Editorials

Understanding the High Cost of Insulin: What Family Physicians Can Do to Help Our Patients with Type 2 Diabetes Mellitus

Randi Sokol, MD, MPH, MMedEd, Tufts Family Medicine Residency Program at Cambridge Health Alliance, Cambridge, Massachusetts

A 10-mL vial of insulin that cost $40 in 2001 costs nearly $275 today.[1] As a result, one in four of the 7.4 million Americans with diabetes mellitus who are taking insulin report that they cut back on their dosage or stop taking it altogether because they simply cannot afford it.[2] What is causing this, and what can we do to help our patients who need insulin?

Why Are Insulin Prices So High?

Only three manufacturers market insulin in the United States, and no generic versions are available despite human insulin being commercially available for more than 50 years. In addition, other intermediaries—pharmacy benefit managers and health insurance plans—negotiate rebates, discounts, and fees, which drives up the list price. Pharmacy benefit managers negotiate with manufacturers to get insulin on a health plan's formulary and at a low tier; hence, the manufacturer benefits from increased sales volume. In turn, the manufacturer pays rebates to the pharmacy benefit manager. To compensate for the money lost by paying these rebates, the manufacturer increases the list price for the drug. The results are catastrophic for pricing: over the past few decades, 50% of the cost increase for insulin was related to the rebates paid to pharmacy benefit managers.[3-5]

As a result of these cost pressures, insurance companies have shifted the expenses to patients through higher copayments. Although the usual copayment for a vial of insulin is $10 to $50 per month, patients with high deductibles could pay out-of-pocket costs up to $240 to $300 per month for glargine insulin (Lantus, Basaglar) or $80 to $100 per month for isophane insulin (NPH).

What Can Family Physicians Do to Help Patients Afford Insulin While Providing High-Quality, Evidence-Based Care?

There are two things we can do in our offices. First, relax A1C goals to 8% or less.[6-10] The 2018 American College of Physicians guidelines recommend an A1C goal of 7% to 8%,[6] and the 2018 American Diabetes Association guidelines state that less stringent A1C goals of 8.0% or less may be appropriate for patients with longstanding diabetes or multiple comorbid conditions.[7] Following these guidelines will likely decrease the number of patients with type 2 diabetes who require insulin. Although many of us have been taught that tighter glycemic control is better, more recent evidence suggests the opposite is true. Several large studies have shown the association between mortality rates and A1C levels to be a J curve, in which mortality rates increased at lower and higher A1C levels and were lowest between 7.5% and 9.0%.[8-10] In addition, having even one episode of severe hypoglycemia significantly increases the risk of dementia and nursing home placement.[11]

Glycemic control in type 2 diabetes can usually be achieved by adjusting once-daily basal insulin dosages to achieve fasting glucose levels of 80 to 130 mg per dL (4.4 to 7.2 mmol per L). It is only when tighter control is desired (which is often unnecessary and even harmful) that mealtime insulins or biphasic dosing of basal insulin should be added.

Secondly, switch to human insulins (isophane or regular [Humulin R]) instead of insulin analogues (Table 1).[12-15] Manufacturers modified human insulin to make analogues with different durations of action and to produce more stable blood sugar levels, but these analogues are expensive and have not improved patient outcomes. There is substantial evidence that older, less expensive versions of human insulin are safer, equally tolerated, and more effective than the newer products. Compared with detemir (Levemir) and glargine insulins, isophane insulin does not increase episodes of severe hypoglycemia that lead to emergency department visits and hospitalizations.[16,17] Quality-of-life measures are similar among isophane insulin and insulin analogues, and patients achieve better glycemic control with isophane insulin compared with insulin analogues.[16,18,19]

In summary, practice cost-effective and evidence-based care by aiming for less stringent A1C goals, focusing on basal insulins, and using once-daily dosing. Prescribe mealtime insulin or biphasic dosing of isophane insulin only if titrating the once-daily basal insulin does not achieve fasting glucose goals.

In addition to these clinical goals, there are several things we can do at a system level. First, use 340B pharmacies. These Health Resources and Services Administration–certified pharmacies work directly with drug manufacturers that are federally mandated to provide affordable pricing to patients with low incomes. To find out if a pharmacy affiliated with your health system qualifies for 340B status, go to https://www.hrsa.gov/opa/index.html.

In addition to 340B pharmacies, use patient assistance programs. These programs provide vouchers and discount cards directly from drug manufacturers to patients who cannot afford insulin. Examples of these programs include NeedyMeds, RxAssist, RxHope, the Partnership for Prescription Assistance, and GoodRx.

TABLE 1

Options for Switching to Human Insulin from Insulin Analogues

Basal insulin

If changing from glargine insulin (Lantus, Basaglar), determir (Levemir), or degludec (Tresiba) to isophane insulin (NPH), dosing is 1:1, divided into two daily doses (e.g., 50:50 or 2/3 in the morning and 1/3 before dinner or at bedtime)[12,13]

or

Give once-daily dose of isophane insulin (enhances adherence, avoids weight gain, and reduces hypoglycemic events; compared with once-daily dosing, twice-daily or mealtime dosing increases weight gain by 10 to 12 lb (4.5 to 5.4 kg) per year and waist circumference by 2 cm per year, and causes four to eight episodes of moderate to severe hypoglycemia per year)[14]

If patient is not already receiving insulin, start on isophane insulin, 10 units per day or 0.1 to 0.2 units per kg per day, and titrate to achieve fasting blood glucose target; dosages of 0.4 to 0.5 units per kg per day should be divided into two daily doses[15]

Mealtime insulin

If changing from lispro (Humalog) or aspart (Novolog) to regular insulin (Humulin R), dosing is 1:1 with at least six hours between doses (e.g., a patient taking 4 units of aspart insulin before each meal would take 4 units of regular insulin 15 to 30 minutes before each meal); twice-daily dosing should be considered for patients who eat more frequently than every six hours (e.g., isophane insulin at breakfast and dinner only)

Information from references 12 through 15.

Next, use local call centers if they are part of your health system. Many health maintenance organizations, pharmacy benefit managers, health plans, and other integrated health systems use call centers staffed by pharmacy technicians who review benefits and alert clinicians to less expensive medication options.

Finally, join advocacy efforts such as the Lown Institute's Right Care Alliance (https://rightcarealliance.org) and the American Medical Association's Truth in Rx (http://truthinrx.org). Support a move from the current fee-for-service system toward value-based benefit systems in which insurance companies reduce patient costs for evidence-based treatments. Demand transparency in prescription drug pricing.

Through clinical and system-level interventions, family physicians can push back against the high cost of insulin and help patients with type 2 diabetes afford these essential medications.

Address correspondence to Randi Sokol, MD, MPH, MMedEd, at rsokol@challiance.org. Reprints are not available from the author.

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