## 6 Endocrine

**Comment:** For further information refer to
- Further Guidance on Hypoglycaemic Agents *(Appendix 6a)*
- Recommendation for Blood Glucose Monitoring *(Appendix 6b)*
- Blood Glucose Meter Recommendations *(Appendix 6c)*

### 6.1 Drugs used in Diabetes

#### 6.1.1 Insulins

<table>
<thead>
<tr>
<th>Insulins</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Comment:** For all insulins recommendation by practitioner experienced in the management of diabetes
All prescriptions for insulin should be written by brand name only

#### 6.1.2 Oral Antidiabetic Drugs

<table>
<thead>
<tr>
<th>Biguanides</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Comment:** Metformin M/R may be prescribed in patients who are intolerant of metformin standard tablets due to GI intolerance

<table>
<thead>
<tr>
<th>Sulphonylureas</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gliclazide (1st line)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Glimepiride (only if problems with compliance) (2nd line)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Comment:** For once daily dosing, glimepiride is preferred to gliclazide M/R as it more cost-effective

<table>
<thead>
<tr>
<th>Glitazones (Thiazolidinediones)</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pioglitazone</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glitazones (Thiazolidinediones)</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Dual or Triple Therapy with metformin/sulphonylureas)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glitamins (Dipeptidylpeptidase-IV (DPP4) inhibitors)</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alogliptin (1st line)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Linagliptin (1st line in renal impairment)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glitamins (Dipeptidylpeptidase-IV (DPP4) inhibitors)</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empagliflozin (1st line)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glitamins (Dipeptidylpeptidase-IV (DPP4) inhibitors)</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dapagliflozin (2nd line) (Patients already prescribed this or intolerant of empagliflozin)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glucagon-like peptide-1 receptor agonists (GLP1-RAs)</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liraglutide</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Semaglutide</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glucagon-like peptide-1 receptor agonists (GLP1-RAs)</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liraglutide + Degludec (Xultophy®)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Comment:** For GLP1-RAs recommendation by Practitioner experienced in the management of diabetes

---

**Key** ✓ Initiate and continue ✦ Continue where appropriate.

Forth Valley Formulary  Last amended January 2020
## 6 Endocrine

### 6.1.4 Treatment of Hypoglycaemia

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucagon (Glucagen® Hypokit)</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Glucogel (Glucogel®, GlucoRx®)</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Glucose IV 20%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6.2 Thyroid and Antithyroid Drugs

#### 6.2.1 Thyroid Hormones

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levothyroxine (1st line)</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Liothyronine</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment:** Prescribing of Armour Thyroid (dessicated porcine thyroid glands) is not recommended by FV endocrinologists. It is an unlicensed medicine, there is considerable variability in formulations and there is no clinical evidence that it is more effective than levothyroxine.

#### 6.2.2 Antithyroid Drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbimazole (1st line)</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Propylthiouracil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium iodide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propranolol (standard tablets)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6.3 Corticosteroids

#### 6.3.1 Replacement Therapy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fludrocortisone Acetate</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

#### 6.3.2 Glucocorticoid Therapy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocortisone Tablets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone Injection</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Dexamethasone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylprednisolone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prednisolone (standard tablets)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment:** Prednisolone enteric coated (e/c) tablets are non-formulary. There is no evidence that prednisolone e/c reduces the risk of GI ulceration, it is more expensive than std. tablets and may cause erratic absorption from the GI tract. Consider osteoporosis prevention treatment if corticosteroids used long term. Please refer to https://guidelines.staffnet.fv.scot.nhs.uk/?s=osteoporosis

---

Key ✔ Initiate and continue ✫ Continue where appropriate.

Forth Valley Formulary  Last amended January 2020
### 6 Endocrine

#### 6.4 Sex Hormones

<table>
<thead>
<tr>
<th>6.4.1 Female Sex Hormones</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
</table>

#### 6.4.1.1 Oestrogens and HRT

For further information on the use of HRT see the [British Menopause Society Tool for Clinicians – HRT Guide](#).

<table>
<thead>
<tr>
<th>Combination Products (for use in women with an intact uterus)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sequential Combined Therapy (Cyclical) (Last menstrual period &lt;1 year ago)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Tablets</strong></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; line</td>
<td>Femoston&lt;sup&gt;®&lt;/sup&gt; (estradiol 1mg or 2mg/dydrogesterone 10mg)</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line</td>
<td>Elleste Duet&lt;sup&gt;®&lt;/sup&gt; (estradiol 1mg or 2mg/norethisterone 1mg)</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line (if Elleste Duet&lt;sup&gt;®&lt;/sup&gt; is unavailable)</td>
<td>Novofem&lt;sup&gt;®&lt;/sup&gt; (estradiol 1mg/norethisterone 1mg)</td>
</tr>
<tr>
<td><strong>Patches</strong></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; line</td>
<td>Evorel Sequi&lt;sup&gt;®&lt;/sup&gt; (estradiol 50mcg/24hrs, norethisterone 170mcg/24hrs)</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line</td>
<td>FemSeven Sequi&lt;sup&gt;®&lt;/sup&gt; (estradiol 50mcg/24hrs, levonorgestrel 10mcg/24hrs)</td>
</tr>
</tbody>
</table>

#### Continuous Combined Therapy (Last menstrual period >1 year ago)

<table>
<thead>
<tr>
<th><strong>Tablets</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Femoston Conti&lt;sup&gt;®&lt;/sup&gt; (estradiol 500mcg or 1mg/dydrogesterone 2.5mg or 5mg)</td>
</tr>
<tr>
<td></td>
<td>Kliovance&lt;sup&gt;®&lt;/sup&gt; (estradiol 1mg/norethisterone 500mcg)</td>
</tr>
<tr>
<td></td>
<td>Kliofem&lt;sup&gt;®&lt;/sup&gt; (estradiol 2mg/noerethisterone 1mg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Patches</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; line</td>
<td>Evorel Conti&lt;sup&gt;®&lt;/sup&gt; (estradiol 50mcg/24hrs, norethisterone 170mcg/24hrs)</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line</td>
<td>FemSeven Conti&lt;sup&gt;®&lt;/sup&gt; (estradiol 50mcg/24hrs, levonorgestrel 7mcg/24hrs)</td>
</tr>
</tbody>
</table>

#### Oestrogen only (for use in women with no uterus or using an alternative progesterone)

<table>
<thead>
<tr>
<th><strong>Tablets</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estradiol hemihydrates 1mg or 2mg (Elleste-Solo&lt;sup&gt;®&lt;/sup&gt;, Zumenon&lt;sup&gt;®&lt;/sup&gt;)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Patches</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; line</td>
<td>Evorel&lt;sup&gt;®&lt;/sup&gt; (25mcg-100mcg)</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line</td>
<td>Estraderm MX&lt;sup&gt;®&lt;/sup&gt; (25mcg-100mcg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Transdermal Gel</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oestrogel&lt;sup&gt;®&lt;/sup&gt; (estradiol 0.06%)</td>
</tr>
</tbody>
</table>

**Comment:** Oestrogel<sup>®</sup> for restricted use only when both tablet and patch formulations are not tolerated

---

**Key:** ✅ Initiate and continue ✦ Continue where appropriate.

Forth Valley Formulary Last amended January 2020
# 6 Endocrine

## Gonadomimetic

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibolone</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

## 6.4.1.2 Progestogens

<table>
<thead>
<tr>
<th>Progestogen</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medroxyprogesterone</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Norethisterone</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Progesterone (Cyclogest® for subfertility)</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Comment:** Cyclogest® should only be prescribed by a Specialist Tertiary Centre

## 6.4.2 Male Sex Hormones & Antagonists

<table>
<thead>
<tr>
<th>Drug/Agent</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testosterone (Testavan®, Testogel®)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cyproterone Acetate</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Finasteride</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

## 6.5 Hypothalamic and pituitary hormones and anti-oestrogens

### 6.5.1 Hypothalamic and anterior pituitary hormones and anti-oestrogens

<table>
<thead>
<tr>
<th>Drug/Agent</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clomifene Citrate</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Chorionic Gonadotrophin (HCG)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Follicle Stimulating Hormone (FSH)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Gonadorelin (LH-RH)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Tetracosactide (Synacthen®)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>(Synthetic Human Growth Hormone)</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Comments:** Specific recommendation from Dr McQueen. All products for assisted conception are funded centrally and GPs should not prescribe.

### 6.5.2 Posterior Pituitary Hormones and Antagonists

<table>
<thead>
<tr>
<th>Drug/Agent</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desmopressin</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Terlipressin (oesophageal varices)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Tolvaptan (Jinarc®)</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

## 6.6 Drugs affecting bone metabolism

### 6.6.1 Calcitonin

<table>
<thead>
<tr>
<th>Drug/Agent</th>
<th>Primary Care</th>
<th>Acute/Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salcatonin</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Teriparatide</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Comment:** Teriparatide - restricted use refer to SMC Guidance

---

*Key ✓ Initiate and continue ✧Continue where appropriate.*

Forth Valley Formulary  Last amended January 2020
## 6 Endocrine

### 6.6.2 Disorders of Bone Metabolism

**Comment:** Please refer to Hypercalcaemia of Malignancy Treatment Guideline & Suspected Hypercalcaemia of Malignancy Guideline for Primary Care -  (https://guidelines.staffnet.fv.scot.nhs.uk/?s=Hypercalcaemia)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alendronic Acid (1&lt;sup&gt;st&lt;/sup&gt; Line)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Risedronate Sodium (prophylaxis and treatment in women only) (2&lt;sup&gt;nd&lt;/sup&gt; Line in patients with G.I. problems)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Comment:** Risedronate 2<sup>nd</sup> Line if GI intolerance of alendronic acid. Recommended in G.I problems. Caution ensure correct strength is prescribed for indication.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disodium Pamidronate(I.V.) - (1&lt;sup&gt;st&lt;/sup&gt; Line for hypercalcaemia)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Zoledronic Acid (2&lt;sup&gt;nd&lt;/sup&gt; line)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Ibandronic Acid (3&lt;sup&gt;rd&lt;/sup&gt; Line)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Denosumab (Prolia&lt;sup&gt;®&lt;/sup&gt;, Xgeva&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Comment:** Denosumab (Prolia<sup>®</sup>) restricted to specialist initiation in women only, Also available in line with West of Scotland Cancer Network Protocols (Xgeva<sup>®</sup>)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raloxifene</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Comment:** Raloxifene may be used for patients where bisphosphonates are contraindicated or not tolerated

### 6.7 Other endocrine drugs

#### 6.7.1 Bromocriptine and other dopamine-receptor stimulants

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromocriptine</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cabergoline</td>
<td>✫</td>
<td>✓</td>
</tr>
<tr>
<td>Quinagolide</td>
<td>✫</td>
<td>✓</td>
</tr>
</tbody>
</table>

#### 6.7.2 Drugs affecting gonadotrophins

<table>
<thead>
<tr>
<th>Drug</th>
<th>Primary Care</th>
<th>Acute/ Specialist Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danazol</td>
<td>✫</td>
<td>✓</td>
</tr>
<tr>
<td>Naferelin</td>
<td>✫</td>
<td>✓</td>
</tr>
<tr>
<td>Leuporelin (Prostap&lt;sup&gt;®&lt;/sup&gt;) (1&lt;sup&gt;st&lt;/sup&gt; Line)</td>
<td>✫</td>
<td>✓</td>
</tr>
<tr>
<td>Goserelin (Zoladex&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>✫</td>
<td>✓</td>
</tr>
<tr>
<td>Triptorelin (Decapeptyl&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>✫</td>
<td>✓</td>
</tr>
</tbody>
</table>

Key ✓ Initiate and continue ✫ Continue where appropriate.

Forth Valley Formulary  Last amended January 2020