

# Introduction

Pre-diabetes affects 41 million people in the United States 40 to 74 years of age.<sup>1</sup> This is in addition to the 18.2 million individuals already afflicted with diabetes mellitus (DM).<sup>2</sup> Diabetes is a disorder that is responsible for \$132 billion in medical costs, consuming more than 12% of the US health-care dollar.<sup>3</sup> Morbidity and mortality from DM most commonly result from the long-term complications of the disease. Data from several studies suggest that aggressive management of DM and its associated risk factors will lead to a reduction in these long-term complications. The recent success of intervention trials, as well as knowledge regarding the pathophysiology of the early stages of hyperglycemia, points to the possibility of identifying high-risk patients and delaying and/or preventing the progression of pre-diabetes through intervention strategies. This issue of *Clinical Cornerstone* has been dedicated to a discussion of those strategies as well as the major complications of DM and their treatment.

In the opening article, Deirdre O. Smith, RN, MS, ANP-C, and I discuss the insulin resistance syndrome (IRS), also known as the metabolic syndrome, which is now recognized as a distinct pathologic and clinical entity. Common manifestations associated with IRS include atherosclerotic heart disease, hypertension, impaired glucose tolerance, hyperlipidemia, polycystic ovary syndrome, and hypercoagulability. The article presents the features associated with insulin resistance syndrome, the accepted clinical diagnosis, treatment modalities, and ongoing or completed trials which suggest that progression from IRS to type 2 DM and early coronary heart disease may be prevented in adolescents and adults.

The second article is a discussion by Daniel E. Hale, MD, on type 2 DM and DM risk factors in children and adolescents. Long considered a disease of older adults, type 2 DM is now also a pediatric disease. The primary risk factor for type 2 DM is obesity. It is generally assumed that the increasing numbers of children with type 2 DM represent the forefront of the obesity epidemic that is sweeping across the United States. Dr. Hale urges the medical profession to become more proactive in addressing lifestyle trends

such as increasing sedentary behaviors, declining levels of physical activity, and changes in dietary patterns that contribute to this disease.

For the first time, The American Diabetes Association (ADA) guidelines for 2004 provide glycemic targets for both preprandial and postprandial glucose levels. Stephen Clement, MD, looks at the new ADA guidelines for glycemic control and presents a detailed treatment algorithm that is easy to follow by nurse practitioners and primary care physicians. The treatment guidelines for glycemic control for DM continue to evolve as new medications are introduced and clinical trial data become available; however, both observational as well as large, prospective, randomized studies demonstrate that achieving and maintaining glycemic control is fundamental to reducing the risk for DM-related microvascular complications.

In the next article, Vivian Fonseca, MD, looks at intensive management of glycemia that may have long-lasting benefits over conventional therapy on vascular and other complications of DM. Dr. Fonseca uses the term “intensive therapy” to describe strategies that keep blood sugar near normal as well as for the aggressive management of other associated risk factors such as lipid abnormalities and blood pressure. Dr. Fonseca discusses data from several studies which suggest that aggressive management of DM and its associated risk factors will lead to a reduction in long-term complications.

The last article in this issue addresses the cost impact of not treating diabetes early and intensively. William Cefalu, MD, looks at the direct and indirect medical costs of caring for patients with type 2 DM and its complications. These costs are currently staggering and are predicted to grow with the increasing incidence of the disease. Studies show that preventive treatment, such as lifestyle changes and pharmacologic interventions, may reduce the risk for DM and its complications, potentially reducing the costs of the disease. The challenge now facing the medical community is to implement preventive strategies today that may decrease the expense tomorrow.

In summary, we believe that this issue highlights an increasingly recognized entity that affects a large proportion of the population, that is commonly undiagnosed and undertreated, and that has a major impact on the morbidity and mortality of these individuals. This issue looks at ways to prevent the progression of pre-diabetes to type 2 DM. Authors discuss essential lifestyle changes as well as early and intensive use of insulin therapy to prevent this progression. To prevent progression to type 2 DM and its complications, lifestyle changes are essential,

including dietary therapy and exercise. Based on the results of published trials, it may also be useful to consider pharmaceutical agents whose effects can be additive to lifestyle changes. We hope that by furthering the readers' understanding of the problem, we will influence the approach of medical practitioners and impact on the disease and its complications.

**Derek LeRoith, MD, PhD**  
**Guest Editor**

## REFERENCES

1. American Diabetes Association. All About Diabetes. Available at: [www.diabetes.org/pre-diabetes.jsp](http://www.diabetes.org/pre-diabetes.jsp). Accessed August 16, 2004.
2. American Diabetes Association. All About Diabetes. Available at: [www.diabetes.org/about-diabetes.jsp](http://www.diabetes.org/about-diabetes.jsp). Accessed June 17, 2004.
3. American Diabetes Association. Awareness of Blood Sugar Critically Lacking Despite Diabetes Increase, American Diabetes Association Survey Finds. Available at: [www.diabetes.org/for-diabetes.jsp](http://www.diabetes.org/for-diabetes.jsp). Accessed June 17, 2004.