Abstract: An algorithm for the care of type 2 diabetes as used by the Partners Healthcare System is presented. Included recommendations are consistent with and rely heavily on published and generally accepted standards of care, including a recent published consensus statement and the 2009 American Diabetes Association Clinical Practice Guidelines. Areas of focus include criteria for diagnosis, recommended treatment targets and frequency of care components, management recommendations for the care of hyperglycemia, lipids, and of hypertension. Additional teaching is provided in the form of frequently asked questions answered by domain experts.

Key Words: type 2 diabetes, hypertension, insulin management, management of hyperlipidemia

Partners HealthCare System and its delivery network consist of academic and community hospitals along with affiliated physician groups providing medical care in eastern Massachusetts. The network serves a patient population of approximately 1.3 million, including an estimated diabetes population of 100,000. While the Massachusetts General Hospital and Brigham and Women’s Hospital (both of which reside within the network’s umbrella) offer robust diabetes care programs, the network’s 1214 primary care physicians provide the majority of its diabetes-related care.

Partners supports its providers with shared electronic medical records; locally derived decision support; population management registries; shared payor contracting; and collectively negotiated quality incentives, teaching, and additional tools. Certain disorders have been targeted for particular attention, diabetes having been chosen relatively early. The following guidelines have been offered as a teaching tool directed toward Partners’ primary care physicians to assist in the care of type 2 diabetes. The included recommendations are consistent with and rely heavily on published and generally accepted standards of care, including a recently published consensus statement and the 2009 American Diabetes Association Clinical Practice Guidelines (Table 1). Recommendations regarding management of hyperlipidemia are consistent with ATP-III guidelines. Hypertension management is also further guided by JNC recommendations and additional literature. Specific detailed suggestions within the algorithm reflect the clinical practice of Partners network experts. Lastly, the guidelines include an addendum of frequently asked questions, each prepared by a domain expert. While the substance of the recommendations parallels that published elsewhere, we created this algorithm in a format that a busy clinician would find readily accessible. To support the implementation of the guidelines, we also align our decision support, registries, and performance targets, with these clinical guidelines.

The guidelines were released in February 2009 and modified to include altered criteria for diagnosis as proposed by an international expert committee published in June 2009, of which one author (D.M.N.) participated in the creation of these guidelines.

DIAGNOSING DIABETES OR PREDIABETES IN THE NONPREGNANT ADULT

An international expert committee reviewed criteria for diagnosis of diabetes in nonpregnant individuals and presented its findings in June 2009. Noting that A1c better reflects long-term glycemia and better correlates with the occurrence of diabetes-related complications than single or episodic blood glucose measurements in most settings, the report recommended A1c as the primary tool to establish the diagnosis of diabetes and measure diabetes risk. This report is currently under review by the American Diabetes Association and other national and international diabetes organizations. We offer the generally accepted criteria as well as this new proposal as alternative options for diagnosis.

Traditional Criteria

Diagnostic Criteria for Diabetes

- Random glucose ≥200 mg/dL with polyuria, polydipsia, or weight loss, or
- Fasting glucose ≥126 mg/dL in the absence of intervening illness or steroid use (requires confirmation on a separate day), or
- Plasma glucose ≥200 mg/dL at 2 hours on an oral glucose tolerance test (OGTT [routine performance of OGTT is not recommended] performed with 75 g glucose administered).

Diagnostic Criteria for Prediabetes

- Fasting blood glucose of 100 to 125 mg/dL (impaired fasting glucose), or
- Blood glucose of 140 to 199 mg/dL (impaired glucose tolerance) at 2 hours on OGTT (as noted above, routine or common performance of OGTT is not recommended) performed with 75 g oral glucose administered.

Alternative Criteria

The diagnosis of diabetes is established by the finding of an A1c ≥6.5%. Confirmation should be made with a repeat A1c...
A1c measurement; confirmation is not required when an individual is symptomatic and blood glucose is >200. Because type 1 diabetes generally appears soon after the onset of hyperglycemia with marked blood glucose elevation, its diagnosis is commonly established without use of the A1c.

Those with an A1c of 6% to 6.4% are considered to be at particularly high risk of developing diabetes. Those who demonstrate prediabetes/increased diabetes risk based on modest hyperglycemia should undertake demonstrably effective preventive interventions including dietary modification with weight loss when appropriate as well as the performance of regular exercise. The additional use of metformin, particularly among individuals under age 60, those with an elevated BMI or with additional risk-related concerns (eg, metabolic syndrome or vascular disease) should be considered. It is noted that individuals with an A1c below 6%/lesser glucose elevation may still be at risk for developing diabetes later in life and, depending on the presence of other diabetes-related risk factors, may also benefit from preventive interventions.

MAJOR GOAL IN THE TREATMENT OF DIABETES IN THE NONPREGNANT ADULT: CONTROL THE ABCS (A1C, BLOOD PRESSURE, CHOLESTEROL)

A1c <7%

While recent studies demonstrate conflicting outcomes and some data remain preliminary, we recommend an HbA1c treatment goal of <7% under most circumstances. Clinicians and patients should individualize treatment targets which balance risk and benefit when determining glycemic targets.

Blood Pressure ≤129/79 mm Hg

Alteration in blood pressure goals may be appropriate based on relative systolic and diastolic blood pressure, age, orthostatic blood pressure, and adverse effects related to medications.

Cholesterol (Lipids)

Primary Goals

- Low-density lipoprotein <100 mg/dL in patients >40 years or in adults 30 to 40 years with additional risk factors for vascular disease.
- Low-density lipoprotein <70 mg/dL in patients with coexisting, or extensive risk factors for, vascular disease (when reaching that goal is practical).

Secondary Goals

- High-density lipoprotein >40 mg/dL. Niacin can effectively elevate high-density lipoprotein but its use may not be appropriate in a given setting as niacin can worsen glycemic control.
- Triglycerides <150 mg/dL. When elevated (eg, >200 mg/dL), triglycerides will often decline in parallel with improvement in glycemic control, limitation of dietary carbohydrates, and/or alcohol ingestion. Pharmacologic therapy (a fibrate, niacin, and/or fish oil) is recommended when a triglyceride level remains >500 mg/dL despite initial efforts (Table 1).

<table>
<thead>
<tr>
<th>Action</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1c</td>
<td>Every 6 mo if controlled (A1c &lt;7%) and therapy/clinical circumstances remain unchanged every 3–6 mo if uncontrolled (A1c ≥7%) and/or evaluating change in treatment</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>At every visit</td>
</tr>
<tr>
<td>Lipid profile</td>
<td>Annually repeat lipid profile 3 mo after a change in therapy</td>
</tr>
<tr>
<td>Weight/BMI</td>
<td>At every visit</td>
</tr>
<tr>
<td>Review blood glucose logs or meter printout</td>
<td>At every diabetes care visit</td>
</tr>
<tr>
<td>Urine microalbumin/creatin</td>
<td>Annually*</td>
</tr>
<tr>
<td>Serum creatinine and eGFR</td>
<td>Annually</td>
</tr>
<tr>
<td>Dilated eye exam by eye care professional</td>
<td>Every 1–2 yr if most recent exam normal Increased frequency beyond yearly in setting of retinopathy as determined by eye care professional</td>
</tr>
<tr>
<td>Foot exam</td>
<td>Comprehensive foot exam annually. If at a particular high-risk (ie, neuropathy or PVD) inspect at every visit</td>
</tr>
<tr>
<td>Smoking cessation education</td>
<td>At every diabetes visit (unless non-use is assured)</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>Annually</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td>Once before age 65 and once after age 65 with at least a 5-year interval between doses</td>
</tr>
<tr>
<td>Aspirin therapy (81 mg/d)</td>
<td>For all patients &gt;40 yr and those 30–40 yr with additional risk factors for vascular disease</td>
</tr>
<tr>
<td>Review medication management and lifestyle modification measures</td>
<td>At every diabetes care visit</td>
</tr>
<tr>
<td>Psychosocial assessment: emphasis on assessment of unsuspected depression</td>
<td>As needed. Depression may be present in upwards of 20% of the diabetes population</td>
</tr>
<tr>
<td>Assess self-management skills: testing and insulin management; lifestyle habits; and overall diabetes knowledge</td>
<td>At least annually; more frequently when appropriate</td>
</tr>
</tbody>
</table>

*Some clinicians measure the urine microalbumin/creatin on an annual basis (even after elevation is demonstrated) titrate angiotension converting enzymes (ACE)/angiotension II receptor blocker (ARB) dosing.

TABLE 1. Recommended Frequency of Diabetes Care Components
PARTNERS DIABETES CARE GUIDELINES
FREQUENTLY ASKED QUESTIONS

What is the Right HbA1c Target for My Patient(s)?

The correct glycemic target for any patient with diabetes should be based on 2 ingredients: the demonstrated benefits of near normal glycemia on the long-term complications of diabetes and clinical judgment. The latter ingredient should inform the decision as to how low the glycemia levels should go and is based on the balance of risks, effort, patient capabilities, and anticipated benefit. We now possess a wealth of data on the magnitude of the benefit and the risk of hypoglycemia that can be expected at different levels of chronic glucose control. The decision as to “how tight is right” for any individual patient requires clinical judgment in concert with an open discussion regarding the rationale for his/her individual goal, since he or she will bear the burden of self-care.

Regarding the glycemic goals: several high quality clinical trials have shown a large decrease in microvascular complications affecting the eye, kidney, and nerve in type 1 and type 2 diabetes.7–11 There is no question that the loss of vision, kidney failure, and amputations and other consequences of neuropathy can be substantially reduced with therapy that lowers chronic glycemia, as measured by the HbA1c, to near normal. Such therapy also lowers the risk of cardiovascular disease in type 1 diabetes and probably in type 2 diabetes.12 The level of HbA1c that is currently recommended is an HbA1c <7%. Recent studies have not shown a decrease in cardiovascular disease by trying to lower HbA1c levels even lower (to 6%–6.5%) and one of these studies had a significantly higher mortality in the very intensive treatment
group. So for now, the recommended level of HbA1c remains <7%, with the expectation that microvascular, neuropathic, and cardiovascular complications will be substantially reduced compared with higher levels of HbA1c.

The clinical judgment regarding the glycemic goals for an individual patient should also take into account the long period of time that is required for clinically damaging complications to develop. Therefore, patients with an anticipated limited exposure to hyperglycemia owing to advanced age or some comorbidity, such as a terminal disease, will probably not benefit from very tight glucose control. The balance of risks and benefits also may not favor intensive therapy in patients who are at particularly high risk (e.g., high-risk occupations) should hypoglycemia occur. For these patients, an HbA1c goal of >7% may be more appropriate.

How Should I Medically Manage Glycemic Control—In the Setting of Renal Insufficiency?

Special consideration needs to be given to the choice of medications and the doses of medications used to assist in the control of blood glucose.

Metformin, which is the first choice of oral agents for most patients with type 2 diabetes, is deemed contraindicated in the setting of renal impairment (serum creatinine greater than 1.5 in men, or greater than 1.4 in women). As a blanket prohibition, this position is controversial. The serious consequence of lactic acidosis was relatively common among patients with renal insufficiency who used phenformin, a cousin medication that was removed from the US market in the late 1970s. Lactic acidosis...
has been very uncommon with use of metformin. In fact, it has been difficult to separate the rate with metformin from the background rate of lactic acidosis. Various slightly more liberal cut-offs for the use of metformin, such as estimated GFR (eGFR) or creatinine clearance (CrCl, less commonly measured than eGFR in clinical practice) >30 mL/min have been proposed. When a borderline deficit in renal function exists, it is appropriate to stop metformin if there is a further drop in glomerular filtration rate such as with intercurrent vomiting, diarrhea, or cardiac dysfunction.

Among sulfonylureas, glyburide undergoes approximately 50% renal excretion and should be avoided with eGFR <50. Glipizide and glimepiride are preferred, but they also can result in prolonged hypoglycemia and doses should be halved for eGFR <50 and avoided for eGFR <10. Nateglinide does not require dose adjustment but should be used with caution in severe renal dysfunction. Caution is advised with repaglinide for eGFR of 20 to 40 (start with 0.5 mg before meals), and doses are not defined for eGFR <20. No dose adjustment is defined for use of thiazolidinediones, but these agents predispose to edema. The dose of sitagliptin should be reduced to 50 mg daily for eGFR 30 to 49, and to 25 mg daily for eGFR <30. Acarbose and miglitol are not recommended with eGFR <25. Exenatide is not recommended with eGFR <30. Pramlintide has not been studied when eGFR <20. Insulin is metabolized via the kidney and will have prolonged action in renal failure. Also, fatigue with hemodialysis may affect appetite. Peritoneal dialysis delivers

**FIGURE 3.** Clinical guideline for the treatment of type 2 diabetes in the nonpregnant adult: Step 3—initiation of insulin.
glucose and blood glucoses will rise. In renal failure, combined kidney and pancreas transplants should be considered since the requirement for insulin can be eliminated and patients can achieve normal glucose control along with slowing, or even partial regression, of microvascular disease.

In the Setting of CHF?

Congestive heart failure imposes constraints on the use of 2 classes of medications in patients with diabetes mellitus: Thiazolidinediones. Both pioglitazone (Actos, Takeda Pharmaceuticals North America, Deerfield, IL) and rosiglitazone (Avandia, GlaxoSmithKline, Middlesex, UK) increase the risk of heart failure by about 2-fold and can exacerbate preexisting heart failure.17 This phenomenon is thought to be mediated by renal sodium retention and is relatively resistant to loop diuretics. Thiazolidinediones are therefore not recommended for use in patients with a known diagnosis of heart failure.

Metformin. The FDA recommends against the use of metformin in patients receiving pharmacologic treatment for heart failure on the basis of increased risk for lactic acidosis—a rare but potentially fatal side effect. Data on the risks of lactic acidosis are limited due to its rarity. Based on the available literature, metformin is likely safe in

patients with estimated glomerular filtration rate (eGFR) >30 mL/min.

Among the Elderly?

A number of specific factors will influence diabetes management among the elderly. Clinical trials have shown that effective blood pressure and lipid management result in measurable benefits within 2 to 3 years. Up to 8 years of intensive glycemic control are needed to see reductions in microvascular complications such as retinopathy, neuropathy, and renal disease. A higher prevalence of several common geriatric syndromes is seen among older individuals with diabetes. These syndromes include cardiovascular comorbidities, polypharmacy, depression, cognitive impairment, urinary incontinence, injurious falls, and pain. In addition, risk resulting from medication induced hypoglycemia is often greater among the elderly, given the higher likelihood of more complex illness, and a decreased ability to recognize and respond to hypoglycemia. The sum of these concerns lead to the conclusion that the risks of lower...
glycemic goals are often greater among the elderly while, the benefits may be lessened given a shorter anticipated life expectancy.

Glycemic targets and BP/lipid goals need to be individualized and providers particularly need to weigh relative risks and benefits when choosing between near normal versus more modest glycemic goals. Quality of life should also be taken into account given what can be complex and costly medication and testing regimens. Among frail individuals, HbA1c targets of 7% to 8% or higher may be optimal. A focus on the short-term benefits of moderate glycemic control is recommended, such as reduction of glycosuria, polyuria, fatigue, and depression and enhancement of cognitive function and wound healing. Alternatively, for highly functional older adults with a life expectancy of 5 years or longer, an HbA1c target of 7% or lower may be appropriate, although not supported by major clinical trial data demonstrating benefits of such a glycemic target in this age group.

Medication-induced adverse effects are more likely and occur with greater morbidity among the elderly, including hypoglycemia, hypotension, and increased risk of hepatic or renal dysfunction. Thus,

- More frequent monitoring of renal function and potassium in those who are given angiotensin converting enzyme (ACE) inhibitors, angiotensin II receptor blockers (ARBs), or diuretics, and more frequent monitoring of hepatic function in those given niacin or a statin may be required.
- Safe use of metformin may require direct measurement of creatinine clearance with a timed urine collection in individuals over 80 years or those with reduced muscle mass.
- The preferred use of glimepiride or glipizide over glyburide may be appropriate given the higher hypoglycemia risk associated with glyburide use.18

For a more detailed review of this topic, the reader is referred to the Guidelines for Improving the Care of the Older Person with Diabetes Mellitus, available through the American Geriatric Society at available at: http://www.americangeriatrics.org/products/positionpapers/JAGSfinal05.pdf.

How and Why is Hypertension Approached Differently in the Setting of Diabetes?

The approach to the treatment of hypertension among those with diabetes differs from that directed toward the general population in 2 ways: drug selection and target blood pressure goals.

Declining renal function leading to renal replacement therapy (dialysis or renal transplantation) is an important diabetes-related complication. Clinical trials have repeatedly shown that agents that disrupt the renin-angiotensin-aldosterone cascade are nephroprotective in this population. As a result, individuals with diabetes should be treated with an angiotensin converting enzyme inhibitor, an angiotensin receptor blocker, and/or direct renin inhibitor as the foundation of their antihypertensive regimen. Concurrent use of 2 renin-angiotensin system (RAS) blockers taken from 2 of these classes of drugs may be appropriate to effectively reach proper blood pressure goals, protect renal function, and ultimately to prevent stroke, heart attack, and death. The proven mortality/morbidity benefit of dual RAS blockade awaits the completion of ongoing clinical trials. However, the importance of aggressive blood pressure reduction in the diabetes (and especially proteinuric) patient population is clear and the use of 2 concomitantly prescribed RAS blockers may facilitate achieving desired blood pressure control. When one and certainly more than one of these medications are used, serum potassium should be followed given the higher risk of medication induced hyperkalemia occurring in the setting of diabetes.

With respect to treatment goals, diabetes is recognized as a “cardiac risk equivalent.” Patients with diabetes and especially those with concomitant hypertension have a cardiac risk equivalent to patients who have already sustained a myocardial infarction. Thus, aggressive treatment goals in this patient population have been adopted. In clinical trials, it has been repeatedly demonstrated that lowering the blood pressure to <130/<80 mm Hg in a diabetic patient population is rewarded with a consistently significant reduction in stroke, myocardial infarction, and cardiovascular death.

Therefore, all patients with diabetes (both types 1 and 2) should be approached with the goal of aggressive blood pressure control. The treatment of their hypertension should have as its foundation the use of a renin-angiotensin-aldosterone system blocker to which can be added a calcium channel blocker, diuretic, etc, to reach a blood pressure of <130/<80 mm Hg. Parenthetically, it is likely that these more aggressive goals will be adopted more widely for the treatment of all hypertensives in the future.

How Can I Make Diabetes Care Visits More Efficient and Effective?

Diabetes care visits are particularly difficult owing to the multiple concerns that providers face along with the quality measurement/incentives that are now in place. The following may help to make your diabetes care visits more effective.

- Have your patient obtain laboratory studies prior to each visit so that results are available when you need them.
- At each visit, fill out a laboratory request for the next one—for an HbA1c and/or any studies that will be due (lipid profile if due or if a statin dose is altered, urine microalbumin, etc). Either your patient can take the slip home or you could keep it in a file if laboratory studies are drawn in your office.
- Have your patient bring his/her blood glucose log to each diabetes care visit. Even better, consider downloading your patient’s meter via available free software. Consider recommending 1 meter as being preferred to allow yourself to work with meters efficiently, they are often provided to physicians for free for the purpose of distribution.
- Consider scheduling office visits devoted solely to diabetes care at intervals recommended by national guidelines, ie, every 3 or 6 months.
- Follow the decision support guidance provided by your EMR.
- Take advantage of diabetes education to share oversight and management decisions (eg, insulin dose adjustment). Doing so allows for more frequent interaction than physician office visits alone and supports the principle of team diabetes care management.
- Consider the role of your office/clinic staff (eg, perform medication reconciliation at the start of each visit, enter data in the EMR, obtain vital signs, post-visit phone follow-up when needed, etc).
- Seek a mechanism to interact with patients 1 to 4 weeks after a medication change to fast-track a response.

How Can Diabetes Educators Help Me and My Patients?

A certified diabetes educator (CDE) is an experienced licensed healthcare professional whose responsibilities focus on helping people with diabetes, understand and manage their disorder. This certification is the nationally recognized standard for competence in diabetes self-management education and training. A CDE take on several areas of responsibility essential to diabetes management.

A CDE will provide customized lifestyle recommendations seeking to improve glycemic control and other diabetes-related goals, with particular attention to quality of life and the promotion
of adherence. Commonly included goals include self-monitoring of blood glucose, the understanding of blood glucose results and targets, proper administration of medications, managing diet and activity, and responding to changes in health. In effect, CDEs help people with diabetes how to put “it” all together to control blood glucose, prevent complications, and to do so within the framework of their own lifestyle needs and preferences.

CDEs are knowledgeable in the latest technological devices including insulin administration devices (syringes, pens, and insulin pumps) and meters, and can assist a patient obtaining, initiating, and supporting the use of technology.

Working closely with patients between physician visits, a CDE is able to reinforce recommendations and identify newly presenting needs as well as having the time to address self-management issues. A CDE will often partner with physicians in altering insulin dosing as determined by self-monitored blood glucose results and other influences, between physician visits. A CDE helps the patient develop into an activated partner in their health care.

Caring for people living with diabetes takes a team approach and your local CDE is a vital part of that team.

**How Important is Lifestyle Management to Diabetes Care/Risk Reduction?**

The results of the Diabetes Prevention Program trial definitively showed that lifestyle modification—dieting to lose a goal 7% of body weight and performing aerobic exercise, such as brisk walking, 30 minutes per day, 5 times per week—reduced the risk of development of type 2 diabetes in high-risk subjects by 58% compared with placebo; by contrast, metformin reduced the risk by 31% compared with placebo.16

Even in the absence of weight loss, diet and exercise are the foundation of all treatment plans for patients with type 2 diabetes for the following reasons.

- A calorie-restricted diet that includes complex (rather than simple) carbohydrates and spreading carbohydrate consumption evenly over the course of the day (rather than eating one large meal) allows a failing of pancreas that has lost the first-phase insulin response to metabolize ingested carbohydrates more effectively and reduce postprandial hyperglycemia.
- Exercise decreases insulin resistance by promoting insulin-independent glucose uptake into the muscle.
- These effects combine to lower mean glucose levels and decrease glucotoxicity, which, in turn, promote endogenous insulin release.

Checking blood glucose after high-carbohydrate meals and exercise can help patients to learn the impressive effect of these measures and may reinforce the behavior.

Consequently, patients should be encouraged to maintain diet and exercise behaviors even in the absence of weight loss, and even when taking diabetes medications. Weight maintenance, rather than gain, is an important goal, and should be reinforced. Physicians should “prescribe” rather than recommend, diet and exercise goals. Ideally, individualized goals would be determined by motivational interviewing, identifying what is “double” for the patient; referral to a CDE or nutritionist can be very helpful in this regard.

Quick tips for promoting lifestyle modification:

- **Diet:** nutrition referral, prescription of portion control plates (with demonstration of a portion size in the office, using a food model or portion control plate model as an example), avoidance of the “white foods”: rice, potatoes, white bread, white pasta, in addition to sugary foods.
- **Exercise:** exercise prescriptions should be individualized for each patient, but start with 30 minutes of brisk walking at least 5 days per week. Other tips include: parking at the far end of the parking lot, getting off public transportation one stop early, and wearing a pedometer aiming to build up to 10,000 steps per day.

**How Can I Overcome the Obstacles to Insulin use?**

As a person living with diabetes and having many friends with diabetes, I know a lot about people’s concerns and perceptions when it comes to starting and taking insulin—be it a person with type 1 or type 2 diabetes.

Physicians, diabetes educators, and other healthcare providers can help patients overcome the obstacles to taking insulin by providing education, being compassionate, and showing that they understand the hurdles people face when starting insulin. Some common perceptions and helpful responses include:

- **If I have to use insulin, my diabetes must be really bad. This is a very common reaction from a lot of people—especially people who do not really understand the disease. It is helpful to have someone explain that it’s much better to have controlled blood sugars while on insulin than having really high blood sugars while on multiple oral agents. (And, in some cases, it helps people to know that it will probably cost less to take insulin versus several oral agents.)**
- **It will hurt to give myself a shot. Actually giving myself a shot is less painful than doing a finger stick. I think it’s useful to show people a needle and a lancet side by side, so they get an idea of the difference and actually see how thin the needles are these days.**
- **My life will have to revolve around the timing of the insulin. I think patients hold onto this idea from a generation ago. Today, there are plenty of basal and fast-acting insulin combinations that give people the freedom to choose when they want to eat (or not eat) and exercise. People don’t have to be in the mind set of “It’s 11:50 AM and my insulin is peaking at 12 Noon, so I have to eat RIGHT NOW.” Designing a regimen that works well for the patient’s lifestyle, not asking the patient to change his/her life to match insulin is the way to go (who wants to be told they can no longer sleep in on Saturday because they have to get up to eat or take a shot?!)**
- **I’ve failed as a patient. In some cases, physicians use insulin as a threat with their patients with type 2—“If you don’t straighten up, eat right, and lose some weight, I’m going to have to put you on ‘the needle’ or start you on insulin.” When presented that way, if I now have to take insulin, I’ve failed, I’m no good at taking care of my diabetes. In many cases, this causes people’s motivation to decline further. I think insulin should be presented as a positive therapy and patients should be told up front at the beginning of diabetes treatment, that in most cases they will eventually need it (not due to a personal failure, but due to the progression of the disease).**
- **Once I’ve started insulin, I can never stop. I have type 1 diabetes so stopping insulin is not in my game plan. That said, I haven’t talked to a lot of people who’ve started insulin and then feel like they want to stop taking it. I’ve met with people with type 2 have who feel a lot better once on insulin, and it’s not as disruptive to their lives as they thought it was going to be or as it was in years past.**

**At What Point Should My Patient See an Endocrinologist?**

An endocrinologist and diabetes team can provide support and recommendations for any patient with diabetes. In general, the following patients with diabetes will particularly benefit from consultation with an endocrinologist.
• Patients with a HbA1c greater than 8% despite reasonable attempts at glycemic control.
• Patients who are reluctant to start insulin.
• Patients with type 1 diabetes.
• Patient on an insulin pump or whose total daily insulin dose exceeds 200 units.
• Patients with renal insufficiency.
• Patients with painful or autonomic neuropathy.
• Patients with complicated comorbidities.
• An insulin-treated patient with frequent or severe hypoglycemia.
• Patients who exhibit a diabetes related problem in which the PCP has limited experience or an uncertain level of comfort.

DISCLOSURES
Nothing to declare.

REFERENCES