

# Hypoglycaemia in type 2 diabetes: an audit of insulin and sulfonylurea use by patients with HbA1c < 53mmol/mol

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## Introduction

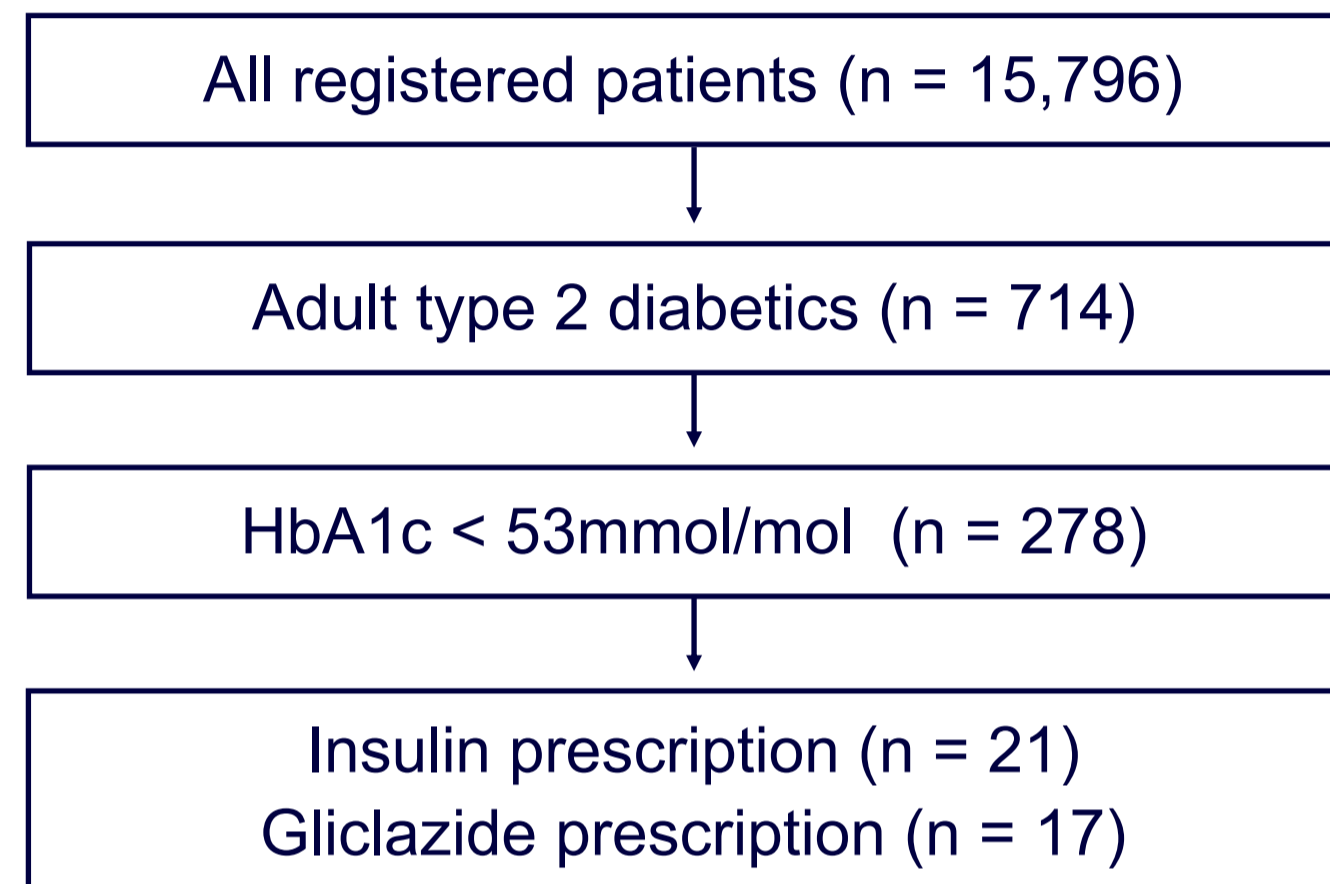
The need to balance glycaemic control with the prevention of iatrogenic hypoglycemia is a significant challenge for many type 2 diabetics<sup>1</sup>, with hypoglycemia itself associated with an increased risk of cardiovascular disease<sup>2</sup>. There are numerous risk factors for hypoglycaemia, most prominently insulin or sulfonylureas use<sup>1</sup>. In the United Kingdom, it is therefore recommended that type 2 diabetics using insulin or sulfonylureas should aim for a HbA1c of 53mmol/mol, although lower targets are encouraged if hypoglycemia is not being experienced<sup>3</sup>.

The audit aimed identify type 2 diabetics using insulin or sulfonylureas despite a HbA1c < 53mmol/mol and asses hypoglycaemia risk. Polypharmacy and high risk situations are key action areas to minimise patient harm from unsafe medication practice.

## Methods

The audit was conducted at a large primary care practice in south England. EMIS Web was used to identify adult patients with diabetes mellitus type 2, a last recorded HbA1c of < 53mmol/mol and an active prescription of insulin or a sulfonylurea. The analysis consisted of an extensive manual review of patient's primary care records where all information relevant to hypoglycaemia risk was noted.

## Results



A validated tool<sup>4</sup> was used to calculate the annual risk of severe hypoglycaemia for the 38 patients on insulin or gliclazide with a HbA1c < 53mmol/mol.

**There were 5 patients with an annual risk of severe hypoglycemia greater than 5% and a further 11 patients had an annual risk of 1-5%.**

## Example Patient

An elderly female patient who had multiple strokes in 2020 and is now bedbound in a care home. She remained on gliclazide 240mg daily despite a recent HbA1c of 33mmol/mol.

## Discussion

The diabetic team was not specifically informed of sudden deteriorations in their patients (e.g. stroke), so these would often go unnoticed until the next annual diabetic review was due. The reviews were organised by sending SMS messages to patients but there was usually no escalation to phone or letter if these attempts failed, which meant a small number of patients had not a review for several years, despite still using the practice for other purposes.

Furthermore, some patients appeared reluctant to modify their treatment to accord with current practice. For example, two patients with gliclazide prescriptions dating from 2003 were unwilling to try newer medication. A further patient with a decade old insulin prescription confessed to aiming for a blood glucose of 4mmol/L, despite being repeatedly advised about the dangers of hypoglycaemia.

**The practice could potentially improve care by offering diabetic reviews after significant changes in health and by exploring alternative ways to contact patients who do not respond to initial attempts.**

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1 - Silbert et al (2018) Hypoglycemia Among Patients with Type 2 Diabetes: Epidemiology, Risk Factors, and Prevention Strategies. Curr Diab Rep 18:53

2 - Goto et al (2013) Severe hypoglycaemia and cardiovascular disease: systematic review and meta-analysis with bias analysis. BMJ 347:f4533

3 - National Institute for Health and Care Excellence (2020). Type 2 diabetes in adults: management [NICE Guideline No. 28]

4 - Karter et al (2017) Development and Validation of a Tool to Identify Patients With Type 2 Diabetes at High Risk of Hypoglycemia. JAMA Intern Med 177:1461-1470