# Increasing cancer mortality in type 2 diabetes: Implications for primary care

**On a background of decreasing all-cause mortality in people with type 2 diabetes between 1998 and 2018, there has been an increasing trend in cancer mortality at older ages (those aged 75 and 85 years) according to this study from the Leicester Real World Evidence Unit, published in *Diabetologia*. For all cancers combined, mortality was 18% higher in those with type 2 diabetes than in the general population. In particular, increasing trends in pancreatic, liver, colorectal, breast, prostate, lung and endometrial cancer were identified in different age groups with type 2 diabetes, with rates at least double those in the general population. Persisting inequalities in cancer mortality between men and women and across different socioeconomic groups were confirmed, along with widening inequalities by smoking status. The authors encourage us to give cancer similar levels of attention as we now do for cardiovascular disease amongst people with type 2 diabetes, and they call for improved cancer prevention, early detection and screening strategies, including earlier breast cancer screening in women with type 2 diabetes.**

Pam Brown
GP in Swansea

Improved diagnosis and management of the cardiovascular complications of diabetes has reduced mortality from these causes, allowing competing causes of mortality to become increasingly important. Indeed, we have previously highlighted in *Diabetes Distilled* that cancer has now overtaken cardiovascular disease as the leading cause of mortality in people with diabetes (Brown, 2021).

In the present study, published in *Diabetologia*, the researchers from the Leicester Real World Evidence Unit identified a cohort of 137 804 people in England aged ≥35 years newly diagnosed with type 2 diabetes between January 1998 and November 2018 in the Clinical Practice Research Datalink, and assessed trends in all-cause, all-cancer and specific-cancer mortality by gender, age, ethnicity, obesity, socioeconomic and smoking status, and also estimated standardised mortality rates comparing people with type 2 diabetes to the general population. People with diabetes are known to be at increased risk of some types of cancer compared to those without diabetes, and this study sought to identify whether these risks have changed over the last two decades.

Over a median 8.4 years of follow-up, all-cause mortality rates decreased for all ages. However, while cancer mortality rates decreased slightly for 55- and 65-year-olds (1.4% and 0.2% reductions annually, respectively), rates increased annually amongst people aged 75 and 85 years, by 1.2% and 1.6%, respectively. The average annual percentage changes (AAPC) were higher in women than men (1.5% vs 0.5%), although women had lower cancer mortality rates overall than men throughout the years studied. People with morbid obesity had an AAPC of cancer mortality of 5.8% compared with rates of <1% in all other weight groups.

Some findings were less easy to explain, such as the least deprived/wealthiest cohorts having a higher AAPC of 1.5% compared to 1.0% for the most deprived/poorest cohort, resulting in a narrowing but persistent inequality gap. There was a higher AAPC in white subjects (2.4%) compared to a decrease in AAPC in non-white populations. Breast cancer mortality decreased during this period amongst younger women in general, but a 4.1% average annual increase in mortality was identified in younger women with breast cancer and type 2 diabetes.

## Implications for practice

While we should continue to focus on reducing cardiovascular mortality in those with type 2

**Citation:** Brown P (2023) Diabetes Distilled: Increasing cancer mortality in type 2 diabetes: Implications for primary care. *Diabetes & Primary Care* **25**: 21–2

*"The study authors encourage us to be aware of this increasing cancer mortality burden, particularly from colorectal, pancreatic, liver and endometrial cancers, and to take steps to reduce avoidable deaths by encouraging attendance at screening and focusing on earlier diagnosis and management."*

diabetes, the study authors encourage us to be aware of this increasing cancer mortality burden, particularly from colorectal, pancreatic, liver and endometrial cancers, and to take steps to reduce avoidable deaths by encouraging attendance at screening and focusing on earlier diagnosis and management.

Non-alcoholic fatty liver disease is increasing and, in those with type 2 diabetes, is more likely to progress to fibrosis and contributes significantly to the increasing risk of liver cancer – lifestyle and drug interventions may reduce this risk even though drugs are not yet licensed for this indication.

Redoubling our efforts to encourage smokers to quit, and raising their awareness of potentially serious signs and symptoms to facilitate earlier cancer diagnosis, are important in the population at large and, particularly, in those with type 2 diabetes. ■

Brown P (2021) Diabetes Distilled: Cancer overtakes vascular disease as leading cause of diabetes-related death. *Diabetes & Primary Care* **23**: 58

Diabetologia
https://doi.org/10.1007/s00125-022-05854-8

ARTICLE

**Inequalities in cancer mortality trends in people with type 2 diabetes: 20 year population-based study in England**

Suping Ling[1,2,3] · Francesco Zaccardi[1,2,4] · Eyad Issa[5,6] · Melanie J. Davies[2,7] · Kamlesh Khunti[1,2,4] · Karen Brown[4]

Received: 21 June 2022 / Accepted: 15 November 2022


**Abstract**

**Aims/hypothesis** The aim of this study was to describe the long-term trends in cancer mortality rates in people with type 2 diabetes based on subgroups defined by sociodemographic characteristics and risk factors.

**Methods** We defined a cohort of individuals aged ≥35 years who had newly diagnosed type 2 diabetes in the Clinical Practice Research Datalink between 1 January 1998 and 30 November 2018. We assessed trends in all-cause, all-cancer and cancer-specific mortality rates by age, gender, ethnicity, socioeconomic status, obesity and smoking status. We used Poisson regression to calculate age- and calendar year-specific mortality rates and Joinpoint regression to assess trends for each outcome. We estimated standardised mortality ratios comparing mortality rates in people with type 2 diabetes with those in the general population.

**Results** Among 137,804 individuals, during a median follow-up of 8.4 years, all-cause mortality rates decreased at all ages between 1998 and 2018; cancer mortality rates also decreased for 55- and 65-year-olds but increased for 75- and 85-year-olds, with average annual percentage changes (AAPCs) of −1.4% (95% CI −1.5, −1.3), −0.2% (−0.3, −0.1), 1.2% (0.8, 1.6) and 1.6% (1.5, 1.7), respectively. Higher AAPCs were observed in women than men (1.5% vs 0.5%), in the least deprived than the most deprived (1.5% vs 1.0%) and in people with morbid obesity than those with normal body weight (5.8% vs 0.7%), although all these stratified subgroups showed upward trends in cancer mortality rates. Increasing cancer mortality rates were also observed in people of White ethnicity and former/current smokers, but downward trends were observed in other ethnic groups and non-smokers. These results have led to persistent inequalities by gender and deprivation but widening disparities by smoking status. Constant upward trends in mortality rates were also observed for pancreatic, liver and lung cancer at all ages, colorectal cancer at most ages, breast cancer at younger ages, and prostate and endometrial cancer at older ages. Compared with the general population, people with type 2 diabetes had a more than 1.5-fold increased risk of colorectal, pancreatic, liver and endometrial cancer mortality during the whole study period.

**Conclusions/interpretation** In contrast to the declines in all-cause mortality rates at all ages, the cancer burden has increased in older people with type 2 diabetes, especially for colorectal, pancreatic, liver and endometrial cancer. Tailored cancer prevention and early detection strategies are needed to address persistent inequalities in the older population, the most deprived and smokers.

✉ Suping Ling
suping.ling@leahtrs.ac.uk

[1] Leicester Real World Evidence Unit, Leicester Diabetes Research Centre, Leicester General Hospital, University of Leicester, Leicester, UK
[2] Leicester Diabetes Research Centre, Leicester General Hospital, University of Leicester, Leicester, UK
[3] Present address: Department of Non-communicable Disease Epidemiology, Faculty of Epidemiology and Population Health, London School of Hygiene & Tropical Medicine, London, UK
[4] National Institute for Health and Care Research (NIHR) Applied Research Collaboration East Midlands (ARC EM), University of Leicester, Leicester, UK
[5] Leicester HPB Unit, Leicester General Hospital, Leicester, UK
[6] Leicester Cancer Research Centre, Leicester Royal Infirmary, University of Leicester, Leicester, UK
[7] National Institute for Health and Care Research (NIHR) Leicester Biomedical Research Centre, University Hospitals of Leicester NHS Trust and the University of Leicester, Leicester, UK

Published online: 24 January 2023


Click here to read the article in full