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Deprivation, diabetes and cardiovascular risk factors

The adverse effect of increasing deprivation on the prevalence of diabetes and its care has been examined in many studies. Overall, obesity, diabetes and cardiovascular disease are more prevalent in deprived populations compared with more affluent populations. Mortality rates are increased with increasing deprivation. Over the previous 5–10 years, there has been a marked tightening of targets for the clinical management of people with diabetes, particularly in relation to glycaemia, blood pressure and cholesterol. This has been based on evidence from many randomised controlled trials, resulting in the lowering of targets by learned societies resulting in targets of HbA_{1c} of <6.5%, blood pressure <130/80mmHg and total cholesterol values of <4mmol (British Cardiac Society et al, 2005). In parallel with the adoption of such evidence, there have been new structures, such as the Quality and Outcomes Framework, introduced for chronic disease management in primary care.

Two studies, featured in this issue of the journal examine the effects of deprivation in the diverse populations of the Greater Glasgow and Lothian NHS Boards in the UK, covering more than 1.6 million people (Wild et al, 2008; see page 134 for a summary of key points). From the US we have an evaluation of cardiovascular risk factors from the Look AHEAD (Action for Health in Diabetes) study, a multicentre randomised trial among overweight and obese volunteers with type 2 diabetes in whom intensified lifestyle intervention designed to achieve and maintain weight loss are compared with a controlled scenario of diabetes support and education (Bertoni et al, 2008; see page 134 for a summary of key points).

In 52 280 people in Wild et al's study, age- and sex-adjusted prevalence of diabetes increased from 2.3% in the least deprived quintile to 3.3% in the most deprived quintile. Similarly, prevalence of vascular disease was also increased significantly in the least deprived quintile. Other findings demonstrated the prevalence of smoking, obesity and above target HbA_{1c} (>7.5%) to be higher in the most deprived quintile. The proportion of people with above-target cholesterol was similar in the differing deprivation quintiles, while the proportion of those with above-target systolic blood pressure was lower in the most deprived quintile. In individuals with diabetes and prevalent vascular disease, increasing deprivation was related to failure to reach cholesterol targets. In the study, the overall systolic blood pressure and cholesterol levels were markedly lower compared with previous population surveys.

In the 5145 participants of the Look AHEAD study, 45.8% had HbA_{1c} <7%, 51.7% had blood pressure <130/80mmHg and 37.2% met target cholesterol values. However, all three goals were met only by 10.1% of participants. Risk factor control was adversely affected by age, gender, ethnicity, degree of obesity, education, income, prevalent cardiovascular disease and source of medical care.

While both studies demonstrate a generalised improvement in the calibre of control of glycaemia, blood pressure and cholesterol, obesity continues to be highly prevalent in the most deprived populations with lower incomes and lower levels of formal education. These data give cause for concern for the prevalence of diabetes and its complications in more deprived populations, particularly in the presence of increasing obesity. Further work in overcoming the barriers to achieving appropriate risk factor targets in such populations is urgently required.

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Bertoni AG, Clark JM, Feeney P et al (2008) Suboptimal control of glycemia, blood pressure, and LDL cholesterol in overweight adults with diabetes: the Look AHEAD Study. *Journal of Diabetes and its Complications* **22**: 1–9

British Cardiac Society, British Hypertension Society, Diabetes UK et al (2005) JBS 2: Joint British Societies' guidelines on prevention of cardiovascular disease in clinical practice. *Heart* **91** (Suppl 5): v1–52

Wild S, Macleod F, McKnight J et al (2008) Impact of deprivation on cardiovascular risk factors in people with diabetes: an observational study. *Diabetic Medicine* **25**: 194–9