DIABETES POLICY

WIRRAL CARE HOMES

Supporting the management of residents with diabetes



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Wirral Care Homes: Supporting the Management of Residents with Diabetes

This care home resource supports the implementation of recommendations in the NICE guidance on Type 1 diabetes in adults, Type 2 diabetes in adults and nutrition support in adults. It also supports statements 1, 2 and 3 in the NICE quality standard for nutrition support in adults.

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INTRODUCTION

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1.1 SCOPE OF THE DOCUMENT

This is an operational document to assist care home staff in the day to day management of residents with diabetes. It may also be used as a teaching reference to support new and existing staff with the development of their diabetes knowledge. The guidance included in this policy is based on evidence based literature, best practice and other subject specific guidelines. Visits were also carried out at local care homes prior to the production of this document to identify background information about the context and level of support required by care staff. This was essential to ensure the policy is relevant to meet the needs of staff and residents.

At the end of this policy, in **Appendix 4**, is an audit checklist. This can be used to audit standards of diabetes care in your place of work. **It is recommended that the audit is carried out at least once a year.** If any areas require changes to be implemented please ensure that any new actions are re-audited again within a month.

KEY RECOMMENDATION:

The Care Quality Commission [CQC], (2015) recommends that care homes should have a diabetes policy in place which describes the elements of good diabetes care and meets evidence based standards. This recommendation is also echoed by Diabetes UK (2010), the International Diabetes Federation [IDF], (2013) and the Institute of Diabetes for Older People [IDOP], (2014).

KEY RECOMMENDATION:

It is recommended that all residents with diabetes should have a diabetes care plan which is developed with the resident, their family/carers, GP or other specialist health care provider e.g. Consultant or Diabetes Specialist Nurse (Diabetes UK, 2010 & IDF, 2013).

KEY RECOMMENDATION:

Within each care home it is recommended that one or more designated staff members should be responsible for diabetes management and maintaining a high standard of diabetes care (IDF, 2013 & IDOP, 2014). This would be a 'Diabetes Champion' or 'Diabetes Key Worker' role for someone who has regularly attended updated diabetes training sessions.

1.2 KEY DOCUMENTS TO SUPPORT CARE STAFF IN THE MANAGEMENT OF RESIDENTS WITH DIABETES

The following documents provide useful information to support care staff when managing residents with diabetes. Staff who are responsible for the care of residents with diabetes should be aware of the content of these documents:



The International Diabetes Federation (2013) identifies that the proportion of older people in society is increasing, along with the number of people being diagnosed with diabetes, particularly Type 2 diabetes, which is more prevalent in ageing populations. Diabetes is known to double the risk of admissions to a care home (Diabetes UK, 2010), hence an increasing number of the older population within care settings will require high quality care and support to safely manage their condition (Diabetes UK, 2010).

It is estimated that 1 in 4 care home residents may have diabetes and a similar proportion may have undiagnosed diabetes (IDOP, 2014). The diagnosis of diabetes may be missed or delayed in some care home residents, particularly those with mental health needs as symptoms may be non-specific or simply attributed to age (Diabetes UK, 2010; Dunning & Sinclair, 2014). If residents are undiagnosed with diabetes this means that opportunities for early treatment will be missed. In addition, diabetes in older people may be more complex to manage due to the prevalence of other co-existing health problems and their associated treatments.

It is suggested that care home residents with diabetes have an increased likelihood of developing multiple complications, including:

- Pressure sores
- Urine, chest and skin infections
- Strokes
- Heart attacks and kidney problems
- Higher rates of hospitalisation and re-admission rates
- Higher levels of physical and cognitive impairment and disability

In addition, residents with diabetes may have higher levels of pain and depressive symptoms which can affect their ability to self-manage their diabetes or report complications such as hypoglycaemia, for example (Diabetes UK, 2010).

1.4 WHY CONTROLLING DIABETES IS IMPORTANT

Diabetes UK (2016) suggests that diabetes is the fastest growing health threat facing the United Kingdom (UK) today. In the UK it is estimated that just over 4 million people are living with diabetes and approximately 1 person every 2 minutes is diagnosed with diabetes (Diabetes UK, 2015). Good management of diabetes has been shown to reduce associated complications (Stratton et al., 2000; Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/ EDIC) Study Research Group, 2005). However, when diabetes is not managed appropriately serious complications may develop, some of which are indicated below:

- Cardiovascular disease this is a major cause of death and disability in people with diabetes with heart failure being the most common and fatal complication.
- Diabetes is the single most common cause of end stage kidney disease requiring dialysis or transplant.
- Kidney disease accounts for 21% of deaths in people with Type 1 diabetes and 11% of deaths in Type 2 diabetes.
- People with diabetes have nearly a 50% increased risk of developing glaucoma, especially if they also have high blood pressure, and up to a threefold increased risk of developing cataracts, both of which can also lead to blindness.
- Diabetes, if poorly controlled, can damage the nerves, muscles, sweat glands and circulation in the feet and legs leading to foot ulcers and amputations.
- Diabetes is the most common cause of lower limb amputations with over 135 amputations a week amongst people with diabetes.
- Many amputations are preceded by foot ulceration caused by a combination of impaired circulation and nerve damage.
- Several studies suggest that people with diabetes are twice as likely to suffer from an episode of depression and may have depressive episodes for longer periods than those without diabetes and these may recur more frequently.
- People with Type 2 diabetes are at a 1.5 2.5 fold increased risk of dementia, but this is a highly complex area and research as to the reason for this is still at a relatively early stage.

(Above all retrieved from: Diabetes UK: Facts and Stats (2015) www.diabetes.org.uk/Documents/Position%20statements/Diabetes%20UK%20Facts%20 and%20Stats_Dec%202015.pdf)

All residents with diabetes should have access to the same level of safe, high quality, evidence based care whether they live at home or in a care home (Diabetes UK, 2010).

The overarching principles when caring for residents with diabetes can be summarised in the following proposed aims:

- To maintain the highest degree of quality of life and wellbeing without subjecting residents to unnecessary and inappropriate medical and therapeutic interventions.
- To provide sufficient support and opportunity to enable residents to manage their own diabetes where this is feasible.
- To ensure that residents with diabetes have individualised diabetes care and that follow-up specialist care is easily available depending on clinical need.
- To achieve an optimum level of metabolic control which avoids the malaise and lethargy of hyperglycaemia, substantially reduces the risk of hypoglycaemia in those residents taking sulphonylureas or insulin, and allows the greatest level of physical and cognitive function to be attained.

(Retrieved from: Diabetes UK, Good clinical practice guidelines for care home residents with diabetes, 2010).

KEY MESSAGES:



- Diabetes has a high prevalence in care homes with an estimated 1 in 4 residents diagnosed with diabetes and the same number of residents undiagnosed.
- All care homes should have a diabetes policy which reflects evidence based standards.
- All residents with diabetes should have a diabetes care plan which identifies the type of diabetes, individualised clinical targets including blood glucose levels, HbA1c and blood pressure and details the potential risk of development and management of hypoglycaemia.
- Each home should have a 'diabetes champion' who is responsible for maintaining high standards of diabetes care and attends local diabetes educational updates.
- Residents with diabetes are highly vulnerable and often have complex medical needs which require high quality, evidence based standards of care to proactively prevent unnecessary complications and admissions to hospital.

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2.1 WHAT IS DIABETES?

Diabetes is a complex, chronic condition which is characterised by raised glucose levels, usually caused by the body's inability to produce any insulin (as in Type 1 diabetes), or not enough insulin is produced for what the body needs (as in Type 2 diabetes), or the insulin that is produced does not work properly (as in insulin resistance).

Insulin is a hormone which is produced by the beta cells in the pancreas. In someone without diabetes insulin is released from the pancreas after eating a meal, when the blood glucose levels rise.

Insulin is sometimes described as acting like a key (see diagram below). It attaches to the cell walls and unlocks the cells, allowing glucose in the blood to be transported into the cells where it is used as a fuel source to provide energy for the body's needs.



(Retrieved from: www.diabetes.org.uk/diabetes-the-basics)

In diabetes, the body is unable to produce sufficient levels of insulin as this mechanism is significantly impaired. The body is therefore unable to control the glucose levels and these will remain high unless treatment is given.

Over time if the body is exposed to raised glucose levels, this can cause damage to the blood vessels, organs and cells within the body and lead to complications. These can include:

- Damage to the eyes, which can cause visual problems (retinopathy) and sometimes blindness
- Damage to the kidneys (nephropathy)
- Damage to the nerves including those supplying the legs, feet, stomach, kidneys and the organs within the body (neuropathy)
- Damage to the heart, blood vessels and brain which can lead to heart attacks and strokes (cardiovascular)

People with Type 2 diabetes are at a very high risk of developing cardiovascular problems such as heart attacks and strokes. It is estimated that 75% of people with diabetes die because of cardiovascular complications (National Institute for Health and Care Excellence [NICE], (2011) diabetes in adults quality standards (QS6). **Retrieved from: www.nice.org.uk/guidance/qs6/** chapter/introduction)

In addition the life expectancy of people with diabetes may be reduced by up to 15 years (NICE, 2011).

2.2 DIFFERENT TYPES OF DIABETES

There are different types of diabetes. For the purposes of this policy the two main types of diabetes will be focused on, namely **Type 1 diabetes** and **Type 2 diabetes**. These terms replace the previously used descriptions - 'insulin dependent diabetes' and 'non-insulin dependent diabetes' which are no longer appropriate and therefore not used.

For a confirmation of the resident's diabetes diagnosis please refer to the resident's medical care records or liaise with their GP or diabetes health care provider, i.e. Consultant Diabetologist or Diabetes Specialist Nurse.

As Type 2 diabetes is thought to be more prevalent in older people there may be higher numbers of people in care homes with this type of diabetes (IDF, 2013).

Both Type 1 and Type 2 diabetes have distinct differences and characteristics. These can be summarised in the table below.

	TYPE 1 DIABETES	TYPE 2 DIABETES
INSULIN	The body doesn't produce any insulin as the insulin-producing cells have been destroyed	The body can still produce some insulin, but not enough and/or the insulin doesn't work properly (insulin resistance)
ONSET	Symptoms develop quickly	Symptoms tend to develop slowly
AGE	Develops at any age but usually before the age of 40	Usually appears in people over the age of 40 but generally about 10 years earlier in people of Black and South Asian ethnicity
PREVALENCE	Accounts for approximately 10% of all people with diabetes	Accounts for about 90% of all people with diabetes
TREATMENT	Treated by taking insulin (either by injection or pump), a healthy diet and regular physical activity	Treated with healthy diet and regular physical activity. Medications, including insulin, may also be required

Figure 1: Differences between Type 1 and Type 2 diabetes (Retrieved from: www.diabetesinhealthcare.co.uk)

From the table in figure 1 this illustrates that **Type 1 diabetes** tends to occur in younger people under the age of 40. With this type of diabetes the body does not produce any insulin at all therefore individuals will require either daily insulin injections or an insulin pump to supply insulin regularly for the rest of their lives.

With **Type 2 diabetes** this tends to occur in people over the age of 40, although there are also some children diagnosed with this type of diabetes. Within care home settings Type 2 diabetes will probably be the most likely type of diabetes you will encounter. When people are diagnosed with Type 2 diabetes they will be asked to make changes to their diet and lifestyle initially to try and control their blood glucose levels. If this is not effective then individuals will be prescribed tablets and if these do not control the blood glucose levels they may then progress on to insulin.

So, for both types of diabetes, Type 1 and Type 2 diabetes, individuals may be on insulin injections, however this does not mean that a resident will become a Type 1 diabetic if they were previously diagnosed with Type 2 diabetes. The diagnosis will remain the same.

With both types of diabetes people are at risk of developing complications, some of which can be life threatening. It is important therefore that for each resident their diabetes is well managed and their condition reviewed at least on a yearly basis by the GP or diabetes health care specialist i.e. Consultant Diabetologist (see Section 5, Diabetes Control and Section 11, Annual Review).

2.3 SCREENING FOR DIABETES

As there is a higher incidence of diabetes within care homes, and some residents may have undiagnosed diabetes, it is recommended that residents should be screened for diabetes on admission and every 2 years thereafter by the GP (IDF, 2013 & Diabetes UK, 2010).

Please discuss this with the resident's GP and document in the resident's care plan and case notes the frequency and date for diabetes screening.

Care staff should also be aware of the signs and symptoms of diabetes as some residents may exhibit these but may not have a formal diagnosis of diabetes. These include:

- Increased thirst
- Passing more urine than normal, especially at night
- Blurred vision
- Recurrent infections, especially genital thrush
- Cuts and wounds may take longer to heal
- Tiredness and sleeping more than normal
- Weight loss

Please alert the resident's GP if any of the above symptoms are present and the resident is not known to have diabetes so that screening can then take place.

KEY MESSAGES:

- Diabetes is a chronic, complex condition associated with high glucose levels and multiple complications.
- Type 2 diabetes appears to be more prevalent in care homes.
- The diagnosis of diabetes should be documented in the resident's care plan and notes.
- Residents should be screened for diabetes on admission at the home and at two yearly intervals, please discuss with the resident's GP.

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MEDICATIONS FOR USE IN DIABETES

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A variety of medications are available for use with people with diabetes. The following medications are used in Type 2 diabetes to lower and control the blood glucose levels. You may be aware of your residents who are on some of these medications:

NAME AND CLASS OF MEDICATION	OTHER BRAND NAMES	HOW THE DRUG WORKS	POTENTIAL SIDE AFFECTS	WHEN TO GIVE
METFORMIN (BIGUANIDES)	Glucophage, Sukkarto	Reduces glucose production from the liver, increases insulin sensitivity	Nausea, vomiting, abdominal bloating, diarrhoea	To be given with food. Doses usually split and given 2-3 times daily with meals
GLICLAZIDE, GLIMEPIRIDE, GLIPIZIDE (SULPHONYLUREAS)**	Diamicron, Amaryl	Increases insulin production from the pancreas	Weight gain, nausea, hypoglycaemia	Preferably give with food once or twice daily depending on dose
PIOGLITAZONE (THIAZOLIDINEDIONE)	Actos	Reduces insulin resistance, increases insulin sensitivity	Weight gain, fluid retention, increased risk bone fractures in women, associated risks with bladder cancer	Once daily
REPAGLANIDE, NATEGLANIDE (PRANDIAL GLUCOSE REGULATORS) **	Prandin, Starlix	Stimulates insulin secretion from the pancreas	Hypoglycaemia , nausea, vomiting, abdominal pain	Within 30 minutes before main meal
SITAGLIPTIN, SAXAGLIPTIN, ALOGLIPTIN (DPP4 INHIBITORS)	Januvia, Onglyza, Vipidia	Increases insulin secretion in relation to food	Hypoglycaemia if used with sulphonylurea medications	Once daily
DAPAGLIFOZIN, CANAGLIFLOZIN (SGLT2 INHIBITORS)	Forxiga, Invokana	Stops the kidney reabsorbing glucose. This is then excreted from the body in the urine	Genital thrush, urine infections, low blood pressure	Once daily
EXENATIDE, LIRAGLUTIDE (GLP1 MIMETIC INJECTIONS)	Bydureon, Victoza	Given as injections. Increases insulin secretion and slows gastric emptying	Nausea, abdominal bloating/discomfort, reduced appetite	Once weekly or once daily depending on which medication used

The medications marked with a double asterix sign (**) have a higher risk of hypoglycaemia for residents who may be prescribed these.

<u>Medications such as gliclazide, and other tablets within this class of drugs</u> (sulphonylureas), can increase the resident's risk of hypoglycaemia. If residents are on insulin this can also increase a resident's risk of hypoglycaemia.

These residents will need to be monitored more closely for signs of hypoglycaemia and treated as per recommendations in Section 8, Managing Hypoglycaemia.

If residents are experiencing episodes of hypoglycaemia please ensure these are promptly treated **(as per recommendations within Section 8, Managing Hypoglycaemia)** and contact the resident's GP or other specialist health care provider e.g. Consultant or Diabetes Specialist Nurse to review the resident. The resident's medications will also need to be reviewed and may need to be adjusted and the cause of hypoglycaemia identified.

3.1 INSULIN

Insulin is a hormone which lowers the blood glucose levels and is used for people with Type 1 diabetes as their body does not produce any insulin. It is also often used in people with Type 2 diabetes in addition to their other diabetes medications.

There are different types of insulin, some of which are identified in the table below. Some of your residents may be on these different types of insulin.

NAME OF INSULIN	COLOUR OF INSULIN	DURATION OF ACTION	WHEN TO BE GIVEN
LANTUS (LONG ACTING INSULIN)	Clear	Lasts approximately 24 hours	Given once daily , same time each day but doesn't need to be given with food.
LEVEMIR (LONG ACTING INSULIN)	Clear	Lasts 20-24 hours approximately	Usually given once a day . Can also be given twice a day, same time(s) each day. Doesn't need to be given with food.
HUMALOG (RAPID ACTING INSULIN)	Clear	Lasts approximately 3-5 hours	Given with food , just as food about to be eaten. Can be given at very end of meal but only if advised to do so by GP or diabetes specialist team.
NOVORAPID (RAPID ACTING INSULIN)	Clear	Lasts approximately 3-5 hours	Given with food , just as food about to be eaten. Can be given at very end of meal but only if advised to do so by GP or diabetes specialist team.
APIDRA (RAPID ACTING INSULIN)	Clear	Lasts approximately 3-5 hours	Given with food , just as food about to be eaten. Can be given at very end of meal but only if advised to do so by GP or diabetes specialist team.
NOVOMIX 30 (MIXED INSULIN)	Cloudy	Each injection lasts 10-16 hours approximately	Given twice daily with breakfast and evening meal. Give as food about to be eaten. Has to be mixed prior to injecting.
HUMALOG MIX 25 (MIXED INSULIN)	Cloudy	Each injection lasts 10-16 hours approximately	Given twice daily with breakfast and evening meal. Give as food about to be eaten. Has to be mixed prior to injecting.
HUMULIN M3 (MIXED INSULIN)	Cloudy	Each injection lasts up to 12 hours approximately	Given twice daily with breakfast and evening meal. Give 30 minutes before food . Has to be mixed prior to injecting.
INSUMAN COMB 15, 25, 50 (MIXED INSULIN)	Cloudy	each injection lasts between 11-20 hours approximately	Given twice daily with breakfast and evening meal. Give 30 minutes before food. Has to be mixed prior to injecting.

When administering insulin injections ensure the injection sites are rotated (see figure 2 below). Do not give the insulin in the same area in that site every day.



Figure 2: sites which may be used for insulin injections

3.2 INSULIN ADMINISTRATION AND STORAGE

The following points will need to be considered when administering insulin injections:

- 1. Ensure the following information is correct: the correct insulin is used and corresponding insulin pen device, resident's identification checked and confirmed as correct and that the insulin is in date.
- 2. **Once in use** the insulin should be kept at room temperature for up to 30 days, or as per manufacturer's instructions, **not in the fridge**. Only unused insulin pens or vials should be kept in the fridge and away from the freezer compartment.
- 3. Ensure a new insulin needle is used for each injection. Do not leave the needle on the pen after use, dispose of this in the sharps bin.
- 4. Ensure the insulin pen is primed before each use dial 2 units on the pen and dispel the units into the sink (known as the 'air shot'). Look for a bead of insulin at the end of the pen. If this is missing repeat the 2 unit 'air shot'. If after repeated priming no insulin is seen at the end of the pen <u>DO NOT</u> use the pen.

- If residents are on a mixed or cloudy insulin (see table in Section 3.1) ensure the insulin is mixed prior to use. Gently invert the pen for 10 times and roll the pen for 10 times until the insulin looks white not cloudy (see Figure 3). <u>DO NOT</u> shake the insulin as this will affect the insulin molecules.
- 6. Check the resident's injection sites at regular intervals for any lumpy areas. You may need to palpate the injection sites with your hands as the lumps may be underneath the skin. If there are any lumpy areas do not inject into these and avoid this area.
- 7. Ensure the insulin is given at the appropriate times. For rapid acting and mixed insulins these need to be given with meals.
- 8. **DO NOT UNDER ANY CIRCUMSTANCES** withdraw insulin from a pre-filled insulin pen or insulin cartridge with a syringe. This can have **fatal consequences for the resident**. Insulin may only be withdrawn from an insulin vial using an appropriate prescribed insulin syringe and needle, and only as directed by the GP or diabetes specialist team.



Figure 3: How to roll (A) and invert (B) the insulin pen prior to use. Do not vigorously shake the insulin

3.3 NEEDLE SIZE

It is recommended that a 4mm pen needle is the most safest needle to use when giving insulin injections as this reduces the risk of giving the insulin via an intramuscular injection (FIT UK, 2016). A 5mm needle may be acceptable in obese patients (FIT UK, 2016). **Do not re-use needles**, these are meant for single use only. Dispose of insulin needles in a prescribed sharps bin.

Residents who are on insulin injections are at a higher risk of having a hypoglycaemic event. These residents will need to be monitored more closely. If residents are on insulin and having hypoglycaemic events please contact the GP as soon as possible to review the resident's medication. The insulin doses may need to be adjusted.

KEY MESSAGES:

- A variety of medications are available for use in residents with diabetes.
- Residents with **Type 1 diabetes** will be on regular daily insulin injections.
- Residents with Type 2 diabetes may be on tablets and insulin injections.
- Medications including insulin and gliclazide tablets will increase a resident's risk of hypoglycaemia. These residents will require closer monitoring of their blood glucose levels.
- Ensure all staff are aware of which residents are on these high risk medications.
- A needle size of between 4mm and 5mm is advocated for insulin injections.
 Do not re-use needles.
- Ensure the insulin is given at the correct time this may not necessarily coincide with the drug rounds.
- **NEVER withdraw insulin** from a pre-filled insulin pen or insulin cartridge, use the corresponding insulin pen provided.

DIET AND DIABETES

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4. DIET AND DIABETES

A suitable diet is an important part of managing diabetes. A varied diet needs to be provided to ensure that all essential nutrients (range of proteins, vitamins, minerals, essential fats), fibre and adequate fluid are included (IDF, 2013). Key points to note are:

KEY POINTS:

- Regular meals tailor meal patterns to each resident's needs. If a resident is on insulin or sulphonylurea tablets (e.g. gliclazide) regular carbohydrate containing meals are important to avoid hypoglycaemia and meal times should coincide with administration of these medications (IDF, 2013).
- Include high fibre, low GI (slow releasing), wholegrain carbohydrates.
- Ensure there is a consistent amount of carbohydrate at each meal.
- Limit sugar and sugary foods (but no need for a 'sugar free' diet).
- There is no need for 'Diabetic' foods.
- · Include more vegetables and fruit.
- Include more beans and lentils.
- Reduce fat intake.
- · Include dairy foods such as milk, cheese, yoghurt.
- Oily fish aim for at least two portions of fish per week, with at least one portion being oily fish (e.g. salmon, pilchards, sardines, mackerel) as they are beneficial for reducing cardiovascular disease risk factors (Hartweg et al., 2008; Belacazar et al., 2010; Derosa et al., 2012; Hansen-Krone et al., 2014; Miller et al., 2014).
- · Limit salt and processed foods due to the impact on blood pressure.
- Limit fatty processed foods such as cakes, biscuits, chocolate, etc.
- Alcohol in moderation.
- Encourage residents to be as active as functional status allows.
- Ensure adequate amounts of fluid are given.
- Recommendations for carbohydrate, alcohol and meal patterns should be tailored to the needs of each resident with the aim of reducing hypoglycaemia risk in residents treated with sulphonylureas or insulin (NICE, 2015a).

Diabetes UK Nutrition Working Group 2011; IDF 2013; TREND-UK & Institute of Diabetes for Older People (IDOP) 2013; National Institute for Health and Care Excellence (NICE) 2015a.

4.1 CARBOHYDRATE CONTAINING FOODS AND DRINKS

These break down to release the sugar glucose. If taken in excess they can cause high blood glucose levels. If too little is taken by residents who are prescribed insulin or sulphonylurea tablets (e.g. gliclazide) hypoglycaemia can occur. Reducing the risk of hypoglycaemia should be a particular aim for these residents (NICE, 2015a).

Carbohydrates are found in the following foods and drinks:

STARCH	ADDED SUGAR	NATURAL SUGAR
Bread, crackers, cereals, potatoes, pasta, flour, rice, pulses (peas, beans, lentils). Small amount in vegetables, particularly root vegetables.	Table sugar, sugary drinks, sweets, jelly, chocolate, cakes*, biscuits*, puddings*.	Fruit, (fresh/frozen/tinned/ dried) fruit juice, milk, yoghurt, fromage frais

* also contain starches e.g. flour

The amount of carbohydrate eaten is the key factor affecting blood glucose levels (American Diabetes Association (ADA), 2004a, 2004b; Diabetes UK Nutrition Working Group, 2011) i.e. the larger the amount of starch and sugar containing foods and drinks consumed the higher the blood glucose levels will be.

Most foods containing carbohydrate from starch or natural sugars also provide the body with other important nutrients such as vitamins, minerals, fibre, protein, whereas the majority of foods/ drinks containing added sugars are low in nutrients and have a negative impact on dental health (Scientific Advisory Committee on Nutrition (SACN) 2015). Therefore, although people with diabetes can include some sugar containing foods in place of other carbohydrates, as part of a balanced diet (Diabetes UK Nutrition Working Group, 2011; IDF, 2013), everyone (with/without diabetes) is recommended to reduce the intake of added sugars (SACN, 2015) and care should be taken to avoid excess calorie intake (NICE, 2015a).

4.2 STRATEGIES TO REDUCE ADDED SUGARS IN THE DIET

- Use sugar-free, no added sugar or diet squashes/fizzy drinks instead of sugary versions.
- Avoid/limit added sugar to hot drinks (some people prefer to use sweeteners instead).
- Reduce the amount of sugar added in baking/cooking (often the amount stated in a recipe can be halved without negative impact on the final product) and/or use sweeteners instead.

- Reduce portion sizes/frequency of sugar sweetened products.
- Use of sweeteners e.g. Aspartame, Saccharin, Cyclamate Acesulfame-K, Polyols (e.g. Sorbitol, Mannitol, Xylitol), Stevia, Sucralose found in products such as Canderel, Hermesetas, Splenda, Cyclamate, Truvia, Pure Via.

There is no need for a special diabetic diet (TREND-UK, 2010; IDOP, 2013) or diabetic foods (Diabetes UK, 2010; Diabetes UK Nutrition Working Group, 2011; NICE, 2015a). Diabetic foods offer no benefit to people with diabetes. They can still affect blood glucose levels, often contain just as much fat and calories as the ordinary versions, can have a laxative effect and are expensive (Diabetes UK, 2010; Diabetes UK Nutrition Working Group, 2011).

It is also important to make sure that portions of starchy and natural sugar containing foods are not excessive.

Although the amount of carbohydrate consumed is the key factor affecting blood glucose levels, encouraging slower release (lower Glycaemic index (GI)) carbohydrates is recommended (NICE, 2015a) and they may have an additional benefit for blood glucose levels (Brand-Miller et al., 2003; ADA, 2004a, 2004b; Opperman et al., 2004; Thomas & Elliott, 2009; Thomas & Elliott, 2010; Diabetes UK Nutrition Working Group, 2011). Most slower releasing carbohydrates are less processed and higher in fibre.

Examples of slower releasing carbohydrates include:

- Vegetables/salad vegetables
- Most fruits
- Pulses (peas, beans, lentils)
- Oats (e.g. porridge, natural muesli, oat based bread), All-Bran
- Grainy/seeded/stone ground breads
- New potatoes, sweet potato
- Pasta (wholemeal versions are the best choice)
- Basmati or easy cook rice (wholegrain versions are the best choice)

Portion size of these foods is still the biggest factor affecting blood glucose levels – it is still important to avoid large portions (Diabetes UK Nutrition Working Group, 2011)

Regular nutritional screening of residents by care home staff with appropriate skills and training is also important to identify malnutrition – **see Section 4.4** (Care Quality Commission (CQC), 2014; NICE, 2006; 2012).

It can be beneficial to keep food record charts to aid you in considering a resident's carbohydrate intake, particularly when reviewed in conjunction with blood glucose records for any residents who have their levels monitored. This information is also very useful to the Dietitian if you are referring the resident for dietetic support, enabling them to provide the most suitable dietary advice for the resident.

4.3 FOR RESIDENTS WITH DIABETES IDENTIFIED AS OVERWEIGHT OR OBESE

Losing weight is the biggest predictor for reducing the risk of developing Type 2 Diabetes in those who are at high risk (Hamman et al., 2006; Diabetes UK Nutrition Working Group, 2011) and should be the primary diabetes management strategy in those with Type 2 diabetes who are overweight/ obese (Diabetes UK Nutrition Working Group, 2011). Residents who are functionally independent should be supported to achieve a healthy body weight (IDF, 2013).

An initial aim of 5-10% weight loss is recommended (NICE, 2015a), and is associated with a reduced risk of developing Type 2 diabetes (Diabetes UK Nutrition Working Group, 2011), reduction in blood pressure (Feldstein et al., 2008; Diabetes UK Nutrition Working Group, 2011), cholesterol levels, improved blood glucose levels and reduction in mortality (Williamson et al., 2000).

Weight loss should be achieved through long term lifestyle changes (ideally changes to diet and increase in physical activity levels where possible). Specific goals should be identified and negotiated as part of the care planning process.

An initial weight loss target of 5-10% is advised. Lower amounts of weight loss may still be of benefit and in the longer term greater weight loss to achieve a healthy weight will have benefits (NICE, 2015a).

The focus for weight management should be on total energy intake rather than on the source of energy in the diet as there is insufficient evidence for best dietary approach (Franz et al., 2010; Diabetes UK Nutrition Working Group, 2011; Wheeler et al., 2011; Ajala et al., 2013).

Dietary changes may include:

- A reduction in portion sizes, particularly of high fat/sugar processed foods (e.g. cakes, biscuits, crisps, etc.) and starchy foods at meals (bread, rice, potatoes, pasta, cereal). Use of a smaller plate can facilitate this.
- Increased vegetable/salad portions (low in calories and high in fibre).
- Reduction in snacking. (In rare circumstances a diabetes specialist may advise that a resident requires snacks to prevent hypoglycaemia if on certain insulin regimens). If snacks are included encourage lower calorie and carbohydrate options e.g. salad vegetables cut into batons; single handful fruit; small serving of yoghurt; plain biscuit e.g. cracker, Nice, Rich Tea, Marie.
- Reducing intake of high fat and refined carbohydrate/sugar foods such as cakes, chocolate, biscuits, puddings, crisps, sugary drinks, sweets, etc.
- Reducing added sugar intake (see above).

4.4 MALNUTRITION

Malnutrition is common in older people, particularly in care settings (British Association of Parenteral and Enteral Nutrition (BAPEN), 2015) and diabetes is known to increase the risk of under-nutrition (Diabetes UK Nutrition Working Group, 2010).

Malnutrition is associated with longer and more frequent hospital admissions, increased mortality, pressure ulcers, delirium, and depression. Possible causes of malnutrition include:

- Poor appetite
- Altered taste and smell
- Swallowing difficulties
- Oral and dental problems (It is estimated that people with diabetes can be up to approximately three times more likely to develop gum disease than people without diabetes)
- Functional impairments
- Low mood
- Reduced cognition

For residents who are malnourished or who are at risk of malnutrition, healthy eating changes may be unsuitable as they may result in weight loss.

All care home residents should be screened for malnutrition, by a member of staff with appropriate skills and training, on admission and at regular (monthly) intervals, with more frequent monitoring if malnutrition risk identified (BAPEN, 2003; NICE, 2006). Their screening results and goals of nutrition support should be documented and communicated in writing between care settings (NICE, 2012).

The Malnutrition Universal Screening Tool (MUST) is widely recommended for nutritional screening (BAPEN, 2003) – **see Appendix 1**.

Further details of MUST are also available at the BAPEN (British Association of Parenteral and Enteral Nutrition) website www.bapen.org.uk

Nutrition support should be considered in residents who are identified as malnourished or at risk of malnutriton:

- BMI less than 18.5kg/m²
- unintentional weight loss greater than 10% in the past 3-6 months
- BMI less than 20kg/m² and unintentional weight loss greater than 5% in the past 3-6 months (NICE, 2006)

Residents identified as being malnourished or at risk of malnutrition can be identified by MUST score 1 or 2 or above and should be managed in line with MUST protocol (BAPEN, 2003), including implementation of a 'Food First' (high calorie and protein) diet (**see Appendix 1 and 2**).

This includes:

- High calorie, higher protein foods and nourishing drinks
- Fortify usual foods
- Encourage smaller more frequent meals and snacks
- Change food texture if required
- Provide nutritious drinks between meals
- Calm, distraction free environment to eat in

Sugar does not raise blood glucose levels more than the equivalent amount of starchy carbohydrate and, in most situations standard nutrition support protocols should be followed and adjustment of diabetes medication prioritised over dietary restriction (Diabetes UK Nutrition Working Group, 2011), with a diabetes review requested.

If there are concerns about raised blood glucose levels there should be a focus on fats/proteins (cream, cheese, butter, oils) rather than sugars for fortification as this will reduce the impact on blood glucose levels.

4.5 PALLIATIVE CARE

For residents receiving palliative care avoidance of hypoglycaemia and symptomatic hyperglycaemia are important. Dietary support, which is non-invasive and optimises nutritional and fluid intake, should be provided (Diabetes UK Nutrition Working Group, 2011).

Diet should be tailored to the resident's overall condition, not just their diabetes (Diabetes UK, 2013a; 2013b). If palliative care residents request 'sugary' foods these should be provided, with diabetes medication being adjusted as required (Diabetes UK, 2013b).

KEY MESSAGES:

- There is no special diet for diabetes this should be balanced and varied.
- Residents on insulin and sulphonylurea medications (including gliclazide) should have regular meals to avoid hypoglycaemia.
- There is no need for 'diabetic foods' these can have a laxative effect and are expensive.
- Carbohydrates have the biggest impact on resident's blood glucose levels these all break down in the stomach to form glucose.
- Portion sizes are also one of the biggest factors affecting blood glucose levels.
- The Malnutrition Universal Screening Tool (MUST) should be used for all residents for nutritional screening, on admission to the home and at least monthly intervals.
- For residents receiving palliative care it is important to avoid hypoglycaemia and symptomatic hyperglycaemia. Diet should be tailored to the resident's overall condition, not just their diabetes.

DIABETES GLYCAEMIC CONTROL AND HBA1C

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5. DIABETES GLYCAEMIC CONTROL AND HBA1C

It is recommended that good control of diabetes is necessary to minimise any osmotic symptoms and prevent associated complications (NICE clinical guideline [NG28], 2015a).

Tight diabetes control however is not usually recommended in older people in care homes. This should be assessed on an individualised basis.

- The diabetes control can be measured via a blood test called HbA1c. This is a non-fasting blood test which gives information about what the diabetes control has been like for the 2-3 months before the test.
- It is recommended that in adults with Type 2 diabetes the HbA1c is measured at 3-6 monthly intervals until this is stable and the resident's treatments are not being altered. Once the HbA1c is stable and the resident's medications are no longer being altered this test can be checked every 6 months (NICE, 2015a). Please discuss this with the resident's GP or other diabetes specialist care provider i.e. Consultant Diabetologist and document in the resident's care plan how frequently the HbA1c should be checked and the date when this is due to be taken.
- For adults with Type 1 diabetes it is recommended that the HbA1c is checked every 3-6 months (NICE clinical guideline (NG17), 2015b). Again, this should be discussed with the GP or the resident's diabetes specialist care provider i.e. Consultant Diabetologist and documented in the resident's care plan. Please ensure staff know the frequency and date when the blood test is due to be taken.
- For the care of residents with diabetes at end of life, information relating to diabetes control can be found in the following Diabetes UK document. Please follow this link: www.diabetes.org.uk/professionals/position-statements-reports/diagnosis-ongoingmanagement-monitoring/end-of-life-care

5.1 WHAT HBA1C TARGET SHOULD WE BE AIMING FOR?

HbA1c is no longer represented as a percentage - all results are now expressed as mmol/mol.

National guidelines suggest that the HbA1c target for adults with Type 2 diabetes should be between 48 and 53mmol/mol, however these targets may be too tight for frail, older people with this type of diabetes, and considerations should be made in this situation to set a more relaxed HbA1c target (NICE clinical guideline (NG28), 2015a). For adults with Type 1 diabetes the national target for HbA1c is set at 48mmol/mol or lower (NICE, 2015b). This target, however, should be individualised for each person, taking into account their daily activities, the likelihood of complications, other conditions that the person may have and whether they have a history of hypoglycaemia (NICE, 2015b).

The IDF (2013) suggests a HbA1c target range for older residents with diabetes could be between 53 and 70mmol/mol. However, **this should be individualised** for each resident following a discussion with their GP or Diabetes Consultant. For residents with a limited life expectancy, a target HbA1c of 64–75mmol/mol may be deemed appropriate, however **this again must be individualised** (Abdelhafiz & Sinclair, 2013). Tight glycemic control in people with a reduced life expectancy may cause harm by inducing hypoglycemia and reducing quality of life (Abdelhafiz & Sinclair, 2013).

With any HbA1c target it is important to ensure that any symptoms and risks associated with hyperglycaemia and hypoglycaemia are managed and avoided in older residents with diabetes.

A HbA1c of below 53mmol/mol **is not recommended** in older residents with diabetes as this may increase their risk of falls (IDF, 2013). Tight diabetes control may also be associated with an increased risk of hypoglycaemia, or low blood glucose, which can also increase the risk of falls and potential admissions to hospital in frail, older people (NICE clinical guideline (NG28), 2015a).

It is important therefore that the HbA1c targets for each person are individualised and determined on a case by case basis (NICE clinical guideline (NG28), 2015a & NICE clinical guideline (NG17), 2015b).

These targets should be discussed and agreed with the resident, if they have mental capacity, and their GP, or other diabetes specialist health care provider, i.e. Consultant Diabetologist and documented in the resident's care plan and medical notes. The HbA1c target will be determined by many factors which will need to be considered, including the resident's overall health status, level of independence, diet, medications, and level of cognition.

5.2 REVIEW OF HBA1C

The HbA1c target for each resident should be reviewed at least once a year as part of their annual diabetes review, by the GP or diabetes specialist health care provider responsible for the resident's care.

A report of the resident's HbA1c result should be made available to the care home staff and a record kept in the resident's care plan and medical notes. This will enable the care staff to take a more active role in the resident's diabetes management.

Please discuss and confirm what the HbA1c target is for each resident with the resident's GP or Consultant Diabetologist and document in the resident's care plan so that all staff are aware.

KEY MESSAGES:

- HbA1c is a blood test which measures the resident's diabetes control for the last 2-3 months.
- It is recommended that HbA1c is measured every 3-6 months for residents with Type 2 diabetes if this is not stable and the resident's treatments are being altered. Once the HbA1c is stable this can be measured every 6 months. Please confirm the frequency with the GP and document in the resident's care plan.
- For residents with Type 1 diabetes the HbA1c should be measured every 3-6 months.
- A report of the HbA1c result should be made available to care home staff so they can be actively involved in the resident's diabetes management.
- The HbA1c target should be individualised for each resident and documented in their care plan and notes.
- The HbA1c target should be reviewed at least once a year at the annual review by the resident's GP or other specialist health care provider.
BLOOD GLUCOSE MONITORING

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6. BLOOD GLUCOSE MONITORING

All people with diabetes will need to have their condition monitored. This may be done by the person's GP, practice nurse or hospital diabetes team. For some people they may be advised to monitor their own blood glucose levels – this is called self-monitoring.

NICE advises that in certain circumstances people with diabetes will need to self monitor their own blood glucose levels (NICE, 2015a; NICE, 2015b). However, in care home settings only a small proportion of residents who need to self monitor their blood glucose will be able to do this themselves. These residents will require the support of care home staff to help them monitor their blood glucose levels. Please confirm the frequency of monitoring in these circumstances with the resident's GP and record this in the resident's care plan.

The following is a list of circumstances where a health care professional, such as a GP or Consultant Diabetologist, may recommend that a resident's blood glucose levels needs to be monitored. If the resident cannot do this themselves the care home staff may need to check the resident's blood glucose readings. These circumstances include:

- Residents with Type 1 diabetes
 - Residents with Type 2 diabetes if any of the following criteria are met:
 - If the person is on insulin
 - If the person is on a group of medications called sulphonylureas (example gliclazide) as these can cause hypoglycaemia (hypos)
 - If there is evidence that the person has been having hypoglycaemic events (hypos) or there is evidence that a hypoglycaemic event is occurring
 - When starting treatments such as oral or intravenous steroids, short term monitoring of the blood glucose levels by care home staff may be appropriate
 - If the diabetes control (HbA1c) is suboptimal and medications have been started or adjusted to improve this, short term monitoring by care home staff may be recommended by the resident's GP or diabetes specialist health care provider

Each resident who needs their blood glucose levels to be monitored by care home staff should have their own blood glucose meter and lancet device and these **SHOULD NOT BE** shared between residents. Individual lancets **MUST NOT** be shared between residents after use. Ideally single use disposable lancets can be used when performing a blood glucose check. Please discuss and confirm this with the resident's GP.

Sharps including blood glucose testing lancets and insulin needles are clinical waste and should be disposed of within a prescribed sharps bin, not a regular bin. Please discuss with the supplying pharmacist for advice on collection and disposal of used sharps bins.

Please ensure residents' hands are washed with soap and water prior to any blood glucose testing. <u>**DO NOT**</u> use alcogel or wipes to clean residents' skin prior to blood glucose testing as this may affect the reading.

6.1 FREQUENCY OF MONITORING

The frequency of blood glucose monitoring by care home staff, for residents with Type 1 diabetes and some residents with Type 2 diabetes, should be assessed and determined by the resident's GP or diabetes specialist health care provider i.e. Consultant Diabetologist, Diabetes Specialist Nurse, or other designated registered practitioner, and recorded in the resident's care plan and medical care notes.

All staff who are responsible for monitoring residents' blood glucose levels, should be made aware of the frequency of monitoring for each resident, as documented in the care plan. The circumstances where care home staff may be required to monitor residents blood glucose levels, if they cannot do this themselves, are indicated in **Section 6, Blood Glucose Monitoring**.

Follow this link for NICE guidelines about blood glucose monitoring in residents with Type 2 diabetes www.nice.org.uk/guidance/ng28/chapter/1Recommendations#blood-glucose-management-2.

For NICE guidance about blood glucose monitoring in residents with Type 1 diabetes please follow this link: www.nice.org.uk/guidance/ng17/chapter/1-Recommendations#bloodglucose-management-2.

All staff who are responsible for undertaking blood glucose monitoring should be aware of this information and the resident's care plan updated and amended as appropriate.

6.2 BLOOD GLUCOSE MONITORING IN AN EMERGENCY

In an emergency situation it will be necessary to check a resident's blood glucose, regardless of the frequency determined in the resident's care plan – i.e. if the resident is experiencing signs and symptoms of hypoglycaemia (low blood glucose), or they suddenly became very unwell, semiconscious or unresponsive and hypoglycaemia is suspected.

If residents are on medications such as insulin or tablets including gliclazide these can cause hypoglycaemia.

<u>There must be at least one member of staff available within the home who has been assessed</u> as being competent and appropriately trained to check a resident's blood glucose in an emergency if residents are on any of these medications.

6.3 TYPE 1 DIABETES AND BLOOD GLUCOSE MONITORING

For residents with Type 1 diabetes blood glucose monitoring may need to be performed more frequently (NICE, 2015b). If residents are unable to undertake this task themselves then the care home staff may need to check the resident's blood glucose levels. This should be discussed with the resident's GP or diabetes specialist health care provider and the frequency of monitoring documented in the care plan. In addition, if the resident has Type 1 diabetes and their blood glucose reading is above 15mmols it is recommended that a test is performed to check for ketones, using either a blood glucose meter with a ketone function or via a urine test (**see Section 10, Sick Day Rules**). Ketones are produced when the blood glucose levels are high and the body tries to break down fats as an energy source. Ketones are very toxic and can cause life threatening complications (**see Section 9.3, Very High Blood Glucose Levels**).

Please document within each resident's care plan the method to be used for ketone testing if required and any equipment to be used (e.g. ketone meter and specify meter, or urine test).

Follow this link for NICE guidelines on Type 1 diabetes for further advice on blood glucose management: www.nice.org.uk/guidance/ng17/chapter/1- Recommendations#blood-glucose-management-2

6.4 BLOOD GLUCOSE METERS

For residents with Type 1 diabetes, and a small proportion of residents with Type 2 diabetes (**see criteria in section 6, Blood Glucose Monitoring**), who require their blood glucose levels to be monitored by care home staff, it is recommended that one of the following blood glucose meters are used unless otherwise specified by the resident's GP, Consultant or Diabetes Specialist Nurse:

- Accu-chek Active
- Accu-chek Performa Nano
- Glucomen Areo
- GlucoRx Nexus
- GlucoRx Nexus Mini

All of the above meters comply with the ISO quality standards (2013) which refer to accuracy, reliability and safety standards for blood glucose meters. Further details about these meters are available in the local Wirral Blood Glucose Monitoring Guidelines (2017) in **Appendix 3**.

Please ensure the blood glucose meters are cleaned and stored according to the manufacturer's instructions.

6.5 CALIBRATION AND QUALITY ASSURANCE OF METERS

It is recommended that blood glucose meters are calibrated using a quality control test which should be performed using the manufacturers' specified quality control solution. This test should be performed regularly, usually at least once a month, in accordance with the manufacturers' instructions and the results of the test documented.

Prior to use please ensure the control solution is gently shaken to ensure this is mixed well. Please store the control solution as per manufacturer's instructions and note the expiry date, ensuring all staff who are responsible for meter calibration are aware of this.

General recommendations for calibrating a meter and performing a quality control test include:

- When a meter is new, check prior to use.
- When a new pot of test strips has been prescribed. Strips should be tested prior to use with residents and at least once a month if the strips are not used again within a month of opening.
- If a blood glucose reading is taken and this looks abnormal and out of range for that resident.

Each meter company will provide their own control solution for use with their corresponding meters. The expiry date for each manufacturer's control solutions will differ. Please consult the manufacturer's instructions and **DO NOT** use control solution if this has expired.

What to do if the quality control test is not accurate

If a meter is not reading within the range specified for a control solution test this may mean the meter could be faulty and should not be used. Please contact the resident's GP, Practice Nurse, hospital diabetes team or Diabetes Specialist Nurse to obtain a new meter. Alternatively ensure a supply of spare meters are kept within the home for use in such circumstances.

Please keep a record of when a quality control test has been performed for each meter and the result of the test.

6.6 WHO CAN CARRY OUT BLOOD GLUCOSE MONITORING?

Each care home should define who is responsible for blood glucose monitoring (Diabetes UK, 2010). In nursing homes, registered nurses should undertake this task (Diabetes UK, 2010).

It is recommended that any member of staff undertaking blood glucose monitoring must have completed appropriate training to carry out the procedure and be assessed by a designated registered practitioner (Community Specialist Registered Nurse or Diabetes Specialist Nurse) that they are competent to do so.

No member of staff, registered or otherwise, should perform blood glucose monitoring unless they have a sound knowledge base of diabetes. Staff should received training on blood glucose monitoring using the meter specific to their place of employment and be aware of how to interpret the reading(s) obtained and subsequent action to be taken. In addition, staff should have training on the upkeep of the blood glucose meters, storage of test strips and quality control checks of the meter. (Diabetes UK, 2010).

Any non-registered practitioner e.g. health care assistant/support worker/carer is responsible for their actions/omissions and must work within their scope of practice. If these staff are required to undertake blood glucose monitoring they must receive appropriate training for blood glucose monitoring, demonstrate competence in this procedure and have an annual reassessment of competence by a registered practitioner e.g. Diabetes Specialist Nurse or Community Specialist Nurse.

Blood glucose monitoring should only be undertaken by unregistered care staff where this agreement has been reached by the home manager and a designated registered practitioner e.g. Diabetes Specialist Nurse or Community Specialist Nurse who have assessed the staff member to be competent, and the care staff have demonstrated competence. A record should be kept of the staff member's competency assessment.

A report of any blood glucose measurements taken by unregistered care staff must be given to the nurse in charge at the time this was taken and the reading recorded in the appropriate documentation.

Appropriate standardised clear documentation should be used to record any blood glucose measurements when taken (Diabetes UK, 2010).

6.7 RESIDENTS PERFORMING THEIR OWN BLOOD GLUCOSE MONITORING

If the resident can monitor their own blood glucose, and it is appropriate for them to do so, this may be encouraged, however this will only be a small proportion of residents (Diabetes UK, 2010). It is recommended that if residents are self monitoring their blood glucose levels, a structured assessment should be carried out at least annually. This can be combined with the resident's annual diabetes review. The assessment should include the following:

- the person's self-monitoring skills
- the quality and frequency of testing
- checking that the person knows how to interpret the blood glucose results and what action to take
- the impact on the person's quality of life
- the continued benefit to the person
- the equipment used i.e. the meter

(Retrieved from: www.nice.org.uk/guidance/ng28/chapter/1- Recommendations#bloodglucose-management-2)

6.8 CONSENT

As blood glucose monitoring is an invasive procedure it is recommended that verbal/written consent should be obtained from the resident to perform this test. If there is doubt over the person's ability to provide valid consent then The Mental Capacity Act (2005) and the health care professionals code of professional practice should be followed. Please liaise with the resident's GP or social services for further advice if required.

6.9 BLOOD GLUCOSE TARGETS

The targets for blood glucose levels for each resident should be **agreed on an individualised basis** by the GP or diabetes specialist health care provider and discussed with the resident. These should be documented in the resident's care plan and medical notes and communicated to the staff responsible for that resident's care.

The aim when setting any blood glucose target range is to ensure that the resident's safety and wellbeing are paramount and symptoms of hypoglycaemia or hyperglycaemia are avoided.

It is recommended that the fasting blood glucose reading (a reading checked first thing in the morning when a resident wakes and before eating food), should not be below 6mmols for residents in care homes (Diabetes UK, 2010). Any reading below this is considered too low for older people with diabetes as this may increase their risk of falls and hypoglycaemia. Please discuss with the resident's GP if concerned.

KEY MESSAGES:

- For residents in care homes who need their blood glucose levels to be monitored and they cannot perform this task themselves, this procedure will need to be undertaken by the care home staff. This will include residents with Type 1 diabetes and a small proportion of residents with Type 2 diabetes.
- Residents who require their blood glucose levels to be monitored by care home staff should have their own blood glucose meter and lancet device these should not be shared, or single use disposable lancets should be used.
- Only blood glucose meters which comply with ISO standards (2013) should be used.
- Meters should be calibrated regularly as per manufacturer's instructions.
- The targets for blood glucose readings should be determined on an individualised basis and documented in the resident's care plan and notes.
- For residents who are on insulin or sulphonylurea medications, including gliclazide, at least one member of staff in each home must be trained and assessed as being competent to check a resident's blood glucose in an emergency situation.

DIABETES AND FOOT CARE

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7. DIABETES AND FOOT CARE

People with diabetes have a much greater risk of developing problems with their feet, including foot ulcers and amputations.

If the resident's diabetes is not well controlled, raised blood glucose levels can cause problems with the blood supply and nerves to the lower limbs and feet which may result in complications. (Retrieved from: www.diabetes.org.uk/guide-to-diabetes/complications/feet/taking-care-of-your-feet).

Diabetes is the most common cause of lower limb amputations and in England there are approximately 135 amputations per week amongst people with diabetes (Diabetes UK, 2015).

It is important therefore that residents' feet are checked every day to prevent complications such as ulcers and amputations from developing.

7.1 EVERYDAY FOOT CARE

It is recommended that the following steps are carried out as part of everyday foot care for residents with diabetes:

a) Washing the feet

 Make sure the resident's feet are washed daily with soap and water, unless otherwise directed, and dried carefully. Check the temperature of the water before feet are washed to ensure this is not too hot. If residents have reduced sensation in their feet due to nerve damage they will not be able to feel the temperature of the water and this may cause damage to the feet and burns to the skin.

b) Check the feet

- Check the feet daily. Remove footwear and socks or stockings/tights and inspect each foot, including the toes and heels.
- Look for any breaks or cuts in the skin. Check for any hard areas of skin or callouses.
- <u>DO NOT</u> use any 'over the counter' or chemical treatments for callous removal on residents' feet with diabetes. Please seek advice from a HCPC (Health and Care Professionals Council) registered podiatrist on how to care for these.
- Check to see if there are any changes in the colour of the skin, i.e. do both feet look the same colour, are there any areas of redness or discolouration.
- Check to see if there are any changes with the temperature of the feet, i.e. does one foot feel cooler or warmer than the other.

- Look for any blisters, scratches, sore or red areas and areas of possible infection (areas which may be red or hot to the touch).
- Look between the toes for any cuts, red or sore areas or foreign bodies.
- Recommended emollient creams may be applied to the feet if the skin is dry (check with the resident's diabetes podiatrist or GP before using). However avoid applying creams/powders in between toes, unless directed to do so, as these can make the skin more prone to infections.

c) Sensation in the feet

- Ask the resident if they have any pain/discomfort in their feet or any changes in the sensation in the feet, which may be new symptoms, or an existing problem which may be getting worse.
- Be aware that some residents may not have full sensation in their feet if they have nerve damage due to diabetes. These residents are more at risk of developing complications with their feet.

Below is a guide identifying what problems to look out for which might indicate residents have problems with the nerves or blood supply to their feet:

When caring for your feet, what sort of problems should you look out for?

Damage to your nerves might be indicated by:

- Tingling sensation; pins and needles
- Pain (burning)
- Sweating less
- Feet that are red and hot to touch
- Changes to the shape of your feet
- Loss of feeling in your feet/legs
- Hard skin

Damage to your blood supply might be indicated by:

- Cramp in your calves (at rest or when walking)
- Shiny smooth skin
- Loss of hair on your legs and feet
- Cold, pale feet
- Changes in the skin colour of your feet
- Pain in your foot/feet
- Swollen feet
- Wounds or sores that do not heal

If you notice any of these things, or have any concerns about your feet, tell your GP or diabetes team - **do not wait until your annual foot check!**

(Retrieved from: www.diabetes-resources-production.s3-eu-west-1.amazonaws. com/diabetes-storage/2017-08/What%20to%20Expect_A5%20leaflet.pdf)

d) Footwear

- Make sure that residents **DO NOT** walk around with bare feet.
- Ensure their footwear fits correctly. Make sure this is not too tight or too loose, is secure and not going to cause the resident to trip or fall.
- Check that the linings within each item of footwear are not loose or torn as these may cause friction against the resident's feet.
- If residents have problems getting conventional footwear to fit please liaise with the resident's GP or podiatrist as they may need referring to an orthotist for the provision of specialist footwear.
- Avoid using hot water bottles or electric blankets/heat pads on residents' feet. If they have reduced sensation in their feet due to nerve damage they will not feel if these are burning the skin.

7.2 NAIL CUTTING

It is advised that a HCPC (Health and Care Professionals Council) registered Podiatrist perform routine nail treatment regularly, for example nail care, callous and corn treatments.

If staff have any concerns about a resident's nails please discuss with the resident's GP as a referral to one of the hospital podiatrists may be required.

7.3 URGENT REFERRALS FOR DIABETIC FOOT PROBLEMS

If residents have any of the following refer to the GP immediately as they will need to be seen within 24 hours:

- Broken area(s) of skin
- New foot ulcer
- Hot, red, painful or swollen foot or skin which has become discoloured
- Sudden reduced sensation or absent foot pulses
- Sudden onset of severe pain in the leg or foot

Every resident with diabetes should have an annual check of their feet, either by their GP, Practice Nurse or community podiatrist. If a resident is considered to be at moderate or high risk of developing foot problems by the health care professional who has undertaken the diabetic foot check they will need to be reviewed more frequently. For more information about diabetes and foot care visit the following link www.nice.org.uk/guidance/ng19/ifp/chapter/About-this-information. In addition further details about diabetic foot problems are also available from NICE guideline NG19 (2015c).

Please follow this link to access NICE guideline NG19 (2015c): www.nice.org.uk/guidance/ng19

The following recommendations are taken from Diabetes UK and include details about what should be included in the diabetic foot check:

CHECK LIST

An annual foot check should involve the following:

- You should be asked to remove any footware, including socks/stockings.
- Your feet should be examined including looking for corns, callouses and changes in shape.
- Your feet should be tested for numbness or changes in sensation (neuropathy) with a tuning fork or a fine plastic strand called a monofilament.
- You should be asked questions about your feet and diabetes management, including:
 - Have you noticed any problems or changes (e.g. cuts, blisters, broken skin or corns)?
 - Have you had any previous foot problems or wounds?
 - Have you experienced any pain or discomfort?
 - How often do you check your feet, and what do you look for?
 - Do you have any cramp like pains when walking?
 - How well are you managing your diabetes?
- Your footwear should also be examined to make sure it is not causing any problems to your feet.
- At the end of the foot check, you should be told the results and level of risk of foot problems.
- You should be given information about what your level of risk means and what to do next, including:
 - Advice about how to care for your feet according to your level of risk
 - An agreed management/treatment plan
 - Emergency contact details
 - Referral to Foot Protection Service when appropriate.

(Retrieved from: www.diabetes.org.uk/resources-s3/2017-09/What-to-expect-at-annual-foot-check.pdf)

KEY MESSAGES:

- Residents with diabetes are at risk of developing foot problems, including foot ulcers which can lead to amputations.
- Check the resident's feet daily without socks/tights for any changes/complications.
- Residents with diabetes should have an annual diabetic foot check with a registered health care professional (usually a Practice Nurse or Community Specialist Nurse).
- See Section 7.3 for when to refer a resident urgently to the GP.
- To avoid complications, residents with diabetes should not walk around with bare feet.

MANAGING HYPOGLYCAEMIA (LOW BLOOD GLUCOSE)

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8. MANAGING HYPOGLYCAEMIA (LOW BLOOD GLUCOSE)

Hypoglycaemia or a 'hypo' means a low blood glucose level of 4mmols or less. This is too low to provide enough energy for the body's activities (Diabetes UK, 2010 & IDF, 2013).

In older people hypoglycaemia can be more difficult to detect. Residents may lose their awareness that they are having a hypoglycaemic event. If undetected, this can have fatal consequences. Hypoglycaemia is one of the most important complications that can affect older people with diabetes (IDOP, 2014).

The IDF (2013) recommends that healthcare professionals caring for older people with diabetes should assess each resident's risk of hypoglycaemia and document this in their individualised care plan, including a recommended blood glucose range to minimise the risk of developing hypos (IDF, 2013). This is particularly important for residents who are on insulin or medications including sulphonylureas such as gliclazide.

It is also suggested that blood glucose levels below 6mmols should be avoided to minimise the risk of developing hypos (Diabetes UK, 2010 & IDF, 2013).

A HbA1c of less than 53mmol/mol should be used as a warning of possible overtreatment with medications and a review of the resident's medicines may be required by the GP (IDF, 2013).

If a resident has an episode of severe hypoglycaemia this should trigger a detailed diabetes review including a structured medicine and dietary review (IDF, 2013). Please contact the resident's GP to assess the resident.

8.1 SIGNS AND SYMPTOMS OF HYPOGLYCAEMIA

Usually when the blood glucose levels start to drop below 4mmols changes occur within the body and symptoms start to develop. The following signs and symptoms may be recognised if a resident is having a hypoglycaemic event:

Initial or early warning signs:

- Shaking
- Sweating
- Suddenly feeling very hungry
- Feeling tired

Late warning signs:

- Feeling tearful, stroppy or moody
- Confusion
- Drowsiness
- Sudden odd behaviour

- Blurred vision
- Headaches
- Tingling in lips and/or fingers
- Speech difficulty may be slurring words or unable to form words properly
- Lack of co-ordination unable to walk properly
- Coma

(TREND UK (2011) & Diabetes UK- accessed at: www.diabetes.org.uk/Guide-to-diabetes/ Complications/Hypos-Hypers)

For some residents, particularly those that have had diabetes for many years, they may not have any of the early warning signs of hypoglycaemia as described above. For these residents their symptoms of hypoglycaemia may not present until their blood glucose is extremely low e.g around 3mmols or below. For some residents they may not have any symptoms at all of hypoglycaemia.

If a resident has any of the symptoms described above (early or late warning signs) please check their blood glucose level immediately. If this is below 4mmols, regardless of whether the resident has symptoms or not this will require immediate treatment. A hypoglycaemic event will not correct itself and will require an intervention from the care home staff to treat this. See Section 8.3 for recommended treatments for hypoglycaemia.

It is suggested that any resident who is treated with insulin or sulphonylurea tablets e.g. gliclazide, should have a hypoglycaemia management plan (IDF, 2013) with details of the individualised target blood glucose levels, monitoring guidance and preferred hypo treatments.

8.2 CAUSES OF HYPOGLYCAEMIA

Below are several examples which may lead to an episode of hypoglycaemia:

- Medications including: insulin, gliclazide, nateglanide and repaglanide
- Keeping the blood glucose levels and diabetes too tightly controlled
- Alcohol
- Missed or delayed meals
- Erratic eating
- Poor appetite
- People with malabsorption or swallowing problems
- Insufficient carbohydrate with meals
- Meals not timed to coincide with glucose lowering therapy e.g. NOT giving insulin injections to coincide with meals (NOT applicable with once daily long acting insulin such as Lantus or Levemir)
- Exercise/unusual activity (which can include walking/wandering and other activities offered in care homes).
- Kidney impairment
- Liver impairment
- Cognitive impairment
- Heat e.g. if the weather is warm or if residents are sitting in a hot room or near a radiator

It is recommended that a regular review of residents' medications is undertaken to identify and minimise the use of medicines which can cause hypoglycaemia (Diabetes UK, 2010).

If residents are having dietary or swallowing problems and experiencing episodes of hypoglycaemia please ensure the dietitian is involved in reviewing these residents.

8.3 TREATMENTS FOR HYPOGLYCAEMIA

STEP ONE

It is recommended that **15-20g of fast acting carbohydrates are required to treat a hypoglycaemic** event (TREND UK, 2011). Suitable treatments include:

- 100ml of Lucozade[™] ** (see note below)
- Small **NON DIET** fizzy drink (approx. 150ml)
- 200ml (a small carton) of smooth fresh orange juice, **NOT** orange cordial or diluted squash drinks
- Five or six dextrose tablets
- Four large jelly babies
- Seven to eight large jelly beans
- One to two tubes of glucose gel (Glucogel), usually prescribed by GP

**Check the label of Lucozade for nutritional content of carbohydrate per 100ml. If the label states carbohydrate per 100ml, 17.8g give the resident 100mls of Lucozade. If the label states carbohydrate per 100ml, 8.9g give the resident 200mls of Lucozade (just over half a bottle).

The above treatments may only be used if the resident can swallow. Please DO NOT give residents any of the above treatments if they cannot swallow or have swallowing difficulties as they may choke. Residents who are known to have swallowing difficulties will need to be referred to the dietetic team if they are at risk of hypoglycaemia to discuss suitable hypo treatments. The choice of hypo treatment for each resident should be documented in their care plan and medical case notes and staff should be aware of this.

STEP TWO

After one of the above recommended treatments have been given recheck the resident's blood glucose again after 10-15 minutes. If the blood glucose level remains below 4mmols repeat one of the above hypo treatments again but only if the resident can swallow. **Recheck** the resident's blood glucose 10-15 minutes after each cycle of hypo treatment.

If a resident has been given several of the above hypo treatments over a 45 minute period and the blood glucose level remains below 4mmols, please dial 999 and ask for urgent paramedic assistance.

STEP THREE

If, however, the resident's blood glucose **does come up above 4mmols** within 45 minutes of giving one of the recommended hypo treatments as indicated in Step 1, ensure the resident is then given some starchy food to keep the blood glucose levels stable. Examples of starchy food includes:

- A banana
- Half a sandwich or a piece of toast
- 2 plain biscuits

If the next meal is due give this to the resident early

Residents should <u>NOT</u> be given any of the following to treat a hypo:

- Chocolate
- Cakes
- Biscuits
- Milky sugary drinks or any other foods or drinks which may have a combination of sugar and fat combined within them.

The fat contained within these foods/drinks will prevent the sugar from being released and if these are given this will cause the resident's blood glucose to continue to fall and the hypo will take longer to treat. This may result in serious consequences and the resident may require admission to hospital.

8.4. WHAT TO DO IF RESIDENTS ARE UNABLE TO SWALLOW?

If the resident is unable to swallow and has a deteriorating level of consciousness please **do not give any treatments by mouth**. If staff are trained to do so the resident should be placed in the recovery position and Glucagon may be administered via an IM injection. This can only be given by staff who have been trained to administer this. **If staff are not trained to give Glucagon please dial 999 and ask for urgent paramedic assistance.**

If a resident has an episode of severe hypoglycaemia this should trigger a detailed diabetes review including a structured medicine and dietary review (IDF, 2013). Please contact the resident's GP if they have had more than one episode of hypoglycaemia to review their medications and identify possible causes.

If residents are on insulin and have had a hypoglycaemic event **DO NOT** stop giving the residents insulin unless you have been directed to do so by the residents' GP or specialist health care provider e.g. Consultant Diabetologist or Diabetes Specialist Nurse. The dose of insulin may need to be reduced rather than omitted but please seek medical advice first.

If residents are on insulin and considered to be at risk of having a hypoglycemic event please ensure this is discussed with the resident's GP as a priority and ensure an action plan is devised and documented in the resident's care plan and medical notes, detailing recommended adjustments to insulin doses.

8.5 USE OF A HYPO BOX

It is recommended that all care homes who manage residents with diabetes should keep a fully stocked hypo box to treat residents who experience hypoglycaemia (CQC, 2015; Diabetes UK, 2010).

All staff should know the location of the hypo box and this should be easily accessible at all times for staff who are trained to use this.



Figure 4: Examples of hypo boxes

A hypo box should contain several suitable sources of fast acting glucose (**as described in Section 8.3**) which can be used for residents experiencing an episode of hypoglycaemia. Suggested products include: Lucozade TM, non-diet fizzy drink, carton of smooth orange juice, GlucoTabs, Dextrose tablets, jelly babies. Follow the hypoglycaemia management guideline (**as described in Section 8.3**) for actual amounts of glucose to be given.

For residents with diagnosed swallowing difficulties who may be on a specialised diet or fluid regime these will need a specialist care plan regarding treatment of hypos. Please discuss this with the dietitian.

CONTENTS OF THE HYPO BOX

It is the responsibility of the care home to obtain a suitable sealed container and the required glucose products to make their own hypo box. Most of these items are available at large supermarkets and/or local pharmacies. For items such as Glucogel or Glucagon these will need to be prescribed by the resident's GP if these have been specified as the resident's choice of hypo treatment.

MAINTENANCE OF THE HYPO BOX

There must be a process within the care home to:

- Check that each item within the box is in date on a monthly basis, or more often if applicable.
- Any liquid items that have been opened for use must then be discarded and replaced.
- Ensure that each resident's care plan states the resident's preference of product, e.g. either a glucose drink or appropriate sweet and specify.
- Expiry dates should be clearly marked on the exterior of the hypo box.
- Depending upon the size of the home it may be useful to have more than one hypo box e.g. one hypo box per floor.

KEY MESSAGES:

- Hypoglycaemia is defined as a blood glucose level of less than 4mmols, regardless of whether the resident has symptoms or not.
- Residents can lose their awareness of hypoglycaemia as they get older.
- Hypos will not get better on their own they <u>MUST</u> be appropriately treated (see Section 8.3 for treatments).
- **DO NOT** give chocolate, biscuits, cakes or milky sugary drinks to initially treat hypos (see Section 8.3).
- If residents are unable to swallow and their medical condition is deteriorating e.g. becoming more drowsy and unresponsive, call for immediate paramedic assistance.
- All care homes with residents with diabetes must have a fully stocked hypo box, the contents of which should be in date and checked regularly.

MANAGING HYPERGLYCAEMIA (HIGH BLOOD GLUCOSE)

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9. MANAGING HYPERGLYCAEMIA (HIGH BLOOD GLUCOSE)

Hyperglycaemia is the term used to mean high blood glucose levels. It can be a common problem for people with Type 1 and Type 2 diabetes and in people who have prediabetes or undiagnosed diabetes.

When trying to determine if a resident's blood glucose levels are high this will depend on the individualised blood glucose targets that have been set for each resident. Generally, a persistent reading of above 15mmols is considered to be too high in most cases and will require a review by the GP. If residents have blood glucose readings above this level they may exhibit some of the symptoms described below (**see Section 9.1, Symptoms of Hyperglycaemia**).

The blood glucose levels can become higher when people are unwell, have an infection and/or start steroid therapy. Other causes of hyperglycaemia include:

- Stress
- Missing a dose or not having the usual prescribed dose of insulin or other diabetes medications
- Eating more carbohydrate than usual
- Over-treating a hypo giving too much fast-acting carbohydrate
- Lack of exercise

Additional blood glucose monitoring may be required at these times – the resident's GP or specialist health care provider e.g. Diabetes Consultant or Diabetes Specialist Nurse can advise on this. Please document in the resident's care plan the frequency for blood glucose monitoring if appropriate.

9.1 SYMPTOMS OF HYPERGLYCAEMIA

These can include:

- Increased thirst and dry mouth
- Passing more urine than normal and more frequently
- Tiredness and lethargy
- Sleeping more than usual
- Headaches
- Visual disturbances
- Unplanned weight loss
- · Recurrent infections such as genital thrush, bladder infections and skin infections

9.2 TREATMENT FOR HYPERGLYCAEMIA

Ensure regular sugar free fluids are given to prevent dehydration and contact the GP straight away to assess the resident. The cause of the high glucose readings need to be identified and treated if required. The resident's medication may need to be adjusted until the blood glucose readings come back down towards normal individualised levels again.

9.3 VERY HIGH BLOOD GLUCOSE LEVELS

Very high blood glucose levels can lead to life-threatening complications. These include:

Diabetic Ketoacidosis (DKA) –This tends to affect people with Type 1 diabetes.

When the blood glucose levels are very high the body will start to break down fats as a source of energy. This will result in ketones being produced which are very toxic to the body. These can be life threatening and may lead to a diabetic coma. It is important if someone has Type 1 diabetes they have a method of testing for ketones when their blood glucose levels are above 15mmols, either using a blood ketone meter such as the **Freestyle Neo** or testing the urine using **ketostix**. Staff who are responsible for testing for ketones will need to be trained to use either of the above methods. If residents do have a positive test for ketones the GP must be contacted immediately to assess the resident and review their insulin doses without delay.

<u>Hyperosmolar Hyperglycaemic State (HHS)</u> –This tends to affect people with Type 2 diabetes.

When the blood glucose levels are very high in Type 2 diabetes severe dehydration can occur as the body tries to get rid of the excess glucose via the urine. This can cause the resident to become drowsy, semi-conscious and if left untreated can be life threatening.

In both cases the GP will need to be informed straight away so that the resident can be assessed without delay, treatment may be commenced and the cause(s) identified.

If residents exhibit any of the following symptoms and have high blood glucose readings these require urgent medical attention and the resident may need to be admitted to hospital:

- feeling or being sick
- abdominal (stomach) pain
- rapid, deep laboured breathing
- signs of dehydration, such as a headache, dry skin and a weak, rapid heartbeat
- difficulty staying awake/becoming more drowsy

<u>Please contact the GP or ring for urgent paramedic assistance if the above signs and symptoms</u> <u>are present, the blood glucose levels are high and the resident's condition is deteriorating.</u>

KEY MESSAGES:

- One of the most common causes of hyperglycaemia is illness and infection.
- Persistent blood glucose readings above 15mmols will require the resident to be referred to their GP for a prompt review of their condition and medications.
- Residents who have Type 1 diabetes with a blood glucose above 15mmols should have their blood or urine tested for ketones. Any resident with a positive ketone test will require extra insulin and an urgent medical review to prevent diabetic ketoacidosis developing.

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SICK DAY RULES

10. Sick Day Rules

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When residents are unwell they may have a reduced appetite and may not feel like drinking. The blood glucose levels will rise during illness, infections and other forms of stress. As part of the body's defence mechanism for fighting illness and infection, more glucose is released into the bloodstream and at the same time the insulin within the body becomes less effective and doesn't work properly.

As the blood glucose levels rise during illness this can cause residents to pass more urine than normal and feel thirsty and tired. This can lead to dehydration.

The following guidance about sick day rules is taken from the Diabetes UK website and provides useful information to support residents with diabetes who are unwell:

During illness or an infection:

- Residents should keep taking their insulin and/or most diabetes medications even if residents don't feel like eating as the blood glucose levels will be rising.
- In some cases the doses of medications may need to be altered the GP or resident's diabetes team will be able to advise on this. Contact the relevant health care professional without delay for advice.
- If residents are taking any of the SGLT2 inhibitors (such as Dapagliflozin, Canagliflozin, Empagliflozin) it is advisable to stop taking these medications if the resident is unwell and unable to eat or drink. Please contact the GP or diabetes team as soon as possible to review.
- The blood glucose levels will need to be tested more often, at least every four hours, and sometimes during the night if requested to do so. If a resident's blood is not being tested during the night it is important to look out for the signs of hyperglycaemia (see Section 9.1, Symptoms of Hyperglycaemia and Section 9.3, Very High Blood Glucose Levels)
- It is important that residents stay well hydrated, particularly during illness. Offer plenty of unsweetened drinks to avoid dehydration, and encourage residents to eat little and often if possible.
- If the blood glucose level is 15mmols or more and the resident has Type 1 diabetes, check the urine/blood for ketones. If ketones are present, contact the GP or the resident's diabetes team urgently.
- If residents don't feel like eating, are feeling sick or can't keep any food down, replace meals with snacks or drinks containing some carbohydrates, which will provide energy. Try to sip sugary drinks (such as fruit juice or non-diet cola or lemonade) or suck on glucose tablets or sweets like jelly beans. If residents are vomiting, or unable to keep fluids down get medical help as soon as possible.

KEY MESSAGES:

- When residents with diabetes are unwell their blood glucose levels will start to rise, even if they are not eating.
- Residents' blood glucose may need to be monitored more closely at these times, please liaise with the GP or resident's diabetes specialist team to confirm the frequency of testing.
- **DO NOT** stop a resident's insulin or diabetes medications unless you have been advised to do so by the GP or diabetes specialist team. Doses may need to be adjusted instead of omitted.

COMPLICATIONS AND ANNUAL DIABETES REVIEW

11. Complications and annual diabetes review **70**

11. COMPLICATIONS AND ANNUAL DIABETES REVIEW

Residents with diabetes are at risk of developing complications, or may already have associated complications, particularly if their diabetes has not been well controlled. Complications may include: heart attacks, strokes, blindness, kidney problems, foot ulcers and amputations to name but a few. It is important at least once a year that residents have an annual review of their diabetes to monitor for the development or progression of any diabetes related complications.

The review should preferably be conducted within the care home if possible and should include:

- A review of the resident's relevant history and medication
- Detailed clinical examination including nutritional assessment
- Functional assessment (physical and mental)
- Visual acuity measurement
- Fundoscopy through dilated pupils where possible (this is often carried out at a registered optician)
- Diabetic foot assessment and assessment of glycaemic control and renal function

The annual review should also be an opportunity to review the resident's dietary plan and the principal aims of care for each resident (Diabetes UK, 2010).

The resident's GP is responsible for arranging the diabetes annual review and the date and place for this must be recorded in the resident's care plan.

During the annual review the following should be assessed:

- A blood test known as HbA1c to assess the resident's diabetes control over the last 2-3 months
- A blood pressure and weight check
- A urine test to check for any infection, protein or glucose
- A urine sample to send to the lab to check for any kidney damage (known as ACR)
- A blood test to measure the cholesterol or blood fats (lipids)
- A diabetic eye screening check to look for signs of retinopathy
- A diabetic foot check, which is usually done by the practice nurse
- A blood test to monitor the kidney function (usually urea and electrolytes and egfr)
- A review of the resident's diet including any additional dietary advice
- A flu vaccination check has this been given?

Residents are usually required to have a blood test 1-2 weeks prior to their diabetes annual review. These are generally non-fasting blood tests. Please document in the resident's care plan when the blood tests are due and ensure these are completed prior to the resident's appointment.

The following information will also be useful to provide for the GP or specialist diabetes team in the hospital as part of the diabetes review:

- **Diet** a record of the resident's weights, current Malnutrition Universal Screening Tool (MUST) risk (score) and nutritional care plan
- Monitoring results blood pressure readings taken in the home, a record of all blood and urine tests. A urine specimen should be provided within a special container - please ask at the GP surgery for this
- Medication a copy of the current Medication Administration Record (MAR) sheet
- Any changes in the resident's condition over the last year

Once the review is completed a report of the resident's annual review assessments and investigations should be made available to the care home, so that the care staff can actively participate in the resident's diabetes management.

KEY MESSAGES:



- Residents with diabetes are at risk of developing complications, or may already have existing complications associated with their diabetes.
- An annual review of the resident's diabetes is required and the GP is responsible for arranging this.
- Residents will require non-fasting blood tests 1-2 weeks prior to the annual review the care home manager is responsible for ensuring these are completed within the appropriate timescale.
- If residents are excluded from any aspect of the annual review this must be confirmed by the GP and documented in the resident's care plan and medical notes.
- A copy of the resident's annual review investigations, once completed, should be made available to the care home.
ROLES AND RESPONSIBILITIES OF STAFF

12. Roles and responsibilities of staff

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CARE STAFF

All staff who are involved in the provision of diabetes care within each home should have access to a range of educational resources including those that are internet-based (Diabetes UK, 2010). (See Section 13, Useful Resources).

All staff must read and be aware of the contents of the local diabetes policy and the key recommendations.

All staff should be aware of the contents of the key documents as indicated **in Section 1.2** to support the safe management of residents with diabetes.

There should be a diabetes champion or key worker in each home - this person will need to attend locally delivered diabetes training updates and will be responsible for making sure each resident has a diabetes care plan with all the relevant sections completed. The diabetes champion, in conjunction with other members of the multidisciplinary team, can also support all other care staff to provide high standards of diabetes care especially regarding foot care, nutrition and other elements of diabetes care.

Ensure residents attend review appointments with the GP or other members of the diabetes specialist team as required.

Ensure residents who require a review of their condition are referred in a timely manner to the appropriate health care professional, e.g. GP, to prevent any delay in treatment.

GP

The resident's GP is responsible for organising the diabetes annual review and reviewing medications at least every year, either at the surgery or in the care home (Diabetes UK, 2010).

Determining a procedure to screen newly admitted residents for diabetes in each home and at two yearly intervals (Diabetes UK, 2010).

The GP is also responsible for reviewing residents with diabetes if there is a change or deterioration in their condition and providing emergency diabetes care as appropriate, e.g. advice and treatment of hypoglycaemia (Diabetes UK, 2010).

Agreeing a framework for referral of residents who require secondary care specialist diabetes care including referrals to ophthalmologists and vascular surgeons if required (Diabetes UK, 2010).

DIETITIAN

To review residents who are referred for:

- Dietetic support for residents e.g. newly diagnosed with diabetes, further support as required
- Recurrent hypoglycaemia
- Poor diabetes control
- Malnutrition (continued weight loss despite implementation of food first approach) or other concerns (as per local MUST protocol)

CONTACT DETAILS FOR COMMUNITY DIETITIANS:

Highfields Centre, Victoria Central, Mill Lane, Wallasey, CH44 5UF Tel: 0151 604 7271 Fax: 0151 514 2232 Email: dietetics.wirralct@nhs.net

For additional advice on the essential roles and responsibilities of other health care specialists involved in the care of residents with diabetes, including practice nurses and community specialist nurses, please refer to the Diabetes UK good clinical practice guidelines for care home residents with diabetes document (Diabetes UK, 2010).

See web link to this document: www.diabetes.org.uk/resources-s3/2017-09/Care-homes-0110_0. pdf?_ga=2.238422405.468428599.1505127410-1295258485.1505127410

USEFUL RESOURCES

13. Useful resources

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13. USEFUL RESOURCES

The following websites offer useful information about diabetes, some of which offer links to specific information about older people in care homes:

- 1. Diabetes UK website offers a variety of useful information, both for health care professionals and people with diabetes: www.diabetes.org.uk
- Free online course about diabetes for health care professionals which is accredited by the Royal College of Nursing (RCN). This is available on the Diabetes UK website. You will need to register online but the course is free at: www.diabetes.org.uk/professionals/training-competencies/courses
- Diabetes and footcare. The following website offers free eLearning and is provided by the Foot Risk Awareness and Management Education (FRAME) project. Visit: www.diabetesframe.org In addition NICE provides guidance about diabetic foot problems. Follow this link to access the document: www.nice.org.uk/guidance/ng19
- 4. Free online learning is available from Diabetes on the net for safe use of insulin. You will need to register online for this but the module is free. The module is titled 'The Six Steps to Insulin Safety' and this is recommended for anyone that administers, manages or prescribes insulin to help prevent insulin errors. The link is as follows: www.cpd.diabetesonthenet.com/index. php?area=modules&page=module_questions

All web links above have been accessed and correct at time of publication.



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APPENDICES

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APPENDIX 1 MUST SCREENING TOOL

GUIDE TO IDENTIFYING AND TREATING MALNUTRITION UTILISING THE MALNUTRITION UNIVERSAL SCREENING TOOL (MUST) (for use by staff with appropriate skills and training only)



Contact details of community dietitians: Highfields Centre, Victoria Central, Mill Lane, Wallasey, CH44 5UF | Tel: 0151 604 7271 | Fax: 0151 514 2232 | Email: dietetics.wirralct@nhs.net

APPENDIX 2 FOOD FIRST APPROACH



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APPENDIX 3 LOCALLY APPROVED BLOOD GLUCOSE METERS

Locally approved blood glucose meters

Recommendations: 80% of patients with diabetes, who need to monitor their blood glucose, should be offered a low cost meter. The formulary choices for low cost meters are listed below:

ACCU-CHEK ACTIVE:



- Testing Strips: Active testing strips
- Range and Test Time: 0.6-33.3mmol/ I / 5 seconds
- Shelf life once opened: Date on container
- Special features: Strip date expiry warning
- Memory: 500
- Compatible Lancets and Lancing Device: Accu-Chek softclix finger pricker with softclix lancet
- Company/Customer Care Line: Roche Careline / 0800 701 000
- Quality Control solution shelf life once open: 3 months

ACCU-CHEK PERFORMA NANO:



- Testing Strips: Accu-chek Performa
- Range and Test Time: 0.6-33.3mmol/ I / 5 seconds
- Shelf life once opened: Date on container
- Special features: Hypoglycaemia indicator
- Memory: 500
- Compatible Lancets and Lancing Device: Accu-Chek fastclix finger pricker
- Company/Customer Care Line: Roche Careline / 0800 701 000
- Quality Control solution shelf life once open: 3 months

GLUCOMEN AREO:



- Testing Strips: Glucomen Areo sensor
- Range and Test Time: 1.1-33.3mmol/ I / 5 seconds
- Shelf life once opened: 12 months
- · Special features: Glow in the dark display
- Memory: **730**
- Compatible Lancets and Lancing Device: Glucoject dual plus device and lancets
- Company/Customer Care Line: Glucomen / 0800 243667
- Quality Control solution shelf life once open: 3 months

GLUCO RX NEXUS:



- Testing Strips: GlucoRx Nexus
- Range and Test Time: 1.1-33.3mmol/ I / 5 seconds
- Shelf life once opened: 6 months (but comes as 2x25 strips)
- Special features: Ketone warning
- Memory: 1000
- Compatible Lancets and Lancing Device: GlucoRx Lancing Device and Lancets
- Company/Customer Care Line: Dime / 01483 755 133
- Quality Control solution shelf life once open: 3 months

GLUCO RX NEXUS MINI:



- Testing Strips: GlucoRx Nexus
- Range and Test Time: 1.1-33.3mmol/ I / 5 seconds
- Shelf life once opened: 6 months (but comes as 2x25 strips)
- Special features: Ketone warning
- Memory: 1000
- Compatible Lancets and Lancing Device:
 GlucoRx Lancing Device and Lancets
- Company/Customer Care Line: Dime / 01483 755 133
- Quality Control solution shelf life once open: 3 months

Consumables (e.g. batteries, Quality Control solution, USB cables etc.) are available free of charge from the Company Customer Care lines. Software download is available for all listed meters. When changing a patient's meter, please help reduce waste where possible by ensuring test strips for the previous meter are used before ordering the new strips.

APPENDIX 4 AUDIT CHECKLIST

The checklist below is available to enable you to audit standards of diabetes care within the care home, in conjunction with the standards set out in the Wirral Diabetes Policy.

This audit should be undertaken at least once a year.

The section numbers indicated in the table below refer to the relevant section numbers in the Wirral Diabetes Policy. Please refer to the relevant section(s) if more information is required when completing the audit.

Please use the information from this audit to assess whether your existing diabetes care practices in the Care Home meet the standards indicated within the diabetes policy or whether further action(s) needs to be taken. If further action is required, ensure any changes in practice are audited again in 1-2 months following any changes.

Descriptor	Total number	Actual Number	Action to be taken		
Section One - Introduction					
Each home to have a Diabetes Champion in place.	Total number of care staff in each home - including qualified nurses and care assistants =	Number of staff who are diabetes champions in each home =			
Each resident to have an individualised diabetes care plan.** (see notes about what should be included at end of this audit checklist).	Total number of residents in care home with diabetes =	Number of residents with an individualised diabetes care plan =			
Section Three - Medications for use in diabetes					
Insulin needles used for residents should be appropriate length i.e. 4mm or 5mm.	Total number of residents who are prescribed insulin =	Number of residents who are prescribed 4mm or 5mm insulin needles =			

AUDIT CHECKLIST

Descriptor	Total number	Actual Number	Action to be taken		
Section Four - Diet and diabetes					
MUST score assessed for each resident on admission.	Total number of residents with diabetes =	Number of residents with a MUST score assessed and recorded on admission =			
MUST score assessed monthly for each resident within the home.	Total number of residents with diabetes =	Number of residents with a MUST score assessed and recorded every month =			
Section Five - Diabetes	glycaemic control and	HbA1c			
Residents with diabetes require a HbA1c blood test - at least once a year (to assess diabetes control) and results recorded in resident's care plan.	Total number of residents with diabetes =	Number of residents who have had a HbA1c blood test checked at least once a year =			
Section Six - Blood gluce	ose monitoring				
Residents requiring monitoring of blood glucose to have an individualised blood glucose target set. (Discuss with GP/ Practice Nurse and/ or hospital team to establish target).	Total number of residents who require blood glucose levels to be monitored =	Number of residents with an individualised blood glucose target recorded on blood glucose monitoring chart and care plan =			
Residents requiring blood glucose monitoring - each resident requires an individual blood glucose meter and finger pricking device.	Total number of residents requiring monitoring of blood glucose =	Number of residents with an individual blood glucose meter and finger pricker =			
Blood glucose meters to be Quality Control checked at least once a month.	Total number of blood glucose meters used in each home =	Number of meters which have had a quality control check performed in last month =			

Descriptor	Total number	Actual Number	Action to be taken		
Section Seven - Diabetes and foot care					
Each resident to have their feet checked daily by care staff.	Total number of residents with diabetes =	Number of residents who have their feet checked daily and findings recorded in residents care plan =			
Each resident to have an annual diabetic foot check by GP or practice nurse.	Total number of residents with diabetes =	Number of residents who have their annual diabetic foot check and recorded in care plan =			
Section Eight - Managin	g hypoglycaemia (low	blood glucose)			
Each home to have a fully stocked hypo box with appropriate hypo treatments.		Number of fully stocked hypo boxes in each home =			
Section Eleven - Complications and annual diabetes review					
Each resident to have an annual review of their diabetes.	Total number of residents with diabetes =	Number of residents who have an annual diabetes review and report documented in care plan (if resident exempt from this record reason why in care plan) =			

** Individualised diabetes care plan should include:

- Type of diabetes resident has e.g. Type 1 or Type 2 diabetes
- Blood glucose target levels if staff are checking residents' blood glucose levels
- Whether residents are at risk of hypoglycaemia (low blood glucose) or not.

N.B. Resident will be more at risk of hypos if prescribed insulin or sulphonylurea tablets e.g. gliclazide.

• If risk of hypoglycaemia identified, indicate what the residents preferred hypo treatment is e.g. Lucozade, Jelly Babies, fresh orange juice etc and state amount to be given in the care plan. Ensure staff are all aware of this information.













