

## Putting NICE guidance into practice

### **Resource impact report: Type 2 diabetes in adults: management (update)**

Published: December 2015

Last updated: February 2022

## Summary

This report focuses on the recommendations from NICE's guideline on [Type 2 diabetes in adults: management](#) that we think will have the greatest resource impact (cost or saving) nationally (for England), and will need the most additional resources to implement or potentially generate the biggest savings. They are:

### Recommendation 1.7.5

- Based on the cardiovascular risk assessment for the person with type 2 diabetes:
  - If they have chronic heart failure or established atherosclerotic cardiovascular disease, offer an SGLT2 inhibitor with proven cardiovascular benefit in addition to metformin.
  - If they are at high risk of developing cardiovascular disease, consider an SGLT2 inhibitor with proven cardiovascular benefit in addition to metformin.

High risk of developing cardiovascular is defined as adults with type 2 diabetes who have:

- QRISK2 more than 10% in adults aged 40 and over or
- an elevated lifetime risk of cardiovascular disease (defined as the presence of 1 or more cardiovascular risk factors in someone under 40).

Cardiovascular disease risk factors are as follows: hypertension, dyslipidaemia, smoking, obesity, family history (in a first-degree relative) of premature cardiovascular disease.

### Recommendation 1.7.15

- For adults with type 2 diabetes at any stage after they have started first-line treatment:
  - If they have or develop chronic heart failure or established atherosclerotic cardiovascular disease, offer an SGLT2 inhibitor with proven

cardiovascular benefit in addition to current treatment or replace an existing drug with the SGLT2 inhibitor.

- If they are or become at high risk of developing cardiovascular disease, consider adding an SGLT2 inhibitor with proven cardiovascular benefit to current treatment or replacing an existing drug with the SGLT2 inhibitor.

Take into account the person's current treatment regimen and preferences and make a shared decision about switching treatments or adding an SGLT2 inhibitor, as appropriate (also see recommendations 1.7.12 to 1.7.13 on starting an SGLT2 inhibitor).

### **Financial impact**

We encourage organisations to evaluate their own practices against the recommendations in the NICE guideline and assess costs and savings locally. Organisations can input estimates into the local resource impact template to reflect local practice and estimate the impact of implementing the guideline.

The recommendations are expected to lead to a change in practice and increase the numbers of people taking SGLT2 inhibitors at the beginning of their treatment or in addition to existing drug treatments.

The eligible population under the new recommendations is around 1.7 million people in England. For every increase of 1% of the eligible population who begin taking SGLT2 inhibitors, the resource impact, based on average list prices for the SGLT2 inhibitors, is just under £5m for England. The recommendations could generate savings if they delay the point at which patients are escalated to more expensive drugs or treatments and where existing drugs are replaced by SGLT2 inhibitors.

This report is supported by a resource impact template which may be used to calculate the resource impact of implementing the guidance by amending the variables.

For people without high cardiovascular risk, there was more uncertainty about whether the same level of cardiovascular benefits seen in the high-risk groups could be applied to a lower risk population. Therefore, SGLT2 inhibitors were not recommended in this group.

Diabetes services are commissioned by NHS England and integrated care systems/clinical commissioning groups. Providers are primary care services, NHS hospital trusts and tertiary care services.

# 1 Introduction

- 1.1 The guideline offers evidence-based advice on [Type 2 diabetes in adults: management](#).
- 1.2 This report discusses the resource impact of implementing our guideline on 'Type 2 diabetes in adults: management' in England. It aims to help organisations plan for the financial implications of implementing the NICE guideline.
- 1.3 We encourage organisations to evaluate their own practices against the recommendations in the NICE guideline and assess costs and savings locally. Organisations can input estimates into the local resource impact template to reflect local practice and estimate the impact of implementing the guideline
- 1.4 Diabetes services are commissioned by NHS England and integrated care systems/clinical commissioning groups. Providers are primary care services, NHS hospital trusts and tertiary care services.

# 2 Background

- 2.1 Type 2 diabetes is a chronic metabolic condition characterised by insulin resistance (that is, the body's inability to effectively use insulin) and insufficient pancreatic insulin production, resulting in high blood glucose levels (hyperglycaemia). Type 2 diabetes is commonly associated with obesity, physical inactivity, raised blood pressure, disturbed blood lipid levels and a tendency to develop thrombosis, and therefore is recognised to have an increased cardiovascular risk. It is associated with long term microvascular and macrovascular complications, together with reduced quality of life and life expectancy.
- 2.2 NICE technology appraisals for SGLT2 inhibitors recommend the use of these medicines by adults with type 2 diabetes only in

specific populations and in certain circumstances. The template can be amended to reflect current use. Until recently it was contraindicated to initiate SGLT2 inhibitors in people with CKD, however canagliflozin and dapagliflozin have now received marketing authorisation in the UK for this indication.

- 2.3 The guideline recommends SGLT2 inhibitors in a wider population than the technology appraisals that were published before February 2022.

### **3 Significant resource impact recommendations**

There are 2 guideline recommendations that are likely to lead to a significant resource impact when implemented. These are considered together in section 3.1.

#### **3.1 Recommendation 1.7.5**

**Based on the person's cardiovascular risk assessment:**

- **If they have heart failure or established atherosclerotic cardiovascular disease, offer an SGLT2 inhibitor with proven cardiovascular benefit in addition to metformin.**
- **If they are at high risk of developing cardiovascular disease, consider an SGLT2 inhibitor with proven cardiovascular benefit in addition to metformin.**

#### **Recommendation 1.7.15**

**For adults with type 2 diabetes already on drug therapy:**

- **If they have or develop heart failure or established atherosclerotic cardiovascular disease, offer an SGLT2 inhibitor (with proven cardiovascular benefit) in addition to current treatment or replace an existing drug with the SGLT2 inhibitor.**
- **If they are or become at high risk of developing cardiovascular disease, consider adding an SGLT2 inhibitor (with proven cardiovascular benefit) to current**

**treatment or replacing an existing drug with the SGLT2 inhibitor.**

**Take into account the person's current treatment regimen and preferences and make a shared decision about switching treatments or adding an SGLT2 inhibitor, as appropriate (also see recommendations 1.7.12 to 1.7.13 on starting an SGLT2 inhibitor).**

### **Assumptions made**

- 3.1.1 There are currently around 3.2 million people in England with diabetes, based on the [Quality and Outcomes Framework 2020-21](#). Applying the increase in the prevalence of diabetes over the last 5 years gives an estimate of around 3.4 million people with diabetes in England in 2026/27. Of these, 90% are estimated to have type 2 diabetes ([Diabetes.co.uk](#)).
- 3.1.2 The [Prescribing in Type 2 Diabetes Patients With and Without Cardiovascular Disease History: A Descriptive Analysis in the UK CPRD](#) study estimates that 71.5% of people currently receive pharmacological treatment and clinical experts estimate around 95% of people can receive metformin as it is not contraindicated and can be tolerated. This equates to approximately 2.1 million people.
- 3.1.3 [The Prevalence of Atherosclerotic Cardiovascular Disease, Heart Failure, and Chronic Kidney Disease in Patients with Type 2 Diabetes Mellitus study](#) (Goderis et al 2021) estimates 34.8% of people have established atherosclerotic cardiovascular disease and the [National diabetes audit 2017/18](#) estimates 3.40% of people will have heart failure.
- 3.1.4 A further 42.7% of people are at high risk of developing cardiovascular disease according to the Caparrotta et al 2020 study [Prescribing Paradigm Shift? Applying the 2019 European Society of Cardiology-Led Guidelines on Diabetes, Prediabetes, and Cardiovascular Disease to Assess Eligibility for Sodium-Glucose](#)

[Cotransporter 2 Inhibitors or Glucagon-Like Peptide 1 Receptor Agonists as First-Line Monotherapy \(or Add-on to Metformin Monotherapy\) in Type 2 Diabetes in Scotland.](#)

- 3.1.5 This equates to approximately 1.7 million people eligible for treatment with SGLT2 inhibitors in England.
- 3.1.6 The [Prescribing in Type 2 Diabetes Patients With and Without Cardiovascular Disease History: A Descriptive Analysis in the UK CPRD](#) study indicates that 18% of the eligible population currently receive SGLT2 inhibitors.
- 3.1.7 The resource impact template includes all currently available SGLT2 inhibitors and can be amended to reflect local assumptions on the current and future proportions of uptake per SGLT2 inhibitor.
- 3.1.8 SGLT2 inhibitors are all taken as a tablet orally each day and treatment is ongoing.
- 3.1.9 Pack prices are shown on the resource impact template and may be amended locally, as required (See appendix A).
- 3.1.10 The recommendations are expected to lead to a change in practice and increase the numbers of people taking SGLT2 inhibitors at the beginning of their treatment or replacing existing therapies. In current practice, these people would not be offered combination therapy with an SGLT2 until additional treatment is needed to control their HbA1c to below their individually agreed threshold for intervention, and then only if they met the criteria in the relevant NICE technology appraisals for being prescribed an SGLT2 inhibitor.

## **Costs**

- 3.1.11 For every increase of 1% of the eligible population who begin taking SGLT2 inhibitors, the resource impact, based on average list

prices for the SGLT2 inhibitors, is just under £5m for England. The resource impact template can be used to model local assumptions.

### **Benefits and savings**

- 3.1.12 Implementing recommendations 1.7.5 and 1.7.15 may generate savings downstream if it delays the point at which patients are escalated to more expensive drugs. There may be a reduction in hospitalisations for heart failure as a result of people receiving SGLT2 inhibitors.
- 3.1.13 Recommendation 1.7.15 may generate savings where existing drugs are replaced by SGLT2 inhibitors. These savings can be modelled in the resource impact template.

## **4 Implications for commissioners and providers**

- 4.1 Diabetes services are commissioned by NHS England and integrated care systems/clinical commissioning groups. Providers are primary care services, NHS hospital trusts and tertiary care services. Use of SGLT2 inhibitors will predominately be in primary care.
- 4.2 There will be an increase in the cost of SGLT2 inhibitors for primary and secondary care commissioners drug budgets. However, there could also be savings if it delays the point at which patients are escalated to more expensive drugs or treatments and where existing drugs are replaced by SGLT2 inhibitors.
- 4.3 Diabetes falls under programme budgeting category 04A 'diabetes'.

## 5 Other considerations

### 5.1 Recommendation 1.7.9 states

For first-line drug treatment in adults with type 2 diabetes, if metformin is contraindicated or not tolerated:

- If they have heart failure or established atherosclerotic cardiovascular disease, offer an SGLT2 inhibitor alone.
- If they are at high risk of developing cardiovascular disease, consider an SGLT2 inhibitor alone.

The numbers of adults with type 2 diabetes and heart failure or established atherosclerotic cardiovascular disease or a high risk of developing cardiovascular disease who cannot tolerate metformin, or for whom metformin is contraindicated, is expected to be relatively low. The new recommendations are likely to see a change in practice as more people start taking an SGLT2 inhibitor, but this is not anticipated to be significant.

## Appendix A. Unit costs

**Table 4 Cost of SGLT2 inhibitors for people with type 2 diabetes**

<b>Treatment</b>	<b>Dosage</b>	<b>Reference</b>	<b>Cost (£)</b>
People with CKD and type 2 diabetes who receive treatment with canagliflozin.	100 mg once daily;	<a href="#">British National Formulary</a>	£476.93
People with CKD and type 2 diabetes who receive treatment with dapagliflozin.	10 mg once daily.	<a href="#">British National Formulary</a>	£476.98
People with type 2 diabetes who receive treatment with empagliflozin.	10 mg once daily, increased to 25 mg once daily if necessary and if tolerated.	<a href="#">British National Formulary</a>	£476.98
People with type 2 diabetes who receive treatment with ertugliflozin.	5 mg once daily; increased to 15 mg once daily if necessary and if tolerated.	<a href="#">British National Formulary</a>	£383.25

## About this resource impact report

This resource impact report accompanies the NICE guideline on [Type 2 diabetes in adults: management](#) and should be read in conjunction with it. Please visit the NICE website to view the [terms and conditions](#).

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