Northern Lincolnshire and Goole NHS Foundation Trust

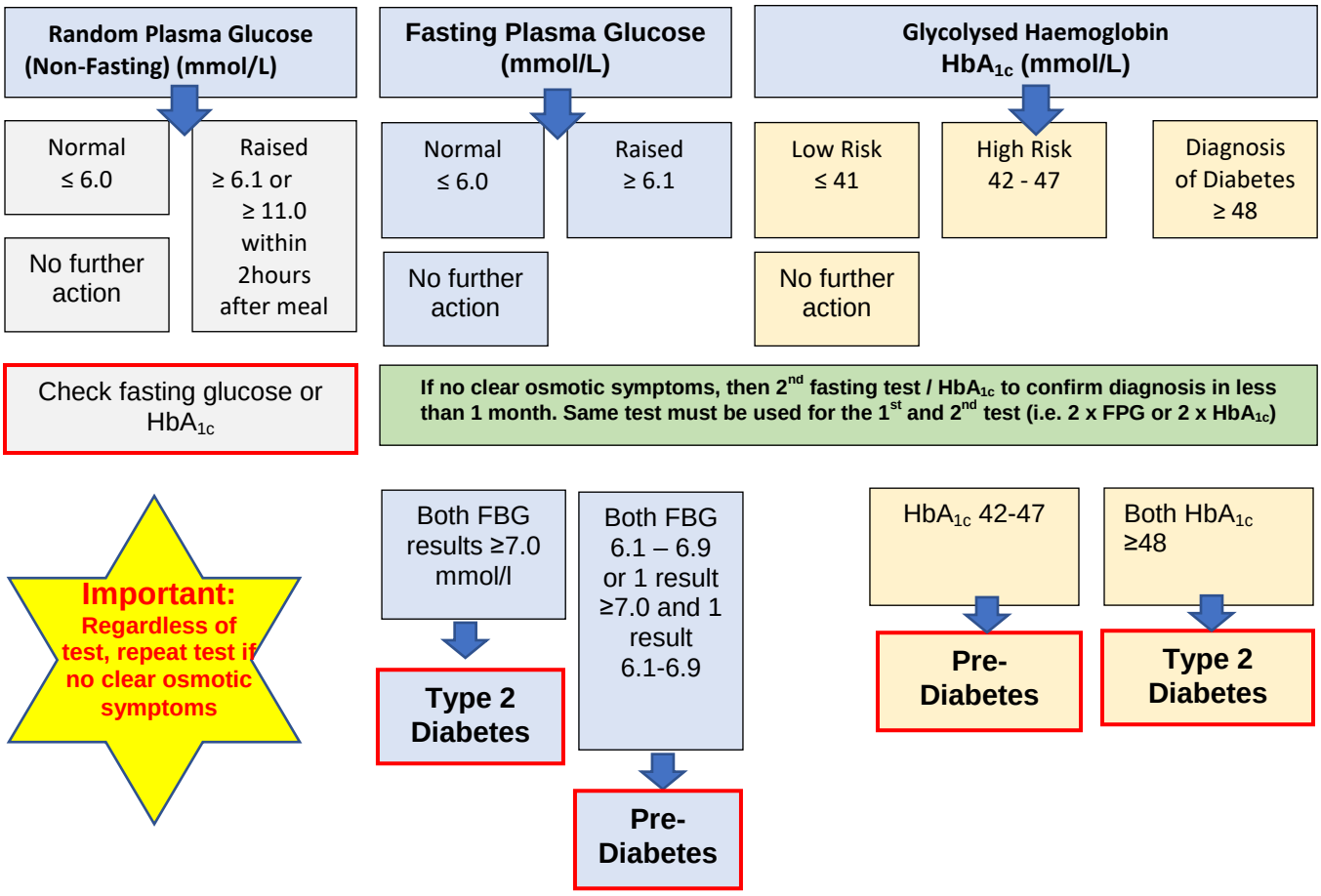
Directorate of Operations
Medicine

CARE PATHWAY FOR TYPE 2 DIABETES MANAGEMENT

Reference:	DCM590
Version:	1.0
This version issued:	23/12/21
Result of last review:	N/A
Date approved by owner (if applicable):	N/A
Date approved:	09/12/21
Approving body:	Northern Lincolnshire Area Prescribing Committee
Date for review:	December, 2024
Owner:	Dr Prasad Pothina, Consultant Diabetes & Endocrinology / Paul Dromgoole, Diabetes Specialist Nurse
Document type:	Miscellaneous
Number of pages:	12 (including front sheet)
Author / Contact:	Dr Prasad Pothina, Consultant Diabetes & Endocrinology / Paul Dromgoole, Diabetes Specialist Nurse

Diabetes diagnosis pathway

Consider Screening in the following groups:
Risk Factors – Obesity, Ethnicity – Black / South Asian, Age over 40, High risk of CVD, Hypertension, Family History of Diabetes, Previous Gestational Diabetes, Steroid Use, PCOS
Symptomatic Patients – Polyuria, Polydipsia, Weight Changes, Nocturia, Urinary Incontinence, Fatigue, Lethargy, Frequent Infections, Sepsis, Blurred vision
If Acutely Unwell – check CBG & Ketones for suspected Type 1 Diabetes



PRE-DIABETES
Impaired Fasting Glucose: Fasting venous plasma glucose ≥ 6.1 - < 7.0 mmols/l. An important opportunity for the individual to address lifestyle issues and potentially reverse their diagnosis.
Refer to local diabetes prevention programme and / or on-line hard copy educational motivational resources.

CBG - Capillary Blood Glucose, CVD - Cardiovascular Disease, PCOS - Polycystic Ovarian Syndrome, FPG - Fasting Plasma Glucose, FBG - Fasting Blood Glucose

Care pathway for glucose lowering therapy in Type 2 Diabetes

METFORMIN & strong lifestyle measures, including diet, activity & smoking cessation

1st Line — **Type 2 Diabetes: HbA_{1c} ≥ 48mmol/L (repeated if asymptomatic)**

Individualised HbA_{1c} or Default HbA_{1c} < 58

2nd

Established ASCVD or HF or CKD			No Established ASCVD or HF or CKD				
Established ASCVD	Heart Failure	CKD	Weight Loss	Minimising Hypo	Elderly Frailty	Minimising Cost	
GLP1RA[1,2] /SGLT2	SGLT2i[4] / GLP1RA	SGLT2i[4]	GLP1RA[1,2]	DPP4i	DPP4i [6]	SU	

Individualised HbA_{1c} or Default HbA_{1c} < 58

3rd Line							
SGLT2i[4]/ GLP1RA	GLP1 RA[1,2]/SGLT2i	GLP1RA[1,2]	SGLT2i	SGLT2i	SGLT2i	TZD[7]	

Individualised HbA_{1c} or Default HbA_{1c} < 58

4th Line						
Analogue basal or biphasic Insulin[5]	TZD[7]	GLP1RA	GLP1RA	Basal Insulin		

Individualised HbA_{1c} or Default HbA_{1c} <58	Individualised HbA_{1c} or > 64	Individualised

ASCVD - Atherosclerotic Cardiovascular Disease
HF – Heart Failure
CKD – Chronic Kidney Disease
GLP1RA- GLP1 receptor Agonist (injectable or oral)
SGLT2i – SGLT2 inhibitor or Gliflozin
DPP4i – DPP4 inhibitor or Gliptin
TZD – Thiazolidinedione or Glitazone
SU – Sulphonylurea
Carb - Carbohydrate

Basal or biphasic insulin[5] or if patient motivated, consider secondary care referral for carb' based Multiple Injection Therapy.

Basal Insulin at lowest effective dose

Analogue basal or biphasic Insulin[5]

Failure of 4th line-therapy and HbA_{1c} above personalised target – consider referral to secondary care diabetes service for advice and / or One Stop Diabetes Clinic.

Annotation for Care pathway for glucose lowering therapy in Type 2 Diabetes

1. GLP1 Receptor Agonists: Liraglutide (Victoza), Exenatide bd (Byetta), Exenatide qw (Bydureon), Lixisenatide (Lyxumia), Dulaglutide (Trulicity), Semaglutide Injectable (Ozempic), Semaglutide tablets (Rybelsus).

2. GLP1 RA with proven CVD benefit: Liraglutide (LEADER Study), Semaglutide Injectable (SUSTAIN 6 Study) & Dulaglutide (REWIND Study).
   a. Dulaglutide: Cardiovascular protective in prior and no prior CVD (REWIND Study).
   b. Oral Semaglutide (Rybelsus) - SOUL Study ongoing and not expected to complete until 2024.

3. GLP1 receptor agonists with proven weight loss benefit: Best to least order – Semaglutide > Dulaglutide > Exenatide qw > Liraglutide > lixisenatide.
   Note: Dulaglutide now available at (higher) 3.0 and 4.5mg weekly doses.

4. SGLT2 inhibitors with proven CVD benefit – Canagliflozin, Dapagliflozin, Empagliflozin.*****
   SGLT2 inhibitors with evidence for reduction in hospitalisation for Heart Failure (HHF) in secondary (CV) prevention: Canagliflozin, Dapagliflozin, Empagliflozin.
   SGLT2i inhibitor with reduction in hospitalisation for heart failure (HHF) in patients with no prior CV event – Dapagliflozin, Empagliflozin.
   SGLT2 inhibitor with proven benefit in Chronic Kidney Disease (CKD): Canagliflozin, Dapagliflozin, Empagliflozin.
   SGLT2 inhibitor Ertugliflozin (Steglatro) also marketed within the UK.
   SGLT1/2 Inhibitor Sotagliflozin (Zynquista) not considered in the pathway at the present time as not on local formulary.

   ***Important note: SGLT2i's are described above in alphabetical order not in 'strength of evidence' or 'preferential use' order.**

5. Analogue insulins: Basal - Degludec (Tresiba) U100 or Glargine (Lantus), Abasaglar. Biphasic insulins – Novomix (30). Humalog Mix (25) Humalog Mix (50).

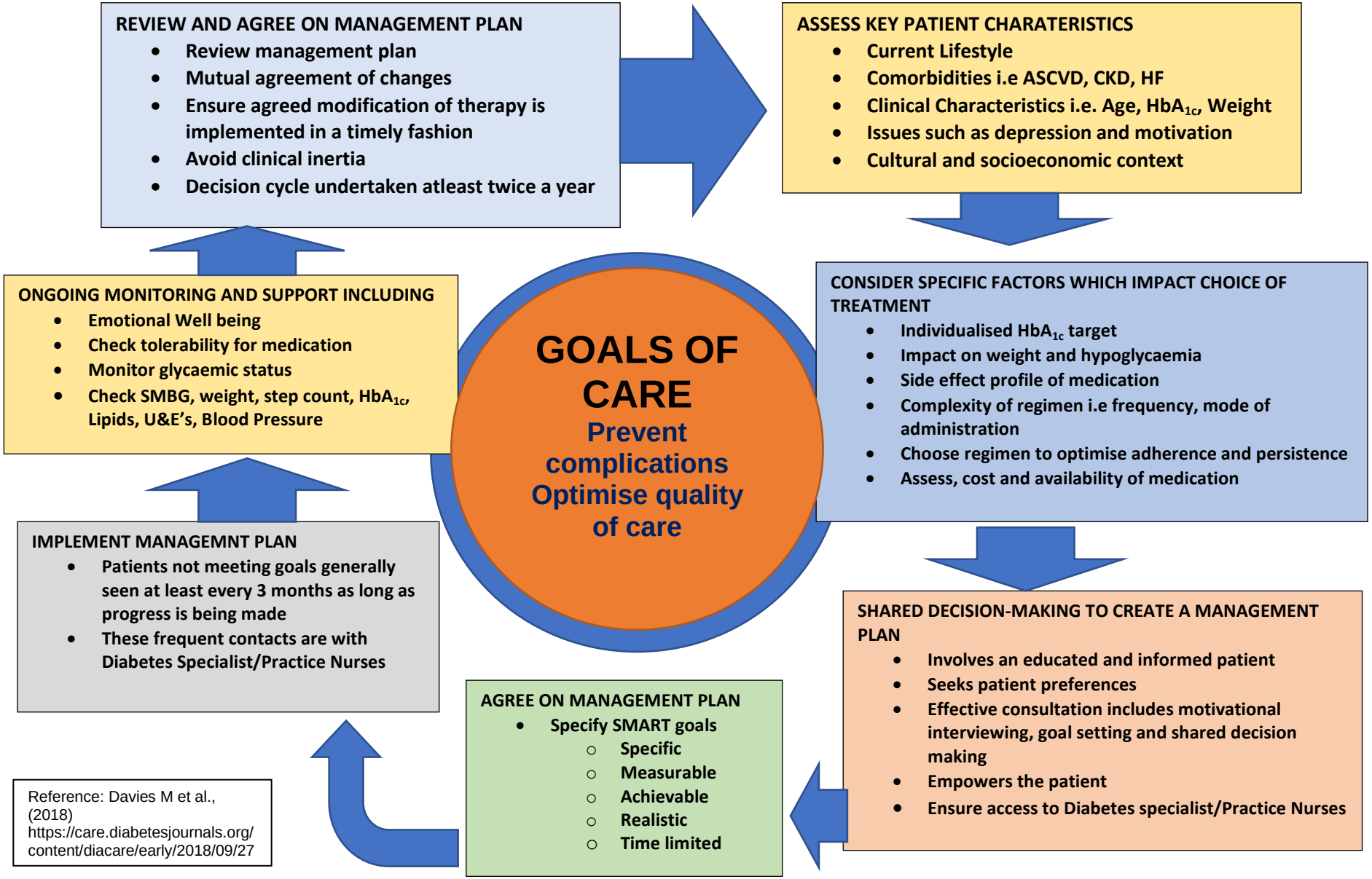
6. Note Saxagliptin - slight increased risk of hospitalisation for heart failure.

7. Thiazolidines: Pioglitazone – smaller dose is better tolerated, not studied for CVD benefits, watch for fluid retention and discontinue if problematic.

References:

Note: Individual Summary of Product Characteristics (SmPC) for GLP1 RA and SGLT2i describe glucose lowering and weight loss efficacy and also key findings from Cardiovascular Outcomes Trials (CVOT's) and in relation to SGLT2i also renal outcome studies. Please consult respective SmPC for eGFR cut-off.

DECISION CYCLE FOR THE PATIENT CENTRED GLYCAEMIC MANAGEMENT IN TYPE 2



Reference: Davies M et al., (2018) https://care.diabetesjournals.org/content/diacare/early/2018/09/27

Type 2 Diabetes Management Pointers

Treatment of Hyperglycaemia

1. Start with Metformin and lifestyle measures and gradually titrate up
2. If unable to tolerate the Metformin go to level in the flow chart
3. Only prescribe one agent from each class
4. Substituting agents is unlikely to improve the glucose control.
5. Addition of third agent to a combination of 2 oral hypoglycaemic agents taken at maximally tolerated doses is to be considered for Cardiovascular benefit and to prevent hypoglycaemia or in frail and elderly patients
6. For a person on dual therapy with HbA_{1c} >75mmol/L consider adding biphasic insulin

Individualised Care

1. Follow the pathway as above
2. Consider the following approach
    a. Age – less stringent HbA1c targets with increasing age
    b. Body weight
    c. Complications
    d. Duration of disease

Avoiding Clinical (Therapeutic) Inertia

1. Robust evidence exists* that diabetes treatment lags behind need, with HbA_{1c} frequently drifting higher over time as beta cell decline progresses and potentially insulin resistance increases. Barriers from both health professionals may be time, resources, confidence in 'next step' decision making and perhaps collusion with patient reluctance to move forward. Barriers from patients may relate to 'pill burden', belief that more medication means 'worse diabetes', side-effects or perceived side effects of medication, over-optimism regarding impact of lifestyle approaches. Potential interventions may be:

a. Risk vs benefit discussions: No perception of risk, no benefit of intervention.
b. 3 month review of HbA_{1c} around treatment intensification.
c. Informal contracting: "Let's agree an HbA_{1c} target for 3 months' time and if not achieving target, can we agree to move to the next step of intensification?"

Patient Education

1. Offer DESMOND structured education programme

Physical Activity

1. Improves glucose control and lowers cardiovascular risk
2. Encourage to perform 150 minutes of moderate intensity physical activity in a week or personalised, stepwise increase in patient's current activity levels, or personalised strategies.

Lipid Management

1. Follow the local guidance

Anti-platelet therapy

1. Do not offer antiplatelet therapy for adults with type 2 diabetes without prior cardiovascular event (ASCEND Study)

HbA_{1c} Measurement

1. Every 3 months – until HbA_{1c} is achieved & stable after changing therapy
2. Every 6 months – once the HbA_{1c} level is stable on glucose lowering therapy

Self-monitoring of blood glucose (SMBG) – NICE recommendations – Use local guidance

Do not routinely offer SMBG for adults with type 2 diabetes unless:

- the person is on insulin **or**
- there is evidence of hypoglycaemic episodes **or**
- the person is on oral medication that may increase their risk of hypoglycaemia while driving or operating machinery **or**
- the person is pregnant or is planning to become pregnant.

Consider **short-term** SMBG (and review treatment as necessary):

- When starting treatment with oral or intravenous corticosteroids or
- To confirm suspected hypoglycaemia

Be aware that adults with type 2 diabetes who have acute intercurrent illness are at risk of worsening hyperglycaemia and review their treatment as necessary

* Andreozzi, F., Candido, R., Corrao, S. *et al.* Clinical inertia is the enemy of therapeutic success in the management of diabetes and its complications: a narrative literature review. *Diabetol Metab Syndr* **12,** 52 (2020). https://doi.org/10.1186/s13098-020-00559-7

Renal Function						Hepatic Impairment		
Drug	**CKD 1 & 2 (eGFR>60)**	**CKD 3a (eGFR 59-45)**	**CKD 3b (eGFR 44-30)**	**CKD 4 (eGFR 29-15)**	**CKD 5 (eGFR<15)**	**Mild**	**Moderate**	**Severe**
Metformin / Metformin MR			**Review**					
Gliclazide				**Use Lowest effective dose**				
Glimiperide				**Use lowest effective dose**				
Pioglitazone					**Not in dialysis**			
Dapagliflozin (See heart failure below)					**Do not initiate if eGFR <15**			
Canagliflozin		**Initiate at 100mg od.**	**If Albumin Creatinine Ratio (ACR) ≥ 30, initiate 100mg at eGFR >30ml/min continue to ESRD. If ACR <30, discontinue 100mg at 30ml/min.**					
Empagliflozin (See heart failure below)		**Do not initiate, discon' eGFR <45**	**Discontinue**					
Ertugliflozin		**Do not initiate, discon' eGFR <45**	**Discontinue**					

EMPAGLIFLOZIN 10mg od in Heart Failure:
For treatment of **heart failure** in patients with or without type 2 diabetes mellitus, Empagliflozin 10 mg may be initiated or continued down to an eGFR of 20 ml/min/1.73 m^2 or CrCl of 20 ml/min.' *(Empagliflozin SmPC accessed 24/09/2021)*

DAPAGLIFLOZIN 10mg od in Renal impairment :
No dose adjustment is required based on renal function. It is not recommended to initiate treatment with Dapagliflozin in patients with an estimated glomerular filtration rate (eGFR) < 15 mL/min/1.73m^2. *(Dapagliflozin SmPC accessed 24/09/2021)*

DAPAGLIFLOZIN 10mg od in Heart failure:
Dapagliflozin (Forxiga) is indicated in adults for the treatment of symptomatic chronic heart failure with reduced ejection fraction. The recommended dose is 10mg Dapagliflozin once daily. (*Dapagliflozin SmPC accessed 24/09/2021)*

Renal function						Hepatic Impairment		
Drug	**CKD 1 & 2 (eGFR>60)**	**CKD 3a (eGFR 59-45)**	**CKD 3b (eGFR 44-30)**	**CKD 4 (eGFR 29-15)**	**CKD 5 (eGFR<15)**	**Mild**	**Moderate**	**Severe**
Sitagliptin	**100mg**	**100mg**	**50mg**	**25mg**	**25mg**			
Linagliptin	**5mg**	**5mg**	**5mg**	**5mg**	**5mg**			
Saxagliptin	**10mg**	**5mg**	**2.5mg**	**2.5mg Use with caution**			**Use with Caution**	
Vildagliptin	**100mg**	**50mg eGFR<50**	**50mg**	**50mg**	**50mg Limited Experience**			
Alogliptin	**25mg**	**12.5mg eGFR<50**	**12.5mg**	**6.25mg**	**6.25mg**			
Repaglinide				**Use with caution**	**Use with caution**			
Insulin				**Dose Adjustment**	**Dose Adjustment**	**Dose Adjustment**	**Dose Adjustment**	**Dose Adjustment**

Renal Function						Hepatic Impairment		
Drug	**CKD 1 & 2 (eGFR>60)**	**CKD 3a (eGFR 59-45)**	**CKD 3b (eGFR 44-30)**	**CKD 4 (eGFR 29-15)**	**CKD 5 (eGFR<15)**	**Mild**	**Moderate**	**Severe**
Lixisenatide		**Use with Caution eGFR<50**	**Use with caution**					
Liraglutide								
Exenatide			**Conservative dose escalation**					
Exenatide QW		**Not recommended if eGFR<50**						
Dulaglutide								
Semaglutide (Injectable and oral)								
Albiglutide								

1.0 Equality Act (2010)

1.1 Northern Lincolnshire and Goole NHS Foundation Trust is committed to promoting a pro-active and inclusive approach to equality which supports and encourages an inclusive culture which values diversity.

1.2 The Trust is committed to building a workforce which is valued and whose diversity reflects the community it serves, allowing the Trust to deliver the best possible healthcare service to the community. In doing so, the Trust will enable all staff to achieve their full potential in an environment characterised by dignity and mutual respect.

1.3 The Trust aims to design and provide services, implement policies and make decisions that meet the diverse needs of our patients and their carers the general population we serve and our workforce, ensuring that none are placed at a disadvantage.

1.4 We therefore strive to ensure that in both employment and service provision no individual is discriminated against or treated less favourably by reason of age, disability, gender, pregnancy or maternity, marital status or civil partnership, race, religion or belief, sexual orientation or transgender (Equality Act 2010).

2.0 Freedom to Speak Up

Where a member of staff has a safety or other concern about any arrangements or practices undertaken in accordance with this guideline, please speak in the first instance to your line manager. Guidance on raising concerns is also available by referring to the Trust's Freedom to Speak Up Policy and Procedure (DCP126). Staff can raise concerns verbally, by letter, email or by completing an incident form. Staff can also contact the Trust's Freedom to Speak Up Guardian in confidence by email to nlg-tr.ftsuguardian@nhs.net. More details about how to raise concerns with the Trust's Freedom to Speak Up Guardian or with one of the Associate Guardians can be found on the Trust's intranet site.