Impact of the UK COVID-19 pandemic on HbA1c testing and its implications for diabetes diagnosis and management

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Letter to the Editor

Diabetes mellitus (DM) is a risk factor for poor outcome in patients with COVID-19.[1] However, the focus on mitigating the effects of SARS-CoV-2 has resulted in many routine healthcare services, including blood test monitoring in conditions such as DM, being disrupted.

We recently explored the impact of the COVID-19 pandemic on DM diagnosis and management using routinely collected laboratory data on the key DM test, glycated haemoglobin (HbA1c).

We extracted HbA1c data from clinical laboratory information systems at the University Hospitals of North Midlands (UHNM), St. Helens & Knowsley Hospitals (STHK), Salford Royal Foundation Trust (SRFT), Cambridge University Hospitals (CUH) and Warrington & Halton Hospitals (WHH) from October 2017-September 2020 (representing 3.3million people; ~4.8% of the UK population). From these data (3 million tests), we calculated the monthly number of missed diagnostic/monitoring tests between 23 March-30 September 2020).

We showed that HbA1c tests dropped by 82-88% in April and had not reached expected volumes by September (Figure 1). During the 6-month period, in people with DM or at risk of DM, 206,422 monitoring tests were missed. Of these, 23,466 (11.4%) had previous HbA1c values ≥59 mmol/mol. The testing delay in this group would, on average, result in a mean increase in HbA1c of 5.7 mmol/mol over and above that expected if monitoring were performed according to NICE guidance.[2]

There were also an estimated 81,245 missed diagnostic tests. Of these, ~6,105 (7.5%) would be expected to be in the pre-diabetes range (42-47 mmol/mol) and ~3,633 (4.5%) with the diabetes range (≥48 mmol/mol), with ~1,333 of these having HbA1c values of ≥76 mmol/mol.

Extrapolating this to the UK population, these data equate to missed monitoring tests in 489,000 people with sub-optimally-controlled diabetes, leading to missed glycaemic control targets with associated increased risk of complications, including symptomatic cardiovascular disease and renal impairment, with their associated excess mortality risk.[4] These data also equate to ~127,000 missed pre-diabetes and 76,000 missed diabetes diagnoses, with consequent delay in lifestyle advice and treatment initialisation as advised by NICE.[2,3]

Our findings, in keeping with those of a recent study using general practice data,[5] illustrate the widespread collateral impact of implementing measures to mitigate the impact of COVID-19 in people with, or being investigated for DM. Ironically, failure to focus of the wider implications for people with DM and other groups with long-term conditions, may place them at increased risk of poor outcomes from SARS-CoV-2 infection itself, irrespective of the implications for their longer-term health prospects.

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Figure Legend

Figure 1 Month-by-month HbA1c test numbers across the five sites prior to and during the COVID-19 Impact Period

Figure 1 **Month-by-month HbA1c test numbers across the five sites prior to and during the COVID-19 Impact Period**