

WHY DANIEL J. DRUCKER, MD, SAYS ENDOCRINOLOGY IS ALL AROUND US.

NOVEMBER 2019

THE LEADING MAGAZINE FOR • ENDOCRINOLOGISTS

Endocrine news

PRACTICE PIONEERS

A series of sessions from ENDO 2019 entitled “Diabetes Innovative Models of Care: Taking Back Your Practice with Innovation” highlighted a variety of methods to incorporate new innovations into caring for patients with diabetes:

- How incorporating innovation can connect clinicians to the original joy of medicine and into their practice as well.
- Adding a clinical pharmacist could help your practice manage patients and beat back clinical inertia.
- How to make the business case for incorporating new technology to manage patients.
- Increase the satisfaction of both patients and clinicians by incorporating E-consults.

A DOWNHILL BATTLE:

Maintaining healthy bones in postmenopausal women with diabetes

MEASURE FOR MEASURE:

How “time in range” may be the metric to improve diabetes management

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FEATURE

30 | Practice Paradigms: How Innovation Can Revolutionize Diabetes Patient Care

In observance of National Diabetes Month, *Endocrine News* is focusing on a series of sessions from **ENDO 2019** entitled "Diabetes Innovative Models of Care: Taking Back Your Practice with Innovation." Attendees were treated to 10 short sessions that highlighted a variety of methods to incorporate new innovations into caring for patients with diabetes. In this issue, we're focusing on four: Innovation and the joy it can bring to your practice; How a clinical pharmacist can defeat clinical inertia; Making the business case for acquiring new technology; and Increasing both patient and clinician satisfaction via E-consults.

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Endocrine Society Advocates for Diabetes Research, Prevention, and Education

November is Diabetes Awareness Month, a time to raise public awareness about the challenges faced by more than 30 million Americans living with diabetes. This focus underscores the need to expand prevention efforts, improve access to care, and increase research funding that not only will lead to a cure but will promote advances now that will improve the quality of life for those who struggle with diabetes and its complications. With your support, we have been doing our part to address these issues through our advocacy efforts and are working within the diabetes community to reduce the impact of this epidemic in our country and the world. Here are a few ways we are contributing to these important efforts:

Increasing Funding for Research and Treatment

We continue to be a leading advocate for increased funding for endocrine and diabetes research at the National Institutes for Health and other federal agencies focused on diabetes prevention and treatment. Renewal of the Special Diabetes Program (SDP), which provides funding for type 1 diabetes research and prevention and treatment programs for at-risk populations, is one of our top priorities. Over the years, we have consistently advocated for the SDP's continuation and

expansion. The program has made considerable advancements in the development of new technologies to manage diabetes, such as the artificial pancreas, and has significantly reduced complications stemming from type 2 diabetes in Alaska Natives and American Indians. SDP funding expires on November 21 — you can help us advocate for its renewal by going to endocrine.org/takeaction.

Promoting Diabetes Prevention and Education

Expanding prevention efforts like the National Diabetes Prevention Program (NDPP) and increasing the use of diabetes self-management training (DSMT) services is also critical in addressing the diabetes epidemic. We have been working to ensure that federal agencies recognize the value of the NDPP and the DSMT in reducing the incidence of type 2 diabetes and helping people with diabetes optimally manage their disease. Recent advocacy focuses on increased funding at the Centers for Disease Control and Prevention for the NDPP, expanding coverage for virtual prevention programs, and supporting legislation on Capitol Hill that would reduce barriers to accessing the DSMT. To learn more about these efforts, go to endocrine.org/advocacy.



Reducing Hypoglycemia

We have also focused on reducing the incidence of hypoglycemia in patients with type 2 diabetes who are at-risk through a multi-year quality improvement (QI) project. Our Hypoglycemia Prevention Initiative, and its associated QI study HypoPrevent, focuses on integrating clinical decision support tools and shared decision making into clinical workflow in primary care practices. Additional educational resources are being deployed to help patients and physicians understand

“

The cost of insulin is a major and growing challenge for people with diabetes who rely on it for survival.


Identifying ways to reduce this burden and working with policy makers to make insulin more affordable is a main focal point for our diabetes advocacy.

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the risk for hypoglycemia, ways to mitigate that risk, and how to appropriately treat episodes should they occur. In parallel, we are developing outpatient quality measures to help identify individuals at risk for hypoglycemia, promote individualized A1c targets and patient education, and track patient-reported severe hypoglycemia. Importantly, this initiative will evaluate the impact of these interventions to prevent hypoglycemia and will disseminate these data for broader implementation. Additional information on the initiative can be found at endocrine.org/hpi.

Addressing Insulin Affordability

The cost of insulin is a major and growing challenge for people with diabetes who rely on it for survival. Identifying ways to reduce this burden and working with policy makers to make insulin more affordable is a main focal point for our diabetes advocacy. Endocrine Society member Al Powers, MD, testified in front of Congress earlier this year to underscore the importance of addressing this issue and to highlight our recommendations on ways to lower costs. Our members and advocacy team regularly meet with key Congressional offices to ensure that insulin remains a priority in any legislation that addresses drug pricing. These efforts have helped to bring insulin to the forefront of political discussions, resulting in a specific carve out for insulin in the comprehensive drug pricing package introduced in the House of Representatives and in numerous bills that focus on the cost of insulin in both the House and Senate. A policy perspective on the political viability of these proposals is featured later in this issue of *Endocrine News*; our recommendations are discussed in greater detail at endocrine.org/insulin.

Thanks to all of you who have helped advance these efforts. Your voice is a critical component in the advocacy work we do, and we hope more of you will get involved. To learn more about how you can participate, please contact us at advocacy@endocrine.org. 

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

Cast Your Ballot!

The election ballot for the President-Elect position on the Board has launched. I encourage all our voting members to cast your votes.

The election period closes on Nov. 20, 2019.
Your participation in our election is very important.

Every vote counts!



FROM THE **EDITOR**

Focusing on Innovation and Diabetes Treatment

In honor of Diabetes Awareness Month, this issue of *Endocrine News* is devoting virtually all of its feature well to raising awareness of some of the latest research breakthroughs as well as treatment options for patients with diabetes.

First and foremost, we are highlighting “Diabetes Innovative Models of Care: Taking Back Your Practice with Innovation,” a series of short sessions presented at **ENDO 2019**. In this issue, we are tackling four of the eight sessions presented in New Orleans:

- ▶ Robert Gabbay, MD, PhD, discusses how clinicians can avoid burnout by simply re-connecting with their original passion for their work and how incorporating innovation can achieve this. “Embracing innovative models of diabetes care not only can give you better patient care and better outcomes, but it can really help recharge your batteries and reconnect you to joy at work,” he says in “The Joy of Innovation” on page 32.
- ▶ On page 38, Elizabeth J. Murphy, MD, DPhil, heralds the use of E-consults as an effective means of enhancing a clinical practice in “E-Consults: Increasing the Efficiency and Efficacy of the Referral Process,” where she discusses how this means of communication not only increases patient satisfaction but clinician satisfaction as well. “The patients are happier because it saves them unnecessary visits. The primary care providers are happier because they have quick access to specialists that otherwise would mean a two- to three-month wait,” she explains. “This way, in three days, you have at least an initial answer to your question because the clinics are less clogged up. The patients who are sick and need to see you get in sooner.”
- ▶ Innovation is not always technological; sometimes it’s adding a new member to the team. In “The Right Prescription for Overcoming Clinical Inertia” on page 35, Jeffrey Boord, MD, MPH, discusses how adding a clinical pharmacist to the diabetes treatment team has improved overall patient care and has gotten high marks from patients and clinicians alike. “Instead of the patient getting a referral and having to wait to see one of [the endocrinologists], the patient is immediately able to engage with a pharmacist, identify barriers to care, and develop

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an individualized care plan, often the same day that they are seeing their primary care physician,” he says. He also goes into detail about how this new idea has combatted the phenomenon of clinical inertia.

- Of course, what good are new innovations if you’re not able to pay for them? On page 41, Anand Mehta, MD, discusses how to get your organization’s administrators on the new innovation bandwagon in “Mind Your Business: How to Get the Financial Resources and the Administrative Support for Your Innovation.” As a former investment banker, Mehta has a unique insight many physicians lack, and this has come in handy when it comes time to make financial requests. “Again, a physician’s lens typically is what’s most important for the patient, independent of expense,” he says. “Maybe that’s changing some now, with some of these overpriced medicines, but, typically, it’s what’s best for the patient, and cost is not an issue. Whereas the administrator looks at what it’s going to cost and possibly finding a cheaper alternative. Each point is valid, especially nowadays.”

Aside from this special section, we have articles that bring attention to how “time in range” could be a useful metric to improve managing diabetes (p. 22); a Q&A with *Endocrine Reviews* editor-in-chief Daniel J. Drucker, MD, who discusses the future of endocrine research, his views of social media, and his concept of “endocrinology all around us” on page 26; products that can help with diabetes during an emergency (p. 48); as well as a look at a study that has some good news for postmenopausal diabetes patients and how they can easily improve bone quality by simply walking downhill, on page 16.

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

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

2021 LAUREATE AWARDS

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Susan Mandel Honored by Women in Thyroidology



On October 31, Endocrine Society immediate past-president Susan Mandel, MD, MPH, was recognized by the American Thyroid Association's (ATA) Women in Thyroidology (WIT) with its 2019 Women in Thyroidology Woman of the Year Award.

The WIT Woman of the Year award was established in 2012 to recognize outstanding women who have demonstrated a long-standing commitment to the ATA and the advancement of women in thyroidology, both within the organization and in the field.

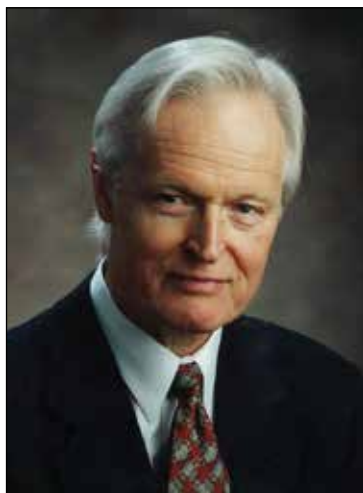
Mandel is a professor of medicine and radiology at the University of Pennsylvania Perelman School of Medicine, where she also directs the fellowship program in endocrinology, diabetes, and metabolism. She serves as the associate chief of the Division of Endocrinology, Diabetes, and Metabolism at the Hospital of the University of Pennsylvania and is the director of the Thyroid Nodule Clinic.

At Penn, she oversees a clinical practice with more than 23,000 annual visits. Her clinical practice focuses on patients with thyroid neoplasia, and she has been recognized for clinical excellence with the Penn Duhring Clinical Specialist Award. Her research interests include the use of sonography in the evaluation of patients with thyroid nodules and cancer, and thyroid disease during pregnancy.

Mandel earned her undergraduate degree at Harvard University and her medical degree at Columbia University. Mandel has been with the University of Pennsylvania since 1997. She was recognized in *Philadelphia* magazine's annual Top Docs issue from 2004 to current. She was also recognized by *America's Top Doctors* in 2007 to current, as well as by *Best Doctors in America* from 2003 to current.

Mandel has served on the writing groups for the American Thyroid Association Management Guidelines for Patients with Thyroid Nodules and Differentiated Thyroid Cancer and the Management of Thyroid Disease during Pregnancy. She also initiated and directs the ultrasound workshops for the ATA and the Endocrine Society. She received the Endocrine Society's Distinguished Educator Award and the H. Jack Baskin Educator Award of the American Association of Clinical Endocrinologists. She is a past Endocrine Society Council member and Vice President Physician-in-Practice, as well as a past president of the Association of Program Directors in Endocrinology, Diabetes, and Metabolism.

Remembering C. Wayne Bardin, MD, 1934 – 2019



C. Wayne Bardin was a giant in the field of endocrinology who contributed substantially to our knowledge of reproductive physiology, the development of unique methods of contraception, and the clinical care of patients with disorders of reproduction.

His legacy includes not only his research contributions but also his leadership and service to the endocrine community. For many years, he was the director of the Clinical Endocrinology Update course, which included a curriculum imparted by multiple experts in the field of endocrinology. Later, he served on the Endocrine Society Council before becoming president (1993 – 94).

Bardin grew up in McCamey, Texas, and was the first in his family to continue his education beyond college. He obtained a full tuition football scholarship at Rice University, where he graduated in 1957. He then went to medical school at Baylor College of Medicine, where he obtained an MD in 1962. He was introduced to research at Baylor, studying the effect of various hormones on pituitary function. Following that, he received his internal medicine training at Cornell University, New York Hospital. Following that, Bardin joined the endocrine cancer program of the National Cancer Institute (NCI) at the National Institutes of Health (NIH) and worked under the mentorship of Drs. Mort Lipsett and Griff Ross from 1964 to 1969.

Following his training and time on the staff at the NIH, he was recruited to become chief of the Division of Endocrinology at Penn State University at Hershey in 1970. While there, he quickly recruited a group of clinicians and investigators who competed effectively for NIH research funding. This was a major accomplishment as the medical school was brand new and did not have a well-developed cadre of investigators or infrastructure at that time. His division became one of the most productive research units in the university.

After eight years at Penn State, he was recruited to become the director of the Center for Biomedical Research and vice president of the Population Council, located at Rockefeller University. Between 1978 and 1996, he developed several pioneering methods of contraception. One involved the concept of a subdermal contraceptive implant for women that would provide effective prevention of fertility over a period of three to five years. The concept was that this would be most useful in underserved areas and in low-income countries. Inserting this implant would be long lasting and would require minimal medical supervision after implantation. Approval by the FDA required a 15,000-page document, which Bardin produced with his team including data from clinical trials in multiple countries. The six-rod Norplant approved for five years of use was followed by an improved two-rod implant Jadelle, approved for three years and now five years of use. After approval of these long-acting reversible contraceptives, this approach was widely accepted but later replaced by additional methods utilizing other steroids in the implant.

Aside from serving as the Endocrine Society's president from 1993 to 1994, Bardin received numerous awards throughout his illustrious career, including election as president of the

American Andrology Society (1993 – 94), membership in the Institute of Medicine; awardee of Doctor Honoris Causa at the University of Caen, France; the University of Pierre and Marie Curie, Paris, France; and the University of Helsinki, Finland; Commander of the Order of the Lion of Finland; among several other awards.

In the field of endocrinology, there are basic scientists, clinical scientists, and clinicians. The most challenging career path is that of a clinician scientist who conducts clinical and basic research studies as well as seeing patients. Bardin fits into that and while at Penn State University was considered an outstanding clinician as well as a renowned scientist.

For those who knew Wayne well, they recognized his zest for life, sense of humor, enthusiasm for his work, love of the Metropolitan Opera and music in general, and his ability to balance work with joy in interacting with his wife Beatrice and his two daughters, Stephanie and Charlotte, and step-daughter Alexis.

Based on all these considerations, C. Wayne Bardin can be considered one of the “Giants of Endocrinology” over the last 40 years, a great human being, and an inspiration to those who follow in his footsteps.

— *Richard Santen, MD, University of Virginia, Charlottesville, Va.; Bert O'Malley, MD, Baylor College of Medicine, Houston, Texas; Régine Sitruk-Ware, MD, Center of Biomedical Research, The Population Council, New York, N.Y.; Richard Sherins, MD, Columbia Fertility Associates, Bethesda, Md.; and Philippe Bouchard, MD, University Pierre et Marie Curie, Paris, France*

Editor's Note: A more in-depth memorial can be found online at: endocrine.org/BardinMemorial. ^{EN}

To honor Dr. Bardin's passion for mentoring early-career professionals entering the endocrinology field, his family is setting up a trainee fellowship award in his memory.

Donations may be made in his honor to the Endocrine Society's Travel Award Fund at: endocrine.org/BardinTravelAward.

VOTE

2020 ELECTION FOR PRESIDENT-ELECT POSITION

The polls for the 2020 Election opened on October 21, 2019 and we ask for your votes. Members with voting privileges have the opportunity to participate in the election and select their future Society President-Elect.

Submit your votes on
endocrine.org/election.

Questions should be directed to election@endocrine.org or call 202.971.3636.

**Ballots will be accepted
through November 20, 2019.**



BY DEREK BAGLEY
Senior Editor

E-cigarette Use during Pregnancy Impairs Metabolic Health in Daughters, Mouse Study Finds

E-cigarette usage may impair fertility and pregnancy outcomes, according to a mouse study published in the *Journal of the Endocrine Society*.

Researchers led by Kathleen Caron, PhD, of University of North Carolina at Chapel Hill, N.C., point out that while the dangers of cigarette smoke are well established, the England Public Health system has ruled e-cigarettes to be 95% safer than conventional cigarettes and subsequently,



the public is encouraged to use e-cigarettes as an effective smoking cessation tool. “Contrastingly, the European Respiratory Society reported that the safety of extended use of e-cigarettes compared with conventional tobacco is unknown,” the authors write. “Thus, studies of the safety of e-cigarettes are needed, especially among pregnant women and future offspring.”

Caron and her team write that recent literature shows that e-cigarette exposure in utero causes changes in metabolic, inflammatory, neurologic, and pulmonary factors in exposed mouse offspring. “However, the reproductive fitness and fetal outcomes of dams exposed to e-cigarettes before and during pregnancy have yet to be determined,” the authors write. “Here, we directly examine

the effects of e-cigarettes on pregnancy initiation and second-generation fetal reproductive health and find that e-cigarettes delay implantation and impair the health of future offspring.”

In this study, researchers used a mouse model to examine whether e-cigarette exposure impairs fertility and offspring health. After exposure to e-cigarette vapor, female mice showed decreased embryo implantation and a significant delay in the onset of pregnancy with the first litter. Female offspring exposed to e-cigarettes in utero also failed to gain as much weight as control mice by the 8.5-month mark.

The researchers write that e-cigarettes are being used more and more by reproductive-age and even pregnant women, so it is important to evaluate whether and how e-cigarettes contribute to pregnancy success and fetal health. They go on to write that further clinical investigations are needed to examine how e-cigarettes may affect pregnancy initiation in women. Based on the results of this study, the authors write that “e-cigarettes negatively influence implantation success and the future health of the in utero exposed fetus, resulting in abnormal pregnancy outcomes.”

Findings: “We found that e-cigarette usage prior to conception significantly delayed implantation of a fertilized embryo to the uterus, thus delaying and reducing fertility [in mice],” Caron says. “We also discovered that e-cigarette usage throughout pregnancy changed the long-term health and metabolism of female offspring – imparting lifelong, second-generation effects on the growing fetus. These findings are important because they change our views on the perceived safety of e-cigarettes as alternatives to traditional cigarettes before and during pregnancy.”



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E-cigarettes negatively influence implantation success and the future health of the in utero exposed fetus, resulting in abnormal pregnancy outcomes.

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We need to continue developing and critically testing intervention strategies that are safe, effective, and practical for managing blood sugar levels after meals.

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Diabetes Advances Poised to Help Manage Blood Sugar after Meals

Last December, the Endocrine Society convened a panel of diabetes experts to examine how advances in medications, lifestyle changes, and technologies can help manage the challenges associated with post-meal blood sugar levels. While advances in the field are providing more data on post-meal blood glucose levels, more research is needed to help adults with diabetes set concrete goals, according to their recommendations published in the *Journal of the Endocrine Society*.

“Advances such as faster-acting insulins, new drug classes, more flexible insulin delivery systems and improved continuous glucose monitoring (CGM) devices are paving the way to improve post-meal blood glucose level management, but concrete goals and strategies for how best to apply these exciting therapies need to be better defined,” says



John L. Leahy, MD, of the University of Vermont College of Medicine in Burlington, Vt., who led the panel. The panel considered the needs of adults who require insulin to manage the condition.

High blood glucose levels after a meal can cause individuals with diabetes to feel sluggish, lead to negative changes in mood, and disrupt sleep. Simply seeing a high reading after a meal can fuel an individual's feelings of fear, anxiety, shame, or

hopelessness about their ability to manage their blood sugar. Increasing evidence also suggests that difficulty in maintaining control of post-meal blood glucose levels can lead to poorer health outcomes.

Healthcare providers and individuals with diabetes can take steps to manage these challenges. Advances in the field, including ultra-rapid-acting insulins and CGM systems, are offering new avenues to manage post-meal blood glucose levels.

Research suggests making small lifestyle changes can also improve post-meal blood sugar levels. Several small studies found eating protein and/or vegetables 10 to 15 minutes before carbohydrates can lower blood glucose levels. Spending at least 10 minutes walking following a meal also can help with post-meal blood sugar management.

An important recommendation of the panel is additional research is needed to help pinpoint a target blood glucose number or range after meals as well as the amount of time to try to remain in range that would improve clinical outcomes. Growing use of CGMs offers one opportunity to collect and act on real-time data and answer questions about how factors such as meal size, nutrients, and timing can affect blood sugar levels after meals.

In addition, developing additional behavioral strategies and use of new medications could help individuals with diabetes gain more control of their post-meal blood glucose levels.

Findings: “We need to continue developing and critically testing intervention strategies that are safe, effective, and practical for managing blood sugar levels after meals,” Leahy says. ^{EN}

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[HTTPS://ACADEMIC.OUP.COM/ENDOCRINESOCIETY](https://academic.oup.com/endoctrinesociety).

Lavender Oil May Lead to Abnormal Breast Growth in Young Girls

Abnormal breast growth in young girls is linked to lavender oil exposure, according to a recent study published in *The Journal of Clinical Endocrinology & Metabolism*.

Researchers led by Kenneth S. Korach, PhD, of the Reproductive and Developmental Biology Laboratory at the National Institute of Environmental Health Sciences in Research Triangle Park, N.C., point out that gynecomastia is a common clinical condition that involves benign development of breast tissue in men, but prepubertal gynecomastia is a relatively rare condition and most cases are of unknown cause.

Previous research has associated breast growth in boys with lavender-containing fragrances. This current study is the first to report abnormal breast growth in young girls. Here, the researchers found that breast growth in young girls and boys resolved after discontinuing lavender-containing fragranced products. They also determined that certain components of essential oils mimic estrogen and block testosterone, indicating that essential oils could be a source for the breast growth observed in these cases.

“The public should be aware of these findings and consider all evidence before deciding when to use essential oils,” says study lead investigator J. Tyler Ramsey, a second-year medical student at Campbell University and postbaccalaureate research fellow at the National Institute of Environmental Health Sciences (NIEHS), part of the National Institutes of Health.

Based on their results, the authors conclude that they have shown regression of premature thelarche in addition to pubertal gynecomastia after withdrawal of lavender-fragranced products



and that physicians should be aware that lavender oil and tea tree oil possess endocrine-disrupting chemical activities that should be considered in the evaluation of premature breast development in girls and gynecomastia in boys and adult men. However, they write that they are not “recommending any avoidance of these products; rather, we are suggesting that essential-oil products may be considered for discontinuance if suspected to be a possible cause of idiopathic premature thelarche or prepubertal gynecomastia.”

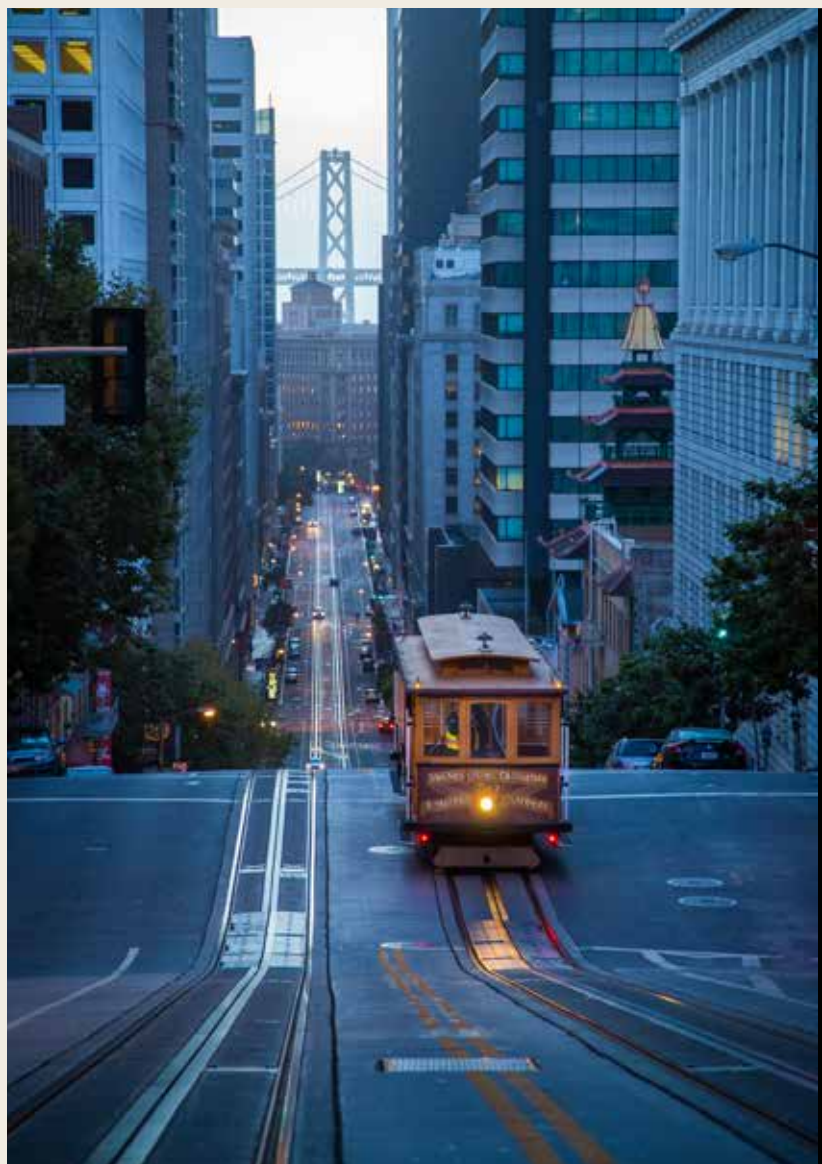
Findings: “It’s also important that physicians are aware that lavender and tea tree oils contain endocrine-disrupting chemicals and should be considered in the evaluation of premature breast development in young girls and boys, and the swelling of breast tissue in adult men,” Ramsey says. “It appears that essential oil products have the potential to cause premature breast growth in young girls and boys, so it may be best to discontinue using them on children.”



“

It appears that essential oil products have the potential to cause premature breast growth in young girls and boys, so it may be best to discontinue using them on children.

”



ENDO 2020

San Francisco, California

March 28 – 31, 2020

KEY DATES

ADVANCE REGISTRATION:

January 16, 2020 – February 14, 2020

LAST CALL ABSTRACTS:

November 4, 2019

HOUSING DEADLINE:

March 3, 2020

With over 7,000 attendees, over 2,000 abstracts, and more than 200 sessions, **ENDO 2020** 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 2020** 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.

www.endocrine.org/endo2020

Diabetes and Its Complications

Boston, Massachusetts

November 8 – 10, 2019

This Harvard Medical School CME program aims to provide comprehensive updates, practice recommendations, and the newest evidence-based strategies for the treatment and care of the person with or at risk for diabetes. Topics will include recent advancements in diabetes screening, the pharmacological management of diabetes focusing on insulin and non-insulin treatments, and diabetic complications

and comorbidities including dyslipidemia, hypertension, and cardiovascular disease.

<https://diabetes.hmscme.com/>

Annual Conference of the Foundation for Reproductive Medicine

New York, New York

November 21 – 24, 2019

Clinicians, basic scientists, and trainees will gather in a single lecture hall over 2 ½ days to receive the latest updates on reproductive biology and reproductive

clinical endocrinology/infertility. Areas of focus for the 2019 conference include identifying paradigm changes in clinical reproductive medicine, evaluating current, popular infertility treatments in selected patient populations, applying individualized infertility medicine based on age and functional ovarian reserve of female patients, and discussing the progress in male infertility.

www.frm2019.cme-congresses.com

World Congress on Insulin Resistance, Diabetes & Cardiovascular Disease

Los Angeles, California

December 4 – 7, 2019

The World Congress on Insulin Resistance, Diabetes & Cardiovascular Disease (WCIRDC), now in its 17th year, is a global meeting dedicated to diabetes, obesity, lipids, cardiovascular disease, and energy balance. The goal of the conference is to link basic research to clinical practice in pursuit of its theme: Exploring New Frontiers in Metabolism — Tomorrow's Clinical Science Today. For nearly two decades, WCIRDC has brought researchers, physicians, clinicians, and other healthcare professionals together for an international program that bridges the latest developments from bench to bedside.

www.wcir.org



5th NY Masters Course in Comprehensive Endocrine Surgery

New York, New York

December 12 – 13, 2019

The Masters Course in Comprehensive Endocrine Surgery will review a wide range of endocrine surgery topics in an interactive setting involving didactic and panel discussions. Basic topics include thyroid, parathyroid, adrenal, and pancreatic disorders, with sessions focused on familial and neuroendocrine topics with an emphasis on current trends in endocrinology and techniques in minimally invasive surgery. At the end of each session, a case presentation and panel discussion will take place allowing for dialogue between the audience and faculty.

www.mssm.cloud-cme.com/NYendo19

INTERNATIONAL ITINERARY

International Prader-Willi Syndrome Conference

Havana, Cuba, November 13 – 17, 2019

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

www.ipwsoconference.org

ASEAN Federation of Endocrine Societies Congress (AFES 2019)

Manilla, Philippines, November 21 – 23, 2019

AFES 2019, taking place at the Philippine International Convention Center, will focus on "Actualizing the Future Endocrine Science." Conference highlights include "The Rice That Binds Us," a discussion by Frank Hu, MD, on the impact of the Asian diet in endocrine disorders; "Precision Medicine," which focuses on the role of Asian genomics in diabetes management by Juliana Chan, MD; and "Obesity Amidst Poverty" as Vivien Lim, MD, discusses tackling this ASEAN predicament, just to name a few. Additional opportunities include the Reproductive Endocrinology and Calcium Metabolism Symposia and Thyroid Simultaneous Symposia.

www.afes2019.org

International Diabetes Federation Congress 2019

Busan, Korea, December 2 – 6, 2019

The International Diabetes Foundation 2019 scientific program will feature 160 hours of scientific sessions, 300 speakers, and 1,000 posters during the 3.5-day event. This conference brings together the global diabetes community aiming to tackle a broad range of diabetes issues, with the goal of shaping the future of diabetes. Open to healthcare professionals in all fields of diabetes and at all experience levels, IDF 2019 aims to improve healthcare practice and enhance the lives of people with diabetes.

www.idf2019busan.org

ThyroAlex 10

Alexandria, Egypt, December 19 – 20, 2019

ThyroAlex 10 is the regular semiannual thyroid-themed conference organized by the Alexandria Thyroid Association and Endocrinology Unit, and the Alexandria faculty of Medicine. The conference will be held over two days; the first will include small group, interactive workshops by thyroid experts. The second day is a full-day conference with lecturers from Egyptian national universities handling thyroid patients in their daily practices.

www.med.alexu.edu.eg/endounit/alexandria-thyroid-association/

Diabetes Expo Asia Pacific – Global Summit on Diabetes and Endocrinology

Bangkok, Thailand, January 27 – 28, 2020

The theme of the 2020 Diabetes Expo Asia Pacific will be "Novel Advancements in Diabetes and Endocrinology." The conference will look at various metabolic diseases and their complications including diabetic nephropathy, ophthalmology in diabetics, and diabetes skin complications. Tracks will also look at genetic mechanisms leading to endocrine disease, functional studies of genetic mutations that shed novel insights into the pathogenesis of endocrine disorders, and more.

www.diabetesconference.endocrineconferences.com

“

The simple concept is that when you eat, you absorb sugar and amino acids and fats and so on, so if you exercise shortly afterward, your muscles — and in this particular case — your bones will have regularly available circulating nutrients. But if you do the reverse, exercising before eating, then you have to mobilize stored fuels, and that is a different ball game — the fuels are not readily available. **What's interesting about bone is that it responds to loading only very briefly, then it goes into a refractory period for about six to eight hours, where you can exercise yourself until you're blue in the face, but nothing happens regarding bone's sensitivity to loading.**”

— KATARINA T. BORER, PHD, University of Michigan, Ann Arbor, Michigan, in “Downhill Battle” on page 16, discussing her very unusual study from **ENDO 2019** that seems to give some good news to postmenopausal women with diabetes.

FROM THE ENDOCRINOLOGY
SOCIETY TIMELINE

The 1910s

Era of Purification of Hormones:

Early in the twentieth century, interest in the endocrine glands and their products continued to increase rapidly. Enthusiasm tended to outstrip discretion and scientific knowledge about the responsible hormone and its physiology. In 1916, the Endocrine Society began as an organized effort to encourage science and clinical care.

For more about the history of endocrinology, go to:

www.endocrine.org/timeline/.

1 in 4 — the number of adults with diabetes that have not been diagnosed
1 in 3 — the number of adults not receiving appropriate care for diabetes

—SOURCE: HEALTHDAY REPORTER



72%

percentage of males who claimed they would rather do household chores such as cleaning the bathroom than go see a doctor.

—SOURCE: CLEVELAND CLINIC

2x

patients who achieve at least 10% weight loss within five years of type 2 diabetes diagnosis are more than twice as likely to experience remission at the five-year follow-up.

—SOURCE: DIABETIC MEDICINE

169,000,000

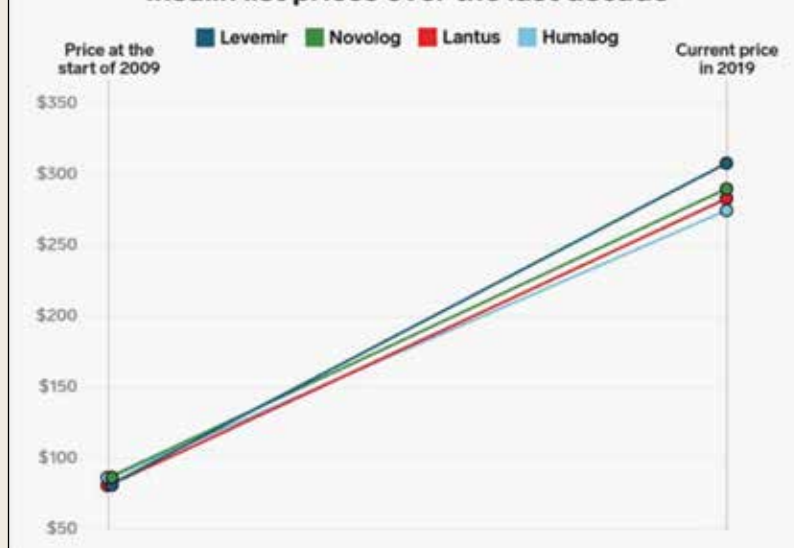
the number of people impacted by hospital data breaches between 2009 and 2019

—SOURCE: ANNALS OF INTERNAL MEDICINE

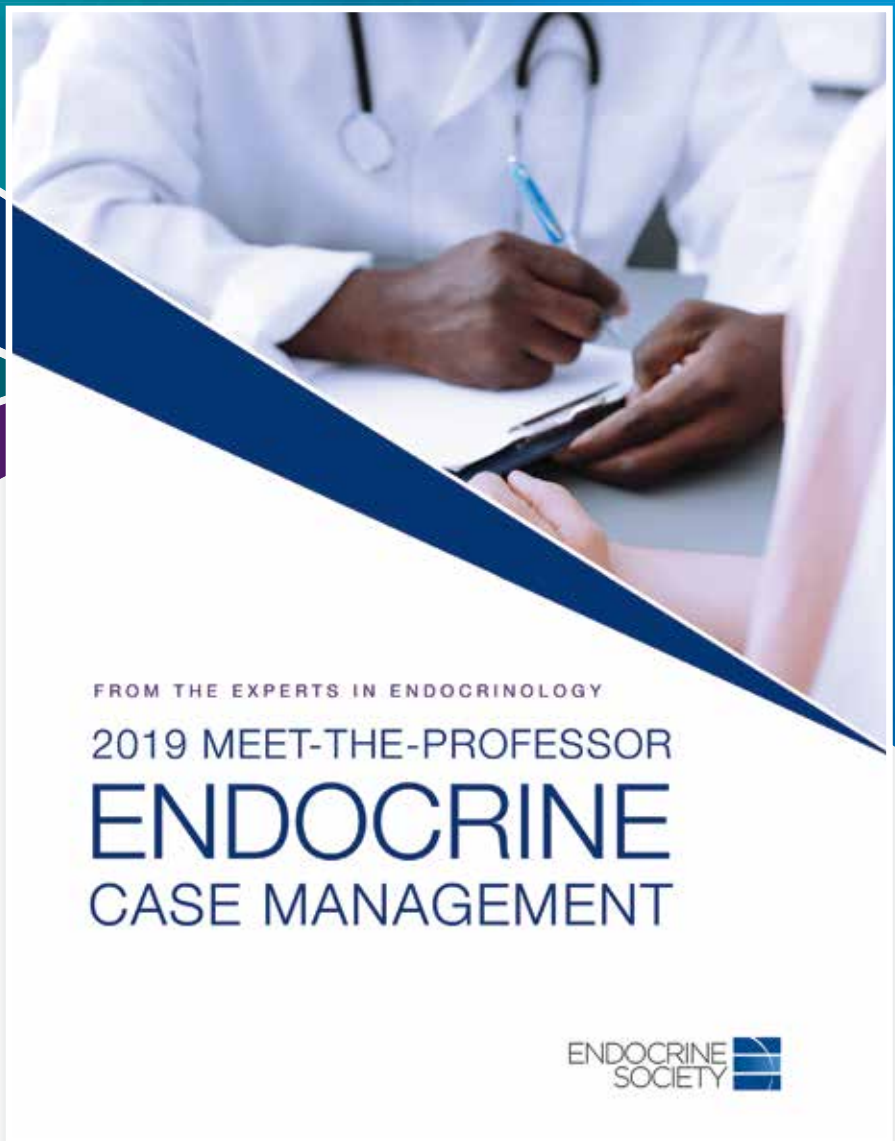


"Another tissue sample please, I have to sneeze."

Insulin list prices over the last decade



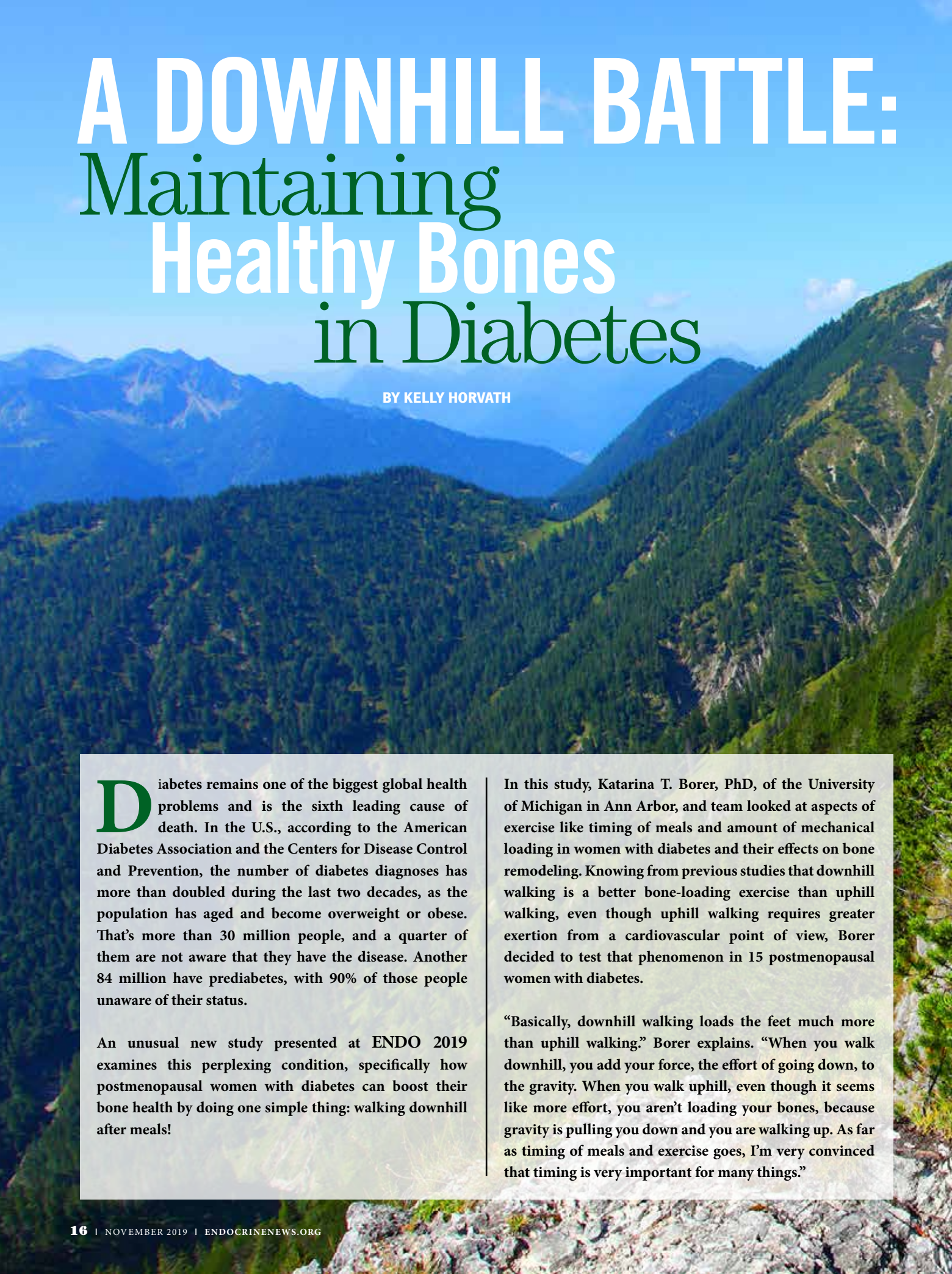
— SOURCES: TRUYVEN HEALTH ANALYTICS; BLOOMBERG



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[ENDOCRINE.ORG/STORE](https://www.endocrine.org/store)



A DOWNHILL BATTLE: Maintaining Healthy Bones in Diabetes

BY KELLY HORVATH

Diabetes remains one of the biggest global health problems and is the sixth leading cause of death. In the U.S., according to the American Diabetes Association and the Centers for Disease Control and Prevention, the number of diabetes diagnoses has more than doubled during the last two decades, as the population has aged and become overweight or obese. That's more than 30 million people, and a quarter of them are not aware that they have the disease. Another 84 million have prediabetes, with 90% of those people unaware of their status.

An unusual new study presented at ENDO 2019 examines this perplexing condition, specifically how postmenopausal women with diabetes can boost their bone health by doing one simple thing: walking downhill after meals!

In this study, Katarina T. Borer, PhD, of the University of Michigan in Ann Arbor, and team looked at aspects of exercise like timing of meals and amount of mechanical loading in women with diabetes and their effects on bone remodeling. Knowing from previous studies that downhill walking is a better bone-loading exercise than uphill walking, even though uphill walking requires greater exertion from a cardiovascular point of view, Borer decided to test that phenomenon in 15 postmenopausal women with diabetes.

“Basically, downhill walking loads the feet much more than uphill walking,” Borer explains. “When you walk downhill, you add your force, the effort of going down, to the gravity. When you walk uphill, even though it seems like more effort, you aren’t loading your bones, because gravity is pulling you down and you are walking up. As far as timing of meals and exercise goes, I’m very convinced that timing is very important for many things.”





“ Women exercising within an hour of eating had the best outcome, which is an increase in the marker of bone formation, but, if they exercised on an empty stomach, it didn’t do anything — it was the same as if they were sedentary. And these were diabetic women, with multiple bone quality issues.”

— KATARINA T. BORER, PHD, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN

Fueling Up

The reason Borer chose diabetic women to study is because of the inherently poor quality of their bone. Increased bone mineral density (BMD) is seen in people who have increased body mass index to support the heavier weight, which is typically good for preservation of the bone and protection against fracture. Although, there is a close correlation between overweight/obesity and diabetes, so we would expect patients with diabetes to also have stronger bones, that’s not the case.

“Even though women with diabetes are usually heavy and often have normal BMD, they break their bones more readily, so there’s something wrong with the quality of their bones,” Borer says. “That was the idea that guided me to say, ‘okay, I know that mechanical loading is very important in healthy women, so let’s look at diabetic women who have altered quality of bone.’” Their postmenopausal status also negatively affects their BMD due to the absence of estrogen.

For the five-trial experiment, two groups of women spent 40 minutes exercising on either an uphill or downhill treadmill (with a six-degree slope uphill or downhill), either within an hour before or an hour after eating each of two daily meals. Researchers measured foot loading with specialized

mechanosensitive insoles. They also measured participants' glucose and insulin levels hourly to look for markers of bone formation and resorption in the blood. "The question I ultimately had," Borer says, "was, 'does the bone respond, despite diabetic bone abnormalities and lack of estrogen?' Because with aging you mostly resorb your bone, and diabetes reduces bone quality. There's less evidence that you can form bone as you grow older."

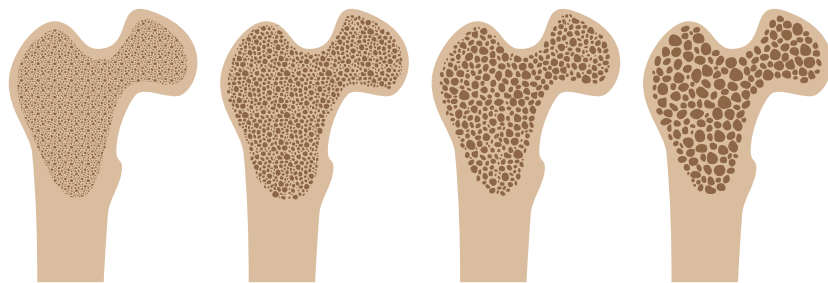
To back up for a moment, similar experiments have been conducted on women without diabetes, including by Borer and team, from which researchers gleaned some important information about timing. Downhill walking or running showed positive effects on bone shortly after eating but not before eating.

"The simple concept is that when you eat, you absorb sugar and amino acids and fats and so on, so if you exercise shortly afterward, your muscles — and in this particular case — your bones — will have regularly available circulating nutrients," Borer explains. "But if you do the reverse, exercising before eating, then you have to mobilize stored fuels, and that is a different ball game — the fuels are not readily available. What's interesting about bone is that it responds to loading only very briefly, then it goes into a refractory period for about six to eight hours, where you can exercise yourself until you're blue in the face, but nothing happens regarding bone's sensitivity to loading."

Turning On Bone Growth

Her findings with the cohort of postmenopausal women with diabetes offer a lot of hope. "In my study, the women exercising within an hour of eating had the best outcome, which is an increase in the marker of bone formation, but, if they exercised on an empty stomach, it didn't do anything — it was the same as if they were sedentary," Borer says. "And these were diabetic women, with multiple bone quality issues."

Although how diabetes impairs bone quality is not completely understood, it is hypothesized that the free radicals and inflammation associated with diabetes impair bone formation in some way. Another is that due to insulin resistance in diabetes, insulin cannot move sugar into muscles and possibly into bones as



Stages of osteoporosis



AT A GLANCE

- ▶ Previous studies have shown that downhill walking is a better bone-loading exercise than uphill walking, even though uphill walking requires greater exertion from a cardiovascular point of view.
- ▶ Postmenopausal women with diabetes who exercised within an hour of eating showed better bone formation than those who exercised on an empty stomach.
- ▶ According to this study's results, bone in older people can indeed grow, but it just needs to be "turned on."



efficiently as in healthy people. In the absence of nutrients, the bone deteriorates.

Despite these hurdles, researchers found significant increase in the markers of type 1 procollagen, which is the substrate for bone. “It was really very surprising,” Borer says, “that diabetic women who have two obstacles (postmenopausal without estrogen and poor bone quality) responded with a very nice peak of bone formation when exercising effectively — loading their bones efficiently — after eating.”

Parenthetically, this peak was not seen after the second meal-and-exercise episode, due to the extended bone refractory

period. Interestingly, though, with uphill exercise, a peak was seen after the second episode but not the first for reasons that are unclear.

This is potentially very good news. Borer agrees: “Most osteoporosis drugs on the market protect only against bone resorption. The assumption behind pharmacological development is that bone in older people cannot grow,” she says. “My study shows that it can; it’s just that you have to know how to turn it on.”

Her team hopes to undertake a longer-term study of at least eight months to measure bone formation more directly. ^{EN}

“When you walk uphill, even though it seems like more effort, you aren’t loading your bones, because gravity is pulling you down and you are walking up. **As far as timing of meals and exercise goes, I’m very convinced that timing is very important for many things.**”

—KATARINA T. BORER, PHD, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN



Primary Prevention of ASCVD and T2DM in Patients at Metabolic Risk

A NEW STANDARD FOR CARE

Improve patient care with our newly updated metabolic risk guideline, which recommends a screening model for detecting heart disease and diabetes earlier and emphasizes treatment with lifestyle changes.

Recommendation Highlights:

- ▶ Prescribe lifestyle modification before drug therapy in patients with metabolic risk.
- ▶ Measure waist circumference as a routine part of the clinical exam.
- ▶ Set a minimum target of 5% loss of body weight over 12 months in those at metabolic risk who are overweight.

READ THE GUIDELINE AT [ENDOCRINE.ORG/2019METABOLICRISK](https://www.endocrine.org/2019metabolicrisk)





Measure **FOR** *Measure:*

How *“Time in Range”*
**May Be the Metric to
Improve Diabetes Management**

BY ERIC SEABORG

As more and more patients with diabetes embrace continuous glucose monitor technology, an international consensus group points to ways clinicians and patients can apply continuous glucose monitor data to minimize glucose highs and lows.

With more diabetes patients adopting continuous glucose monitors (CGM), endocrinologists are wrestling with questions about how best to use all that real-time data they provide.

An international consensus group believes that it is time for CGM data to assume its place as a major measure of glycemic control to avoid long-term diabetes complications.

Hemoglobin A1c provides useful information on a patient's overall success at glycemic control, but it can't provide guidance on how to improve it. In the August issue of *Diabetes Care*, the international group lays out state-of-the-art ways to use the CGM information, including "time in range" metrics of when glucose levels reach target levels and an ambulatory glucose profile report that organizes data into a usable display.

Beyond Hemoglobin A1c

"We've been living in an A1c world since 1993, the year the Diabetes Control and Complications Trial results were announced," says Richard M. Bergenstal, MD, executive director of the International Diabetes Center at Park Nicollet in Minneapolis and a member of the consensus group. "But A1c has never been a very good individual care metric. It misses lows and variabilities in glucose. In this age of personalized medicine, we finally have the tools [through CGMs] that make it possible to know where your highs and lows are."

Hemoglobin A1c is an average, so a benign-appearing measurement could mask the danger that a patient is spending considerable time in hypoglycemia and hyperglycemia outside the desired glucose ranges.

But until now, there has been little guidance or agreement on the ranges to aim for and how much of their time patients should aim to spend within their range.

"Our group believes that clear, easy-to-understand, and broadly agreed-upon glycemic targets for time-in-range levels will positively impact short- and long-term diabetes outcomes, particularly if understood and adopted by people with diabetes," says Tadej Battelino, MD, PhD, head of the Department of Pediatric and Adolescent Endocrinology at Ljubljana University Medical Centre in Slovenia, and lead author of the report. "It is critical for clinical care, regulatory oversight, and research efforts related to CGM to all agree on standard core CGM metrics."

Specific Goals and Metrics

The report provides the specific metrics patients and providers can use to work toward improving glycemic control. The group defines the target glucose range that most type 1 or type 2 diabetes patients should aim for as 70 – 180 mg/dL and 63 – 140 mg/dL during pregnancy.



“ If your time in range is not good, you look at the profile picture. It shows when you are low and where you are high. **It tells you not only that you need to take action, it tells you what action should be taken.**”

— TADEJ BATTELINO, MD, PHD, HEAD, DEPARTMENT OF PEDIATRIC AND ADOLESCENT ENDOCRINOLOGY, LJUBLJANA UNIVERSITY MEDICAL CENTRE, SLOVENIA

The guideline recommends that patients aim to achieve at least 70% of their time in range — which converts to just under 17 hours of a 24-hour day. Patients should aim to spend less than 4% (58 minutes) below 70 mg/dL, less than 1% (14 minutes) below 54 mg/dL, less than 25% (6 hours) above 180 mg/dL, and less than 5% (1 hour, 12 minutes) above 250 mg/dL.

The guideline recommends more conservative targets for patients who are older or high risk — with an aim to spend 50% or more of their time in target. These patients should be more focused on reducing the percentage of time spent in hypoglycemia — defined as less than 70 mg/dL — and preventing excessive hyperglycemia.

Time in Range and A1c Correspondence

The time-in-range percentages can be roughly translated into A1c levels, Battelino says: “On a population basis, the 70% time in range corresponds to an A1c of 7%,” which is the A1c target set by the American Diabetes Association for most patients. A 50% time in range corresponds roughly to an A1c of 8. The guideline notes that each incremental 5% increase in time

in range is associated with clinically significant benefits for individuals with type 1 or type 2 diabetes.

Ambulatory Glucose Profiles

A characteristic that the time in range metric shares with hemoglobin A1c is that by itself it does not provide specific information on how to improve glycemic control. But the three components of an ambulatory glucose profile report — CGM metrics, summary glucose profile, and daily glucose profiles — provide the data in easily visualized ways to guide therapy recommendations.

The consensus statement recommends a standardized report to organize the data in a way that is easy to interpret and act on — such as the ambulatory glucose profile, a format endorsed in the recently updated 2019 American Diabetes Association standards of medical care in diabetes.

The ambulatory glucose profile shows percentage of time within the target range or 70 – 180 mg/dL, below 70 mg/dL, below 54 mg/dL, above 180 mg/dL, and above 250 mg/dL. One part — the

— RICHARD M. BERGENSTAL, MD, EXECUTIVE DIRECTOR, INTERNATIONAL DIABETES CENTER AT PARK NICOLLET, MINNEAPOLIS, MINNESOTA

The consensus statement was created by an international panel of 43 physicians, researchers, and diabetes patients convened by the Advanced Technologies and Treatments for Diabetes Congress in February. The recommendations have been endorsed by a variety of organizations, including the American Diabetes Association and the European Association for the Study of Diabetes. Although several Endocrine Society members took part, the fast turnaround time from the drafting to publication did not allow enough time for the Society to complete a formal review. ^{EN}

Battelino T, Danne T, Bergenstal RM, et al. Clinical targets for continuous glucose monitoring data interpretation: recommendations from the international consensus on time in range. *Diabetes Care*. 2019; 42:1593–603.

—SEABORG IS A FREELANCE WRITER BASED IN CHARLOTTESVILLE, VA. HE WROTE ABOUT THE QUEST FOR ACCURATE PEDIATRIC REFERENCE RANGES IN THE OCTOBER ISSUE.



AT A GLANCE



Q&A:

Endocrine News caught up with *Endocrine Reviews* editor-in-chief Daniel J. Drucker, MD, who shares his views on using social media, the future of endocrine research, and the concept of “endocrinology all around us.”

Daniel J. Drucker, MD

Daniel J. Drucker, MD, is having a very good year. In September, he received the 2019 EASD–Novo Nordisk Foundation Diabetes Prize for Excellence due to his outstanding scientific contributions that have increased our knowledge of diabetes and the biology of the gut hormone.

In October, he was honored with the 2019 Harold Hamm International Prize for Biomedical Research in Diabetes.

Combined, these honors are accompanied by more than \$1 million in research grants.

“It is always a great honor to have our work recognized,” Drucker says. “These awards recognize the dedication and innovation demonstrated by numerous trainees and lab staff over decades.”

The Hamm Prize recognizes and encourages lasting advances in the field of diabetes research and is awarded to an individual who has either demonstrated lifelong contributions to the field or realized a singular advance, especially in leading toward a cure, and it comes with \$250,000. The EASD–Novo Nordisk Prize recognizes outstanding research or technology contributions that increase knowledge of diabetes, its disease mechanisms or its complications, and is accompanied by €806,000, or approximately \$900,000, the majority to fund ongoing research in the recipient’s laboratory.

Drucker is a professor of medicine at the Lunenfeld-Tanenbaum Research Institute, Mt. Sinai Hospital, University of Toronto in Ontario, Canada. He also

BY DEREK BAGLEY



Photo: Shutterstock.com

serves as editor-in-chief of the Endocrine Society journal *Endocrine Reviews*.

Drucker's pioneering diabetes research has focused on a group of hormones called incretins, which help the pancreas produce insulin and use the energy received from food. When working properly, incretins help the body to control blood glucose and insulin secretion, regulate appetite, control the absorption of nutrients from food, and convert those nutrients to energy. However, in type 2 diabetes, the incretin glucagon-like peptide 1 (GLP-1) is in short supply or is inactivated by an enzyme Dipeptidyl Peptidase-4e. Drucker's laboratory uncovered the pathways that led to the development of two drug classes that mimic and enhance GLP-1, so it can restore metabolic homeostasis.

For 35 years, Drucker has been studying the molecular mechanisms that regulate how metabolism works, physiological processes that affect almost every major organ in the body — including GLP-1's effects on not just the pancreas and insulin production, but bone formation, cardiac function, gastric mobility, and much more.

“The vast majority of endocrine scientists and clinicians still don’t use social media on a regular basis, if at all, so we are in the early innings of the social media paradigm in science and medicine.”



Drucker in the lab with two postdoctoral research fellows, Kiran Deep Kaur and Gemma Pujadas.

Drucker spoke to *Endocrine News* about the concept of “endocrinology all around us,” utilizing social media properly (Drucker is prolific on Twitter and has more than 6,800 followers), and the future of endocrinology.

Endocrine News: What first got you interested in medicine in general, and endocrinology in particular?

Daniel J. Drucker: I loved science in high school. Medicine seemed like a great way to combine science and help people at the same time. I did some endocrinology electives in medical school and became fascinated by the endocrine system. The many treatable endocrine diseases made it highly appealing as a specialty.

EN: How have technological advances changed the way in which endocrinologists treat patients and study disease?

DJD: Medical science constantly evolves, from hormone assays to molecular genetics and diagnosis, to new imaging techniques, emerging use of artificial intelligence, big data, and dozens of new medicines. One constantly needs to read and learn to stay current.

EN: Discuss your concept of “endocrinology is all around us.” What does that mean not only to the endocrine professional but to the practitioners in other disciplines as well as society at large?

DJD: The endocrine system is essential for how our bodies work and plays an important role in many disease states. It really underpins normal physiology, and hence is fundamentally important to health and in turn, the pathophysiology of disease.

“The endocrine system is essential for how our bodies work and plays an important role in many disease states. It really underpins normal physiology, and hence is fundamentally important to health and in turn, the pathophysiology of disease.”

EN: What are your plans to further position *Endocrine Reviews* as the global leader in disseminating the latest in endocrine science from around the world?

DJD: We have a very simple approach at *Endocrine Reviews*: Constantly engage with our colleagues in the endocrine community to provide and disseminate content of broad interest to our readership. The Editorial Board is very responsive to our colleagues, and we all attend meetings and have active research programs. Hence, *Endocrine Reviews* is a by-the-community-for-the-community journal.

EN: How could partnering with industry be a potential method for expanding the scope of endocrine research.

DJD: Our colleagues within industry often share common goals — to deploy outstanding science in search of new therapies for endocrine disorders and much more. Industry has technology, scientific prowess, drug development and regulatory expertise, and often funding, to leverage in academic-private-sector partnerships. I personally have had numerous positive interactions with industry over decades, and colleagues in industry have been instrumental in the development of new therapies in my own research areas for diabetes, obesity, and intestinal disorders. While partnerships can require thoughtfulness and careful stewardship, they can be very helpful for multiple members of the endocrine and scientific community.

EN: You have an enormous presence on social media. How can Twitter, Facebook, and others help clinicians and scientists? Furthermore, what is social media's overall role in expanding the universe of endocrinology?

DJD: Multiple communication channels now exist to disseminate endocrine science. We still use older traditional forms of communications (abstracts, meetings, publications), yet one can amplify the extent of communication using new social media channels. In the end, most of us want to learn as much as we can, while engaging a broad and large audience to communicate the science within our communities, and Twitter is just one additional means to communicate. One must realize that the vast majority of endocrine scientists and clinicians still don't use social media on a regular basis, if at all, so we are in the early innings of the social media paradigm in science and medicine.

EN: Can you give me a “futuristic” view of research opportunities — changes to how physicians are currently managing treatment of diabetes? If you could wave a wand and change our approaches to research and treatment, what would you do?

DJD: We have had an enormous change in our ability to manage both type 1 and type 2 diabetes over the past few years. For the type 1 landscape, glucose-sensing technology and insulin delivery systems have evolved rapidly. In type 2 diabetes, new medicines coupled with the results of outcome studies have changed the way we approach the disease, once classically a glucose-centric process. Today, we really can incorporate a personalized medicine approach to keeping people with diabetes as healthy as possible.

I expect more innovation in the future, from better closed loop artificial pancreas systems, to innovative cell replacement therapies, and more powerful medicines for obesity, given the rapid pace of innovation and exciting developments in the pipeline for metabolic disorders. **EN**



PRACTICE PIONEERS

A series of sessions from **ENDO 2019** entitled “Diabetes Innovative Models of Care: Taking Back Your Practice with Innovation” highlighted a variety of methods to incorporate new innovations into caring for patients with diabetes:

- ▶ How incorporating innovation can connect clinicians to the original joy of medicine and into their practice as well.
- ▶ Adding a clinical pharmacist could help your practice manage patients and beat back clinical inertia.
- ▶ Increase the satisfaction of both patients and clinicians by incorporating E-consults.
- ▶ How to make the business case for incorporating new technology to manage patients.

THE JOY OF INNOVATION

BY DEREK BAGLEY





Robert Gabbay, MD, PhD, kicked off the “Diabetes Innovative Models of Care: Taking Back Your Practice with Innovation” sessions at **ENDO 2019** by instructing attendees how simply reconnecting with their original passion could possibly extinguish burnout. Incorporating new forms of innovation could be the answer.

ENDO 2019, as always, provided attendees with numerous chances to get up to speed on the latest research and interesting cases from the clinic, but the annual meeting also featured a session taking back practices through innovative models of care, through an eight-expert panel chaired by Robert Gabbay, MD, PhD, chief medical officer, Joslin Diabetes Center in Boston. “There’s so much going on in healthcare, and I think there’s an amazing opportunity for us as endocrinologists to think about new ways in which we can deliver care,” Gabbay said during the ENDO session in New Orleans.

Gabbay, who not only chaired this panel but is also chairing an Endocrine Society task force to look at innovative models of diabetes care, during his opening remarks talked about finding joy in delivering care and how innovation can bring more joy to the work endocrinologists do, but he was also well aware of the potential question from audience: Why are we relating joy in work to innovation?

And it’s here that Gabbay laid bare the stark truth affecting physicians across the U.S. — more and more physicians are

getting burned out. Physician burnout impacts personal and professional lives alike. Burned out doctors abuse alcohol and drugs; they are withdrawn, lonely, depressed. A physician commits suicide every day in the U.S.

And endocrinologists are not immune. “We’re relatively high on the list,” Gabbay says.

Finding the Joy in Work

One reason for more endocrinologists getting burned out is that the diabetes rate continues to climb, and the number of endocrinologists is not keeping pace, not even close. “So those people have long waiting lists and are struggling to manage that. Reimbursement hasn’t gotten any better and meanwhile their brethren in other specialties get reimbursed significantly better,” Gabbay says.

There’s no magic wand that can be waved to suddenly increase the number of endocrinologists, so until that time, according to Gabbay and the task force he’s heading, endocrinologists and physicians in general can think about



“**First figure out what lights your fire, and then figure out a way that you can carve out at least 20% of your time doing that.**”

— ROBERT GABBAY, MD, PHD, CHIEF MEDICAL OFFICER,
JOSLIN DIABETES CENTER, BOSTON, MASS.

how to reconnect to the joy they once found in their work, that passion that made them choose their specialties in the first place. “One of the things is finding meaning,” Gabbay said during his **ENDO** presentation. “When we find meaning in our work, we’re much less likely to be burned out.”

At first blush, that can sound like a rosy platitude, but studies are looking at the relationship between how much meaning doctors find in their work and how burned out they are. “And it turns out that for every 1% increase in the amount of time you spend doing something meaningful, there was a corresponding improvement in burnout, but interestingly, up to 20%,” Gabbay says.

So, for every percent up to 20%, physicians are doing something meaningful, there’s a benefit, but interestingly, this phenomenon plateaus at 20%. “If you spent 50% of your time [doing something meaningful], you weren’t necessarily that different in terms of burnout. And the good part of that is then, really our quest should be to find out first for each of us, what is that 20%? What is the thing that really gives us the greatest satisfaction and meaning to our work?” Gabbay says.

Regaining Control

For clinicians, one of the main things that brings meaning to their work is having a sense of control over their practices, the feeling that they have choices when it comes to how they care for their patients. “If you look at the way endocrinology has been practiced over the last several years, the pace has increased dramatically,” Gabbay says. “The amount of paperwork has increased dramatically. The feeling of lack of control over what they do, and control is often a hot button issue. Some control over your world is an important part. Meaning is another part. Equity or fairness, feeling that things are fair where you are. Those are major themes.”

Gabbay points to an essay that appeared in the *New York Times* this past June by Danielle Ofri, MD, PhD, an internist who practices in New York City, titled “The Business of Health Care Depends on Exploiting Doctors and Nurses,” which touched on how the traditional response of physicians, when there’s more to do, is to just keep adding more and more work until it somehow all gets done. “And that’s really the way it’s been over the last 20 years, and electronic health records certainly have not helped,” Gabbay says.

And again, this problem won’t simply go away, which is why Gabbay and the Endocrine Society task force are asking endocrinologists to think about what really “lights their fire” when it comes to caring for patients. “What we’re going to be doing today is the beginning of a movement, we hope,” Gabbay said in New Orleans. “A national movement for us to work to take back our practice and to do that through innovative models of care.”

For now, Gabbay says clinicians should start thinking about new programs they can implement in their practices, about doing something differently, about doing something innovative.

“What we shared with the audience [at **ENDO 2019**] was, first figure out what lights your fire, and then figure out a way that you can carve out at least 20% of your time doing that,” he says. “Embracing innovative models of diabetes care not only can give you better patient care and better outcomes, but it can really help recharge your batteries and reconnect you to joy at work.” **EN**

BAGLEY IS THE SENIOR EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT CARING FOR TRANSGENDER PATIENTS IN THE OCTOBER ISSUE.

The Right PRESCRIPTION for Overcoming Clinical Inertia

BY MARK A. NEWMAN



In his session at **ENDO 2019**, **Jeffrey Boord, MD, MPH**, proposed the use of clinical pharmacists in primary care practices to help manage patients as well as overcome clinical inertia.

Clinical inertia is one of the issues that can be a deterrence to optimal care for diabetes patients in a primary care setting, which, according to Jeffrey Boord, MD, MPH, chief quality and safety officer at Parkview Health, a community not-for-profit health system in Fort Wayne, Ind., can be defined as a “failure to advance or de-intensify therapy when it is appropriate to do so.”

A very high proportion of diabetes patients fail to reach their glycemic targets for a considerable length of time after diagnosis, Boord explains. “They may also initially achieve a good level of control, but then as the illness progresses over time, have clinical deterioration and have a very long period of poor control before therapy is appropriately escalated,” he says.

It's Complicated

Boord says that while current diabetes treatment guidelines provide a framework for glycemic management and diabetes treatment, this process competes against a variety of priorities in the primary care clinic. Everything from common ailments ranging from back pain or a rash, to an inability to sleep, to patients simply needing prescriptions refilled are what primary care physicians have to juggle along with a patient's glycemic control.

“So, if the primary care provider can actually get time to set an individualized glycemic goal for the patient,” he explains, “they're then confronted with myriad drug therapy options, each with advantages and drawbacks depending upon the patient's co-morbidities, ease of use, risk of side effects, and costs. In other words, it's complicated.”



“ Instead of the patient getting a referral and having to wait to see one of [the endocrinologists], the patient is immediately able to engage with a pharmacist, identify barriers to care, and develop an individualized care plan, often the same day that they are seeing their primary care physician.”

— JEFFREY BOORD, MD, MPH, CHIEF QUALITY AND SAFETY OFFICER AT PARKVIEW HEALTH IN FORT WAYNE, IND.

Adding a Clinical Pharmacist to the Team

So how can endocrinologists help their primary care provider colleagues and patients overcome clinical inertia?

A solution that Boord and his colleagues implemented at Parkview Health in primary care is the addition of clinical pharmacists to co-manage diabetes. “A clinical pharmacist is a provider with a PharmD degree, who is residency trained with clinical experience in primary ambulatory care, has an advanced certification and a specialized skillset ideal for implementing diabetes pharmacotherapy,” Boord explains.

According to Boord, the program works by embedding a clinical pharmacist in primary care practice sites that have a large concentration of patients with uncontrolled diabetes on their provider panel. Each pharmacist has a written collaborative practice agreement. “Each physician in the practice knows the pharmacist personally, and there is a collaborative agreement with every provider within the clinic,” he explains. “The document outlines guideline-based algorithms for medication therapy, initiation and titration, lab monitoring, gap closure on screenings and immunizations, as well as cardiovascular risk factor management such as hypertension, statins, and smoking cessation.”

The patient can be identified either through a patient panel report from the electronic health record (EHR) or directly referred by a primary care provider for a variety of reasons, Boord says, adding “each patient has individualized glycemic goals which are set collaboratively with the patient and primary care provider.”

According to Boord, the process with the pharmacist is fairly straightforward: At the initiation of care, the pharmacist has an hourlong, face-to-face visit with the patient that includes medication history; risk factor assessment; care needs; determine the patient’s level of baseline diabetes education and their readiness for change; assess any barriers to care; and determine current medication adherence. Once the patient begins an appropriate medication therapy regimen, which is titrated per protocol, there is regular followup with monthly visits and virtual followup with the pharmacist by telephone and through the EHR patient-messaging app.

Results Don’t Lie

So far, Boord and his fellow endocrinologists at Parkview Health have been very pleased with the clinical pharmacist program. “For patients who have completed at least three months of therapy, we have seen an average 1.77% reduction in A1C, as well as meaningful increases in statin treatment and completion of microvascular screening,” he says. “Patients really like having another provider on their primary care team focused on helping them manage their diabetes.”

Boord says that the primary care physicians love it because they are able to identify a patient who has uncontrolled diabetes, “hand that off to the clinical pharmacist right on the spot, and get the patient immediately started on an effective care plan.”

So why does Boord think the addition of a clinical pharmacist to the primary care team has been successful?

“The clinical pharmacist focuses on diabetes and they have time,” Boord says. “They can just work the diabetes care plan and that provides the primary care provider more time to focus on other issues. The pharmacist can also provide the necessary education and tailor the therapy to the patient. They can help initiate and titrate the medication successfully.”

Boord adds that the clinical pharmacists have proven to be masters at removing barriers. “They can identify patients that need low-cost regimens. They can help overcome reluctance to new treatments such as injectables,” he says. “They can also navigate the myriad of different formularies and prior authorization requests that often can frustrate busy primary care providers. The pharmacist also provides active titration and feedback, assuring that the care plan is advancing, the patient is reaching their glycemic goal, and that they’re being appropriately monitored for any side effects.”

Boord adds that the physicians in Parkview Health’s endocrinology clinic are big fans of the program because it helps the endocrinologists with patient access. “Instead of the patient getting a referral and having to wait to see one of us, the patient is immediately able to engage with a pharmacist, identify barriers to care, and develop an individualized care plan, often the same day that they are seeing their primary care physician,” he explains. “I have yet to meet a clinical colleague who’s told me that they can’t get enough referrals for diabetes. So, access is really a big help and our clinical pharmacy program is really helping empower our primary care providers to provide timely, excellent, and equitable care for diabetes.” ^{EN}

NEWMAN IS THE EDITOR OF *ENDOCRINE NEWS*. HE WROTE ABOUT THE ENDOCRINE SOCIETY’S FIRST LGBTQ+ RECEPTION AT **ENDO 2019** IN THE JUNE ISSUE.



What Causes Clinical Inertia?

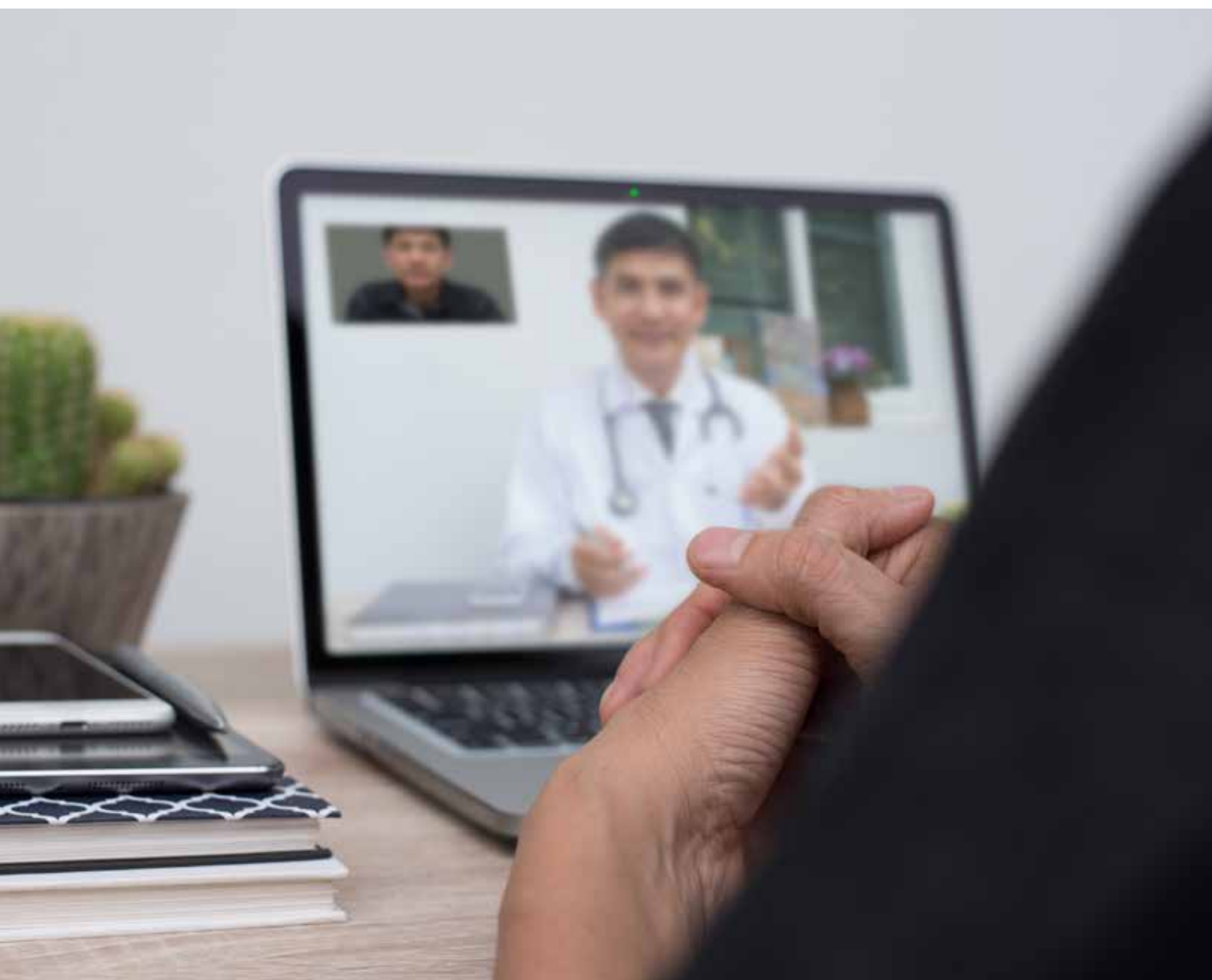
According to Jeffrey Boord, MD, MPH, the causes of clinical inertia span a range of factors that take into account the patient as well as the caregivers and the circumstances surrounding them:

- ▶ **The patient** – They may have a fear of hypoglycemia or weight gain or lack of diabetes self-management education.
- ▶ **The provider** – There may be a lack of knowledge or comfort with diabetes therapy options and how to initiate and titrate them.
- ▶ **The system** – There may be a lack of processes to identify patients with uncontrolled diabetes and proactively intensify treatment.
- ▶ **Therapies** – Some care options can have side effects and be complex to manage, i.e., basal bolus insulin, which requires a considerable amount of monitoring and patient effort to effectively maintain.
- ▶ **Comorbidities** – Advanced chronic kidney disease or cognitive impairment may limit therapy options or affect adherence.
- ▶ **Socioeconomic barriers** – Therapy is often too expensive for patients to afford. Patients may not have support systems, access to transportation, or other resources to manage their care.

BY KELLY HORVATH

E-Consults:

Increasing the Efficiency and Efficacy of the Referral Process





Elizabeth J. Murphy, MD, DPhil, explains how one useful piece of innovation that can more effectively enhance a clinical setting is the use of e-consults, which has shown an increase in satisfaction by both patients and clinicians alike.

As clinicians continue to strive for more innovative ways to “take back their practices,” one method that proved remarkably successful in the San Francisco Health Network was the advent of e-consulting.

In “How E-Consults Can Improve Care and Reduce Unnecessary Referrals,” Elizabeth J. Murphy, MD, DPhil, of the UCSF – SF General Hospital, San Francisco, Calif., explains how and why e-consulting makes such good sense. “For a cognitive specialty like endocrinology, e-consulting provides a lot of advantages,” she says. “It’s much more efficient for certain cases and questions because you do not necessarily have to see the patient in person.”

First, this saves the patient a visit to see the clinician, which in itself can be extremely burdensome for some patients, who may not have readily available transportation, for example, or who may not feel up to going out, or who may not be able to miss work, or for any number of other reasons. Second, this saves the endocrinologist’s practice all the work and expense that goes along with having a full visit. “Instead, you can provide advice directly to the practitioner taking care of the patient,” Murphy says, “and, often you can avoid unnecessary testing by giving the referring provider some quick advice.”

Another clear advantage is that e-consulting, as opposed to on-the-fly advising, formalizes the process, so everything that takes place is documented in the patient’s medical record.

Although e-consulting cannot preclude all in-person visits, it has already provided advantages even if a visit should become necessary. “If the patient does eventually come to you, they’ll have had a better workup at that point, so the visits with you are much more effective, useful, and high-yield – they’re just much more efficient,” Murphy explains. “You have the data

you need, so you can talk to the patient and do the parts of the exam you need.”

To show how these benefits work in practice, Murphy provided some examples. Say a patient has a thyroid-stimulating hormone level of 7, which is borderline elevated. This is something that might typically stay in primary care, but an inexperienced provider could reach out to an endocrinologist to get some initial guidance. “I look at the labs and see that this is subclinical hyperthyroidism,” Murphy says, “and I tell the provider, ‘this is what I would recommend, and this is what I would ask the patient. Then get back to me when you have that information.’ They see the patient and follow-up with me, and I say, ‘start this treatment. Let me know later if you have questions or if this, this, or this happens.’”

Virtual Co-Management

Sometimes the e-consult is just a quick question, like, “I got this weird lab result, does it mean anything?” Or, “My patient has hyperthyroidism, so I ordered these 10 tests.” Murphy says that she can intervene and save time and money by striking unnecessary testing from the list.

In these scenarios, the specialist does not see the patient, and, in this way, it is different from co-management. “The specialist does this, the primary care provider can do that, and you keep going back and forth,” Murphy says, “but everything is in the primary care provider’s hands. It’s more like *virtual* co-management.”

But, again, if the patient ultimately does need the visit to the endocrinologist, he or she has already had the workup and possibly even tried an initial therapy, so the endocrinologist already has loads of information to work with. “We’ve skipped

“ If the patient does eventually come to you, he or she has had a better workup at that point, so the visits with you are much more effective, useful, and high-yield. You have the data you need, so you can talk to the patient and do the parts of the exam you need.”

— ELIZABETH J. MURPHY, MD, DPHIL, OF THE UCSF – SF GENERAL HOSPITAL, SAN FRANCISCO, CALIFORNIA

several visits and have an informed starting point,” Murphy says. “As opposed to, in the older days, you’d get a referral and the patient wouldn’t even know why they’re there. And, in the record, the referring provider has written only, ‘referred to endocrine’, which is not very helpful.” In this way, e-consulting eliminates a lot of the guesswork.

Sharing the Success

E-consulting began for Murphy in 2007 within the San Francisco Health Network that was then directed by Mitchell H. Katz. “We were one of the first systems to do e-consulting in a widespread way,” she says. “We’re all UCSF faculty, but we operate through the Department of Public Health in San Francisco.” On the success of San Francisco’s e-consulting program, Katz went on to implement similar systems in Los Angeles County and currently in the New York State Department of Public Health.

Although each system will have its own particular functionality, the key to its usefulness is making sure that the referring provider and the specialist have access to the same electronic medical record data, and the e-consult is very well integrated into the platform. Third-party vendors like RubiconMD also make e-consulting possible, although more limited.

In the San Francisco Health Network, referrals can only happen through e-consulting, which makes it different from some other systems. According to Murphy, this prevents a lot of mistakes. Patients might get referred to the wrong specialty, for example, and a wasted visit would have transpired. With e-consulting, on the other hand, a physician screens the referral and can redirect as necessary. Or, a patient might come to a primary care provider with a disease they read about online that turns out to be made up, like “adrenal fatigue.” “You can give them a link, such as from the Endocrine Society that has documents for providers about what is and what isn’t an accepted medical diagnosis.”


There’s an incidental advantage here as well — reduced traffic in specialty clinics means faster care for those who need it. “Of the patients referred to us,” Murphy says, “we do not see half of them in clinic. The patients are happier because it saves them unnecessary visits. The primary care providers are happier because they have quick access to specialists that otherwise would mean a two- to three-month wait. This way, in three days, you have at least an initial answer to your question because the clinics are less clogged up. The patients who are sick and need to see you get in sooner.”

Despite being in the public health system, Murphy says wait times in their clinics are better than what they can be in the private insurance sector. “Almost all of our clinics have wait times of less than two weeks for a new patient appointment. We’ve screened out the inappropriate referrals, and we’ve dealt with straightforward things that we can do by the e-consult. When the patients come to the clinic, they’ve had the appropriate workup, so I don’t need two or three visits to get the workup done — they come with the workup done.”

Getting Remunerated

E-consulting sounds like a no-brainer, because it is. One aspect, though, that is critical to its success is getting adequately compensated for doing it. Some systems expect clinicians to do email consulting for free or for an inadequate sum, and this is a dangerous precedent, according to Murphy. “Endocrinologists have to say no to that because if you do things for free, people will expect you to continue to do them for free. I also discourage endocrinologists from taking the ‘here’s \$10 to help your colleagues out’ bait. There should be no endocrine consult that is so easy that it’s only valued at \$10. If you do it for \$10, that becomes the norm. Advocate for yourself.”

Murphy says this was a key message she hoped to convey in her talk, that is, teaching people how to advocate for adequate compensation for e-consulting. “Cognitive specialties in particular are undercompensated because there’s no special relative value unit for thinking, which is what cognitive specialties do — we think about numbers, but we don’t do anything to anyone.”

Because the healthcare system as a whole stands to reap huge savings from e-consulting, reimbursement codes are now available. As e-consulting continues to demonstrate value, reimbursement will only increase. 

HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. SHE WROTE ABOUT NEW OBESITY RESEARCH FROM **ENDO 2019** IN THE OCTOBER ISSUE.

Mind *your* BUSINESS

BY KELLY HORVATH



How to Get the Financial Resources and the Administrative Support for Your Innovation



Former invest banker
Anand Mehta, MD,
spoke about how to
make the business case
for innovation to the
administrators holding
the purse strings.

It helps to be able to “talk the talk” and make the business case as well as the clinical case for new expenses.

Healthcare is one of the sectors where technical innovation is taking place at a break-neck pace. A practice that is slow to adapt will be slow to catch up to an everchanging landscape of evolving technology and methods. Unfortunately, technology comes at a price, and that price might not always be enthusiastically embraced by administrators.

In “Making the Business Case for Your Innovation,” Anand Mehta, MD, of the University Healthcare Alliance/Stanford Healthcare, in Hayward, Calif., dispelled the myth that good healthcare and cost-effectiveness cannot coexist. Coming toward the end of the session, Mehta was able to refer to some of the innovations already discussed, such as the value of e-consulting or bringing a pharmacist into the practice, to make his point. “A lot of good ideas were presented, and as we thought about these ways to innovate care, we realized too that because most of us are employed practices, rather than solo practices, we need to show the value to our administrators,” Mehta says.



“A physician’s lens typically is what’s most important for the patient, independent of expense. Maybe that’s changing a bit now with some of these overpriced medicines, but, typically, it’s what’s best for the patient, and cost is not an issue. The administrator, however, looks at what it’s going to cost and possibly finding a cheaper alternative.”

— ANAND MEHTA, MD, UNIVERSITY HEALTHCARE ALLIANCE/
STANFORD HEALTHCARE, HAYWARD, CALIF.

Making the business case becomes critically important in an employed practice. Physicians and administrators generally have two very different — sometimes even opposing — perspectives. When a physician wants to implement an innovation, a financial administrator is not likely to just give the green light. “They’re going to look at the numbers,” Mehta says, “and want to know why is this relevant and how will it help us.” Physicians, on the other hand, are first and foremost trying to help patients. “So, how do you try to convince your administrators that spending money on an innovation is a financially worthwhile endeavor? They are looking at the institution and where it’s most feasible to spend dollars.”

Mehta, a former investment banker, has special insight into just how an administrator would look at the problem. “After finishing my medical training,” he explains, “I had the sense that medicine was going this way and wanted to learn a little business.” As he was deciding whether to pursue a master’s degree in business or just how to integrate finance with medicine, he was offered a position at a biotech investment bank, where he was able to use his scientific knowledge while learning the business side of things.

“With this background, I’m regularly going toe to toe with our finance people and sometimes surprising them that I can actually talk their talk. I understand what metrics they are looking at, and my metrics are patient outcomes and patient care,” he says. Merging those metrics is not only possible, making all involved parties happy, but incidental benefits accrue as well. Being financially savvy will allow physicians to grow their practices, for example.

Through the Numbers

Mehta wants to get the message out there that this is an important skill to learn, and going through the basics of a business plan was the gist of his presentation. “What types of things do you need to put together to walk over to your administrator and, number one: be taken seriously; and number two: have them buy into this program? For any one of these scenarios presented, we would ask, ‘How much does it cost? How do we bill for these services, and what does that look like? Why is this valuable from a financial standpoint?’” he explains.

What inspired Mehta’s presentation was his own successful care innovation that happened four years ago. He wanted to implement continuous glucose monitoring, but his administrators were initially against the idea. He spent a few months pulling together a clinical business plan to present but was still initially turned down. “The glucose monitoring was a very straightforward kind of analysis, but maybe because they weren’t used to seeing the numbers put down this way; they were not seeing a return on investment,” he says. “Our job is to guide our colleagues into knowing what to look for. Okay, how much does each continuous glucose cost to buy, how much does the sensor cost, how much does the reader cost, how many do you need, how often do you need to buy new ones? So, we take them through the numbers.”



After doing just that, Mehta's plan got approval, and, within a few months, he was able to demonstrate that the glucose monitors would pay for themselves. "The key is knowing what you're looking for and setting up the parameters, basically," he says. "How many glucose monitors do you need to buy, how much time is devoted to this, how many patients do you need to use the glucose monitors?"

Talk the Talk

According to Mehta, it helps to be able to speak the language that an administrator will understand. "Again, a physician's lens typically is what's most important for the patient, independent of expense," he says. "Maybe that's changing a bit now, with some of these overpriced medicines, but, typically, it's what's best for the patient, and cost is not an issue. The administrator, however, looks at what it's going to cost and possibly finding a cheaper alternative. Each point is valid, especially nowadays."

Of course, a big part of this is finding out the healthcare reimbursement codes and the reimbursement rates. Mehta says that his practice regularly does these kinds of analyses,

recently for a diabetic retinal camera. "The key is learning to present the financial merits in addition to the clinical benefits," he says, adding that it's vital to learn how to address the key issues "from an administrative standpoint regarding whatever innovation you're trying to implement as well as learning to talk the talk of the other party."

Lest this seem daunting, Mehta has good news: In addition to delegating some of the legwork, such as researching those all-important reimbursement codes and other relevant pieces of the puzzle, innovation for your innovation is on the horizon. "The Endocrine Society is working to put resources together to assist doctors in preparing an understandable business plan," he says. "We're looking to post an online calculator that you can input how much piece X costs to buy and how much you would charge for it, and it will tell you your internal rate of return." 

HORVATH IS A FREELANCE WRITER BASED IN BALTIMORE, MD. SHE WROTE ABOUT NEW OBESITY RESEARCH FROM **ENDO 2019** IN THE OCTOBER ISSUE.

Endocrine Society Brings Endocrinologists to D.C. to Advocate for Diabetes Funding, Insulin Affordability, Telehealth Expansion

There is no shortage of interesting things going on in Washington, D.C., these days, from impeachment inquiries to funding the government to deciding on a Democratic nominee for the 2020 election.

On September 28, our clinical leaders came to Washington to use their voice to advocate for a range of issues, including the renewal of the Special Diabetes Program, making insulin more affordable, and opportunities for endocrinologists to use telehealth for patients who have diabetes in pregnancy or osteoporosis. We conduct several Hill Days throughout the year for both clinicians and researchers to advocate on behalf of their practice, patients, and research — and our messages are getting through. Here's what we heard:

During our visits, congressional offices overwhelmingly recognized the importance of reauthorizing the Special Diabetes Program, which will expire on November 21 if no action is taken. This program has made significant strides over the last 20 years to promote type 1 diabetes research and prevention and treatment initiatives in at-risk populations with type 2 diabetes. As a result of our advocacy efforts, there is widespread, bipartisan support for the Special Diabetes Program in both the House and Senate, and we expect a renewal to be included in an extenders package this fall.

As part of the Endocrine Society's September 28 Hill Day, members (l to r) Chase Hendrickson, MD, MPH; James Rosenzweig, MD; Nazanene Esfandiari, MD; and Kelly Wood, MD, all paid a visit to Rep. Debbie Dingell's (D-MI) office to advocate for a range of issues, including the renewal of the Special Diabetes Program, making insulin more affordable, and opportunities for endocrinologists to use telehealth for patients who have diabetes in pregnancy or osteoporosis.

Members of Congress were also strongly supportive of addressing insulin access and affordability. We have been working on this issue for years, testifying before Congress, working with the Congressional Diabetes Caucus to develop policy recommendations, and weighing in on relevant legislation that could help lower the cost on insulin. Comprehensive drug pricing packages have been developed in both chambers of Congress, but some momentum has been lost on this issue as a result of the impeachment inquiry.

In the House of Representatives, the Lower Drug Costs Now Act was introduced to enable the Department of Health and Human Services to negotiate prices on 250 of the costliest drugs, including insulin. The bill also caps out-of-pocket costs for prescription drugs at \$2,000 and penalizes manufacturers that do not participate in drug price negotiations. The Senate introduced



a similar proposal, the Prescription Drug Pricing Reduction Act of 2019, that would cap out-of-pocket prescription drug costs at \$3,100 and limit price increases in Medicare Part B and D if they exceed the rate of inflation. The legislation does not include a provision on drug price negotiation. It is unclear how and if the House and Senate will reconcile these proposals; however, we will report back in a future issue of *Endocrine News* about the outcome and its impact on endocrinology.

Finally, there are a number of opportunities to explore the use of telehealth for people with chronic conditions like diabetes and osteoporosis. We are working with the Congressional Telehealth Caucus to integrate these ideas into a pilot in an upcoming legislative package on telehealth. On the Hill Day,

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As a result of our advocacy efforts, there is widespread, bipartisan support for the Special Diabetes Program in both the House and Senate, and we expect a renewal to be included in an extenders package this fall.

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our members educated their congressional delegations about ways that telehealth could be used to improve outcomes for people with diabetes who become pregnant and individuals who are in a skilled nursing facility following a fracture. We will continue to work with Capitol Hill to promote the use of endocrinologists to increase access and quality care.

Interested in getting involved in our advocacy? You can join our online advocacy campaign (endocrine.org/takeaction) to urge your representative and senators to support renewal of the Special Diabetes Program or contact advocacy@endocrine.org to learn more about how you can support these efforts and more.

Continuing Resolution Provides Government Funding Extension Until November 21; Action Needed to Finalize Increase for NIH

Before departing for a two-week recess in late September, Congress passed a short-term continuing resolution (CR), H.R. 4378, to keep the government open through November 21, 2019.

The CR was needed because the House of Representatives and Senate had not finalized a Fiscal Year 2020 appropriations bill before October 1, the start of the fiscal year. While there were several differences between the House and Senate and a growing disagreement with the administration over President Trump's plans for a border wall, both chambers were supportive of increasing funding for the National Institutes of Health (NIH). The House voted to support a \$2 billion increase; the Senate Appropriations Committee supported a \$3 billion increase.

When lawmakers returned to Washington on October 15, 2019, they had only five legislative weeks to work out unresolved disagreements in their appropriations bills before either reaching an agreement for full-year funding, passing another short-term measure, or facing a government shutdown. Complicating the progress on appropriations was the impeachment inquiry, which not only diverted attention but also created greater fault lines between the two parties.

As this issue of *Endocrine News* goes to press, we continue to advocate for a final appropriations bill with at least a \$2 billion increase for the NIH. We have testified before Congress, visited key leaders, and conducted Hill Days, but we need to keep the pressure on. Please join us in advocating for endocrine-related research by joining our online advocacy campaign to urge your representative and senators to support NIH funding. Visit www.endocrine.org/takeaction.

Endocrine Society Raises Concerns about the EPA's New Animal Testing Directive



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We remain committed to continuing to work with the EPA and international testing authorities to enhance the development of accurate methods to protect human health and the environment from endocrine-disrupting chemicals and other toxicant-induced harms.

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On September 10, the U.S. Environmental Protection Agency (EPA) issued a directive to aggressively prioritize reductions in animal testing toward a 30% decrease in such tests by 2025 and complete elimination of requests by the EPA for animal studies by 2035. In a companion memo by EPA administrator Andrew Wheeler, the EPA also announced \$4.25 million in research funding to advance the development of alternative test methods for the evaluation of chemicals for toxic effects and directed responsible offices within the EPA to provide resources toward activities in support of these goals.

Although we share the goal of minimizing animal testing and developing robust alternative methods that can reliably screen and evaluate chemicals for harmful effects, the Endocrine Society and other organizations within the biomedical research community have expressed concern with the unrealistic time frames and lack of validated alternative methods to interrogate complex biological processes such as hormonal signaling pathways. We have consistently maintained that current testing strategies are insufficient for the evaluation of the effects of chemicals on hormonal systems, and in our communications with the EPA and other regulatory agencies we argue that biomedical research, including research on animals, will continue to be necessary for the foreseeable future to inform the development of better testing strategies.

In response to the directive, we joined with the Federation of American Societies for Experimental Biology (FASEB) to highlight the limitations of the existing suite of alternative methods and emphasize the current necessity of conducting toxicological assessments in animal models capable of complete physiological responses to chemical exposures.

The EPA directive follows from previous efforts to support alternatives to animal testing. We also commented on the EPA's draft strategic plan to promote the development and implementation of new and alternative test methods (NAMs) in the context of updates to the Toxic Substances Control Act (TSCA) contained in the Frank R. Lautenberg Chemical Safety in the 21st Century Act. In our comments, we expressed concern about the proposed time frames for the adoption of alternative methods and urged the EPA to clearly and transparently describe how alternative methods would be compared to existing testing strategies and evaluated for their efficacy.

We remain committed to continuing to work with the EPA and international testing authorities to enhance the development of accurate methods to protect human health and the environment from endocrine-disrupting chemicals and other toxicant-induced harms. We encourage interested members of the Society to stay tuned for future announcements, as the EPA seeks to engage stakeholders in annual meetings to discuss the development of NAMs. ^{EN}



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Diabetes Disaster Planning

COMPILED AND WRITTEN BY COURTNEY CARSON

Managing diabetes is challenging enough on a day-to-day basis. In an emergency, having access to needed medical care and supplies can be a matter of life and death.

The Endocrine Society, along with its partners in the award-winning Diabetes Disaster Response Coalition (DDRC), is committed to delivering life-saving medical care and supplies to areas affected by disasters. A plethora of resources are available to patients in disaster situations, and as healthcare providers, you are able to help your patients make a plan to stay healthy during natural disasters or emergencies.

Managing medication in disaster situations is one of the top challenges patients with diabetes face. It is recommended to prepare an emergency “diabetes kit” (complete with items such as supplies to test blood sugar and a week’s supply of extra medication), especially for those living in areas where hurricanes, wildfires, or other natural disasters are a looming threat. A complete checklist of items to include can be found at **DiabetesDisasterResponse.org**.

◀ Diabetic Organizer Supply Kit

The ChillMED Elite Diabetic Organizer Supply Kit is an insulin and medication travel cooler bag designed to accommodate all diabetic supplies including a glucose meter, insulin meter, test strips, pens, medication, and more. The insulated bag features closed cell foam insulation throughout the bag, not only to cool but also to protect supplies and medication. It includes one Polar Tech Re-Freez-R-Brix foam refrigerant pack for up to 14 hours of cold time, making it easier to store chilled medication when transporting during an emergency.

www.chillmed.com





◀ Sharps Container

The Vakly Sharps Container is a 64-ounce container designed so needles can be dropped in the container without touching the outside. The biohazard container locks for safe needle disposal and transport, is made from strong puncture-resistant plastic, and features a side carrying handle. Also included is a Biohazard Disposal Guide, a 4x6 card outlining the FDA-recommended process for properly disposing of used needles and other sharps.

www.avalinemedical.com

▶ Switching Insulins Guide

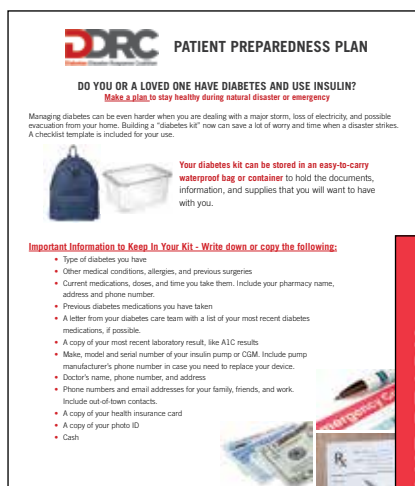
In the instance of an extended power outage in which a patient only has access to expired or non-refrigerated insulin, the DDRC has developed the guide *Switching Between Insulin Products in Disaster Response Situations*, which has been approved by the Endocrine Society, the American Diabetes Association, and JDRF. This guide is intended for healthcare professionals to aid patients in disaster response situations and should be used in advance of a potential emergency.

www.diabetesdisasterresponse.org

The Emergency Diabetes Supply Hotline has been activated for physicians and healthcare providers to notify the DDRC of diabetes supply shortages and request support. Healthcare providers can contact the supply request hotline at 314-INSULIN (314-467-8546).

To ensure this life-saving resource is available to as many patients as needed, the hotline needs the assistance of Society members to help staff the phones, provide clinical assistance via Skype, or help deliver and coordinate supplies on the ground in the event of an emergency. For more information about volunteering, contact Meredith Dyer, director, Health Policy, **mdyer@endocrine.org**.

Additional resources can be found online at: **www.endocrine.org/advocacy/ddrc**. Let's do our part to ensure that people with diabetes have the support, medication, and supplies they need in advance of a natural disaster.



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Diabetes and Eye Care

WHAT IS DIABETIC RETINOPATHY?

Retinopathy means “diseases of the retina.” It is an broad term describing several conditions. The most common are macular edema, and proliferative and nonproliferative retinopathy.

Of these, non proliferative retinopathy is the most common condition. When this happens, the tiny blood vessels (capillaries) located in the back of the eye expand and form pouches. With time more of these pouches form.

Proliferative retinopathy is a more serious condition. This usually takes a few years to develop. When this happens, damage to the blood vessels causes new blood vessels to start growing in the retina. Because the new blood vessels have weaker walls, they can leak blood into the eye and block vision. They can also produce scar tissue on the retina. As the scar tissue shrinks, it can begin to push the retina or pull it out of place entirely, which is called retinal detachment.

Macular edema happens when the capillaries can no longer control the flow of substances between the blood and the retina. Fluid leaks into the macula, causing vision to blur and potentially leading to blindness.

HOW DOES THE RETINA WORK?

The retina plays an important role in vision. It records the images the eye takes in and converts them into electrical signals, which it sends to the brain. The brain then interprets the electrical signals so you understand what you’re seeing.

The macula is a part of the retina responsible for picking up fine detail. It is nourished by blood vessels in and behind the retina.

WHO IS AT RISK FOR RETINOPATHY?

Most people with type 2 diabetes will get nonproliferative retinopathy, the less immediately dangerous type. Proliferative retinopathy, which can destroy vision, is not nearly as common.

Damage to the retina can occur without symptoms. Even proliferative retinopathy usually doesn’t have symptoms until it is too late for treatment. That’s why it’s critical for people with diabetes to get regular eye exams by an eye doctor. This person can perform a variety of tests, including a dilated eye exam, to find problems even before one notices symptoms.

DID YOU KNOW?

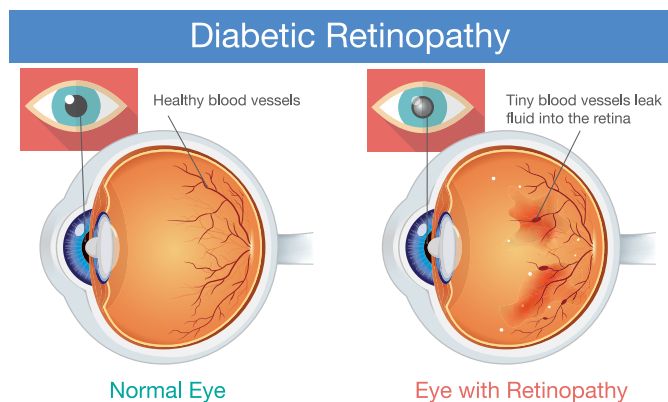
More than 80% of people who have had diabetes 20 years or longer develop diabetic retinopathy.

HOW IS DIABETIC RETINOPATHY TREATED?

Treating this condition depends on what type you have. It usually isn't treated unless macular edema is present, or it has progressed to proliferative retinopathy.

People with diabetic macular edema may be treated with anti-VEGF drugs, corticosteroids, or focal/grid macular laser surgery.

Anti-VEGF drugs are injected directly into the vitreous fluid in the eye (the fluid that makes up most of the eye's center) in order to block a protein, VEGF, from stimulating the abnormal, weak blood vessels to grow and leak fluid. These drugs can also reverse the growth of these blood vessels.



Corticosteroids can be injected or implanted in the eye. They can be used alone or in combination with other drugs or surgery. They are often good at stopping macular edema. But they can lead to glaucoma and cataracts, which is why your doctor will need to monitor them.

Focal/grid macular laser surgery involves the use of a laser to burn several to hundreds of small vessel ends to slow the leakage of blood. This can also help reduce the swelling of the retina.

Proliferative diabetic retinopathy is treated with scatter laser surgery. This procedure uses a laser to make tiny burns on the retina (but away from the macula). The burns can cause the weak, abnormal blood vessels to shrink. Scatter laser surgery can help preserve central vision, but it often causes some loss of peripheral vision and reduces color and night vision, as well.

If bleeding into the vitreous fluid is severe, a type of surgery called vitrectomy may be performed. This procedure removes some of the vitreous fluid and replaces it with a clear salt solution. It can be used to repair a detached retina or remove scar tissue, as well.

QUESTIONS TO ASK YOUR DOCTOR

- Am I at risk for diabetic retinopathy?
- If I have it, what type do I have?
- How often should I be seen for eye exams by an eye care professional?
- Do I need treatment for my retinopathy? If so, what?
- What are the risks and benefits of my treatment options?

RESOURCES

Find an Endocrinologist:

hormone.org or call 1-800-HORMONE (1-800-467-6663)

Find a Diabetes Educator (American Diabetes Association):

<https://www.diabeteseducator.org/living-with-diabetes/find-an-education-program>

National Diabetes Education Program (NIH):

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems>

NIDDK (NIH):

<https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/diabetic-eye-disease>

American Diabetes Association:

<http://www.diabetes.org/living-with-diabetes/complications/eye-complications/>

MedlinePlus (NIH):

<https://medlineplus.gov/diabetescomplications.html>

Mayo Clinic:

<https://www.mayoclinic.org/diseases-conditions/diabetic-retinopathy/symptoms-causes/syc-20371611>

Find an Ophthalmologist (American Academy of Ophthalmology):

<https://secure.aao.org/aao/find-ophthalmologist>

EDITORS

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March 2018

The Hormone Health Network offers free, online resources based on the most advanced clinical and scientific knowledge from The Endocrine Society (endocrine.org). The Network's goal is to move patients from educated to engaged.

Diabetes and Eye Care Fact Sheet

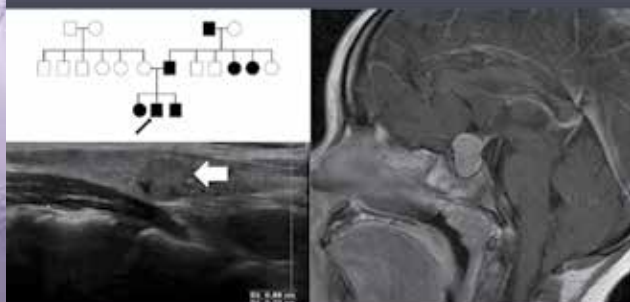


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