

Indirect effects of the COVID-19 pandemic on people with type 2 diabetes: time to urgently move into a recovery phase

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While the direct risks of the COVID-19 on people with type 2 diabetes (T2D) are well established,¹ the indirect effects of the COVID-19 response on their management are less well understood. It is estimated that 4.7 million people have diabetes in the UK with T2D accounting for 90% of all diabetes cases, with primary care being at the forefront of delivering diabetes care.² Besides the disproportionately high immediate direct effects of the COVID-19 pandemic on people with T2D, it has also exerted indirect effects through severe disruptions in the routine care of patients.³ During the first wave of the pandemic, efforts were directed away from prevention and treatment of long-term conditions, resulting in reduced access to primary care services, cancelled and postponed consultations and reduced community care. Furthermore, many patients avoided or delayed seeking medical attention for routine follow-up or non-COVID-19-related problems, due to fear of infection and/or to reduce strain on health services overwhelmed by COVID-19.^{4,5} As a group with elevated clinical risk, people with T2D were advised strict adherence to recommendations issued to the general public, while those at highest risk of adverse outcomes within this at-risk group were also advised to minimise face-to-face contact with others.^{6,7} Although the disruptions in service delivery generally affected care pathways for all long-term conditions, diabetes was one of the most affected long-term conditions.⁸

In this issue of *BMJ Quality and Safety*, Carr and colleagues provide important data on the scale of interruptions in the routine management of patients with T2D in UK primary care before and after the first peak of the COVID-19 pandemic.⁹ This large

cohort study of 161 181 patients with T2D assessed temporal changes in the rates of diabetes health checks (or ‘care processes’) recommended by the English National Institute for Health and Care Excellence (NICE), and the prescribing of medications to people with T2D. England’s first national COVID-19 lockdown was in place between late March and May 2020. The authors assessed six selected care processes during three time periods: April 2020 (first full month of national lockdown), May–December 2020 (recovery period) and March–December 2020 periods (lockdown and recovery periods combined), and compared the observed rates during these periods and the expected rates based on 10-year pre-pandemic trends.

As might be expected, the results suggest major detrimental effects of the pandemic and national lockdown on the performance of evidence-based care processes and prescribing among people with T2D in primary care. First, in April 2020, rates of a number of care processes were reduced by between 74% and 88% in the UK compared with pre-pandemic trends, with similar effects across the four countries of the UK. Although the quality of diabetes care showed recovery between May and December 2020, it remained below expected levels particularly for blood pressure monitoring. Second, between March and December 2020, the performance of a range of care processes was reduced by between 28% and 47% in England compared with pre-pandemic trends, with blood pressure monitoring again being the most affected. Corresponding reductions in the rates of care processes were similar in the other UK countries (between 37% and 51%). The authors estimated that these reductions in the rates

of care processes translate into approximately 7.4 million fewer health checks performed in the UK during this period. Third, although the study found that prescribing of new glucose-lowering and antihypertensive medications declined by one-fifth between March and December 2020, no differences in the overall rates of prescribing (for new and repeated prescriptions combined) were evident, suggesting that more robust systems are in place for pharmaceutical therapies. Finally, it is notable that different age, sex and deprivation groups seem to have been similarly affected, leaving pre-existing inequalities unchanged. Older patients from deprived areas experienced the largest reductions in health checks, and the authors concluded that this finding might be possibly due to higher rates pre-pandemic in this group.

While most research focus has been directed at reducing and preventing the direct effects of the COVID-19 pandemic, worrying data on reduced healthcare utilisation have emerged in relation to a range of consultations, hospital admissions and clinical procedures compared with pre-pandemic periods.¹⁰ However, studies explicitly assessing the indirect effects of the pandemic on primary care services including changes in the frequency of patient contact have been scarce.^{5 10} A previous study demonstrated a range of indirect effects of COVID-19 on people with T2D, including reductions in the rates of diagnosis of T2D, glycaemic testing and new prescription of first-line glucose-lowering medications in UK primary care.¹¹ Although the long-term effects of the COVID-19 on people with T2D are yet to be seen, the levels of interruptions in their management during the first peak of the pandemic demonstrated by Carr and colleagues provide important cause for concern.

Suboptimal management of T2D may lead to a range of burdensome and costly complications in the medium to longer term that are otherwise largely preventable through readily available evidence-based interventions for the detection and management of vascular complications.¹² These include the regular assessment of microvascular complications (eg, kidney function tests, diabetic eye screening and foot checks), and monitoring and management of vascular risk factors (eg, blood pressure and glucose control).¹² Primary care-based interventions for the early detection and management of diabetes-related complications are the cornerstone of comprehensive secondary prevention, and completion of the nine essential care processes recommended by the NICE guideline is an important marker of the quality of diabetes care.¹² Previous population-based studies demonstrate that among people with T2D, completion of higher number of care processes is associated with lower rates of all-cause mortality,^{13 14} lower extremity amputations,¹⁵ sight-threatening diabetic retinopathy¹⁶ and emergency hospital admissions for all-cause, diabetes-related and cardiovascular causes.¹⁷ Obstructions of diabetes services and failures in meeting essential standards of care through missed and delayed reviews and suboptimal pharmaceutical management, therefore, might be expected to

result in increased avoidable disease burden. As Carr and colleagues discuss, additional concern is unfavourable changes in people's lifestyles during COVID-19 lockdowns, with reductions in physical activity¹⁸ and weight gain.^{19 20}

The findings of this study should be interpreted considering its strengths and limitations. Its main strengths include the utilisation of data on a large unselected and representative cohort of people with T2D, and the results are likely to accurately reflect population-wide changes.²¹ The authors acknowledge several limitations including the focus on the six care processes that could be accurately captured in primary care records, lack of inclusion of risk factor control, lack of data on patients' self-monitoring of risk factors and generalisability outside of the UK context. Furthermore, it is unfortunate that the study was unable to provide conclusive results on the potential differential impacts of the COVID-19 pandemic on diabetes care across different ethnic groups due to the small number of observations in certain groups and limitations of data with regard to ethnicity recording. The disproportionate direct effects of the COVID-19 pandemic on ethnic minority groups have been widely documented, and understanding its complex and widespread indirect effects including those related to the quality of routine care in this population warrants urgent prioritisation for further research.^{22 23}

Previous natural disasters have shown that in addition to the worsening of risk factors in the short term, lack of access to routine care results in increases in stroke, acute myocardial infarctions and diabetes complications after the immediate threat has dissipated.²⁴ Previous studies have also shown that even short-term delays in risk factor management are associated with worse macrovascular, microvascular and mortality outcomes in T2D.²⁵ Primary care services now need to urgently plan to prioritise high-risk patients for routine reviews of care processes and urgent risk factor management. This will include coordinated care and improving risk factors using the wider primary healthcare teams including pharmacists, nurses and diabetes educators.²⁶

In summary, the COVID-19 pandemic and its profound indirect effects on the management of long-term conditions have exposed pre-existing fragility of health systems even in a nation with full health coverage, and disproportionate distribution of associated risks, unmet needs and disease burden. This study by Carr and colleagues furthers our understanding of the scale of disruptions in the delivery of essential diabetes care processes in primary care during the COVID-19 pandemic.⁹ The findings of this study may reflect excess disease burden that requires particular attention both in terms of monitoring and responsive health services. These findings also further emphasise the need for an in-depth reassessment of clinical and public health priorities, both existing and emerging, in the coming years. There is still uncertainty as to when this pandemic will end but it is vital that post-pandemic recovery should include prioritisation for improvements in the care of people with

long-term conditions with a particular attention to the most vulnerable and highest risk population subgroups.

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