# 1 in 10: the diabetes crisis in men

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**Diabetes has been described as a national health emergency, but the burden of the disease on men has not been fully recognised or responded to by health policymakers and practitioners. One man in 10 now has type 1 or type 2 diabetes, and a three-fold increase in the incidence of diabetes in middle-aged men has been predicted for the next 30 years. Peter Baker looks at the issues.**

Both type 1 and type 2 diabetes are more common in males in the UK (see Figure 1). One man in 10 (9.6%) now has diabetes, according to Public Health England (PHE),[1] compared to 7.6% of women, a 26% difference. The prevalence of diabetes in men in England more than doubled between 1994 and 2015,[2] and one projection suggests that rising levels of obesity could result in an almost three-fold increase in the incidence of type 2 diabetes in men aged 40–60 between 2006 and 2046.[3]

The Health Survey for England 2004 found that the prevalence of diabetes (types 1 and 2) was significantly higher in Black Caribbean, Indian, Pakistani, and Bangladeshi men than in the general population.[4] Men of South Asian, Chinese, African-Caribbean and Black African origin also have an increased risk of developing type 2 diabetes at an earlier age than the general population.

Undiagnosed diabetes is a significant problem. Over one million people in the UK are believed to have diabetes but not be aware of it, and the majority of these are likely to be men. A 2004 study of people in England aged 52–79 found that 22% of men and 12% of women were undiagnosed.[5] A recent analysis (2009–13) found that 1.9% of men and 1.4% of women had undiagnosed diabetes, meaning that the prevalence was 36% higher in men.[6]

A PHE study published in 2015 found that about 1 in 10 men had nondiabetic hyperglycaemia.[7] Significantly, there is evidence that men, on average, have prediabetes for eight years and women

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for 10 years before they progress to diabetes.[8] The window for identifying men at high risk is therefore smaller. There is some evidence that men and women with prediabetes may benefit from sex-specific strategies. For example, men who increase their physical activity levels appear to have a lower risk of progressing to diabetes; for women, the risk is reduced by lowering their waist circumference.[9]

## RISK FACTORS

The principal modifiable cause of type 2 diabetes is being overweight or obese. In England in 2015, 68% of men and 58% of women were obese or overweight.[10] In Scotland, the comparable figures were 67% for men and 62% for women.[11] The prevalence of obesity (BMI 30+) is similar among men and women, but men are more likely to be overweight (BMI 25–30). A large study of people with diabetes in Scotland found that men are more likely than women of a similar age to develop diabetes at a lower BMI, with the BMI 'gap' between men and women most significant at younger ages.[12]

Low testosterone levels in men are associated with type 2 diabetes. 16% of males with type 2 diabetes have lower than normal levels of testosterone, and an additional 24% have testosterone levels close to the border of low levels.[13] Some research suggests that men with diabetes who have low testosterone levels could benefit from testosterone replacement therapy.[14] However, this is not widely accepted, in part because of an outdated belief that replacement therapy increases the risk of prostate cancer.[15] Further research is needed to determine whether low testosterone is a cause or effect of diabetes, and the value of screening men with diabetes for testosterone deficiency.

## PREVENTION AND EARLY DIAGNOSIS

NHS Health Checks for those aged 40–74 have an important role in diagnosing diabetes and identifying people at risk. They are, however, sub-optimally attended by men. A study of those attending in England in 2009–13 found that just 12.3% of eligible men and 13.2% of eligible women attended.[16] Men's Health Forum data on referrals from NHS Health Checks found that just 2.2% of men and 3.5% of women were referred to weight management services, and 18.4% of men and 20.1% of women were referred to exercise programmes.[17]

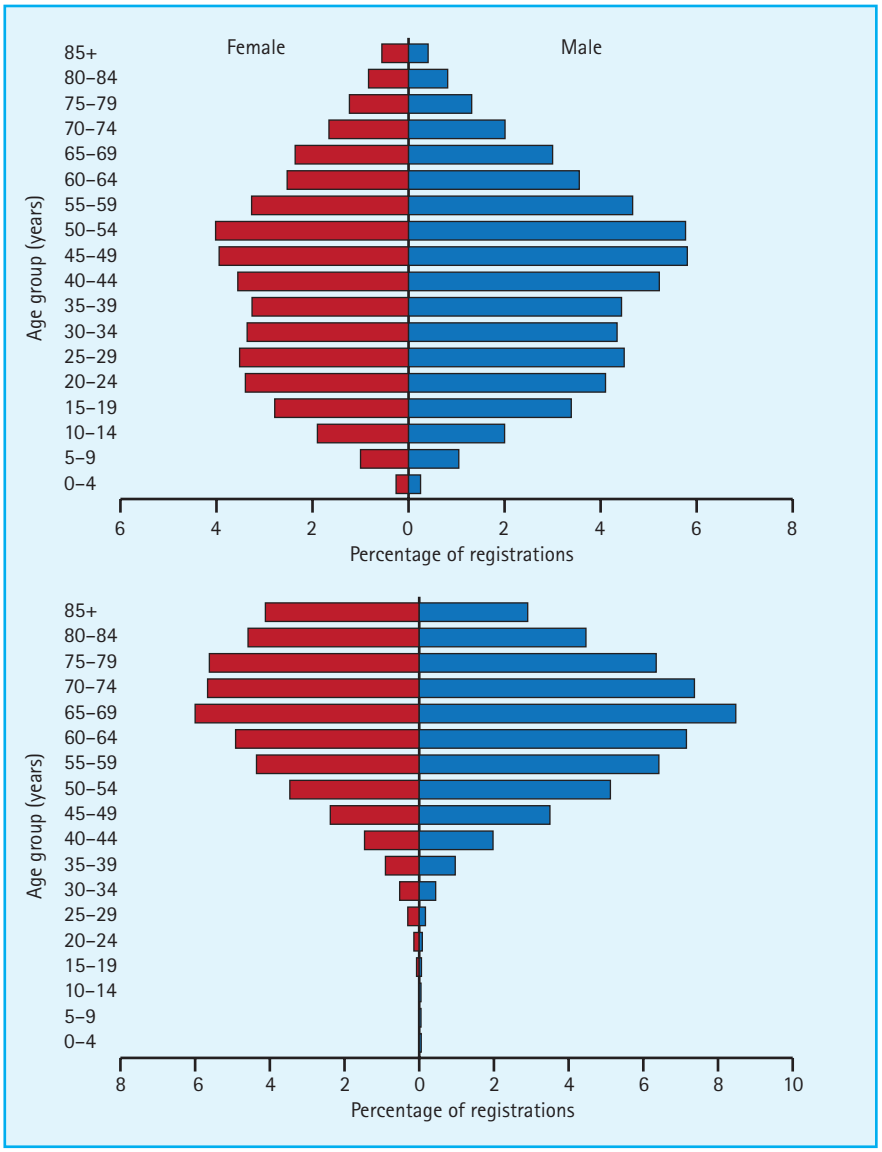


*Figure 1. Age and gender of patients with type 1 (top) and type 2 (bottom) diabetes in England and Wales, 2015–2016 (Source: NHS Digital, National Diabetes Audit – 2015–2016: Report 1, Care Processes and Treatment Targets)*

Despite men being more likely than women to be overweight (BMI 25+), they are less likely to be enrolled in weight management programmes. For example, in the Counterweight programme in 65 general practices in seven UK regions, only 23% of participants were men.[18] Men's Health Forum data collected from 93 local authorities in England suggested that just one in five participants in weight loss programmes were male.

People identified through an NHS Health Check or by a GP as being at risk of developing diabetes should be referred to the new NHS Diabetes Prevention Programme (NDPP). Those referred receive tailored, personalised help to reduce their risk of type 2 diabetes, including education on healthy eating and lifestyle, help to lose weight and bespoke physical exercise programmes. Together, these have been proven to reduce the risk of developing the disease. Although guidance given to NDPP providers mentions the need to make the service attractive to men,[19] it is not yet clear how the programme is, in practice, being tailored to meet men's specific needs.

## SEQUELAE

Diabetes considerably increases an individual's risk of death at all ages. In England and Wales in 2011–12, people with all types of diabetes had a standardised mortality ratio (SMR) of 134. Men with type 1 diabetes had a SMR of 217 and the corresponding figure for type 2 diabetes was 129.[20] Data on deaths from the underlying cause of diabetes mellitus for England and Wales in 2015 shows that the age-standardised mortality rate for men of all ages (12.5 per 100 000 population) was 40% higher than the rate for women (8.9).[21] The biggest male:female 'gap' in mortality is in the 45–74 age group, where the rate for men is about twice that for women.

A wide range of specific health problems are associated with diabetes, including angina, myocardial infarction, heart failure and stroke. Women with diabetes are at greater risk of cardiovascular diseases than men. There are several problems that are particularly significant for men, for example: lower limb disease, diabetic retinopathy and erectile dysfunction (ED).

The National Diabetes Foot Care Audit for England and Wales for 2014–15 found that 69.6% of those presenting with a foot ulcer were male and 30.4% were female.[22] Foot ulcers in males are also less likely to heal. Men develop diabetic foot disease at an earlier age and more frequently undergo lower limb amputations than women.[23]

Being male is an independent risk factor for diabetic retinopathy. One study in Scotland found that men were at 20% greater risk, and a US study suggested men were at twice the risk of women.[24] Men also tend to have more severe retinopathy at the time of type 2 diagnosis, and there is evidence that retinopathy can be present at the prediabetes stage.[25] However, men – and particularly younger men – with a diabetes diagnosis are less likely than women to seek routine eye checks[26] or respond to invitations to attend diabetic retinopathy screening.[27]

ED is a common problem among men who have diabetes, affecting 35–75%.[28] Men who have diabetes are thought to develop ED between 10 and 15 years earlier than men who do not suffer from the disease. Men with ED can also have undiagnosed diabetes. One study found that the prevalence of undiagnosed diabetes was 11.5% in men with ED compared with 2.8% in men without ED. The difference was most pronounced in middle-aged men (those aged 40–59), where the prevalence of undiagnosed diabetes was 19.1% among men with ED compared with 3.3% among men without the condition.[29] As men often delay seeking help for ED, there can also be significant delays in the diagnosis of diabetes and other possible underlying conditions.

## NEXT STEPS

A range of actions would help to reduce the burden of diabetes on men. Alongside robust society-wide initiatives to tackle the underlying causes of obesity, there should be a greater focus on gender-specific needs and challenges in diabetes policy and professional practice to improve service delivery and outcomes for both men and women. Unless the gender-related problems are identified and acknowledged, they cannot be tackled effectively. To improve prevention, a sustained effort to increase male participation in weight loss programmes is required, and the NDPP must also ensure that it engages men appropriately. Action on prevention should include a focus on those groups of men (*eg* from some ethnic minority communities) most likely to develop diabetes, in particular at a younger age.

The level of undiagnosed diabetes in men should be addressed, in part, through initiatives that improve uptake of NHS Health Checks and routine eye examinations. Public health campaigns aimed at men that improve symptom awareness could also encourage more men to seek medical advice sooner. GPs and other health professionals could be more proactive in asking men if they have ED – and ED should also be covered in the NHS Health Check – to assist the earlier diagnosis of both diabetes and cardiovascular disease. More men should be encouraged to attend diabetes education programmes that are delivered in ways that are 'male-friendly'.

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A Men's Health Forum report on men and diabetes, written by Peter Baker, can be downloaded free from www.menshealthforum.org.uk