

## The Effect of Patients' Risks and Preferences on Health Gains with Plasma Glucose Level Lowering in Type 2 Diabetes Mellitus

Vijan S, Sussman J, Yudkin J, and Hayward R.

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### PRESS RELEASE

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## *Study Suggests Most Patients with Type 2 Diabetes Obtain Little or No Benefit from Current Treatment for Tighter Glycemic Control*

**Background:** Intensive glycemic control is considered a standard of care, and achieving a specific A1c target is a quality measure often used to profile physicians and healthcare plans. Lowering A1c delays the onset and slows the progression of early microvascular disease. However, trials have found no significant reductions in clinically-relevant microvascular endpoints (i.e., visual loss, end-stage renal disease, and amputation) with 10 years of improved glycemic control. In addition, most glycemic medications have unwanted effects (i.e., weight gain, hypoglycemia). This study examined how considering treatment burden would affect the benefits of intensive versus moderate glycemic control in patients with type 2 diabetes. Investigators estimated the effects of A1c reduction on diabetes outcomes and overall quality-adjusted life years (QALYs) using a Markov simulation model. The model considers both microvascular and cardiovascular diabetes complications, specifically examining the impact of risk factor levels (A1c, lipid, and blood pressure) on their development and progression. Model probabilities were based on estimates from randomized trials and observational studies. Investigators also examined two specific treatment scenarios. In the first, a newly diagnosed 45-year-old patient with an A1c of 8.5% is started on metformin, and their A1c is reduced by 1.5 points to 7.0%. In a second scenario, they examined the impact of switching to insulin in this patient if their A1c increased to 9.0% over a 10-year period; insulin was assumed to reduce A1c by 1.0%. The primary outcome was QALYs, in addition to risk reductions in individual endpoints for the two treatment scenarios.

**Findings:** For most patients over the age of 50 with an A1c below 9% who were on metformin, further glycemic treatment usually offered, at most, modest benefits. Across all ages, patients who viewed treatment as modestly burdensome experienced a net loss in QALYs from treatments to lower A1c.

Assuming a low treatment burden (0.4 lost days per year), treatment that lowers A1c by 1 point provided highly variable benefits ranging from 0.77–0.91 QALYs for patients diagnosed at age 45 to 0.08–0.10 QALYs for those diagnosed at age 75. An increase in treatment burden (3.7 days lost per year) resulted in A1c lowering causing more harm than benefit in those aged 75.

**Implications:** The current approach of broadly advocating intensive glycemic control for millions of patients with diabetes should be reconsidered; instead, treating A1cs of less than 9% should be individualized based on estimates of benefit weighted against the patient's view of treatment burden.

The full **CIDER briefing** can be found here: <http://www.hsrd.research.va.gov/research/citations/PubBriefs/articles.cfm?RecordID=666>

The full **text** can be found here: <http://www.ncbi.nlm.nih.gov/pubmed/24979148>