

## **Complications of Dysglycemia and Medical Costs Associated With Nondiabetic Hyperglycemia**

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Microvascular and macrovascular complications afflict the majority of patients with diabetes. The American Association of Clinical Endocrinologists reported that 58% of patients with diabetes have at least one complication. However, complications associated with hyperglycemia often occur before diabetes is diagnosed. Therefore, the objectives of this study were to assess the prevalence and associated medical costs of hyperglycemic complications among patients with impaired fasting glucose (IFG) or impaired glucose tolerance (IGT) or both relative to patients with normal glucose tolerance. Using data from Kaiser Permanente in Oregon, they studied 33,895 patients who had blood glucose of < 126mg/dl in the last year. Patients who developed diabetes in the following year were excluded as well as patients with renal disease or AIDS, resulting in a final sample of 26,111 patients. They also collected data on age, sex, BMI, systolic blood pressure, and HDL. Of the 26,111 patients almost 60% (15,629) were defined as normoglycemic, 22% (5,713) were classified as having isolated IFG (I-IFG), 10% (2,552) had isolated IGT (I-IGT), and 8% (2,217) were identified as having IFG/IGT. They found significant difference in all microvascular and macrovascular complications between the four groups. Complications were most common among the infrequent-IGT and IFG/IGT patients. More than half had at least one of the diabetic complications while only 34% of patients with normal blood glucose had complications. In addition, these complications resulted in increased medical costs with macrovascular complications adding \$3,863 and

microvascular complications adding \$1,874 to annual per-person medical costs. In sum, microvascular and macrovascular complications were more common in people with glycemic levels below the threshold for diabetes compared to people who had normal glucose levels and these complications contribute to increased medical costs.