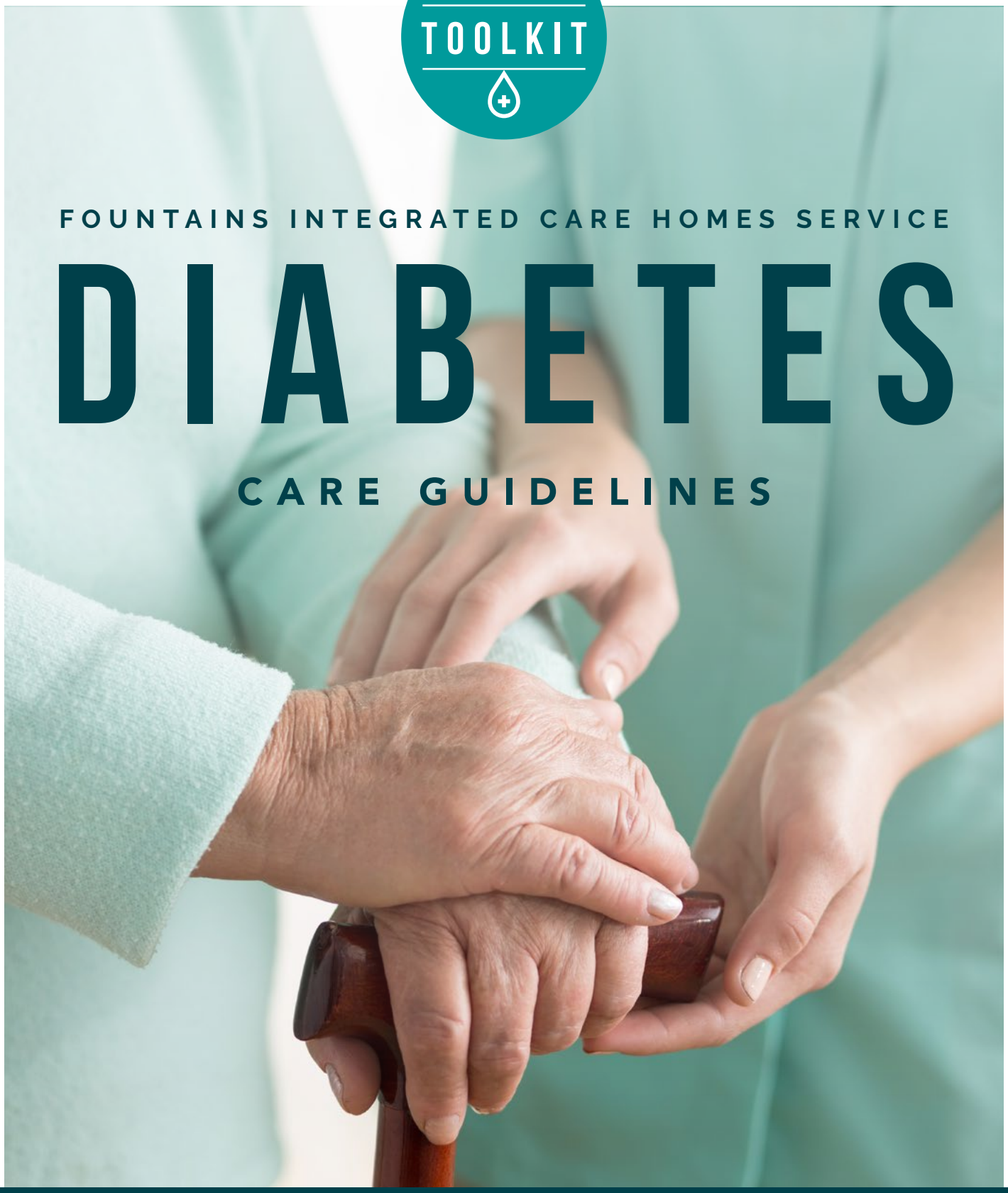
TOOLKIT

FOUNTAINS INTEGRATED CARE HOMES SERVICE

DIABETES

CARE GUIDELINES



Supporting Staff
in The Excellence
of Diabetes Care

HEALTHBOX
COMMUNITY WELLBEING SERVICES

Contents

"Within a care home environment where advancing age, chronic disease, frailty and disability concentrate among residents; diabetes imposes an extra health burden that stretches the capacity and skills of many care staff beyond their ability and it is no wonder that hospital admissions result"

Professor Allan Sinclair

NHS
North West Coast
Clinical Networks

Foreword

Over the last decade, there have been many great advances in diabetes care. These have been supported by multiple national initiatives and various evidence-based guidelines, including the National Institute for Health and Clinical Excellence (NICE), the National Service Framework for Diabetes and not least the inclusion of diabetes in the Quality and Outcomes Framework in Primary Care.

In spite of this, improvement in caring for residents with diabetes in care home settings has not been as forthcoming. It is important to recognise that all adults living with diabetes deserve to receive the same standard of care whether they live in their own home or a residential/nursing care setting. The available evidence suggests that although some good clinical practice exists, many care providers do not have adequate training provision for staff or follow good practice guidelines or accountability for the quality-of-care residents with diabetes receive.

Diabetes in Care Homes (Diabetes UK, 2010) revealed a lack of screening for diabetes on admission (less than a quarter of homes) to care homes and only one third screen for diabetes annually. The findings estimate that the number of residents living with undiagnosed diabetes may be at least 13,500 in the UK. If we combine this with the number currently diagnosed, there is a significant number of people whose diabetes care needs are not being met due to a lack of staff training, awareness and screening. It is estimated, a resident with diabetes is admitted to a hospital every 25 minutes and unless measures are put in place to address these issues, by 2051, one resident with diabetes from a care home will be admitted every 10 minutes.

The Northwest Coast Diabetes Health Inequalities Programme recognised that the standards of care might vary between different populations and communities, therefore focus should be aimed towards improving care for those groups likely to experience greater diabetes health inequalities by essentially supporting improvement, delivery and standards in diabetes care. These guidelines have been developed with the objective of improving exactly those standards of care for all care homes within the Fountains Integrated Care Home Service.

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Acknowledgements

Thank you to our funders, North West Coast Diabetes Health Inequalities Programme for forward thinking innovation to support our care homes, their staff and most importantly their residents in the provision of excellence in diabetes care.

Equally, I would like to thank the hard work of Karen Leong, Diabetes Specialist Nurse at Wirral University Teaching Hospital for producing the comprehensive Wirral Care Homes Policy Document, an invaluable resource, which these guidelines were adapted from.

I would love to take the credit for the remarkable creative design and artwork of these guidelines and toolkit, however that would be spectacularly undeserved. Eternal thanks to the Healthbox CIC artistic wizard, Chris Boswell who is the creative genius behind this final document.
To Dr Jeevan Crasta, clinical lead at Fountains Integrated Care Home Service (FICHS) for his fantastic feedback, enthusiasm and support for our project.

A special thanks to the managers and staff of the care homes within the FICHS, whom without your input, feedback and support, this project would not get off the ground.

Finally, thank you to my mentor Georgie Charnley, for her unwavering support and guidance, I couldn't do it without you.

Thank you all and best wishes

Joseph McGoldrick

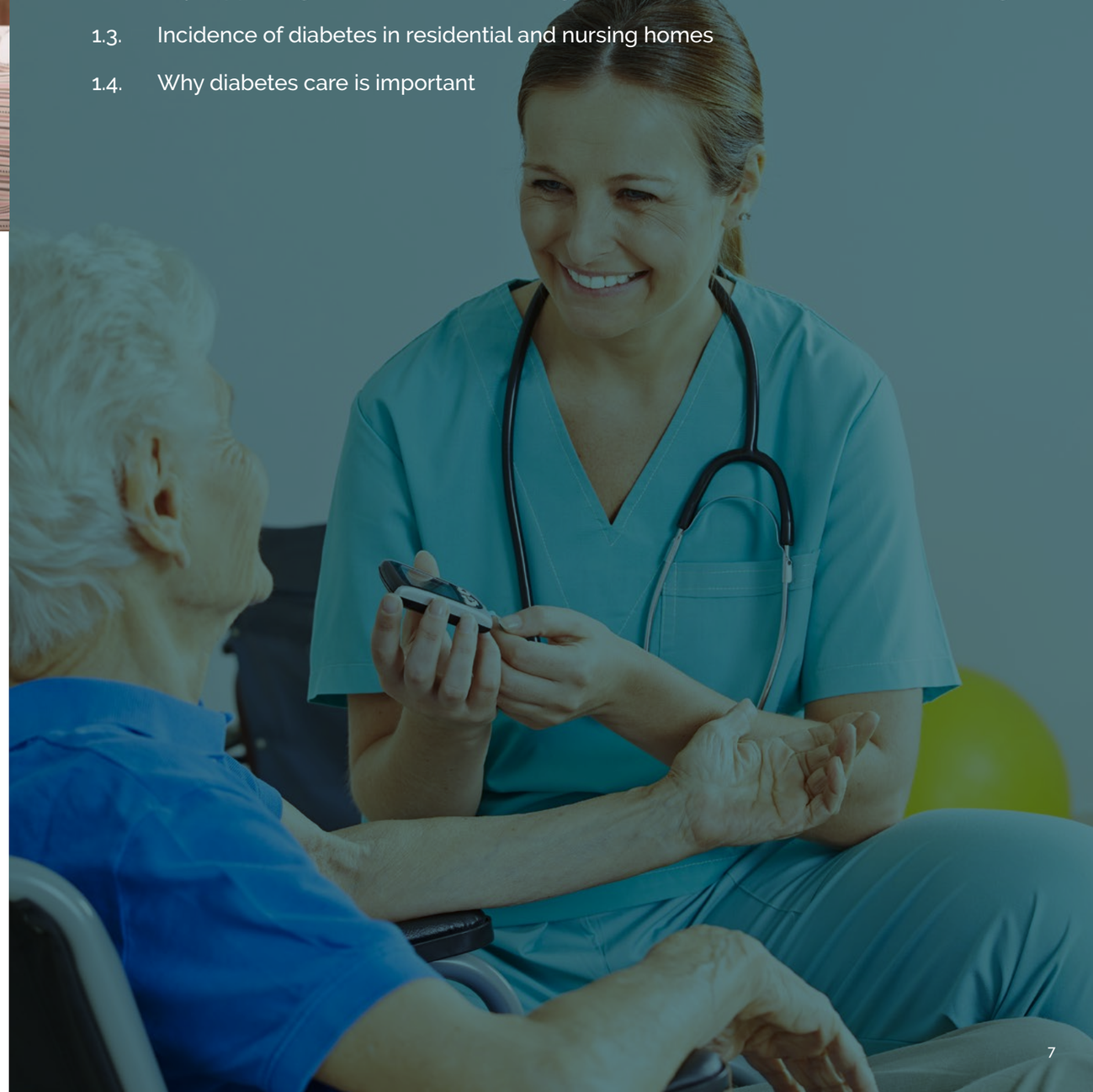
PROJECT AND GUIDELINE AIMS:

- To provide all FICHS care homes with a policy document which offers evidence-based guidelines for all staff to reference.
- To preserve a high degree of quality of life without exposing residents to needless and inappropriate medical and/or therapeutic interventions.
- To facilitate diabetes training to all FICH staff and designate a key worker as 'diabetes champion who is responsible for maintaining high standards of diabetes care.
- To facilitate the provision of adequate support and opportunity to enable residents to manage their own diabetes where this is feasible.
- To ensure that residents living with diabetes have bespoke diabetes passports, care plans and follow-up specialist care which is easily accessible depending on clinical need.
- To achieve an optimum level of metabolic control with particular attention paid to frailty which ameliorates the malaise and lethargy of hyperglycaemia; substantially reduces the risk of hypoglycaemia in those residents taking sulphonylurea or insulin, and optimises the utmost level of physical and cognitive function.
- To reduce the complications and hospital admissions associated with diabetes.

Care home residents have the right to the same high level of safe, evidence-based diabetes care, regardless of whether they live in their own home or care home (Diabetes UK, 2010).

1.0.

Introduction



1.1. Scope of this document

This is a supporting document to assist care home staff in the routine management of residents with diabetes. It may also be used as a training reference/guide to educate new and/or existing staff in their development of diabetes knowledge. The information provided in this policy is supported by evidence-based literature and best practice. A consultation process was undertaken with care homes within the Fountains Integrated Care Home Service (FICHS) in the development of this document to provide context to the level of support required for care staff. It was important that this was a collaborative effort in order to meet the needs of staff and residents.

Embedded in the policy (Appendix 8), is an audit checklist, to be used for auditing standards of diabetes care in your home. We recommend that an audit is performed a minimum of once a year. If any areas are identified which require change/ improvement, a follow up audit should occur within a month.

KEY RECOMMENDATIONS

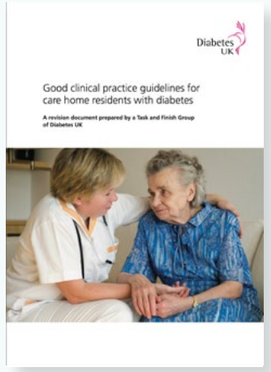
Care homes should have a diabetes policy available for all appropriate care staff to reference, which outlines best-practice diabetes care and meets evidence-based standards – Care Quality Commission (CQC), 2015.

Residents living with diabetes, should have a person-centred care plan developed with the resident, family/ carers, GP and/or appropriate specialist healthcare provider e.g., Diabetes Specialist Nurse (DSN) or Consultant – Diabetes UK, 2013.

It is recommended that at least one member (depending on the size of the home) of staff is designated as a 'Diabetes Key Worker' or 'Diabetes Champion' who is responsible for diabetes management and maintaining a high standard of diabetes care for residents. The member of staff would also regularly attend updated diabetes training sessions - IDF, 2013 & IDOP, 2014.

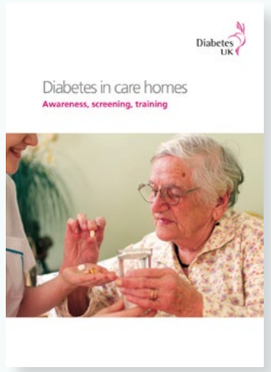
1.2. Key supporting documents in the management of diabetes in the care home setting

IMPORTANT DOCUMENTS



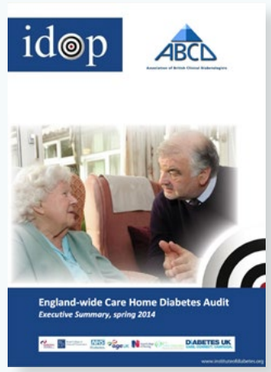
Diabetes UK – Good clinical practice guidelines for care home residents with diabetes (2010).

Available at:
www.diabetes.org.uk/resources-s3/2017-09/Care-homes-0110_0.pdf?_ga=2.238422405.468428599.1505127410-1295258485.1505127410



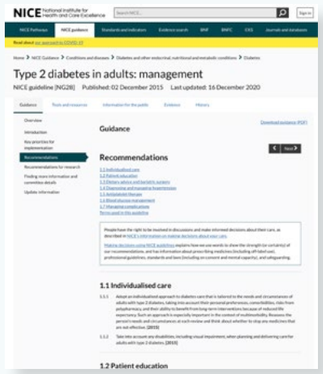
Diabetes UK – Diabetes in care homes awareness, screening, training (2010).

Available at:
www.diabetes.org.uk/resources-s3/2017-09/Care_homes_report2010_0.pdf?_ga=2.238422405.468428599.1505127410-1295258485.1505127410



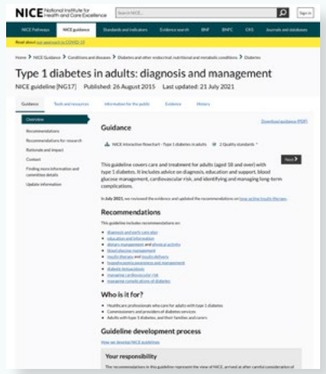
England-wide Care Home Diabetes Audit Executive Summary, spring 2014.

Available at:
http://diabetesfrail.org/wp-content/uploads/2014/10/England-wide-Care-Home-Diabetes-Audit.pdf



National Institute for Health and Care Excellence (NICE), 2015a. Type 2 diabetes in adults: management. NICE guideline [NG28].

Available at:
www.nice.org.uk/guidance/ng28/chapter/1-Recommendations#blood-glucosemanagement-2



National Institute for Health and Care Excellence (NICE), 2015b. Type 1 diabetes in adults: diagnosis and management. NICE guideline [NG17].

Available at:
www.nice.org.uk/guidance/ng17

1.3. Incidence of diabetes in residential and nursing homes

In 2013, The International Diabetes Federation recognised that the incidence of Type 2 Diabetes increases with age and Diabetes doubles the risk of admission to a care home. Therefore, with an increasing aging population in care settings, comes the need for high quality care to safely manage their condition (Diabetes UK, 2010).

Approximately 1-in-4 residents may have diabetes in the care home setting and the same number may have undiagnosed diabetes. Often the diagnosis may be missed or undiagnosed when symptoms are non-specific or attributed to age, especially in residents with dementia, learning difficulties/disabilities and mental health needs. The opportunities for early intervention may be missed with delayed/missed diagnosis. Moreover, with existing co-morbidities and related treatments, diabetes in older adults is potentially more complex.

The complications associated with residents living with diabetes include an increased risk of:

- Heart attack & Stroke
- Pressure Ulcer/Delayed Wound Healing
- Chest/Urine & Skin Infections
- Stroke
- Reduced Cognitive and Physical Function
- Hospital Admission/Readmission

Also, with impaired cognitive function or increased levels of pain and depression, may infer an inability to self-manage or report symptoms, such as those associated with hypoglycaemia.

1.4. Why diabetes care is important

Diabetes is considered to be the fastest rising health concern we face in the UK, with approximately 4 million people diagnosed, and a new diagnosis every 2 minutes (Diabetes UK, 2016). Good management of blood glucose levels can reduce the associated complications, however, when poor management occurs, serious adverse events may ensue, including:

(Diabetes UK: Facts and Stats (2015)
Available at: https://www.diabetes.org.uk/professionals/position-statements-reports/statistics

- Kidney disease – diabetes is the single-most cause of end-stage kidney disease requiring dialysis or transplant.
- Cardiovascular disease – heart failure being the most common and fatal complication.
- Retinopathy - 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.
- Diabetic neuropathy - 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.

2.0.

What is Diabetes?

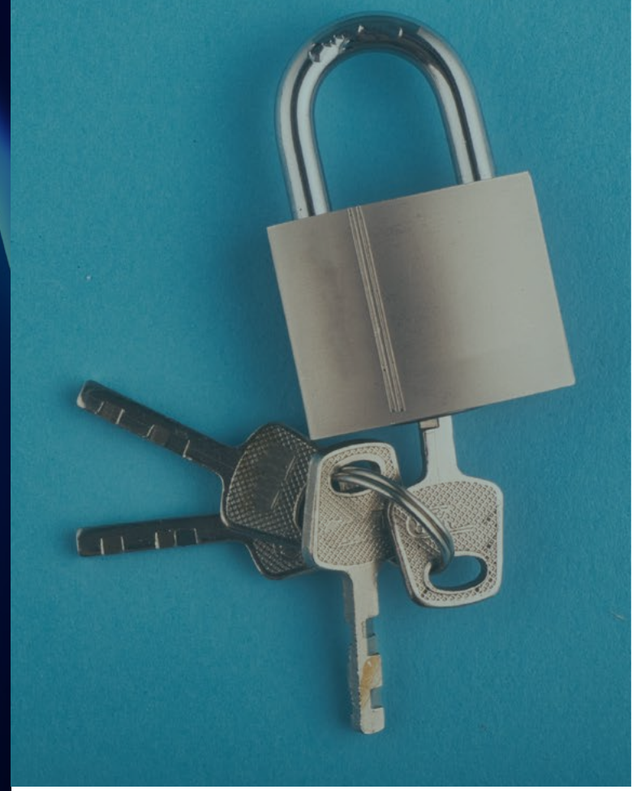
2.1. Understanding Diabetes

KEY POINTS

Diabetes is a complex chronic metabolic disorder, characterised by raised blood glucose levels, either caused by the pancreas inability to produce insulin (Type 1 Diabetes); or insufficient insulin is produced for the bodies needs (Type 2 Diabetes); or the insulin that is produced does not work effectively (Type 2 Diabetes - insulin resistance).

In healthy glucose homeostasis, the hormone insulin is produced by the beta cells of the pancreas, which is released after ingesting food and blood glucose levels rise.

Glucose regulation is sometimes described as a lock and key mechanism. Insulin (key) attaches itself to the cell wall (lock) to unlock the cells, allowing glucose to be transported from the blood and into the cell where it can be used as fuel for energy in the body.



When this mechanism breaks down in both Type 1 and 2 Diabetes, the body is unable to control blood glucose levels and unless lifestyle and/or medication interventions are implemented, blood glucose will remain dysregulated.

If blood glucose levels remain chronically high (hyperglycaemia), over time this can cause damage to cells, blood vessels and organs, leading to complications.

These may 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. In addition, the life expectancy of people with diabetes may be reduced by up to 15 years.

(National Institute for Health and Care Excellence [NICE], (2011) diabetes in adults quality standards (QS6). www.nice.org.uk/guidance/qs6/chapter/introduction

Diabetes develops when glucose can't enter the body cells to be used as fuel. This happens because either:

In the case of **Type 1** diabetes, there is no key (insulin) to unlock the door to the cells.

Or, in the case of **Type 2** iabetes, the key (insulin) is unable to unlock the door properly.

and/or the key (insulin) is there but the lock doesn't work properly.

Retrieved from: Diabetes UK 2021 www.diabetes.org.uk/diabetes-the-basics

2.2 Types of Diabetes

There are several types of diabetes. For the purposes of these guidelines, the two main types discussed are Type 1 diabetes and Type 2 diabetes and will be the focus. Type 2 diabetes is more prevalent in older adults; therefore, it is likely that there will be higher numbers of people in care homes with this type of diabetes. Both Type 1 and Type 2 diabetes have distinct differences and characteristics, these are 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 approximately 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**

The table illustrates that Type 1 Diabetes tends to have an earlier onset and occurs in people under 40. Type 1 Diabetes accounts for approximately 10% of all diabetes cases in the UK and is characterised by no insulin production by the pancreas, therefore individuals will require lifelong regular insulin injections/pumps to manage their blood glucose levels.

In Type 2 Diabetes, onset mostly occurs in adults over 40; however, there are increasing cases of children developing this type of diabetes. Type 2 Diabetes is most prevalent in the care home setting and probably the most likely for you to encounter. At diagnosis, individuals with Type 2 Diabetes are encouraged to make changes to their diet and lifestyle in order to control their blood glucose levels. In addition, depending on their HbA1c levels, people may be prescribed a first-line oral medication called Metformin. This is often succeeded by further medications depending on the progression of the condition. If oral medications do not control blood glucose levels, residents may need to be started on an insulin regimen. If a resident progress to insulin, this does not change their diagnosis to Type 1 Diabetic, but rather they are an 'insulin-dependent Type 2 Diabetic'

Regardless of the type of diabetes our residents are living with, they are at risk of developing associated complications, which may be life-threatening. Therefore, it is important that each resident has a regularly reviewed, person-centred care plan to best manage their condition.

2.3. Screening for Diabetes

Compared with the general population, there is a higher incidence of diabetes and undiagnosed diabetes in the care home setting; therefore, 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).

NB. It is important that this is discussed with the FICHS GP and the date and frequency is documented in the residents' care plan/diabetes passport (see appendix 1) and case notes. In addition, care staff should be aware of the signs and symptoms of diabetes, as some residents may present with these but not have a formal diagnosis. Also, it is important to recognise that residents may not be able to articulate (depending on progression of dementia) signs and symptoms, making the awareness of care staff even more pertinent.

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 FICHS 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 POINTS

- Diabetes is a long-term, complex condition characterised by high blood glucose levels and several associated complications
- Type 2 diabetes is more prevalent in care homes
- A diagnosis of diabetes **MUST** be documented in the resident's diabetes passport/care plan and notes
- Residents **MUST** be screened for diabetes on admission to the home and at two yearly intervals, please discuss with the resident's GP

3.0. Medications

3.1. Type 2 Diabetes Medications

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 & CLASS OF MEDICATION	OTHER BRAND NAMES	HOW THE DRUG WORKS	POTENTIAL SIDE EFFECTS	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

Figure 2 – Different types of medications used to control blood glucose levels in Type 2 Diabetes.
NB. The medications marked with a double Asterix sign (**) have a higher risk of hypoglycaemia for residents who may be prescribed these.

Medications such as gliclazide, and other tablets within this class of drugs (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 appropriately (see section 8, treating hypoglycaemia). If residents are experiencing episodes of hypoglycaemia, please ensure these are promptly treated 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 underlying cause of hypoglycaemia identified.

3.2. Insulin

Insulin is a hormone which lowers blood glucose levels and is used for people with Type 1 diabetes as their body does not produce insulin. It is also 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 is about to be eaten. Can be given at the very end of the 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 is about to be eaten. Can be given at the very end of the 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 is about to be eaten. Can be given at the very end of the meal but only if advised to do so by the 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)	Clear	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.

Figure 3 – Different types of insulin used to control blood glucose levels for individuals who are insulin-dependent.

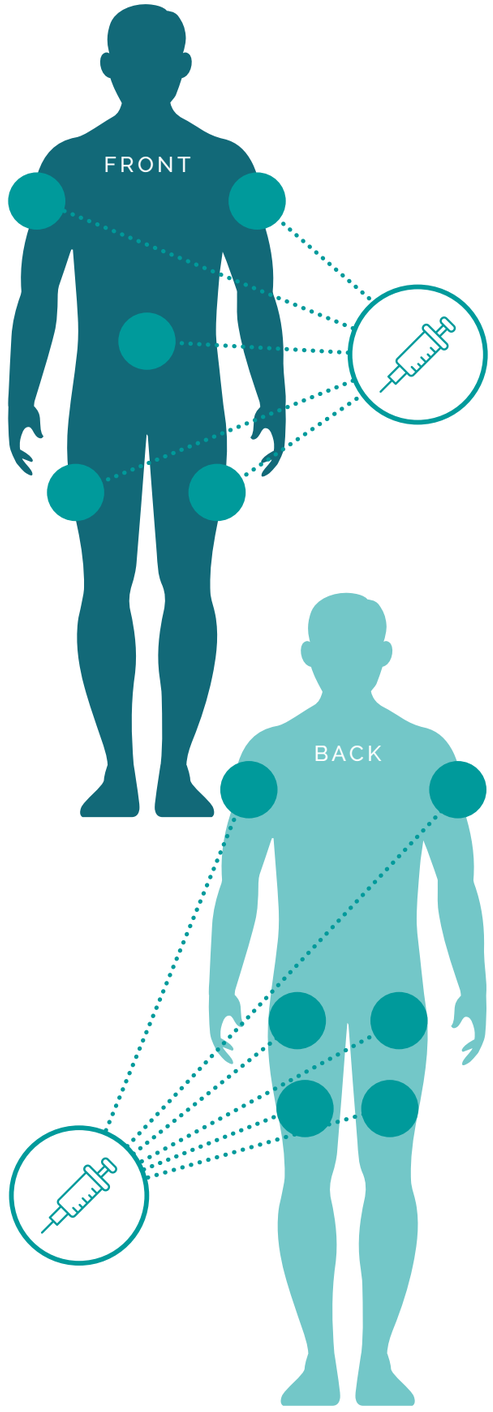


Figure 1 – illustration of appropriate insulin injection sites. NB. When administering insulin injections ensure the injection sites are rotated. Do not give the insulin in the same area in that site every day.

3.3 Insulin Administration & Storage

KEY POINTS

Please ensure to consider the following points when administering insulin injections:

- Correct information! You **MUST** ensure the correct insulin is used and corresponding insulin pen device, by checking the resident's identification is confirmed as correct and that the insulin is in date.
- **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.
- **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.
- **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 **DO NOT** use the pen.
- If residents are on a mixed or cloudy insulin 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. **DO NOT** shake the insulin as this will affect the insulin molecules.
- 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.
- Ensure the insulin is given at the appropriate times. For rapid acting and mixed insulin these need to be given with meals.
- **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.

How to roll (A) and invert (B) the insulin pen prior to use. Do not vigorously shake the insulin. Figure 2 – Technique to roll and invert insulin pens.

NOTE: AWAITING STEVE TO TAKEN PICTURES

3.4 Needle Size

A 4mm pen needle is recommended as the safest needle to use when giving insulin injections as this reduces the risk of giving the insulin via an intramuscular injection. In obese residents, a 5mm needle may be acceptable. **DO NOT** reuse needles, these are meant for single use only. Dispose of insulin needles in a prescribed sharps bin.

THINGS TO REMEMBER

Residents who require insulin injections are at a higher risk of having a hypoglycaemic event. These residents will need to have their blood glucose levels monitored more closely. If residents on insulin are 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 to manage blood glucose levels 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 oral medications 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 reuse 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.

4.0.

Diet & Diabetes

4.1 Nutrition & Diabetes

A suitable, individualised nutrition care plan is important to managing a resident's diabetes. Please ensure a well-balanced diet with proportional quantities of macronutrients (Fat, Protein & Carbohydrates) rich in micronutrients (vitamins, minerals, fibre) and adequate fluids are provided.

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
- 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, they are often expensive, have no additional nutritional benefit and often high in fat
- Include more vegetables and fruit
- Include more beans and lentils
- Reduce overall fat intake
- Include dairy products (or alternative fortified/enriched dairy free products) 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
- Limit salt and processed foods due to the impact on blood pressure
- Limit high saturated/trans fat foods such as cakes, biscuits, chocolate, etc
- Encourage alcohol in moderation
- Promote physical activity 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.

4.2 Carbohydrates

All carbohydrates are broken down to release the sugar glucose for use as energy. If consumed in excess, can cause high blood glucose levels. If too little carbohydrates are eaten by residents who are prescribed insulin or sulphonylurea tablets (e.g., gliclazide) hypoglycaemia can ensue. Reducing the risk of hypoglycaemia should be a particular aim for these residents (NICE, 2015a).

The portion of carbohydrate consumed is the key component affecting blood glucose levels (American Diabetes Association (ADA), 2004a, 2004b; Diabetes UK Nutrition Working Group, 2011) i.e., the greater the serving of starch and sugar containing foods and drinks consumed, the higher the blood glucose levels will rise. It is important to note, most foods comprising carbohydrate from starch or natural sugars also offer the body with other important nutrients such as vitamins, minerals, fibre, protein; however, 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). Consequently, while 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 advised to reduce the intake of added sugars (SACN, 2015) and caution should be exercised to avoid excess energy intake (NICE, 2015a).

CARBOHYDRATES ARE FOUND IN THE FOLLOWING FOODS AND DRINKS

STARCH

Bread, pasta, pulses (peas, beans, lentils), flour, some found in vegetables, particularly root vegetables

ADDED SUGAR

Sugar sweetened beverages, table sugar, sweets, jelly, chocolate, cakes* biscuits* puddings*

NATURAL SUGARS

Fruit (fresh, frozen, tinned) fruit juice, milk, yoghurt, fromage frais

*Also contains starch e.g., flour

4.3 Approaches to reduce added sugar in residents' diet

- Consider offering sugar-free, no added sugar or diet squashes/fizzy drinks instead of full sugar varieties.
- Avoid/limit adding sugar to hot drinks, consider offering sweeteners as a replacement.
- When baking/cooking, reduce the amount of sugar added, frequently the quantity specified in a recipe can be halved without having a negative impact on the final product. Also, some recipes lend themselves well to sweeteners as a substitute.
- Reduce portion sizes/frequency of sugar sweetened products

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 provide no benefit to individuals with diabetes. They may still affect blood glucose levels, often contain just as much fat and energy as the regular varieties, often have a laxative effect and are more expensive (Diabetes UK, 2010; Diabetes UK Nutrition Working Group, 2011).

The most important factor is to make sure portions of starchy and natural sugar containing foods are not excessive. When offering carbohydrates, encourage slower release (lower Glycaemic index (GI)) (NICE, 2015a) as 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 low GI slow 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 bread
- New potatoes, sweet potato (with skin on)
- Pasta (wholegrain versions are lower GI)
- Basmati or easy cook rice (wholegrain versions are the best choice)

Serving size of carbohydrate foods is still the biggest factor affecting blood glucose levels (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 – (Care Quality Commission (CQC), 2014; NICE, 2006; 2012) For homes in the FICHS, it is important to follow the MUST care pathway and implement all relevant steps. Keep food record charts to monitor carbohydrate intake, primarily when reviewed in combination with blood glucose records for any residents who have their levels monitored.

4.4. Diabetic residents 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)

4.5. Malnutrition

Malnutrition is common in older adults, 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 is identified (BAPEN, 2003; NICE, 2006). Their screening results and goals of nutrition 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 Cheshire West MUST Care Pathway for further information.

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

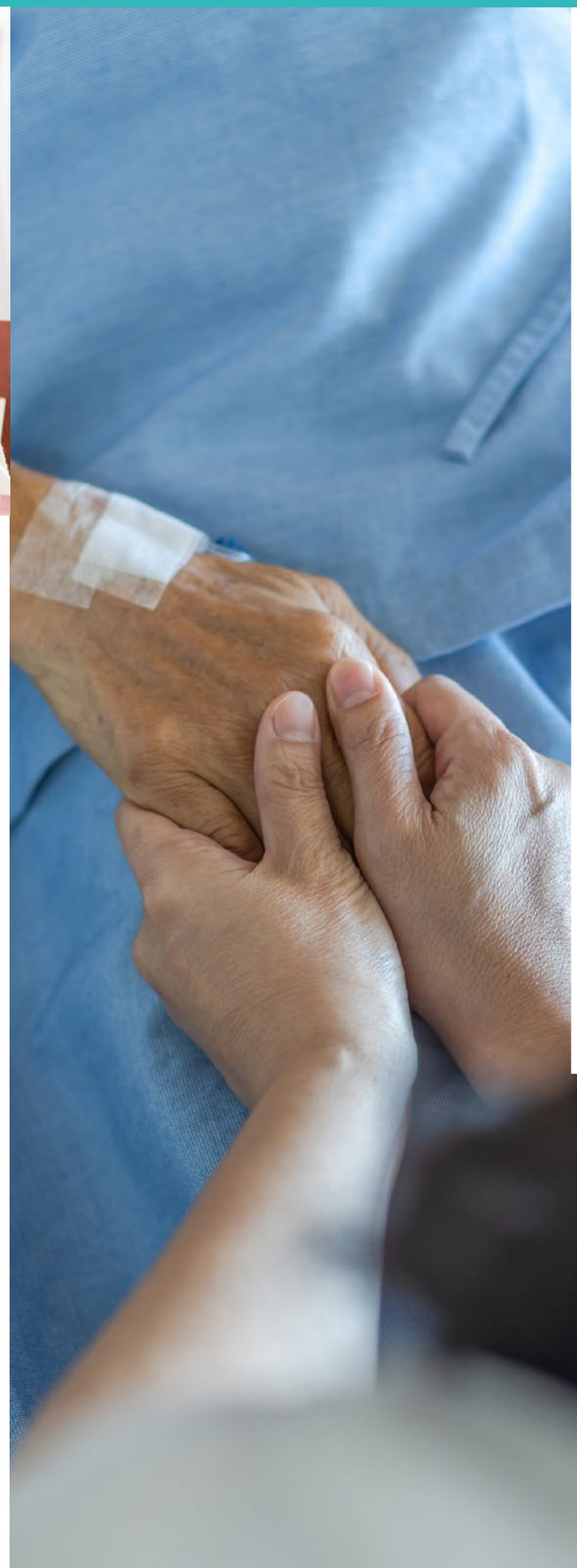
- Less than 18.5kg/m2
- Unintentional weight loss greater than 10% in the past 3-6 months
- BMI less than 20kg/m2 and unintentional weight loss greater than 5% in the past 3-6 months (NICE, 2006)

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.

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.



4.6. Palliative Care

Avoidance of hypoglycaemia and symptoms of hyperglycaemia are priority for residents with diabetes receiving palliative care. Dietary provision, which is non-invasive and optimises nutritional and fluid intake, should be a priority (Diabetes UK Nutrition Working Group, 2011). Nutrition should be personalised to the resident's overall condition, not focused solely on 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).

NUTRITION & DIABETES KEY POINTS:

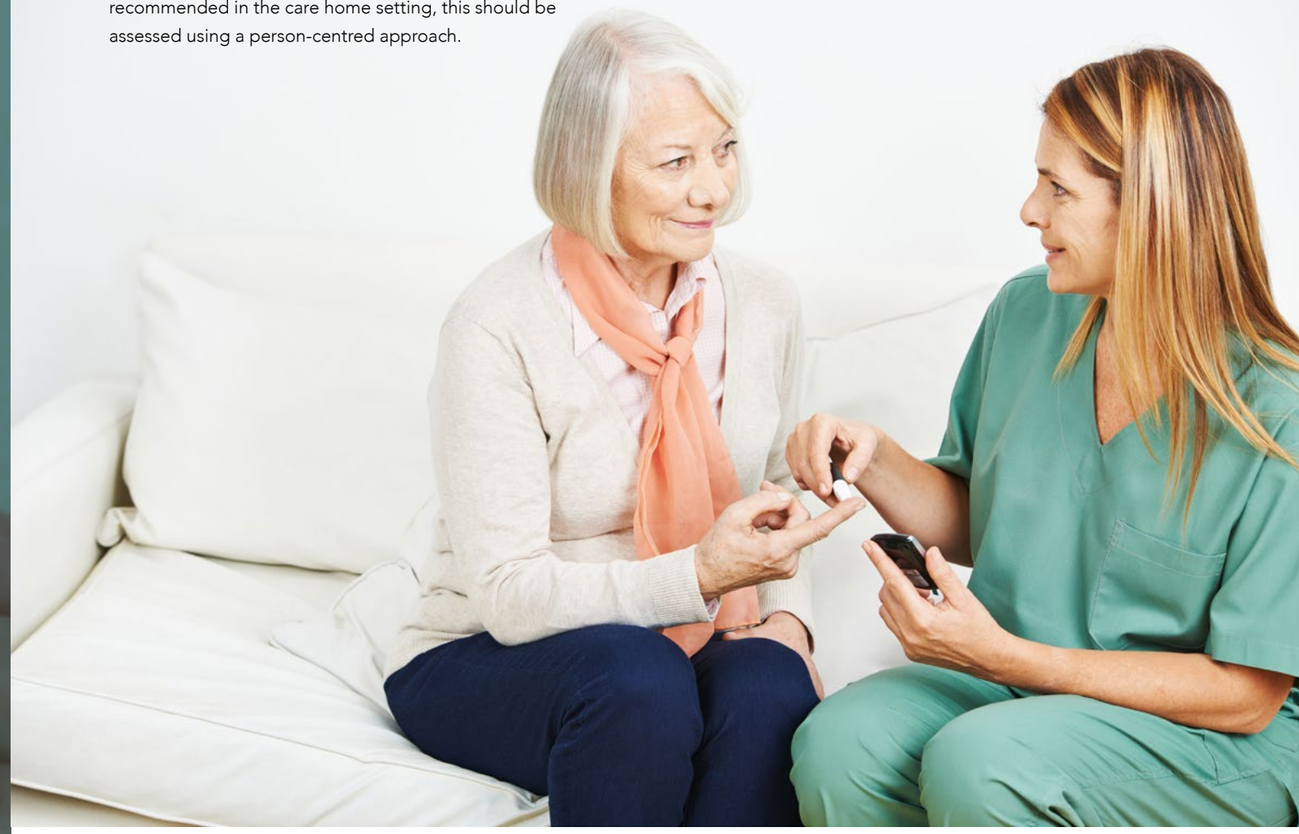
- There is no 'special diet for diabetes' – this should be balanced and varied.
- Residents on insulin and sulphonylurea medications (including gliclazide) should have regular meals and doses optimised to avoid hypoglycaemia.
- There is no need for 'diabetic foods' – these can have a laxative effect and are expensive.
- Carbohydrates have the biggest impact on resident's blood glucose levels – these all break down in the stomach to form glucose.
- Carbohydrate portion sizes are one of the biggest factors affecting blood glucose levels.
- For homes in the FICHS, nutritional screening should be implemented using the MUST care pathway 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.

5.0.

Blood Glucose control & HbA1C

5.0. Blood Glucose control & HbA1C

In order to minimise osmotic symptoms and prevent associated complications, it is recommended that reasonable blood glucose control should be promoted (NICE clinical guideline [NG28], 2015a). However, tight diabetes control is not usually recommended in the care home setting, this should be assessed using a person-centred approach.

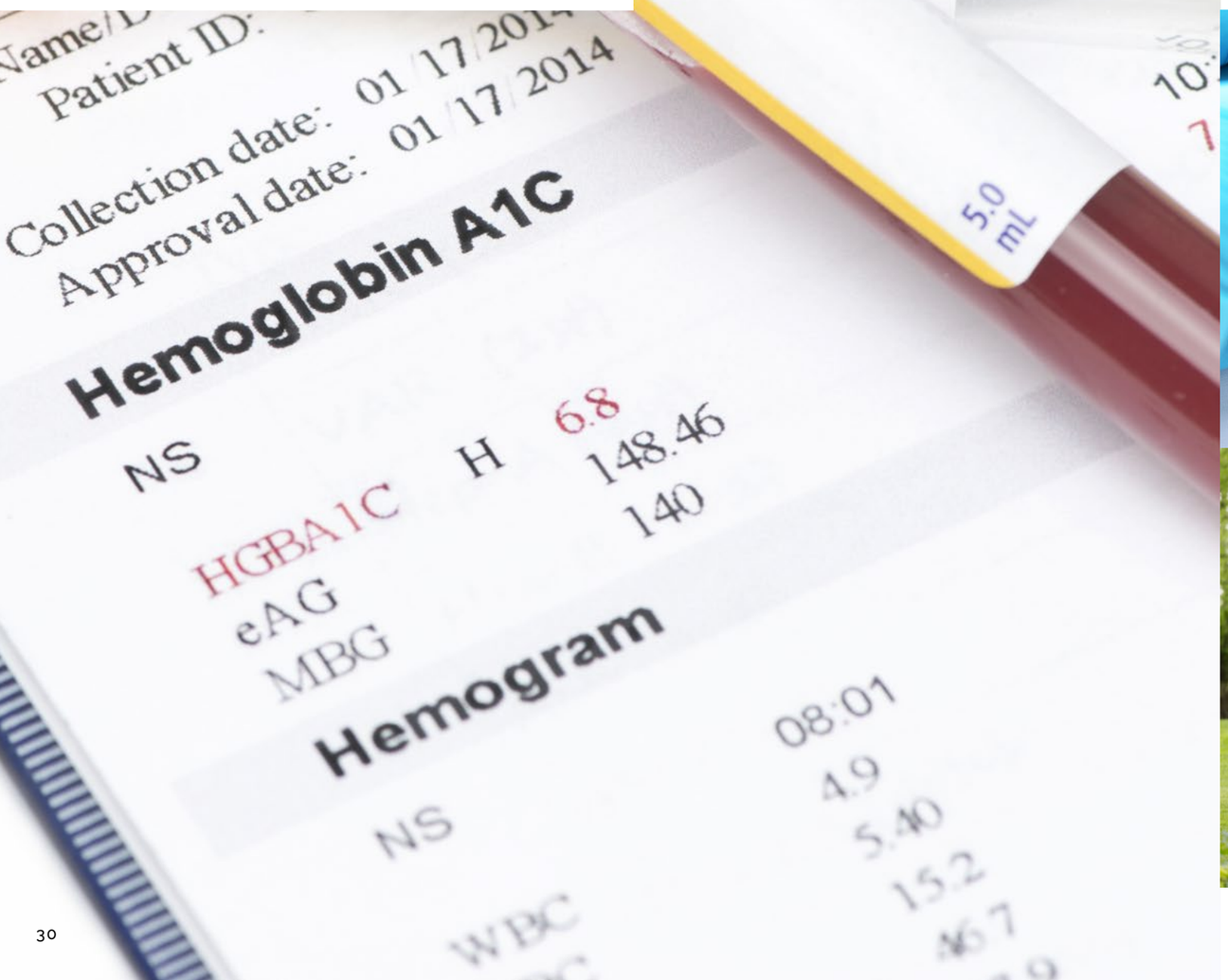


- A snapshot of diabetes control can be measured by a non-fasting blood test called HbA1c, offering information about what the diabetes control has been like for the previous 2-3 months
- It is recommended that in adults with Type 2 diabetes, HbA1c is measured at 3-6 monthly intervals until this is stable 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 FICHS GP and document in the diabetes passport/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 FICHS GP, documented in the resident's diabetes passport/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-ongoing-management-monitoring/end-of-life-care

5.1. HbA1c targets

Historically, HbA1c targets were expressed as a percentage, however results are now represented in mmol/mol. In adults, HbA1c targets are set between 48 and 53mmol/mol, however it has been recommended that these targets may be too tight for frail, older adults with Type 2 Diabetes and a more relaxed HbA1c target should be considered for these individuals (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).

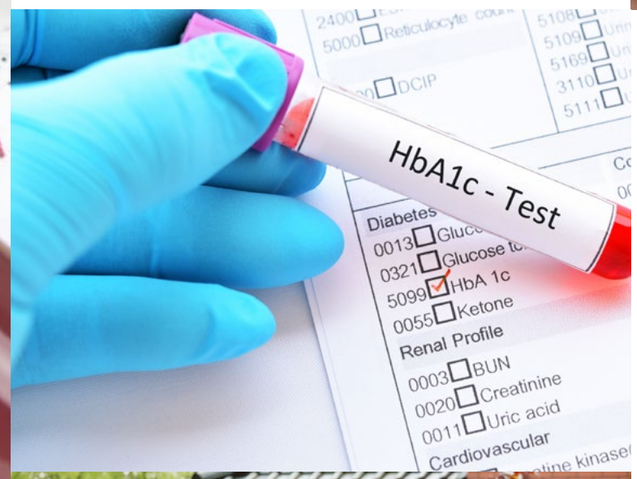


5.2. Review of HbA1c

The HbA1c target for each resident should be reviewed at least once a year as part of their annual diabetes review, by the FICHS GP with specific attention given to frailty, optimisation of medications, nutrition and functional assessment.

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 diabetes passport/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 FICHS GP and document in the resident's diabetes passport/care and ensure all relevant staff are aware.



KEY POINTS:

- 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
- Understand that frailty is a serious but avoidable complication of diabetes
- Tailor goals of care and HbA1c targets with measures of frailty status
- Take specific actions to improve patient outcomes – practical intervention should be taken in the management of older adults with diabetes and frailty

5.3. HbA1c & Frailty

DIABETES AND FRAILTY

Emerging evidence suggests frailty and sarcopenia (age-related lean muscle loss characterised by loss of power) are recognised as new complications of diabetes in older adults (Sinclair, 2017); and, Type 2 Diabetes has been identified as a risk factor for the development of frailty and sarcopenia. Therefore, priority should be given to strategize how to implement preventative measures to reduce these risk factors in residents with diabetes. Since regular physical activity and optimising nutrition are key aspects in reducing risk, implementation of these should be prioritised in our residents' care plan and may have significant advantages in delaying or preventing these associated complications.

In 2017, The National Collaborative Stakeholder on Frailty in Diabetes published a position statement to provide a framework for action in managing older adults with diabetes and frailty (Sinclair et al., 2017). The document highlights five key messages to address the issues of frailty in diabetes:

1. **Understand that frailty is a serious but avoidable complication of diabetes**
   Diabetes increases the risk of the development of frailty, which is associated with hypertension, renal impairment and dementia. Diabetes may decrease mobility and restrict activities of daily living (ADL) by approximately 50-80%, which increases with age (Wong, 2013).
2. **Be aware of the shortfalls of current international guidance**
   Several well received international guidelines have been developed, however have been criticised for being developed for specialist interventions, which lack practical translation to varied primary care settings. The evidence has been reviewed, to provide realistic glycaemic targets which align with specific categories of frailty (Strain, 2018).
3. **Use simple methods to detect frailty and assess functional status**
   The Electronic Frailty Index (EFI), together with a 4-meter gait score and a timed get-up-and-go test are invaluable tools in the assessment of frailty in primary care.
4. **Tailor goals of care with measures of frailty status**
   It was acknowledged that there are increasing concerns of polypharmacy in older adults with diabetes which increases the personal and public burden (GP, ambulance call outs and hospitalisations) of hypoglycaemia and the lack of individualised targets for frail older adults. A consensus view recommends few diabetic individuals aged 70 years and over benefit from intensive blood glucose targets of less than 53 mmol/mol, as available evidence does not support these targets. Whereas, a more relaxed target range of between 53-58mmol/mol for reasonable functionality; 64mmol/mol for moderate to severe frailty and a HbA1c target of 70mmol/mol for severe frailty (Strain, 2018).

5. **Take specific actions to improve patient outcomes.**
   Practical action should be taken in the management of older adults with diabetes and frailty:

- Older adults with diabetes over the age of 65 should be assessed for frailty and severity using EFI tool, together with a 4-meter gait score and a timed get-up-and-go test
- HbA1c targets should be safe, sensible and appropriate – with the aim of keeping residents free of adverse events, maintain optimal quality of life, well-being and functional status
- Residents with diabetes and frailty should have their medications reviewed regularly and a de-escalation approach adopted where appropriate
- Even though there are no restrictions on glucose lowering agents in frail older adults with diabetes, care should be taken when assessing the need for longer-acting sulfonylureas, complex insulin regimens, undernutrition, residents in care homes and severe frailty, all of which increase the risk of hypoglycaemia
- Thiazolidinediones (pioglitazone) and SGLT-2 inhibitors should be limited in moderate-to-severe frailty due to the adverse side-effects of unintentional weight loss, dehydration and possible amputations (NICE, 2018). In addition, GLP-1 receptor agonists may cause unintentional weight loss and anorexia, therefore great caution should be exercised
- The FICHS in collaboration with care homes and the wider diabetes service should consider implementation of the frailty diabetes pathway to address frailty, multimorbidity and cognitive impairment for diabetes residents
- Care staff and healthcare professionals who are involved in the management of diabetic residents should receive training to upskill in the area of frailty and functional status to deliver optimal care

FRAILTY

Is an adverse health condition, characterised by susceptibility to physical or psychological stressors due to reduced physiological reserve which affect multiple organ systems that confers a limited capacity to maintain homeostasis. One of the conceptual models which form the assessment of frailty by clinicians requires a person to meet at least three of the following criteria (Fried, 2001):

- Upper and lower extremity weakness
- Poor exercise tolerance
- Exhaustion
- Weight loss



FRAILTY	DE-ESCALATION THRESHOLD		TREATMENT TARGET	
	THRESHOLD	SUGGESTED INTERVETNION	TARGET	INTERVENTON
Fit older adult with diabetes	53 mmol/mol	Evaluate long-acting sulfonylurea and insulin therapy that may cause hypoglycaemia. Consider appropriate dosage in the setting of renal function.	58 mmol/mol	Avoid initiating new agents that may cause hypoglycaemia or exaggerate weight loss.
Moderate-severe frailty with diabetes	58 mmol/mol	Discontinue any sulfonylurea if HbA1c below threshold. Avoid TZDs because of the risk of heart failure. Cautious use of insulin and metformin mindful of renal function.	64 mmol/mol	DPP-4 inhibitors and longer-acting insulins have demonstrated safety. TZDs may increase risk of heart failure. SGLT-2 inhibitors may provide additional benefit in people with heart failure but also exacerbate symptoms of diabetes.
Very severe frailty	64 mmol/mol	Withdraw sulfonylureas and short-acting insulins because of risk of hypoglycaemia. Review timings and suitability of NPH insulin with regard to risk of hypoglycaemia. Therapies that promote weight loss may exacerbate sarcopenia.	70 mmol/mol	DPP-4 inhibitors at renally appropriate dose for those close to target. Consider once-daily morning NPH insulin or analogue alternatives if symptomatic nocturnal hyperglycaemia. Educate carers and relatives regarding risk of hypoglycaemia.
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.				
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.				

Key: eFI=electronic frailty index; SGLT-2=sodium-glucose co-transporter-2; GLP-1=glucagon-like polypeptide-1

6.0.

Blood glucose monitoring

6.0. Blood glucose monitoring

All residents with diabetes must have their condition monitored. This may be done by the FICHS GP, district nurse or hospital diabetes team. Independent residents may be advised to self-monitor their own blood glucose levels.

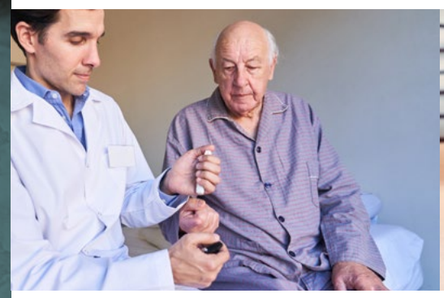
The National Institute for Health and Care Excellence (NICE) guidelines recommend, in certain circumstances, people living with diabetes will be required to self-monitor their own blood glucose levels (NICE, 2015a; NICE, 2015b). Although, in the care home setting this may not always be practical or realistic and only a small proportion of residents will have the capacity and/or practical skills to monitor their own blood glucose levels (BGLs). The majority of residents will require support from appropriately trained staff to monitor their BGLs. It is important to confirm and document (in diabetes passport/care plan) the frequency of monitoring with the residents FICHs GP.

A resident will need to have their BGLs (if they cannot do it themselves) by an appropriately trained member of staff for:

1. Residents with Type 1 diabetes
2. 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

SAFETY

- Residents who need to have their BGLs monitored **MUST HAVE** their own blood glucose monitor and lancet device and these **SHOULD NOT BE** shared between residents and individual lancets **MUST NOT** be shared between residents after use. Single-use disposable lancets (discuss this with FICHs GP) should ideally be used when carrying out a blood glucose check
- Blood glucose testing lancets and insulin needles are classified as sharps and considered clinical waste, therefore must be disposed of in a prescribed sharps bin and not regular domestic waste – advice can be sought from prescribing pharmacists on collection and disposal of used sharps bins
- Thorough hand washing is important prior to blood glucose testing. Please wash hands with soap and water and **DO NOT** use alcohol agents or wipes to cleanse prior to testing as this may produce a false reading



6.1. How often should we be monitoring?

How often to monitor BGLs is specific to the resident living with diabetes, this should be assessed and determined by either the FICHs GP or specialist diabetes healthcare provider i.e., Consultant Diabetologist, Diabetes Specialist Nurse (DSN). These recommendations should be documented in the residents diabetes passport and medical care notes. Staff responsible for monitoring BGLs should be made aware of the frequency as documented in the diabetes passport.

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

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

6.2. Emergency blood glucose monitoring

If a resident is experiencing the signs and symptoms of hypoglycaemia (low blood glucose), become acutely unwell, semi-conscious/unresponsive – see section 9; it may be necessary to check BGLs, regardless of the frequency outlined in the residents' diabetes passport. Where hypoglycaemia is suspected BGLs **MUST** be checked.

KEY POINT

If residents are on medications such as insulin or tablets including gliclazide these can cause hypoglycaemia. Where a care home has a resident living with diabetes on any of these medications, there **MUST** be a minimum of one member of staff available who has been assessed as competent and appropriately trained to check BGLs in an emergency.

6.3. Type 1 diabetes and blood glucose monitoring

Residents with type 1 diabetes may need to have their BGLs monitored more regularly (NICE, 2015b). Where residents do not have the capacity or physical capability to perform blood glucose monitoring independently, appropriately trained care home staff will be responsible for checking BGLs in-line with the residents diabetes passport. In addition, if a resident with type 1 diabetes records a reading of >15mmols, it is recommended that ketones are also checked, either with a blood glucose monitor with a ketone function or using a urine test. When blood glucose levels are very high, ketones are produced when the body metabolises fat as a source of energy (see section 10).

KEY POINT

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 specified 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

6.5. 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 are 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 a control solution if this has expired.

NB. 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. What staff should carry out blood glucose monitoring?

It is recommended that each care home should clearly define who is responsible for monitoring BGLs (Diabetes UK, 2010); however, in nursing home settings, it is advised registered nurses should be designated to carry out blood glucose monitoring (Diabetes UK, 2010).

Each care home should ensure 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.

Before performing blood glucose monitoring, all members of staff (whether registered or otherwise) should have a sound knowledge base of diabetes. In addition, staff should receive adequate training on blood glucose monitoring using the specific meter used in their place of employment and know how to interpret the reading(s) recorded and the appropriate action to be taken (Diabetes UK, 2010).

NB. Scope of practice.

- Members of staff who are non-registered practitioners e.g. carer/senior carer/support worker/health care assistant must work within their scope of practice and are responsible for their actions and/or omissions. If a care home requires a non-registered member of staff must receive appropriate blood glucose monitoring training and demonstrate competence in the procedure and have regular (typically annually) reassessment of competence by a registered practitioner e.g. DSN or community specialist nurse

- Where it is necessary for an unregistered member of staff to monitor blood glucose levels, an agreement should be reached with the care home manager and a designated registered practitioner e.g. DSN or community specialist nurse to assess the member of staff and sign them off as competent. The competency assessment should be recorded and filed as evidence

- Any blood glucose measurements taken by unregistered staff must be given to a duty nurse at the time taken and the reading recorded in the appropriate documentation

- Record keeping – clear, standardised and appropriate documentation must be maintained when recording any blood glucose measurements (Diabetes UK, 2010)

6.7. Guidance for residents performing their own blood glucose monitoring

Where a resident has the physical ability and capacity to monitor their own blood glucose levels and it is appropriate for them to do so, this may be encouraged; however, in the care home setting this will be a small proportion of residents (Diabetes UK, 2010). If a resident is independently monitoring their blood glucose levels, a structured assessment should be carried out at least annually and can be combined with the residents annual diabetes review and 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#blood-glucose-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 FICHS GP or social services for further advice if required.

6.9. Blood glucose targets

Targets for blood glucose levels should be individualised for each resident by the FICHS GP or diabetes specialist health care provider and discussed/agreed with the resident. Targets should be clearly documented in the residents diabetes passport/care plan and communicated to the staff responsible for their care.

When setting blood glucose targets for residents', safety and well-being are a priority, therefore avoiding symptoms of hypoglycaemia and hyperglycaemia should be at the forefront.

A fasting blood glucose level is a reading taken first thing in the morning when waking and before eating carbohydrate containing food/fluid. It is recommended this level should not be below 6 mmol for residents in the care home setting (Diabetes UK, 2010), as this is considered too low for frail older adults with diabetes and may increase their risk of falls and hypoglycaemia.

KEY POINT

- Residents living with Type 1 diabetes and a small proportion of Type 2 diabetics will need to have their blood glucose levels monitored. For residents who cannot independently monitor, care home staff will need to perform this procedure
- 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

7.0.

Diabetes and Dementia

7.1. Communication and connection

With the progression of dementia, language skills and vocabulary may diminish. As a consequence, communication can become increasingly challenging and frustrating for the person living with dementia. Often they find it difficult to express themselves clearly and/or understand what others say.

Consider adapting your communication style by adapting the following strategies to help residents cope with these changes:

- Face the person and position yourself at eye level.
- Stay still when talking, and in the person's line of vision.
- Avoid competing noises, turn off the TV or radio or turn down the volume.
- Remain calm, talk in a gentle, matter-of-fact way.
- Allow plenty of time for what you have said to be understood and do not rush a response.
- Keep sentences short and simple when discussing or explaining something.
- Try not to interrupt the person when they are speaking.
- Give people time to come up with a word or thought.
- Invite residents to participate rather than instruct them to do things.
- Avoid ordering the person around or argue.
- Use orienting names whenever you can, such as 'Your son John'.
- Respect the person's rights and wishes. Having dementia does not mean a person is incapable of speaking for themselves.
- Consider the person's literacy level when giving them written information.
- Consider using a telephone interpreter, if this might be helpful.

VISION PROBLEMS

Poorly controlled diabetes can lead to damage to eyesight, therefore vision problems are common in people with diabetes. Problems caused by poor vision can be mistaken for signs of dementia. For example, vision problems can lead to confusion or disorientation. It is important to find out if the resident you are supporting has problems with vision and what strategies are in place to manage this. The resident should have their eyesight checked regularly as part of their annual review by an optometrist or ophthalmologist. In addition to glasses, the person may benefit from other devices such as magnifiers, large print diaries, medicine dispensers and talking clocks.

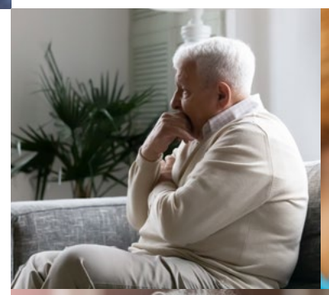
7.2 Supporting a resident living with dementia and diabetes

LINK BETWEEN DIABETES AND DEMENTIA

There is a doubling of risk associated for people living with diabetes developing dementia. Whereas people without diabetes, there risk is approximately 1 in 10. The reasons for this are not fully understood, however is likely to be multifactorial, including:

- High blood glucose levels (hyperglycaemia) can damage the cells and blood vessels in the brain
- When blood vessels in the brain are damaged, brain cells may not get enough oxygen and nutrients to function properly and may die
- Insulin resistance causes the body to produce higher levels of insulin to try to keep blood glucose levels within the normal range. The high levels of insulin can cause damage to blood vessels and cells in the brain
- Diabetes may contribute to the build-up of proteins in the brain associated with Alzheimer's disease. The research that links diabetes and dementia often does not distinguish between diabetes types and it is not clear if the increased risk of dementia is the same for people with type 1 diabetes. However, since anyone can develop dementia, the information in this toolkit about early symptoms and reducing the risk of dementia may also be helpful when supporting people with type 1 diabetes

Dementia is an umbrella term for people suffering from a range of neurological disorders which result in cognitive impairment, memory loss and compromised motor skills. There are more than 100 types of dementia, the most common being Alzheimers, however people will also be familiar with vascular dementia, Parkinson's Disease (PD) and Lewy body dementia. It is a progressive disease where the condition worsens over time and the person may struggle with Activities of Daily Living (ADLs), become disorientated and have difficulty managing social situations. Signs and symptoms of dementia vary from person to person and usually get worse over time. Early symptoms include forgetfulness, repetitiveness, short-term memory loss, and difficulty in finding the right words.



EARLY DIABETES DIAGNOSIS IS IMPORTANT IN DEMENTIA

People living with dementia may be unable to recognise the signs and symptoms of diabetes, which can be compounded further by an inability to articulate the presenting symptoms. Often, infections such as urinary tract infections and thrush are the only signs residents have diabetes.

People with diabetes are encouraged to manage the condition themselves so diagnosing dementia in people who have diabetes will lead to difficulties with self-management and adherence with medication, including giving themselves insulin injections safely. Having both conditions may mean agreeing to higher targets for blood glucose and blood pressure to keep people safe, and help the person and their family to make sensible decisions about the future.

Diagnosing diabetes early in residents who have dementia will ensure they receive regular review and management of the risk factors that can lead to developing diabetes complications, therefore are identified quickly and treated as required. If necessary, medications can be started to relieve the symptoms of high blood glucose which will improve quality of life (e.g. reduce tiredness, frequency of urination, thirst) and avoid hospital admissions for very high blood glucose levels.

HYPOGLYCAEMIA AND DEMENTIA

People with dementia may not be able to recognise symptoms of hypoglycaemia (see section 9), therefore care staff need to be vigilant. If hypoglycaemia is not treated, the person may fall, lose consciousness, choke and can trigger a stroke or heart attack.

Agree safe blood glucose targets which aim to avoid symptomatic high blood glucose levels (hyperglycaemia) but avoid low blood glucose levels (hypoglycaemia). Oral medications which cause hypoglycaemia (sulphonylureas) should be avoided where possible. Ensure regular meals and snacks are provided for people who use insulin.

DIABETES CARE IN DEMENTIA

People living with diabetes for several years may be skilled at managing their own insulin injections and monitoring blood glucose levels, however, the onset of dementia may compromise these skills. People with dementia who develop diabetes may appear to have a worsening of their dementia because of the diabetes symptoms.

ISSUES FOR PEOPLE WITH DEMENTIA WHO DEVELOP DIABETE	ISSUES FOR PEOPLE WITH DIABETES WHO DEVELOP DEMENTIA
• Developing incontinence as they need to pass urine more often but not able to find the toilet. • Increased risk of falls due to more frequent visit to the toilet • Increased confusion if blood glucose levels are high and causing dehydration • Distress if usual diet changed significantly • Distress, wandering, rocking movements, crying if they have pain and are unable to put this into word	• Forgetting to take medications regularly • Forgetting they have taken medication so at risk of double dosing • Forgetting how to do injections • Unable to make decisions about interpreting blood glucose results such as adjusting insulin doses or treating hypoglycaemia • Missing meals and drinks so at risk of low blood glucose levels and dehydration • Forgetting they have eaten and at risk of high glucose levels if they eat again

DIABETES AND DEMENTIA 7.0.

7.3 Person-centred care

Person-centred care makes sure each person receives care in the way they want to be treated. It places the person at the centre of their own care and also considers the needs of the person's family and/or carers.

Principles of person-centred care

1. Get to know the person beyond their diagnosis
2. Support the person to set goals, and to plan and make decisions about their care
3. Be sensitive to values, preferences and expressed needs.
4. Give complete and accurate information in a way the person understands so they can make choices about their care
5. Work together to minimise duplication of services and have one key contact at your agency

In the early stages of dementia, the resident should be fully involved in directing the planning and delivery of their diabetes care. As dementia progresses, the person's capacity to do this is likely to decrease and another person who has power of attorney or guardianship should be involved to advocate for the person. Speak to the person and, where possible, to their partner or family carer to find out:

- How the person currently manages their diabetes (including their target blood glucose levels, medicines, recommended diet and physical activity)
- How dementia affects their diabetes management
- How you can support independence and quality of life
- Other information that they wish to share with you to make your job easier

Important points to consider when developing person-centred care plans for people with diabetes and dementia: Keeping me safe

- Agree appropriate blood glucose levels with FICHS GP or diabetes specialist team. This should avoid the risk of low blood glucose levels (hypoglycaemia) but also avoid glucose levels being so high that symptoms of high blood glucose affect day to day living (such as tiredness, thirst, frequency of urination)
- Be vigilant for signs and symptoms of low blood glucose for resident prescribed insulin or medications (e.g. gliclazide) with a risk of hypoglycaemia. Know how to treat hypos, and ensure appropriate treatments are available
- If they are still able to inject insulin but are forgetful, the carer can keep it in a locked box until it is needed

Personality

- Symptoms of diabetes or the complications of diabetes may be ignored and assumed as personality traits. Loud aggression may be a symptom of low blood glucose for example

Physical health

- Toilet training is a skill learnt at an early age and so is not lost initially but the person may have difficulty in completing the tasks with going to the toilet, resulting in apparent incontinence

Cognitive ability (What can I still do, what do I find difficult)?

- Support self-care (or care given by their partner) as long as possible (e.g. testing blood glucose, injecting insulin). Review self-care ability regularly
- Ask the GP to simplify medication regimes and tablet load, preferably once daily
- Ask the pharmacist about tools to support self-medication such as blister packs. However, these are not helpful in people who have no awareness of time or day

Biography (life story)

- Some people may have had diabetes for a long time

Environment

- Meals should be provided in a calm and distraction free environment – care homes may want to consider protected mealtimes
- Encourage a nourishing diet that provides sufficient energy and protein to maintain optimal body weight and functional status which fits the person's usual meal pattern. Smaller portions of items in their familiar diet optimise nutrition, rather than completely removing foods or making considerable changes to eating patterns
- Verbal and non-verbal communication: use calm tone when speaking, use short sentences with small amounts of information, make time for the person to answer, maintain eye contact

Nutrition

- Residents living with diabetes should eat a healthy balanced diet which includes some starchy carbohydrates at each meal. It is unnecessary to completely avoid simple sugars (e.g. puddings, cakes, sweets, chocolate) from residents' diet, however caution should be exercised when considering frequency and portion sizes of these foods

Barriers to healthy eating in people with diabetes and dementia include the following: Nutrition barriers

- Memory problems – Forget to eat meals or forget that they have already eaten
- Agnosia – May not recognise food, cutlery, or even those caring for them
- Dysphasia – Unable to say they are hungry or feel "hypo" (have low blood glucose)
- Dysphagia – Problems chewing and swallowing
- Dyspraxia – Can impair people's ability to prepare food and to use utensils
- Executive Dysfunction – Impacts on the ability to plan the preparation of food and/or drinks

Training

- It is important for care home staff to receive training about diabetes care in dementia. Improving the knowledge base builds respect and trust between care staff and residents. By being more informed, staff are better equipped to provide excellence in diabetes care, support and show understanding. To assist with diabetes care tasks such as checking blood glucose levels, you may need additional training. With better understanding staff can support a resident and their family to understand their condition, which can make them feel more in control, which may lead to a better quality of life.

DIABETES AND DEMENTIA 7.0.

7.4. Emotional support

SUPPORTING RESIDENTS

Residents with dementia and diabetes may be more at risk of depression and anxiety due to the many challenges associated with living with these conditions. Often there are changes in the dynamics and relationships with the person and their family and friends. People living with diabetes often experience social stigma attached to the condition, with people placing blame believing their condition was self-inflicted by poor lifestyle choices. These factors can have a significant impact on emotional wellbeing. It is important to listen to the resident. If you notice a change in someone's mood, or if they mention feeling depressed or anxious, encourage them to share their concerns and consider if professional support and counselling may be appropriate.

If appropriate, consider suggesting diabetes peer support and/or group education. Group education/peer sessions offer advice and support from professionals and people who have lived with the condition for a long time.

7.5. Practical support

Offering practical support to residents living with dementia and diabetes may be determined by scope of practice and job role. However, expanding your knowledge-base regardless of your role will be helpful for your understanding to share with residents, their family and friends.

Where appropriate, you should encourage, enable and support residents to self-manage their diabetes. Daily diabetes management will involve a careful balance between food, medication, physical activity and blood glucose monitoring (for insulin/sulfonylurea dependent residents) and symptoms of dementia can make this increasingly difficult.

Early-onset of dementia, residents may still be able to manage daily tasks by following simple, regular routines by adopting strategies to remember e.g. written reminders, or timed alarms for blood glucose monitoring and or medications. As disease progression ensues, daily self-management may become increasingly challenging and care home staff may need to support residents with these tasks.

When supporting residents to complete daily tasks, make sure to ask their permission to assist them and if possible support them to do it themselves. Remember, even if residents are unable to do the task independently, they can still be involved to a certain degree. For example, with supervision, they may be able to perform their own finger prick test or observe with discussion.

It can be difficult for residents with dementia to relinquish their independence and accept support from others. In addition, they may not remember why they need an insulin injection or have their finger prick test and often become fearful of the invasiveness. If resistance occurs with diabetes care, reassure the resident by validating their feelings, keep a calm tone and demeanor and explain what you are doing and why it is important. If the resident becomes agitated or upset, give them space, allow them to calm down before approaching again to complete the task.

BLOOD GLUCOSE MONITORING

Blood glucose levels that are very low (hypoglycaemia - see section 9) or very high (hyperglycaemia - see section 10) may cause further damage to the brain. If a person with diabetes has dementia, they will need increasing support in monitoring and managing their blood glucose levels. A resident with dementia will find it difficult to identify symptoms of high or low blood glucose, furthermore this is compounded by an inability to articulate to care staff if they are experiencing symptoms. Staff supporting a person with dementia and diabetes need to learn how to recognise the signs and symptoms (see relevant sections above) and know what treatment is required. Some residents with diabetes may need to check their blood glucose levels daily or several times a day, particularly if they use insulin.

SUPPORTING PHYSICAL ACTIVITY

Residents with diabetes and dementia should be encouraged and supported to continue physical activity for as long as possible. Where physical activity is encouraged and maintained in the early stages of dementia, it is more likely to be maintained as the condition progresses. Care should be taken if a resident hasn't been physically active for some time, and their FICHS GP should be consulted prior to implementing any exercise regime. To avoid risk of injury, ensure good supervision is available and that the person wears appropriate clothes. Good foot care is very important for people with diabetes, so the person should wear appropriate footwear for physical activity and should regularly visit a podiatrist. Participation in physical activity will affect the person's blood glucose level, and if the person uses insulin or sulfonylureas, increasing physical activity may increase their risk of a hypo:

- Before doing any physical activity the person's blood glucose level (for residents on hypo-inducing medications) should be checked
- If blood glucose is low, they will need to eat something before they start the activity to avoid hypoglycaemia
- After finishing the activity, check blood glucose levels again
- If a hypo does occur, this should be treated promptly
- Caution should also be taken with physical activity if blood sugar levels are very high (more than 15 mmol/L)

8.0.

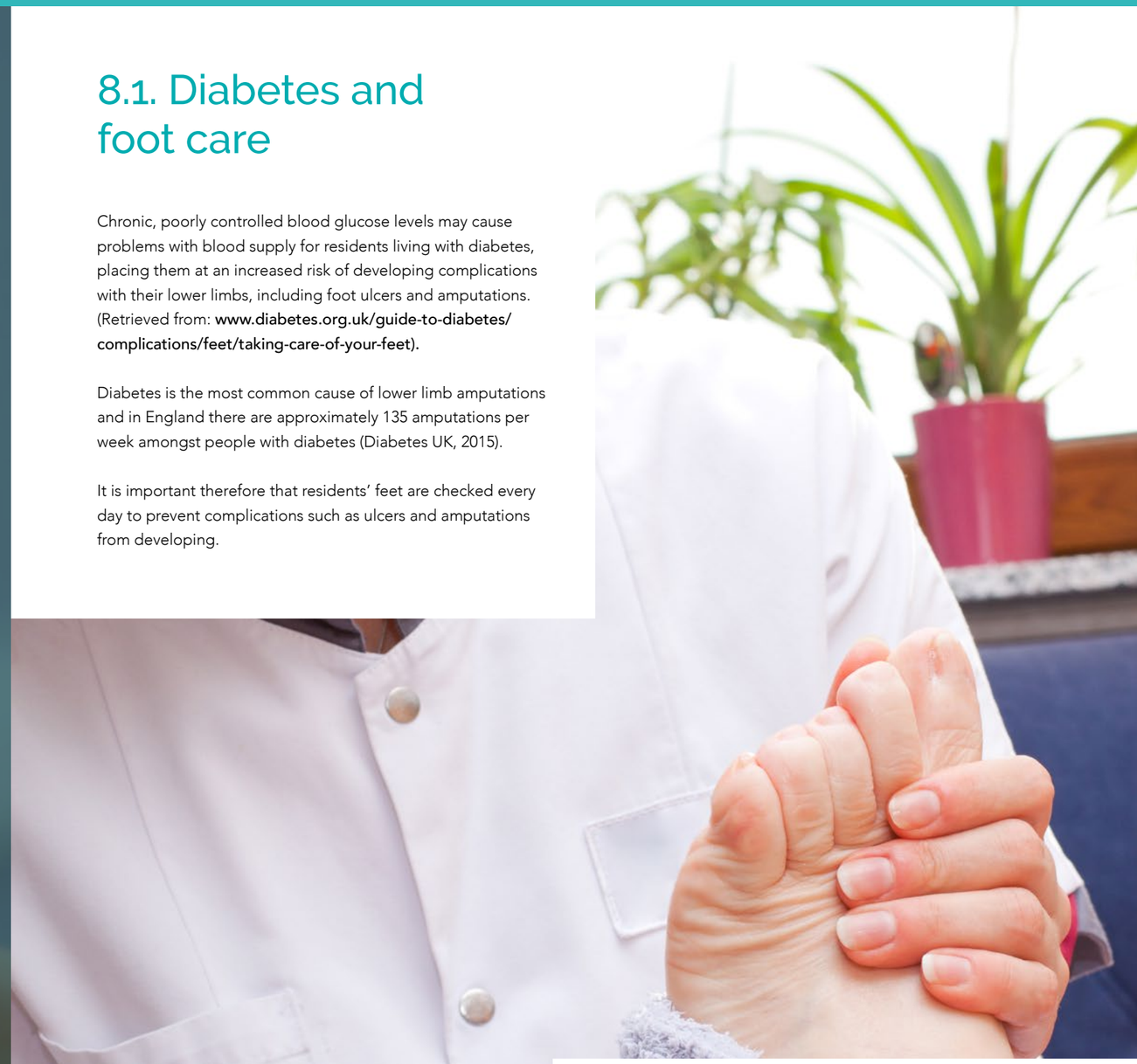
Diabetes and foot care

8.1. Diabetes and foot care

Chronic, poorly controlled blood glucose levels may cause problems with blood supply for residents living with diabetes, placing them at an increased risk of developing complications with their lower limbs, including foot ulcers and amputations. (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.



8.2. Toe nail cutting

It is advised that a HCPC (Health and Care Professionals Council) registered Podiatrist perform routine nail treatment regularly, for example nail care, callus and corn treatments. If staff have any concerns about a resident's nails please discuss with FICHS GP as a referral to one of the hospital podiatrists may be required.

8.3. Essentials of foot care

The following steps are recommended as part of everyday foot care for residents with diabetes:

1. Feet washing

- Ensure resident's feet are washed daily with soap and water, unless directed otherwise, and carefully dried. The temperature of the water should be checked before feet are washed to ensure it is not too hot. Residents with reduced sensation in their feet because of nerve damage may not be able to feel the temperature of the water which may cause damage to the feet and burns to the skin

2. Inspect feet

- Check 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 calluses
- DO NOT use any 'over the counter' or chemical treatments for callus 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

3. 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:

NB. When caring for residents' feet, look out for the following.

Damage to resident nerves might be indicated by:

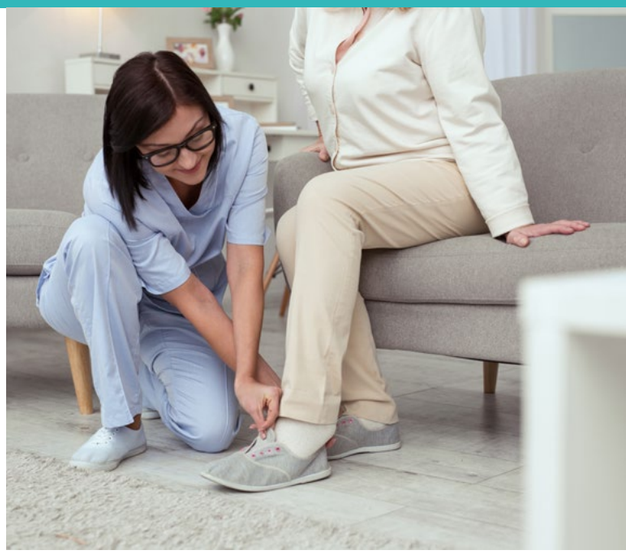
- Tingling sensation; pins and needles
- Pain (burning)
- Sweating less
- Feet that are red and hot to touch
- Changes to the shape of your feet
- Loss of feeling in your feet/legs
- Hard skin

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)

4. 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 they are burning the skin



Damage to residents' 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
- When caring for your feet, what sort of problems

8.3. Diabetic foot problems & urgent care

If residents have any of the following refer to their FICHS 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:

1. You should be asked to remove any footwear, including socks/stockings
2. Your feet should be examined – including looking for corns, calluses and changes in shape
3. Your feet should be tested for numbness or changes in sensation (neuropathy) with a tuning fork or a fine plastic strand called a monofilament
4. You should be asked questions about your feet and diabetes management, including:
5. 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?

6. our footwear should also be examined to make sure it is not causing any problems to your feet.
7. At the end of the foot check, you should be told the results and level of risk of foot problems.
8. 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: https://www.diabetes.org.uk/resources-s3/2017-09/What-to-expect-at-annual-foot-check.pdf

KEY POINTS:

- 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)
- To avoid complications, residents with diabetes should not walk around with bare feet

9.0.

Management of hypoglycaemia (low blood glucose)

9.0. Management of hypoglycaemia (low blood glucose)

Hypoglycaemia or a 'hypo' means a low blood glucose level of 4mmols or less (we use the term 'four is the floor'). This is too low to provide sufficient energy for some of the body's functions (Diabetes UK, 2010 & IDF, 2013).

In older adults, hypoglycaemia can often be more difficult to spot. Residents sometimes lose their awareness that they are having a hypoglycaemic episode. If a hypo goes undetected, it may have fatal consequences. Hypoglycaemia is one of the most important complications which care home staff need to be vigilant for that can affect older adults with diabetes (IDOP, 2014).

Healthcare professionals caring for older adults with diabetes should assess each resident's risk of hypoglycaemia individually and document this in their diabetes passpot/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 (IDF,2013).

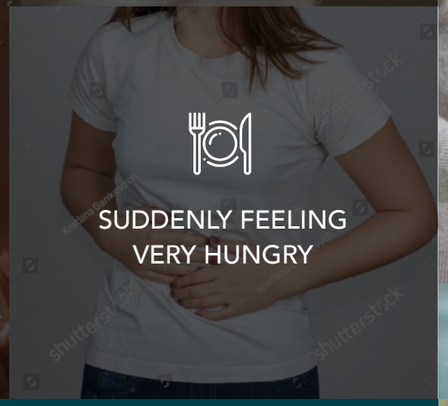
In addition, it is recommended that blood glucose levels below 6mmols should be avoided to minimise the risk of developing hypos (Diabetes UK, 2010 & IDF, 2013).

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

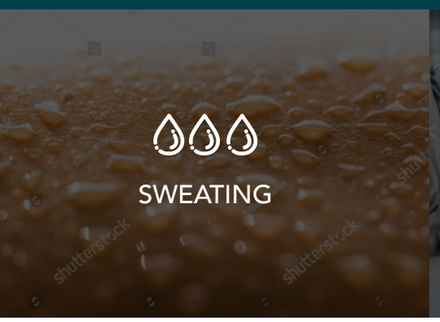
In the event of a severe hypoglycaemic episode, this should trigger an immediate detailed diabetes review including a structured medicine and dietary review (IDF, 2013). Please contact the resident's FICHS GP to assess the resident.

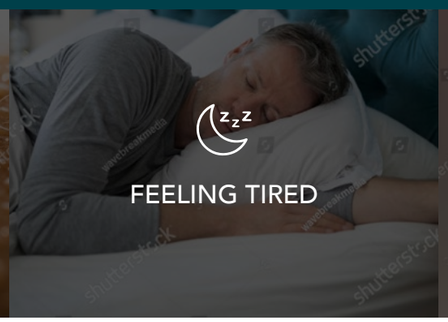
9.1. Signs & symptoms of hypoglycaemia

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



INITIAL/EARLY WARNING SIGNS



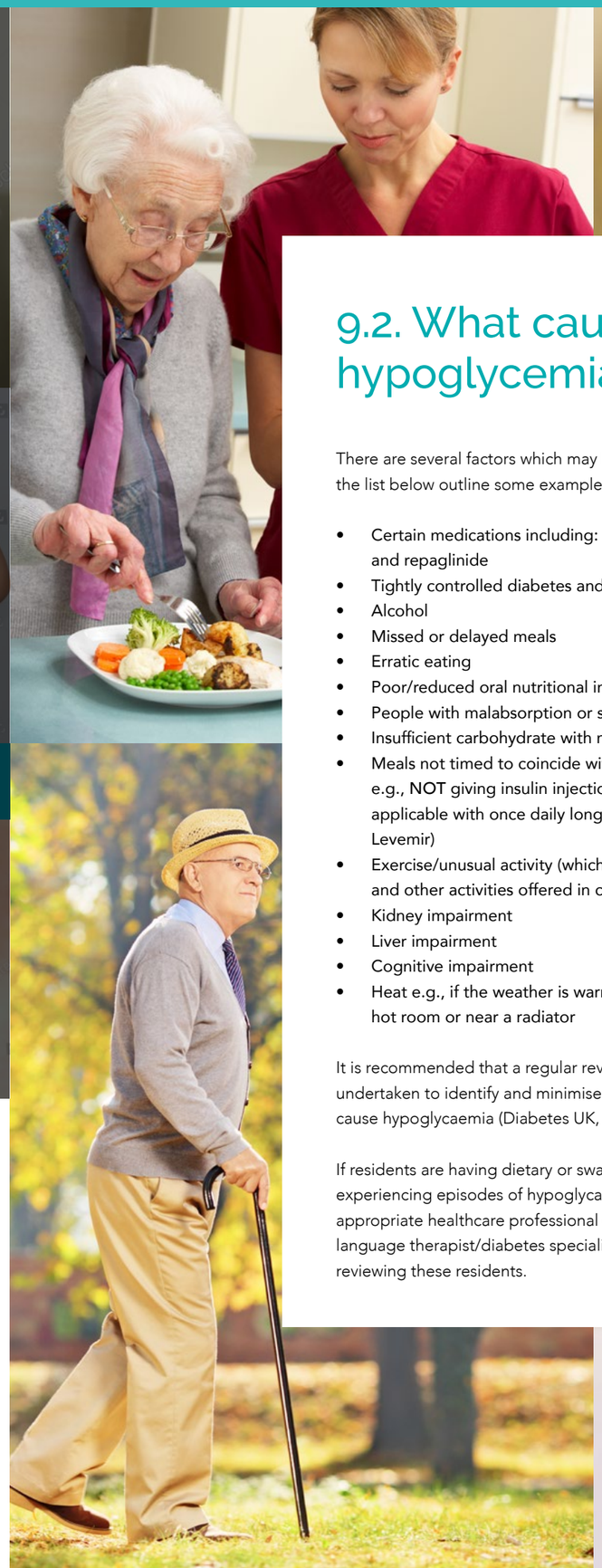


(TREND UK (2011) & Diabetes UK – accessed at: www.diabetes.org.uk/Guide-to-diabetes/Complications/Hypos-Hypers)

Residents who have been living with diabetes for many years may not always present with the early warning signs of hypoglycaemia listed above. For these residents, symptoms of hypoglycaemia may not present until their blood glucose levels fall to around 3mmols or below and for some, may not have any symptoms of hypoglycaemia at all.

When a resident shows any early or late symptoms of hypoglycaemia, please check their blood glucose levels immediately. If their reading is below 4mmol, regardless of the presence of symptoms, the resident should receive immediate treatment.

NB. Hypoglycaemia will not self-correct and will require appropriate intervention from care home staff to treat. See Section 9.3 for recommended treatments of 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.



9.2. What causes hypoglycemia?

There are several factors which may lead to a hypoglycaemic event, the list below outline some examples:

- Certain medications including: insulin, gliclazide, nateglanide and repaglinide
- Tightly controlled diabetes and blood glucose levels.
- Alcohol
- Missed or delayed meals
- Erratic eating
- Poor/reduced oral nutritional intake
- People with malabsorption or swallowing issues
- 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 appropriate healthcare professional (i.e. dietitian/speech and language therapist/diabetes specialist nurse) are involved in reviewing these residents.

9.3. How to treat 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 LucozadeTM ** (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 gives the resident 100mls of Lucozade. If the label states carbohydrate per 100ml, 8.9g gives 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 has 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 4 mmol, please dial 999 and ask for urgent paramedic assistance.

STEP THREE

If, however, the resident's blood glucose does come up above 4 mmol 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 NOT 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.

9.4. Swallowing difficulties

If a resident is experiencing swallowing difficulties or unable to swallow and has a deteriorating level of consciousness, please **DO NOT** give any treatments orally. If staff are trained,the resident should be placed in the recovery position and an intramuscular injection of glucagon may be administered. **In the event that staff are not trained to administer glucagon, dial 999 and ask for urgent paramedic assistance.**

In the event a resident experiences severe hypoglycaemia, this should trigger a comprehensive diabetes review, including structured medicines management and dietary review (IDF, 2013). Contact the FICHS GP if a resident has more than one hypoglycaemic episode, to review possible underlying causes and to review medications. I f a resident is prescribed insulin and has had a hypoglycaemic episode, please DO NOT stop administering insulin unless you have been advised to do so by a FICHS GP or specialist health care provider e.g. Diabetes Specialist NUrse or Diabetologist Consultant. The insulin dosage may need to be adjusted rather than discontinued, however always seek specialist advice before altering any regimen.