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## The Metabolic Syndrome: Time for a Critical Appraisal: Joint Statement From the American Diabetes Association and the European Association for the Study of Diabetes

Response to Kahn et al.

We have known for years that major cardiovascular risk factors such as obesity, high blood pressure, diabetes, and dyslipidemia tend to cluster. One of the names associated with that clustering—the metabolic syndrome—has recently become popular. The fine epidemiologic review by Kahn et al. (1) may enable us to gain new insight into its etiology, prognosis, and treatment. Like Gale (2), they challenge scientists studying the metabolic syndrome to

consider the definition of its elements and what additional information these elements, in combination, may contribute to the risk of cardiovascular disease. Hypertension and dyslipidemia as risk factors can perhaps serve as a model. Their independent contribution to the risk of cardiovascular events was first identified. Later, effective treatments were evaluated in large long-term clinical trials that defined the standards of care for high levels of blood pressure and cholesterol (3,4). The critical appraisal of Kahn et al. may be a turning point for the metabolic syndrome. Until this sort of high-quality effort is devoted to the metabolic syndrome, it is premature to introduce the current definitions of the metabolic syndrome into clinical medicine or public health practice. In the meantime, clinicians are well advised to appropriately treat the individual risk factors, many of which are improved by the nonpharmacologic approaches of diet, weight loss, and exercise.

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## The Metabolic Syndrome: Time for a Critical Appraisal: Joint Statement From the American Diabetes Association and the European Association for the Study of Diabetes

Response to Citrome et al., Giugliano and Esposito, Cheța, and Psaty et al.

Citrome et al. (1) seem to agree with our review (2) of all the shortcomings associated with the metabolic syndrome, yet they claim it is somehow still an aid in identifying risk factors and in the “ongoing education of practitioners,” both of which may improve health care. This seems perplexing because what must occur prior to making the “diagnosis” is knowledge of the components, and thus, a priori, the provider must be familiar with the cardiovascular disease (CVD) risk factors that comprise the concept and that the factors must be monitored. Moreover, many other CVD risk factors (e.g., LDL cholesterol, smoking, age, family history) do not require a phrase to prompt doctors to test, yet medical history taking and cholesterol testing do not seem to have suffered because of the absence of an associated syndrome.

Giugliano and Esposito (3) highlight a very important concept. That is, current definitions of the syndrome are “polluted by inclusion of patients with frank diseases.” We couldn’t agree more, and that error compounds the inability of the definition to serve a useful purpose. Unfortunately, although there are an innumerable number of articles describing CVD risk in metabolic syndrome patients who were not distinguished by the values

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of the risk factors present, we have no similar information on risk in so-called borderline patients using current syndrome definitions. Even so, the report by Vasani et al. (4) suggests that borderline risk factors generally convey very little CVD risk. Moreover, if we had this information, we might find that most of the risk was confined to one or two factors and that here too, we don't need a "syndrome" to tell us what to do.

Chęta (5) emphasizes the importance of obesity as a major (key) CVD risk factor. We agree but would not go so far as to create a new syndrome. The underlying pathophysiology of obesity that results in other disorders is complex and likely multifactorial. But here too, we don't need the syndrome label to tell people that being overweight is hazardous to their health. Whether patients respond better when labeled with a "syndrome" or told they have a CVD risk factor(s) is unknown, but we prefer the "truth in labeling" option.

All of these authors (1,3,5) suggest that using the ominous "you've got the metabolic syndrome" label results in better adherence to recommendations. We would very much like to see the evidence that such labeling leads to improved compliance with recommended changes in lifestyle. It may in fact lead to the reverse (i.e. to denial) or, perhaps worse, may deflect attention from other more important CVD risk factors (e.g., LDL or smoking).

Psaty et al. (6) accurately paraphrased a key message we tried to convey. That is, regardless of what one thinks of the etiology, definition, or purpose of the metabolic syndrome, it remains crucial to appropriately address all cardiovascular risk factors. Borderline values call for lifestyle modification, and overt disease often requires pharmacologic therapy.

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## The Case for Biennial Retinopathy Screening in Children and Adolescents

Response to Maguire et al.

Maguire et al. (1) make the case for biennial retinopathy screening in children and adolescents. We made the same case in 1995 in an article in *Acta Ophthalmologica* (2). In the diabetes screening program that has been in place in Iceland since 1980, we found that no diabetic patients of any age progressed from no retinopathy to sight-threatening retinopathy (clinically significant diabetic macular edema or proliferative diabetic retinopathy) within 2 years. We concluded that biennial diabetic retinopathy screening was sufficient for diabetic patients who do not have retinopathy. We have followed these guidelines since 1995, and our program continues to

maintain a low prevalence of blindness. The prevalence of legal blindness (visual acuity <0.1) in the diabetic population in Iceland has decreased from 2.5% in 1980 to 0.5% in 2005 (3–5). We completely agree with the conclusions of Maguire et al. and would like to offer our previous experience in support.

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## The Case for Biennial Retinopathy Screening in Children and Adolescents

Response to Stefánsson

Stefánsson's letter (1) and previous publication (2) strengthens our recommendation to extend the retinal screening interval for some children and adolescents who access specialist diabetes services to 2 years (3). However, individuals with other risk factors, poor glycemic control, or long diabetes duration should continue to be screened annually, and when significant retinopathy is detected screening should be annual or more fre-