**Chapter 6: Endocrine system**

**KEY**

|  |  |
| --- | --- |
| **Status** | **Description** |
| http://tmpnlg.formulary.co.uk/images/TrafficLight.gifGreen | Green -Medicines suitable for routine use within primary care and Secondary care Can be initiated within primary care within their licensed indication, in accordance with nationally recognised formularies |
| http://tmpnlg.formulary.co.uk/images/TrafficLight.gifAmber | Amber- Medicines suitable to be prescribed in primary care after specialist /Consultant recommendation or initiation. A supporting prescribing guideline may be requested which must have been agreed by the relevant secondary care trust Medicines and Therapeutic Committee and approved by the Area Prescribing Committee. |
| http://tmpnlg.formulary.co.uk/images/TrafficLight.gifRed | Red-Hospital initiation and continuation only |
| http://tmpnlg.formulary.co.uk/images/TrafficLight.gifAmber Shared Care Protocol | AMBER SHARE CARE PROTOCOL- Medicines that should be initiated by a specialist and prescribed by primary care prescribers only under a shared care protocol, once the patient has been stabilised |
| http://tmpnlg.formulary.co.uk/images/TrafficLight.gifGreen 2 | GREEN 2- to be prescribed by primary care only |
| http://tmpnlg.formulary.co.uk/images/TrafficLight.gifGrey | GREY- NON FORMULARY |

**6.1 Drugs used in diabetes**

**6.1.1 Insulins**

**6.1.1.1 Short-acting Insulins**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| NovoRapid (Insulin Aspart) 100 units/ml Vial, FlexPen, Cartridge, FlexTouch | y |  |  |
| Actrapid (soluble, human, pyr) Vial, 100units /mL | y |  |  |
| Humalog (Insulin Lispro) Vial, KwikPen, 3ml cartridge, 100units/mL | y |  |  |
| Humulin S (soluble, human, prb) Vial, KwikPen, 3mL cartridge, 100 units/mL | y |  |  |
| Apidra (Insulin Glulisine) Vial, 3ml Cartridge, Solostar | y |  |  |
| Humulin-R (500 units/ml). Named Patient (U) | y |  |  |

**6.1.1.2 Intermediate and Long-acting Insulins**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Novomix 30 – Biphasic Insulin Aspart, human analogue FlexPen, Penfill | y |  |  |
| Lantus (Insulin Glargine)100 units/ml Vial, cartridge, Solostar PF Pen | y |  |  |
| Abasaglar |  |  |  |
| Levemir (Insulin Detemir) 3mL cartridge, FlexPen, FlexTouch | y |  |  |
| Humalog Mix 25 (Lispro 25% / Lispro Protamine 75%), vial, KwikPen, 3mL cartridge | y |  |  |
| Humalog Mix 50 (Lispro 50% / Lispro Protamine 50%) KwikPen, 3mL cartridge | y |  |  |
| Human Insulatard (isophane insulin, human pyr) Vial, Innolet 100 units/mL | y |  |  |
| Humulin I (isophane human prb) Vial, 3mL cartridge, KwikPen 100 units/ml | y |  |  |
| Humulin M3 (Human prb) 30% soluble/70% isophane) Vial, cartridge, KwikPen | y |  |  |
| Toujeo (Insulin Glargine 300 units/ml) Solostar PF Pen. Specialist Initiation Only | Y OK AS LONG AS WRITTEN/ EMAIL CONFIRMATION GIVEN BY DIABETOLOGIST |  | Diabetese lead has stated this should be green as per the integrated pathway of Diabetes – k  The specialist prescriber can give the GP a green light to prescribe via verbal, virtual or written confirmation |
| Tresiba (Insulin Degludec). Specialist Initiation Only | Y OK AS LONG AS WRITTEN/ EMAIL CONFIRMATION GIVEN BY DIABETOLOGIST |  | Diabetese lead has stated this should be green as per the integrated pathway of Diabetes –  The specialist prescriber can give the GP a green light to prescribe via verbal, virtual or written confirmation |

**6.1.2 Oral Antidiabetic drugs**

6.1.2.1 Sulphonylureas

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Remain** | **Remove** | **Supporting Information** |
| Gliclazide Tablets | y |  | 1st line choice non MR formulation |
| Glimepiride Tablets | y |  | Second choice |
| \*\*Glibenclamide Tablets | y | Restricted code | \*\* Only prescribed if existing patient are sustained on this. Not initiated by specialists. Most patient enter secondary already having these meds prescribed via primary care. |
| \*\*Tolbutamide Tablets | Y ?TAKE OFF | Restricted code | \*\* Only prescribed if existing patient are sustained on this. Not initiated by specialists. Most patient enter secondary already having these meds prescribed via primary care |
| \*\*Glipizide Tablets | Y ?TAKE OFF | Restricted code | \*\* Only prescribed if existing patient are sustained on this. Not initiated by specialists. Most patient enter secondary already having these meds prescribed via primary care |

**6.1.2.2 Biguanides**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Remain** | **Remove** | **Supporting Information** |
| Metformin Tablets | y |  | 1st choice |
| Metformin SR 500mg Tablets | y |  | Restricted use: When compliance is a concern |
| Metformin Sachets | Y |  | Restricted/ discontinued? |

**6.1.2.3 Other Anti-Diabetics**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | **Remove** | **Supporting Information** |
| Saxagliptin Tablets | y |  |  |
| Alogliptin Tablets | Y |  | **1st line in primary care** |
| Linagliptin Tablets | Y ?FIRST LINE AS NO RENAL RESTRICTIONS? |  |  |
| Sitagliptin Tablets | y |  |  |
| Lixisenatide Injection | y |  | **1st choice** |
| Exenatide Once Weekly Injection | y |  |  |
| Dapagliflozin Tablets. [NICE TA418](https://www.nice.org.uk/guidance/ta418) | y |  |  |
| Canagliflozin Tablets [NICE TA315](https://www.nice.org.uk/guidance/ta315) | y |  |  |
| Empagliflozin Tablets [NICE TA336](https://www.nice.org.uk/guidance/ta336) | y |  |  |
| Pioglitazone Tablets | y |  | **Mhra warning** |
| Repaglinide Tablets | y |  |  |
| Acarbose Tablets | y |  |  |
| Liraglutide Injection (consider use of lixisenatide first) | y |  |  |
| Xultophy (Insulin Degludec and Liraglutide combination) Injection. Specilaist Initiation Only | **y** |  | **Amber**  **And phrase from diabetes pathway** |

**6.1.4 Treatment of hypoglycaemia**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Dextrose Gel | y |  |  |
| Glucagon Injection 1mg | y |  |  |
| Glucose Injection, Tablets, Lucozade Drink | y |  |  |

**6.2.1 Thyroid hormones**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Levothyroxine Sodium Tablets | y |  | **1ST Choice** |
| Liothyronine Tablets, Injection. Hospital Only | y |  |  |

**6.2.2 Anti-thyroid Drugs**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Carbimazole Tablets | y | **Green** |  |
| Propylthiouracil Tablets | y |  |  |
| Aqueous Iodine BP Syn: Lugol’s Solution. Hospital Only | y |  |  |

**6.3.1 Replacement therapy**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Fludrocortisone Tablets | **Y**  **Amber** |  | **Postural hypotension – AMBER**  **Check if it is unlicensed use AGREE PB** |

**6.3.2 Glucocorticoid therapy**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Prednisolone Tablets 1mg, 5mg | y |  |  |
| Hydrocortisone Tablets 10mg, 20mg | y |  |  |
| Prednisolone Soluble tablets 5mg | y |  | **Pred solution is used in preference to soluble tablets ase there it is cost effectiveness**  **Potentially remove the pred soluble.**  **Note: 2.5mg and 5mg enteric coated non formulary** |
| Dexamethasone Tablets | y |  |  |
| Betamethasone Soluble tablets, Injection | y |  |  |
| Hydrocortisone Injection 100mg | y |  |  |
| Dexamethasone Injection 4mg/ml, 2ml | y |  |  |
| Dexamethasone Elixir 2mg/5ml, 500 micrograms/5ml (S) | y |  |  |
| Methylprednisolone Injection 500mg, 1g vial as sodium succinate | y |  |  |
| Triamcinolone Injection (Kenalog) Intra-articular / Intramuscular 40mg/ml | y |  | **Not used in endocrine** |
| Methylprednisolone 100mg Tablets. Rehabilitation Service & Ophthalmic Surgery Only | y |  | **Not used in endocrine** |
| Hydrocortisone Suspension 5mg/5ml. Secondary Care, Paediatrician Initiated Only | y |  |  |

**6.4 Sex hormones**

**6.4.1 Female sex hormones and their modulators**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Estradiol Tablets 1mg, 2mg | Green tick - simple A simple green tick |  |  |
| Conjugated Oestrogens (Premarin) Tablets 0.625mg, 1.25mg | Green tick - simple A simple green tick |  |  |
| Tibolone Tablets 2.5mg | Green tick - simple A simple green tick |  |  |
| Climagest (Estradiol/Noresthisterone) Tablet 1mg, 2mg |  | Green tick - simple A simple green tick |  |
| Climaval (Estradiol Valerate) Tablet 1mg, 2mg |  | Green tick - simple A simple green tick |  |
| Estracombi (Estradiol/Norethisterone) patch |  | Green tick - simple A simple green tick |  |
| Estraderm TTS 25, 50 | Green tick - simple A simple green tick |  | Discontinued? Remove |
| Estraderm MX 25, 50, 75 | Green tick - simple A simple green tick |  | Used in growth promotion in chromosomal inborn syndrome – error of metabolism |
| Estradiol Implants 50mg, 100mg | Green tick - simple A simple green tick |  |  |
| Evorel (Estradiol) Patch 25, 50, 75, 100 micrograms | Green tick - simple A simple green tick |  |  |
| Kliofem (Estradiol/Norethisterone) Tablet – no bleed |  | Green tick - simple A simple green tick |  |
| Oestrogel (Estradiol) Gel | Green tick - simple A simple green tick |  |  |
| Ethinylestradiol Tablets 10 micrograms, 50 micrograms, 1mg | Green tick - simple A simple green tick |  |  |
| Raloxifene Tablets | Green tick - simple A simple green tick?SHOULD BE AMBER | Amber | **Two indications? -post menopausal osteoporosis -oteoperosis menopausal symptoms NICE TA160** |

**6.4.1.1 Ethinylestradiol for Pubertal Induction**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Ethinylestradiol 2mcg Tablets. Secondary Care, Paediatrician Initiated Only | **y** |  |  |

**6.4.1.2 Progestogens**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Norethisterone Tablets | y |  |  |
| Medroxyprogesterone (Provera) Tablets | y |  |  |
| Dydrogesterone Tablets | y |  |  |
| Progesterone Injection | y |  |  |
| Ulipristal Acetate Tablets | y |  |  |
| Progesterone Pessaries (Cyclogest). Hospital Only Consultant Obs & Gyne Only | y |  |  |

**6.4.2 Male sex hormones and antagonists**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Remain** | **Remove** | **Supporting Information** |
| Finasteride Tablets | y |  | **1st choice** |
| Dutasteride capsules | y |  |  |
| Testosterone 2% Gel (Tostran) | y |  |  |
| Testosterone Implant | y |  |  |
| Testosterone Undecanoate IM | y |  |  |
| Testosterone Esters IM | y |  |  |
| Cyproterone Tablets | y |  |  |
| Mesterolone Tablets |  | **y** | **Not used from Jan 2017** |
| Testosterone 300mcg/24 hour Patch. SGH Hospital | **y** | **red** | Proposed from red to amber by clinical lead |

**6.4.3 Anabolic Steroids**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Nandrolone Decanoate Injection. Hospital Only | **Y** |  |  |
| Oxymetholone Tablets. Hospital Only (U) | **Y** |  |  |

**6.5 Hypothalamic and pituitary hormones and anti-oestrogens**

**6.5.1 Hypothalmic and Anterior Pituitary Hormones**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Genotropin Injection – Somatropin 16units (5.3mg/ml), 36 units (12mg/ml) \*\*\* | y |  |  |
| Saizen Injection – Somatropin 17.5units (5.83mg/ml) All Sizes \*\*\* | y |  |  |
| Norditropin SimpleXx – Somatropin 10units (3.3mg/ml) \*\*\* | y |  |  |
| Norditropin Nordiflex – Somatropin 30units (10mg/ml) \*\*\* | y |  |  |
| NutropinAq Injection – Somatropin 30units (5mg/ml : NB. 10mg/2ml) \*\*\* | y |  |  |
| Clomifene Citrate Tablets 50mg | y |  |  |
| Chorionic Gonadotrophin Injection 1500u, 5000u | y |  |  |
| Tetracosactide Injection (Tetracosactrin) 250 micrograms/ml, 1ml | y |  |  |
| Gonadorelin (LH-RH) Injection 100 micrograms. Hospital Only | y |  |  |
| Protirelin (TRH) Injection 100 micrograms/ml, 2ml. Hospital Only | y |  |  |

\*\*\* Other suitable somatropin products can be CONTINUED if initiated by an external provider

**6.5.2. Posterior Pituitary Hormones**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Remain** | **Remove** | **Support Information** |
| Desmopressin Tablets 200 micrograms | y |  | **Green for nocturnal enuresis, any pituitary condition the status should be designated as amber- please refer to chapter 7 for enuresis** |
| Desmopressin Injection 4 micrograms/ml, 1ml & 15 micrograms/ml, 1ml | y |  |  |
| Desmopressin Nasal spray 10 micrograms/dose, 5ml | y |  |  |
| Desmopressin Sublingual Tablets | y |  | **Query volume of prescribing and cost** |
| Terlipressin Injection 1mg vial | y |  | **Used by gastroenterologist** |
| Argipressin Injection | y |  | **Used by gastroenterologists** |
| Tolvaptan 15 mg Tablets – Oncology use only, maximum 10 days treatment inpatient only | y |  |  |

**6.6 Drugs affecting bone metabolism**

**6.6.1 Calcitonin**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Calcitonin (Salmon) / Salcatonin Injection 400u in 2ml, 100 units/ml, 1ml amp | **y** |  |  |

**6.6.2 Bisphosphonates**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Alendronic Acid Tablets 10mg, 70mg (including 70 mg effervescent Tablets for PEG/NG tube patient administration) | y |  | **1st choice** |
| Risedronate Sodium Tablets 35mg | y |  | **2nd choice** |
| Risedronate Sodium Tablets 5mg | y |  |  |
| Ibandronic Acid 150mg Tablets | y |  |  |
| Ibandronic Acid 50mg Tablets. Hospital Initiated, See HYCCN Guidelines | y |  |  |
| Strontium ranelate sachets | y |  | **Query the use in primary/secondary care** |
| Disodium Pamidronate Injection 15mg, 90mg vial. Hospital Only | y |  |  |
| Ibandronic Acid 3mg Injection Post-menopausal Osteoporosis | y |  |  |
| Sodium Clodronate Capsules 400mg | y |  | **Query useage** |
| 1. Zoledronic acid 5mg Intravenous Infusion (Aclasta). Hospital Only | y |  |  |
| Zoledronic acid 4mg Intravenous Infusion (Zometa). Hospital Only | y |  |  |
| Denosumab 60mg/ml Injection. Hospital Only | y |  |  |
| Disodium Etidronate 200 mg Tablets. As Per | y |  |  |
| Denosumab 70 mg/ml Injection (Xgeva). [NICE TA265](https://www.nice.org.uk/guidance/ta265), Agreed Pathway & Hospital Restrictions | y |  |  |

**6.7.1 Bromocriptine and other Dopamine receptor stimulants**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Remain** | **Remove** | **Supporting Information** |
| Cabergoline 500 microgram Tablets | y |  | Used for prolactaemia – specialist clinician should test and prove prolactin. They should initiate and up titrate until maintenance dose is reached. Gps can continue as treatment as continue for upto 5 years, with 6-12 month reviews. |
| Quinagolide 50 microgram Tablets. Hospital Initiated Only | y |  | Used for prolactaemia – specialist clinician should test and prove prolactin. They should initiate and up titrate until maintenance dose is reached. Gps can continue as treatment as continue for upto 5 years, with 6-12 month reviews. |
| Bromocriptine | y |  | Used for prolactaemia – specialist clinician should test and prove prolactin. They should initiate and up titrate until maintenance dose is reached. Gps can continue as treatment as continue for upto 5 years, with 6-12 month reviews. |

**6.7.2 Drugs affecting Gonadotrophins**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Danazol Capsules | **y** |  | **Not used in endocrine urology** |
| Gamolenic Acid Capsules 40mg, 80mg |  | **y** |  |
| Goserelin | y |  |  |
| Buserelin Nasal Spray | y |  |  |
| Gestrinone Capsules 2.5mg | y |  |  |
| Leuprorelin Injection | y |  |  |

**6.7.3 Metyrapone**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remain | Remove | Supporting Information |
| Metyrapone | **y** |  |  |

**Miscellaneous**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Remain** | **Remove** | **Supporting** |
| Regional emergency box for treatment of inborn errors of metabolism. Hospital Only | **y** |  |  |

**Porcine and Bovine Insulin**

Porcine and bovine insulins are less used and should not be initiated unless there is a specific requirement to do so that makes other synthetic human analogues unsuitable. However, if a patient is stabilised on either porcine or bovine insulin, treatment may continue in either a primary or secondary care setting until a clinical review suggests that there are more appropriate alternatives.