BNSSG Shared Care Guidance
Please complete all sections

Section 1: Heading

Drug	Testosterone gel
Amber ***three months***	
Indication	For women with the following: 1. Low libido causing distress and 2. Ongoing symptoms despite Optimised oestrogen and progesterone HRT and 3. Either early menopause (45 years and under) or surgical menopause (bilateral oophorectomy) and 4. Free Androgen Index (FAI) < 5%

Section 2: Treatment Schedule

Usual dose and frequency of administration *(Please indicate if this is licensed or unlicensed and any relevant dosing information)*	**First Line** (as enables metred dosage): ○ Tostran 2% gel – 1 pump alternate days (10mg per metred dose). ○ A 60g canister should last 240 days or 4 months. ○ Cost of a year's treatment at above dosage - £43.54 ○ Easier application – reducing potential confusion over correct dosing in some patients. **Second Line** ○ Testogel 1% gel - 1/8th of a 40.5mg sachet applied daily (5mg / day) ○ £47.29 for a year's treatment at the above dosage. ○ The sachet, once opened, should be closed with a clip and refrigerated. ○ As a daily preparation, can provide a steadier / more stable absorption level which can be beneficial in providing symptom control in some women, especially those with Premature Ovarian Insufficiency (POI). Off label indication.
Route and formulation	Transdermal. The medication is spread over the upper thighs in the morning – alternating the place of application on each day of use. It is not necessary to rub into the skin. The alcohol evaporates and the

	testosterone is absorbed into the upper layers of the skin. The testosterone is then gradually released into the circulation over the next 24 hours. Allow drying for at least 3 – 5 minutes before dressing. Wash hands with soap and water after applications. Do not rub skin where testosterone is applied against another female's skin as transference can occur which can lead to signs of androgen excess in females.
Duration of treatment	Once efficacy established, review yearly when oestrogen and progestogen HRT annual assessment occurs. Assess symptoms and need for ongoing use after weaning at 5 years of use.

Section 3: Monitoring

Please give details of any tests that are required before or during treatment, including frequency, responsibilities (please state whether they will be undertaken in primary or secondary care), cause for adjustment and when it is required to refer back to the specialist.

Baseline tests - where appropriate

- Total testosterone level and sex hormone binding globulin (8-10am sample)
- Allows calculation of free androgen index at baseline (FAI = total testosterone x 100 / SHBG). Although this should be reported by the laboratories when testosterone is requested with SHBG, see link for FAI calculator Free Androgen Index (FAI) Calculator (mdapp.co)
- Levels to be taken prior to the first prescription, 3 months after starting and 6 monthly during continuing therapy. If treatment successful during initial trial period and FAI remains <5%, to be continued in primary care with support from secondary care if needed.
- Women ideally to have bloods taken in primary care 1 week prior to review at 3 months (as a GP delegated request) to enable continued prescribing at the clinic appointment.
- Ask women not to use testosterone on the morning of the test – can cause false positive supra-physiological levels
- Women with FAI <2% at baseline gain the most benefit from use.

Subsequent tests - where appropriate *(Please indicate who takes responsibility for taking bloods and interpreting results)*

The GP will be responsible for:

1. Issuing of prescription and adjustment of dose according to the protocol, or on specialist advice, after test results are known to the prescriber.
2. Notification to the specialist of any changes in the patient's condition or any adverse drug reactions.
3. Non-compliance with medications or monitoring: Contacting the patient to ascertain the reason for non-attendance for routine blood tests if more than one test is missed. Communication with the patient that non-attendance for blood testing will lead to withdrawal of the medication.
4. Severe side effects/potential overdose: urgent referral to the specialist if required.

5. Referral of the patient back to specialist if the medicine becomes less effective, and medical conditions / oestrogen HRT has been optimized.

Test	Frequency	Who by	Action/management
Total testosterone level and sex hormone binding globulin (8-10am sample) one week prior to review with GP. FAI should be reported by the laboratory, but see link for FAI calculator Free Androgen Index (FAI) Calculator (mdapp.co)	6 monthly	GP Practice	**1. If patient reports efficacious symptom control and:** **a.) FAI <5%** Continue at current dose **b.) FAI 5% or more** **Stop testosterone and refer patient to specialist** *NB Ensure patient has not used testosterone on the day of testing, if so repeat test.* **2. If patient reports reduced efficacy of symptom control and:** **a.) FAI <2%** Discuss with specialist potential increase in dose **b.) FAI 2-5%** Stop testosterone and assess for other causes of symptoms
Review with GP regarding symptom control and presence of androgenic side effects	6 monthly with FAI	GP Practice	

Section 4: Side Effects

Please list only the most pertinent side effects and management. Please provide guidance on when the GP should refer back to the specialist. For everything else, please see BNF or SPC.

Side effects and management

Side effect	Frequency/severity	Action/management
Skin reaction, acne, hirsutism	1in10	Skin reaction – switch preparation Acne / hirsutism – reduce dose.
Clitoromegaly, enlarged labia, deepening voice	Rare, occurs with prolonged, supraphysiological levels and can be irreversible.	Stop testosterone and urgent FAI. Discuss with specialist.

Referral back to specialist

Review criteria:

- Troublesome effects such as headaches, acne, hirsutism
- Onset of cardiovascular disease or hormone sensitive cancers

Section 5: Other Issues
(e.g. Drug Interactions, Contra-indications, Cautions, Special Recommendations)
Please list only the most pertinent action for GP to take (For full list please see BNF or SPC)

Issues

Contra-indications

- Patients discontinuing oestrogen hormone replacement therapy
- Supraphysiological free androgen index (>5%)
- Active liver disease
- Pregnancy
- Clinical evidence of androgen excess such as clitoromegaly, enlarged labia, deepening voice
- Oestrogen sensitive conditions such as oestrogen receptor cancers, unstable lupus / catamenial epilepsy.

Precautions

Women suffering from severe cardiac, hepatic or renal insufficiency or ischaemic heart disease; treatment with testosterone may cause severe complications characterised by oedema with, or without, congestive cardiac failure. In such case, treatment must be stopped immediately. In addition, diuretic therapy may be required.

Interactions (see SPC for full list http://www.medicines.org.uk/emc/)

Oral anticoagulants	Monitoring of INR recommended particularly when started / stopped
Corticosteroids	Increased risk of oedema. Co-administer with caution
Thyroxine-binding globulin	Androgens may decrease concentrations of thyroxin-binding globulin, resulting in decreased total T4 serum concentrations and increased resin uptake of T3 and T4. Free thyroid hormone concentrations remain unchanged however, and there is no clinical evidence of thyroid dysfunction.
Insulin	Improved insulin sensitivity may occur in patients treated with androgens who achieve normal testosterone plasma concentrations following replacement therapy.

Reminder to ask patient about specific problems	As above

Section 6: Advice to the patient

Advice for prescribing clinician to inform patient

1. Alternating the place of application on each day of use.
2. Report any androgenic side effects
3. Ongoing prescription can only be provided if attend for FAI monitoring

Section 7: Generic principles of shared care for SECONDARY CARE

Please do not amend.

Core responsibilities

1. Initiating treatment and prescribing for the length of time specified in **section 1.**
2. Undertaking the clinical assessment and monitoring for the length of time specified in **section 1** and thereafter undertaking any ongoing monitoring as detailed in **section 3.**
3. Communicate details of the above in 1 and 2 to GP within the first month of treatment. This information should be transferred in a timely manner.
4. Refer patients to GP and provide information of further action where appropriate e.g. if blood test is due.
5. To provide advice to primary care when appropriate.
6. Review concurrent medications for potential interaction prior to initiation of drug specified in **section 1.**
7. Stopping treatment where appropriate or providing advice on when to stop.
8. Reporting adverse events to the MHRA.
9. Reminder to ask patients about particular problems see **section 5.**

Section 8: Generic principles of shared care for PRIMARY CARE

Please do not amend.

Core responsibilities

1. Responsible for taking over prescribing after the length of time specified in **section 1.**
2. Responsible for any clinical assessment and monitoring if detailed in **section 3** after the length of time specified in **section 1.**
3. Review of any new concurrent medications for potential interactions.
4. Reporting adverse events to the MHRA.
5. Refer for advice to specialist where appropriate.
6. Reminder to ask patients about particular problems see **section 5.**

Section 9: Contact Details

Name	Organisation	Telephone Number	E mail address
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Section 10: Document Details

Date prepared	December 2021
Prepared by	Kristyn Manley, Consultant Gynaecologist, UHBW and Anna Durbin, Interface Pharmacist, BNSSG CCG.
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Section 11: Collaboration

All shared care protocols should be BNSSG wide where possible. Specialists in any one discipline are encouraged to collaborate across the health community in preparing shared care guidance. Please give details

1. University Hospitals Bristol and Weston
2. North Bristol Trust

Section 12: References

Please list references

- Achilli *et al* (2017). Efficacy and safety of transdermal testosterone in postmenopausal women with hypoactive sexual desire disorder: a systematic review and meta-analysis. Fertil Steril 107(2): 475 - 482
- Beral *et al* (2019). Type and timing of menopausal hormone therapy and breast cancer risk: individual participant meta-analysis of the worldwide epidemiological evidence. Lancet 394: 1159 - 1168
- Davis *et al* (2019). Global consensus statement on the use of testosterone therapy for women. J Clin Endocrinol 104(10): 4660 – 4666
- Islam *et al* (2019). Efficacy and safety of testosterone therapy for women: a systematic review and meta-analysis of randomised controlled trials. Lancet 7(10): 754 – 766
- Maclaren K (2012). The safety of postmenopausal testosterone therapy. Women's Health 8(3): 263 - 275
- BMS Tool for Clinicians (www.thebms.org.uk/publications/tools-for-clinicians/testosterone-replacement-in-menopause/)
- ESHRE (2015). Management of women with premature ovarian insufficiency.
- NICE guideline (NG23). Menopause: diagnosis and management.