Information Re Changing Testosterone Preparations: Leeds GIS

The aim of this document is to respond to queries around changing the formulation of testosterone an individual is receiving. Increasingly, we are seeing shortages of different testosterone preparations with requirements to change between preparation. This information is to provide a framework to help health professionals navigate these changes and increase confidence with hormone prescribing.

Types of Testosterone; Initiating and Up titrating:

Testosterone is normally started in a short acting formulation such as a gel or injectable (Sustanon/Enanthate) with initial monitoring at 4-6 months and with dose titrations up to target range. For risks of testosterone therapy, please see detailed information available on our consent forms for testosterone which are located on our health professional hormone support hub on our website.

	Drug	Brand Names/Strength	Starting Dose	Directions	Frequency/Dose Range
Injectable	**Testosterone**	**Sustanon**	250 mg every 4 weeks	1ml injection IM Avoid in peanut/soya allergy	2-6 weeks
		Testosterone enantate	250 mg every 4 weeks	1ml injection IM	2-6 weeks
	Testosterone undecanoate injection	**Nebido**	1000 mg every 12 weeks	4ml IM injection into buttock	May have second dose at 6 weeks then third dose at 12 weeks when initiating. 8-26 weeks maintenance dosing frequency.
Gel	**Testogel pump**	16.2mg/g topical gel (20.25 mg per actuation)	1-2 actuations daily (20.25-40.5 mg)	Apply to clean, dry, healthy skin of both inner thighs or abdomen.	1-4 pumps (40.5-81mg) once daily
	Testogel sachets*	40.5mg/5g topical gel (50mg per sachet)	Half to one sachet daily (20.25-40.5mg)		Half-2 sachets (20.25-81mg) once daily
	Tostran pump	20 mg/1g topical gel (10 mg per actuation)	1-2 actuation daily (10-20mg)		2- 8 pumps daily (20-80mg) once daily
	Testavan gel pump	20mg/g (2%)	1 actuation daily (23mg)		1-3 pumps (23-69mg) once daily
	Testim cream *	50mg/5g topical cream	25mg-50mg		50-100mg once daily

*Leeds GIS do not *routinely* recommend these products but if other options are not available it may be appropriate for a period of time.

Switching Between Gels:

Tostran gel pump 20mg/g 2%		Testavan gel pump 20mg/g (2%)		Testogel 40.5mg/Sachet		Testogel pump 16.2mg/g (1%)	
20mg	=2 pumps	23mg	=1 pumps	20.25mg	=half sachet	20.25mg	=1 pump
30mg	=3 pumps						
40mg	=4 pumps	46mg	=2 pumps	40.5mg	=1 sachet	40.5mg	=2 pump
50mg	=5 pumps						
60mg	=6 pumps	69mg	=3 pumps	60.75mg	=1 and a half sachets	60.75mg	=3 pump
70mg	=7 pumps						
80mg	=8 pumps			81mg	=2 sachets	81mg	=4 pump

Switching Preparations:

You can do a direct switch between any of the testosterone preparations although there is no formal advice on switching between testosterone injections or equivalent dosing. Any changes are inexact and would require further monitoring and dose adjustments as detailed below.

		Switching To…		
		Sustanon or Testosterone Enantate 250mg IM every 2-6 weeks	**Testosterone Gel** Testogel pump/sachets, Tostran etc- see next table for guidance	**Nebido** 1g IM every 8-26 weeks
Switching From…	**Sustanon or Testosterone Enantate** 250mg IM every 2-6 weeks	Direct switch between Sustanon and Testosterone Enantate	Stop Sustanon/enanthate and start gel on the day the next Sustanon/Enanthate is due. If was using Sustanon/Enanthate every 4-6 weeks use a low dose of Testosterone gel. If was using Sustanon/Enanthate every 2-3 weeks use a medium dose of Testosterone gel	Stop Sustanon/enanthate and start nebido on the day the next Sustanon/Enanthate is due. Give a second injection at 6 weeks then at 12 weeks. Take blood tests a further 6 weeks after this third injection. If levels are in range continue every 12 weeks. If high or low adjust dosing accordingly by 2 weeks. If receiving Sustanon/enanthate more frequently than every 2-3 weeks, it is appropriate to give the second injection at 4 weeks and then at 8 weeks with appropriate monitoring and adjustment as needed.
	Testosterone Gel Testogel pump/sachets, Tostran etc- see next table for guidance	Stop Gel and start Sustanon/Enanthate the next day. Start at every 3-4 weeks and recheck levels after third to fourth dose. If have been on >40g of gel, start at 3 weekly.	See table above for equivalent dosing of Testosterone gels	Start Nebido and continue the gel for the first 4 weeks. Give a second injection at 12 weeks then take blood tests a further 6 weeks after this second injection. If levels are in range continue every 12 weeks. If high or low adjust dosing accordingly by 2 weeks.
	Nebido 1g IM every 8-26 weeks	Stop Nebido and start Sustanon/Enanthate the on the day the next Nebido is due. Start at every 4 weeks and recheck levels after third to fourth dose.	Stop Nebido and start gel on the day the next Nebido is due. If was using Nebido every 14-26 weeks use a low dose of Testosterone gel. If was using Nebido every 8-14 weeks use a medium dose of Testosterone gel	

Monitoring:

All monitoring should be undertaken **4-6 months after a change in dose**. We recommend that the following blood tests (Testosterone, Estradiol, LFTs, FBC, Lipid profile including Triglycerides) be done six monthly for a year and then annually.

Sustanon/Enantate: Trough level (immediately before injection or if not possible within two days prior to injection), 4-6 months after changing dose. Testosterone levels should be in the **lower third of the reference range** immediately before the Sustanon or Enantate injections. The lower third of the male reference range is usually around **8-12 nmol/L** but does depend on the normal range for the local assay as these vary.

Nebido: Mid-way between injections, 4-6 months after changing dose depending on which preparation the individual has been switched from. Testosterone levels should be in the **middle third of the reference range** on Nebido (for samples taken mid-way between injections). We more commonly dose on mid point levels but if trough levels are logistically easier, we aim for levels in the lower third of the reference range immediately before Nebido injections. The middle third of the male reference range is usually around **15-22 nmol/L** but does depend on the normal range for the local assay as these vary. The lower third of the male reference range is usually around 8-12 nmol/L but does depend on the normal range for the local assay as these vary.

Gel: Ideally bloods are taken 4 to 6 hours after application of gel if applied in morning first thing in the morning if gel applied in evening (ideally under 10 hours from application of gel). Testosterone should be in the **middle third reference range** on gel which is usually around **15-22 nmol/L** but does depend on the normal range for the local assay as these vary.

Up-titration: If outside target range, increase/decrease as appropriate:

- injection frequency by 1 week for Sustanon/Enanthate
- 2 weeks for Nebido
- gel dose by 10mg

There is detailed advice available on our website under information for GPs on hormone prescribing which includes advice, frequently asked questions and some support with trouble shooting:
https://www.leedsandyorkpft.nhs.uk/our-services/services-list/gender-identity-service/

Trouble Shooting:

Factor	Action
Estradiol	Usually aim for less than 400 pmol/L with suppression of menstruation, however if no periods there is no evidence that higher levels are a concern.
BP	Blood pressure may increase. The clinician can diagnose and treat hypertension as appropriate.
FBC	Can cause polycythaemia (a high concentration of red blood cells in the blood). Testosterone should be withheld if haematocrit (PCV) $\geq$ 54% (0.54) and/or haemoglobin > 18 g/L and ongoing treatment immediately discussed with specialist. .
LFTs	Refer back to specialist if ALT three times greater than upper limit of normal reference range.
Lipids	Full lipid screen including fasting triglycerides. Treat raised triglycerides as per local guidance.
HbA1c	If diabetes or pre-diabetes.
Calcium	Can rarely cause hypercalcaemia – refer to specialist if greater than upper limit of reference range.
Cervical smear	**Attendance for routine cervical screening tests should remain the same as per the NHS Cervical Screening Programme recommendations, however the invitation process and informing of results are outside the NHS Cervical Screening Programme process and should now be**

	organised within your GP practice. If you have not already done so, and your patient is registered as male, with a new NHS number, you should liaise directly with the screening lead for cervical screening who will advise on further action. There are challenges regarding recalls for cervical screening and we know that there is poor uptake of cervical screening in this group. Consideration should be made of what may make the individual more comfortable and less concerned about this procedure including the use of vaginal Estradiol. There is further information on our website for health care professionals regarding cervical screening.
Breast cancer screening	Anyone who has **not had bilateral mastectomies** from the ages of 50 to 70. If the individual is registered as male with their GP they will NOT be automatically invited. If they have not had surgery to remove the breasts (bilateral mastectomy) and male chest reconstruction and would like to take part in screening, then they can organise their mammogram by visiting their GP or booking an appointment at a screening service. If they notice any changes that are not normal for them, they should talk to their GP.

If there is ongoing **vaginal bleeding**, please see the separate information leaflet on 'How to approach vaginal bleeding in transmen on testosterone treatment'

We understand that GPs may feel that they have limited experience with cross sex hormones and feel uncertain about prescribing or changing them. There are long waits for appointments within the service, and we aim to offer support, advice and guidance for GPs who are looking after patients who have been discharged from the hormone clinic.

If the website information does not answer your question and would like some further advice from our informal advice and guidance service, we can arrange this on receipt of a written request from yourselves via email to gid.lypft@nhs.net including:

- an update on the problems they are experiencing with their hormones and your query
- an up-to-date medical summary detailing their current problems, medication and any allergies
- recent weight and blood pressure measurements
- their most recent blood test results including a full hormone profile (**U&E's, LFT's, Calcium, Cholesterol Ratio, Triglycerides, Prolactin, FSH, LH, Hba1c, Oestradiol, Testosterone, Full Blood Count, TFT's and SHBG)** please be aware to time the blood test to the **appropriate timing** depending on their testosterone medication.
- We cannot arrange to review these patients in clinic, but we can offer you further advice and support.

Also, if you would like to organise further training for your practice to improve your knowledge and confidence with hormone prescribing, please contact Leeds GIS and we will do our best to facilitate this.

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