Prescribing Framework for Testosterone in Adults

Patient's Name:……..… NHS Number: ……

Patient's Address:……...……(Use addressograph sticker)

GP's Name:……..……..

Communication

We agree to treat this patient within this Prescribing Framework

Specialist Prescriber's Name…… Prof Reg. No. ……

Specialist Prescriber's Signature…… Date:……

Where prescriber is <u>not</u> a consultant:

Consultant's Name: …… GMC No ……..

Consultant's Signature ……... ……. Date:…….

GP's Signature:…… Date:……..

GP's Name (if different from listed above)……..

The front page of this form should be completed by the specialist and the form sent to the patient's general practitioner.
The patient's GP should sign and **<u>send back to specialist</u>**, to confirm agreement to enter into shared care arrangement. If the General Practitioner is **<u>unwilling</u>** to accept prescribing responsibility for the above patient the specialist should be informed within two weeks of receipt of this framework and specialist's letter.

Full copy of framework can also be found at: http://www.hey.nhs.uk/amber.htm

1. Background

Testosterone is licensed for treatment of male hypogonadism. Patients typically present with clinical features suggestive of testosterone deficiency and diagnosis is confirmed and cause investigated by specialist team using biochemical testing.

There are a number of different preparations available. Short acting preparation such as testosterone gel is preferred initially in order to assess effectiveness of treatment.
Treatment can then be tailored according to clinical need, response to treatment and patient choice.

Testosterone may also be prescribed for treatment of menopausal symptoms in women. Further details of preparations used and licensing position can be found in Section 3.

This document should be read in conjunction with the guidance "Responsibility for prescribing between Primary & Secondary/Tertiary Care" https://www.england.nhs.uk/wp-content/uploads/2018/03/responsibility-prescribing-between-primary-secondary-care-v2.pdf

2. Indication

Testosterone replacement therapy for male hypogonadism when testosterone deficiency has been confirmed by clinical features and biochemical tests.

Menopausal symptoms in postmenopausal women as an adjunct to hormone replacement therapy (some preparations are unlicensed – see section 3 for details).

3. Dose and method of administration

Available products:	**Unavailable/ limited availability:**
Tostran® gel 20mg/g	Testim® sachets - discontinued
Testogel® sachets 50mg/5g (if available) and pump dispenser 20.25mg/pump	Testogel® sachets - manufacturing problem

Transdermal preparations

Testogel (1st line)

In men:
Initially 1 x 5g gel or 2 x metered doses once daily preferably in the morning titrated according to response to a maximum of 10g gel once daily.

The application should be administered by the patient himself, onto clean, dry, healthy skin over both shoulders or both arms or abdomen.

In post-menopausal women [unlicensed indication]:
Average of 0.5ml – 1ml per day (a large pea sized blob applied to the lower abdomen) i.e. 1 x sachet weekly OR 1 x metered dose to be applied once or twice a week.

Tostran gel

In men:
Initially 3g gel (60mg testosterone – use 6 metered doses) once daily adjusted according to response to a maximum of 4g gel once daily.

Apply to abdomen or both inner thighs.

In post-menopausal women [unlicensed indication]:
Use 1 x metered dose every 2 – 3 days.

Testosterone injection (Men only)

***Sustanon 250* (mixture of testosterone esters)**

250mg intramuscularly every 3 weeks or 100-200mg every 2 weeks.
Can be injected into thigh (self-administration) or into the buttock (when administered by another person).

Testosterone undecanoate injection (*Nebido*)

1000mg to be given at 6 week interval for first two doses (to reach sufficient steady state testosterone more rapidly) then 12 weekly thereafter.
Frequency can be increased to 10 weekly if testosterone level is suboptimal.

Administer by intramuscular injection, slowly over 2 minutes.

The first injection interval may be reduced to a minimum of 6 weeks to reach sufficient steady state testosterone levels more rapidly.

Testosterone oral capsules

(rarely used due to limited evidence and risk of adverse effects, including hepatotoxicity)

The initial dosage required will usually be 120-160 mg daily for 2-3 weeks. Subsequent dosage (40-120 mg daily in divided doses with morning and evening meal) should be based on the clinical effect obtained during the first weeks of therapy.

To ensure absorption, capsules must be taken with a normal meal, if necessary with a little fluid, and be swallowed whole without chewing. It is preferable that half of the daily dose be taken in the morning and the other half in the evening. If an uneven number of capsules is taken daily, the greater part should be taken in the morning.

4. Duration of treatment
Usually long term – as advised by specialist team

5. Contraindications and cautions
See BNF and www.medicines.org.uk for details for individual preparations

Contraindications include
Breast cancer in men, prostate cancer, history of primary liver tumours, hypercalcaemia (treat and re-start), significant erythrocytosis (haematocrit > 50%), pregnancy and breast feeding

Cautions include
Diabetes mellitus, metabolic syndrome, nephrotic syndrome, bladder outlet obstruction (prostate pathology), congestive heart failure, ischaemic heart disease, hypertension, peripheral vascular disease, obstructive sleep apnoea, tumours or skeletal metastases (risk of hypercalcaemia), hyperprolactinaemia, liver and renal impairment due to the risk of fluid retention and in liver impairment increased risk of dose related toxicity

6. Adverse effects
See BNF and www.medicines.org.uk for details for individual preparations.

Common side effects include local application site reactions, acne, facial hair growth, weight gain, facial flushing, headache, hypertension, increase in PSA, increase in RBC, Hb and haematocrit.
Androgens may accelerate the progression of sub-clinical prostatic cancer and benign prostatic hyperplasia. Gynaecomastia has also been reported.

Sleep apnoea may be worsened; symptoms of excessive daytime sleepiness and witnessed apnoea should be inquired. If necessary, Epworth sleep score and/or sleep studies performed. If sleep apnoea is well treated with CPAP, patient may take testosterone supplements.

7. Interactions

Anticoagulants – enhances effect of coumarins and phenindione

Details of contraindications, cautions, drug interactions and adverse effects listed above are not exhaustive. For further information always check with BNF www.bnf.org.uk or SPC (www.medicines.org.uk).

8. Monitoring

Baseline

- For diagnosis – testosterone, prolactin, Sex hormone binding globulin (SHBG), FSH and LH
- FBC, BCP for renal and hepatic function and lipid profile
- For men - Breast examination and PSA levels is recommended for men > 50 years, or over age 40yrs if there is a family history of prostate cancer
  Note: digital rectal examination is recommended in manufacturer's product licenses

Maintenance

Note Testosterone levels should be taken at following times relative to administration

- Topical preparations – 4-6 hours post application are preferable but levels may be taken any time once patient stabilised.
- Sustanon – midway between injections (but levels may fluctuate – one level to check normal levels may suffice)
- Nebido – a 'trough' level prior to next injection is preferable (*a 'peak' level can be done mid-way between injections but is less useful when adjusting frequency*)
- Oral caps – any time

FOR MEN

- FBC for polycythaemia, BCP for renal function and hepatic function, lipid profile 12 monthly
- Testosterone level at 6 months then annually
- PSA levels, breast examination – where indicated 3-4 months after initiating therapy then every 6-12 months thereafter, as advised by specialist.
  Please note manufacturers of oral capsules recommend 3 monthly monitoring in the first year for patients over 45 years
  Note: digital rectal examination is recommended in manufacturer's product licenses

STOP TREATMENT and refer to specialist if haematocrit > 54 or abnormal liver function tests develop

Request Urology review if

- An increase in serum or plasma PSA concentration greater than 1.4 ng/ml within any 12-month period of testosterone treatment.
- Detection of a prostatic abnormality on digital rectal examination.
- International Prostate Symptom Score (I-PSS) > 19

FOR WOMEN

- Testosterone gels – check testosterone levels at 3 and 6 months, then annually
- For all preparations - FBC for polycythaemia, BCP for renal function and hepatic function, lipid profile 12 monthly

STOP TREATMENT and refer to specialist if haematocrit > 54 or abnormal liver function tests develop

9. Information to patient

- Patients should be informed of correct method of administration for specific preparation
- Patients should be informed of risks and benefits of treatment and when to report side effects such as too frequent or persistent erections of the penis; any changes in skin color, ankle swelling or unexplained nausea or vomiting; any breathing disturbances including those associated with sleep.

10. Responsibilities of clinicians involved

Stage of Treatment	Specialist	General Practitioner
Initiation	• Assessment of patient to confirm diagnosis • Baseline tests for men – breast examination, DRE, PSA levels, FBC, Ca, U&E, LFT and lipid profile • Prescribe testosterone preparation until dose stable • Counsel patient on method of administration and possible side effects • Recommend appropriate treatment and send out shared care framework	• Prescribe on FP10 • Monitor for adverse effects as part of routine clinical care • Report any problems to specialist
Maintenance	• For men – review patient response including testosterone level, PSA, FBC, Ca, U&E, LFT at 6 months • For women – check testosterone levels and 3 and 6 months and monitor FAI change	• Following 6 monthly review by specialist team - • For all patients: • Monitor FBC, renal function, hepatic function and lipid profile every 12 months • Additionally: • For men – monitor testosterone levels and PSA levels. Undertake DRE and breast examination in accordance with manufacturer's advice. • For women – monitor testosterone levels every 12 months • Refer any concerns to specialist

Contact Details:

During Office hours: as per clinic letter
Out of hours: Contact relevant consultant team via HEY Switchboard on 01482 875875

APPROVAL PROCESS

Written by:	***Marie Miller, Interface Pharmacist***
Consultation process:	***Specialist teams in Endocrinology, Gynaecology and Sexual Health***
Approved by:	***MMIG, PSC***
Ratified by:	***HERPC May 2015 Updated by Antonio Ramirez, Interface Pharmacist, August 2018***
Review date:	***August 2021***

APPENDIX – PATIENT INFORMATION LEAFLET (PAGES 1-2)

Patient information leaflet - Testosterone

What is testosterone

Testosterone is produced by the testicles. It is essential for normal growth and development of the male sex organs and sexual characteristics. Testosterone is given to men as replacement therapy when natural testosterone levels are too low.

Before taking or using testosterone

Some medicines are not suitable for people with certain conditions, and sometimes a medicine may only be used if extra care is taken. For these reasons, before you start taking or using testosterone it is important that your doctor knows:
If you have liver or kidney problems.
If you have heart problems or high blood pressure.
If you have epilepsy or migraine.
If you have diabetes.
If you have cancer.
If you are taking or using any other medicines. This includes any medicines you are taking which are available to buy without a prescription, such as herbal and complementary medicines.
If you have ever had an allergic reaction to a medicine.

How to take or use testosterone

Before you start this treatment, read the manufacturer's printed information leaflet from inside your pack. The leaflet will give you more information about the specific brand of testosterone you have been given, and a full list of side-effects which you may experience from it.
Take or use testosterone exactly as your doctor has told you to. Your dose will be on the label of the pack to remind you. The doses given below are intended to be a guide only.

If you are using Testogel® or Tostran® gels: apply the gel at about the same time each day, to a clean, dry area of your skin. The manufacturer's information leaflet will explain which areas of your skin your gel can be applied to - read this carefully before you use the gel. Your doctor or pharmacist will tell you how much to use each day.
If you miss a dose, read the manufacturer's information leaflet which comes with your treatment for advice on what to do.

If you are having injections: these are given by your doctor or nurse, usually on a regular basis, so make sure you know when your next treatment is due.

If you are using Restandol® Testocaps: it is usual to take three or four capsules daily for the first few weeks. It is likely that your dose will be reduced to one to three capsules daily after this time. Take the capsules with a meal. Swallow them whole - do not open or chew them.

Getting the most from your treatment

Keep your regular appointments with your doctor so your progress can be monitored.
If you experience frequent or persistent erections, you must let your doctor know. Your dose may need to be adjusted or your treatment stopped to avoid any injury.
If you are using a gel, testosterone can be transferred to other people through close skin contact. This may cause side-effects in the other person. To prevent this from happening,

cover the treated area with clothes or wait for at least four hours after applying the gel before you have close contact. It is very important that pregnant women avoid contact with any areas of your skin which have been treated with testosterone gel.

Can testosterone cause problems?

Along with their useful effects, most medicines can cause unwanted side-effects although not everyone experiences them. These usually improve as your body adjusts to the new medicine, but speak with your doctor or pharmacist if any of the following side-effects continue or become troublesome.

Some common testosterone side-effects	What can I do if I experience this?
Headache and other aches and pains	Ask your pharmacist to recommend a suitable painkiller. If the headaches continue or are severe, speak with your doctor
Mood changes, feeling dizzy	Speak with your doctor if this continues to be troublesome
Feeling sick, abdominal pain	Stick to simple foods - avoid rich or spicy meals
Diarrhoea	Drink plenty of water to replace lost fluids
Difficulty passing urine, prostate problems Skin rash and irritation, swollen hands or feet, increased blood pressure, increased breast size, breast pain, increased body hair, increased weight, baldness	Let your doctor know about this

If you experience any other symptoms which you think may be due to this medicine, speak with your doctor or pharmacist.

Testosterone and prostate cancer

An increase in testosterone levels is linked to an increased risk of prostate cancer. However, it is important to remember that your testosterone treatment is designed to increase your testosterone levels to a “normal” level. Testosterone treatment may also increase the rate of growth or spread of cancer cells, if used by someone who already has prostate cancer. For these reasons, your doctor will need to perform regular tests before the beginning and during your treatment.

These examinations are:

Blood test (PSA level)
This is a blood test to measure the level of prostate specific antigen (PSA). PSA is a chemical which is made by both normal and cancerous (malignant) prostate cells. Basically, the higher the level of PSA, the more likely that you have cancer of the prostate. However, a mild-to-moderately raised PSA can occur in conditions other than prostate cancer.

Digital rectal examination (to examine the prostate gland)
The doctor will do this by inserting a gloved finger through the back passage (anus) into the rectum to feel the back of the prostate gland. An enlarged-feeling gland, particularly if it is not smooth to feel, may indicate prostate cancer. However, a normal-feeling prostate does not rule out prostate cancer.