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# Challenges in Diabetes Management: Glycemic Control, Medication Adherence, and Healthcare Costs

This article is based on "Real-World Insights & Economic Considerations in Type 2 Diabetes," a presentation given at the 2017 Asembia Specialty Pharmacy Summit in Las Vegas, Nevada, April 30-May 3, 2017.

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## THE CURRENT STATE OF DIABETES MANAGEMENT: CHALLENGES AND UNMET NEEDS

### The Growing Burden of Diabetes

Diabetes affects approximately 29.1 million Americans (9.3% of the US population), according to National Health and Nutrition Examination Survey (NHANES) data from 2012.<sup>1</sup> This number accounts for approximately 21.0 million diagnosed and 8.1 million undiagnosed individuals; in other words, 27.8% of people with diabetes in the United States have yet to be diagnosed.<sup>1</sup>

Healthcare costs associated with diabetes are high. In fact, the average cost of healthcare for patients with diabetes is 2.3 times higher than for patients without diabetes (based on 2012 estimates).<sup>1</sup> Direct healthcare expenditures associated with diabetes were estimated at \$176 billion in 2012, with additional costs due to loss of productivity related to chronic disability and premature mortality representing an additional \$69 billion, for a total of \$245 billion in healthcare expenditures attributed to diabetes.<sup>1,2</sup>

At the 2017 Asembia Specialty Pharmacy Summit, a special presentation addressed key challenges in the current state of diabetes management and considered potential approaches to improve outcomes. Jay Skyler, MD, MACP, professor of medicine, pediatrics, and psychology in the Division of Endocrinology, Diabetes and Metabolism, Department of Medicine, University of Miami Miller School of Medicine, led the discussion. He began by emphasizing the growing prevalence of diabetes: "In the United States, diabetes is projected to affect more than 40 million people by 2034." Skyler emphasized that complications associated with diabetes are related to poor metabolic control. He also noted that the increasing prevalence of diabetes in America is "driven by obesity and a sedentary lifestyle."

### Complications and the Importance of Glycemic Control in Diabetes

Diabetes is associated with many complications, notably macrovascular and microvascular diseases, which include cardiovascular disease (CVD) (eg, coronary artery disease, stroke, high levels of low-density lipoprotein cholesterol [LDL-C]) and peripheral vascular disease (PVD), which may lead to amputation.<sup>1</sup> Diabetes causes about 60% of nontraumatic lower-limb amputations for individuals 20 years or older.<sup>1</sup> Microvascular complications of diabetes also commonly include end-stage renal disease (ESRD) and retinopathy.<sup>1</sup> Diabetes was the primary cause of kidney failure in 44% of all new cases in 2011, and in 2005-2008, 4.4% of people with diabetes 40 years or older had advanced diabetic retinopathy, which could lead to severe vision loss.<sup>1</sup>

Given the prevalence and severity of complications associated with diabetes are associated with imbalanced blood glucose, achieving glycemic control is an important step in diabetes management. During this presentation, barriers to glycemic control and improvements for modifications diabetes management was a key topic of discussion. Glycemic control is typically measured by glycated hemoglo-