusted content covering the practice, research, and profession of endocrinology.

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

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The lonely-looking doctor on the front of the magazine is stressed because he's overworked. Turns out, he's the only endocrinologist in a 200-mile radius from his practice. Yes, there is an endocrinologist shortage, and according to a recent Endocrine Society workforce analysis, this shortage will likely persist for the foreseeable future. Some endocrinologists are even retiring sooner than planned due to their dissatisfaction with current practice conditions. Fortunately, former Endocrine Society president Robert Vigersky has some ideas to alleviate this problem, which he shares with us in "Is There an Endocrinologist in the House?" by Eric Seaborg (p. 11).

In "Homme Improvement" (p. 14), Kelly Horvath discusses some of the latest trends in treating erectile dysfunction (ED), a malady that affects more than half of men ages 40 to 70. This percentage increases significantly in men with diabetes. According to Evan R. Goldfischer, MD, MBA, co-CEO and director of research, Urology Division, Premier Medical Group in Poughkeepsie, N.Y., even if sex is not that important to a man suffering from ED, he should still be evaluated because "at the end of the day, it might not be the penis that needs treatment, it might be the heart or the brain to prevent heart attack or stroke."

In a noteworthy first, *Endocrine News* is taking a look at your office environment. Specifically, how easy is it for patients of all ages, sizes, and abilities to see you for their appointments? Award-winning writer Stacey Freed gives us the ins and outs of universal design in "All Access" (p. 18), where she discusses the importance of accessibility for all as well as specific steps you can take to make your office more user friendly for you, your patients, as well as your staff.

However, I imagine most of you will be out of your office from March 5 through March 8 attending **ENDO 2015** in San Diego, which will be a much-needed break from the winter weather for many of us. If you haven't registered, be sure to go to [www.endocrine.org/endo-2015](http://www.endocrine.org/endo-2015) today (You want to make sure your hotel room has a great view of the Pacific Ocean!). **EN**

Mark A. Newman,  
Editor, *Endocrine News*



Mark A. Newman

## Why Endocrinology?

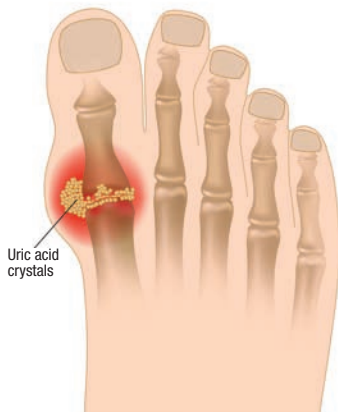
Of all the practices you could've chosen, what made you choose endocrinology? *Endocrine News* wants to know your thought process for choosing this practice for a future article.

Whether you're a basic scientist, practicing clinician, clinical scientist, just beginning your career, or wrapping it up, *Endocrine News* wants to know why endocrinology appealed to you as a practice or field of study.

Contact editor Mark A. Newman at [mnewman@endocrine.org](mailto:mnewman@endocrine.org), and let him know why you chose endocrinology.



By Derek Bagley



## GOUT Associated with Diabetes Risk

Gout has been independently associated with an increased risk of developing type 2 diabetes, according to a study recently published in the *Annals of Rheumatic Diseases*.

Researchers led by Hyon K. Choi, MD, of the Division of Rheumatology, Allergy, and Immunology, Massachusetts

General Hospital, Harvard Medical School, in Boston, set out to analyze the evidence of the potential impact of gout, since past looks into the link had been “limited to a single study of men with a high cardiovascular risk profile,” with no women previously examined.

Choi and colleagues identified 25,646 men and 9,693 women with gout from the Health Improvement Network,

an electronic medical record that represents the general population of the U.K. Among these 35,339 gout patients with a mean age of 62.7 years, “the incidence rates of diabetes in women and men were 10.1 and 9.5 cases per 1,000 person-years, respectively.” The team also identified 137,056 controls that were matched for age, time of enrollment, and BMI, and found that the corresponding rates of diabetes in this group were 5.6 and 7.2 cases per 1,000 person-years. They also found that the “BMI-matched univariate and multivariate [hazard ratios] of diabetes were higher among women compared with those among men (1.71; 95% CI 1.51 to 1.93 vs 1.22; 95% CI 1.13 to 1.31) and (1.48; 95% CI 1.29 to 1.68 vs 1.15; 95% CI 1.06 to 1.24), respectively (*p* values for interaction <0.001).”

The authors concluded that there may very well be a link between gout and a later development of type 2 diabetes, based on this general population-based study and “that the magnitude of association is significantly larger in women than in men.”

## Cold Prompts Body to **CONVERT WHITE FAT TO BEIGE FAT**

Exposure to cold temperatures causes the body to convert white fat to beige fat in order to burn calories for heat, but this response is hampered in obese people, according to a study recently published in the *Journal of Clinical Endocrinology & Metabolism*.

Researchers, led by Philip A. Kern, MD, of the University of Kentucky School of Medicine in Lexington, Ky., analyzed belly fat tissue samples from 55 people to determine whether the tissue samples taken in winter showed more evidence of browning activity than those taken in summer. Scientists also took thigh fat tissue samples from 16 people after they held an ice pack on their skin for 30 minutes. The analysis checked the tissue samples for specific genetic markers found in brown or beige fat.

“We wanted to investigate whether human adults had the ability to transform some white fat deposits into beige fat when they were exposed to cold,” says Kern. “Browning fat tissue would be an excellent defense against obesity. It would result in the body burning extra calories rather than converting them into additional fat tissue.”

The analysis revealed belly fat tissue biopsied in the winter had a higher level of two genetic markers for beige fat, compared to the samples taken in the summertime. In the thigh tissue samples, researchers found elevated levels of three genetic markers tied to beige or



brown fat in samples taken during the winter.

The scientists then analyzed the belly fat samples to see whether there was a difference in response among lean and obese people, and they found that the seasonal effect of fat browning was blunted in obese people.

“Our findings indicate inflammation can hinder the conversion of white to beige fat,” Kern says. “When we analyzed tissue samples in the lab, we found that exposing white fat to macrophage cells from the immune system inhibited the transformation.”



## LACTOSE INTOLERANCE

Linked to Increased Need for T<sub>4</sub>

Hypothyroid patients with lactose intolerance (LI) may have an increase need for oral levothyroxine (T<sub>4</sub>), according to research recently published in the *Journal of Clinical Endocrinology & Metabolism*.

T<sub>4</sub> is one of the most prescribed drugs in the world, and absorption of the drug occurs in the small intestine. Italian researchers, led by Marco Centanni, MD, of the Department of Experimental Medicine, University of Rome, point out that different conditions may interfere with the absorption of T<sub>4</sub>.

They note that there is increased need for T<sub>4</sub> required in patients with *Helicobacter pylori* infection and atrophic gastritis in which gastric acid secretion is impaired, as well as in patients with celiac disease, so they set out to determine whether LI affects T<sub>4</sub> in the intestine. "LI may interfere with the absorption of some drugs," the authors wrote, "and severe resistance to oral T<sub>4</sub> treatment has been described in a patient with LI."

The scientists analyzed replacement T<sub>4</sub> doses from 2009 to 2012 in 34 hypothyroid patients with Hashimoto's thyroiditis and lactose intolerance and who were non-compliant with a lactose-free diet. They found that "in all patients with isolated Hashimoto's thyroiditis, target thyroid stimulating hormone (median TSH 1.02 mU/L) was obtained at a median T<sub>4</sub> dose of 1.31 mcg/kg/d. In patients with LI, only five of 34 patients reached the desired TSH (median TSH 0.83 mU/L) with a similar T<sub>4</sub> dose (1.29 mcg/kg/d). In the remaining 29 patients, the T<sub>4</sub> dose was progressively increased and the target TSH (median TSH 1.21 mU/L) was attained at a median T<sub>4</sub> dose of 1.81 mcg/kg/d (38%, P < .0001)."

Six of the patients had other gastrointestinal disorders and required higher median T<sub>4</sub> (2.04 mcg/kg/d; 55%; p = .0032), and in the remaining 23 patients with isolated LI, a median T<sub>4</sub> dose of 1.72 mcg/kg/d (31% p < .0001) has been required to attain pharmacological thyroid homeostasis.

**The authors concluded that LI significantly increased the need for oral T<sub>4</sub> in hypothyroid patients. "Furthermore, they wrote, the increased T<sub>4</sub> requirement may help to suspect unrecognized LI in hypothyroid patients."**

## LAPAROSCOPIC GASTRIC BYPASS SURGERY Carries Low Risk

Laparoscopic gastric bypass surgery (LRYGB) in patients with type 2 diabetes, once considered a high-risk procedure, carries a complication and mortality rate comparable to some of the safest and most commonly performed surgeries in the U.S., including gallbladder surgery, appendectomy, and total knee replacement, according to new research from the Cleveland Clinic Bariatric and Metabolic Institute.

Findings from the new study were presented at the 31st Annual

Meeting of the American Society for Metabolic and Bariatric Surgery (ASMBS) during ObesityWeek 2014. The results were also published online in *Diabetes, Obesity and Metabolism*.

Researchers led by Ali Aminian, MD, Clinical Scholar of Advanced Metabolic and Diabetes Surgery at Cleveland Clinic, reviewed the American College of Surgeons (ACS-NSQIP) Database, a national database of 66,678 patients with diabetes who had various surgical

procedures including laparoscopic gallbladder surgery, appendectomy, partial colon resections, hysterectomy, heart surgery, and total knee replacement between 2007 and 2012. The complication and mortality rates of these procedures were compared to those of the 16,509 patients in the group who had LRYGB.

The 30-day complication rate associated with metabolic surgery, specifically gastric bypass, was 3.4%, about the same rate as laparoscopic cholecystectomy and hysterectomy.



Hospital stays and readmission rates were similar to laparoscopic appendectomy. The 30-day mortality rate for metabolic or diabetes surgery was 0.30%, about that of total knee replacement, and about one-tenth the risk of death after cardiovascular surgery. Gastric bypass patients had

significantly better short-term outcomes in all examined variables compared to laparoscopic colon resections.

“The perception has been that gastric bypass is a very risky operation, but the reality is, it is as safe, if not safer, than many of the most

commonly performed surgeries in America,” says Aminian. “The risk-to-benefit ratio of gastric bypass for diabetes and obesity is very favorable. There’s significant weight loss, diabetes improvement or remission, and a relatively low complication and mortality rate. In addition, earlier intervention with metabolic surgery may eliminate the need for some later higher-risk procedures to treat cardiovascular complications of diabetes.”

The authors concluded that LRYGB can be considered a safe procedure in diabetics with comparable short-term morbidity to common procedures such as cholecystectomy and appendectomy and mortality similar to knee arthroplasty. However, they did note that the database includes short-term postoperative outcomes and that more studies on the long-term effects of surgery are needed.

# Fast FACTS Endocrinology Workforce

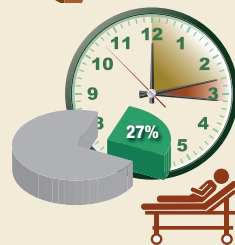
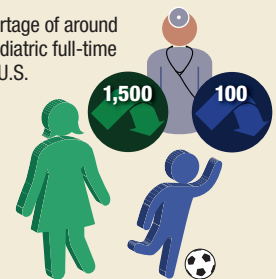


There are currently between 5,000 and 6,000 board-certified endocrinologists in the U.S.

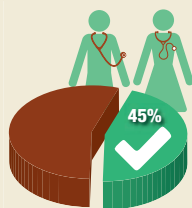
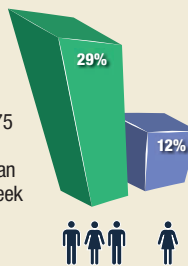


The average wait time for making a non-urgent appointment with an endocrinologist was 37 days in 2012.

There is currently a shortage of around 1,500 adult and 100 pediatric full-time endocrinologists in the U.S.

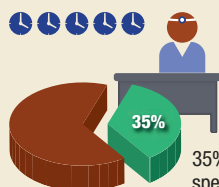


29% of endocrinologists see 50-75 patients a week. 12% see fewer than 25 patients per week



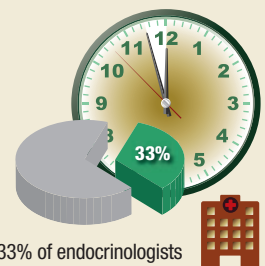
45% of endocrinologists said they would choose the same specialty if they had to do it over again.

27% of endocrinologists spend 13-16 minutes with each patient.



35% of endocrinologists spend 30-40 hours per week seeing patients.

30% of endocrinologists spend 10-14 hours per week on paperwork and administrative activities.



33% of endocrinologists spend less than 1 hour seeing patients in the hospital.





## IS THERE AN **ENDOCRINOLOGIST** IN THE HOUSE?

While an Endocrine Society study predicts a persistent shortage of endocrinologists in the coming years, some interesting stop-gap measures such as additional training slots and better reimbursement could make a difference.

By **Eric Seaborg**

### **AT-A-GLANCE**

- The current shortage of endocrinologists is large and likely to persist as demand for their services continues to surge.
- Increasing the number of endocrinology fellowships would help meet the demand, but finding funds for them is a difficult challenge.
- Many practices are responding by using more nurse practitioners, physician assistants, and other physician extenders to increase the reach of specialists.

**A** significant shortage of endocrinologists will persist for the foreseeable future, according to a new Endocrine Society workforce analysis. The number of endocrinologists who treat adults is not growing nearly fast enough to keep up with the surging demand driven by a growing and aging population compounded by the continuing obesity epidemic.

The study — *Endocrine Clinical Workforce: Supply and Demand Projections* — proposes several measures to combat this shortage, including creating more endocrinology fellowships, making the specialty more attractive by raising compensation, and extending the reach of specialists through greater use of mid-level providers.

Society leaders decided it was time for another look at endocrinology supply and demand because strong forces have been altering the healthcare environment since its last study more than a decade ago. Continued implementation of the Affordable Care Act, with its goal of increasing the number of people with health insurance, is expected to drive up demand. And endocrinologists are bearing the brunt of one of the most noteworthy trends of recent years — the inexorably rising incidence of type 2 diabetes. To work with its own experts, the Endocrine Society enlisted the Lewin Group, a consulting firm with experience in a broad range of healthcare issues that also collaborated on the Society's 2003 workforce study.

### Findings No Surprise

Most practicing endocrinologists experience the shortage firsthand, says Robert A. Vigersky, MD, director of the diabetes center at Walter Reed National Military Medical Center, one of the study authors, and a former Endocrine Society president. “The wait time for a new patient to be seen is much greater than in almost any other specialty in medicine by a factor of two. You can get in to see a cardiologist in 15 days, but it’ll take you 37 days to get in to see an endocrinologist,” Vigersky says.

This wait time has persisted for years — a 50% increase in the number of endocrinologists over the past 15 years has done nothing to diminish it.

The study projects that in 2015, the shortfall in endocrinologists who treat adults will be almost 1,500 full-time equivalents, a substantial number, considering that there are only about 5,000 endocrinologists who treat adults. If endocrinologists continue to graduate at present rates and the incidence of diabetes holds steady at today's rate, by 2025 the shortage will decline slightly to about 1,350 full-time equivalents.

But under a more likely scenario, that the incidence of diabetes continues to grow at its current rate — rising from 7.4% today to 12% in 2025 — the shortfall will almost double to some 2,850 full-time equivalents.

“If you wanted to try to close these gaps in the next five to 10 years, you’d have to have a huge increase in the number of endocrinology fellows,” Vigersky says.

### Endocrinologist Demographics

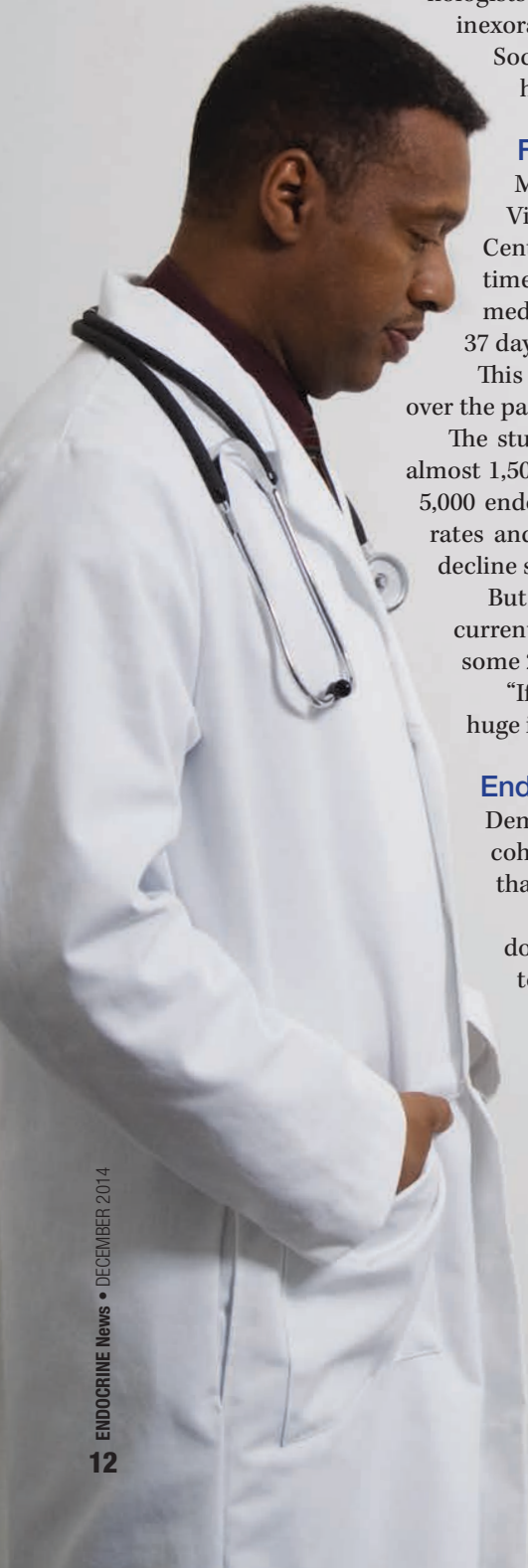
Demographic factors within the profession could also affect the shortage. The current cohort of endocrinologists is dominated by male baby boomers, many of whom report that they are considering retiring soon.

“This aging and predominantly male population is being replaced by a younger, predominantly female population. And the reason that is important is because, according to our survey data, women see fewer patients. In general, men tend to work more hours per week,” Vigersky says.

### Pediatric Controversy

One controversial finding of the study was its projection of no shortage among pediatric endocrinologists — that the supply could catch up with the demand in a couple of years. As with adult endocrinologists, the number of pediatric endocrinologists has been increasing, but the study said that the demand-driving factors of the aging population and soaring type 2 diabetes rates do not affect children to the same degree as adults.

However, leaders of the Pediatric Endocrine Society responded that these “surprising” findings “do not seem to jibe with what we see on a day-to-day basis.” They noted that both type 1 and type 2 diabetes are on the rise in children and pointed to a lack of involvement of practicing pediatric endocrinologists in the study and flaws in the study's full-time equivalent modeling techniques for pediatric endocrinologists that could lead to misleading results because “few pediatric endocrinologists are in private practice.”





## Expanding the Supply

The study suggested several ways to increase the supply of endocrinologists, starting by augmenting the number who graduate from training programs each year. “We estimated that we would have to increase the number of adult endocrinology fellows by 14% per year to close the gap in five years. If we wanted to close it in 10 years, we’d have to increase the number of fellows by 5.5%,” Vigersky says. “The problem is that graduate medical education positions are funded primarily by the Centers for Medicare and Medicaid Services, and that number is not going to go up in general.”

The Endocrine Society is not the only group interested in expanding training slots to combat looming shortages. Christiane Mitchell, director of federal affairs at the Association of American Medical Colleges (AAMC), says that the Endocrine Society’s projections are in line with those of other studies. The AAMC projects that in 10 years there will be a shortage of about 130,000 physicians, evenly split between primary care and other specialties.

AAMC backs legislation now in Congress that would support additional training slots for all specialties, but the likelihood of any bills that call for increased federal spending passing in the current political and budget climate is extremely low.

Vigersky says the Endocrine Society is also exploring alternative sources of funding, including “from the private sector, pharmaceutical companies, foundations, or private individuals.”

Another way to increase the supply would be to shorten from three years to two years the internal medicine component of endocrinology training. That would speed the rate of entry of endocrinologists into the workforce, lessen the cost of training, and increase the length of an endocrinologist’s career by a year. “Endocrinologists are not alone in considering how they might alter the duration of a residency,” Mitchell says. “This conversation is happening in different specialty societies.”

## Better Financial Incentives

A change that could make the endocrine field more attractive to potential recruits would be to improve the financial incentives. For example, increasing the payments for treatment of diabetes, obesity, and metabolic syndrome; for continuous glucose monitoring and insulin pump care; and for telephone calls to patients and telemedicine consults could help raise endocrinologist salaries compared with procedure-based specialties.

Many of the endocrinologists surveyed said that they are considering accelerating their retirement plans because of dissatisfaction with practice conditions, including payment levels. Higher payments could keep some of them practicing.

“Endocrinologists tend to do a lot of phone calls and emails to patients, essentially doing telemedicine in one way or another, but the third-party payers including Medicare rarely pay for that kind of service,” Vigersky says. “If we could figure out a way to get that compensated, it would certainly keep people in the practice of endocrinology longer and would make it more attractive for people to enter endocrinology.”

## Extending the Reach

A final measure that is already gaining traction is “to use more midlevel providers such as nurse practitioners and physician assistants to see the routine endocrine problems,” Vigersky says. This approach has helped extend care in Massachusetts, which expanded its insurance coverage several years ago in a program that served as a model for the Affordable Care Act. Vigersky notes that “a very high percentage” of the endocrinologists surveyed for the study said they planned to hire more midlevel providers.

“We are in a precarious position in terms of being able to meet the demand,” Vigersky concludes. “We are going to have to make some changes in the way things are funded and the way we practice medicine, and the Endocrine Society is working on those things.” **EN**

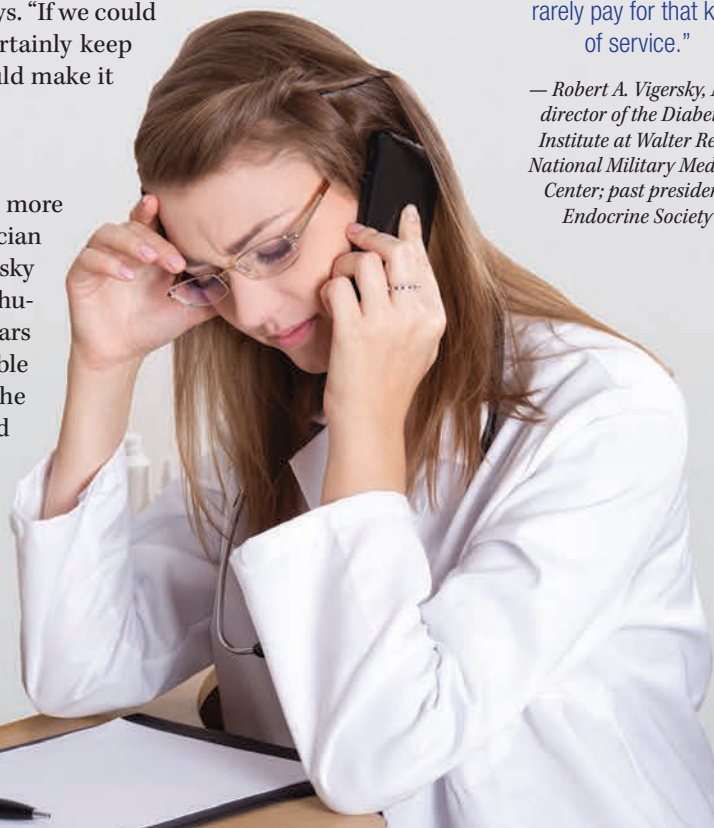
— Seaborg is a freelance writer based in Charlottesville, Va. He wrote about Vitamin D in the November issue.

**OnPOINT** from  
the Endocrine Society

The report, “Endocrine Clinical Workforce: Supply and Demand Projections,” can be found at: [www.endocrine.org/whitepapers](http://www.endocrine.org/whitepapers).

**“Endocrinologists tend to do a lot of phone calls and emails to patients, essentially doing telemedicine in one way or another, but the third-party payers including Medicare rarely pay for that kind of service.”**

— Robert A. Vigersky, MD,  
director of the Diabetes  
Institute at Walter Reed  
National Military Medical  
Center; past president,  
Endocrine Society





# HOMME improvement



For the millions of men affected by erectile dysfunction, there are a variety of proven successful options that can preserve spontaneity while alleviating the side effects of past treatments.

By Kelly Horvath

In the realm of erectile dysfunction (ED), the news is surprisingly positive for a disease that impairs quality of life for some 30 million U.S. men. With drugs being approved for use in multiple ways and at various times, treatment options for men with ED have never been more widely available. Phosphodiesterase type 5 inhibitors (PDE5is) revolutionized ED treatment in the 1990s, but now scientists are discovering just how flexible these vasodilators can be. Men with ED who desire treatment not only have more choices available to them, but they also can be more confident than ever before successful treatment is within reach.

## Drug Therapy

The short-acting PDE5is sildenafil citrate (Viagra), vardenafil (Levitra), and avanafil (Stendra) and the longer-acting tadalafil (Cialis) were formerly used only on an “on demand” basis. The short-acting compounds were thought to be best taken on an empty stomach, or in the presence of a low-fat meal, 30–60 minutes before engaging in some kind of sexual interaction. It turns out, some of them do not require such strict administration regimens. In a recent clinical trial, researchers led by Wayne J.G. Hellstrom, MD, FACS, professor, chief, Section of Andrology, Department of Urology of Tulane

## AT-A-GLANCE

- ED affects more than half of men between ages 40 and 70 years; the percentage rises dramatically in men with comorbid diabetes.
- First-line oral treatment options are successful at low daily doses, improving sexual spontaneity and remediating some side effects associated with larger, on-demand doses.
- Testosterone replacement is not necessary to regain erectile function even in men with very low serum testosterone levels.

University School of Medicine in New Orleans, demonstrated that avanafil provides a rapid onset of action in many men as quickly as approximately 15 minutes. “Many ED patients are looking for a safe and effective treatment option that also works fast,” Hellstrom says. The placebo-controlled trial of 440 men also showed that avanafil can be taken with food (or without) and with alcohol.

“Tadalafil is a little bit different in that it is much longer acting — patients can get 24 to 36 hours out of one pill,” says Evan R. Goldfischer, MD, MBA, co-CEO and director of research, Urology Division of the Premier Medical Group in Poughkeepsie, N.Y., who has studied tadalafil’s flexibility. “Tadalafil does not interact with food, and many patients like the spontaneity that it allows because you take it one to two hours before you want to have sex, but you have a good 24 to 36 hours before the tablet is no longer effective,” he says.

Tadalafil also provides administration flexibility. In “Impact of Low Testosterone on Response to Treatment with Tadalafil 5 mg Once Daily for Erectile Dysfunction,”

**“Even a patient for whom sex is not all that important should still tell his doctor about any ED and be evaluated, because, at the end of the day, it might not be the penis that needs treatment, it might be the heart or the brain to prevent heart attack or stroke.”**

— Evan R. Goldfischer, MD, MBA, co-CEO and director of research, Urology Division, Premier Medical Group, Poughkeepsie, N.Y.

published in *Urology*, Goldfischer and team reported that very low doses of 2.5 or 5 mg daily are also very effective. “Some patients find that the side effects are less, and it allows them to have a lot more spontaneity. They are taking it every day, so essentially they are always ready to go,” he says.

An added benefit of tadalafil is its indication for benign prostatic hyperplasia (BPH). Many men in their 50s and 60s not only suffer from erectile dysfunction but begin to experience prostate enlargement, which makes emptying their bladders more difficult and impedes urine flow. “So a lot of men

will take tadalafil on a daily basis not just for sex but also for the BPH as well,” says Goldfischer.

Side effects will differ depending on which receptor each PDEi cross-reacts with. For example, sildenafil citrate can cause cyanopsia — or blue vision — because it reacts with the type 6 receptor in the retina, whereas tadalafil can cause back and muscle aches when it cross-reacts with the type 11 receptors located in the back. However, as researchers point out, some of these side effects can be ameliorated with smaller daily doses, which still



**“Tadalafil does not interact with food, and many patients like the spontaneity that it allows because you take it one to two hours before you want to have sex, but you have a good 24 to 36 hours before the tablet is no longer effective.”**

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"All of these men are capable of achieving their goal with successful treatment.

**It just may mean that achieving their goal may require more intervention."**

— Thomas J. Walsh, MD, MS,  
associate professor of urology,  
University of Washington; director,  
UW Men's Health Center, Seattle

ENDOCRINOLOGIST



provide enough vasodilation to achieve an erection satisfactory for penetration.

But adequate circulation is only one part of the equation — although it is critical not just for achieving erection but also as an indicator of overall health. Because the artery to the penis is very small, it will probably be the first to demonstrate signs of atherosclerosis. Goldfischer says, "Even a patient for whom sex is not all that important should still tell his doctor about any ED and be evaluated, because, at the end of the day, it might not be the penis that needs treatment, it might be the heart or the brain to prevent heart attack or stroke."

### Comorbid Diabetes

Besides an intact vascular system, intact endocrine and parasympathetic nervous systems are also necessary. In men with diabetes, both systems can be compromised, which might affect their ED treatment. A man with very low levels of testosterone, such as from significant diabetes or from prostate cancer treatment, may not have much interest in sex to begin with. Although the typical treatment until very recently was to replace the testosterone, Goldfischer's study demonstrated that even low levels are sufficient for erection in conjunction with tadalafil therapy. Testosterone replacement is controversial because many feel that the benefits — increased energy, mental well-being, and sex drive — do not justify the adverse effects of hepatic and renal toxicity, prostate enlargement, and possibly atherosclerosis. "Our paper is meant to guide physicians," says Goldfischer. "If a man comes to you with ED and a serum testosterone level of <300 ng/dL, and he is not sure he wants to replace the testosterone because he has read some pros and cons about it, if you give him tadalafil 5 mg once daily, will it work for him? The answer is yes; really no matter what the testosterone level was, tadalafil 5 mg daily works."

Thus, the PDE5 inhibitor offers many men effective therapy, especially with recent advances in the variety of administration options. But they are not able to treat every man with ED. "We really do need to treat every patient as an individual," Goldfischer says. Nowhere is that more true than in men with diabetes, who are especially prone to nervous system and vascular injury,

which places them at significantly higher risk for ED.

In "Men With Diabetes May Require More Aggressive Treatment for Erectile Dysfunction," published in the *International Journal of Impotence*, researchers led by Thomas J. Walsh, MD, MS, associate professor of urology at the University of Washington and director of the UW Men's Health Center in Seattle, reviewed claims from the United Healthcare database and found that among men with ED, those who had diabetes seem to be more likely to seek advanced treatment options.

"That suggests that physicians and providers should be more attentive to the needs of men with diabetes and ED," Walsh says. The takeaway for clinicians is that patients require good counseling. "We should let them know that it is more common for first-line oral treatments not to be successful in men with diabetes, and it is more likely that they may need more advanced levels of care, simply because their ED is more severe than an average man's."

ED treatment should be stepwise, but men with diabetes may need to move through the steps more quickly. Walsh advises primary care doctors and endocrinologists to contemplate referring diabetic patients to a men's health specialist or a urologist earlier rather than later to discuss all options. "All of these men are capable of achieving their goal with successful treatment," he says. "It just may mean that achieving their goal may require more intervention."

An effective patient education program seems to be the cornerstone of successfully treating this quality-of-life disease. In the realm of pharmaceutical treatment, Goldfischer says, "Explain the risk/benefit profiles of a medication and its administration options to patients and develop the right pharmaceutical regimen that is right for them." They should also be informed that when medication is not enough, the door to successful treatment does not have to close. "Treatment is elective and goal-based," Walsh says. A key part of referral is making sure a patient understands all the options associated with his particular goals. And with that in place, says Walsh, "success is imminent." **EN**

— Horvath is a freelance writer based in Baltimore, Md. She wrote about delayed puberty in the October issue.





HMG-CoA  
reductase is part  
of the LDL-C  
metabolism story<sup>1</sup>

But PCSK9  
also plays an  
important role in  
LDL-C regulation<sup>2</sup>

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## New pathway discoveries are uniting the cholesterol conversation.

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By inhibiting HMG-CoA reductase and reducing cholesterol biosynthesis, statins help lower LDL-C.<sup>1</sup> PCSK9, another important protein involved in cholesterol metabolism, promotes degradation of the LDL receptor, thereby increasing LDL-C levels.<sup>2</sup> **In discussions of cholesterol metabolism, the roles of HMG-CoA reductase and PCSK9 should go hand in hand.**

Join the conversation at [DiscoverPCSK9.com](http://DiscoverPCSK9.com).

**HMG-CoA** = 3-hydroxy-3-methylglutaryl coenzyme A; **PCSK9** = proprotein convertase subtilisin/kexin type 9; **LDL-C** = low-density lipoprotein cholesterol.

**References:** **1.** Toth PP. *Drugs*. 2010;70:1363-1379. **2.** Zhang D, Lagace TA, Garuti R, et al. *J Biol Chem*. 2007;282:18602-18612.

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Cardiovascular



Universal design allows users of all ages and abilities to thrive within a space. A practice that incorporates these concepts can better serve patients, families, and even employees.

By Stacey Freed

Just say no to doorknobs.

At least that's what is happening in Vancouver, British Columbia; in March, the city banned the use of round doorknobs on new buildings and homes. Doors on those edifices now must have levers. That's universal design (UD). It might seem like a tiny detail, but the doorknob-to-lever switch is a good example of the kind of thinking needed to make more spaces accessible to more people.

In his final speech in 1998, Ron Mace, the architect who coined the term "universal design," differentiated it from "assistive technology," "ADA regulations," and "building codes" this way: "Universal design is design for the built environment and consumer products for a very broad definition of user that encourages attractive, marketable products that are more usable by everyone."

This consumer-centered approach will allow you to work in a space that will accommodate most individuals — which can be good for you, your staff and patients, and your bottom line.

### All Aboard

If you're following ADA guidelines, you're already doing a lot to meet patients' needs, but these are "minimum standards," says Danise Levine, a registered architect and assistant director of the Inclusive Design and Environmental Access (IDEA) Center at the University of Buffalo, N.Y. "And these rules are mainly for wheelchair users. In a doctor's office, you're dealing with people with a wide range of abilities and disabilities. You're dealing with patients and also with whoever is bringing the patient."

Thinking in broad terms about who might be using your space — young, old, tall, short, infirm, or not — will

help you see the benefits of UD. "[Its] biggest contribution is that it keeps people in charge of their own health," says Cynthia Leibrock, designer, lecturer, and founder of [agingbeautifully.org](http://agingbeautifully.org). "They will be able to make their own decisions and not have to constantly ask for help. 'I can't open the door, go through this space, reach this.' It supports their healing."

There are no hard and fast rules for UD. For example, ADA may require 32 inches of clearance for a doorway. If your doorway is 31 ½ inches, it's not compliant. You can answer "yes" or "no" for everything in the ADA code. With UD, Levine says, "I can give you a checklist of 30 things you can do to make your space more accessible. You can choose to do five of them or two of them. But there's no requirement that's prescriptive. You can start

### Principles of UNIVERSAL DESIGN

Universal design should:

- be useful and marketable to people with diverse abilities;
- accommodate a wide range of individual preferences and abilities;
- be simple and intuitive to use;
- communicate necessary information effectively to the user regardless of ambient conditions or the user's sensory abilities;
- minimize hazards and the adverse consequences of accidental or unintended actions;
- be used efficiently and comfortably and with a minimum of fatigue; and
- have appropriate size and space for approach and use.

Source: North Carolina State's Center for Universal Design



slowly, and, as you can, do more.”

Be aware that along with ADA rules, you also have particular building codes to follow, and those two things may be contradictory, says Newton, Mass., architect Deborah Pierce, author of *The Accessible Home: Designing for All Ages and Abilities*. For example, the Massachusetts building code says you need to have a grab bar behind a toilet that is 42 inches long; the ADA says 36 inches.

### Beyond the Parking Lot

It's easier to work UD principles (see box, p. 26) into a new build, but you can do many of these things in a retrofit or remodel. Check out the websites of the National Association of the Remodeling Industry (NARI.org), the National Association of Home Builders (NAHB.org), the American Institute of Architects (AIA.org) (all of which certify professionals in universal design), or the American Society of Interior Designers (ASID.org) to find qualified, UD-trained professionals.

A lot of UD is just common sense, but it can get overwhelming when thinking about accommodating every possibility for the widest range of people and enhancing every aspect of your space from the acoustics and lighting to your entryway to individual exam rooms to

### Recommended **UNIVERSAL DESIGN FEATURES**

- Weather protection at entrance doors
- Power-door operators at interior and exterior entrances
- Spaces left open but dispersed in waiting areas where wheelchair users can sit out of traffic lanes but with other people
- Chairs for use by people who cannot stand while transacting business
- Chairs that can be set at different heights for use by children, adults, and older people, some equipped with arm rests for those who need assistance rising to their feet
- Scales that allow people with difficulty standing to hold on, and one that allows people to be weighed while sitting in a wheelchair
- Motorized, adjustable-height treatment and examining tables and chairs
- Mammography machines that can be used on a woman in a seated position
- A portable, amplified communication system or device with volume control at service desks and treatment spaces for people who are hard of hearing
- More than one accessible toilet and dressing room, some left-handed and some right-handed
- A TTY for people who are deaf to make phone calls

*Source: North Carolina Office on Disability and Health's booklet "Removing Barriers to Health Care"*



This waiting room's universal design features are plentiful but not obvious. The chairs are wide and low to allow for patients of all sizes and abilities. The carpeted floor prevents slippage. The abundance of natural light ensures the space will be easy to navigate. (Photo: Loewenstein)



Aside from the lowered counter height, the most noticeable universal design feature shown is the wider door with a levered handle, making it easy to open for people of limited or full capabilities. (Photo: Dennis Jourdan)



Both the desk chair and the exam table are adjustable for easier access and consultation among doctor, physician's assistant, and patient. (Photo: Dennis Jourdan)



This waiting area features a lower counter height so anyone can check in easily regardless of abilities; wide traffic areas that allow for easy navigation by foot or wheelchair; and the chairs have arms well forward and space underneath to make them easier to access. (Photo: Loewenstein)

bathrooms and reception areas. Below are a few suggestions, but your design professional will likely have a checklist and spend a lot of time speaking with you about the needs of your patient population and staff.

### Accessible route

Remove barriers for easy access for walkers and those using mobility devices. A no-step entry is ideal. “It’s nice if everyone can come in and leave the same way instead of having some come in the front door and others have to go around the side,” Levine says.

The bottoms of vision panels — windows or sidelites on conference rooms or office spaces — should be no more than 36 inches off the ground, Leibrock says, to accommodate those who are shorter or are in a wheelchair. “As people go by they can see the room and use them for ‘way finding’: ‘I turn left at the break room,’ for instance.”

### Bathrooms

Levine suggests having at least one facility that’s family-style, if it’s possible, so a caregiver could have the space to help someone needing assistance.

### Controls and Doors

Things like doorknobs and cabinet pulls shouldn’t require a twisting or grasping motion, according to the ADA rules. Leibrock suggests testing controls “with a closed fist or draped hand” to see how difficult they might be to operate. “Even a lamp might be difficult to turn on. It’s better to have a touch switch on a cord — which is just a \$5 item.”

### Reception/Waiting room

This area should be well-lit and designed to make people feel less anxious.

Make sure it’s laid out so that not only is there enough maneuvering space between furniture, but that those in a wheelchair who are with a care provider can sit together and not be in the path of circulation. There should be a variety of seat sizes so heavier people, pregnant women, or shorter people can get in and out of them easily. Chairs should have arms well forward and have space underneath them so they’re easy to get into and out of.

Counter heights in public spaces are often too high. Have at least one lower counter, maybe 30 inches to 33 inches in height so shorter people, a child, or a wheelchair user could easily pay a bill or speak with a staff member.

Pierce suggests using color to make your space feel comforting. “Generally, blues and greens are soothing. Reds and oranges are energizing,” she says. “But blues can be gloomy as well as soothing. It’s important to get both color and shade right.

Place large-print magazines on a lower rack for people with low vision. Vary materials, colors, and textures in flooring so people can differentiate between spaces.

### Exam rooms

Depending on your patient population, it might be worth investing in an adjustable-height exam table.



### Is Your Office COMPLIANT?

A 2013 survey of 256 subspecialty providers, conducted by Baystate Medical Center researchers, found that 22% of those surveyed could not accommodate a patient in a wheelchair; 4% said their building was inaccessible; and 18% reported an inability to transfer a patient from a wheelchair onto an exam table. Only 9% said they had a height-adjustable table or a patient lift.

With about 1.7 million wheelchair or scooter users (and approximately another 4.3 million using other devices like canes, crutches, and walkers) in the United States, doctors — especially those who deal with diabetic patients prone to neuropathy and other ailments that affect mobility — may need to go beyond ADA compliance to accommodate patients. Using universal design principles can help.

“Transferring is just not safe,” Levine says, and caregivers, nurses, and doctors will all benefit from this kind of table.

And think about what it might be like to look up while lying on the exam table, says Pierce. Low-hanging acoustic tile might be needed to cover wires and ducts, but maybe lights could be softer so they’re not glaring in a patient’s eyes.

### Bottom Line

Unless you’re going to be moving walls or installing new plumbing, UD does not have to be costly and can be done in phases over time. Your practice will reap the benefits by attracting more patients. “Anyone who wants to be competitive in their industry wants to be sure they’re serving a wide spectrum of the population, so universal design is good thinking,” Pierce says.

It can be used as a marketing tool. “It speaks to professionalism and builds trust,” Leibrock says. “If I were in a wheelchair, I wouldn’t trust a doctor who didn’t make me feel comfortable in his or her space.” **EN**

— Stacey Freed is a writer based in Rochester, N.Y. She has received a variety of awards for her coverage of the design, remodeling, and construction industries.



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# TOP 10 LABORATORY Must-Haves

While some equipment will always be on that unobtainable wish list, here is a breakdown of the items your lab absolutely must have to function properly.

By **Melissa Mapes**

Legions of great new research instruments are released each year, ranging from high-tech microspectrometers to improved rotary evaporators. But, the hottest new technology is not necessarily what a lab needs to operate successfully. A handful of crucial items create the basic foundation of nearly every medical science experiment. For those trying to decide what to buy and what to skip, make sure to keep these must-haves on the shopping list.

### Safety First

This saying exists for a reason: When working in any environment that includes potentially dangerous materials and equipment, tools that protect the researchers and lab staff are crucial. The fume hood reigns as a chief necessity among these items, and no laboratory should even consider going without.

“Anyone working with hazardous chemicals needs one,” says Pei-San Tsai, lab director at the University of

Colorado at Boulder and professor of integrative physiology with expertise in reproductive endocrinology of vertebrates and invertebrates. Although they do not come cheap, many labs have multiple fume hoods, as they are generally used on a daily basis and essential to many experiments.

Personal protective equipment (PPE) rivals the fume hood in importance to the safety and daily activities of a lab. Every individual in a laboratory must be outfitted with gloves, protective eye glasses or goggles, and a lab coat. The results of a chemical spill, or even a small splash, can be otherwise catastrophic — resulting in severe burns, blindness, and a litany of other horrifying accidents.

PPE also includes common sense items such as shoes, and, in some cases, specialty equipment such as respirators, ear plugs, and full body suits. The use of fume hoods and PPE work in combination to ensure safety and reduce liability — two top priorities for any lab director or researcher.



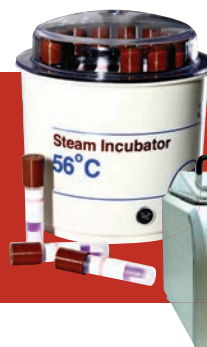
**#1** Refrigeration at 4° C, -20° C, and -80° C



**#2** Chemical fume hood



**#3** High-quality water purifier



**#4** Incubator(s) or waterbath(s)



**#5** Microscope(s)

## Phases of H<sub>2</sub>O

Water plays a central role in executing many lab activities. Three major devices allow scientists to freeze, wash, or dilute as needed in their work. First is refrigeration. Tsai claims that machinery for temperatures at 4° C, -20° C, and -80° C is essential for the preservation of various specimens.

Most laboratories require both a refrigerator and a freezer, or a machine that combines the two. These tools protect samples of all kinds for prolonged and delayed testing. Naturally, any human or animal substance must be preserved properly for an experiment or for a test to proceed properly.

The next water-related device in most labs is a high-quality water purifier. Tsai recommends the Milli-Q system. Both pure and ultrapure water can be produced directly from a tap with this system, and it is designed to accommodate a variety of different types of bench work. According to the manufacturer, Merck KGaA, “the water produced following the system’s pretreatment step may be used for basic laboratory needs, such as buffer and reagent preparation, microbiology media preparation, histology, dissolution testing (with UV detection), and rinsing of glassware.”

Similarly, waterbaths and incubators are often essential to the operations of a lab — inciting chemical reactions using increased temperatures. Alternatively, waterbaths can be used to maintain a stable temperature over an extended period of time. The digital temperature controls on modern machines allow for precise management of degrees. Incubators also provide a controlled environment for the customization of several factors to meet the needs of an experiment.

## Zoomers and Shakers

No laboratory can truly be considered an operating research facility without microscopes. These tools are the foundation of even elementary school science experiments, but they come in a wide range of prices and technology. High-power microscopes are necessary for nearly all medical research labs, while low-power microscopes are more likely to appear in secondary school science classes to examine dead insects and cloth fibers.

Beyond high school, few labs can survive a day

without a centrifuge as well. These machines clarify and concentrate samples that need to be tested. In the fields of molecular biology, polymer science, and biochemistry, ultracentrifuges perform the most common functions and are considered a primary tool.

While centrifuges work to separate substances, vortex shakers and stir plates mix materials together. Liquids inside of vials oscillate together until they reach an acceptable level of suspension for the experiment. Stir plates — as common in home breweries as they are in research labs — can increase the cell counts in yeast starters through continuous stirring and spur a number of other favorable effects.

## Precision and Computer Programs

For any job that requires the sectioning of tissues — as most research in the biomedical industry does — a cryostat is nonnegotiable for day-to-day operations. Magnetic resonance imaging (MRI) and biological microtome type are the two primary functions of this technology, allowing for the careful separation and identification of tissues. Most, if not all, human-oriented research necessitates a cryostat on hand.

In this day and age, research across the spectrum — human or otherwise — requires one or more computers. The idea of any lab without a laptop is unthinkable for most scientists. A computer is required for everything from budget management to running test results, and no lab is complete without at least one, though likely a half dozen or more are needed. Tsai relies on computers for “data analysis, literature search, presentation, record keeping,” and numerous other functions.

Tsai says that she cannot imagine her laboratory operating without a single one of the tools on this list. A century ago, much of this technology was a far-off dream, but these inventions have largely contributed to the enormous pace of advancement in medicine. Today, these items are among the most basic of needs for any research project, and a good place for a new lab director to start building an inventory of must-haves for their workplace. **EN**

— *Mapes is a Washington, D.C.-based freelance writer and a frequent contributor to Endocrine News. She wrote about the “Plan B” pill and overweight women in the August issue.*



#6 Cryostat



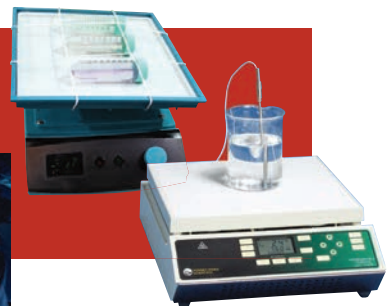
#7 Centrifuge



#8 Computers & printers



#9 Personal protective equipment (PPE)



#10 Vortex, shakers, stir plate





## NIH Proposed Guidelines for Reporting Preclinical Research Incorporate Endocrine Society Perspective

The potential for basic science to generate new innovations and create positive impacts for society critically depends on the reproducibility of the basic research that informs downstream clinical development and application. In recent years, the biomedical research enterprise has come under criticism from the public and a number of scientists due to the failure of independent laboratories to successfully reproduce a number of prominent, clinically relevant, basic science studies.

In the vast majority of cases, an inability to reproduce major research findings is not due to fraud but rather a diverse set of difficulties that are complicated by the pressures that researchers face in the regular conduct of cutting-edge research. To effectively address these issues the National Institutes of Health (NIH) recognized that other stakeholders, particularly the publishers of academic journals, must be engaged in efforts to ensure that clinical research is based on a robust foundation of reproducible basic research. Therefore, in June of 2014 the NIH, the *Nature* publishing group, and the American Association for the Advancement of Science, held a joint workshop to develop a consensus statement on the reporting of research results. Over 30 editors of major journals were in attendance; Dr. Andrea C. Gore, PhD, Editor in Chief of *Endocrinology*, participated as a representative of the Endocrine Society.

As a result of the workshop and follow-up communication with journal editors, the NIH recently released a set of “Proposed Principles and Guidelines for Reporting Preclinical Research.” The principles have been endorsed by the representatives of over 70 journals, associations, and scientific societies, including Gore. Endorsing organizations represent journals that publish a broad array of exploratory and hypothesis-testing research. By adhering to the principles, the journals hope to facilitate “the interpretation and repetition in subsequent investigations to establish the robustness of published results across multiple biological systems.” The principles are explained in detail on the NIH website and include the following five themes: 1. Rigorous statistical analysis; 2. Transparency in reporting; 3. Data and material sharing; 4. Consideration of refutations; and 5. Consider establishing best practice guidelines for image based data and descriptions of biological material.

Due to the diligent efforts of the Endocrine Society’s

editorial teams and the editors in chief of the Endocrine Society journals the Society has been well ahead of the curve, having already incorporated the principles and guidelines in standard practice. For example, the Endocrine Society established the Endocrinology Antibody Database in 2013, containing information on antibodies that have been validated according to specific requirements established in *Endocrinology*. Additionally, the Society has demonstrated leadership by establishing the requirement in *Endocrinology* that articles report the sex of research subjects in preclinical research, and working to broaden this policy to include other Society journals. We are, therefore, encouraged by the proposed principles and look forward to an ongoing discussion with the NIH and other stakeholders about the most effective ways to enhance the reproducibility of basic research.

— Joe Laakso is associate director, Science Policy, for the Endocrine Society. For more information, go to: [www.nih.gov/about/reporting-preclinical-research.htm](http://www.nih.gov/about/reporting-preclinical-research.htm).

## National Diabetes Education Program Releases Guiding Principles for Diabetes Care

The National Diabetes Education Program (NDEP), a partnership between the NIH, the Centers for Disease Control & Prevention (CDC), and several organizations and agencies, including the Endocrine Society released a newly published set of 10 guiding principles highlighting areas of agreement for diabetes care that could be clinically useful in diabetes management and prevention. *Guiding Principles for the Care of People With or at Risk for Diabetes* is aimed at assisting with identification and management of the disease, self-management support for patients, physical activity, and blood glucose control, among other topics.

“There are a lot of diabetes guidelines out there, and practitioners and patients can get confused about which they should follow,” says Judith Fradkin, MD, director of the Division of Diabetes, Endocrinology and Metabolic Diseases in the National Institute of Diabetes and Digestive and Kidney Diseases, part of the NIH. “With these Guiding Principles, we aren’t creating new guidelines, but clarifying where there is general agreement across myriad diabetes guidelines. Guiding Principles represents a set of sound practices. Our goal in developing this resource is to help clinicians help their patients with diabetes.” **EN**

Guiding Principles can be found online at [www.YourDiabetesInfo.org/GuidingPrinciples](http://www.YourDiabetesInfo.org/GuidingPrinciples).

The following studies, among others, will be published in Endocrine Society journals. Before print, they are edited and posted online in each journal's Early Release section. You can access the journals at [www.endocrine.org](http://www.endocrine.org).



### Penetrance and Clinical Features of Pheochromocytoma in a Six-Generation Family Carrying a Germline *TMEM127* Mutation

• Sergio P. A. Toledo, Delmar M. Lourenço, Jr., Tomoko Sekiya, Antonio M. Lucon, Renato C. Baena, Claudio C. Castro, Luiz A. Bortolotto, Maria C. N. Zerbini, Sheila A. C. Siqueira, Rodrigo A.

Toledo, and Patricia L. M. Dahia • *Tumor multicentricity, nodular adrenomedullary hyperplasia, and the occurrence of symptoms more than a decade earlier than the age at diagnosis are novel findings in *TMEM127*-related PHEO. The high penetrance of pheochromocytoma in this condition validates the benefits of genetic testing of at-risk relatives. We thus recommend that *TMEM127* genetic testing should be offered to at-risk individuals at age 22 years and mutation carriers should undergo clinical surveillance annually.*

### The Novel Heat Shock Protein 90 Inhibitor NVP-AUY922 Synergizes with the Histone Deacetylase Inhibitor PXD101 in Induction of Death of Anaplastic Thyroid Carcinoma Cells

• Si Hyoung Kim, Jun Goo Kang, Chul Sik Kim, Sung-Hee Ihm, Moon Gi Choi, Hyung Joon Yoo, and Seong Jin Lee • *Our results demonstrate that AUY922 potently induces cytotoxicity with concomitant modulation of hsp90 client proteins in ATC cells. Moreover, AUY922 has a synergistic activity with PXD101 in induction of cytotoxicity in conjunction with the inactivation of PI3K/Akt signaling and surviving and the activation of DNA damage response in ATC cells.*

### Smoking as an Effect Modifier of the Association of Calcium Intake with Bone Mineral Density

• Lutz P. Breitling • *Even though the present results cannot rule out that smoking-associated differences in calcium absorption exist, they do suggest that smoking behavior does not have any relevant impact on the beneficial effects of calcium intake on bone mineral density at the population level.*



### Mitigating or Exacerbating Effects of Maternal-Fetal Programming of Female Mice Through the Food Choice Environment

• Bonnie Brenseke, Javiera Bahamonde, Michael Talanian, Ellie Kornfeind, Jacqueline Daly, Grayson Cobb, Jinhua Zhang, M. Renee Prater, George C. Davis, and Deborah J. Good • *The model defined*

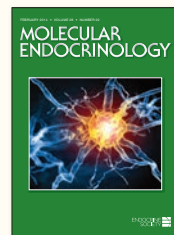
*herein can be used as the basis for future studies to characterize the cycle of inter- and intragenerational obesity, and whether more realistic diet environments, especially those including choice, can mitigate phenotype.*

### AGEs-RAGE System Downregulates Sirt1 Through the Ubiquitin-Proteasome Pathway to Promote FN and TGF- $\beta$ 1 Expression in Male Rat Glomerular Mesangial Cells

• Kai-Peng Huang, Cheng Chen, Jie Hao, Jun-Ying Huang, Pei-Qing Liu, and He-Qing Huang • *These results indicated that the AGEs-RAGE system increased the ubiquitination and subsequent proteasome-mediated degradation of Sirt1 by reducing USP22 level, and AGEs-RAGE-USP22-Sirt1 formed a cascade pathway that regulated FN and TGF- $\beta$ 1 level, which participated in the pathological progression of diabetic nephropathy.*

### Measurement of Testosterone by Immunoassays and Mass Spectrometry in Mouse Serum, Testicular and Ovarian Extracts

• David J. Handelsman, Mark Jimenez, Gurmeet K. S. Singh, Jenny Spaliviero, Reena Desai, and Kirsty A. Walters • *The authors conclude that these direct testosterone immunoassay kits provide relatively, but not absolutely, accurate results with male mouse serum and testis extracts but not with female mouse serum and ovary extracts, with performance improved by pre-assay extraction. Whether relative accuracy is fit for purpose depends on the experimental aims, design, and interpretation.*



### In Vitro and Mouse Studies Supporting Therapeutic Utility of Triiodothyroacetic Acid in MCT8 Deficiency

• Simone Kersseboom, Sigrun Horn, W. Edward Visser, Jiesi Chen, Edith C. H. Friesema, Catherine Vaurs-Barrière, Robin P. Peeters, Heike Heuer, and Theo J. Visser • *The authors demonstrated uptake of TA3 in neuronal cells and in fibroblasts of MCT8 patients and similar gene responses to T3 and TA3. This indicates that TA3 bypasses MCT8 and may be used to improve the neural status of MCT8 patients.*

### Thermogenic Activity of UCP1 in Human White Fat-Derived Beige Adipocytes

• Stefano Bartesaghi, Stefan Hallen, Li Huang, Per-Arne Svensson, Remi A. Momo, Simonetta Wallin, Eva K. Carlsson, Anna Forslöw, Patrick Seale, and Xiao-Rong Peng • *This study reveals that hASCs can be readily differentiated into beige adipocytes that, upon activation, undergo uncoupling protein 1-dependent thermogenesis.*

### Persistent ERK/MAPK Activation Promotes Lactotrope Differentiation and Diminishes Tumorigenic Phenotype

• Allyson Booth, Tammy Trudeau, Crystal Gomez, M. Scott Lucia, and Arthur Gutierrez-Hartmann • *These data demonstrate that activated MAPK promotes differentiation and is not sufficient to drive tumorigenesis, suggesting that pituitary lactotrope tumor cells have the ability to evade the tumorigenic fate that is often associated with Ras/MAPK activation.*

## Khosla & Leder Named 2014 Endocrine Society Visiting Professors

Sundeep Khosla, MD, and Benjamin Zev Leder, MD, have been selected as the 2014 Endocrine Society Visiting Professors in Osteoporosis and Metabolic Bone Disease. The program is supported by an educational grant from Amgen.

Khosla, a professor of medicine at the Mayo Clinic College of Medicine in Rochester, Minn., will be heading to Temple University in Philadelphia, while Leder, an associate professor of medicine at Harvard Medical School and a physician at Massachusetts General Hospital in Boston, will be on the other side of the country at the University of California, San Francisco. Both Temple and UCSF won the opportunity to host these visiting professors by applying to the program online.

"I am very thankful and honored to have been selected for the Endocrine Society's Visiting Professor Program," Leder says. "As an osteoporosis clinical investigator, it is especially rewarding to have been invited by the Endocrine Division at UCSF, where some of the most novel and exciting research in bone biology is underway. I hope that the exchange of ideas during my stay will in some way encourage younger faculty and fellows to continue to explore fundamental physiological questions through patient-oriented research."

For his part, Khosla says that he is looking forward to the opportunity to talk about osteoporosis and bone biology, his area of expertise, with an engaged and interested audience.



Sundeep Khosla, MD



Benjamin Zev Leder, MD

"Hopefully this will stimulate some of the faculty, particularly the junior staff, into pursuing clinical and research activities in this area," he says, adding that he is also looking forward to learning more about the clinical and research activities ongoing at Temple. "I always find that I learn as much or more than I teach at these faculty visits."

The Endocrine Society's Visiting Professor Program supports visits by endocrine experts to academic institutions that demonstrate need and seeks to improve research and clinical care through meaningful educational exchanges. The program increases awareness in cutting-edge endocrine research, encourages young investigators to enter specialized endocrine research, and fosters future collaborations between investigators at different academic centers.

"It is a great honor to be selected for this program," Khosla says. "Specifically, it is most gratifying to learn that my colleagues in endocrinology hold me in such high esteem that they would go through the competitive process to

secure this award from the Endocrine Society in order to host my visit."

Faculty at institutions that want to host a visiting professor can apply for the 2014 Visiting Professor Program in Diabetes, supported by Merck & Co., Inc., or the 2014 Visiting Professor Program in Obesity, supported by Eisai, Inc., by visiting [www.endocrine.org/vpp](http://www.endocrine.org/vpp). **EN**

— Mark A. Newman

## Scott Hunt Receives AMA Medical Executive Lifetime Achievement Award



Former Endocrine Society executive director and CEO Scott Hunt was presented with the Medical Executive Lifetime Achievement Award by the American Medical Association (AMA).

The award recognizes medical executives that have made significant contributions to their organizations over the course of their tenure. As CEO Hunt was intimately involved with the Society's strategic direction including expanding its publication base significantly, adding educational programs, advocacy, and public outreach efforts, expanding its international reach, and creating ENDOExpo. He engineered the Society's growth to become one of *Washington Business Journal's* top 50 associations.

"The Endocrine Society is incredibly grateful for the many years of visionary

leadership that Scott Hunt provided," says Richard Santen, MD, Endocrine Society president. "He is more than deserving of a lifetime achievement award, and we applaud his accomplishment."

In 2007, the American Medical Association honored Hunt with the Medical Executive Meritorious Achievement Award. The award is given to a medical association executive who has demonstrated exceptional service and contributions to the goals and ideals of the medical profession.

Hunt retired from the Endocrine Society in 2013 after 25 years leading the organization.



## ENDOCRINE SOCIETY'S EARLY INVESTIGATORS AWARDS



The Early Investigators Awards help support early career investigators continue independent research in endocrinology. Outstanding contributions will be showcased in a recognition campaign throughout the Endocrine Society community and each recipient's hometown.

Nominees must hold an MD, PhD, or MD/PhD and be a newly appointed faculty member within 10 years from the terminal degree granting date.

View award details and submit your nomination today at [www.endocrine.org/eia](http://www.endocrine.org/eia).

**This award is supported by Endocrine Society and Pfizer, Inc.**

**Application Deadline: December 22, 2014.**

## Society Members Elected to the Institute of Medicine

On October 20th, the Institute of Medicine (IOM) announced the names of 70 new members and 10 foreign associates during its 44th annual meeting. Among those new members were three Endocrine Society members: Nancy J. Brown, MD, Gerard Karsenty, MD, PhD, and Kelle Harbert Moley, MD.

Election to the IOM is considered one of the highest honors in the fields of health and medicine and recognizes individuals who have demonstrated outstanding professional achievement and commitment to service. "It is with great enthusiasm that we welcome our esteemed colleagues to the Institute of Medicine," says IOM president Victor J. Dzau. "These leaders' tremendous achievements have contributed significantly to advancing health and medicine. The expertise and knowledge they bring to the IOM will encourage and enhance its success."

Brown is the Hugh Jackson Morgan Professor of Medicine and Pharmacology, and chair and physician-in-chief, Department of Medicine, Vanderbilt University, Nashville, Tenn.; Karsenty is the Paul A. Mark Professor and chairman, Department of Genetics and Development, Columbia University, New York; and Moley is the James P. Crane Professor of Obstetrics and Gynecology and vice chair and chief, Division of Basic Science Research, Washington University School of Medicine, St. Louis.

The IOM is unique in its structure as both a honorific membership organization and an advisory organization. Established in 1970 by the National Academy of Sciences, the IOM has become recognized as a national resource for independent, scientifically informed analysis and recommendations on health issues. For more information, go to [www.iom.edu](http://www.iom.edu).



Nancy J. Brown, MD



Gerard Karsenty, MD, PhD



Kelle Harbert Moley, MD

## Event CALENDAR

**JANUARY 27 – FEBRUARY 1, 2015, BRECKINRIDGE, COLO.**

*Keystone Symposia on Systems Biology of Lipid Metabolism*  
[www.keystonesymposia.org](http://www.keystonesymposia.org)

**MARCH 5 – 8, 2015, SAN DIEGO, CALIF.**

*ENDO 2015*  
[www.endocrine.org/endo-2015](http://www.endocrine.org/endo-2015)

**APRIL 25 – 28, 2015, SAN DIEGO, CALIF.**

*Pediatric Endocrine Society Annual Meeting*  
[www.pedsendo.org](http://www.pedsendo.org)

## ENDOCRINE SOCIETY'S RESEARCH FELLOWSHIP AWARDS



The Society's Research Fellowship Awards recognize outstanding achievements of early career professionals and provide generous support for their research projects and career endeavors. Learn more about the following awards including eligibility criteria and submission requirements:

- **Acromegaly Clinical Research Fellowship Award**, supported by Pfizer, Inc.
- **Clinical Research Fellowship Award in Women's Health**, supported by Pfizer, Inc.
- **Endocrine Scholars Award in Growth Hormone Research**, supported by Genentech
- **Summer Research Fellowships**, supported by the Endocrine Society

For more information, go to [www.endocrine.org/awards](http://www.endocrine.org/awards).

**Application Deadline: December 22, 2014.**

Gain Recognition for Your Research at

# ENDO 2015

Submit Your Late-Breaking Abstracts

There's still time to showcase your research at **ENDO 2015**, the premier meeting of endocrinologists. More than 8,000 attendees are expected at **ENDO 2015** and will be eager to learn the latest advances in endocrinology. Both basic research and clinical abstracts are accepted during the late-breaking abstract period. Gain recognition and get the inside track to publication by submitting your late-breaking abstracts that explore high-impact clinical trials. Submission opens December 22, 2014 and closes January 12, 2015.

There's no better way to raise your profile.

## Special Opportunities include:

- High-profile oral and poster sessions dedicated to late-breaking abstracts
- Potential publication in *The Journal of Clinical Endocrinology & Metabolism* through the Clinical Trials Express program
- A feature in the *Research Summaries Book*, a resource for reporters that highlights the most exciting presentations
- Media coverage in a variety of high-impact media outlets

## Clinical trials take center stage

Lead investigators who anticipate having clinical trial data for presentation before March 5, 2015 are encouraged to submit late-breaking abstracts. Abstracts need not include final data and will be reviewed by the Annual Meeting Steering Committee based on the trial design

and rationale, inclusion criteria, primary clinical endpoints, and any preliminary data. Take advantage of the spotlight at **ENDO 2015**!

## Fast track your publication with Clinical Trials Express

Publication is crucial to career success, and the Clinical Trials Express program is the quickest way to broadcast your research to the endocrinology world.

If your clinical trial abstract is accepted for presentation at **ENDO 2015**, you may submit your completed manuscript to *The Journal of Clinical Endocrinology & Metabolism* through the Clinical Trials Express program. Top scientists from *JCEM* will review your manuscript, with online publication of accepted manuscripts occurring within days of the final decision accompanied by highlights of the **ENDO 2015** presentations.

Interested investigators should contact Elizabeth Reichl, PhD, with an anticipated date of submission, at [ereichl@endocrine.org](mailto:ereichl@endocrine.org). Clinical Trials Express participants should indicate in their submission cover letters to *JCEM* that their manuscripts are from an accepted abstract presentation at **ENDO 2015**.

## Let your science shine

It's time to give your research the attention it deserves — on endocrinology's biggest stage. Submit your late-breaking abstracts for **ENDO 2015** between December 22, 2014 and January 12, 2015. We'll see you there! Visit [endo2015.org](http://endo2015.org) for more information. **EN**

2015

January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
				4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## KEY ENDO 2015 DEADLINES

- Early Registration — January 14, 2015
- Housing Request — February 10, 2015
- Regular Registration — February 17, 2015

2015

February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

# FOUR WAYS TO KNOCK OUT DIABETES

Overcoming diabetes can be difficult. Did you know that diabetes is an endocrine-related disease? So having good hormone health puts you in a better position to manage and beat the disease, and recognizing early signs can lead to prevention. Together we can knock out diabetes by making healthy choices, attaining blood glucose goals, and incorporating exercise.

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

**PRE-DIABETES** = blood glucose levels higher than normal, but not high enough to be diagnosed as diabetes

NORMAL	PRE-DIABETES	DIABETES
Blood glucose <100 mg/dL	100-125 mg/dL	≥126 mg/dL

**RECOGNIZE THE SIGNS OF PRE-DIABETES!**

One in three adults have pre-diabetes; 90% don't know they have it.



**Other risk factors:**

- Overweight, body mass index over 25
- Inactive
- Age 45+
- Family history of type 2 diabetes
- African-American, Hispanic, American Indian, Asian-American or Pacific Islander

**Signs of type 2:**

- Increased thirst
- Frequent urination
- Fatigue
- Blurred vision

- Gestational diabetes or gave birth to a baby who weighed more than 9 lbs.
- Polycystic ovary syndrome
- High blood pressure
- Regularly sleep less than six or more than nine hours per night

**MAKE HEALTHY CHOICES! READ FOOD LABELS**

**SERVING SIZE**

Knowing the amount you should eat helps you correctly calculate nutritional value and effect on your blood glucose.

**CARBOHYDRATES**

Carbohydrates raise your blood sugar levels. Watching your carbohydrate intake helps keep the levels in your target range.

**FIBER**

Fiber improves blood sugar control, lowers cholesterol and helps you feel full so you don't overeat.

Nutrition Facts	
Serving Size 1 medium sweet potato, baked in skin, without salt 114g	
Amount Per Serving	
<b>Calories</b> 103	
	% Daily Values*
<b>Total Fat</b> 0g	<b>0%</b>
Saturated Fat 0g	<b>0%</b>
Trans Fat 0g	
<b>Sodium</b> 41mg	<b>2%</b>
<b>Total Carbohydrate</b> 24g	<b>8%</b>
Dietary Fiber 4g	<b>16%</b>
Sugars 7g	
<b>Protein</b> 2g	<b>4%</b>

\*Percent Daily Values are based on a 2,000 calorie diet.



## SET GOALS!

### UNDERSTAND INSULIN AND BLOOD SUGAR

#### INSULIN: A hormone ... and a treatment!

A hormone made in the pancreas, insulin allows your body to use sugar (glucose) from carbohydrates in food you eat for energy or store it for future use. Insulin also helps keep your blood sugar level from getting **too high (hyperglycemia)** or **too low (hypoglycemia)**.

Blood sugar rises when you don't have enough insulin or your cells are unable to use the insulin already there.

#### Blood sugar goals (if you have diabetes):

- 70-130 mg/dL before meals
- Less than 180 mg/dL 1-2 hours after meals

#### Hypoglycemia may be caused by:

- Too much medication
- A missed meal
- A delayed meal
- Too little food eaten as compared to the amount of insulin taken

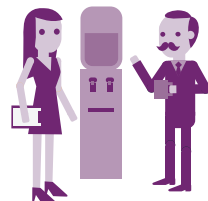
#### Hyperglycemia may be caused by:

- Not enough insulin (type 1)
- Enough insulin, but not effective (type 2)
- Too much food, too little exercise
- Illness such as cold or flu
- Stress (family, work)
- Dawn phenomenon (surge of hormones produced by body between 4-5 a.m.)

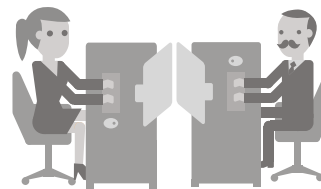
## STAY ACTIVE EACH DAY!



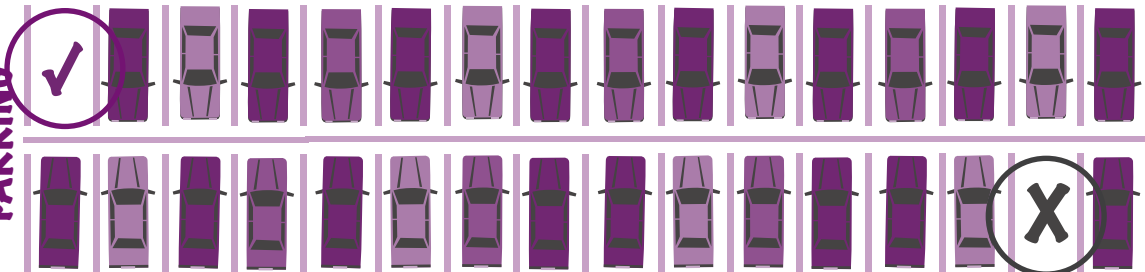
VS.



VS.



PARKING



PARKING

→→→ TO THE OFFICE

You have questions. We have answers.

The Hormone Health Network is your trusted source for endocrine patient education. Our free, online resources are available at [hormone.org](http://hormone.org).

Additional editing by Stephen Colgan Clement, MD, Inova Fairfax Hospital

**REGISTER NOW  
FOR PRE-CONFERENCE PROGRAMS AT**

# ENDO2015

**THE ENDOCRINE SOCIETY'S 97TH ANNUAL MEETING & EXPO**

**MARCH 5-8, 2015 (THURSDAY-SUNDAY)  
SAN DIEGO, CALIFORNIA  
SAN DIEGO CONVENTION CENTER**

Start ENDO 2015 early with special, hot topic programs featuring the most current, relevant information in endocrinology. Both researchers and clinicians at all levels will benefit from the enhanced learning at these special sessions.



**WEDNESDAY, MARCH 4, 2015**

**Diabetes Diagnosis & Management 2015**

**EndoCareers® Early Career Forum**

**Endocrine Fellows Conference:  
Type 1 Diabetes Care and Management**

**Hands-On Thyroid Ultrasound Workshops**

**Obesity Management 2015**

**Translational Research Workshop:  
Bench to Bedside, and Bedside to Bench**

**DON'T WAIT, SEATS FILL UP FAST!  
FOR COMPLETE PROGRAM AND  
REGISTRATION FEES, VISIT [ENDO2015.ORG](http://ENDO2015.ORG).**

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SOCIETY** 

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# ENDO2015

THE ENDOCRINE SOCIETY'S 97TH ANNUAL MEETING & EXPO

## UPCOMING DEADLINES

### LATE-BREAKING ABSTRACT SUBMISSION

DECEMBER 22, 2014 –  
JANUARY 12, 2015

### EARLY REGISTRATION DEADLINE

JANUARY 14, 2015

MARCH 5-8, 2015 (THURSDAY-SUNDAY)  
SAN DIEGO, CALIFORNIA

SAN DIEGO CONVENTION CENTER

BEGINNING IN 2015, ENDO, THE LARGEST GATHERING OF  
ENDOCRINE PRACTITIONERS AND RESEARCHERS, WILL TAKE PLACE IN THE SPRING.  
JOIN US FOR ENDO 2015, THIS MARCH IN SAN DIEGO.

[ENDO2015.ORG](http://ENDO2015.ORG)

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SOCIETY 