PHYSICIAN'S WEEKLY UPDATES

DIABETES

PERSONALIZING HYPERGLYCEMIA CARE IN DIABETES

Produced in cooperation with the experts at the:

www.physweekly.com/diabetes

Table of Contents

A Message From the Editor

We are proud to present this diabetes monograph with feature stories on several important topics relating to the disease. Most of the articles were created with the assistance of key opinion leaders recommended by the American Diabetes Association. These features rely on clinical and evidence-based information and the expertise of our contributing physician authors. *Physician's Weekly* will continue to feature diabetes news in the coming months and we hope you find this information useful. Your feedback and opinions are welcome, email keithd@physweekly.com. Thanks for reading!

Sincerely,

Keith D'Oria
Editorial Director, Physician's Weekly

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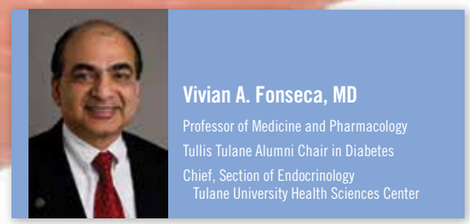
Personalizing Hyperglycemia Care In Diabetes

The American Diabetes Association and European Association for the Study of Diabetes issued a joint position statement that emphasizes patient-specific treatment of hyperglycemia in people living with type 2 diabetes.



Vivian A. Fonseca, MD

Professor of Medicine and Pharmacology
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In recent years, more pharmacologic agents and treatment options have become available to treat hyperglycemia in type 2 diabetes. With the influx of new therapies, it can sometimes be challenging for clinicians to integrate these new therapies into treatment regimens. New guidelines and position statements from well-respected organizations can assist clinicians, but these documents evolve over time based on new information.

Several years ago, the American Diabetes Association and the European Association for the Study of Diabetes convened a group that developed consensus recommendations for anti-hyperglycemic therapy in non-pregnant adults with type 2 diabetes. Since that time, more information on the benefits and risks of glycemic control has emerged. In addition, there is new evidence on the efficacy and safety of several new drug classes as well as the withdrawal and the restriction of others. Furthermore, experts are suggesting that greater attention be paid to moving toward approaches to care that are more individualized and patient-centered.

Guidelines on the management of hyperglycemia were published concurrently in the June, 2012 editions of *Diabetes Care* and *Diabetologia*. "Guidelines are constantly in a state of evolution based on new information," says Vivian A. Fonseca, MD. "This document reflects recent data and availability on multiple treatment options for a variety of patients. In addition, the American Diabetes Association updates its overall standards of care every January. These new guidelines take a more holistic approach, focusing on treating people as individuals and understanding that treatments need to be based on each patient's characteristics and circumstances."

Greater Focus on Patient-Centered Care

Historically, many experts have preferred using algorithm-based management plans to ensure that they are offering treatment consistent with guidelines. Others have favored flexible treatment options based

> *It's critical that more comparative, evidence-based studies on managing hyperglycemia in type 2 diabetes are conducted in the future.*
>
> —Vivian A. Fonseca, MD

on specific pathophysiology. The new guidelines on managing hyperglycemia in type 2 diabetes are less prescriptive and more patient-centered, according to Dr. Fonseca. "Rather than using only clearly defined treatment algorithms, recommendations are tailored to individual patient needs, preferences, and tolerances." There is flexibility based on differences in age and disease course. Other factors affecting treatment plans include specific symptoms, hypoglycemia risk, comorbid conditions, weight, race and ethnicity, gender, and lifestyle (Table 1).

According to the recommendations, most individuals with type 2 diabetes should be started on metformin, but therapies should be changed based on patient-specific factors if A1C goals are not being met within 3 months. Diabetes education should be provided for all patients. These curricula should offer information on dietary interventions and emphasize the importance of increased physical activity and weight management.

Table 1 Key Points From the Guidelines

- Glycemic targets and glucose-lowering therapies must be individualized.
- Diet, exercise, and education remain the foundation of any type 2 diabetes treatment program.
- Unless there are prevalent contraindications, metformin is the optimal first-line drug.
- After metformin, there are limited data to guide us.
  - Combination therapy with an additional one or two oral or injectable agents is reasonable, aiming to minimize side effects where possible.
- Ultimately, many patients will require insulin therapy alone or in combination with other agents to maintain glucose control.
- All treatment decisions, where possible, should be made in conjunction with the patient, focusing on his/her preferences, needs, and values.
- Comprehensive cardiovascular risk reduction must be a major focus of therapy.

Source: Adapted from: Inzucchi SE, et al. *Diabetes Care.* 2012 Apr 19. Available at: http://care.diabetesjournals.org/content/early/2012/04/17/dc12-0413.full.pdf+html.

Individualization Is Key

There has been an evolution in ADA recommendations regarding optimal blood glucose goals. On the basis of findings from ACCORD and other studies, an A1C goal has been set at 7% in general, but with some individualization. "For patients with advanced cardiovascular disease, reduced life expectancy, and multiple medical problems, the goal may be higher," Dr. Fonseca says. "For patients who are newly diagnosed and very motivated to tackle their disease, the goal may be lower."

Experts recognize that many people with diabetes will need multiple therapies. "Unfortunately, there are currently no good studies available that compare the various treatment strategies we have at our disposal," says Dr. Fonseca. "It's critical that more comparative, evidence-based studies on managing hyperglycemia in type 2 diabetes are conducted in the future. Our current evidence base is relatively lean, especially beyond metformin use as monotherapy [Table 2]."

In the meantime, decisions on therapy should be based on individual factors exhibited by patients. These include willingness to self-inject, risk of hypoglycemia, or need for weight loss, among others. "If specific, individualized treatment options fail, we must then try another option," Dr. Fonseca says. In an effort to make the guidelines more patient-centric, there is no "one-size-fits-all" decision pathway.

A Helpful Asset

Dr. Fonseca says the new guidelines may be easier for physicians to implement because they provide greater flexibility in patient care. "The new recommendations offer a road map rather than a single pathway of care," he says. "Guidelines from the American Diabetes Association and other well-respected organizations are fairly widely implemented, and we're beginning to see the benefits of the wide distribution of these recommendations. Over the past 10 to 15 years, A1C levels have been dropping, and we're also seeing lower rates of diabetes-related blindness, retinopathy, dialysis, and amputation. However, while these points are encouraging, many patients with type 2 diabetes are still developing these outcomes. We have a ways to go, but these guidelines will hopefully assist our efforts and provoke more research in the future."

For the contributor's financial disclosure information, go to www.physweekly.com/personalized-care and click on his photo.

Table 2 Directions for Future Research

For antihyperglycemic management of type 2 diabetes, the comparative evidence basis to date is relatively lean. Informed judgment and expertise of experienced clinicians will always be necessary. In future investigations, there is a significant need for the following:

- High-quality comparative effectiveness research regarding glycemic control and costs and outcomes that matter most to patients' quality of life and the avoidance of morbid and life-limiting complications, especially heart disease.
- More data on the concept of durability of effectiveness (often ascribed to β-cell preservation) to stabilize metabolic control and decrease future treatment burden.
- More information on pharmacogenetics to better inform treatment decisions for individual patients based on predictors of response and susceptibility to adverse effects.
- More clinical data on how phenotype and other patient/disease characteristics should drive drug choices.
- More studies on new medications introduced to the type 2 diabetes pharmacopeia regarding their benefit and safety as compared with best current treatments.

Source: Adapted from: Inzucchi SE, et al. *Diabetes Care.* 2012 Apr 19. Available at: http://care.diabetesjournals.org/content/early/2012/04/17/dc12-0413.full.pdf+html.

Online Exclusive

Resources for Patients With Diabetes

Looking for educational materials for your patients with diabetes? Check out the online Patient Education Center for free, trustworthy diabetes information and brochures from the experts at Harvard Medical School. **Go to www.physweekly.com/personalized-care.**

Readings & Resources

Inzucchi SE, Bergenstal RM, Buse JB, et al. Management of hyperglycemia in type 2 diabetes: a patient-centered approach. Position statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetes Care.* 2012 Apr 19 [Epub ahead of print]. Available at: http://care.diabetesjournals.org/content/early/2012/04/17/dc12-0413.full.pdf+html.

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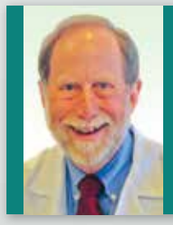
Takin' It to the Streets: New Recommendations for Driving & Diabetes

Recommendations from the American Diabetes Association suggest that patients with diabetes be assessed individually before considering driving restrictions, taking into account each person's medical history and potential disease-related risks associated with driving.



Daniel Lorber, MD, FACP, CDE

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Nearly 19 million people in the United States have diagnosed diabetes, and many of these individuals will seek or presently hold a license to drive. Currently, states have different laws concerning driving and diabetes. "For people with diabetes, a driver's license is essential for many reasons, including getting to and from work or school, caring for themselves and/or family members, and many other daily life functions," says Daniel Lorber, MD, FACP, CDE. "This is an important issue because there has been considerable debate on the role of diabetes and its relevancy on determining driver ability and eligibility for a license." He adds that each state has its own laws on disclosure of diseases that may impact patients' driving ability, further complicating the issue.

Research suggests most people with diabetes can and do drive safely, but in the past, there have been inappropriate attempts to restrict driving licensure for these patients. "The chief concern about driving with diabetes is hypoglycemia because these episodes can cause confusion and disorientation," Dr. Lorber says. However, while hypoglycemic episodes can affect driving ability, the available data show that these incidents are uncommon. Other factors related to diabetes that could affect driving include retinopathy and peripheral neuropathy.

New Guidance

In the January 2012 issue of *Diabetes Care*, the American Diabetes Association released a position statement based on current scientific and medical

> *A diagnosis of diabetes is insufficient for making any judgments about individual driver capacity.*
>
> —Daniel Lorber, MD, FACP, CDE

evidence addressing the issue of driving in patients with diabetes. The statement advises against blanket restrictions and instead recommends that patients who have issues that could increase driving risks be assessed by physicians who normally care for people with diabetes. "Whenever there are legitimate concerns about the medical fitness of people with diabetes and their driving ability, it's important to conduct an individual assessment of the person's diabetes management before any restrictions are made," says Dr. Lorber. "A particular emphasis should be placed on patients demonstrating the ability to detect and appropriately treat potential hypoglycemia should such episodes occur. A diagnosis of diabetes is insufficient for making any judgments about individual driver capacity."

In the position statement, studies on people with diabetes and driving were analyzed. Overall, people with diabetes had between a 12% and 19% increased risk of motor vehicle accidents when compared with the general driving population. Despite these statistics, society has historically tolerated riskier driving situations in many other health-related populations. For example, ADHD sufferers are about four times as likely to get into car accidents as the general public. People with sleep apnea are about 2.4 times more likely to get into a crash.

Table 1 Counseling Patients at Risk for Hypoglycemia

Patients with diabetes who are at risk for disruptive hypoglycemia should be counseled to:

1	Always test their blood glucose before starting to drive.
2	Always carry a blood glucose meter and always carry appropriate snacks, including a quick-acting source of sugar (eg, juice, non-diet soda, hard candy, or dextrose tablets) and snacks with complex carbohydrates, fat, and protein (eg, cheese crackers) in their vehicle.
3	Never begin an extended drive with low normal blood glucose (eg, 70–90 mg/dL) without prophylactic carbohydrate consumption to avoid a fall in blood glucose during the drive.
4	Stop the vehicle as soon as any of the symptoms of low blood glucose are experienced and measure and treat the blood glucose level.
5	Not resume driving until their blood glucose and cognition have recovered.

Source: Adapted from: American Diabetes Association. *Diabetes Care.* 2012;35:S81-S86.

Identify High-Risk Individuals

"An important challenge for clinicians managing patients with diabetes is to identify high-risk individuals," Dr. Lorber says. "Once identified, we then need to take measures to help them lower their risk for driving mishaps." The position statement provides healthcare providers with a list of questions to ask patients with diabetes who drive. It also provides assistance to clinicians who may be unsure about their responsibility in this health issue.

According to the American Diabetes Association, patients who are currently taking insulin are at the highest risk of hypoglycemia. Patients who are at risk for disruptive hypoglycemia should be counseled to always test their blood glucose before driving and carry blood glucose meters and appropriate snacks in their vehicles. The guideline recommendations also provide assistance for clinicians to help patients understand when they should not drive based on their glucose levels and how they should handle when symptoms and/or glucose fluctuations occur (Table 1).

Physicians Play an Instrumental Role

Mandatory physician reporting to state licensing agencies about patient driving ability is not recommended because this may inhibit patients from discussing these issues with their healthcare providers. To overcome this, complete disclosure with patients is key. "Patient education is paramount to ensuring safe driving practices in people with diabetes," says Dr. Lorber (Table 2). "At-risk individuals need to be evaluated and counseled on an individual basis. The great majority of people with diabetes do not have impaired driving skills. As healthcare providers, we need to ensure that patients understand that they must know their blood sugar levels before they start to drive and avoid driving if these levels are low. The signs and symptoms of diabetes and its complications must be understood so that patients are empowered to protect themselves and others on the road."

Table 2 Strategies for Patient Education

To help encourage patients with diabetes to be safe drivers, education should be provided about driving with diabetes and potential risks associated with patients' treatment regimens:

- When regimens include a possibility of hypoglycemia, education should include:
  - Instruction on avoiding and responding to hypoglycemia.
  - Discussion about vulnerability for driving mishaps.
  - Ongoing learning to ensure that patients have knowledge of when it is safe and unsafe to drive.
- Alcohol intake may increase the risk of hypoglycemia; patients should be counseled to test glucose more frequently for several hours and avoid driving after moderate alcohol intake.
- When complications of diabetes are present, healthcare professionals should discuss with patients the effect of those complications, if any, on driving ability.
- Regularly discuss the risk of driving with low blood glucose with patients:
  - Clinical visits should include review of blood glucose logs and questions about symptoms associated with high or low blood glucose levels and what was done to treat those levels.
  - Exercise professional judgment and encourage candid sharing of information.

Source: Adapted from: American Diabetes Association. *Diabetes Care.* 2012;35:S81-S86.

For the contributor's financial disclosure information, go to www.physweekly.com/driving and click on his photo.

Online Exclusive

Diabetes Update eBook

Read or download our previous *Diabetes Update* edition! The topics in this collection of feature articles include guidelines for diabetic neuropathy, bariatric surgery for diabetes, diabetes-related lower-extremity amputations, and much more!

To read or download this eBook, go to www.physweekly.com/diabetes-update.

Readings & Resources

American Diabetes Association. Diabetes and driving. *Diabetes Care.* 2012;35:S81-S86. Available at: http://care.diabetesjournals.org/content/35/Supplement_1/S81.full.

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Managing Common Diabetes Comorbidities: Going Beyond Standard Care

Patients with diabetes can have comorbidities aside from obesity, hypertension, and dyslipidemia. These comorbidities should be considered throughout patient management to optimize outcomes.

Throughout the medical literature, it has been well documented that patients with type 2 diabetes are at increased risk for developing cardiovascular disorders, including coronary artery disease and stroke. The constellation of symptoms that includes insulin resistance and obesity greatly increases the likelihood of additional comorbidities emerging. "In addition to the commonly appreciated comorbidities of obesity, hypertension, and dyslipidemia," says Medha N. Munshi, MD, "diabetes is also associated with other diseases or conditions at rates higher than those of people without diabetes."

In keeping with patient-centered approaches to care, physicians should be aware of the wide spectrum of comorbidities their patients face when managing them throughout their

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disease course. When the risk for these comorbidities is elevated, patients should be treated accordingly. The American Diabetes Association reports that some of the more common comorbidities outside the realm of obesity, hypertension, and dyslipidemia include obstructive sleep apnea (OSA), fatty liver disease, cancer, and fractures (Table 1). "Clinicians should consider these other comorbidities during their care of patients with diabetes to optimize outcomes," says Dr. Munshi.

OSA

OSA is the most common form of sleep-disordered breathing in patients with type 2 diabetes, accounting for over 80% of cases. In people with diabetes, the prevalence of OSA has been documented to be as high as 23%, and the prevalence of some form of sleep disordered breathing may be as high as 58%. "Treating sleep apnea can significantly improve quality of life and blood pressure control," Dr. Munshi says. "Referral to a sleep specialist should be considered if OSA or any sleep disordered breathing problem is suspected."

Fatty Liver Disease

Some patients with type 2 diabetes may have unexplained elevated levels of hepatic transaminase concentrations, which in turn can lead to fatty liver disease. Prospective analyses have shown that diabetes has been associated with incident non-alcoholic chronic liver disease and with hepatocellular carcinoma. "In these cases, improving metabolic abnormalities can be beneficial," says Dr. Munshi. This includes weight loss, glycemic control, and treatment with specific drugs for hyperglycemia or dyslipidemia (Table 2).

Cancer

Type 2 diabetes has been associated with an increased risk of liver, pancreatic, colorectal, breast, and bladder cancer in published studies. It has been hypothesized that this link may be due to shared risk factors between the diseases, including obesity, age, and physical inactivity. It may also be due to hyperinsulinemia or hyperglycemia. "Patients with diabetes should be encouraged to undergo recommended age- and sex-appropriate cancer screenings," Dr. Munshi says. "They should also try to reduce their modifiable cancer risk factors, like quitting smoking and increasing their physical activity levels."

Fractures

Research has shown that overall fracture risks are significantly higher for both men and women who have type 2 diabetes. The increased risk of hip fracture has been observed despite patients having higher bone mineral density (BMD) levels. Assessing fracture history and risk factors in older patients with diabetes is recommended, and BMD testing should be administered if appropriate for patients' age and sex. "For at-risk patients," adds Dr. Munshi, "standard primary or secondary prevention strategies should be considered."

Table 1 Select Diabetes-Related Comorbidities & Management Strategies

Obstructive sleep apnea

- Treatment of sleep apnea significantly improves quality of life and blood pressure control.
- Evidence for a treatment effect on glycemic control is mixed.

Fatty liver disease

Interventions that improve metabolic abnormalities in patients with diabetes are beneficial for fatty liver disease, including:

- Weight loss.
- Glycemic control.
- Treatment with specific drugs for hyperglycemia or dyslipidemia.

Certain cancers

Patients with diabetes should be encouraged to undergo recommended age- and sex-appropriate cancer screenings and to reduce their modifiable cancer risk factors, including:

- Obesity.
- Smoking.
- Physical inactivity.

Fractures

- It is appropriate to assess fracture history and risk factors in older patients with diabetes and to recommend bone mineral density (BMD) testing if appropriate for the patient's age and sex.
- For at-risk patients, it is reasonable to consider standard primary or secondary prevention strategies and to consider pharmacotherapy for high-risk patients. Prevention strategies include:
  - Reducing risk factors for falls.
  - Ensuring adequate calcium and vitamin D intake.
  - Avoiding use of medications that lower BMD, such as glucocorticoids.
  - For patients with type 2 diabetes with fracture risk factors, avoidance of thiazolidinediones is warranted.

Source: Adapted from: American Diabetes Association. *Diabetes Care.* 2011;35:S11-S63.

Under Investigation

Other comorbidities commonly seen in type 2 diabetes are continuing to be evaluated. For example, diabetes has been associated with significantly increased risks for cognitive decline, cognitive impairment, and all-cause dementia. The effects of hyperglycemia and insulin on the brain are areas of intense research interest. Hearing impairment is also more common in people with diabetes, perhaps due to neuropathy and/or vascular disease. Testosterone levels in men with diabetes tend to be lower than those without the disease, and periodontal disease is more severe, but not necessarily more prevalent, in patients with diabetes than those without.

While much of the attention in treating type 2 diabetes has been rightfully directed at managing obesity, hyperglycemia, and hypertension, Dr. Munshi says it is also important for clinicians to keep other common comorbidities in mind during patient care. "The biggest emphasis should be placed on keeping A1C, blood pressure, and cholesterol under control because these strategies will help prevent and treat most comorbidities in diabetes. However, being cognizant of other comorbidities and having a holistic approach to care are also paramount. Collaborating with multidisciplinary care teams is essential. By considering all potential comorbidities, it's more likely that we will improve quality of life and outcomes in patients with diabetes."

Table 2 Preventing Complications

Glucose Control

- Every percentage point drop in A1C results can reduce the risk of microvascular complications by 40%.

Blood Pressure (BP) Control

- BP control reduces the risk of cardiovascular disease in people with diabetes by 33% to 50%.
- BP control reduces the risk of microvascular complications by approximately 33%.
- For every 10 mm Hg reduction in systolic BP, the risk for any complication related to diabetes is reduced by 12%.
- Observational and clinical trial evidence does not suggest significant benefits of systolic BP targets more aggressive than <140 mm Hg. The ACCORD-BP trial showed a significant reduction in stroke risk with a target of <120 mm Hg but no effect on the primary outcome of major adverse cardiovascular events.
- Reducing diastolic BP from 90 mm Hg to 80 mm Hg in people with diabetes reduces the risk of major cardiovascular events by 50%.

Cholesterol Control

- Improved control of LDL cholesterol can reduce cardiovascular complications by 20% to 50%.

Source: Adapted from CDC. *National Diabetes Fact Sheet, 2011.* Available at: www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf.

For the contributor's financial disclosure information, go to www.physweekly.com/diabetes-comorbidities-management and click on her photo.

Readings & Resources

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Transitioning From Pediatric to Adult Diabetes Care

Creating effective processes for the transition in care from pediatric to adult providers will help optimize well-being and health in emerging young adults with diabetes.

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During childhood and adolescence, diabetes care gradually shifts from being supervised by parents and other adults or guardians to self-care management. "Preparation for this transition by patients, their families, and healthcare providers is essential," says Lori Laffel, MD, MPH. Studies have shown that there are often significant gaps in diabetes care for patients as they transition to adulthood for many reasons. These include competing social, emotional, educational, and occupational needs as well as differences in the systems of care for pediatric and adult patients. "With the increasing occurrence of type 1 and type 2 diabetes in childhood and adolescence, more young people with diabetes will require a framework of care and education that prepares older teens and emerging adults for successful self-management and a seamless transfer to adult diabetes care providers," Dr. Laffel says.

Important Guidance

In the November 2011 issue of *Diabetes Care*, the American Diabetes Association published a position statement on managing diabetes for emerging adults transitioning from pediatric to adult healthcare systems. The position statement was co-authored by Dr. Laffel and Anne Peters, MD, CDE, on behalf of the Transitions Working Group. The work group included representation from experts in several other medical associations and societies, including the CDC, the Endocrine Society, the American Association of Clinical Endocrinologists, and other well-respected organizations. Pediatric and adult endocrinologists, primary care providers, diabetes nurse educators, dietitians, exercise experts, mental health professionals, and others were part of the collaboration.

"In this position statement, we wanted to acknowledge the fundamental differences in the way healthcare is delivered to children and adults," notes Dr. Laffel. "In addition, there are critical issues to address for emerging adults that include avoiding loss-to-follow-up care, the need to screen and intervene for diabetes complications, and the importance of identifying and supporting unique developmental needs."

Preparation Is Key

The position statement recommends that pediatric healthcare providers begin the process of transition preparation with sufficient time prior to transfers to adult care. For example, during the early teen years, there may be a gradual shift from exclusive parental responsibility for the youth's diabetes management to shared responsibility for diabetes management tasks between parent and teens. This would then be followed by a further acceptance of diabetes self-management tasks by the older teen for blood glucose self-monitoring and insulin delivery. Additional tasks associated with self-care (eg, scheduling follow-up diabetes appointments, obtaining diabetes prescriptions, and picking up supplies) need to be shifted to emerging adults (Table 1).

> *During adolescent development, there is a need for families to remain involved in their child's diabetes management in order to reduce the risk of deteriorating glycemic control that often accompanies the teenage years."*
>
> —Lori Laffel, MD, MPH

"During adolescent development, there is a need for families to remain involved in their child's diabetes management in order to reduce the risk of deteriorating glycemic control that often accompanies the teenage years," says Dr. Laffel. "Continuity of diabetes care is important during adolescence and avoiding loss-to-follow-up care remains critical as teens continue to grow and develop into emerging adults."

When the time comes for the pediatric patient to transfer to an adult provider, the pediatric team can help in this process by providing transitioning patients and new adult providers with written summaries of care issues along with medication lists (Table 2). Special attention should be paid to screening at this time for diabetes complications, disordered eating behaviors, and mental health issues (eg, anxiety or depression). Providers should have open discussions with emerging adults regarding birth control, drug and alcohol use, smoking, STDs, and planning for pregnancy because these behaviors and issues link closely with healthful living with diabetes.

Attention Long Overdue

Currently, there are no proven strategies for ensuring the best transition in order to prevent short- and long-term complications and maximize lifelong functioning. "There is no 'recipe' that works best for everyone," Dr. Laffel says. "Several promising approaches may help with the transition process, including patient self-care education and skills training, provision of specialty transition clinics that include both pediatric and adult providers together, or use of transition coordinators." Ongoing and expanding research initiatives are needed, including efforts to identify and train adult providers who are versed in the medical care and psychosocial needs of emerging young adults with diabetes.

It is likely that evidence-based strategies will develop over the next decade to support best practices for emerging adults with diabetes, according to Dr. Laffel. "The time is now to address the special treatment needs of older teens and young adults with type 1 or type 2 diabetes. We hope that this position statement highlights the importance of appropriately managing and caring for these individuals to ensure their long-term health and well-being."

Table 1 Important Recommendations for Transition Preparation

- Work collaboratively with patients and their families to prepare teens for upcoming transitions in healthcare delivery beginning at least 1 year before transferring to adult healthcare providers, and likely during the early adolescent years.
- Address diabetes self-management skills with teens, emerging adults, and their parents/guardians to:
  - Gradually transfer diabetes care responsibilities from parents or guardians to teens.
  - Broaden responsibilities beyond diabetes management tasks (eg, glucose self-monitoring and insulin administration).
  - Direct older teens/emerging adults to take responsibility for scheduling appointments and ensuring proper supply of medications and supplies.
- Provide information about differences in the way pediatric and adult providers approach delivery of diabetes care:
  - Educate teens/emerging adults on health insurance options and how to maintain coverage.
- Prepare and provide patients and future adult care providers with written summaries that include:
  - An active problem list.
  - A compilation of medications.
  - An assessment of diabetes self-care skills.
  - A summary of past glycemic control and diabetes-related comorbidities.
  - Information on any mental health problems and referrals during pediatric care.
- Recognize the vulnerability of emerging adults with diabetes to loss to follow-up care or gaps in diabetes care between the pediatric team and adult providers
- Recognize the challenges of adhering to diabetes management tasks due to competing psychosocial, educational, and vocational changes during emerging adulthood:
  - Provide support and links to resources for patients.

Source: Adapted from: Peters A, et al. *Diabetes Care.* 2011;34:2477-2485.

Table 2 Key Deliverables for Transferring from Pediatric to Adult Diabetes Providers

- Provide emerging adults with specific referrals to adult care providers versed in the principles of intensive insulin therapy and diabetes management to match the particular needs of patients with type 1 or type 2 diabetes:
  - Consider creating a directory of adult providers with expertise and interest in the care of young adults.
- Empower emerging adults with links to resources that can help them reconnect to care should they become lost to follow-up:
  - Consider assisting with scheduling the first appointment with the adult care provider within 3-4 months of the final pediatric visit.
  - Assist with ensuring follow-up visits by designating a care ambassador or patient navigator for transitioning young adult patients.
- Individualize care to prevent acute and long-term complications of diabetes.
- Evaluate and treat any disordered eating behaviors and affective disorders in emerging adults:
  - Identify a mental health referral network with staff who understand the fundamentals of working with patients with diabetes.
- Encourage ongoing visits every 3 months for patients taking insulin and every 3-6 months for patients with type 2 diabetes not taking insulin.
- Attend to screening guidelines for microvascular and macrovascular complications in pediatric and adult patients with diabetes.
- Discuss issues related to birth control, pregnancy planning and risks, prevention of sexually transmitted illnesses, use of alcohol and drugs, smoking, and driving, with an emphasis on the interplay of these issues with diabetes.
- Ensure that emerging adults feel they are receiving accessible, patient-centered, coordinated, comprehensive, continuous, compassionate, and culturally-effective care.

Source: Adapted from: Peters A, et al. *Diabetes Care.* 2011;34:2477-2485.

For the contributor's financial disclosure information, go to www.physweekly.com/transition and click on her photo.

Readings & Resources

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