

## Tackling Diabetes Together



### **The Greater Manchester Health & Social Care Partnership**

Diabetes Clinical  
Best Practice Strategy  
2018-2023

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## Foreword

A great number of people including clinicians, commissioners, improvement teams and patients have contributed to the development of this *Diabetes Clinical Best Practice Strategy*. This is a clinically led document which articulates a vision of best practice for diabetes care in Greater Manchester and proposes actions and interventions aimed at achieving that vision. While clinical consensus is key to improving standards, this strategy also aims to reflect the need for a partnership approach. It recognises that best practice cannot be achieved overnight and that a great deal of work, and indeed investment, will be required to meet our goals. In the strategy we have adopted a positive 'we will' approach to tackling the challenges that lie ahead but we are under no illusions that this will necessitate a continuous and iterative approach to implementing improvements over time as local and GM budgets and priorities allow. As a Diabetes Network, we expect to support commissioners and providers where appropriate in benchmarking and costing services to help identify how and where improvements should be implemented. We do believe, however, that it is vital that we set out our goals in a document such as this to guide our long term direction. We also recognise that clinical and technical innovation will continue and that we will need to revise our plans and expectations accordingly as these evolve.

I commend this strategy to you and call for your support in realising what we believe is a bold vision for delivering outstanding diabetes care to the people of Greater Manchester.

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# 1. Introduction

## 1.1 Introduction

The number of people diagnosed with diabetes in England is increasing. The prevalence has doubled over the last 20 years. It is expected that over 25% of people living in Greater Manchester will develop the condition in their lifetime.

Insulin manages the way glucose is used and stored in the body leaving an appropriate level of glucose in the blood. There are two main types of diabetes. Type 1 diabetes (T1D) is an autoimmune disease that leads to little or no insulin being available to the body. Type 2 diabetes (T2D) tends to occur later in life, as the ability to produce insulin declines at a time when the body becomes resistant to the effects of insulin, resulting in reduced glycaemic control. An international clinical consensus has created thresholds that categorise the reductions in glycaemic control during this process as non-diabetic hyperglycaemia or T2D.

The Greater Manchester Strategic Clinical Network (SCN) is part of the quality improvement architecture in the Greater Manchester Health & Social Care Partnership (GMHSCP). The Partnership was born out of recognition that health can only be improved by all agencies working together and in partnership with the third sector and the community. The Partnership has identified a number of priorities which include diabetes. This principle is central to the production of this Greater Manchester (GM) strategy for tackling diabetes which has been devised within the context of the GM Population Health Plan, its focus on lifestyle approaches to health and its aims to improve the utilisation of personal health budgets and social prescribing.

The overall aim of the diabetes programme and the strategy is to improve the quality and consistency of services in line with both local and national standards and funding programmes. A *GM Diabetes Strategy* is required in order to facilitate a collective approach to achieving this aim. The GMHSCP's vision is to improve the lives of all people across GM affected by diabetes and at risk of developing it. Much of this strategy will be relevant to children but issues specific to children will be addressed at by the Childrens' Strategic Clinical Network.

## 1.2 Diabetes prevention and care at a population health level

Prevention is key to improving patient outcomes and reducing treatment costs. GMHSCP, through the SCN, are already responsible for co-ordinating roll-out of the National Diabetes Prevention Programme (NDPP) as noted in section 1.5 of this strategy. The GM Population Health Plan (2017-21), however, also recognises that "*Our population continues to suffer higher than national instances of heart disease, diabetes and other lifestyle related illnesses.*", and this is a key reason for developing this strategy, which is designed to support CCGs to tackle this issue both locally and jointly at a GM level. The population health plan also highlights the importance of obesity and lack of exercise as modifiable risk factors for diabetes and the fact that, in both cases, the GM population figures are worse than national averages. By

developing a vision for clinical best practice and a Diabetes Network to help identify and reduce variation, we aim to contribute to the achievement of the population health plan objectives.

### 1.3 Diabetes care services in GM

The development of diabetes care in GM over the period 2018 to 2023 will comprise of:

1. What is already being delivered in localities (business as usual)
2. New activity proposed by CCGs (in 2017 locality transformation fund bids)
3. GM-wide collective transformation work (which would be difficult for CCGs to undertake individually)
4. Delivery of national programmes at a local level (which are separately funded)

The above elements need to be combined to generate improvements which can be embedded in the system and address unwarranted variation. Variation occurs on a local basis (eg in delivery of primary care) and on a GM basis (in different approaches and outcomes across different CCGs). A *GM Diabetes Strategy* is required in order to take a collective approach to understanding variation at different levels and addressing it to embed improvement. It needs to ensure that the organisation of services in GM is focussed on the prevention of diabetes, the control of diabetes and complications of the disease. Some examples of the recommendations are:

*Prevention of diabetes:* Preventing the onset of T2D requires effective policies for children and young people as well as adults. The GM Diabetes Strategy supports the GM Population Health Plan commitments in relation to improved nutrition and physical activity for young people. It will also complement the plan to revamp NHS Health Checks in GM meaning more people at risk will be identified earlier. SCN focus on transition from childrens' to adult services will include diabetes, leading to improved transition.

*Control of diabetes:* In T1D, control of diabetes depends upon balancing diet, physical activity and the use of exogenous insulin whilst accepting that diabetes will be ever present. In T2D, lifestyle changes and/or clinical interventions will improve glycaemic control – indeed, in some people, glucose levels may become normalised. The commissioning of more structured education will be an important element in achieving this.

The requirement for high quality information to be embedded into GP standards and other clinical specifications will improve the fight against the progression of T2D and the development of complications. In all diabetes care there will be improved quality of information provided to people with diabetes with the assistance of novel use of new technology and improving the electronic communication between primary and secondary care. Flash glucose monitoring, for persons reliant on insulin, will improve self-managed care and this will be further supported by personalised care planning. More proactive discussion around bariatric surgery, for people with T2D satisfying the NICE criteria, will help to ensure that an increased number of these people will

be able to access the benefits of this cost-effective intervention. A GM-wide strategy for tackling diabetes will mean that an increased number of persons will receive all designated care services and the inclusion of additional processes over and above those already agreed nationally.

*Prevention of complications:* The introduction of an inpatient care bundle and a commitment to ensuring one nurse with specific diabetes knowledge to every 250 inpatient beds will help to reduce complications and improve patient care and experience. Improved management of cardiovascular disease and risk factors and rapid access to lower limb care will help to reduce cardiovascular complications including amputations. Older people with diabetes will be screened for atrial fibrillation and, because they have diabetes, their CH<sub>2</sub>DS<sub>2</sub>-VAsC score will be at least 2 which means they should be prescribed anticoagulation.

## **1.4 Key work areas**

Within the context of the above framework, there is significant potential to improve services in both traditional and innovate ways and contribute to national targets in areas such as:

- Structured education
- Lower limb care
- Treatment targets
- Diabetes nursing levels

Localities will be supported to work together to build on the existing baseline measures on the quality and uptake of structured education and agree targets for improving both. A co-ordinated approach is required in order to facilitate an integrated lower limb pathway (including with non-diabetes care services) in order to build rapid access coverage across GM. Information sharing and mutual support will help all areas meet treatment targets. A joint initiative by localities to increase nursing provision is required to improve patient care. A *GM Diabetes Strategy* will provide a platform to support a conversation between localities and with the GMHSCP on increased joint working. The GM Diabetes Strategy provides a framework for the development of a comprehensive service specification supported by agreed pathways and processes which will help people with diabetes across GM to experience the same high level of care.

## **1.5 The National Diabetes Prevention Programme**

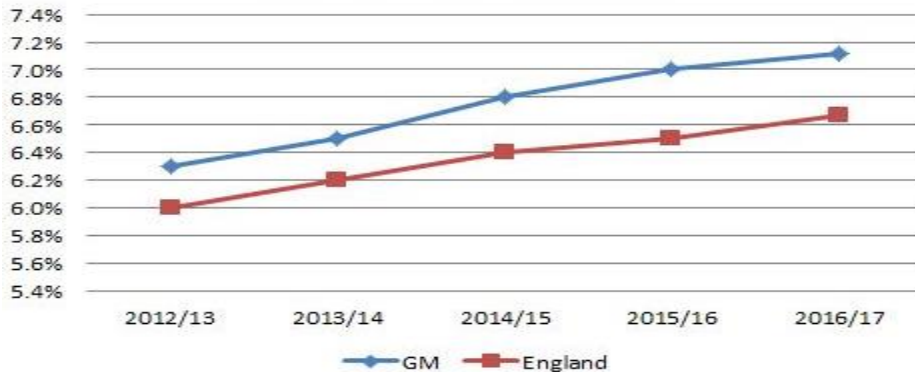
The GMHSCP has agreed a memorandum of understanding with the National Diabetes Prevention Programme (NDPP) to facilitate direct funding to CCGs for implementation of the 'Healthier You' programme in all areas of GM not covered by the early rounds of funding. The SCN is funded by NHS England to co-ordinate the Wave 2 roll-out of the NDPP in GM.

## 2 Background

### 2.1 Background

In recent years the number of people diagnosed with diabetes in England has risen (see Fig 1) with the prevalence expected to rise to near 10% by 2025:

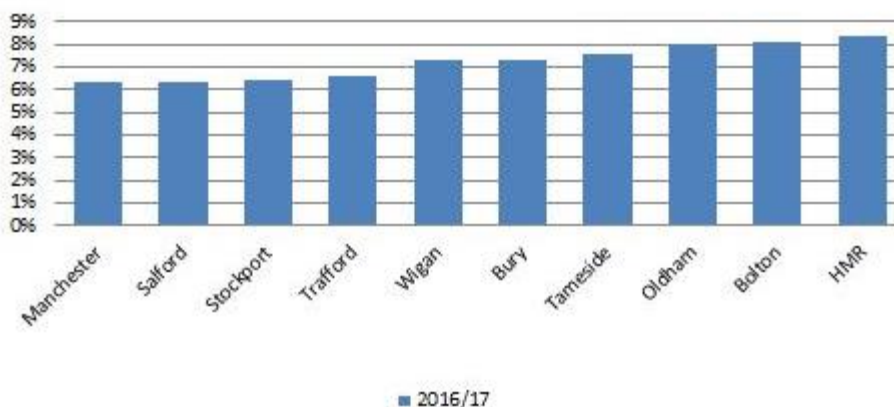
**Figure 1: GM Diabetes prevalence (17+ yrs)**



### 2.2 The GM context

Over a quarter of people living in GM will develop diabetes in their lifetime. In GM, there are approximately 160,000 people presently living with diabetes. Most have T2D but about 11,000 have T1D. An equivalent number are also thought to be at risk. There is some variation in the prevalence of diabetes across GM (see Fig 2).

**Figure 2: Diabetes Prevalence (+17yrs) 2015/16**



Diabetes causes over 1,000 premature deaths in GM each year. Complications will vary by type of diabetes, its severity and the age of the patient. Compared to the general population, people with diabetes have a 55% higher chance of having a myocardial infarction; a 34% increased risk of having a stroke; a 164% increased risk of having renal replacement therapy; a 221% increased risk of having major amputation above the ankle and a 337% increased risk of having a minor amputation. Sight loss is common with diabetic retinopathy affecting a third of

people. Depression and anxiety is at least twice as common in people with diabetes than in the general population. Babies born to women with diabetes have a high risk of congenital abnormalities, prematurity and experience a high rate of complications during childbirth with the risk of needing admission to a neonatal intensive care unit.

Direct medical costs are high and include both the costs of treating diabetes, such as medication, testing supplies, GP visits and the costs of treating its complications. One study estimated the approximate cost of a person diagnosed with T2D aged between 25 and 44 to be over £80,000 over their lifetime.

Standards of diabetes care have shown a steady improvement but there is still much to do to improve our overall response and to reduce variations in outcomes and quality of services. This GM diabetes strategy will lay out how we intend to reduce the incidence of diabetes and the complications of diabetes. It will pave the way to the development of standards and service specifications to improve our services.

## **3 Vision, mission and goals**

### **3.1 Our Vision**

To improve the lives of all people across Greater Manchester affected by diabetes or at risk of developing diabetes.

### **3.2 Our Mission**

To empower people to manage effectively their diabetes or their diabetes risk, by making them aware, educated, and able to access high quality and equitable care.

### **3.3 Overarching Goals**

To achieve our vision we should aim to prevent the onset of diabetes; improve the management of diabetes and prevent its complications. To achieve our mission we should support health care professionals and those with or at risk of diabetes to:

1. Improve blood glucose control
2. Reduce cardiovascular risks and cardiovascular complications
3. Reduce other complications
4. Improve safety
5. Improve experience of diabetes services for those living with the condition

### **3.4 How do we achieve it?**

The GMHSCP, commissioners, providers and other key stakeholders will need to work together to realise the vision. This strategy outlines key actions for consideration and implementation locally and at GM level to enable the overarching goals to be achieved. It is supported by more detailed resources including a technical reference document and a GM draft diabetes service specification. We recognise the diverse nature of the population in GM and will proactively seek to engage in different ways, through different formats and with different sectors.



## 4 Prevention of Diabetes

### 4.1 Health in children and young adults

There has been an alarming rise in the prevalence of both T1D and T2D. Part of this is due to increasing life expectancy as the overall prevalence of T2D increases with age. However, there are also preventable causes for the rise. Whereas the reasons for the rise in T1D are less clear, it is changes in lifestyle, driven by an obesogenic environment, that have caused the surge in T2D. Reversing this trend will potentially have the greatest impact in tackling diabetes.

Even small shifts in lifestyle behaviours, in particular a reduction in refined carbohydrates, an increase in dietary fibre and an increase in physical activity, will have an effect on reducing the incidence of diabetes.

This diabetes strategy will complement the Greater Manchester Population Health Plan 2017-21 ([www.gmhsc.org.uk/assets/GM-Population-Health-Plan-Full-Plan.pdf](http://www.gmhsc.org.uk/assets/GM-Population-Health-Plan-Full-Plan.pdf)). The Plan contains commitments to the production of a comprehensive physical activity plan and a comprehensive plan for better nutrition and healthy weight. These plans will include the role of schools and colleges in encouraging children to develop healthy lifestyles; the move to a more leptogenic environment, that is an environment that is more conducive to people maintaining a healthy weight; and innovations such as the Oldham proposal to give business rate relief to takeaways offering healthy options. The successful implementation of the Plan is vital in reducing the burden of diabetes.

### 4.2 Identification of those at risk and behavioural interventions

There is an increasing identification of people at the early stages of declining glycaemic control both systematically (eg through the NHS Health Check) and opportunistically (eg when people present with obesity, hypertension or periodontal disease). People with elevated glucose levels who are identified as having non-diabetic hyperglycaemia are not only at an increased risk of developing diabetes but also have an increased risk of cardiovascular disease even if they do not develop diabetes.

The NHS Health Check in GM will be revamped. It will include using existing data within the primary care electronic records to identify people, not previously diagnosed with diabetes, who have risk factors which are likely to satisfy the diabetic filter so that they can be invited for screening for diabetes. Presently whether a person is invited to an NHS Health Check is dependent on the practice where the patient is registered. In future, all people who have a QDiabetes score (a measure of the risk of developing diabetes) >4%, who have not previously been diagnosed with diabetes, will be invited for a Health Check at least every five years.

About half of all new cases of T1D are in adults. About one in ten adults with T1D are misdiagnosed as T2D. Clinicians need to have a lower index of suspicion for T1D, even in persons who are overweight, and be readier to test for urinary ketones.

If they are still uncertain about the diagnosis, they should seek urgent specialist advice.

There will continue to be active support for the developing cross-disciplinary work which includes the identification not only those at risk of diabetes but also those with undiagnosed diabetes. Whereas some signs occur even at the earliest stages of hyperglycaemia (eg periodontal disease), other signs are indicative of more advanced disease which may not yet have been identified (e.g. pathological changes in the eye).

If a person has an HbA1c indicating non-diabetic hyperglycaemia (HbA1c 42-47 mmol/mol) it is important that there is follow-up. People with non-diabetic hyperglycaemia are at increased risk of developing diabetes and will need further HbA1c testing. Guidance will be developed on the recommended frequency of such testing.

People with non-diabetic hyperglycaemia already have a raised cardiovascular risk and are at high risk of further declines in glycaemic control. Lifestyle intervention programmes similar to that offered to people with diabetes have benefits that include increased physical activity, weight loss and lower glucose levels. One systematic review concluded a 26% reduced incidence rate of diabetes in those that undertook the intervention.

By early 2019, the national non-diabetic hyperglycaemia lifestyle intervention programme ('Healthier You') will be fully rolled out in GM with up to 14,000 people a year being offered intervention (with 30% expected to take up the offer). This follows the initial pioneering work of the Salford demonstrator site and the phase 1 roll-out in Oldham, Rochdale and Bury. Localities throughout GM are co-operating in designing measures to improve uptake. The evidence indicates that the effect of these programmes wears off over time with little effect at three years if there is no longer-term follow-up. So, the initial programme will be complemented with shorter annual refresher sessions to sustain improvements.

### **4.3 Planning for pregnancy**

There needs to be measures taken to reduce the incidence of gestational diabetes, which is associated with an increased risk of adverse outcomes. Some services have provided interventions for women at high risk preconceptually whilst others have done so for women in early pregnancy. We will develop a clinical consensus to decide which women are at high-risk (eg those with a history of gestational diabetes) to warrant such support.

Additional work will be undertaken to improve preconceptual care for women with established T1D or T2D (see below).

### **4.4 Health incentives**

Incentives can work to improve health behaviours such as losing weight and quitting smoking, but the challenge is maintaining those behaviours when the incentives

stop. Incentives are already used in GM (eg reduced cost of membership to weight loss classes, taster sessions for dance classes, and exercise on prescription to encourage positive changes in lifestyle). The Greater Manchester Population Health Plan 2017–2021 intends to develop and test an innovative incentives-based digital platform to support lifestyle behaviour change. There are particular challenges for people losing weight for which incentives may help. Some of these incentives can be provided by health services such as the promise to perform abdominoplasty for excessive loose skin if a person maintains weight loss for an agreed period whilst other incentives would require co-operation with the private sector such as reduced cost of clothing as a person's size declines.

Key actions to prevent the onset of diabetes:

- Support implementation of the Greater Manchester Population Health Plan and align with its wider strategic aim to embed a more proactive approach to person centred prevention and early intervention practice.
- Complement programmes like 'Healthier You' with refresher sessions to embed behavioural change.
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## 5 Control of diabetes

### 5.1 Measuring quality of care

Both good glycaemic control and reduction in blood pressure substantially reduce macrovascular and microvascular complications and reducing cholesterol reduces macrovascular complications. The National Diabetes Audit (NDA) uses the proportion of people achieving levels set out in Figure 3 to measure quality of care.

**Figure 3: Levels used to measure quality of care**

HbA1c	<=58mmol/mol
Blood Pressure	<=140/80
Cholesterol	<5mmol/L

However, NICE recognises that many people with diabetes should try to achieve lower levels than those used by the NDA, for those with T2D, that can sometimes be achieved by changes in lifestyle and use of metformin therapy. At present for other people with T2D, unless there is a contraindication to metformin, intensification of medication should only be recommended for those with HbA1c >58mmol/mol. For people with T1D, some achieve very good control much below 58mmol/mol which is desirable if hypoglycaemic attacks can be avoided. This led to NICE recommending that *“Diabetes services should document the proportion of adults with type 1 diabetes in a service who achieve an HbA1c level of 53 mmol/mol (7%) or lower.”*

The Greater Manchester Medicines Management Group (GMMM) will be responsible for developing local guidelines for the intensification of medication for the control of diabetes. They will also monitor and report against these guidelines with the aim of reducing unwarranted variation.

### 5.2 Information and structured education

There should be a personalised approach for each person with diabetes. Lifestyle advice and other education relevant to diabetes should be part of the therapeutic plan from the time of diagnosis and at every stage thereafter.

There will be consistent, high quality information provided to all persons with diabetes at diagnosis and other appropriate times both verbally by clinicians and through written information. It will be available in a variety of formats and languages to meet the needs of people with sensory impairment, with learning disability or whose first language is not English. This giving of information and discussion is enhanced by attendance at structured education.

Structured education improves diabetes management and is likely to reduce diabetes complications. It leads to lifestyle changes conducive to good health, such as better nutrition and increased physical activity as well as improved compliance with medication and care processes. Structured education should be available to those newly diagnosed and existing people who have not previously attended it.

Only about one in eight of people diagnosed with T1D are reported presently to attend structured education and fewer than one in ten with T2D attend. To improve attendance, we will move towards an opt out system rather than opt in with structured education being seen as an integral part of management. Commissioners will embed this as part of the GP standards and an agreed education cycle will be shared through GP networks via tools currently available or being developed.

The time before starting structured education should be reduced so that those who feel able to do so can start structured education as soon as possible after diagnosis, or after the education programme to manage insulin treatment. Carers and people living with those with diabetes will be encouraged to attend the structured education so that they are in a better position to offer support.

The evidence indicates that lifestyle changes are not sustainable and compliance with treatment is sub-optimal without refresher courses. So, as with the non-diabetic hyperglycaemia lifestyle intervention programmes shorter annual refresher courses to follow up structured education will be an integral part of the management of diabetes.

The management of non-diabetic hyperglycaemia and T2D not requiring insulin is similar, so the same programme can be offered to both groups. For people with T2D requiring insulin, there should be a structured programme for managing insulin but other aspects of education required will be similar to that required by other people with T2D. In the longer-term, we will aim to have a combined programme for people with non-diabetic hyperglycaemia and T2D. This will increase the ability to give people a choice of time and place when selecting which course to attend. Some areas, such as Bolton, have expanded structured education to include the care processes to encourage increased attendance. Such programmes may need to be organised so that there are one or two sessions aimed at people with T2D. People with non-diabetic hyperglycaemia may decide not to attend these sessions.

There are national trials offering electronic structured education with Salford being one of the participating sites. If shown to be effective, electronic structured education will be offered to all those with diabetes but whether clinicians should still recommend face to face group structured education will depend on the relative effectiveness.

For people with T1D, there will be an education programme for initiating insulin immediately on diagnosis and managing insulin or insulin pump therapy. Good results within the SCN footprint for achieving HbA1c targets in people newly diagnosed T1D have been achieved in Cheshire. They feel their results are due to the intensity of the intervention and aiming for a slow, but steady, reduction in blood glucose. We will consider whether the adoption of the Cheshire model in other areas will improve attendance and results and, if adopted, we will audit results to ascertain whether the Cheshire results are replicated.

### 5.3 Continued care planning and person centred care

Increasingly, patients and clinicians in both primary and secondary care will work together in partnership to improve compliance with agreed plans and optimise outcomes through a process of Shared Decision Making (SDM). This requires sufficient time for

- Fully explaining treatment options and possible effects
- Offering choice
- Providing people with the opportunity to be involved in making decisions about their care

There will be an initial assessment and personalised care planning with a member of the care team which will include arranging follow-up appointments. Although, for most people, their care should be largely based within general practice, community diabetes nurses, working in partnership with general practice, will enhance the care of people with diabetes. The care plan will be renewed at least annually.

Assessments of people's needs should be holistic and person centred. Approaches that are person and community centred include a very broad range of practice, ranging from 'more than medicine' support that complements and enhances clinical care for people with long-term conditions (such as peer support) to everyday community activities that enable people to improve their health and wellbeing (such as a local football team or gardening club).

People on insulin benefit from self-monitoring. This can now be done less invasively using a flash glucose monitoring system which costs about £1K per year. People using insulin will be offered such a system for a trial period before reviewing its use and providing it in the longer term to people who seem likely to benefit. This offer will be integrated with the insulin education programme. When the flash glucose monitoring system needs to be phased in, for affordability reasons, the SCN will build a clinical consensus about who should have priority. This may be people who have experienced a hypoglycaemia, those newly diagnosed with T1D and pregnant women.

Information technology (IT) can facilitate peoples' involvement in the management of their own care. Personalised care planning will enable people to use the patient access facility of the general practice system so that they have easy access to their records. This will be complemented by supporting people with access to interactive diabetes websites that not only give up-to-date clinic results but also provides other material which supports people to manage their own diabetes. There are widely used websites such as [www.mydiabetesmyway.scot.nhs.uk/](http://www.mydiabetesmyway.scot.nhs.uk/) or more locally developed websites such as Salford's [www.patientview.org](http://www.patientview.org). There will be evaluation of systems available and a decision made about which system(s) is appropriate across GM. Whichever system(s) is used, there will be some dedicated resources to keep local information up to date such as contact details of services, news, events and patient stories

Peer support programmes assist people with diabetes in daily management to enhance social and emotional support. Diabetes UK's Peer Support Programme

runs groups led by trained volunteer facilitators and has the potential for members to buddy up. Considering participation in peer support will be part of the care planning process.

#### **5.4 Reversing type 2 diabetes**

A major clinical trial reported in Dec 2017 showed that almost half of people who agree to a nutrient-complete, liquid low-calorie diet for 3 to 5 months followed by foods being reintroduced along with long-term support to maintain weight loss, have a reversal of their T2D at 12 months, although we are awaiting results of longer term follow up. This intervention was delivered through GP practices, with nurses and dietitians.

Bariatric surgery leads to improvement in glycaemic control within hours of surgery. In trials of surgery, over half of patients stop medication prescribed for their diabetes as they no longer meet the criteria for a diagnosis of diabetes. Bariatric surgery is highly cost-effective (especially when undertaken early in the course of diabetes) partly as a result of reduction in medication costs. This evidence led to NICE producing new guidance in 2014 (CG189) that increased the number of people with diabetes who are eligible for bariatric surgery as long as they are also receiving or will receive assessment in a local weight management multi-disciplinary service (or equivalent).

All people with a BMI over 25 should be offered dietary intervention that has the potential to reverse diabetes. The design of such dietary intervention may need to be modified as it is a rapidly moving area of research. People who fulfil NICE criteria should also be offered the option of bariatric surgery.

GM clinical commissioning groups have not felt able to implement CG189, because of affordability of bariatric surgery and insufficient capacity in weight management multi-disciplinary services, and have based their policy on the previous NICE guidance (43). This potentially raises conflicts for people with diabetes as the NHS Health Choices website informs them that the NHS offers surgery in accordance with CG189.

GM will comply with NICE guidance when it is considered possible to do so. This will allow clinicians to offer all people with a BMI of 35 or over who have recent-onset T2D an expedited assessment for bariatric surgery and consider an assessment for bariatric surgery for people with a BMI of 30–34.9, or lower if of South Asian family origin, who have recent-onset T2D. Presently, even those who would be eligible for bariatric surgery in accordance with CG43 have to raise the possibility of the surgery themselves. Part of the implementation of CG189 will involve clinicians proactively discussing the offer of bariatric surgery enabling people to make an informed choice. As different types of bariatric surgery have different levels of effectiveness, especially in the long term, this choice will entail making an informed decision regarding the type of bariatric surgery to be undertaken. We will proactively seek to

develop local guidelines for bariatric surgery to facilitate access to surgery in line with national guidance.

There is good guidance about advice on diet immediately prior to bariatric surgery and after the operation although the evidence on the effect of this advice is not robust. However, it will be sensible to build such advice into any service for bariatric surgery.

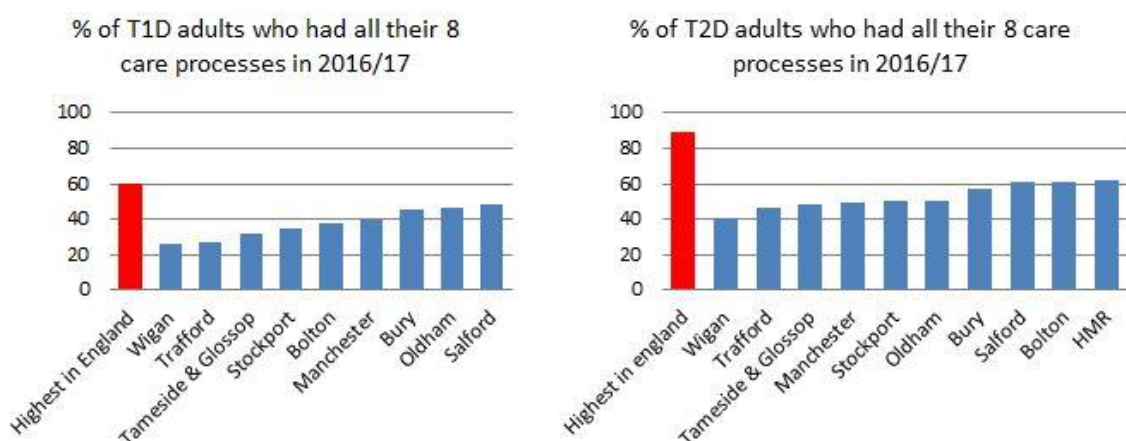
## 5.5 Care processes

People with diabetes will continue to be offered a number of healthcare tests as part of their ongoing care in accordance with NICE guidance. Historically these have been referred to as the diabetes care processes. Adults should receive HbA1c, cholesterol and blood pressure measurements, in addition to having blood and urine estimation of kidney function, their eyes screened, their body mass index calculated and their feet checked. Smokers will also be offered support to quit. All these processes will happen at least annually, although it is recommended glycaemic control is checked a minimum of twice a year.

Just like adults, children should expect HbA1c testing a minimum of four times a year. They should also expect screening for coeliac and thyroid disease, their body mass index calculated and an offer of psychological support. In those over twelve years, there should be tests of kidney function, eye screening, measurement of blood pressure and a check on their feet.

Relatively very few people with diabetes have all the care processes carried out annually (Fig 4). In most cases fewer than half of adults with diabetes have the eight care processes (excluding eye screening) carried out and there appears to be a particular challenge with kidney function tests in both types of diabetes and foot surveillance in T1D.

**Figure 4: Proportion of people who have care processes carried out**



In GM, work will be done to improve the proportion of people receiving all care processes. We will build on the integrated approach, used for many people with diabetes in GM, of joint working across health sectors and disciplines which clearly allocates responsibilities for carrying out each of the care processes. This will



improve uptake and appropriate follow-up. We will enable people with diabetes to provide the data to the clinician, possibly electronically, to give more control to the patient and reduce clinician time (eg home blood pressure measurements and urinalysis). Other measures could include improving the correspondence to people inviting them to attend; minimising the number of visits people have to make, sometimes to different venues; increasing choice of times to attend; and virtual clinics using telephone or skype.

It is important that action is taken following the identification of issues as a result of undertaking the care processes. For example, smokers will be encouraged to access specialist services to quit which will be available throughout GM as laid out in the GM Tobacco Strategy (<http://www.gmhsc.org.uk/assets/Tobacco-Free-Greater-Manchester-Strategy.pdf>). This strategy also states that e-cigarettes can provide a route out of smoking. So we will explore the potential of providing starter kits for e-cigarettes for those who prefer to quit smoking by switching to vaping as well as the stop smoking aids already available.

## **5.6 Additions to nationally agreed care processes**

Diabetes-specific emotional distress, depression and anxiety are all common in people with diabetes. Brief screening for these conditions should be an additional process undertaken annually.

Diabetic retinopathy is a leading cause of blindness in the UK and we will continue to take measures to improve attendance at National Diabetic Eye Screening Programme. People with diabetes have an increased risk of glaucoma. For the routine eye examination at an optometrist, guidance from the College of Optometrists state that risk factors for glaucoma include being “over the age of 40”. The risk increases with every decade of life thereafter”. The guidance continues that “*When examining a patient who is in the at risk groups for glaucoma you must carry out relevant tests*” and these include measuring intraocular pressure and assessing visual fields. It is inappropriate that people with diabetes over the age of 40 are considered in need of screening for glaucoma only if they visit an optometrist. Raised intraocular pressure is a modifiable risk factor for glaucoma and will be part of the diabetic eye screening. However, it has poor sensitivity and specificity for the diagnosis of glaucoma. So relevant pathways will be put in place to ensure people with identified raised IOP at diabetic eye screening have additional assessment to investigate potential glaucoma (including assessment of optic nerve, visual field and contact tonometry) and should be assessed for treatment to reduce IOP even in the absence of glaucomatous pathology.

In addition to the children’s programme for flu and pneumococcus, adults will benefit from having flu immunisation each year and the pneumococcal vaccine according to national guidance. However coverage could be improved with only about two-thirds of people with diabetes having the flu immunisation each year. As well as inviting people for their immunisation, advising about immunisation should be part of the discussion that takes place when undertaking other care processes.

Erectile dysfunction has an increased prevalence in men with diabetes. Even when men are affected by erectile dysfunction, they are often reluctant to mention it to the clinician. As part of undertaking the care processes, clinicians will proactively ask about erectile dysfunction.

There is a clear association between periodontal health and glycaemic control although the direction of that association is not clear. However, during consultations with patients for the care processes is an opportunity to encourage people to visit the dentist for an oral examination and dentists can encourage people with periodontal disease to be checked for diabetes.

## 5.7 Transition

Most people transition between the ages of sixteen and nineteen years. However, blood glucose control often deteriorates considerably in the years that follow transition with HbA1c treatment target being less likely to be reached during this period.

While the path to adulthood is a continuous one, the path through clinical services may not be so smooth. It is appropriate that children and adolescents take increasing responsibility for their condition as they grow up. It is important that this assumption of greater responsibility starts early. For example, the 'Ready, Steady, Go' programme prepares children with diabetes for transition starting at 11 years of age. There also needs to be a good handover of care from paediatric to adult physicians. All services for children with diabetes will adopt a systematic approach to transition in line with the GM Childrens and Young Adults Strategy.

Key actions to improve the management of diabetes:

### *Structured education*

- Ensure consistent high-quality information is provided to all at appropriate times in a variety of formats.
- Adopt an 'opt out' rather than an 'opt in' approach to structured education and embed this in GP standards.
- Invite carers, and people living with those with diabetes, to attend structured education.
- Ensure refresher courses are available.
- Implement new structured education opportunities through a patient diabetes app for use remotely on mobile devices.
- Offer an education programme for initiating insulin to those with T2D requiring insulin.
- Investigate the potential for the electronic delivery of structured education through mobile devices.

### *Person-centred care*

- Review person centred care plans, incorporating the 'more than medicine' approach, at least annually.
- Offer appropriate persons on insulin the opportunity to trial flash glucose

monitoring.

- Contribute to and participate in the development of online patient access to personalised information.

#### *Bariatric surgery*

- Ensure clinicians proactively offer people who have diabetes with a BMI over 35 or over with recent onset diabetes the option to discuss bariatric surgery.

#### *Care Processes*

- Improve joint working and increase integrated care.
- Improve opportunities for people with diabetes to provide data to clinicians, including electronically.
- Provide additional support to stop smoking, including e-cigarette starter kits.

#### *Additional care processes*

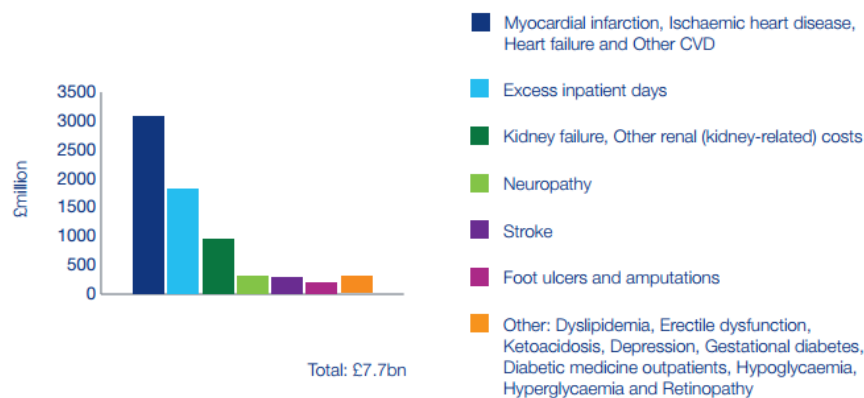
- Include screening for diabetes-specific emotional distress, depression and anxiety.
- Include measurement of intra-ocular pressure and optic nerve damage inspection during as part of eye-screening.
- Ensure that both children and adults are advised to take up pneumococcal and annual flu immunisation.
- Ensure clinicians proactively ask men about erectile dysfunction.
- Ensure people undergoing the diabetes care processes will also be encouraged to have regular dental check-ups.

## 6 Prevention of complications

### 6.1 Impact

Complications as a result of diabetes have a profound impact on those living with them, as well as their families and their carers. Complications such as cardiovascular events, renal failure, visual impairment, erectile dysfunction, gum disease or a wound resulting in amputation can be life changing and people may require considerable support from all involved in their care. In some cases, it will be appropriate that people are offered assessment for a personalised health budget and we will proactively seek to ensure that these discussions take place.

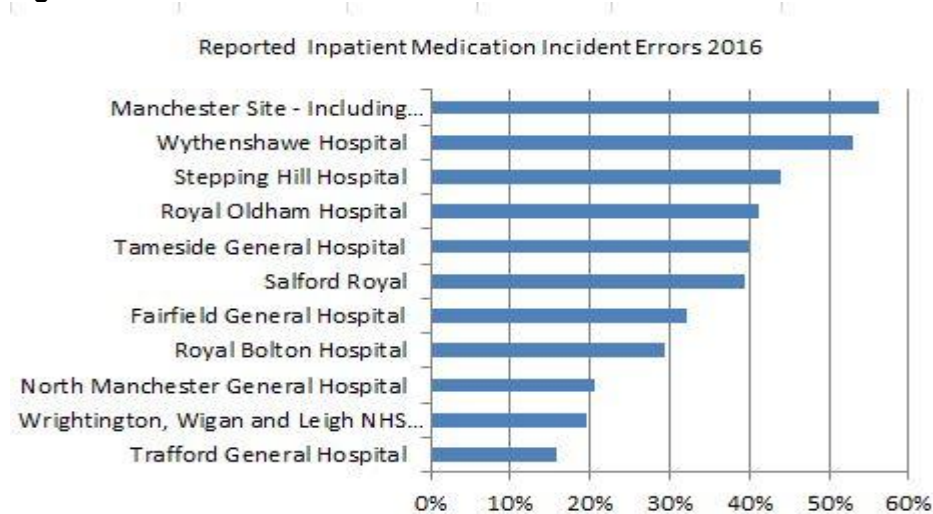
**Figure 5: Costs of diabetes complications**



Source:  
Cost of Diabetes Report  
v2 (2014)

Based on an analysis of diabetes costs in 2010/11, around £400 million is spent each year on treating complications in GM (Fig 5). Inpatients with diabetes often exceed the NHS tariff paid to hospitals by up to 8.5% due to longer length of stay. Readmission rates are high (59% higher than in age matched populations without diabetes and there are thousands of emergency call outs for ambulance staff and presentations in accident and emergency departments). Presently a high proportion of inpatients with diabetes have medication errors during their stay in hospital (Fig 6).

**Figure 6: Medication errors in GM.**



We will pilot the introduction of an inpatient bundle of care to reduce harm (see box), prevent inpatient medication errors and reduce inpatient length of stay. Many people treated with insulin have greater knowledge and experience of insulin adjustment than the medical and nursing staff responsible for their care. They routinely monitor their capillary glucose and adjust the insulin dose depending on the result. Self-management of diabetes by people who are willing and able improves the safety of insulin use in hospital. Hospitals will have a policy for diabetes self-management. Self-management will be the default position for all inpatients who are willing and able to manage their condition. We will explore the option of introducing clinical decision support systems and information prescriptions to enable clinicians to respond appropriately to abnormal test results.

Diabetes nurses provide management plans, treatment advice, and support for adults with diabetes and their carers. They are also a clinical and educational resource for other health professionals. They improve patient care, including reducing medication errors, and reduce length of stay. We will aim to ensure that these nurses are employed in line with the national recommendation of one nurse per 250 inpatient beds during the lifetime of the strategy.

**The inpatient bundle of care comprises components relating to:**

- Ambulatory care model
- Link to nurses
- Purple lanyards for DT
- Incident reporting response
- Timely access to nutrition
- Purple food trays
- Nutritional information
- Electronic patient tracking
- 'Think glucose' icon patient identifier
- MDT 7 days per week
- Safe medication management

Full details are contained in the draft diabetes service specification

## 6.2 Cardiovascular complications

Cardiovascular disease accounts for over half of all deaths in people with diabetes. People with diabetes are about twice as likely to die prematurely from cardiovascular disease than those without diabetes. The death rate can be halved by managing cardiovascular risk factors more effectively. This will be done through the personalised care plan which will include measures such as healthy lifestyle advice, control of blood pressure and the use of statins. Measures will be taken to improve the proportion of people offered the appropriate intervention and compliance with those interventions.

Major amputation rates vary, with parts of GM up to 81% higher than the national average. When clinicians, on examining the lower limb, suspect acute limb ischemia, they will send people directly to those A & E departments which have rapid access to a vascular opinion. As the majority of amputations are preceded by ulcerations, which account for over half of hospital admissions for foot disease, any person with

wounds or ulcers to their foot will be offered an appointment with a community podiatrist within 24 hours whether during the week or at weekends. Other people with suspected peripheral arterial disease will have a specialist assessment within 28 days unless there is infection when this assessment should be done within 24 hours. A unified GM foot pathway will be developed.

The risk of developing a foot ulcer is significantly increased when a person has a callus. The main reason for people with diabetes developing a callus is peripheral neuropathy which predisposes to abnormal pressure on the foot. The skin reacts to this pressure by increasing keratinization and leading to a callus which increases the risk of ulcers. The potential reduction of ulcers if we treated calluses assertively is large but, as yet, there is a lack of robust evidence that this is effective. GM will support the recruitment of people with diabetes for suitable trials that will inform whether treating calluses assertively will reduce ulcers.

The inclusion of diabetes in the CHA<sub>2</sub>DS<sub>2</sub>-VASc score (used to decide which people with atrial fibrillation should be anti-coagulated) is a reflection of the increased risk of stroke faced by people with diabetes when they have atrial fibrillation. The most recent Health Technology Assessment, commissioned by National Institute for Health Research (NIHR), concludes that opportunistic screening, for the general population, is the most cost-effective approach using pulse palpation or modified blood pressure monitors. The undertaking of care processes is a suitable opportunistic encounter with people with diabetes to screen for atrial fibrillation. All people with diabetes over the age of 65 will be screened for atrial fibrillation when the care processes are being undertaken. As all people over 65 with diabetes will have a CH<sub>2</sub>DS<sub>2</sub>-VASc score of at least 2, they will be prescribed anticoagulation in accordance with NICE guidance.

### **6.3 Renal complications**

About 40% of people with diabetes will develop diabetic nephropathy. This can be reduced by good glycaemic control, blood pressure control and, for those with a diagnosis of nephropathy or microalbuminuria, treatment with ACE-I or ARB drugs. These are measured by QOF but exceptions and a top threshold well below 100% gives insufficient incentive for optimal clinical practice. There will be discussions with primary care about removing exceptions and increasing the top thresholds in exchange for increased financial incentives.

About one in eight adults have masked hypertension. This is a risk factor that is often missed. People with diabetes who are normotensive when their blood pressure is measured by a clinician will have 24 hour ambulatory blood pressure monitoring or home self-monitoring every five years.

Diabetic and renal services should work together to manage people 'at risk' early with the aim of preventing progression to end stage renal disease. People with diabetes and declining renal function, who may be suitable for transplantation, will be referred sufficiently early so that they can be considered for pre-emptive renal transplantation.

## 6.4 Microvascular complications

Eye disease, erectile dysfunction and periodontal disease may be identified as part of the care processes. When they are detected, they will lead to appropriate management or referral.

## 6.5 Mental health

There are interventions to tackle complications that will improve the mental health of people with diabetes with GM, such as the integrated IAPT (Improved Access to Psychological Therapies) service. People with diabetes can also suffer with eating disorders with diabulimia being especially dangerous. People with eating disorders will often require referral to specialist mental health services.

## 6.6 Pregnancy

NICE have produced clear guidance on good preconceptual care for women with diabetes. Some of this guidance needs to be read in conjunction with other NICE guidance. For example, the guidance on preconceptual care that advocates the “*use of contraception until good blood glucose control*” has to be read in conjunction with NICE generic advice on contraception that states that “*women ... (should be) ... offered a choice of, all methods including long-acting reversible contraception (LARC)*” and that long-acting contraception is suitable for women with diabetes.

General Practices should identify all women with diabetes who may become pregnant as a part of the annual care planning and support them to develop a plan for either safe, effective contraception or for pregnancy preparation as part of routine care. Once a woman with diabetes has her pregnancy confirmed there should be early referral to a dedicated multi-disciplinary team (MDT) ante-natal clinic.

Key actions to prevent complications arising from diabetes:

### *Impact*

- Introduce the inpatient care bundle.
- Hospitals have a policy of diabetes patient self-management.
- Ensure the numbers of nurses employed with specific diabetes knowledge or experience are in line with national guidelines.
- Ensure patients are able to access assessment for personalised health budgets where appropriate.

### *Cardiovascular complications*

- Send people with suspected acute limb ischaemia directly to A&E departments with rapid access to vascular opinion.
- Offer people with wounds or ulcers a community podiatrist appointment within 24 hours.
- Offer people with suspected peripheral arterial disease a specialist podiatrist assessment within 24 hours (if wound present) or 28 days (if no wound

present).

- Support the recruitment of people with calluses for suitable trials to assess whether assertive treatment will reduce ulcers.
- Screen people with diabetes, who are not diagnosed with hypertension, for masked hypertension every five years.
- Include measures such as healthy lifestyle, control of blood pressure and the use of statins in personalised care plans.
- Screen people with diabetes over 65 for atrial fibrillation during the care processes.

#### *Renal complications*

- Hold discussions with primary care about removing exceptions and raising upper thresholds.
- Offer normotensive people 24hr blood ambulatory pressure monitoring or home self-monitoring every 5 years.
- Refer suitable people with diabetes with declining renal function for pre-emptive transplantation.

#### *Pregnancy*

- Ensure preconception care is integral to care planning.
- Offer women a choice of all contraceptive methods, including long-acting reversible contraception, until good blood glucose control is achieved.



## 7 Additional issues for consideration

### 7.1 High risk groups

Certain cohorts of people run a higher risk of diabetes progression and subsequent complications because they are not engaged as effectively as others. They include those with mental health problems, people from black and minority ethnic backgrounds, the lesbian, gay, bisexual or transgender community, people with sensory or physical impairments, people with learning difficulties and homeless people. Reasons for suboptimal engagement can vary within these groups from not understanding the seriousness of their condition to not having provision appropriate to their needs. The third sector will be especially important in the engagement of hard to reach groups.

Particular attention should be paid to the communities with South Asian and Afro-Caribbean origin and other high-risk groups as they have especially high prevalence of diabetes. Engaging with these communities and recruiting peer supporters from within these communities will be a priority.

The present QOF enables primary care to make exceptions and exclude people from the denominator when measuring the quality of care. One of the reasons for making exceptions is when patients do not respond to repeated invitations and these people can be some of the most vulnerable. Measurements of the quality of care provided by the National Diabetic Audit (NDA) does include people who are excepted from QOF. This data is available by practice and is a more useful measure of quality than QOF.

Over the lifetime of this strategy, we will work to make services more equitable and accessible. We will expand the information and education provided in multiple languages and formats in discussion with these communities. We will engage those at high risk of progression and complications using care calls, messaging and other methods such as health apps to check how they are managing their diabetes and to offer advice and support to reduce diabetes progression.

People with mental ill-health are at high-risk of diabetes especially people with psychosis. Efforts have begun to achieve parity of esteem so that people with poor mental health with diabetes are detected early and treated appropriately. The choice of anti-psychotic medication can increase the risk of diabetes. Further work will be done to consider diabetes when the choice of anti-psychotic is made and, if an anti-psychotic that increases the risk of diabetes is used, to minimise the dose if that is possible.

Diabetes is common in residential and nursing homes. We will work with these homes to help ensure good care of their residents eg there are clear policies on self-medication and on dealing with hypoglycaemic events.

Some people find it very difficult to control their diabetes. People with T1D diabetes that meet the guidelines will have access to insulin pumps as approved by NICE.

## 7.2 Unwarranted variations

Some variation in healthcare is unavoidable because of its complexity and the difficulties in controlling all the variables that contribute to it. Variation can sometimes be explained by the characteristics of the local population, individuals or by differences in the capability of healthcare professionals. Often differences occur when innovations are made but innovation is essential to drive up standards. . The important thing for us to understand is whether the variation is warranted.

The term 'unwarranted clinical variation' has been described as 'care that is not consistent with a patient's preference or related to [their] underlying illness.' This can relate to substandard care around access to services and outcomes. To limit unwarranted variation in diabetes care, we have to outline a set of minimum standards people should expect from our services.

In GM we plan to outline a set of minimum standards by:

- Developing a GM diabetes services specification covering all elements of care and;
- Supporting the service specification with agreed pathways and processes

The service specification will incorporate the NHS RightCare Diabetes pathway to facilitate a reduction in unwarranted variation. The RightCare programme can then be used to improve standards as is presently being done for blood pressure control and the management of atrial fibrillation.

The service specification will define the minimum components of quality diabetes care and should not limit local innovation. The pathways and processes aim to incorporate all necessary components of care and recommendations in this strategy, but not limit the local service models to deliver them. Combined these deliverables will support commissioners and local care organisations to review service provision and support the provision of quality diabetes care that is sustainable.

The service specification will include the agreed standards which can be audited. Clear presentation of data which shows how well services are meeting the standards and giving comparison between providers will act as a spur to improvements and help to reduce variations.

At the same time we should improve the way we evaluate diabetes health outcomes so we have a greater understanding pertaining to what is optimum, the reasons behind local variation, and what markers truly indicate a move in the right direction. Data recorded and collected should be consistent, up-to-date and enable commissioners to assist local services in need of support.

### **7.3 Continued learning for clinicians that support those with or at risk of diabetes**

As well as educating people with or at risk of diabetes, we will ensure clinicians have the necessary competencies and skills to be able to offer effective support.

There is often an assumption that health care professionals already have these skills. However, in 2016 as part of stakeholder engagement, clinicians in GM highlighted the need to have more accessible and targeted healthcare professional training. One of the main reasons being clinical inertia; a concern highlighted in a number of diabetes studies. Clinical inertia often results in delays to treatment intensification where there is sub-optimal glucose control. This can accelerate the progression of diabetes and cause avoidable complications. Some clinicians do not feel confident or supported with complex cases and others believe the training they receive is often pitched at the wrong level and more appropriate training and mentorship would not only educate them, but help them achieve better clinical outcomes.

We will define the responsibilities of clinicians involved in diabetes care using agreed care pathways and a service specification. Those that lead the care will relay important health messages in a sensitive manner; have skills to tease out what is important to the individual; agree with the person the positive changes to be made; and signpost them to supportive tools that may help. To reduce clinical inertia, health care professionals will be offered training suitable to their needs and be supported by an infrastructure that features mentoring and partnership working with other specialists.

We will explore the potential for complementing traditional training with web-based and mobile educational programme. Such a programme for cancer (Gateway-C) has proved popular amongst primary care with over 70% of GP practices now having registered users. When appropriate, support will include involvement of community diabetes nurses working between primary and secondary care.

### **7.4 Improving research and innovation**

Continued research and innovation is crucial to improve diabetes care especially when focussed on strengthening evidence based practice for the prevention of diabetes and its complications. Whether it is findings from clinical trials or identifying best practice locally, the information needs to be shared with peers to support continued improvement.

In GM we will continue to work with our clinical research network to improve information management when it comes to disseminating research and innovation locally. Audit data relating to clinically relevant diabetes outcomes such as CVD risk factors will be provided in a timely fashion in ways that will help improve clinical performance across the diabetes care pathway.

We will explore new ways of promoting and disseminating research and innovation not just to local academics and clinicians but commissioners, managers and people

with or at risk of diabetes. Such an approach will also aid further collaborative working and avoid repetition when it comes to service improvement.

## 7.5 Future planning

As new evidence emerges there will be a need to revise this strategy. Within the strategy it will be important that service redesign and implementation is a continuing process. It is vital that any future strategy development and implementation has the full involvement of service users.

Key actions to minimise the impact of additional diabetes risk factors:

### *High risk groups*

- Maximise engagement with the third sector to ensure that every effort is made to access and support hard to reach groups of individuals.
- Expand the extent to which information and education is available in multiple languages and formats.
- Explore the options for engaging with those with diabetes in new ways (including electronically) and use these to provide new opportunities for self-managed care.
- Ensure diabetes is considered during the choice of anti-psychotic medication.

### *Unwarranted variation*

- Introduce a GM diabetes service specification and comply with minimum standards and agreed pathways contained in it.

### *Continued learning*

- Ensure clinicians have the necessary competencies to offer effective support on an ongoing basis.
- Define the responsibilities of clinicians in diabetes care.
- Offer new web-based learning opportunities for clinicians.

### *Research & innovation*

- Provide diabetes audit data in a timely fashion and an accessible manner.
- Explore innovative approaches that have been delivered in other areas and replicate locally where applicable. This may be especially important in areas of high need.
- Explore new ways of disseminating research information throughout the GM diabetes care system.