



DIABETES IS PRIMARY

TIMELY NEWS AND NOTES FOR PRIMARY CARE PROVIDERS
from the American Diabetes Association

By Max Bingham, PhD

FROM THE JOURNALS.....

Type 2 Diabetes Is on the Rise in Young People Worldwide

Rates of type 2 diabetes in adolescents and young adults substantially increased between 1990 and 2019, according to Xie et al. (*The BMJ*, doi.org/jwns). Associated years lost to poor health, disability, and early death also increased, with the burden especially affecting countries with a low-middle or middle socioeconomic index. Women <30 years of age were also particularly affected.

The authors found that a high BMI was the main attributable risk factor, leading them to suggest that weight control is essential. However, they also identified variable attributable risk factors between countries with differing socioeconomic statuses, meaning that specific country-level measures will likely be needed to effectively combat early-onset diabetes.

“Our study showed a clear upward trend of the burden of early-onset type 2 diabetes from 1990 to 2019,” the authors write. “These findings provide a basis for understanding the epidemic nature of early-onset type 2 diabetes and call for urgent actions to deal with the issue from a global perspective.”

National Study Predicts Huge Rise in Diabetes in People <20 Years of Age

The previously mentioned study examined past trends in diabetes; so, what about the future? Modeling based on data from the SEARCH for Diabetes in Youth study suggests that we can expect huge increases in the number of U.S. youth with diabetes by 2060 (Tönnies et al., *Diabetes Care*, doi.org/grkhkt). Based on trends in incidence between 2002 and 2017, the authors expect relative increases of 65% in the number

of youth with type 1 diabetes and 673% in the number with type 2 diabetes. They also expect substantial widening in racial and ethnic disparities in the prevalence of type 2 diabetes, with the highest rates among non-Hispanic Black youth.

“This new research should serve as a wake-up call for all of us,” said Centers for Disease Control and Prevention Acting Principal Deputy Director Debra Houry. “It’s vital that we focus our efforts to ensure all Americans, especially our young people, are the healthiest they can be. The [coronavirus disease 2019] pandemic underscored how critically important it is to address chronic diseases like diabetes. This study further highlights the importance of continuing efforts to prevent and manage chronic diseases, not only for our current population but also for generations to come.”

Three-Fourths of Children With Type 2 Diabetes Also Have Obesity

A systematic review and meta-analysis by Cioana et al. (*JAMA Network Open*, doi.org/grhj2v) suggests that the prevalence of obesity among children with type 2 diabetes is ~75%. Male children with type 2 diabetes had higher odds of obesity than females. Asian children had the lowest prevalence of obesity (~65%), while White children had the highest prevalence (~90%).

The authors conclude that obesity is not a universal phenotype in children with type 2 diabetes, suggesting that there are other mechanisms driving diabetes genesis in this population. Further research is needed to explore additional factors that might affect the risk for type 2 diabetes in youth.

“Up to 1 in 4 children with type 2 diabetes do not have obesity, and some have reference range body mass measures,” the authors write. “The obvious conclusions of the analysis are that there are limitations of BMI-based measures to predict diabetes and that mechanisms beyond obesity are involved in type 2 diabetes evolution in children.”

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TREATMENTS + THERAPIES

California Files Lawsuit Over High Insulin Prices

High insulin costs continue to plague many Americans with diabetes, and California Attorney General Rob Bonta has become the latest official to accuse several drugmakers and pharmacy benefit managers (PBMs) of conspiring on insulin pricing. In a recently filed lawsuit (<https://bit.ly/3YJCYza>), the state alleges that the companies “unconscionably, deceptively, misleadingly, and artificially” drove up the price of insulin, making it unaffordable for many state residents, causing the state to overpay, and disproportionately harming individuals with lower incomes. California joins a growing list of state and local governments engaged in legal actions over insulin pricing.

“Insulin is a necessary drug that millions of Americans rely upon for their health, not a luxury good. With today’s lawsuit, we’re fighting back against drug companies and PBMs that unacceptably and artificially inflate the cost of life-saving medication at the expense of vulnerable patients,” Bonta said in a press release (<https://bit.ly/3IkzLAE>). “No one should be forced to ration or go without basic medication that could mean the difference between life or death.”

Glucagon Prescription Fill Rates Fall as Costs Increase

It is not just insulin that has a pricing problem. An analysis by Herges et al. (*Diabetes Care*, doi.org/jwnz) suggests that glucagon prices have quietly risen for at least the past decade. According to the authors, prescription fill rates for glucagon are concerningly low in high-risk groups in the United States, while the cost of glucagon appears to have steadily risen between 2011 and 2021. The drop in fill rates occurred despite the recent introduction of easier-to-use glucagon preparations.

These findings come from a retrospective cohort study that examined prescription fill rates and patient out-of-pocket and health plan costs for glucagon. Overall, fill rates fell 22% in the study period, although fills increased in specific risk groups (e.g., an increase of 64% among people with type 1 diabetes). Factors that explained higher fill rates included White racial background, female sex, commercial health insurance, and higher income. Costs per dose stood at just under \$160 in 2011 for commercially insured patients and rose to ~\$275 in 2021—a 75% increase. Medicare Advantage plan beneficiaries saw glucagon costs increase from ~\$150 in 2011 to just under \$295 in 2021—a 95% increase.

“We hope this research brings awareness to the issue of glucagon underutilization for patients living with diabetes,” author Joseph Herges said. “The gap in glucagon access is profound, even in populations that are at the highest risk of the dangerous outcomes of untreated hypoglycemia. It is also critical to recognize the disparities in glucagon access in minority patients and those with low income and find solutions to barriers such as high cost.”

Disparities Exist in Use of Newer Type 2 Diabetes Drugs

Disparities appear to exist in the way the relatively new sodium–glucose cotransporter 2 (SGLT2) inhibitors and glucagon-like peptide 1 (GLP-1) receptor agonist drugs are prescribed, according to Medicare claims data analyzed by Cromer et al. (*Diabetes Care*, doi.org/jwn3). Specifically, these authors found that, among ~4.5 million older adults (>65 years of age) with type 2 diabetes and either cardiovascular disease or heart failure, initiation of both drug classes was low overall and much less likely in individuals of Black or other racial/ethnic minority groups. Greater socioeconomic deprivation, older age, and female sex were also associated with decreased likelihood of SGLT2 inhibitor and GLP-1 receptor agonist therapy initiation. Multiple other associations also appeared to exist, with minority race/ethnicity and socioeconomic

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Racial Disparities in Diabetes Technology Use Continue

Black adults with type 1 diabetes used continuous glucose monitoring (CGM) and insulin pumps much less than their non-Black peers, according to Kanbour et al. (*Diabetes Care*, doi.org/jwnv). Their real-world, retrospective study points toward lower levels of patient-provider discussion and prescribing of these technologies and consequently lower levels of use among Black adults with type 1 diabetes. However, the reasons for these disparities are unclear, and the authors raise numerous socioeconomic issues as potentially contributing factors. Baseline and prevalent technology use were consistently reduced in Black individuals during the 7-year study period. For example, just under half of Black individuals used CGM at any time compared to three-fourths of non-Black individuals. Meanwhile, just under one-third of Black individuals and two-thirds of non-Black individuals used an insulin pump. Neighborhood conditions, lack of adequate insurance, marital and employment status, and the state of available medical care all could explain the disparities. However, the authors caution that numerous other factors, including implicit racial bias among health care providers, may also have an influence.

“Prospective studies should assess the impact of provider type, training, and experience, racial concordance of provider and patient, quantity/quality of provider-patient discussions, patient sustained use of technologies, and ethnic disparities on technology use,” they write.

Flash Glucose Monitoring Is Feasible in Individuals With Prediabetes

Flash glucose monitoring, also called intermittently scanned CGM, appears to be acceptable and feasible in individuals with prediabetes, according to Lee et al. (*Diabetes Care*, doi.org/jwnw). In their study, a small cohort of adults with prediabetes responded favorably to using the technology for 28 days with the aim of tracking glucose and slowing progression to diabetes. Most participants reported high satisfaction and feeling influenced to make behavior changes based on readings of glucose levels.

Out of 136 potentially eligible individuals with prediabetes, the authors recruited 32 participants. All were reportedly adherent to wearing the sensor, although 16 sensors fell off accidentally and were replaced. Most participants said they would be willing to cover copays for the device if insurance covered its use for prediabetes; just over one-fourth were neutral or disagreed with paying a copay, mainly because of financial struggles. When participants were asked what the best thing was about wearing a sensor, two themes emerged relating to positive behavior changes and improved understanding from real-time feedback. When asked about the worst aspects of wearing a sensor, many participants disliked the size of the sensor and said it regularly fell off. Most also said they would recommend that other people with prediabetes try intermittently scanned CGM and that the visual feedback provided by the system would motivate them to make needed lifestyle changes.

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deprivation independently contributing to the disparities. According to the authors, the most concerning finding is the very low rate of initiation of these drugs in this population, because they are universally indicated for such use, with repeated studies showing benefits beyond A1C reduction.

The authors also highlight insurance-related issues as possible reasons for the low use of these agents. One further issue they highlight is the lower rates of initiation in women. They point out that there is

evidence that women are less likely than men to receive guideline-directed care, perhaps as a result of implicit sex bias among health care providers.

Given the observational nature of the dataset, the authors point out that they cannot confirm the reasons underlying the disparities and that further studies are needed. However, they write, “Interventions are warranted to improve uptake of these novel therapies among patients for whom they are indicated.”



Resources Take Aim at Therapeutic Inertia in Diabetes Care

The American Diabetes Association's Overcoming Therapeutic Inertia (OTI) initiative has developed several new resources to facilitate timely adjustments to diabetes therapy plans.

Too often, insulin therapy is not intensified in response to high A1C levels, or, conversely, intensified therapy continues when patient circumstances warrant less stringent glycemic control. Health care providers can access infographics that explain how therapeutic inertia can hinder diabetes management and offer recommendations for making more timely therapeutic adjustments. Download the infographics at <https://bit.ly/40PYJzd>.

The OTI program also offers a free patient engagement toolkit that includes assessments, fact sheets, and other resources to help clinicians address patient-level barriers that can lead to unnecessary therapeutic delays. Download the entire toolkit or just specific resources from <https://bit.ly/3XudDZ8>.

ADA Launches Two New Podcast Series

Diabetes Care "On Air" is a new monthly podcast of ADA's premier clinical research journal, *Diabetes Care*. Co-hosts Alice Cheng, MD, FRCPC, and Michael Rickels, MD, MS, interview authors of timely, editor-selected articles from the journal to explore the latest high-impact research on diabetes care, treatment, and prevention. The podcast series is available from <https://bit.ly/3RSu1I3>.

Diabetes Day by Day is a new podcast for people with diabetes and their caregivers. Co-hosts Neil Skolnik, MD, and Sara Wettergreen, PharmD, BCACP, BC-ADM, and their guests discuss the everyday challenges of living with diabetes, share their experience, and provide tips for living well with diabetes. The podcast is available from <https://bit.ly/3IBiBFZ>.

What's New in Cardiovascular Risk Reduction?

In a recent episode of the ADA's Diabetes Core Update podcast, host Neil Skolnik, MD, spoke with Robert A. Gabbay, MD, PhD, FACP, ADA's Chief Scientific & Medical Officer, about critical changes to the ADA's *Standards of Care in Diabetes—2023* clinical practice guidelines regarding cardiovascular risk reduction. Clinicians can subscribe to Diabetes Core Update on any podcasting platform and can listen to this episode at <https://bit.ly/3InmqI8>.



CONFERENCE SPOTLIGHT

IDF 2022 Congress: Focusing on Diabetes in Indigenous Populations

The International Diabetes Federation has released a report on the disproportionate impacts of diabetes on indigenous populations (<https://bit.ly/3RXwRVR>). As the report sets out, prevalence rates reach almost 40% in some indigenous populations, whereas diabetes is virtually absent in others. The report, which is an addendum to the *IDF Diabetes Atlas*, 10th edition (<https://bit.ly/3jVZ8j0>), was presented in summary form at the IDF 2022 Congress in Lisbon, Portugal, in December 2022.

Indigenous populations make up about 6% of the global population and consist of ~496 million people spread across ~5,000 distinct groups and 90 countries. Based on a systematic review of 49 studies of adult populations, the IDF found that diabetes prevalence appears to be highest in the iTaukei-Melanesian Fijian population (39.3% in 2009), with Australian aboriginals (37.3% in 2008) and the Mizo of Manipur in India (33.1% in 2014–2016) not far behind. In quite the opposite direction, the Tapuwai from the Solomon Islands had a 0% diabetes prevalence rate. Stark extremes in prevalence rates were also found in North America, the Caribbean, and Mexico.

For youth, the report covered 27 articles from just four of the 90 countries with known indigenous populations: the United States, Canada, New Zealand, and Australia. Based on those studies, youth in Central Australia First Nations and Torres Strait Islanders had the highest rates of diabetes, while Canadian First Nations and the Maori in New Zealand had low rates in younger children but rapidly increasing rates in older youth.

“Despite the incredible diversity among and between indigenous nations, there has been a consistent and rapid increase in type 2 diabetes over time, and diabetes is now one of the most common health disparities among indigenous peoples,” Courtney Fischer-Claussen, who presented these findings, told Medscape Medical News (<https://wb.md/3YtWi3F>). “Indigenous nations have resiliently maintained inherent strengths, knowledge, and culture despite the destructive efforts of colonization There is a definite need for the development of community-led . . . strategies that integrate traditional knowledge of individual nations for future prevention.”

To learn more about ADA’s continuing education opportunities, including Diabetes Is Primary events in your community, please visit professional.diabetes.org/ce.