Dear Sirs,

The metabolic syndrome (MetS) denotes a clustering of cardiovascular disease (CVD) risk factors, thought to be pathophysiologically linked by insulin resistance. Recent evidence suggests a strong association between cigarette smoking and insulin resistance and the MetS. Cigarette smoking has been shown to impair glucose tolerance; cross-sectional studies have demonstrated that smokers are insulin-resistant as compared with non-smokers. Weight gain is often cited by patients as the main reason for their not trying to quit smoking. Significant overlap can therefore be seen to exist between MetS, smoking and diabetes. The prevalence of their coexistence among middle-aged patients with diabetes but without overt atherosclerotic heart disease (and therefore eligible for primary CVD prevention in the UK) has not been measured at the population level.

We used data from The Health Improvement Network (THIN) dataset, which contains anonymous patients’ data from 304 general practices throughout England and Wales. THIN has been validated at the practice and at the dataset level and shown to be representative of the UK population. From 60,258 patients with diabetes who were identified from the dataset, cross-sectional analysis was performed of 11,005 patients with diabetes aged 30–74 years, who had not been prescribed any lipid-lowering drug and without arterial disease. MetS was defined by the International Diabetes Federation (IDF) criteria. The study was approved by the Eastern Multi Centre Research Ethics Committee.

Within this middle-aged cohort of patients with diabetes, 4.3% are current smokers, 36.9% are ex-smokers and 58.8% have never smoked. In total, 45.2% of patients are obese (BMI > 30 kg/m²). The prevalence of metabolic syndrome in this cohort is high at 67.3%. Among patients with metabolic syndrome, about 2.6% of the total cohort of patients are current smokers, 25.8% are ex-smokers and 38.8% never smoked.

When extrapolated to a national diabetes prevalence of 3.6%, these figures translate to an additional 9,152 middle-aged patients with diabetes who smoke and have metabolic syndrome but who do not have overt cardiovascular disease and are not taking lipid-lowering agents; these patients would therefore be eligible for primary CVD prevention.

Despite the high prevalence of metabolic syndrome, the proportion and absolute number of patients who have metabolic syndrome and who are current smokers in the UK is quite small. This observation may reflect some degree of success of CVD prevention measures in encouraging obese patients with diabetes to stop or avoid smoking, despite the well-recognized effect of smoking cessation on weight gain. While the benefits of stopping smoking are thought to outweigh the risk of weight gain, the effect of smoking cessation on insulin resistance, glycaemic control and metabolic syndrome status remains unclear. Furthermore, some studies have suggested that nicotine replacement therapy (NRT) is associated with hyperinsulinaemia and insulin resistance, independent of weight gain. Increased understanding of the effect of smoking cessation and NRT on weight, insulin resistance and metabolic syndrome status is important in order to develop appropriate strategies to prevent the potential paradoxical increase in cardiometabolic risk associated with weight gain among individuals who stop smoking. It is important therefore to link smoking cessation programmes with advice and education on weight control, although we accept that interventions aimed at changing several health behaviours simultaneously may be very challenging.

Conflicts of interest statement
None declared.

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doi:10.3132/dvdr.2007.048
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