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Comprehensive biomarker testing of glycemia, insulin resistance, and beta cell function is associated with improved glycemic control in clinical practice

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Past approaches to managing diabetes risk have not been sufficient to stem the tide of the diabetes epidemic. Recent efforts have focused on providing tools to detect disease progression earlier, before loss of glycemic control and significant pancreatic beta cell destruction when interventions would likely be more effective. Health Diagnostic Laboratory, Inc. has recently introduced into routine clinical practice a biomarker panel that utilizes a multimarker approach to assess three dimensions of diabetes progression—insulin resistance, beta cell function, and glycemic control. A retrospective cohort study was recently conducted to investigate the utility of this panel in 1,687 consecutive patients receiving treatment at one of six outpatient clinics across the U.S. Laboratory data was matched with de-identified patient information obtained from chart review. Key findings from this study included identification of a substantial proportion of the cohort (40%) with actionable evidence of metabolic abnormalities who did not meet current definitions of prediabetes. No single biomarker was responsible for this increased sensitivity—diverse patterns of abnormalities were observed in the normoglycemic patients. After 6 months, a significantly higher percentage of prediabetic patients who underwent advanced biomarker testing had reverted to normoglycemia (34%) than had progressed (10%; $P<0.0001$); these rates of reversion are considerably higher than expected based on published progression rates for type 2 diabetes. These results suggest biomarker panels can be successfully integrated into clinical practice in order to identify at-risk patients earlier and stratify intervention efforts, leading towards individualized interventions that reflect the underlying biology of each patient's disease.

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