NATIONAL INSTITUTE FOR HEALTH AND
CARE EXCELLENCE

Quality standards

Briefing paper: Type 2 diabetes in adults

**Quality Standards Advisory Committee meeting**: 20 July 2022

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1. Introduction

This briefing paper presents a structured overview of potential quality improvement areas for type 2 diabetes in adults. It provides the committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

This briefing paper includes a brief description of the topic, a summary of each of the suggested quality improvement areas and supporting information.

Recommendations selected from the key development source are included to help the committee in considering potential statements and measures.

* 1. Development source

The key development sources referenced in this briefing paper are:

* [Type 2 diabetes in adults: management. NICE guideline NG28](https://www.nice.org.uk/guidance/ng28) (2015, updated 2022). Guideline update on medicines in development, publication date to be confirmed.
* [Diabetic foot problems: prevention and management. NICE guideline NG19](https://www.nice.org.uk/guidance/ng19) (2015, updated 2019). Currently being updated to focus on risk stratification tools used to assess likelihood of diabetic foot problems, and the timing of foot assessments for individuals at risk of diabetic foot problems. Publication of this update is expected in January 2023.

[Type 2 diabetes: prevention in people at high risk. NICE guideline PH38](https://www.nice.org.uk/guidance/ph38) (2012, updated 2017).

1. Overview
	1. Focus of quality standard

This quality standard will cover preventing type 2 diabetes in adults, diagnosis and management of type 2 diabetes in adults and preventing and managing foot problems.

It will update and replace the existing [NICE quality standard for diabetes in adults](https://www.nice.org.uk/guidance/qs6) (QS6). A quality standard on type 1 diabetes in adults is currently in development.

There are existing quality standards covering [Diabetes in children and young people](https://www.nice.org.uk/guidance/qs125) (QS125) and [Diabetes in pregnancy](https://www.nice.org.uk/guidance/qs109) (QS109) (currently being [updated](https://www.nice.org.uk/guidance/indevelopment/gid-qs10157)) therefore this quality standard will not cover these areas.

* 1. Definition

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, abnormal blood lipid levels and a tendency to develop thrombosis, and is therefore recognised to have an increased cardiovascular risk. It is associated with long-term complications, together with reduced quality of life and life expectancy.

* 1. Incidence and prevalence

In 2019, approximately 3.2 million adults in the UK had diagnosed diabetes. About 90% of these people had type 2 diabetes. Type 2 diabetes is more common in people of African, African-Caribbean and South Asian family background. It can occur in all age groups and is increasingly being diagnosed in adolescents and young adults. [Diabetes UK](https://www.diabetes.org.uk/professionals/position-statements-reports/statistics) reported that 13.6 million people in the UK are at increased risk of type 2 diabetes and 850,000 people are currently living with type 2 diabetes but remain undiagnosed.

People who are overweight and obese are more likely to develop type 2 diabetes and the risk rises as body weight increases.

Multiple vascular risk factors and wide-ranging complications make diabetes care complex and time-consuming. Many areas of healthcare must be involved for optimal management. Diabetes care is estimated to account for at least 5% of UK healthcare expenditure and up to 10% of NHS expenditure. [Diabetes UK’s tackling the crisis: transforming diabetes care for a better future](https://www.diabetes.org.uk/professionals/position-statements-reports/statistics) in 2019 reports that the NHS spends at least £10 billion per year on diabetes, and almost 80% of that is on treating complications.

* 1. Current service delivery and management

Diagnosis of type 2 diabetes is based on measurement of fasting blood glucose level or HbA1c level and the presence of symptoms or risk score.

Many areas of healthcare services are involved in the optimal management of type 2 diabetes. Necessary lifestyle changes and the complexities and possible side-effects of treatment make structured education and self-management important aspects of type 2 diabetes care, including self-monitoring of capillary blood glucose levels.

Choice of drug treatment for type 2 diabetes depends on cardiovascular disease risk and includes metformin, SGLT2 inhibitors, DPP-4 inhibitors, pioglitazone and sulfonylurea. Insulin-based treatment is also an option in some cases.

1. Summary of suggestions
	1. Responses

In total 10 registered stakeholders responded to the 2-week engagement exercise.

* 8 stakeholders suggested areas
* 2 stakeholders had no comments

8 specialist committee members suggested areas

The responses have been summarised in table 1 for further consideration by the committee.

Table 1 Summary of suggested quality improvement areas

| Area for improvement | Stakeholders  |
| --- | --- |
| **Prevention of type 2 diabetes*** Risk assessment
* Intensive lifestyle-change programmes
 | DUK, NHSE, SCM |
| **Education and advice*** Structured education
* Diet
 | ABCD, BANLM, BDA, NHSE, OCDEM, SCM |
| **Continuous glucose monitoring** | BDA, DUK, SCM |
| **Drug treatment** | ABCD, BDA, NHSE, SCM |
| **Complications*** Annual checks
* Diabetic foot problems
* Inpatient care
 | ABCD, Bayer, DUK, Hio, NHSE, SCM  |
| **Patient experience*** Access to care
* Communication
* Coordination of care
 | ABCD, OCDEM, SCM  |
| **Additional areas*** Gestational diabetes
* Other types of diabetes
* Invalid HbA1c
 | OCDEM, SCM |

Abbreviations:

* ABCD, Association of British Clinical Diabetologists
* Bayer, Bayer
* BANLM, British Association for Nutrition and Lifestyle Medicine
* BDA, British Dietetic Association, Diabetes Specialist Group
* DUK, Diabetes UK
* Hio, Healthy.io
* NHSE, NHS England National Diabetes Programme
* OCDEM, Oxford Centre for Diabetes, Endocrinology and Metabolism
* SCM, Specialist Committee Member.

Full details of all the suggestions provided are given in appendices 1 and 2 for information.

1. Suggested improvement areas

Section 4 presents a summary of the suggested improvement areas, with provisional recommendations that may support statement development and information on current UK practice.

* 1. Prevention of type 2 diabetes

### Risk assessment

Stakeholders commented that recognition of pre-diabetes and early intervention is an area of quality improvement. Stakeholders commented on the need for increased awareness of diabetes and increased health checks and testing to reduce the number of people with undiagnosed diabetes. Stakeholders noted that people with a HbA1c between 42 and 47 mmol/mol are at higher risk of progression to type 2 diabetes and commented on the risk of vascular complications in this group. They suggested measurement of urine albumin:creatinine ratio in people with pre-diabetes as a priority area for quality improvement.

#### Selected recommendations

[NICE’s guideline on chronic kidney disease: assessment and management (NG203):](https://www.nice.org.uk/guidance/ng203)

1.1.21 Offer testing for CKD using eGFRcreatinine and ACR to adults with any of the following risk factors:

* diabetes
* hypertension
* previous episode of acute kidney injury
* cardiovascular disease (ischaemic heart disease, chronic heart failure, peripheral vascular disease or cerebral vascular disease)
* structural renal tract disease, recurrent renal calculi or prostatic hypertrophy
* multisystem diseases with potential kidney involvement, for example, systemic lupus erythematosus
* gout
* family history of end-stage renal disease (GFR category G5) or hereditary kidney disease

incidental detection of haematuria or proteinuria.

[NICE’s guideline on type 2 diabetes: prevention in people at high risk (PH38):](https://www.nice.org.uk/guidance/ph38)

1.1.1 GPs and other health professionals and community practitioners in health and community venues should implement a two-stage strategy to identify people at high risk of type 2 diabetes (and those with undiagnosed type 2 diabetes). First, a risk assessment should be offered (see recommendation 1.1.3). Second, where necessary, a blood test should be offered to confirm whether people have type 2 diabetes or are at high risk (see recommendation 1.1.4).

1.1.8 Managers in primary and secondary healthcare should ensure staff actively seek out and offer risk assessments to people who might not realise they could be at high risk. This includes people with particular conditions that can increase the risk such as: cardiovascular disease, hypertension, obesity, stroke, polycystic ovary syndrome, a history of gestational diabetes and mental health problems. In addition, people with learning disabilities and those attending accident and emergency, emergency medical admissions units, vascular and renal surgery units and ophthalmology departments may be at high risk.

1.3.1 GPs and other primary healthcare professionals should use a validated computer-based risk-assessment tool to identify people on their practice register who may be at high risk of type 2 diabetes. The tool should use routinely available data from patients' electronic health records. If a computer-based risk-assessment tool is not available, they should provide a validated self-assessment questionnaire, for example, the Diabetes Risk Score assessment tool. This is available to health professionals on request from Diabetes UK.

1.4.1 Trained healthcare professionals should offer venous blood tests (fasting plasma glucose [FPG] or HbA1c) to adults with high risk scores (stage 2 of the identification process). They should also consider a blood test for those aged 25 and over of South Asian or Chinese descent whose body mass index (BMI) is greater than 23 kg/m2. The aim is to:

* determine the risk of progression to type 2 diabetes (a fasting plasma glucose of 5.5 to 6.9 mmol/l or an HbA1c level of 42 to 47 mmol/mol [6.0 to 6.4%] indicates high risk) or

identify possible type 2 diabetes by using fasting plasma glucose, HbA1c or an oral glucose tolerance test (OGTT), according to World Health Organization (WHO) HbA1c criteria.

1.6.5 For people at high risk (a high risk score and fasting plasma glucose of 5.5 to 6.9 mmol/l, or HbA1c of 42 to 47 mmol/mol [6.0 to 6.4%]), offer a blood test at least once a year (preferably using the same type of test). Also offer to assess their weight or BMI. This includes people without symptoms of type 2 diabetes whose:

* first blood test measured fasting plasma glucose at 7.0 mmol/l or above, or an HbA1c of 48 mmol/mol (6.5%) or greater, but

whose second blood test did not confirm a diagnosis of type 2 diabetes.

#### Current UK practice

[NHS Health Check data available from Office for Health Improvement and Disparity’s Fingertips public health data](https://fingertips.phe.org.uk/profile/nhs-health-check-detailed/data#page/4/gid/1938132726/pat/159/par/K02000001/ati/15/are/E92000001/iid/91112/age/219/sex/4/cat/-1/ctp/-1/yrr/5/cid/4/tbm/1) shows that 28.4% of eligible people have received an NHS health check since 1 April 2017.

[The non-diabetic hyperglycaemia diabetes prevention programme audit](https://www.hqip.org.uk/resource/?fwp_care_area=diabetes_adult#.YrnUURXMIdU) (2019 to 2020) reported by NHS Digital shows that 78.1% of people with GP-recorded non-diabetic hyperglycaemia had a glycaemic test performed in 2019 to 2020.

### Intensive lifestyle-change programmes

Stakeholders commented that adults identified at high risk of developing type 2 diabetes should be offered referral to an intensive lifestyle-change programme such as the NHS Diabetes Prevention Programme (NHS DPP) and a weight management programme such as the Digital Weight Management Programme. Stakeholders commented that smoking is an independent risk factor for adverse vascular outcomes in people with a high risk for developing type 2 diabetes, and post cessation weight gain can be a barrier to successfully stopping smoking. They suggest smoking cessation advice should be a component of a lifestyle-change programme.

#### Selected recommendations

[NICE’s guideline on type 2 diabetes: prevention in people at high risk (PH38):](https://www.nice.org.uk/guidance/ph38)

1.5.3 For people with a moderate risk (a high risk score, but with a fasting plasma glucose less than 5.5 mmol/l or HbA1c of less than 42 mmol/mol [6.0%]):

* Tell the person that they are currently at moderate risk, and their risks could increase in the future. Explain that it is possible to reduce the risk. Briefly discuss their particular risk factors, identify which ones can be modified and discuss how they can achieve this by changing their lifestyle.
* Offer them a brief intervention to help them change their lifestyle: give information about services that use evidence-based behaviour-change techniques that could help them change, bearing in mind their risk profile. Services cited could include walking programmes, slimming clubs or structured weight-loss programmes. (See recommendations 1.11.1 to 1.14.3.)

Discuss whether they would like to join a structured weight-loss programme. Explain that this would involve an individual assessment and tailored advice about diet, physical activity and behaviour change. Let them know which local programmes offer this support – and where to find them.

1.5.4 For people confirmed as being at high risk (a high risk score and fasting plasma glucose of 5.5–6.9 mmol/l or HbA1c of 42 to 47 mmol/mol [6.0 to 6.4%]):

* Tell the person they are currently at high risk but that this does not necessarily mean they will progress to type 2 diabetes. Explain that the risk can be reduced. Briefly discuss their particular risk factors, identify which ones can be modified and discuss how they can achieve this by changing their lifestyle.

Offer them a referral to a local, evidence-based, quality-assured intensive lifestyle-change programme (see recommendations 1.8.1 to 1.10.2). In addition, give them details of where to obtain independent advice from health professionals.

#### Existing quality statement

[NICE’s quality standard on diabetes in adults (QS6):](https://www.nice.org.uk/guidance/qs6/chapter/Quality-statements)

Statement 1 Adults at high risk of type 2 diabetes are offered a referral to an intensive lifestyle-change programme.

#### Current UK practice

Data from the [non-diabetic hyperglycaemia diabetes prevention programme audit](https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/dpp-q3-21-22-data) (January to December 2021) reported by NHS Digital shows that 38.3% of people with a current GP record of non-diabetic hyperglycaemia were offered a DPP course of which 69% did not decline the offer.

### Resource impact

Implementing the 2017 intensive lifestyle-change programmes recommendations from the type 2 diabetes: prevention in people at high risk (PH38) guideline will allow the NHS Diabetes Prevention Programme to initially target groups of the population who will benefit most, in a way that is consistent across the UK. Providing these programmes to all would have an initial large resource impact but future financial savings through reduced complications may be realisable.

These recommendations are not included in the resource impact statement/reports for (NG203/PH38). They were not identified as areas of the guidelines that would be likely to have a significant resource impact (>£1m in England each year).

### Issues for consideration

**For discussion:**

* What is the priority for improvement?
* Is risk assessment or referral to an intensive lifestyle-change programme once someone is identified as at high risk of developing type 2 diabetes the key action that will lead to improvement?
* Can we develop a specific, measurable statement? Note the current quality statement 1 in QS6.

**For decision:**

* Should this area be prioritised for inclusion in the quality standard?
	1. Education and advice

### Structured education

Stakeholders commented that adults with diagnosed type 2 diabetes should be offered access to and attend a structured education programme after diagnosis and annually. They noted that tailoring education programmes for cultural, linguistic, cognitive and literacy needs may help to reduce health inequalities. They also note the need for remote (virtual) structured education. Stakeholders commented that low patient activation is linked with poor clinical outcomes and note that patient activation to self-manage is a priority area for quality improvement. They suggest that individualised care plans should include coaching for activation.

#### Selected recommendations

[NICE’s guideline on type 2 diabetes in adults: management (NG28):](https://www.nice.org.uk/guidance/ng28)

1.1.1 Adopt an individualised approach to diabetes care that is tailored to the needs and circumstances of adults with type 2 diabetes, taking into account their personal preferences, comorbidities and risks from polypharmacy, and their likelihood of benefiting from long-term interventions. Such an approach is especially important in the context of multimorbidity.

1.2.1 Offer structured education to adults with type 2 diabetes and their family members or carers (as appropriate) at the time of diagnosis, with annual reinforcement and review. Explain to people that structured education is an integral part of diabetes care.

1.2.2 Ensure that any structured education programme for adults with type 2 diabetes:

* is evidence-based, and suits the needs of the person
* has specific aims and learning objectives, and supports the person and their family members and carers to develop attitudes, beliefs, knowledge and skills to self-manage diabetes
* has a structured curriculum that is theory driven, evidence-based and resource-effective, has supporting materials and is written down
* is delivered by trained educators who:
* have an understanding of educational theory appropriate to the age and needs of the person
* are trained and competent to deliver the principles and content of the programme
* is quality assured, and reviewed by trained, competent, independent assessors who measure it against criteria that ensure consistency

has outcomes that are audited regularly.

1.2.4 Offer adults with type 2 diabetes group education programmes as the preferred option. Provide an alternative of equal standard for people who are unable or prefer not to take part in group education.

1.2.5 Ensure that education programmes for adults with type 2 diabetes meet the cultural, linguistic, cognitive and literacy needs of people in the local area.

[NICE’s guideline on patient experience in adult NHS services: improving the experience of care for people using adult NHS services (CG138):](https://www.nice.org.uk/guidance/cg138)

1.5.11 Give the patient information, and the support they need to make use of the information, in order to promote their active participation in care and self-management.

1.5.17 Give the patient (and/or their family members and carers) information to enable them to use any medicines and equipment correctly. Ensure that the patient and their family members and carers feel adequately informed, prepared and supported to use medicines and equipment and to carry out self-care and self-management.

1.5.18 Advise the patient where they might find reliable high-quality information and support after consultations, from sources such as national and local support groups, networks and information services.

#### Existing quality statement and indicators

[NICE’s quality standard on diabetes in adults (QS6):](https://www.nice.org.uk/guidance/qs6)

Statement 2 Adults with type 2 diabetes are offered a structured education programme at diagnosis.

[NHS Digital’s Quality and Outcomes Framework:](https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data)

DM014: The percentage of patients newly diagnosed with diabetes, on the register, in the preceding 1 April to 31 March who have a record of being referred to a structured education programme within 9 months after entry on to the diabetes register.

#### Current UK practice

[National Diabetes Audit (quarterly report 2021/22)](https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/core-q3-21-22) showed that in 2020 65.9% of people with a new diagnosis of type 2 diabetes (and other types of diabetes, excluding type 1 diabetes) were offered structured education programme within 12 months of their diagnosis. 5.6% of people with a new diagnosis attended structured education. The report acknowledges that low rates of attendance are an underestimation due to poor recording. [Diabetes UK’s care survey](https://www.diabetes.org.uk/about_us/news/care-survey-2016) (2015) reported that 53% of people with type 2 diabetes were offered structured education and 69% were likely to take up a place. [NHS Digital’s quality and outcomes framework](https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data) 2019 to 2020 reported that 92.4% of people newly diagnosed with type 1 or type 2 diabetes were referred to a structured education programme within 9 months of entry onto the diabetes register (DM014).

The [Care Quality Commission’s my diabetes, my care](https://www.cqc.org.uk/publications/themed-work/my-diabetes-my-care-community-diabetes-care-review) (2016) found that structured education was rarely offered to people with a learning disability and it was not always clear if their educational needs had been met through other channels. Six CCGS delivered structured education in languages other than English, but several CCGS recognised that they were not providing courses that were appropriate to their local community and the CQC found that in several areas there were no appropriate education programmes for people with a learning disability or cognitive impairment, deaf people or people who are hard of hearing. The report includes fieldwork from 10 CCGs chosen based on geographical region and demographic characteristics, an online webform to gather feedback from 96 people with diabetes from the areas covered by the fieldwork and engagement with 20 people from BME backgrounds and 22 people with a mild learning disability.

[The GP patient survey](https://gp-patient.co.uk/surveysandreports) in 2021 found that 82.7% of people with diabetes were confident that they could manage any issue arising from their diabetes and 74.8% of people with diabetes said that had enough support from local services to manage their diabetes. The survey included people aged 16 and over and sampled 6,658 GP practices with 850,206 questionnaires returned.

### Diet

Stakeholders commented on the need for advice on diet that is accessible, timely and evidence based. They noted specifically that may help remission of type 2 diabetes. Stakeholders commented that low energy, low carbohydrate diets and weight loss, including bariatric surgery may help to reduce glucose levels and lead to remission of type 2 diabetes in some people. They note that NICE recommendations to aim for a HbA1c level of 48 mmol/mol align with consensus reports for remission target. Stakeholders also noted the impact of smoking cessation and subsequent weight gain on development and progression of type 2 diabetes. They note that careful monitoring is necessary.

#### Selected recommendations

[NICE’s guideline on type 2 diabetes in adults: management (NG28):](https://www.nice.org.uk/guidance/ng28)

1.3.1 Provide individualised and ongoing nutritional advice from a healthcare professional with specific expertise and competencies in nutrition.

1.3.3 Encourage adults with type 2 diabetes to follow the same healthy eating advice as the general population, which includes:

* eating high-fibre, low-glycaemic-index sources of carbohydrate, such as fruit, vegetables, wholegrains and pulses
* choosing low-fat dairy products
* eating oily fish

controlling their intake of saturated and trans fatty acids.

1.3.4 Integrate dietary advice with a personalised diabetes management plan, including other aspects of lifestyle modification such as increasing physical activity and losing weight.

1.6.6 Offer lifestyle advice and drug treatment to support adults with type 2 diabetes to reach and maintain their HbA1c target (see the sections on dietary advice and bariatric surgery and choosing drug treatments). For more information about supporting adherence, see the NICE guideline on medicines adherence

1.6.7 For adults whose type 2 diabetes is managed either by lifestyle and diet, or lifestyle and diet combined with a single drug not associated with hypoglycaemia, support them to aim for an HbA1c level of 48 mmol/mol (6.5%). For adults on a drug associated with hypoglycaemia, support them to aim for an HbA1c level of 53 mmol/mol (7.0%).

[NICE’s guideline on obesity: identification, assessment and management (CG189):](https://www.nice.org.uk/guidance/cg189)

For the recommendations in this section, the GDG considered that recent-onset type 2 diabetes would include those people whose diagnosis has been made within a 10-year time frame.

1.11.1 Offer an expedited assessment for bariatric surgery to people with a BMI of 35 or over who have recent-onset type 2 diabetes as long as they are also receiving or will receive assessment in a tier 3 service (or equivalent).

1.11.2 Consider an assessment for bariatric surgery for people with a BMI of 30 to 34.9 who have recent-onset type 2 diabetes as long as they are also receiving or will receive assessment in a tier 3 service (or equivalent).

1.11.3 Consider an assessment for bariatric surgery for people of Asian family origin who have recent-onset type 2 diabetes at a lower BMI than other populations (see recommendation 1.2.8) as long as they are also receiving or will receive assessment in a tier 3 service (or equivalent).

[SIGN’s guideline on management of diabetes:](https://www.sign.ac.uk/our-guidelines/management-of-diabetes/)

3.7.1 People with type 2 diabetes can be given dietary choices for achieving weight loss that may also improve glycaemic control. Options include simple caloric restriction, reducing fat intake, consumption of carbohydrates with low rather than high glycaemic index, and restricting the total amount of dietary carbohydrate (a minimum of 50 g per day appears safe for up to six months).

#### Current UK practice

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder’s knowledge and experience.

### Resource impact

Recommendations 1.11.1-1.11.3 (CG189) regarding assessment for bariatric surgery were included in the resource impact report for the obesity: identification, assessment and management guideline update 2014 (CG189). Clinical experts suggest that lowering the BMI criteria for people with type 2 diabetes for an assessment for bariatric surgery will increase demand for specialist weight management services (tier 3) and subsequently for specialised complex obesity services (tier 4), including surgery. The table below is from the resource impact report for the 2014 update which shows the estimated net cost of bariatric surgery to people who have recent-onset type 2 diabetes and meet the criteria. There are significant potential savings that are associated with bariatric surgery. For example, a budget impact analysis paper (Pollock, et al, 2013) that was reviewed for the guideline concluded that laparoscopic adjustable gastric banding (LAGB) showed cost savings of £91,300 (£913 per patient) over 5 years in a closed cohort of 100 patients compared with standard medical management (SMM) for obesity. Other savings include reduced diabetes, asthma, sleep apnoea medication costs, incidence of diabetes complications and reduced contact with healthcare.

|  |  |  |  |
| --- | --- | --- | --- |
| Details | Current practice  | Future practice | Change |
| Number of people | Cost (£000) | Number of people | Cost (£000s) | Numbers of people | Cost (£000s) |
| People with a BMI of less than 30 | 0 | 0 | 496 | 2567 | 496 | 2567 |
| People with a BMI of 30 to less than 35 | 0 | 0 | 2659 | 13,762 | 2659 | 13,762 |
| People with a BMI of 35 and over | 2207 | 11,423 | 4432 | 22,932 | 2225 | 11,509 |
| Totals | 2207 | 11,423 | 7587 | 39,261 | 5380 | 27,838 |

The other recommendations are not included in the resource impact statement/reports for (NG203/CG138). They were not identified as areas of the guidelines that would be likely to have a significant resource impact (>£1m in England each year).

### Issues for consideration

**For discussion:**

* What is the priority for improvement? Access to structured education or specific dietary and weight management advice?
* What is the key action that will lead to improvement? Will referral for structured education lead to improvement?
* Can we develop a specific, measurable statement? Note the existing quality statement on structured education.

**For decision:**

* Should this area be prioritised for inclusion in the quality standard?
	1. Continuous glucose monitoring

Stakeholders commented that adults with type 2 diabetes should be offered continuous glucose monitoring (CGM) if they meet specific criteria. They note that uptake of CGM may help to reduce health inequalities. Stakeholders also commented on the emerging use of ‘time in range’ as a clinical indicator.

#### Selected recommendations

[NICE’s guideline on type 2 diabetes in adults: management (NG28):](https://www.nice.org.uk/guidance/ng28)

1.6.17 Offer intermittently scanned continuous glucose monitoring (isCGM, commonly referred to as 'flash') to adults with type 2 diabetes on multiple daily insulin injections if any of the following apply:

* they have recurrent hypoglycaemia or severe hypoglycaemia
* they have impaired hypoglycaemia awareness
* they have a condition or disability (including a learning disability or cognitive impairment) that means they cannot self-monitor their blood glucose by capillary blood glucose monitoring but could use an isCGM device (or have it scanned for them)

they would otherwise be advised to self-measure at least 8 times a day.

1.6.18 Offer isCGM to adults with insulin-treated type 2 diabetes who would otherwise need help from a care worker or healthcare professional to monitor their blood glucose.

1.6.19 Consider real-time continuous glucose monitoring (rtCGM) as an alternative to isCGM for adults with insulin-treated type 2 diabetes if it is available for the same or lower cost.

1.6.23 Ensure CGM is part of the education provided to adults with type 2 diabetes who are using it (see the section on education).

1.6.26 Commissioners, providers and healthcare professionals should address inequalities in CGM access and uptake by:

* monitoring who is using CGM
* identifying groups who are eligible but who have a lower uptake

making plans to engage with these groups to encourage them to consider CGM.

#### Current UK practice

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder’s knowledge and experience.

### Resource impact

Recommendation 1.6.17 (NG28) about offering intermittently scanned continuous glucose monitoring to adults with type 2 diabetes on multiple daily insulin injections was included in the [resource impact report](https://www.nice.org.uk/guidance/ng28/resources/resource-impact-report-type-1-and-type-2-diabetes-and-continuous-glucose-monitoring-pdf-11020390813) in the type 2 diabetes in adults: management update (2022). Clinical experts estimated there would be 50,500 people eligible for CGM in the type 2 diabetes population in 2026/27. Of the eligible adults with type 2 diabetes clinical experts estimate current uptake to be low at 5% rising to 70% by year 5 with 30% self-monitoring blood glucose levels. These recommendations are likely to result in broader access to CGM devices. This will increase costs but should reduce inequalities and enable more people to access the technology. There are potential downstream savings relating to a reduction in hypoglycaemia events which could result in significant improvements to quality of life. CGM technologies can help prevent long term complications that may arise from poor control of blood glucose levels. Any potential discounts to the price of continuous glucose monitoring devices may have a significant impact on the costs of implementing these recommendations.

The other recommendations were not included in the resource impact report for (NG28). They were not identified as areas of the guidelines that would be likely to have a significant resource impact (>£1m in England each year).

### Issues for consideration

**For discussion:**

* Is offering CGM a key area for quality improvement?
* Could we focus on a specific audience or setting? Note the recommendations and stakeholder comments on potential health inequality.
* Can we develop a specific, measurable statement?

**For decision:**

* Should this area be prioritised for inclusion in the quality standard?
	1. Drug treatment

Stakeholders commented that adults with type 2 diabetes should be able to access evidence-based medications that are tailored to their individual needs, including the need to intensify treatment without delay. They noted that adults with type 2 diabetes and chronic kidney disease or cardiovascular disease should be offered dual therapy medication including an SGLT2 inhibitor. Other stakeholders noted that SGLT2 inhibitor use may increase risk of diabetic ketoacidosis and note the importance of communicating such risks. Stakeholders suggested that use of human insulin and cost-effective prescribing is an area for quality improvement.

#### Selected recommendations

[NICE’s guideline on type 2 diabetes in adults: management (NG28):](https://www.nice.org.uk/guidance/ng28)

1.6.5 Discuss and agree an individual HbA1c target with adults with type 2 diabetes (see recommendations 1.6.6 to 1.6.10). Encourage them to reach their target and maintain it, unless any resulting adverse effects (including hypoglycaemia), or their efforts to achieve their target impair their quality of life. Think about using the NICE patient decision aid on weighing up HbA1c targets to support these discussions.

1.6.7 For adults whose type 2 diabetes is managed either by lifestyle and diet, or lifestyle and diet combined with a single drug not associated with hypoglycaemia, support them to aim for an HbA1c level of 48 mmol/mol (6.5%). For adults on a drug associated with hypoglycaemia, support them to aim for an HbA1c level of 53 mmol/mol (7.0%).

1.6.8 In adults with type 2 diabetes, if HbA1c levels are not adequately controlled by a single drug and rise to 58 mmol/mol (7.5%) or higher:

* reinforce advice about diet, lifestyle and adherence to drug treatment and
* support the person to aim for an HbA1c level of 53 mmol/mol (7.0%) and

intensify drug treatment.

1.7.1 Discuss with adults with type 2 diabetes the benefits and risks of drug treatment and the options available. Base the choice of drug treatments on:

* the person's individual clinical circumstances, for example comorbidities, contraindications, weight, and risks from polypharmacy
* the person's individual preferences and needs
* the effectiveness of the drug treatments in terms of metabolic response and cardiovascular and renal protection
* safety and tolerability of the drug treatment
* monitoring requirements
* the licensed indications or combinations available

cost (if 2 drugs in the same class are appropriate, choose the option with the lowest acquisition cost).

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.

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

* If they have chronic heart failure or established atherosclerotic cardiovascular disease, offer an SGLT2 inhibitor with proven cardiovascular benefit.

If they are at high risk of developing cardiovascular disease, consider an SGLT2 inhibitor with proven cardiovascular benefit.

1.7.11 Before starting an SGLT2 inhibitor, check whether the person may be at increased risk of diabetic ketoacidosis (DKA), for example if:

* they have had a previous episode of DKA
* they are unwell with intercurrent illness

they are following a very low carbohydrate or ketogenic diet.

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 and 1.7.13 on starting an SGLT2 inhibitor).

In February 2022, using ertugliflozin to reduce cardiovascular risk when blood glucose is well controlled was off-label. See NICE's information on prescribing medicines.

1.7.25 Start insulin therapy for adults with type 2 diabetes from a choice of the following insulin types and regimens:

* Offer neutral protamine Hagedorn (NPH) insulin injected once or twice daily according to need.
* Consider starting both NPH and short‑acting insulin (particularly if the person's HbA1c is 75 mmol/mol [9.0%] or higher), administered either:
	+ separately or
	+ as a pre-mixed (biphasic) human insulin preparation.
* Consider, as an alternative to NPH insulin, using insulin detemir or insulin glargine if:
	+ the person needs help from a carer or healthcare professional to inject insulin, and use of insulin detemir or insulin glargine would reduce the frequency of injections from twice to once daily or
	+ the person's lifestyle is restricted by recurrent symptomatic hypoglycaemic episodes or
	+ the person would otherwise need twice‑daily NPH insulin injections in combination with oral glucose‑lowering drugs.
* Consider pre-mixed (biphasic) preparations that include short‑acting insulin analogues, rather than pre‑mixed (biphasic) preparations that include short‑acting human insulin preparations, if:
	+ the person prefers injecting insulin immediately before a meal or
	+ hypoglycaemia is a problem or
	+ blood glucose levels rise markedly after meals.

1.7.29 When starting an insulin for which a biosimilar is available, use the product with the lowest acquisition cost.

1.8.17 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), offer an SGLT2 inhibitor (in addition to the ARB or ACE inhibitor) if:

* ACR is over 30 mg/mmol and

they meet the criteria in the marketing authorisation (including relevant estimated glomerular filtration rate [eGFR] thresholds).

In November 2021, not all SGLT2 inhibitors were licensed for this indication. See NICE's information on prescribing medicines.

1.8.18 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 November 2021, not all SGLT2 inhibitors were licensed for this indication. See NICE's information on prescribing medicines.

#### Existing quality statement and indicators

[NICE’s quality standard on diabetes in adults (QS6):](https://www.nice.org.uk/guidance/qs6)

Statement 4 Adults with type 2 diabetes whose HbA1c level is 58 mmol/mol (7.5%) or above after 6 months with single-drug treatment are offered dual therapy.

[NHS Digital’s Quality and Outcomes Framework:](https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data)

DM020: The percentage of patients with diabetes, on the register, without moderate or severe frailty in whom the last IFCC-HbA1c is 58 mmol/mol or less in the preceding 12 months.

DM021: The percentage of patients with diabetes, on the register, with moderate or severe frailty in whom the last IFCC-HbA1c is 75 mmol/mol or less in the preceding 12 months.

#### Current UK practice

[National Diabetes Audit (quarterly report 2021/22)](https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/core-q3-21-22) reports the number of people with type 2 diabetes who achieved the following HbA1c targets in 2020:

* 31.0% achieved a HbA1c of 48 mmol/mol or below.
* 49.7% achieved a HbA1c of 53 mmol/mol or below.

63.4% achieved a HbA1c of 58 mmol/mol or below.

[NHS Digital’s quality and outcomes framework](https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data) for 2019 to 2020 shows that 66.9% of people with diabetes without moderate or severe frailty had a HbA1c of 58 mmol/mol or less in the preceding 12 months (DM020). 90.1% of people with diabetes with moderate or severe frailty had a HbA1c of 75 mmol/L or less in the preceding 12 months (DM021).

[NICE’s resource impact report for NG28 (type 2 diabetes and cardiovascular risk update)](https://www.nice.org.uk/guidance/ng28/resources) estimates that there are 1.7 million people in England who are eligible for treatment with SGLT2 inhibitors, based on recommendations 1.7.5. and 1.7.15. The study on [prescribing in type 2 diabetes patients with and without cardiovascular disease history: a descriptive analysis in the UK CPRD (Farmer et al, 2021)](https://www.clinicaltherapeutics.com/article/S0149-2918%2820%2930564-6/fulltext) indicates that 18% of the eligible population currently receive SGLT2 inhibitors. This study used Clinical Practice Research Datalink data for four cross-sections of people with type 2 diabetes aged 18 to 90 during 1 January 2017 to 31 December 2019 (617,277 total number of people included).

No published studies on current practice for insulin prescribing were highlighted for this suggested area for quality improvement; this area is based on stakeholder’s knowledge and experience.

### Resource impact

Recommendation 1.7.5 and 1.7.15 relating to SGLT2 inhibitors were included in the [resource impact report](https://www.nice.org.uk/guidance/ng28/resources/resource-impact-report-type-2-diabetes-and-cardiovascular-risk-update-pdf-10958006557) for Type 2 diabetes in adults: management guideline update (2022). 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.

Recommendation 1.8.17 and 1.8.18 relating to SGLT2 inhibitors were included in the [resource impact report](https://www.nice.org.uk/guidance/ng28/resources/resource-impact-report-type-2-diabetes-and-ckd-update-pdf-10889242093) for type 2 diabetes in adults: management guideline update (2021). For recommendation 1.8.17 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 table below. 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. 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. The committee were less confident in the evidence for recommendation 1.8.18 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. The drug cost for every additional 1,000 people who were to receive an SGLT2 as a result of recommendation 1.8.18 would be an estimated £477,000.

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 1.8.17 (£000)  | £1,634 | £5,718 | £9,966 | £13,887 | £13,887 |
| Savings for recommendation 1.8.17 (£000) | -£60 | £390 | £1,905 | £3,845 | £6,041 |
| Total cost for England (£000) | **£1,694** | **£5,328** | **£8,060** | **£10,042** | **£7,846** |

The other recommendations were not included in the resource impact statement/reports for (NG28). They were not identified as areas of the guidelines that would be likely to have a significant resource impact (>£1m in England each year).

### Issues for consideration

**For discussion:**

* What is the priority for improvement?
* What is the key action that will lead to improvement? Is it timely intensification of treatment, focus on use of specific medications (SGLT2 inhibitors)?
* Could we focus on a specific audience or setting? Stakeholders suggested a focus on people with cardiovascular risk or chronic kidney disease for treatment with SGLT2 inhibitors.
* Can we develop a specific, measurable statement? Note the existing statement on intensification of treatment.

**For decision:**

* Should this area be prioritised for inclusion in the quality standard?
	1. Complications

### Annual checks

Stakeholders commented that adults with type 2 diabetes should be tested for complications annually, including estimated glomerular filtration rate (eGFR) and urine ACR as markers for chronic kidney disease.

#### Selected recommendations

[NICE’s guideline on chronic kidney disease: assessment and management (NG203):](https://www.nice.org.uk/guidance/ng203)

1.1.14 Measure proteinuria with urine ACR in the following groups:

* adults, children and young people with diabetes (type 1 or type 2)
* adults with an eGFR of less than 60 ml/min/1.73 m2
* adults with an eGFR of 60 ml/min/1.73 m2 or more if there is a strong suspicion of CKD

children and young people without diabetes and with creatinine above the upper limit of the age-appropriate reference range.

When ACR is 70 mg/mmol or more, PCR can be used as an alternative to ACR.

1.1.21 Offer testing for CKD using eGFRcreatinine and ACR to adults with any of the following risk factors:

diabetes

[NICE’s guideline on hypertension in adults: diagnosis and management (NG136):](https://www.nice.org.uk/guidance/ng136)

1.2.11 Measure blood pressure at least annually in an adult with type 2 diabetes without previously diagnosed hypertension or renal disease. Offer and reinforce preventive lifestyle advice.

[NICE’s guideline on type 2 diabetes in adults: management (NG28):](https://www.nice.org.uk/guidance/ng28)

1.6.1 Measure HbA1c levels in adults with type 2 diabetes every:

* 3 to 6 months (tailored to individual needs) until HbA1c is stable on unchanging therapy

6 months once the HbA1c level and blood glucose lowering therapy are stable.

1.8.26 Encourage adults to attend eye screening, and explain that it will help them to keep their eyes healthy and help to prevent problems with their vision. Explain that the screening service is effective at identifying problems so that they can be treated early.

[NICE’s guideline on diabetic foot problems: prevention and management (NG19):](https://www.nice.org.uk/guidance/ng19)

1.3.3 For adults with diabetes, assess their risk of developing a diabetic foot problem at the following times:

* When diabetes is diagnosed, and at least annually thereafter (see the recommendation on carrying out reassessments at intervals, depending on the person's risk of developing a diabetic foot problem).
* If any foot problems arise.

On any admission to hospital, and if there is any change in their status while they are in hospital.

1.3.7 For people who are at low risk of developing a diabetic foot problem, continue to carry out annual foot assessments, emphasise the importance of foot care, and advise them that they could progress to moderate or high risk.

1.3.11 Depending on the person's risk of developing a diabetic foot problem, carry out reassessments at the following intervals:

* Annually for people who are at low risk
* Frequently (for example, every 3 to 6 months) for people who are at moderate risk.
* More frequently (for example, every 1 to 2 months) for people who are at high risk, if there is no immediate concern.
* Very frequently (for example, every 1 to 2 weeks) for people who are at high risk, if there is immediate concern

Consider more frequent reassessments for people who are at moderate or high risk, and for people who are unable to check their own feet.

#### Existing quality statement and indicators

[NICE’s quality standard on chronic kidney disease in adults (QS5):](https://www.nice.org.uk/guidance/qs5)

Statement 5 Adults with, or at risk of, chronic kidney disease (CKD) have eGFRcreatinine and albumin:creatinine ratio (ACR) testing at the frequency agreed with their healthcare professional.

[NHS Digital’s indicators no longer in QOF (part of GP contract services)](https://digital.nhs.uk/data-and-information/publications/statistical/gp-contract-services)

DM005: The percentage of people with diabetes, on the register, who have a record of an albumin:creatinine ratio test in the preceding 12 months.

DM011: The percentage of patients with diabetes, on the register who have a record of retinal screening in the preceding 12 months.

#### Current UK practice

[National Diabetes Audit (quarterly report 2021/22)](https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/core-q3-21-22) showed the percentage of people with type 2 diabetes (and other types of diabetes, excluding type 1 diabetes) that met the annual care processes recommended in the audit in 2021 to 2022:

* 84.5% had a HbA1c measurement.
* 81.7% had blood pressure measurement.
* 76.7% had cholesterol measurement.
* 84.7% had a serum creatinine measurement.
* 52.8% had a urine albumin measurement.
* 60.8% had foot surveillance.
* 73.1% had BMI recorded.
* 88.1% had their smoking history recorded.

38.5% had all 8 care processes recorded.

### Diabetic foot problems

Stakeholders commented that early access to foot care across primary and secondary care is an area for quality improvement, including access to foot protection service for those with a moderate or high risk of developing a problem, immediate referral and same day assessment to a multidisciplinary team for people with active foot disease and assessment for all people with diabetes when they are admitted to hospital. They suggested a standardised education package on recognition and access to care should be available for all healthcare professionals, including information to enable self-management. Stakeholders also noted emerging problems with antimicrobial resistance and highlighted the clear guidance on choice of antibiotics.

#### Selected recommendations

[NICE’s guideline on diabetic foot problems: prevention and management (NG19):](https://www.nice.org.uk/guidance/ng19)

1.1.3 Refer the person to the multidisciplinary foot care service within 24 hours of the initial examination of the person's feet. Transfer the responsibility of care to a consultant member of the multidisciplinary foot care service if a diabetic foot problem is the dominant clinical factor for inpatient care.

1.2.1 Commissioners and service providers should ensure that the following are in place:

* A foot protection service for preventing diabetic foot problems, and for treating and managing diabetic foot problems in the community.
* A multidisciplinary foot care service for managing diabetic foot problems in hospital and in the community that cannot be managed by the foot protection service. This may also be known as an interdisciplinary foot care service.
* Robust protocols and clear local pathways for the continued and integrated care of people across all settings including emergency care and general practice. The protocols should set out the relationship between the foot protection service and the multidisciplinary foot care service.

Regular reviews of treatment and patient outcomes, in line with the National Diabetes Foot Care Audit.

1.2.3 The multidisciplinary foot care service should be led by a named healthcare professional, and consist of specialists with skills in the following areas:

* Diabetology.
* Podiatry.
* Diabetes specialist nursing.
* Vascular surgery.
* Microbiology.
* Orthopaedic surgery
* Biomechanics and orthoses.
* Interventional radiology.
* Casting.

Wound care.

1.3.3 For adults with diabetes, assess their risk of developing a diabetic foot problem at the following times:

* When diabetes is diagnosed, and at least annually thereafter (see the recommendation on carrying out reassessments at intervals, depending on the person's risk of developing a diabetic foot problem).
* If any foot problems arise.

On any admission to hospital, and if there is any change in their status while they are in hospital.

1.3.6 Assess the person's current risk of developing a diabetic foot problem or needing an amputation using the following risk stratification:

* Low risk:
	+ no risk factors present except callus alone.
* Moderate risk:
	+ deformity or
	+ neuropathy or
	+ non-critical limb ischaemia.
* High risk:
	+ previous ulceration or
	+ previous amputation or
	+ on renal replacement therapy or
	+ neuropathy and non-critical limb ischaemia together or
	+ neuropathy in combination with callus and/or deformity or
	+ non-critical limb ischaemia in combination with callus and/or deformity.
* Active diabetic foot problem:
	+ ulceration or
	+ spreading infection or
	+ critical limb ischaemia or
	+ gangrene or
	+ suspicion of an acute Charcot arthropathy, or an unexplained hot, red, swollen foot with or without pain.

1.3.8 Refer people who are at moderate or high risk of developing a diabetic foot problem to the foot protection service.

1.3.9 The foot protection service should assess newly referred people as follows:

* Within 2 to 4 weeks for people who are at high risk of developing a diabetic foot problem.

Within 6 to 8 weeks for people who are at moderate risk of developing a diabetic foot problem.

1.3.10 For people at moderate or high risk of developing a diabetic foot problem, the foot protection service should:

* Assess the feet.
* Give advice about, and provide, skin and nail care of the feet.
* Assess the biomechanical status of the feet, including the need to provide specialist footwear and orthoses.
* Assess the vascular status of the lower limbs.

Liaise with other healthcare professionals, for example, the person's GP, about the person's diabetes management and risk of cardiovascular disease.

1.3.13 Provide information and clear explanations to people with diabetes and/or their family members or carers (as appropriate) when diabetes is diagnosed, during assessments, and if problems arise. Information should be oral and written, and include the following:

* Basic foot care advice and the importance of foot care.
* Foot emergencies and who to contact.
* Footwear advice.
* The person's current individual risk of developing a foot problem.

Information about diabetes and the importance of blood glucose control (also see recommendation 1.3.14)

1.4.1 If a person has a limb-threatening or life-threatening diabetic foot problem, refer them immediately to acute services and inform the multidisciplinary foot care service (according to local protocols and pathways; also see the recommendation on services and protocols commissioners and service providers should ensure are in place), so they can be assessed and an individualised treatment plan put in place. Examples of limb-threatening and life-threatening diabetic foot problems include the following:

* Ulceration with fever or any signs of sepsis.
* Ulceration with limb ischaemia (see the NICE guideline on peripheral arterial disease).
* Clinical concern that there is a deep‑seated soft tissue or bone infection (with or without ulceration).

Gangrene (with or without ulceration).

1.4.2 For all other active diabetic foot problems, refer the person within 1 working day to the multidisciplinary foot care service or foot protection service (according to local protocols and pathways; also see the recommendation on services and protocols commissioners and service providers should ensure are in place) for triage within 1 further working day.

1.4.3 Provide information and clear explanations as part of the individualised treatment plan for people with a diabetic foot problem. Information should be oral and written, and include the following:

* A clear explanation of the person's foot problem.
* Pictures of diabetic foot problems.
* Care of the other foot and leg.
* Foot emergencies and who to contact.
* Footwear advice.
* Wound care.

Information about diabetes and the importance of blood glucose control (also see the recommendation on additional guidance on education programmes and information about diabetes)

1.6.8 When prescribing antibiotics for a suspected diabetic foot infection in adults aged 18 years and over, follow table 1 for a mild infection or table 2 for a moderate or severe infection.

1.6.10 Give oral antibiotics first line if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

1.6.11 If intravenous antibiotics are given, review by 48 hours and consider switching to oral antibiotics if possible.

1.6.12 Base antibiotic course length on the severity of the infection and a clinical assessment of response to treatment. Review the need for continued antibiotics regularly.

1.16.14 When microbiological results are available

* review the choice of antibiotic and

change the antibiotic according to results, using a narrow-spectrum antibiotic, if appropriate.

#### Existing quality statements and indicators

[NICE’s quality standard on diabetes in adults (QS6):](https://www.nice.org.uk/guidance/qs6)

Statement 5 Adults at moderate or high risk of developing a diabetic foot problem are referred to the foot protection service.

Statement 6 Adults with a limb-threatening or life-threatening diabetic foot problem are referred immediately for specialist assessment and treatment.

[NHS Digital’s Quality and Outcomes Framework:](https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data)

DM012: The percentage of patients with diabetes, on the register, with a record of foot examination and risk classification: 1) low risk (normal sensation, palpable pulses), 2) increased risk (neuropathy or absent pulses), 3) high risk (neuropathy or absent pulses plus deformity or skin changes in previous ulcer or 4) ulcerated foot within the preceding 12 months.

#### Current UK practice

[The Getting it Right First Time (GIRFT) programme national speciality report on diabetes](https://www.gettingitrightfirsttime.co.uk/girft-reports/) in 2020 found wide variation in the quality and coordination of foot services and access to a multidisciplinary footcare service. They found that community staff are often not trained to perform footcare examinations and as a result opportunity to intervene early may be lost.

The [National Diabetes foot care audit](https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-footcare-audit/2014-2018) showed that in 2018, 31% of providers had all of the following six care structures in place:

* Training for routine diabetic foot examinations.
* An established foot protection service pathway.
* An established pathway for new referrals – if needed – for an assessment within 24 hours.
* Step-down or shared care between the multidisciplinary foot team and the foot protection service.
* Urgent vascular assessment within 24 hours.

Time dedicated to discuss patients with vascular services.

90.7% of providers had a foot protection service pathway in place and 72.2% had routine foot examination training. 53.7% of providers had an urgent referral pathway.

The audit also reported on time to first expert assessment by network and provider. Ulcers having expert assessment within 14 days showed 61.7% nationally with variation from 44.9% to 80.4% between networks.

[NHS Digital’s quality and outcomes framework data](https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data) from 2019 to 2020 shows that 88% of people with type 1 and type 2 diabetes had a record of a foot examination and risk classification within the preceding 12 months (DM012).

### Inpatient care

Stakeholders commented that adults with type 2 diabetes should receive advice from a multidisciplinary team with expertise in diabetes when they are admitted to hospital. They should be supported to manage their own diabetes care.

#### Selected recommendations

No recommendations identified.

#### Current UK practice

The [National Diabetes Inpatient Audit, England](https://www.hqip.org.uk/resource/national-diabetes-inpatient-audit-2019-report/) in 2019 reported that 36% of hospital sites had an electronic system to identify and notify the diabetes team of all people with diabetes on admission and 63% of hospital sites had systems to triage those needing a diabetes review. 75% of inpatients with diabetes were seen by the diabetes team where appropriate (78% of people with type 2 diabetes controlled by insulin, 65.7% of people with type 2 diabetes non-insulin and 63.2% of people with type 2 diabetes controlled by diet). This was higher where 7-day diabetes inpatient specialist nurse cover was provided.

The audit reports data on staffing provision:

* 18% of hospital sites had no dedicated inpatient specialist nurse.
* 64.6% of hospital sites had no specialist inpatient dietetic provision for inpatients with diabetes.
* 18.2% of sites had no inpatient podiatry service for inpatients with diabetes.

74.0% had no inpatient specialist pharmacy service for inpatients with diabetes.

45.9% of hospital sites had a policy or guideline for self-management of diabetes in 2019 compared to 52.9% in 2017. 65.2% had a policy or guideline for self-administration of diabetes medication compared to 61.4% in 2017. 70% of people with diabetes were satisfied with their control over their blood sugar management during their hospital stay in 2019 (70.1% in 2017).

97% of the 193 sites eligible for the audit participated in 2019, bedside data on 15,479 inpatients was submitted and 56% of inpatients returned a patient experience questionnaire. The audit collected data from patients admitted to a hospital bed for 24 hours or more, excluding obstetric, paediatric and mental health wards. See audit report for full list of exclusions.

### Resource impact

These recommendations were not included in the resource impact statement/reports for (NG28/NG136/NG19/NG203). They were not identified as areas of the guidelines that would be likely to have a significant resource impact (>£1m in England each year).

### Issues for consideration

**For discussion:**

* What is the priority for improvement?
* What is the key action that will lead to improvement in foot care for people with type 2 diabetes?
* Could we focus on a specific audience or setting? Is it foot care for all patients with type 2 diabetes or a focus on those with risk factors?
* Can we develop a specific, measurable statement? Note the two existing statements on foot care in diabetes.

**For decision:**

* Should this area be prioritised for inclusion in the quality standard?
	1. Patient experience

### Access to care

Stakeholders commented that adults with type 2 diabetes should have their care tailored to their individual circumstances, needs and wishes. There should be equal access to diabetes services and noted that this could be achieved by offering appointments at different times of the day with both face to face and remote appointments available. Stakeholders noted the need for support for people with diabetes who have mental health concerns.

#### Selected recommendations

[NICE’s guideline on type 2 diabetes on adults: management (NG28):](https://www.nice.org.uk/guidance/ng28)

1.1.1 See section 4.2.

[NICE’s guideline on patient experience in adult NHS services: improving the experience of care for people using adult NHS services (CG138):](https://www.nice.org.uk/guidance/cg138)

1.1.6 Take into account the requirements of the Equality Act 2010 and make sure services are equally accessible to, and supportive of, all people using adult NHS services.

1.1.7 If appropriate, discuss with the patient their need for psychological, social, spiritual and/or financial support. Offer support and information to the patient and/or direct them to sources of support and information. Review their circumstances and need for support regularly.

#### Existing quality statement

[NICE’s quality standard on patient experience in adult NHS services (QS15):](https://www.nice.org.uk/guidance/qs15)

Statement 4 People using adult NHS services experience care and treatment that is tailored to their needs and preferences.

#### Current UK practice

[Diabetes UK’s position statement on diabetes care during the COVID-19 pandemic](https://www.diabetes.org.uk/professionals/resources/coronavirus-clinical-guidance#clinical-guidance) includes data from a survey performed in September 2020 asking people with diabetes about their experiences in accessing care during the COVID-19 pandemic. Over 4000 people with diabetes responded. They found that 58% of people had a consultation during the pandemic over the telephone, 17% face to face and 6% by video. 76% of people who had a remote consultation had a positive experience and 73% found it useful.

[Diabetes UK’s care survey](https://www.diabetes.org.uk/about_us/news/care-survey-2016) (2015) showed that 20% of people with type 2 diabetes had been offered access to emotional support. The results are taken from an online survey of 3,000 respondents. [Diabetes UK’s too often missing: making emotional and psychological support routine in diabetes care](https://www.diabetes.org.uk/get_involved/campaigning/its-missing-evidence) (2019) reports that 70% of people with diabetes said that they are rarely or never supported to have conversations about emotional wellbeing and 40% of GPs said they would not be likely to ask about mental health in a routine diabetes appointment. This report used a mixed method approach including 2,667 online survey responses from people aged over 18 and GP poll from over 1,000 GPs across the UK. See the report methodology for complete information.

### Communication

Stakeholders commented on the importance of allowing sufficient time at appointments, including time to discuss prognosis and complications. They also noted that adults with diabetes should be reassured that treatment is evidence-based.

#### Selected recommendations

[NICE’s guideline on type 2 diabetes on adults: management (NG28):](https://www.nice.org.uk/guidance/ng28)

1.6.5 Discuss and agree an individual HbA1c target with adults with type 2 diabetes (see recommendations 1.6.6 to 1.6.10). Encourage them to reach their target and maintain it, unless any resulting adverse effects (including hypoglycaemia), or their efforts to achieve their target impair their quality of life. Think about using the NICE patient decision aid on weighing up HbA1c targets to support these discussions.

1.7.1 Discuss with adults with type 2 diabetes the benefits and risks of drug treatment and the options available. Base the choice of drug treatments on:

* the person's individual clinical circumstances, for example comorbidities, contraindications, weight, and risks from polypharmacy
* the person's individual preferences and needs
* the effectiveness of the drug treatments in terms of metabolic response and cardiovascular and renal protection
* safety and tolerability of the drug treatment
* monitoring requirements
* the licensed indications or combinations available

cost (if 2 drugs in the same class are appropriate, choose the option with the lowest acquisition cost).

See the NICE guideline on shared decision making and the section on safety of medicines for diabetes before and during pregnancy in the NICE guideline on diabetes in pregnancy.

[NICE’s guideline on shared decision making (NG197):](https://www.nice.org.uk/guidance/ng197)

1.2.10 When discussing tests, treatments or other healthcare services:

* explain the healthcare aims of each option and discuss how they align with the person's aims, priorities and wider goals
* openly discuss the risks, benefits and consequences of each option, making sure the person knows this includes choosing no treatment, or no change to what they are currently doing
* clarify what the person hopes to gain from a treatment or intervention and discuss any misconceptions

set aside enough time to answer questions, and ask the person if they would like a further opportunity to discuss options.

#### Current UK practice

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder’s knowledge and experience.

### Coordination of care

Stakeholders suggested that joint working between primary, community and secondary care is an area for quality improvement. They noted that this should include the adult with type 2 diabetes as an equal partner. They commented on challenges in data sharing and integration of outcome targets across different providers. Stakeholders suggest that standards for communication are required to support this area of improvement.

#### Selected recommendations

[NICE’s guideline on patient experience in adult NHS services: improving the experience of care for people using adult NHS services (CG138):](https://www.nice.org.uk/guidance/cg138)

1.4.2 For patients who use a number of different services (for example, services in both primary and secondary care, or attending different clinics in a hospital), ensure effective coordination and prioritisation of care to minimise the impact on the patient.

1.4.3 Ensure clear and timely exchange of patient information:

* between healthcare professionals (particularly at the point of any transitions in care)

between healthcare and social care professionals in line with the Health and Social Care (Safety and Quality) Act 2015.

#### Existing quality statement

[NICE’s quality standard on patient experience in adult NHS services (QS15):](https://www.nice.org.uk/guidance/qs15)

Statement 3 People using adult NHS services experience coordinated care with clear and accurate information exchange between relevant health and social care professionals.

#### Current UK practice

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder’s knowledge and experience.

### Resource impact

These recommendations were not included in the resource impact statement/reports for (NG28/CG138/NG197). They were not identified as areas of the guidelines that would be likely to have a significant resource impact (>£1m in England each year).

### Issues for consideration

**For discussion:**

* What is the priority for improvement?
* What is the key action that will lead to improvement?
* Can we develop a specific, measurable statement? Note the existing quality statements.

**For decision:**

* Should this area be prioritised for inclusion in the quality standard?
	1. Additional areas

### Summary of suggestions

The improvement areas below were suggested as part of the stakeholder engagement exercise. However, they were felt to be either unsuitable for development as quality statements, outside the remit of this particular quality standard referral or need further discussion by the committee to establish potential for statement development.

There will be an opportunity for the committee to discuss these areas at the end of the Advisory Committee meeting.

Table 2 Summary of information available for additional areas

| Suggested area for improvement | Within remit of NICE QS | In scope | Guideline recs | Relevant existing QS  |
| --- | --- | --- | --- | --- |
| Gestational diabetes | Yes | No | Yes | Yes |
| Other types of diabetes | Yes | No | No | No |
| Invalid HbA1c | Yes | No | No | No |

### Gestational diabetes

Stakeholders commented that women who have had gestational diabetes should have annual testing for type 2 diabetes and that is not done well in practice. The quality standard on diabetes in pregnancy covers this area. This suggestion has not been progresses as it is included in [NICE’s quality standard on diabetes in pregnancy](https://www.nice.org.uk/guidance/indevelopment/gid-qs10157) (QS109).

### Other types of diabetes

Stakeholders noted the lack of guidance around other types of diabetes. This area has not been progressed because additional guidance is outside of the remit of quality standards. Suggestions for additional guidance will be passed on to the NICE centre for guidelines.

### Invalid HbA1c

Stakeholders noted NICE recommendations on alternative estimates of blood glucose control when HbA1c measurement may be invalid. They suggest that the guideline should be updated to discourage testing by HbA1c in people in whom it is an invalid test and suggest the need to clarify the term quality-controlled plasma glucose profiles in the guideline recommendations. This area has not been progressed because additional guidance is outside of the remit of quality standards. Suggestions for additional guidance will be passed on to the NICE centre for guidelines.

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# Appendix 1: Suggestions from registered stakeholders

| ID | Stakeholder | Suggested key area for quality improvement | Why is this a key area for quality improvement? | Supporting information |
| --- | --- | --- | --- | --- |
| 01 | SCM1 | **Prevention of type 2 diabetes (risk assessment):** Urinary Albumin Creatinine Ratio (UACR) to be done in people with prediabetes as a composite vascular outcome for both micro-and macrovascular complications. | People with prediabetes (HbA1c 42-47 mmol/mol) are not only at a higher risk of progression to T2DM, they are also at a higher risk of vascular complications. Current diabetes prevention model assumes that keeping the HbA1c below diabetes range will protect people from vascular complications which is not the case. UACR can be used as a composite marker for both micro and macrovascular complications. | Meta-analysis of 53 prospective studies (n=1,611,339) showed that compared with those with normoglycaemia, people with prediabetes are 25% higher risk of composite cardiovascular disease:<https://www.bmj.com/content/370/bmj.m2297>A recent prospective study on people with prediabetes (n=46,911), after a median follow up of 11 years, 13.8% (n=6,476) developed vascular complications. Out of them only 12.4% (n=802) progressed from prediabetes to T2DM<https://pubmed.ncbi.nlm.nih.gov/34015477/> |
| 02 | SCM5 | **Prevention of type 2 diabetes (risk assessment):** Recognising and early intervention of pre-diabetes and Type 2 diabetes | Ability to have better screening toolsReduce number of patients with undiagnosed diabetes Increase health checks for patients over 40 Increase awareness of diabetes <https://www.nice.org.uk/guidance/qs6/chapter/Quality-statement-1-Preventing-type-2-diabetes> |  |
| 03 | Diabetes UK | **Prevention of type 2 diabetes (intensive lifestyle-change programmes):** Preventing type 2 diabetes – high risk adults are identified and offered referral to an intensive lifestyle change program | There is still a persistent rise in the number of people diagnosed with type 2 diabetes which supports proven interventions like the Diabetes Prevention Programme to help individuals reduce their risk of developing the condition. It is also important to increase the number of NHS Health Checks taking place to identify people who have been unable to attend one due the pandemic disruptions. | The NDA records the number of people at high risk of type 2 diabetes and proportion who are offered and attend behavioural change prevention courses. The Office of Health Disparities (OHID) report the number of NHS Health checks that are offered and taken up – highlighting the decline in 2020/2021: <https://fingertips.phe.org.uk/profile/nhs-health-check-detailed> |
| 04 | NHSE National Diabetes Programme | **Prevention of type 2 diabetes (intensive lifestyle-change programmes):** Adults at risk of developing type 2 diabetes are offered a referral to an intensive lifestyle change programme (such as the Diabetes Prevention Programme), and adults with type 2 diabetes are offered a referral to a weight management programme (such as the Digital Weight Management Programme) where appropriate.  | Many cases of type 2 diabetes are preventable through changes to a person's diet and physical activity levels. Evidence-based intensive lifestyle-change programmes can significantly reduce the risk of developing the condition for those at high risk. | PH38 |
| 05 | SCM1 | **Prevention of type 2 diabetes (intensive lifestyle-change programmes):** Include smoking cessation as a core component of structured lifestyle intervention for people referred to diabetes prevention programme as well as in DESMOND. | Smoking is an independent risk factors for adverse vascular outcomes in both people with prediabetes and diabetes. Post-cessation weight gain is a major barrier to successful smoking cessation. The weight loss achieved by structured lifestyle intervention in diabetes prevention programme can be opportunistically used to offset post-cessation weight gain. | Compared to non-smokers, the odds ratio of smokers with T2DM to develop albuminuria is 2.13 (95% CI 1.32 – 3.45). After a duration of 9 years after the onset of T2DM, the risk increases by 53%, OR 1.53 (95% CI 1.10 – 2.13)], and after 16 years OR 5.94 (2.58 – 15.05). With younger people developing T2DM, <https://pubmed.ncbi.nlm.nih.gov/30799525/>A recent cross-sectional study on the UK Biobank (n=502,490) reported that smoking is an independent risk factor for people with prediabetes to develop albuminuria.<https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4023228> |
| 06 | ABCD | **Education and advice (structured education):** Adults living with type 2 diabetes are offered a programme of diabetes structured education from diagnosis that is updated at least annually | NICE 28[Overview | Type 2 diabetes in adults: management | Guidance | NICE](https://www.nice.org.uk/guidance/ng28) |  |
| 07 | BDA | **Education and advice (structured education):** Tackling health inequalities through tailored education provided in a range of suitable formats (digital / face to face group / individual). | The COVID-19 pandemic has highlighted interactions between poverty and diabetes, and between deprivation, diabetes and poorer COVID-19 outcomes.  | NICE 1.2.5 – ensure that education programmes for adults with type 2 diabetes meet the cultural, linguistic, cognitive and literacy needs of people in the local area.The guideline: ‘Best Practice in Diabetes in the Primary Care Network’ - emphasises the importance of culturally tailored education as more efficacious. |
| 08 | BDA | **Education and advice (structured education):** Early attendance of structured education at diagnosis and an annual offer – education should be tailored, and where unsuitable, alternatives should be offered. | Historically, attendance of face-to-face Type 2 diabetes structured education within the first year of diagnosis has been reportedly low (in part due to poor data capture) with considerable variation across the UK. Face to face structured education soon after diagnosis with type 2 diabetes is efficacious and well established; with demonstrable improvements in glycaemic control, quality of life and weight, and reduced cardiovascular risk after attendance. Furthermore there has been reported reduction of depression, improvement of empowerment, skills and confidence in self-management of diabetes; with cost-effective benefits.In response to the pandemic, availability of traditional face to face group programmes has reduced and a large proportion of structured self-management education programmes for type 2 diabetes are now offered virtually. This is a critical time to reinforce the messages around education.Local attendance data should be interrogated to see if there are certain demographic characteristics which have lower attendance as well as whether certain modalities of delivery suit certain population groups. | The guideline: ‘Best Practice in Diabetes in the Primary Care Network’ - emphasises the importance of *early* *attendance* of structured education and annual consideration (rather than referral).<https://www.diabetes.org.uk/professionals/resources/shared-practice/primary-and-community-care/pcn-delivery-of-care> (also hosted by PCDS).NICE NG28 recommends access to structured education within a year of diagnosis and annually. |
| 09 | NHSE National Diabetes Programme | **Education and advice (structured education):** Adults with type 2 diabetes are offered a structured education programme at diagnosis (including equal standard alternatives to group based learning such as nationally available digital programmes) from diagnosis, and this offer should be reinforced and reviewed annually. | Diabetes is a challenging and complex condition and people need the skills to manage the daily demands of self-management and avoid complications. Structured education has been shown to improve glycaemic control leading to a reduction in HbA1c, reduce risk of hypoglycaemia (thereby reducing emergency treatment costs), help restore hypoglycaemia awareness, improve quality of life and reduce anxiety and depression. An offer of structured education forms part of the NICE guidance for T1 diabetes management. The National Diabetes Audit found that in 2020/21 only 40% of people diagnosed with type 1 diabetes that year were offered structured education, and only 7.2% attended.  | [Diabetes%20UK\_Diabetes%20education%20-%20the%20big%20missed%20opportunity\_updated%20June%202016.pdf (diabetes-resources-production.s3-eu-west-1.amazonaws.com)](https://diabetes-resources-production.s3-eu-west-1.amazonaws.com/diabetes-storage/migration/pdf/Diabetes%2520UK_Diabetes%2520education%2520-%2520the%2520big%2520missed%2520opportunity_updated%2520June%25202016.pdf)[Microsoft Power BI](https://app.powerbi.com/view?r=eyJrIjoiOGY3YWRiYTYtYjAzMi00YjM4LTkwYmItZTJkN2Y3ODZiMGE5IiwidCI6IjUwZjYwNzFmLWJiZmUtNDAxYS04ODAzLTY3Mzc0OGU2MjllMiIsImMiOjh9)NICE NG28 |
| 10 | SCM1 | **Education and advice (structured education):** Weight management and closer follow up should be integral parts of smoking cessation intervention for people with prediabetes and diabetes | Post-cessation weight gain is almost inevitable, and it should be anticipated. It is one of the major deterrents for the smokers to quit and remain abstinent. Post-cessation weight gain can cause people with prediabetes to develop T2DM, and in people with T2DM to have glycaemic control worsened. Careful monitoring of weight and HbA1c is necessary for people with prediabetes and T2DM when they stop smoking | Post-cessation weight gain is strongly associated with incident T2DM<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9046538/>Most of the weight gain occurs within 3 months of quitting. Support during the first 3 months can be very useful<https://pubmed.ncbi.nlm.nih.gov/22782848/>Smokers with prediabetes can revert back to normoglycaemia if they quit and follow structured lifestyle intervention <https://pubmed.ncbi.nlm.nih.gov/34684360/> |
| 11 | SCM4 | **Education and advice (structured education):** Structured education programmes for adults with Type 2 Diabetes | The National Diabetes Audit, 2019-20 (T2D) - In England, recorded offers of structured education, with no time limit, remained around the same levels for the last three to four years. There was an increase in offer rates within one and two years of diagnosis.  | NDA 2019-20NG28 |
| 12 | SCM5 | **Education and advice (structured education):** Improving access and attendance to Structured education within 12 months of referral  |  | <https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/core-q3-21-22>one area 57% offered 14% attended |
| 13 | SCM6 | **Education and advice (structured education):** patient activation | Low Patient Activation is commensurate with poor clinical outcomes. Patient Activation and problem solving ability is essential to co-created health where the patient is an equal partner in care. 24% of the population present with low levels of Activation to self manage and prevent crisis. Historic models of care focus on clinical risk indicators as contributors to crises and ignore the significant impact of Patient factors on prognosis. NICE currently focuses on the fundamental right of self determination but doesn’t set the standards for supporting the requisite increase in Activation. Standards are required to improve the quality of Coaching for Activation, so that patients and their carers may develop the knowledge, skill, confidence and importance to self manage their diabetes and prevent crisis through addressing underlying hazards. Action :- individualised care plans agreed with person living with type 2 diabetes to include coaching for activation. Importance and Confidence scaling to self manage and problem solve is a subjective measure which should inform the patient centred management plan. PAM-13 scoring provides a validated measure of problem solving ability and highlights specific support needs.  | • Prudent health care and patient activation An appraisal prepared for the Planned Care Programme Welsh Government December 201• Person Centred Value Based Health Care Programme (Wales) • Wellbeing of Future generations (Wales) Act 2015• Nice Guideline NG19 “ People have the right to be involved in discussions and make informed decisions about their care… “• NICE: making decisions about your care• Quality Statement 2 :- Structured education programmes for adults with type 2 diabetes • Quality Statement 5 : Referral for adults at moderate or high risk of diabetic foot problems • Developing the Intervention for the All Wales Diabetes Prevention Programme – Public Health Wales• All Wales Prudent Model for Prevention of Diabetes Related Crisis (addendum to Putting Feet First) |
| 14 | SCM7 | **Education and advice (structured education):** Tackling health inequalities through tailored education | The COVID-19 pandemic has highlighted interactions between poverty and diabetes, and between deprivation, diabetes and poorer COVID-19 outcomes. | NICE 1.2.5 – ensure that education programmes for adults with type 2 diabetes meet the cultural, linguistic, cognitive and literacy needs of people in the local area.The guideline: ‘Best Practice in Diabetes in the Primary Care Network’ - emphasises the importance of culturally tailored education as more efficacious. |
| 15 | SCM7 | **Education and advice (structured education):** Early attendance of structured education at diagnosis and an annual offer – education should be tailored, and where unsuitable, alternatives should be offered. | Historically, attendance of face-to-face Type 2 diabetes structured education within the first year of diagnosis has been reportedly low (in part due to poor data capture) with considerable variation across the UK. Face to face structured education soon after diagnosis with type 2 diabetes is efficacious and well established; with demonstrable improvements in glycaemic control, quality of life and weight, and reduced cardiovascular risk after attendance. Furthermore there has been reported reduction of depression, improvement of empowerment, skills and confidence in self-management of diabetes; with cost-effective benefits.In response to the pandemic, availability of traditional face to face group programmes has reduced and a large proportion of structured self-management education programmes for type 2 diabetes are now offered virtually. This is a critical time to reinforce the messages around education.Local attendance data should be interrogated to see if there are certain demographic characteristics which have lower attendance as well as whether certain modalities of delivery suit certain population groups. | The guideline: ‘Best Practice in Diabetes in the Primary Care Network’ - emphasises the importance of *early* *attendance* of structured education and annual consideration (rather than referral).<https://www.diabetes.org.uk/professionals/resources/shared-practice/primary-and-community-care/pcn-delivery-of-care> (also hosted by PCDS).NICE NG28 recommends access to structured education within a year of diagnosis and annually. |
| 16 | SCM8 | **Education and advice (structured education):**Structured education – remote and face-to-face | Evaluation and availability of remote (virtual) structured education.  | https://dafne.nhs.uk/wp-content/uploads/2022/05/Differences-between-face-to-face-and-remote-DAFNE-courses-April-2022.pdf |
| 17 | British Association for Nutrition and Lifestyle Medicine | **Education and advice (diet):** Reversal and remission of T2D through diet | Current advice on T2D diet management has not been updated since 2009. Publicly funded research (£3m) on low energy diets for T2D patients, both overweight/obese and normal weight, have shown reversal and full remission. Not acceptable for NICE to ignore these developments. Low sugar/starch diets also shown reversal/remission of T2D which also should be included in this standard. Patient Guidance needs to align with NHS Charter so T2D patients are given timely information and able to make informed decisions on evidence-based routes to reversal/remission.  | Key references on pathophysiology, definitions and clinical outcomes:Taylor R, Al-Mrabeh A, Sattar N. Understanding the mechanisms of reversal of type 2 diabetes. Lancet Diabetes Endocrinol. 2019 Sep;7(9):726-736. doi: 10.1016/S2213-8587(19)30076-2. Epub 2019 May 13. Erratum in: Lancet Diabetes Endocrinol. 2019 May 22;: PMID: 31097391.Shamanna P, Joshi S, Shah L, Dharmalingam M, Saboo B, Mohammed J, Mohamed M, Poon T, Kleinman N, Thajudeen M, Keshavamurthy A. Type 2 diabetes reversal with digital twin technology-enabled precision nutrition and staging of reversal: a retrospective cohort study. Clin Diabetes Endocrinol. 2021 Nov 15;7(1):21. doi: 10.1186/s40842-021-00134-7. PMID: 34776010; PMCID: PMC8591797.Riddle MC, Cefalu WT, Evans PH, Gerstein HC, Nauck MA, Oh WK, Rothberg AE, le Roux CW, Rubino F, Schauer P, Taylor R, Twenefour D. Consensus Report: Definition and Interpretation of Remission in Type 2 Diabetes. Diabetes Care. 2021 Aug 30;44(10):2438–44. doi: 10.2337/dci21-0034. Epub ahead of print. PMID: 34462270; PMCID: PMC8929179.SACN Report on Lower Carbohydrates diets for Type 2 Diabetes [SACN report: lower carbohydrate diets for type 2 diabetes - GOV.UK (www.gov.uk)](https://www.gov.uk/government/publications/sacn-report-lower-carbohydrate-diets-for-type-2-diabetes)Lean MEJ, Leslie WS, Barnes AC, Brosnahan N, Thom G, McCombie L, Peters C, Zhyzhneuskaya S, Al-Mrabeh A, Hollingsworth KG, Rodrigues AM, Rehackova L, Adamson AJ, Sniehotta FF, Mathers JC, Ross HM, McIlvenna Y, Welsh P, Kean S, Ford I, McConnachie A, Messow CM, Sattar N, Taylor R. Durability of a primary care-led weight-management intervention for remission of type 2 diabetes: 2-year results of the DiRECT open-label, cluster-randomised trial. Lancet Diabetes Endocrinol. 2019 May;7(5):344-355. doi: 10.1016/S2213-8587(19)30068-3. Epub 2019 Mar 6. PMID: 30852132.AHMAD AL-MRABEH, ALISON C. BARNES, KEATON M. IRVINE, TARA L. KELLY, KIEREN G. HOLLINGSWORTH, DAVIDE ROMERES, CLAUDIO COBELLI, ROY TAYLOR; 1184-P: Return to Normal Glucose Control by Weight Loss in Nonobese People with Type 2 Diabetes: The ReTUNE Study. Diabetes 1 June 2021; 70 (Supplement\_1): 1184–P. <https://doi.org/10.2337/db21-1184-P>Kelly T, Unwin D, Finucane F. Low-Carbohydrate Diets in the Management of Obesity and Type 2 Diabetes: A Review from Clinicians Using the Approach in Practice. Int J Environ Res Public Health. 2020 Apr 8;17(7):2557. doi: 10.3390/ijerph17072557. PMID: 32276484; PMCID: PMC7177487.Summers C, Tobin S, Unwin D. Evaluation of the Low Carb Program Digital Intervention for the Self-Management of Type 2 Diabetes and Prediabetes in an NHS England General Practice: Single-Arm Prospective Study. JMIR Diabetes. 2021 Sep 9;6(3):e25751. doi: 10.2196/25751. PMID: 34499035; PMCID: PMC8461529. |
| 18 | BDA | **Education and advice (diet):**Consider options for remission\* soon after diagnosis with type 2 diabetes along with support and regular monitoring for those who achieve remission \*OR to achieve HbA1c <48mmol/mol | Remission can occur in people diagnosed with type 2 diabetes and obesity through weight loss, following intensive dietary changes or bariatric surgery. ADA and Diabetes UK have produced definitions for remission.Little is known about the effect of diabetes remission on new-onset diabetes complications or progression of existing complications. However, weight loss can reduce blood glucose levels, reduce diabetes medications and provide cost savings from diabetes medications and treatment of complications.Remission is not a suitable aim for everyone with type 2 diabetes, but is more likely to occur closer to diagnosis and in people with obesity that lose weight.Due to the weight component of early onset type 2 diabetes (and the association between a longer diagnosis and increased risk of complications), remission should be a key focus for this group. Registered Dietitians were integral to the research conducted in remission (e.g. DiReCT) and should be involved in overseeing or delivering remission programmes.  | NICE NG28 – 1.6.7 – recommends that for adults whose type 2 diabetes is managed either by lifestyle and diet, or lifestyle and diet combined with a single drug not associated with hypoglycaemia, support them to aim for an HbA1c level of 48mmol/mol (6.5%). This aligns with the Diabetes UK and ADA consensus reports for remission target. NICE CG189 recommends bariatric surgery in people with obesity and type 2 diabetes occurs within 10 years of diagnosis.Diabetes UK consensus report - <https://diabetes-resources-production.s3.eu-west-1.amazonaws.com/resources-s3/public/2021-08/DIABETES%20UK%20UPDATED%20POSITION%20STATEMENT%20ON%20REMISSION%20IN%20ADULTS%20-%20FINAL_0.pdf>International consensus report - <https://pubmed.ncbi.nlm.nih.gov/34462270/> |
| 19 | Oxford Centre for Diabetes, Endocrinology and Metabolism | **Education and advice (diet):** Dietary interventions for type 2 diabetes require better quality standards. | Evidence suggests that low carbohydrate diet may help reduce weight, improve glucose control and other markers of cardiometabolic health in people with type 2 diabetes. A growing number of patients are willing to try this dietary pattern. Quality standards for dietary interventions for patients with new diagnosis of type 2 diabetes wishing to achieve diabetes remission are required. | SACN endorsed low carbohydrate diet as an option in managing type 2 diabetes.[SACN report: lower carbohydrate diets for type 2 diabetes - GOV.UK (www.gov.uk)](https://www.gov.uk/government/publications/sacn-report-lower-carbohydrate-diets-for-type-2-diabetes)Quality standard [QS6]: Diabetes in adults (2016)Statement 2: Adults with type 2 diabetes are offered a structured education programme at diagnosis.-diet is mentioned as one component of the education programme but no specific diets are mentioned |
| 20 | SCM2 | **Education and advice (diet):** Ensure diet advice is available at all times with easy access especially online | Ensure diet advice is available at all times with easy access especially online | 1.3.1 |
| 21 | SCM7 | **Education and advice (diet):** Consider options for remission\* soon after diagnosis with type 2 diabetes\*OR to achieve HbA1c <48mmol/mol | Remission can occur in people diagnosed with type 2 diabetes and obesity through weight loss, following intensive dietary changes or bariatric surgery. ADA and Diabetes UK have produced definitions for remission.Little is known about the effect of diabetes remission on new-onset diabetes complications or progression of existing complications. However, weight loss can reduce blood glucose levels, reduce diabetes medications and provide cost savings from diabetes medications and treatment of complications.Remission is not a suitable aim for everyone with type 2 diabetes, but is more likely to occur closer to diagnosis and in people with obesity that lose weight.Due to the weight component of early onset type 2 diabetes (and the association between a longer diagnosis and increased risk of complications), remission should be a key focus for this group.  | NICE NG28 – 1.6.7 – recommends that for adults whose type 2 diabetes is managed either by lifestyle and diet, or lifestyle and diet combined with a single drug not associated with hypoglycaemia, support them to aim for an HbA1c level of 48mmol/mol (6.5%). This aligns with the Diabetes UK and ADA consensus reports for remission target. NICE CG189 recommends bariatric surgery in people with obesity and type 2 diabetes occurs within 10 years of diagnosis.Diabetes UK consensus report - <https://diabetes-resources-production.s3.eu-west-1.amazonaws.com/resources-s3/public/2021-08/DIABETES%20UK%20UPDATED%20POSITION%20STATEMENT%20ON%20REMISSION%20IN%20ADULTS%20-%20FINAL_0.pdf>International consensus report - <https://pubmed.ncbi.nlm.nih.gov/34462270/> |
| 22 | BDA | **Continuous glucose monitoring:**Tackling health inequalities by ensuring access to isCGM for all eligible patients.  | isCGM is recommended in NG28 for people with type 2 diabetes on MDI that meet criteria outlined in 1.6.17, and in NG3 for people with diabetes in pregnancy. There is a strong evidence base for CGM in type 2 (outlined in the evidence base opposite) and a wide range of potential benefits that could be realised. For example, CGM may have particular benefit for the older population, for example, people with dexterity issues that need help to check their blood glucose levels and people that are unable to attend clinic and can be monitored remotely, including rapid assessment and management of hypoglycaemia for people living alone and in care homes.To target health inequalities, commissioners should:-identify who is using CGM-identify groups who are eligible but have lower uptake-make plans to engage with these groups to encourage them to consider CGM. | See NICE NG28, 1.6.17 - 1.6.26 recommendations for offering isCGM to adults with type 2 diabetes on MDI See NICE NG3 for CGM recommendations for people with Diabetes in pregnancyEvidence base for CGM in type 2 <https://www.nice.org.uk/guidance/ng28/evidence/c-continuous-glucose-monitoring-in-adults-with-type-2-diabetes-pdf-11013297805>  |
| 23 | Diabetes UK | **Continuous glucose monitoring:** Adults with type 2 diabetes are offered Flash (isCGM) if they are on at least 2 insulin injections per day and meet other criteria specified by NICE in NG28 | Blood glucose monitoring technology Flash (isCGM) is proven to improve clinical outcomes and provide a better quality of life for people who use it.The benefits of technology for self-management at a time when services are recovering are evident in our recent survey of 10,000 people living with diabetes, which reported 79% of those using diabetes technology agreed that it had helped them to manage their condition during the pandemic.However, not everyone who is eligible for Flash (isCGM) is prescribed it and there are marked inequalities in access and uptake of the technology. | NICE’s guideline ‘Type 2 Diabetes in Adults’ recommend that adults with type 2 diabetes are offered Flash (isCGM) if they are on at least two daily insulin injections and have recurrent hypoglycemia, no hypo awareness or are unable to monitor their blood glucose themselves due to disability or other reasons. (Recommendation 1.6.17)The guidelines also state (recommendation 1.6.26) that commissioners and healthcare professionals (HCPs) should monitor who is using Flash (isCGM) and use local data to address inequalities in uptake by identifying those who are eligible but not prescribed it. |
| 24 | SCM3 | **Continuous glucose monitoring:** Adults with type 2 are offered CGM if they are on at least 2 insulin injections and meet other criteria | Adults with type 2 are offered CGM if they are on at least 2 insulin injections and meet other criteria | Type 2 in Adults [NG28]: Offer intermittently scanned continuous glucose monitoring (isCGM, commonly referred to as 'flash') to adults with type 2 diabetes on multiple daily insulin injections if any of the following apply: • they have recurrent hypoglycaemia or severe hypoglycaemia • they have impaired hypoglycaemia awareness • they have a condition or disability (including a learning disability or cognitive impairment) that means they cannot self-monitor their blood glucose by capillary blood glucose monitoring but could use an isCGM device (or have it scanned for them) • they would otherwise be advised to self-measure at least 8 times a day. |
| 25 | SCM7 | **Continuous glucose monitoring:** Access to isCGM – overcoming health inequalities | isCGM is recommended in NG28 for people with type 2 diabetes on MDI that meet criteria outlined in 1.6.17, and in NG3 for people with diabetes in pregnancy. There is a strong evidence base for CGM in type 2 (outlined in the evidence base opposite) and a wide range of potential benefits that could be realised. For example, CGM may have particular benefit for the older population, for example, people with dexterity issues that need help to check their blood glucose levels and people that are unable to attend clinic and can be monitored remotely, including rapid assessment and management of hypoglycaemia for people living alone and in care homes.To target health inequalities, commissioners should:-identify who is using CGM-identify groups who are eligible but have lower uptake-make plans to engage with these groups to encourage them to consider CGM. | See NICE NG28, 1.6.17 - 1.6.26 recommendations for offering isCGM to adults with type 2 diabetes on MDI See NICE NG3 for CGM recommendations for people with Diabetes in pregnancyEvidence base for CGM in type 2 <https://www.nice.org.uk/guidance/ng28/evidence/c-continuous-glucose-monitoring-in-adults-with-type-2-diabetes-pdf-11013297805>  |
| 26 | SCM8 | **Continuous glucose monitoring:** Use of CGM in some people with type 2 diabetes and emerging use of ‘time in range’ as a clinical indicator (applies also to type 1 diabetes) | Some people with type 2 diabetes on insulin are likely to have a greater need for CGM than some people with type 1 diabetes, recognising limited health care resources. However, I’m aware the evidence many be more limited.Emerging use of ‘time in range’ as a clinical indicator  |  |
| 27 | ABCD | **Drug treatment:** Adults living with type 2 diabetes are able to access medications with proven benefit for improving glycaemic control and reducing the risk of long term complications including cardiovascular disease that our tailored to their individual needs | NICE 28[Overview | Type 2 diabetes in adults: management | Guidance | NICE](https://www.nice.org.uk/guidance/ng28) |  |
| 28 | BDA | **Drug treatment:** Safety considerations for SGLT2 inhibitors | New recommendations are expected to greatly increase the use of SGLT2 inhibitors. SGLT2i have been the cause of multiple avoidable DKA admissions. Risk of DKA is increased with a number of factors, which the clinician should include in their assessment. It is also important to tell people about these risks before commencing an SGLT2i.Adults who are overweight or obese may wish to try a ketogenic diet to reduce the severity of their diabetes or induce remission. There may be an increased risk of DKA with SGLT2i and such diets.  | NICE NG28: 1.7.11 – 1.7.13  |
| 29 | NHSE National Diabetes Programme  | **Drug treatment:** Adults with type 2 diabetes who are not meeting their individualised glycaemic and blood pressure targets after 6 months should be offered appropriate intensification of treatment without delay | Individualised targets for glycaemic control and blood pressure should be applied for adults with type 2 diabetes. Early glycaemic control leads to better patient outcomes including a reduction in long term macrovascular and microvascular complications. Therapeutic inertia is present at all stages of treatment intensification and therefore aggressive treatment in appropriate patients early on in the disease will help improve longer term outcomes.  | [Therapeutic inertia in type 2 diabetes: prevalence, causes, consequences and methods to overcome inertia - PMC (nih.gov)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6502982/)NICE NG28 NICE NG19  |
| 30 | SCM3 | **Drug treatment:** Adults with type 2 and CKD with ACR above 30mg/mmol on single drug treatment are offered dual therapy medication | Adults with type 2 and CKD with ACR above 30mg/mmol on single drug treatment are offered dual therapy medication | Type 2 in Adults [NG28] 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), offer an SGLT2 inhibitor (in addition to the ARB or ACE inhibitor) if: • ACR is over 30 mg/mmol and • they meet the criteria in the marketing authorisation (including relevant estimated glomerular filtration rate [eGFR] thresholds). In November 2021, not all SGLT2 inhibitors were licensed for this indication |
| 31 | SCM3 | **Drug treatment:** Adults with type 2 with CVD are offered dual therapy (metformin and SGLT2i) as a first line treatment | Adults with type 2 with CVD are offered dual therapy (metformin and SGLT2i) as a first line treatment | Type 2 in Adults [NG28] Recs: 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 and 1.7.8: For first-line drug treatment in adults with type 2 diabetes, if metformin is contraindicated or not tolerated: • If they have chronic heart failure or established atherosclerotic cardiovascular disease offer an SGLT2 inhibitor with proven cardiovascular benefit. • If they are at high risk of developing cardiovascular disease, consider an SGLT2 inhibitor with proven cardiovascular benefit |
| 32 | SCM4 | **Drug treatment:** CV risk and SGLT2i | Adults with chronic heart failure or established ASCVD should be offered and SGLT2i with proven CV benefit in addition to metformin.Cardiovascular disease (CVD) is a major cause of morbidity and mortality among people with type 2 diabetes (T2D).[1](https://dom-pubs.onlinelibrary.wiley.com/doi/10.1111/dom.14580#dom14580-bib-0001)  In the United Kingdom, approximately one-third of patients with T2D have concomitant established CVD.[2](https://dom-pubs.onlinelibrary.wiley.com/doi/10.1111/dom.14580#dom14580-bib-0003) Reducing possible long-term cardiovascular (CV) complications is an important goal of diabetes management. Iglay K, Hannachi H, Joseph Howie P, et al. Prevalence and co-prevalence of comorbidities among patients with type 2 diabetes mellitus. Curr Med Res Opin. 2016; 32(7): 1243- 1252. doi:[10.1185/03007995.2016.1168291](https://doi.org/10.1185/03007995.2016.1168291)Lautsch D, Wang T, Yang L, Rajpathak SN. Prevalence of established cardiovascular disease in patients with type 2 diabetes mellitus in the UK. Diabetes Ther Res Treat Educ Diabetes Relat Disord. 2019; 10(6): 2131- 2137. doi:[10.1007/s13300-019-00698-9](https://doi.org/10.1007/s13300-019-00698-9) | NG28 |
| 33 | SCM7 | **Drug treatment:** Safety considerations for SGLT2 inhibitors | New recommendations are expected to greatly increase the use of SGLT2 inhibitors. SGLT2i have been the cause of multiple avoidable DKA admissions. Risk of DKA is increased with a number of factors, which the clinician should include in their assessment. It is also important to tell people about these risks before commencing an SGLT2i.Adults who are overweight or obese may wish to try a ketogenic diet to reduce the severity of their diabetes or induce remission. There may be an increased risk of DKA with SGLT2i and such diets.  | NICE NG28: 1.7.11 – 1.7.13 |
| 34 | SCM8 | **Drug treatment:** Whether SGLT-2 inhibitors are offered as ‘first line treatment’ in combination with metformin and whether QRISK2 is documented.  |  | 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](https://www.nice.org.uk/guidance/ng28/chapter/recommendations#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](https://www.nice.org.uk/guidance/ng28/chapter/recommendations#high-risk-of-developing-cardiovascular-disease), consider an SGLT2 inhibitor with proven cardiovascular benefit in addition to metformin. **[2022]** |
| 35 | SCM8 | **Drug management:** Preferential use of human insulins not being respected  | Clinicians frequently start patients on long-acting insulin analogues in contradiction to NICE guidance.  | 1.7.25 Start insulin therapy for adults with type 2 diabetes from a choice of the following insulin types and regimens:Offer neutral protamine Hagedorn (NPH) insulin injected once or twice daily according to need.Consider starting both NPH and short‑acting insulin (particularly if the person's HbA1c is 75 mmol/mol [9.0%] or higher), administered either:separately **or**as a pre-mixed (biphasic) human insulin preparation.Consider, as an alternative to NPH insulin, using insulin detemir or [insulin glargine](https://www.nice.org.uk/guidance/ng28/chapter/recommendations#insulin-glargine) if:the person needs help from a carer or healthcare professional to inject insulin, and use of insulin detemir or insulin glargine would reduce the frequency of injections from twice to once daily **or**the person's lifestyle is restricted by recurrent symptomatic hypoglycaemic episodes **or**the person would otherwise need twice‑daily NPH insulin injections in combination with oral glucose‑lowering drugs. |
| 36 | SCM8 | **Drug treatment**: Cost effective prescribing | Related to above point, suspect that insulin with the lowest acquisition cost not being respected for biosimilars. Moreover, given a class effect - acquiring NPH insulin even among branded projects should be at the lower acquisition cost - but this (unless I missed it) is not explicitly mentioned. | 1.7.29 When starting an insulin for which a biosimilar is available, use the product with the lowest acquisition cost. **[2021]** |
| 37 | ABCD | **Complications (annual checks):** Adults living with type 2 diabetes are screened for complications of type 2 diabetes at least annually | NICE 28[Overview | Type 2 diabetes in adults: management | Guidance | NICE](https://www.nice.org.uk/guidance/ng28) |  |
| 38 | Diabetes UK | **Complications (annual checks):** Adults with type 2 diabetes are receiving all core annual checks and those at higher risk of poor outcomes are prioritised for appointments and a care-planning conversation | National audit data has shown a sharp decline in the number of adults with type 2 diabetes who received the eight core NICE-recommended care processes (HbA1c, creatinine, cholesterol, blood pressure, BMI, smoking habit, urinary albumin, eye, and foot checks) with just 37% of people in England receiving all their recommended checks in 2020-21, compared with 58% in 2019-2020. These annual checks are essential for identifying potential risks early and informing the care and treatment required to prevent complications. It is vital that this standard is encouraged as services recover from the impact of the COVID-19 pandemicThe Royal College of General Practitioners (RCGP) have also developed guidance with input from the NHS to support the recovery of primary care services for people with long term conditions. For diabetes, they recommend focusing on people who have not had a routine check in over 12 months and further prioritising those with other factors such a recent HbA1c above 58mmol/mol, high blood pressure, a history of complications and co-morbidities which increase their risk of poor outcomes.  | The completion of the core care processes are reported through the National Diabetes Audit (NDA).This recent paper shows the link between non-completion of care processes and non-Covid mortality in people with diabetes over the pandemic: [https://www.thelancet.com/journals/landia/article/PIIS2213-8587(22)00131-0/fulltext](https://www.thelancet.com/journals/landia/article/PIIS2213-8587%2822%2900131-0/fulltext) A cohort study of data from the NDA over seven years also found people with diabetes who have fewer routine care processes have higher mortality: https://pubmed.ncbi.nlm.nih.gov/34405512/The RCGP’s guidance on COVID-19 recovery is here: https://www.rcgp.org.uk/covid-19/latest-covid-19-guidance-in-your-area.aspx |
| 39 | Healthy.io | **Complications (annual checks):** Adults with type 2 diabetes are offered an annual urinary albumin test | NICE guidance NG203 indicates that people with type 2 diabetes should be tested annually for CKD, though the guidance is not explicitly that this must include both GFR and ACR in order to effectively classify CKD (set out in Table 1 of the guideline). As with type 1 diabetes, the National Diabetes Audit found that the proportion of people of people with type 2 diabetes receiving an annual albumin test is the worst performing of all 8 care processes for diabetes management. This compares with over 80% for other care. Ensuring that all people living with type 2 diabetes receiving an ACR test annually is essential to ensure:Diagnosis of chronic kidney disease. Classification of CKD and appropriate identification of highest risk patients requires both GFR and ACR, as set out in NG203: Chronic kidney disease: assessment and management (2021). Albuminuria is a strong independent risk factor for end stage renal disease, cardiovascular disease and death.There is significant variation across England in terms of care process delivery and standardised approaches are required to ensure equity for patients. | The National Diabetes Audit measures the completion of recommended care processes for people with diabetes and progress over time: <https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit>NICE impact: diabetes (2018) indicates that the reason for poor delivery of this care process includes ‘people not bringing a urine sample and its use in a smaller number of conditions, meaning it is less routinely used by GPs’, indicating the need for greater awareness of this care process amongst clinicians: <https://www.nice.org.uk/media/default/about/what-we-do/into-practice/measuring-uptake/impact-diabetes.pdf>Studies indicate that albuminuria is a strong risk predictor for Eng-Stage Renal Disease, CVD and death: Coresh J, et al. The definition, classification, and prognosis of chronic kidney disease: a KDIGO Controversies Conference report. Kidney Int 2010; 80:17The RENAAL trial demonstrated that cardiovascular events are more common with albuminuria and less likely to occur if albuminuria is reduced: Post hoc analysis of ‘RENAAL’ trial (1513 patients with diabetic nephropathy – Losartan v placebo) de Zeeuw et al Circulation 2004 DOI: 10.1161/01.CIR.0000139860.33974.28Healthy.io’s home-based ACR testing service for people with diabetes, Minuteful Kidney, has been made available for 640,000 patients via the Accelerated Access Collaborative AI in Health and Care award. This approach is outlined in NICE MIB221: <https://www.nice.org.uk/advice/mib221> |
| 40 | NHSE National Diabetes Programme | **Complications (annual checks):** Adults with type 2 diabetes should receive all nine care processes, including urinary ACR testing, on a frequency recommended by NICE | Regular delivery of the diabetes care processes falls in line with NICE guidance NG18, in the prevention and management of complications and risk (such as cardiovascular disease, kidney disease, diabetic foot problems, eye disease etc) | NICE NG28 NICE NG19 |
| 41 | SCM4 | **Complications (annual checks):** Urine ACR uptake | NDA (2019-20) – the lowest median care process rate and the greatest range is seen for urine albumin checks.The proportion of people with type 2 diabetes with a recorded measurement of Urine Albumin/Creatinine Ratio (UACR) varied significantly between CCGs. Of 135 CCGs, 40 had significantly higher than expected proportions of people with a recorded UACR measurement (greater than 3 standard deviations above mean) and 45 CCGs had significantly lower proportions (more than 3 standard deviations below mean). | NDA 2019-20NG28 |
| 42 | ABCD | **Complications (diabetic foot problems):** Adults living with type 2 diabetes are able to access same day multi disciplinary foot care if they develop foot complications. | NICE NG 19[Overview | Diabetic foot problems: prevention and management | Guidance | NICE](https://www.nice.org.uk/guidance/ng19) | [Foot care for people with diabetes: the economic case for change – BMJ Improvement Hub](https://improve.bmj.com/improve_post/foot-care-for-people-with-diabetes-the-economic-case-for-change/) |
| 43 | Diabetes UK | **Complications (diabetic foot problems):** Adults at moderate or high risk of developing a diabetic foot problem are referred to the foot protection service and those with a limb-threatening or life-threatening diabetic foot problem are referred immediately for specialist assessment and treatment | The National Diabetes Foot Audit (NDFA) has consistently found that faster referral to a specialist footcare service is associated with fewer severe ulcers and recommends that dedicated multidisciplinary foot teams should be accessible everywhere.Despite improvements in the proportion of severe and active ulcers being treated which is linked to an increase in prompt referrals to specialist footcare teams, the NDFA Interval Review 2014-2021 also worryingly found that 18% of people presenting with a severe ulcer either underwent a major amputation or died within one year. | The NDFA regular collects data on the incidence and outcomes of diabetic foot problems: <https://digital.nhs.uk/data-and-information/clinical-audits-and-registries/national-diabetes-foot-care-audit> |
| 44 | NHSE National Diabetes programme | **Complications (diabetic foot problems):** “Adults at moderate or high risk of developing a diabetic foot problem are referred to the foot protection service; those with active foot disease (such as active foot ulceration or suspected Charcot) are referred within one working day to the multidisciplinary foot care service or foot protection service for triage within one further working day; and those with a limb-threatening or life-threatening diabetic foot problem are referred immediately to acute services.” | Prompt appropriate treatment of diabetic peripheral artery disease and diabetic foot ulcers by a multi- disciplinary team of specialists can prevent exacerbation and potential need for amputation. Access to a multi-disciplinary team forms part of NICE guidance for the management of diabetic foot problems.  | NICE NG19 |
| 45 | SCM5 | **Complications (diabetic foot problems):** Diabetes and foot care – early access | Standardised education tool package for all HCP’s working with patients living with diabetes for early access and importance of recognising foot ulcers in patients with diabetes. This should be accessed across primary and secondary care.As recommended by national foot care audit for diabetes 1. Executive summary - NHS Digital |  |
| 46 | SCM6 | **Complications (diabetic foot problems):** Inpatient care for adults with Type 2 diabetes:-Recorded foot assessment for all adults living with diabetes within 24 hours of admission | Inpatient care for adults with Type 2 diabetes to include: Recorded foot assessment for all adults living with diabetes within 24 hours of admission. Identify underlying hazards associated with the diabetic foot within 24 hours of admission to support self management, signposting and management of foot complications to prevent patient living with diabetes developing a foot problem I. Action:- Inpatient staff competency sign off to undertake foot screening , identification and signposting of hazards II. Develop standardised foot assessment and action tool | • Nice Guideline NG19 • Getting it right first time GIRFT Nov 2020 . Findings:- “Over 90% of people with diabetes in hospital are admitted for non diabetes related conditions …”• National Diabetes Inpatient Harms Report 2020 ( England) • Diabetes Insights and Variation Atlas |
| 47 | SCM6 | **Complications (diabetic foot problems):** All health care professionals competent to deliver standardised foot screening to identify underlying hazards and empower patients to develop knowledge , skills , confidence and importance to self manage their individual level of risk of developing foot problems  | All health care professionals competent to deliver standardised foot screening to identify underlying hazards and empower patients to develop knowledge, skills, confidence and importance to self manage their individual level of risk of developing foot problems  Action :- I. Staff competency to undertake foot screening to identify underlying hazards and signpost through local FPT pathways II. Staff to empower patients to develop knowledge, skills, confidence and importance to self manage their individual level of risk to prevent developing foot problems utilising confidence and importance scaling | • Getting it right first time GIRFT Nov 2020 . Findings : “the majority of patients are not made aware of their level of risk or what action to take if they develop a foot lesion”• Nice Guideline NG19 • Quality Statement 5 : Referral for adults at moderate or high risk of diabetic foot problems • All Wales Prudent Model for Prevention of Diabetes Related Crisis (addendum to Putting Feet First) |
| 48 | SCM8 | **Complications (diabetic foot problems):** Emerging problem of antimicrobial resistance Applies to all types of diabetes.  | The diabetes foot problems guidance is very clear on choice of antibiotics. With emerging concerns about antimicrobial resistance (and NICE work on this) particularly in people with diabetes– it would be good to emphasise adherence to these guidelines. I am not aware of specific problems, but work in a centre of excellence.  | https://www.nice.org.uk/media/default/about/what-we-do/into-practice/measuring-uptake/niceimpact-antimicrobial-resistance.pdfhttps://www.nice.org.uk/guidance/ng19 |
| 49 | ABCD | **Complications (inpatient care):** Adults living with type 2 diabetes who are admitted to hospital should be kept safe from harm and be supported to manage their own diabetes care wherever possible | As per[Joint British Diabetes Societies (JBDS) for Inpatient Care Group | ABCD (Diabetes Care) Ltd](https://gbr01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fabcd.care%2Fjoint-british-diabetes-societies-jbds-inpatient-care-group&data=05%7C01%7CHermione.Price%40southernhealth.nhs.uk%7Cb803341c4b244b043b8f08da53772bd9%7C4e6404cac8c142369c2c22845a98a473%7C0%7C0%7C637914068543929525%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=HLenhd7jv%2Fcd%2FvAOjiqCqdYG0rnPcSp%2F8RR8O84P9dI%3D&reserved=0)  | NaDIA ([National Diabetes Inpatient Audit (NaDIA) - 2019 - NHS Digital](https://gbr01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdigital.nhs.uk%2Fdata-and-information%2Fpublications%2Fstatistical%2Fnational-diabetes-inpatient-audit%2F2019&data=05%7C01%7CHermione.Price%40southernhealth.nhs.uk%7Cb803341c4b244b043b8f08da53772bd9%7C4e6404cac8c142369c2c22845a98a473%7C0%7C0%7C637914068543929525%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=PyVkJ1DPsOdWOI9hWF3O7V%2FTBNMaqzsz9Rfb5R%2FOIKM%3D&reserved=0)) and NDISA ([National Diabetes Inpatient Safety Audit (NDISA) information for hospitals - NHS Digital](https://gbr01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdigital.nhs.uk%2Fdata-and-information%2Fclinical-audits-and-registries%2Fnational-diabetes-inpatient-safety-audit%2Finformation-for-hospitals&data=05%7C01%7CHermione.Price%40southernhealth.nhs.uk%7Cb803341c4b244b043b8f08da53772bd9%7C4e6404cac8c142369c2c22845a98a473%7C0%7C0%7C637914068543929525%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=F3cqNigcoptqlA9CIsqmRL%2B4mwxyj5WnlxIOMPiOtwg%3D&reserved=0)) |
| 50 | Diabetes UK | **Complications (inpatient care):** Adults with type 2 diabetes in hospital should receive advice from a multidisciplinary team with expertise in diabetes | The National Diabetes Inpatient Audit (NaDIA) continues to make the long-standing recommendation that every unit should have a dedicated multidisciplinary team of specialist diabetes practitioners, in line with the NHS Long Term Plan.These teams are essential to reduce the high rates of medication errors and DKA seen in people with diabetes when they are patients in hospital, and maintain the progress made in reducing the rates of severe hypoglycaemic episodes and improving delivery of personalised care reported in the most recent 2019 audit. | NaDIA reports on the quality of care received by people with diabetes in hospital including staffing levels and team information: <https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-inpatient-audit> |
| 51 | SCM8 | **Complications (inpatient care):** Lack of inpatient diabetes specialist advice in some in-patient facilities – applies equally to type 1 diabetes  | Care of diabetes for inpatients in institutions which have traditionally not be covered by the diabetes audit, but who are very likely to care for people with diabetes – notably, psychiatric hospitals heart and lung hospital (e.g. Papworth) and care homes. Applies also to type 1 diabetes  |  |
| 52 | ABCD | **Patient experience (access to care):** Adults living with type 2 diabetes have their care tailored to their individual circumstances, needs and wishes | NICE 28[Overview | Type 2 diabetes in adults: management | Guidance | NICE](https://www.nice.org.uk/guidance/ng28) |  |
| 53 | SCM5 | **Patient experience (access to care):** Equal access for all to reduce health inequalities– regardless of postcode/region/race etc Self referral, phone and F2F/attend anywhere appointments at varying times of day  |  | https://www.england.nhs.uk/about/equality/equality-hub/resources/ <https://www.nice.org.uk/guidance/qs6/chapter/Quality-statements> |
| 54 | **SCM8** | **Patient experience (access to care): Remote consultation – both type 1 and type 2 diabetes**  | **Clarity on frequency and appropriateness of remote consultation, made necessary by COVID, but likely appropriate on an ongoing basis for some individuals. Recognition that physical exams cannot be done…** | <https://www.diabetes.org.uk/professionals/resources/shared-practice/remote-consultations><https://www.who.int/news/item/14-04-2022-the-global-diabetes-compact-a-promising-first-year> |
| 55 | **SCM8** | **Patient experience (access to care): Diabetes and mental health** | **Diabetes and mental health** **This applies to managing diabetes in people with pre-existing mental health issues, but also offering limited support (possible via AI or other means) for people who diabetes leads them to have mental health concerns.**  | <https://www.diabetes.org.uk/resources-s3/2018-08/Diabetes%20and%20Mental%20Health%20%28PDF%2C%205.7MB%29.pdf> |
| 56 | SCM2  | **Patient experience (communication):** Important to allow time for discussions of prognosis for emerging sequalae such as neuropathy and nephropathy | Important to allow time for discussions of prognosis for emerging sequalae such as neuropathy and nephropathy | 1.8.51.8.12 |
| 57 | SCM2 | **Patient experience: (communication):** Reassure patient that practitioner will use the complicated treatment flow charts to advise treatment options and reassure patients that treatment pathways are well established and not ad hoc | Reassure patient that practitioner will use the complicated treatment flow charts to advise treatment options and reassure patients that treatment pathways are well established and not ad hoc | 1.7.1 |
| 58 | SCM2 | **Patient experience (communication):** Additional developmental areas of emergent practice: Review periods. Allow time to reassure that any increase in period between assessments are in line with stable disease presentation | Review periods. Allow time to reassure that any increase in period between assessments are in line with stable disease presentation.  |  |
| 59 | SCM2 | **Patient experience (communication):** Ensure adequate time for psychological reassurance when HbA1c increases and corresponding treatment intensification. Explain why / if continuous monitoring is not required | Ensure adequate time for psychological reassurance when HbA1c increases and corresponding treatment intensification. Explain why / if continuous monitoring is not required | 1.6.71.6.8 |
| 60 | SCM2 | **Patient experience (communication):** Ensure adequate time to discus HbA1c results and to explain targets and associated treatment | Ensure adequate time to discuss HbA1c results and to explain targets and associated treatment | 1.6.5 |
| 61 | Oxford Centre for Diabetes, Endocrinology and Metabolism | **Patient experience (coordination of care):** Integration of primary and secondary care | Currently, primary, community and secondary diabetes care are fragmented. This is due to challenges in the communication between the services, poor sharing of patient level data between primary and secondary care and poor integration of financial and outcome targets across the different providers. Although ICS may provide some overarching governance, it is important to define what good quality integrated care is. Quality standard around the best way of integrating care across the community and integration of data and data sharing between primary and secondary care is required. | NICE guidance on diabetes in pregnancy (NG3) published 2015, updated 2020No quality standards per se. |
| 62 | SCM5 | **Patient experience (coordination of care):** Joint working between primary and secondary care – referral pathways for admission avoidance and keeping people well at home  | Joint working between primary and secondary care – referral pathways for admission avoidance and keeping people well at home  |  |
| 63 | SCM6 | **Patient experience (coordination of care):** Improving whole system communication and coordination across services with patient as an equal partner for safe, management of adults living with type 2 diabetes | Whole system communication and coordination across services with patient as equal partners, is a key area in preventing type 2 diabetes complications in line with the agreed management plan and local pathways. Standards for communication are required to support improvements in the continuity of care. Standards for communication between all stakeholders in care is essential to improving role congruence; minimising waste, harm and variation. | • All Wales Communication Standards between General Medical Practitioners and Secondary care 2018 Welsh Government• Getting it right first time GIRFT Nov 2020 • Person Centred Value Based Health Care Programme • Nice Guideline NG19  |
| 64 | Oxford Centre for Diabetes, Endocrinology and Metabolism | **Additional area:** Annual screening for type 2 diabetes in all women who have had gestational diabetes. | Women who had GDM are at a significantly elevated risk of developing type 2 diabetes. Annual screening for type 2 diabetes in all women who have had gestational diabetes does not seem to be done well in practice. | NICE guidance on diabetes in pregnancy (NG3) published 2015, updated 2020 highlights that women who had GDM should have annual HbA1c to screen for type 2 diabetes. National diabetes in pregnancy audit data focus on women with pre-gestational diabetes rather than GDM. The exact adherence to the above mentioned NICE guideline remains unknown. Quality standard [QS109], Diabetes in pregnancy (2016), Standard 7: Women who have had gestational diabetes have an annual HbA1c test. |
| 65 | SCM8 | **Additional area:** Explicit acknowledgement that this quality standard focuses on type 1 and type 2 diabetes (and foot complications per se) but does not reference other types of diabetes e.g. cystic fibrosis related diabetes, ‘MODY’, glucose-corticorticoid (‘steroid’)-induced diabetes and new onset diabetes and transplant, to name a few. | While guidance exists for some of these, it’s not clear whether the guidance was developed in line with NICE standards and yet NICE has suspended this programme.  | <https://www.diabetes.org.uk/resources-s3/2017-09/JBDS%20management%20of%20hyperglycaemia%20and%20steriod%20therapy_0.pdf>https://www.cysticfibrosis.org.uk/sites/default/files/2020-12/Diabetes%20mellitus%20management%20Jun%2004.pdf<https://www.nice.org.uk/about/what-we-do/accreditation> |
| 66 | SCM8 | **Additional area:** If Hb A1c monitoring is invalid | In practice, people are offered self blood glucose monitoring. If this is what is meant by ‘quality-controlled plasma glucose profiles’, then this is not clear. Also, the guidance does not go so far as to discourage (recommend not) testing in people whose HbA1cs are not reliable. If one is not going to believe result, then not a good use of NHS resources to check, and, people with less clinical experience may not know the HbA1c is not reliable, leading to clinical decision which may harm patients.  | 1.6.3 If HbA1c monitoring is invalid because of disturbed erythrocyte turnover or abnormal haemoglobin type, estimate trends in blood glucose control using one of the following: quality-controlled plasma glucose profiles total glycated haemoglobin estimation (if abnormal haemoglobins) fructosamine estimation. [2015]  |

# Appendix 2: Suggestions from respondents with links to the tobacco industry

Bayer declared that:

* Bayer does not have direct or indirect links with, or funding from, manufacturers, distributors or sellers of smoking products but Bayer provides pesticides for crops, which would therefore include tobacco crops.
* Bayer is a member of the Cooperation Centre for Scientific Research Relative to Tobacco (CORESTA) (http://www.coresta.org/) within the scope of recommendations of pesticides used for protection of tobacco plants.
* It is also a member of country and EU business federations such as the Confederation of British Industry (CBI) and ‘Business Europe’, which include tobacco companies.

In 2006, Bayer and its subsidiary Icon Genetics piloted a new process for producing biotech drugs in tobacco plants. Icon Genetics was acquired by Nomad Bioscience GmbH from Bayer in 2012.

| ID | Stakeholder. Registration status and disclosed link. | Suggested key area for quality improvement | Why is this a key area for quality improvement? | Supporting information |
| --- | --- | --- | --- | --- |
| 01 | Bayer. Registered stakeholder. See above for declaration. | **Complications (core checks):**For patients with type 2 diabetes and CKD, or at risk of CKD, indicators of abnormalities of kidney structure or function should be measured and monitored | Chronic Kidney Disease (CKD) represents a significant burden on health care systems (1). Indeed, in England, the cost of CKD was estimated at between £1.44 - £1.45 billion (2009-2010), around 1.3% of all NHS spending in that year (2).Type 2 Diabetes (T2D) is the leading cause of CKD worldwide (3,4), with approximately 40% of T2D patients developing CKD (5,6).CKD in patients with T2D is a progressive disease associated with increased risk of kidney and cardiovascular (CV) complications and mortality (7-10). The presence of both CKD and T2D exacerbates CV risk, with a 3 to 6-fold increase in the risk of CV mortality and CV events, respectively, in T2D patients with CKD compared to those with T2D alone (8).CKD is defined as abnormalities of kidney function or structure present for more than 3 months, with implications for health. This includes all people with markers of kidney damage (such as proteinuria) and those with a glomerular filtration rate (GFR) of less than 60ml/min/1.73m2 on at least 2 occasions separated by a period of at least 90 days (with or without markers of kidney damage) (11).The NICE guideline on CKD (11), recommends that testing for CKD using eGFR creatinine and ACR should be offered to adults with diabetes. It is important to classify CKD using GFR and ACR categories as increased ACR is associated with increased risk of adverse outcomes, decreased GFR is associated with increased risk of adverse outcomes and increased ACR and decreased GFR in combination multiply the risk of adverse outcomes (11). Section 1.3 of the NICE guideline provides recommendations for frequency of monitoring (11).Understanding the level of risk will aid in guiding the advice, treatments and referral that may be required. Whilst eGFR is more commonly tested and recorded, there has historically been a relatively low uptake of ACR testing. The National Diabetes Audit 2019-20. Report 1: Care Processes and Treatment Targets. England and Wales (12), reports on the uptake of NICE recommended care processes and found that in 2019/20, for those with type 2 diabetes in England, 92.3% of patients had an annual check of serum creatinine (which allows for an estimate of (eGFRcreatinine)), but only 68.6% had an annual check of urine albumin/creatine ratio (UACR). The values for Wales were similar for serum creatinine, but the testing of UACR was even lower at 55%. In addition, the marked variation in UACR measurement between CCGs was highlighted as a key finding of the report.As such, consistent testing and monitoring of CKD in patients with T2D with eGFR and UACR is an important area for quality improvement.Bikbov B, Purcell CA, Levey AS, Smith M, Abdoli A, Abebe M, et al. Global, regional, and national burden of chronic kidney disease, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. The Lancet. 2020;395(10225):709-33.Kerr M, Bray B, Medcalf J, O'Donoghue DJ, Matthews B. Estimating the financial cost of chronic kidney disease to the NHS in England. Nephrol Dial Transplant. 2012;27 Suppl 3(Suppl 3):iii73-80.Li H, Lu W, Wang A, Jiang H, Lyu J. Changing epidemiology of chronic kidney disease as a result of type 2 diabetes mellitus from 1990 to 2017: Estimates from Global Burden of Disease 2017. J Diabetes Investig. 2021;12(3):346-56.Tuttle KR, Alicic RZ, Duru OK, Jones CR, Daratha KB, Nicholas SB, et al. Clinical Characteristics of and Risk Factors for Chronic Kidney Disease Among Adults and Children: An Analysis of the CURE-CKD Registry. JAMA Netw Open. 2019;2(12):e1918169.Wu B, Bell K, Stanford A, Kern DM, Tunceli O, Vupputuri S, et al. Understanding CKD among patients with T2DM: prevalence, temporal trends, and treatment patterns—NHANES 2007–2012. BMJ Open Diabetes Research &amp;amp; Care. 2016;4(1):e000154.Alicic RZ, Rooney MT, Tuttle KR. Diabetic Kidney Disease: Challenges, Progress, and Possibilities. Clin J Am Soc Nephrol. 2017;12(12):2032-45.Kidney Disease: Improving Global Outcomes (KDIGO) Diabetes Work Group, de Boer IH, Caramori ML, Chan JCN, Heerspink HJL, Hurst C, et al. KDIGO 2020 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease. Kidney International. 2020;98(4):S1-S115.Afkarian M, Sachs MC, Kestenbaum B, Hirsch IB, Tuttle KR, Himmelfarb J, et al. Kidney disease and increased mortality risk in type 2 diabetes. J Am Soc Nephrol. 2013;24(2):302-8.Hudspeth B. The burden of cardiovascular disease in patients with diabetes. Am J Manag Care. 2018;24(13 Suppl):S268-S72.Leon BM, Maddox TM. Diabetes and cardiovascular disease: Epidemiology, biological mechanisms, treatment recommendations and future research. World J Diabetes. 2015;6(13):1246-58.NICE. Chronic Kidney Disease: assessment and management. NICE guideline. August 2021.NHS Digital. National Diabetes Audit, 2019-20. Report 1: Care Processes and Treatment Targets. England and Wales. August 2021 | Please see The National Diabetes Audit 2019-20. Report 1: Care Processes and Treatment Targets. England and Wales, which reports on the uptake of NICE recommended care processes.NHS Digital. National Diabetes Audit, 2019-20. Report 1: Care Processes and Treatment Targets. England and Wales. August 2021<https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/report-1-care-processes-and-treatment-targets-2019---20> |