

Putting NICE guidance into practice

Resource impact report: Type 2 diabetes in adults: management (update) (NG28)

Published: November 2021

Summary

This report focuses on the recommendation 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 saving. It is:

- For adults with type 2 diabetes and CKD who are taking an angiotensin-receptor blockers (ARB) or an angiotensin-converting enzyme (ACE) inhibitor (titrated to the highest licensed dose that they can tolerate), offer an SGLT2 inhibitor (in addition to the ARB or ACE inhibitor) if:
 - albumin-to-creatinine ratio (ACR) is over 30 mg/mmol and
 - they meet the criteria in the marketing authorisation (including relevant estimated glomerular filtration rate (eGFR) thresholds).

In September 2021, not all SGLT2 inhibitors were licensed for this indication. See [NICE's information on prescribing medicines](#).

(Recommendation 1.7.13).

- For adults with type 2 diabetes and CKD who are taking an ARB or an ACE inhibitor (titrated to the highest licensed dose that they can tolerate), consider an SGLT2 inhibitor (in addition to the ARB or ACE inhibitor) if:
 - ACR is between 3 and 30 mg/mmol and
 - they meet the criteria in the marketing authorisation (including relevant eGFR thresholds).

In September 2021, not all SGLT2 inhibitors were licensed for this indication. See [NICE's information on prescribing medicines](#).

(Recommendation 1.7.14).

This is an update to NICE guideline NG28 Type 2 diabetes in adults: management (published December 2015) and NICE guideline NG203 Chronic kidney disease: assessment and management (published August 2021).

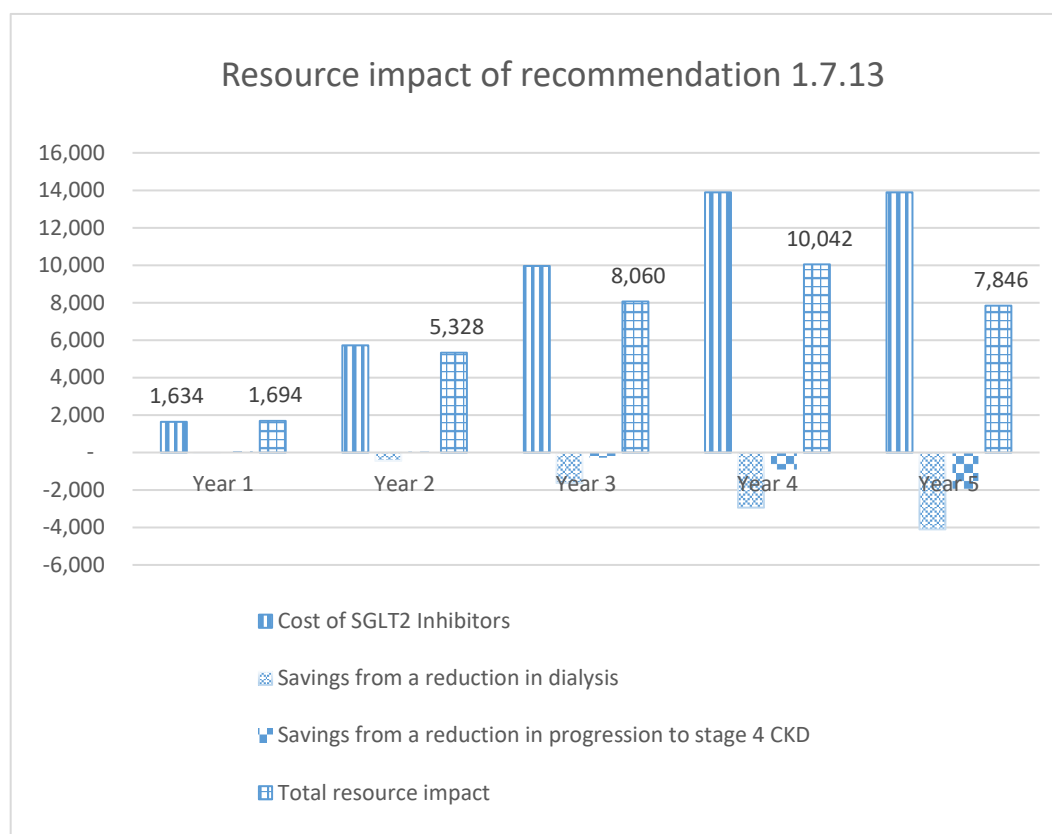
These new recommendations are based on evidence reviewed on SGLT2 inhibitors for adults with type 2 diabetes and chronic kidney disease.

Financial impact

For recommendation 1.7.13 the estimated financial impact of implementing this guideline for England in the next 5 years is a drug cost of around £1.6m in 2021/22 rising to a drug cost of around £13.9m in 2024/25 as set out in figure 1. There is an anticipated benefit to offset these costs arising from the reduction in dialysis and progression to stage 4 CKD which equates to an estimated saving in 2025/26 of £6m. The rates for these savings are included in the resource impact template and come from the CREDENCE Economic Model of DKD study (The Swedish Institute for Health Economics).

Based on the assumptions used for England, this is equivalent to an annual drug cost of around £792,000 and £456,000 by 2024/25 for Wales and Northern Ireland respectively. There is expected to be a significant change in practice because until recently SGLT2 inhibitors were contraindicated for use by people with CKD. Therefore, because of the recommendation, these drugs are expected to be prescribed more widely.

Figure 1 Estimated resource impact of implementing the guideline update for England (£'000) (Recommendation 1.7.13)



For recommendation 1.7.14 the committee were less confident in the evidence for people with an ACR of 3-30 and therefore it is a consider only recommendation for this group. The resource impact template can be used to model the uptake for this group and potential savings using local assumptions.

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.

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 A resource impact template accompanies this report to help with assessing the resource impact at a local level in England, Wales or Northern Ireland.
- 1.4 Diabetes and chronic kidney disease 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 Significant resource impact recommendation

- 2.1 **For adults with type 2 diabetes and CKD who are taking an angiotensin-receptor blockers (ARB) or an angiotensin-converting enzyme (ACE) inhibitor (titrated to the highest licensed dose that they can tolerate), offer an SGLT2 inhibitor (in addition to the ARB or ACE inhibitor) if:**

- **albumin-to-creatinine ratio (ACR) is over 30 mg/mmol and and**
- **they meet the criteria in the marketing authorisation (including relevant estimated glomerular filtration rate (eGFR) thresholds).**

In September 2021, not all SGLT2 inhibitors were licensed for this indication. See [NICE's information on prescribing medicines](#).

(Recommendation 1.7.13).

Background

- 2.1.1 People with diabetes often have comorbidities, including CKD, hypertension, and cardiovascular diseases (heart failure), which need treatment from a multidisciplinary team. The committee were shown evidence that SGLT2 inhibitors reduced the risk of end-stage renal disease, mortality and hospitalisation in adults with type 2 diabetes and CKD.
- 2.1.2 All SGLT2 inhibitors are currently recommended by NICE for use by adults with type 2 diabetes. 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. This recommendation may lead to a substantial change in practice and these drugs being prescribed more widely.
- 2.1.3 The dosages from a trial in people with diabetes and CKD were lower than in people without renal impairment, and the committee would not expect the medicines to have the same benefits for blood glucose control as in people with diabetes but without CKD. However, with benefits on proteinuria and overall kidney outcomes, they were confident that the overall clinical benefit in people with diabetic kidney disease would be as large as the benefits estimated in the technology appraisals for people with diabetes but not CKD.

Assumptions made

- 2.1.4 There are around 1.75 million people in England with stage 3-5 chronic kidney disease (CKD), based on the [Quality Outcomes Framework \(QOF\) - NHS Digital 2020/21](#).
- 2.1.5 It is estimated using the [Kidney Failure Risk Equation study \(Major et al.2019\)](#) around 1.63 million people will have stage 3 CKD and will therefore meet the eGFR threshold in the marketing authorisation (as stated in the recommendation). The study was also used to estimate that around 518,000 of these people also

have diabetes, of which [Diabetes.co.uk](https://www.diabetes.co.uk) assume 90% have type 2 diabetes and the Kidney Failure Risk Equation study assumes 34,000 of these have an ACR of 30 mg/mmol or more.

- 2.1.6 From year 4 it is assumed that 90% of the eligible population will receive an SGLT2 inhibitor. As canagliflozin and dapagliflozin are the only SGLT2 inhibitors with UK market authorisation it is assumed that they are the only drugs that will be used. The template includes other available SGLT2 inhibitors and can be amended if they receive UK market authorisation and are used in the eligible population.
- 2.1.7 Until recently the use of SGLT2 inhibitor treatment was contraindicated for people with CKD therefore current use is expected to be low, at 5% of the eligible population.
- 2.1.8 SGLT2s are all taken as a tablet orally each day and treatment is ongoing.
- 2.1.9 Pack prices are shown on the resource impact template and may be amended locally, as required.
- 2.1.10 Canagliflozin and dapagliflozin have a licensed indication for adults with CKD and type 2 diabetes after positive trials. There are trials in other SGLT2 inhibitors that are ongoing. The committee therefore felt it was appropriate to make a class level recommendation, to cover any future SGLT2 inhibitors which might get a similar license extension to cover people with diabetes and CKD.
- 2.1.11 The annual costs for stage 3 and stage 4 chronic kidney disease (£1,580 and £3,964 respectively) were taken from Willis et al ([Cost-Effectiveness of Canagliflozin Added to Standard of Care for Treating Diabetic Kidney Disease \(DKD\) in Patients with Type 2 Diabetes Mellitus \(T2DM\) in England: Estimates Using the CREDEM-DKD Model](#)).

2.1.12 The cost for dialysis sessions (£162) is based on a weighted average of the 2019/20 national cost collection (HRG codes LD01A-13A), assuming 3 sessions per week.

Costs/Savings

2.1.13 The activity and cost of recommendation 1.7.13 is summarised in tables 1 and 2.

Table 1 Estimated number of people for recommendation 1.7.13 in England

Area costed	Current number of people	Future number of people (year 5)	Change in number of people
People treated with canagliflozin	1,713	15,414	13,701
People treated with dapagliflozin	0	15,414	15,414
Total	1,713	30,828	29,115

Table 2 Estimated cost of recommendation 1.7.13 for England

Area costed	Current cost / savings (£000)	Future cost / savings (year 5) (£000)	Change in cost / savings (£000)
Increase in cost for recommendation 1.7.13 to (£000) (cash costs)	£817	£14,703	£13,887
Saving for recommendation 1.7.13 (£000) (cash and non-cash savings)	£437	£6,478	£6,041
Total cost of recommendation 1.7.13.	£380	£8,225	£7,846

2.1.14 SGLT2 inhibitors may reduce the risk of end-stage renal disease, mortality and hospitalisation in adults with CKD and type 2 diabetes. The template provides reduction rates in dialysis sessions and progression to stage 4 CKD from people receiving SGLT2s.

Users also have the option to input current and future practice for other potential cost saving areas.

3 Resource impact over time

The estimated annual drug cost of implementing this guideline for the population of England based on the uptake in the resource impact assumptions is shown in table 3. The cost at year 5 is equivalent to £14,000 per 100,000 population (see table 4).

Table 3 Estimated annual cost of implementing the guideline for the population of England

	2021/22	2022/23	2023/24	2024/25	2025/26
Market share of SGLT2 inhibitors (%)	15%	40%	65%	90%	90%
Cost for recommendation 1.7.13 (£000)	£1,634	£5,718	£9,966	£13,887	£13,887
Savings for recommendation 1.7.13 (£000)	-£60	£390	£1,905	£3,845	£6,041
Total cost for England (£000)	£1,694	£5,328	£8,060	£10,042	£7,846

Table 4 Estimated annual cost of implementing the guideline per 100,000 population

	2021/22	2022/23	2023/24	2024/25	2025/26
Market share of SGLT2 inhibitors (%)	15%	40%	65%	90%	90%
Cost for recommendation 1.7.13 (£000)	£3	£10	£18	£25	£25
Savings for recommendation 1.7.13 (£000)	£0	£1	£3	£7	£11
Total cost for England (£000)	£3	£9	£15	£18	£14

4 Implications for commissioners and providers

4.1 Chronic kidney disease falls under programme budgeting category 17B 'renal problems'. Diabetes falls under programme budgeting category 04A 'diabetes'.

4.2 There will be an increase in the cost of SGLT2 inhibitors for primary and secondary care commissioners drug budgets. However, there may be a progressive increase in cost savings associated with the provision of renal dialysis services over time after this recommendation is implemented.

5 Other considerations

5.1 Recommendation 1.7.14 states

For adults with type 2 diabetes and CKD who are taking an ARB or an ACE inhibitor (titrated to the highest licensed dose that they can tolerate), consider an SGLT2 inhibitor (in addition to the ARB or ACE inhibitor) if:

- ACR is between 3 and 30 mg/mmol and
- they meet the criteria in the marketing authorisation (including relevant eGFR thresholds).

In September 2021, not all SGLT2 inhibitors were licensed for this indication. See [NICE's information on prescribing medicines](#).

- 5.2 The committee were less confident in the evidence for people with ACR of 3-30 and therefore it is a consider only recommendation for this group. The resource impact template can be used to model the uptake for this group and potential savings using local assumptions.
- 5.3 The drug cost for every additional 1,000 people who were to receive an SGLT2 as a result of recommendation 1.7.14 would be an estimated £477,000. There may be savings associated with this but there are uncertainties surrounding these savings and the template can therefore be used to estimate them locally.

Appendix A. Unit costs

Table 4 Cost of SGLT2 inhibitors for people with chronic kidney disease and type 2 diabetes

Treatment	Dosage	Reference	Cost (£)
People with CKD and type 2 diabetes who receive treatment with canagliflozin.	100 mg once daily;	electronic medicines compendium	£476.93
People with CKD and type 2 diabetes who receive treatment with dapagliflozin.	10 mg once daily.	electronic medicines compendium	£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.	British National Formulary	£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.	British National Formulary	£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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