Chapter 6. Endocrine System			
National and Local Guidelines	WECCG Clinical Guidelines and Prescribing Formularies: Endocrine System		
	NICE: Type 2 diabetes in adults: Management		
	NICE TA 464: Bisphosphonates for Treating Osteoporosis		
	MHRA Guidance: Bisphosphonates: Use and Safety		
Chapter 6. Endocrine System			
BNF Paragraph	*Formulary Choices*	*Strength and Form*	*Additional Comments*
1. Antidiuretic Hormone Disorders			
1.1 Diabetes Insipidus			
Pituitary and hypothalamic hormones and analogues	Desmopressin	100mcg Tabs, 200mcg Tabs, 10mcg/dose nasal spray	
		Noqdirna®	MOPB April 2018 not to be prescribed in primary or secondary care until evaluated at MOPB
	Vasopressin	**Specialist Prescribing Only**	
1.2 Syndrome of inappropriate antidiuretic hormone secretion			
Selective Vasopressing V2- Receptor Antagonist	Tolvaptan	**Tolvaptan is NOT RECOMMENDED for primary care prescribing or monitoring**	Tolvaptan MOPB Decision Jan 2016 Hyponatraemia secondary to SIADH Tolvaptan for treating autosomal dominant polycystic kidney disease NICE TA 358
2. Corticosteroid Responsive Conditions			
Glucocorticoid Therapy			
Corticosteroid Replacement Therapy	Fludrocortisone	100mcg Tablets	Specialist Initiation Only. May also be used unlicensed for postural hypotension under shared care
Corticosteroids (Systemic)	Prednisolone	1mg, 5mg, 25mg and 5mg disp Tablets	Enteric coated tablets are NOT RECOMMENDED for prescribing , More expensive, no advantages over plain tablets
	Dexamethasone	500mcg, 2mg Tabs, 2mg/5ml oral solution,4mg/ml Injection	Used to treat nausea and vomiting with chemotherapy
	Hydrocortisone	10mg, 20mg Tablets, 100mg Injection as sodium succinate, 100mg inj as sodium phosphate	
	Betamethasone	500mcg Soluble Tabs	
	Triamcinolone	40mg/ml inj	Used for intraarticular treatments.
	Methylprednisolone	2mg, 4mg, 16mg, 100mg Tablets,	
	Methylprednisolone Acetate	80mg/2ml Inj	Acetate (Depo-Medrone) is for IM injection
	Methylprednisolone Sodium Succinate	40mg, 500mg, 1G Injection	sodium succinate (Solu-Medrone) is for IV injection.

3. Diabetes Mellitus and Hypoglycaemia			
3.1 Diabetes Mellitus			
Blood Glucose Lowering Drugs			
Biguanides	Metformin	500mg tabs, metformin 850mg tablets 500mg MR Tabs, 750mg MR Tabs, 1G MR Tabs, metformin oral solution	Modified release formulation should only be in patients who cannot tolerate immediate release formulations. Oral solution only for patients with swallowing difficulties
Dipeptidylpeptidase-4-Inhibitors (DPP4 inhibitors)	Linagliptin	5mg tabs	No dose adjustment required in renal failure
	Sitagliptin	25mg, 50mg, 100mg tabs	
Glucagon-Like Peptide-1 Receptor Agonists (GLP-1 Agonits)	Dulaglutide	750 mcg/0.5ml, 1.5mg/0.5ml PFS	Semaglutide specialist initiated as increased risk of diabetic retinopathy
	Exenatide	5mcg, 10 mcg PFP, 2mg powder and solvent for sust-release susp for inj, 4 x pre-filled pen	
	Liraglutide	6mg/mL prefilled pens	
	Semaglutide	0.25mg, 0.5mg, 1mg pre-filled pens	
	Lixisenatide	10mcg, 20mcg prefilled pens	
Meglitinides	Nateglinide	60mg, 120mg, 180mg tabs	Only for existing stable patients. Poorly controlled patients review with NG28. Nateglinide is not considered in NG 28 Nateglinide is only licensed for combination therapy with metformin in type 2 diabetic patients inadequately controlled despite a maximally tolerated dose of metformin alone.
	Repaglinide	500mcg, 1mg, 2mg tabs	If metformin is contraindicated or not tolerated, repaglinide is both clinically effective and cost effective in adults with type 2 diabetes. However, discuss with any person for whom repaglinide is being considered, that there is no licensed non-metformin-based combination containing repaglinide that can be offered at first intensification. NG 28
Sodium Glucose Co-transporter 2 inhibitors (SGLT-2 Inhibitors	Ertugliflozin	5mg , 15mg tabs	**MOPB April 2019** NICE TA572 Ertugliflozin as monotherapy or with metformin for treating type 2 diabetes **MOPB September 2019** NICE TA583 Ertugliflozin with metformin and a dipeptidyl peptidase-4 inhibitor for treating type 2 diabetes

	Canagliflozin	100mg, 300mg tabs	
	Dapagliflozin	5mg, 10mg tabs	
	Empagliflozin	10mg, 25mg tabs	
Thiazolidinedionees	Pioglitazone	15mg, 30mg, 45mg tabs	
Insulins			
Rapid acting insulins - human	First line- soluble Insulin - HUMAN	10ml vial, 3ml pen cartridge/pen	Actrapid®, Humulin S®, Insuman® Rapid
	Second line - Insulin glulisine - ANALOGUE	10ml vial, 3ml pen cartridge/pen	Apidra®
	Second line-insulin aspart - ANALOGUE	10ml vial, 3ml pen cartridge/pen	Novorapid®
		10ml vial, 3ml pen cartridge/pen	Fiasp® Initiated and monitored by an endocrinologist for 3 months, if beneficial, GP can take over prescribing in primary care. MOPB December 2017
	Second line - insulin lispro - ANALOGUE	10ml vial, 3ml pen cartridge/pen	Humalog®
Intermediate-Acting Insulins	Isophane Insulin - HUMAN	10ml vial, 3ml pen cartridge/ pen/ Innolet	Humulin I®, Insulatard®; Insulatard InnoLet device can be useful for those with dexterity problems
	Biphasic Isophane Insulin - HUMAN	10ml vial, 3ml pen cartridge/pen	Humulin M 3®, Insuman®Comb 15, Insuman®Comb 25, Insuman®Comb 50
Intermediate-Acting combine with Rapid Acting	Biphasic insulin aspart - ANALOGUE	3ml pen cartridge/pen	Novomix®30
	Biphasic insulin lispro - ANALOGUE	10ml vial, 3ml pen cartridge/pen	Humalog Mix25®, Humalog Mix50®
Long Acting Insulins	Insulin Detemir - ANALOGUE	10ml vial, 3ml pen cartridge/ pen/ Innolet	Levemir®; InnoLet device can be useful for those with dexterity problems
	Insulin Glargine - ANALOGUE	10ml vial, 3ml pen cartridge/pen Prescribe by brand only	**Abasaglar 1st Line**: https://westessexccg.nhs.uk/your-health/medicines-optimisation/clinical-prescribing-guidance/6-endocrine-system
		10ml vial, 3ml pen cartridge/pen	Lantus®

Long Acting Insulins	Insulin Glargine - ANALOGUE	1.5ml pen cartridge/pen (Solostar®)	Toujeo®: Restricted to those patients, over the age of 18 years, with type 1 or type 2 diabetes who fulfil the following criteria: • Patients with significant hypoglycaemia, despite optimal adjustments of lifestyle (eliminating any contributory factors), diet (undertaken structured education, e.g. DAFNE), and basal insulin/multiple daily injections and who fulfil the criteria for insulin pump therapy. • "Chaotic patients" who may be at significant risk of diabetic ketoacidosis (DKA) or hyperosmolar hyperglycaemic state (HHS) (previously known as hyperosmolar non–ketotic diabetic state or hyper HONK) if daily basal insulin is missed, despite optimal adjustments of lifestyle, and diet and optimising basal insulin/multiple daily injections. • Patients with psychological problems (e.g. eating disorders or patients with intermittent compliance issues with insulin injections), who are not supervised by a daily carer and do not qualify to receive district nurse injections of daily insulin glargine, and who may be at significant risk of DKA or HHS if daily basal insulin is missed. • Patients with a diagnosed allergy to either insulin detemir or insulin degludec. • Patients with mild to moderate insulin resistance (≥1-2units/kg/day) when treatment is initiated by a consultant Diabetologist. Patients with severe insulin resistance requiring very large daily doses of insulin (≥3units/kg/day) could be considered for Insulin glargine 300units/ml (Toujeo®) when treatment is initiated by a consultant Diabetologist in a tertiary centre specialising in insulin resistance.

Long Acting Insulins	Insulin Glargine	10ml vial, 3ml pen cartridge/pen	Dose adjustments by the Specialist only Specialist initiation only, transferred to the GP only after 3 months when patients have proven benefit in HbA1c and stable with prescribing support document HbA1c measured by Specialist prior to transfer. Prescribe by brand only. Prescribing Support Document Availble on the website MOPB June 2018
Long Acting Insulins	Insulin Degludec (Tresiba)	3ml pen cartridge/ pen	Restricted to those patients with uncontrolled HbA1c (>7.5%/ 58 mmol/mol) who require basal insulin and have:- high insulin dose with significant insulin resistance (>1unit insulin/kg) and/or experiencing recurrent episodes of severe nocturnal hypoglycaemia. **Specialist initiation only**, transferred to the GP only **after 3 months when patients have proven benefit in** HbA1c and stable with prescribing support. HbA1c measured by Specialist prior to transfer. **Prescribe by brand only** **Prescribing Support Document availble on website**
Blood Glucose Monitoring: Referto blood Glucose Monitoring Guidelines Available on the WECCG Website			
https://westessexccg.nhs.uk/your-health/medicines-optimisation-and-pharmacy/clinical-guidelines-and-prescribing-formularies/06-endocrine-system			
3.2 Hypoglycaemia			
Glucagon Treatment of Hypoglycaemia Patients will normally be able to recognise and self-treat hypoglycaemia themselves with fast acting Carbohydrate e.g. 2 teaspoons of sugar, small glass of fruit juice, sugary drinks or 4 glucose tablets. This would be followed by the next meal if due or a snack e.g. sandwich, fruit or biscuits.	1st line-Glucose	40% Oral Gel	Diabetes UK and trend-uk.org are useful websites with resources for patients which are used by Princess Alexandra Hospital (PAH) and EPUT
	Second line-Glucagon	1mg pre-filled syrringe	Diabetes UK and Trend-uk.org are useful websites with resources for patients which are used by Princess Alexandra Hospital (PAH) and EPUT

4. Disorders of Bone Metabolism			
Bisphosphonates	Alendronic Acid	10mg tablets, 70mg tablets	
	Risedronate Sodium	5mg tablets, 30mg tabs, 35mg tablets	
	Zoledronic Acid	5mg/100ml solution for infusion	5mg over at least 15 minutes ONCE a year
Bone Resorption Inhibitors	Calcitonin	50iu/ml, 100iu/ml, 200iu/ml	
	Raloxifene		Specialist Initiation Only
Parathyroid Hormones & Analogues	Teriparatide		20mcg daily for maximum duration of treatment 24 months. Course not to be repeated. Secondary care prescribing only
Monoclonal Antibodies	Denosumab		60mg every 6 months. First dose to be administered in secondary care then passed to primary care under shared care agreement.
5. Dopamine Responsive Conditions			
Specialist Prescribing Only			
6. Gonadotrophin Responsive Conditions			
Gonadotrophin Releasing Hormones	Restricted- Goserelin		Specialist initiation
	Restricted- Leuprorelin		Specialist initiation
	Restricted- Triptorelin		Specialist initiation
Anti-Gonadotrophin Releasing Hormones	Danazol		
7. Hypothalamic and Anterior Pituitary Hormone Related Disorders			
7.4 Growth Hormone Disorders			
Growth Hormone Receptor Antagonists	Restricted- Somatropin		Specialist Initiation
8. Sex Hormone Responsive Conditions			
8.1 Female Sex Hormone Responsive Conditions			
Oestrogens	Estradiol	Elleste Solo (1mg or 2mg estradiol), Evorel patch (25mcg, 50mcg, 75mcg, 100mcg estradiol), Oestrogel (0.03% oestradiol gel)	Patches used second line after tablets. Post Hysterectomy
	Bazedoxifene plus conjugated oestrogens (Duavive®)		The treatment of post-menopausal symptoms in women with a uterus is currently NOT RECOMMENDED for prescribing in Primary or Secondary Care.
	Tibolone	2.5mg tablets	Useful if Bloating on oestrogen, poor libido, Endometriosis

Ostrogens combined with Progestogens	1st Line: Estradiol & norethisterone tablets (women with uterus)	Elleste duet (1mg or 2mg estradiol with 1mg norethisterone)	Sequential combined therapy - intact uterus, perimenopausal - under 1 year or amenorrhoea
	2nd Line: Estradiol & dydrogesterone (women with uterus, perimenopausal - under 1 year or amenorrhoea)	Femoston 1/10 or 2/10 tablets (1mg or 2mg estradiol and 10mg dydrogesterone)	
	1st Line: Estradiol & norethisterone tablets (women with uterus - amenorrhoea for over a year))	Elleste duet conti (1mg or 2mg estradiol with 1mg norethisterone)	Continuous combined therapy - intact uterus, perimenopausal - under 1 year or amenorrhoea
	2nd Line: Estradiol & dydrogesterone (women with uterus - amenorrhoea for over a year)	Femoston conti (0.5/2.5 = 0.5 estradiol, 2.5mg dydrogesterone or 1/5 = 1mg estradiol & 5mg dydrogesterone)	
	Patches - second line after tablets		
	1st Line patches: Estradiol & norethisterone tablets	Evorel Sequi® Patch (50micrograms estradiol, 170micrograms norethisterone)	Sequential combined therapy - intact uterus, perimenopausal - under 1 year or amenorrhoea
Ostrogens combined with Progestogens	2nd Line patch: Estradiol & levnonorgestrel	FemSeven Sequi patch (50micrograms estradiol, 10 micrograms levonorgestrel)	
	1st Line patch: Estradiol & norethisterone	Evorel Conti® Patch (50micrograms estradiol, 170micrograms norethisterone)	Continuous combined therapy - intact uterus, perimenopausal - under 1 year or amenorrhoea
	2nd line patche: Estradiol & levonorgestrel	FemSeven Conti patch (50micrograms estradiol, 7 micrograms levonorgestrel)	
Progestogens	Norethisterone	5mg tablets	
	Progesterone	200mg and 400mg pessaries	HRT As adjunct to topical oestrogen if not had a hysterectomy
		Utrogestan (100mg, 200mg)	
Anti-Oestrogen	1st line-Clomifene Citrate	50mg Tabs	Specialist initiation
8.2 Male Sex Hormone Responsive Conditions			
Androgens	1st line- Testosterone Undecanoate	40mg Caps, 250mg/ml 4ml amp	Should only be initiated by an endocrinologist following suitable investigations. Initiating Testoteserone before confirming diganosis interferes with investigations and can impact timely management of patients' condition
	1st line-Testeosterone	100mg Implant, 200mg Implant, 2% (10mg/application) gel,	
	1st line-Testosterone mixed esters	250mg/ml 1ml amp	
Anti-Androgens	1st line-Cyproterone	50mg Tabs	

9. Thyroid Disorders			
9.1 Hyperthyroidism			
Antithyroid drugs	1st line-Carbimazole	5mg Tabs, 20mg Tabs	
	2nd line-Prophylthioutacil	50mg Tabs	
9.2 Hypothyroidism			
Thyroid Hormone	Levothyroxine	12.5mg, 25mg, 50mg, 75mg, 100mg tabs, 5mcg/mL, 10mcg/mL, 20mcg/mL Oral solution	
	Liothyronine is NOT recommended for prescribing in primary Care		
	Items which should not be prescribed in Primary Care		