Preface

Prediabetes and Diabetes Prevention

It is currently estimated that 57 million people (1 in 4 adults) in the United States have prediabetes, many of whom will develop diabetes in ensuing years unless significant modifications in lifestyle occur, including diet, weight loss, and exercise. Furthermore, a small but significant number may already be at risk for developing vascular disease. Hence, prediabetes constitutes a major international public health concern that threatens to increase dramatically given the growing prevalence of worldwide obesity. Prediabetes is also associated with considerable financial expenditure with higher rates of medical visits for hypertension, metabolic and renal complications, and general medical conditions. The national annual medical cost of prediabetes has been estimated to exceed $25 billion.1 Since it therefore impacts considerably an already burdened healthcare system, the recently passed Affordable Care Act is opportune, as it addresses the critical need for preventive approaches to this epidemic.2,3

A major factor contributing to the difficulty in ascertaining who has prediabetes pertains to the way it, as diabetes per se, has been defined. As discussed in greater detail in this issue, the diagnosis of prediabetes has been predicated on absolute criteria defined by blood glucose measurements, which is one of the reasons the American Diabetes Association adopted a range of HbA1c values as a basis for identifying those at risk for developing diabetes. However, as neither glucose nor HbA1c determinations may be sufficiently sensitive to diagnose early metabolic abnormalities precisely, the practitioner requires considerable judgment in assessing these subtle conditions. Thus, defining prediabetes categorically by relatively arbitrary threshold criteria may inadvertently lead to the failure to diagnose individuals with lower glucose levels who may still be at risk for progression to diabetes or cardiovascular disease.4

Rather than viewing the evolving disease process as a continuum, the traditional dichotomous approach to defining metabolic entities most likely addresses only a small segment of a much larger problem and hence underestimates the considerable prevalence of this condition. One potential approach for overcoming the uncertainty associated with absolute diagnostic criteria is the use of a “personalized profile,” which would
encourage early intervention in an individual demonstrating progressive deterioration of metabolic parameters, such as fasting glucose, HbA1c, and basal insulin measurements, although not yet considered abnormal on a population-based norm.5

Many facets of prediabetes are covered herein, including its definition (Buysschaert), epidemiology (Colagiuri), complications (Crandall), pathophysiology (Ferrannini), and diagnosis (Shaw). Furthermore, positive outcomes from large-scale prevention studies conducted in different countries, primarily with lifestyle change (Ramachandran), have translated into favorable health economic outcomes (Herman), formal treatment recommendations (Ratner), and public health initiatives in diabetes prevention (Schwarz). Finally, since obesity, metabolic syndrome, and prediabetes (as well as diabetes) occur with increasing prevalence in children and continue to evolve over a lifetime to the epidemic we witness in adults today, this perspective is also considered (Berenson).

This issue synthesizes our current knowledge of this burgeoning field. The international collaboration reflected in this work is emblematic of the global epidemic of metabolic diseases and thus provides a broad perspective on the subject matter. Furthermore, as all age groups are increasingly affected by a disease process that knows no frontiers, an incremental dialogue between adult and pediatric/adolescent physicians is therefore mandatory if we are to solve this major public health problem. As the root of adult metabolic conditions can often be traced to an earlier period, remediation is required at the earliest identifiable point in time given the indolent and continuous evolution of prediabetes and its associated risk factors.

The present work is meant for the primary care physician in particular, who sees the preponderance of individuals at risk for diabetes. However, in essence it is for every health care provider regardless of specialty, as individuals with prediabetes are often seen for unrelated medical problems. Therefore, it behooves each of us to recognize the subtle nature of the underlying metabolic disorder and intervene early and effectively. It is only through the prompt diagnosis of prediabetes and implementation of lifestyle changes very early in its denouement that we can hope to forestall the development of diabetes and its associated complications, thus decreasing the burden on the individual and on society.

The contributors to this issue are established experts in their respective fields and I am profoundly grateful to each of them for taking the time and making the effort to disseminate state-of-the-art knowledge to the readership. This has been a most rewarding collaboration. I am especially appreciative of Dr Hertzel Gerstein’s advice and guidance. Dr Jesse Roth is acknowledged as well for his helpful recommendations. Finally, I would like to express my sincere thanks to Ms Rachel Glover, Editor of Medical Clinics of North America, for her support, insight, and professionalism, as well as to Elsevier, Inc, for agreeing to undertake this publication. Finally, I know I speak for all the authors in expressing our gratitude to each reader who ultimately affects the lives of those with prediabetes as a result of an increased awareness of this entity.

Michael Bergman, MD
Department of Medicine
Division of Endocrinology
New York University School of Medicine
345 East 37th Street, Suite 313
New York, NY 10016, USA

E-mail address: Michael.Bergman@nyumc.org
REFERENCES