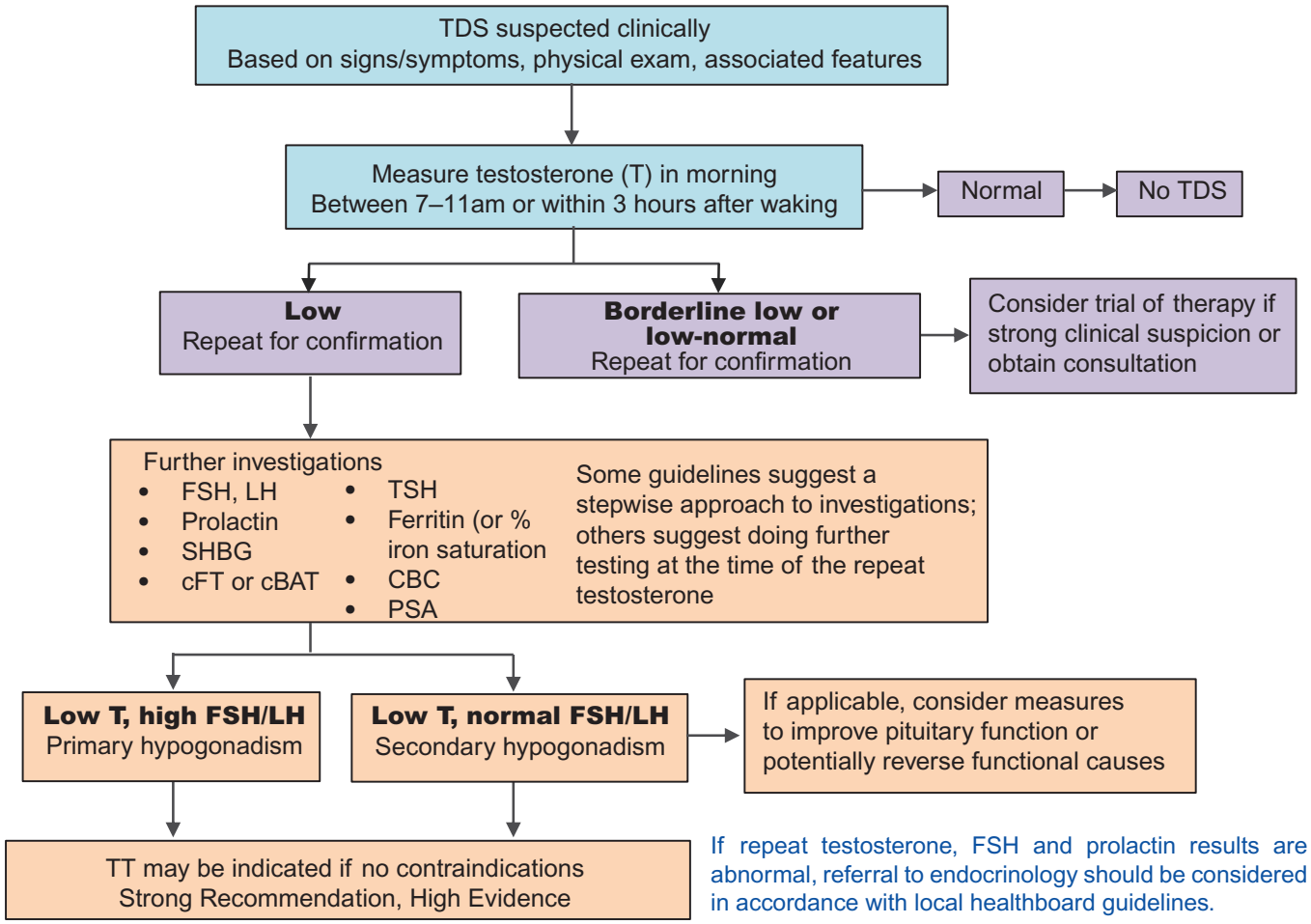
APPENDIX 1. Diagnosis and Management of Testosterone Deficiency Syndrome (TDS)



Monitor Patients on TT		
Treatment response and adverse effects	3 and 6 months after treatment onset	Strong Recommendation High Evidence
T levels	3 and 6 months after treatment onset, then annually if stable	Weak Recommendation Low Evidence
Hematocrit (HCT)	Baseline, at 3 and 6 months after treatment onset, then annually. Stop if HCT > 54%, restart at lower dose once < 50%	Strong Recommendation High Evidence
PSA (consider shared decision-making)	If done, baseline, at 3 and 6 months after treatment onset, then annually Refer if PSA > 4.0 or rises > 1.4 ng/ml in the first 12 months	Conflicting Recommendations Very low to Low evidence
DRE	Baseline, at 6 months after treatment onset, then annually	Weak Recommendation, Very Low Evidence
See Appendix 2 for additional testosterone monitoring for specific TT formulations cFT: calculated free testosterone; cBAT: calculated bioavailable testosterone; SHBG: sex hormone binding globulin; TT: testosterone therapy		

Sources: 1) Morales A, Bebb RA, Manjoo P, et al. Diagnosis and management of testosterone deficiency syndrome in men: clinical practice guideline. *CMAJ*. Dec 8 2015;187(18):1369-1377. **2)** Bhasin S, Brito JP, Cunningham GR, et al. Testosterone Therapy in Men With Hypogonadism: An Endocrine Society Clinical Practice Guideline. *The Journal of clinical endocrinology and metabolism*. May 1 2018;103(5):1715-1744.

APPENDIX 2. Treatment: Testosterone Deficiency Syndrome

	Drug	Dose	Advantages	Disadvantages	Specific T Monitoring
ORAL	Testosterone undecanoate	120–160 mg	Taken orally Dose can be modified	Variable serum T levels and clinical response Must be taken with fatty food (or 20 ml of extra virgin olive oil)	3–5 hours after ingestion with a fat containing meal
INTRAMUSCULAR	Testosterone enanthate	250 mg every 2–3 weeks	Self injectable (some patients)	Circulating T levels fluctuate widely (occasionally symptomatic) Requires multiple injections Pain/redness at injection site Relative higher risk of polycythemia May contain peanut oil.	Midway between injections: if > 24.5 nmol/L or < 14.1 nmol/L, adjust dose or frequency
TRANSDERMAL	Gel		T levels within normal range Flexible dose changes Easy to apply Readily absorbed Skin irritation less common Generally better tolerated than the patch Note: temporary peaks in serum levels with each dose; no known clinical significance	Can transfer during intimate contact Daily administration	Refer to specific product SPC for monitoring guidance. Adjust dose to achieve levels in mid-normal range

T: testosterone

Sources: 1) Morales A, Bebb RA, Manjoo P, et al. Diagnosis and management of testosterone deficiency syndrome in men: clinical practice guideline. CMAJ. Dec 8 2015;187(18):1369-1377. **2)** Bhasin S, Brito JP, Cunningham GR, et al. Testosterone Therapy in Men With Hypogonadism: An Endocrine Society Clinical Practice Guideline. The Journal of clinical endocrinology and metabolism. May 1 2018;103(5):1715-1744. **3)** Bhasin S, Cunningham GR, Hayes FJ, et al. Testosterone therapy in men with androgen deficiency syndromes: an Endocrine Society clinical practice guideline. The Journal of clinical endocrinology and metabolism. Jun 2010;95(6):2536-2559. **4)** Regier L. Andropause: Testosterone replacement agents. RxFiles. 2018. http://www.rxfiles.ca.; **5)** Folia C. Testosterone deficiency in aging men and its treatment: Your questions answered. 2007. http://www.canadianhealthcarenetwork.ca/files/2009/10/CE_Schering_Plough_200703.pdf. Reference 48

APPENDIX 3. The Sexual Health Inventory for Men (SHIM)

PATIENT INSTRUCTIONS	SUBJECT INITIALS: __	DATE COMPLETED: __/____/____DD/MM/YR

Sexual health is an important part of an individual's overall physical and emotional well-being. Erectile dysfunction, also known as impotence, is one type of very common medical condition affecting sexual health. Fortunately, there are many different treatment options for erectile dysfunction. This questionnaire is designed to help you and your doctor identify if you may be experiencing erectile dysfunction. If you are, you may choose to discuss treatment options with your doctor.

Each question has several possible responses. Circle the number of the response that **best describes** your own situation. Please be sure that you select one and only one response for **each question**.

OVER THE PAST 6 MONTHS:

1. How do you rate your confidence that you could get and keep an erection?

Very Low	Low	Moderate	High	Very High	
1	2	3	4	5	

2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration (entering your partner)?

No sexual activity	Almost never or never	A few times (much less than half the time)	Sometimes (about half the time)	Most times (much more than half the time)	Almost always or always
0	1	2	3	4	5

3. During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) you partner?

Did not attempt intercourse	Almost never or never	A few times (much less than half the time)	Sometimes (about half the time)	Most times (much more than half the time)	Almost always or always
0	1	2	3	4	5

4. During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?

Did not attempt intercourse	Extremely difficult	Very difficult	Difficult	Slightly difficult	Not difficult
0	1	2	3	4	5

5. When you attempted sexual intercourse, how often was it satisfactory for you?

Did not attempt intercourse	Almost never or never	A few times (much less than half the time)	Sometimes (about half the time)	Most times (much more than half the time)	Almost always or always
0	1	2	3	4	5

SCORE: Add the numbers corresponding to questions 1–5. If your score is 21 or less, you may want to speak with your doctor.

Source: Rosen RC, Cappelleri JC, Smith MD, et al. Development and evaluation of an abridged, 5-item version of the International Index of Erectile Dysfunction (IIEF-5) as a diagnostic tool for erectile dysfunction. *Int J Impot Res*. 1999;11:319-326.

APPENDIX 4. Treatment: Erectile Dysfunction

	Drug	Comments	Adverse Events (AE) Contraindications (CI)	Usual Dose
Oral PDE5 Inhibitors	**Sildenafil** (Viagra, g)	Dose adjustments may be needed for: • Age > 65 • He patic or renal impairment • Concomitant use of potent cytochrome P450 3A4 inhibitors (e.g., ritonavir, erythromycin), cimetidine (vardenafil) Fatty meals may cause delay in absorption (sildenafil, vardenafil)	**Common AE:** Headache, flushing, dyspepsia, nasal congestion, diarrhea, visual disturbances, epistaxis **Serious AE:** rare MI, priapism, QT elongation, rare NAION **CI:** concomitant use of organic nitrates (regular or intermittent), or know hypersensitivity to any tablet component	Possible dose adjustments: age > 65 25–100 mg PRN once daily (1 hour before sexual activity)
	Tadalafil (Cialis, g)			10–20 mg PRN 1–2 hours before sexual activity 2.5–5 mg daily
	Vardenafil (Levitra, g Staxyn)			10–20 mg PRN 30–60 mins before sexual activity
Prostaglandin E*	**Alprostadil*** Intracavernosal injection (Caverjet)	No more than 3 doses/week (24 hours between doses)	**Common AE:** ↓ HR, dizziness, fever, headache, hypotension, penile pain/fibrosis, tachycardia, urethral burning, vaginal burning (in partner) **Serious AE:** seizures, priapism, HF, second degree heart block, supraventricular tachycardia, ventricular fibrillation, disseminated intravascular coagulation, cortical proliferation of long bones **CI:** anatomical penile deformation, penile implant, predisposition to priapism, Peyronie's disease	Neurogenic ED: 2–5 ug Vascular ED: 5–20 ug 10–30 mins before sexual activity
	Urethral suppository (Muse)	No more than 2 suppositories in 24 hours		250–500 ug, 10–30 mins before sexual activity
	Prostaglandin E1 (E1) Corpora cavernosal inj* Transurethral gel	Most effective injectable agent		Same as alprostadil
Vasodilator*	**Papaverine (PV)***	Can be combined with prostaglandin and/or phentolamine (see below)	**Common AE:** abdominal discomfort, anorexia, constipation, nausea, vomiting, diarrhea, drowsiness, headache, vertigo, hypertension, tachycardia, pruritis, rash **Serious AE:** priapism, acidosis, ↑ intracranial pre sure, hepatotoxicity, priapism **CI:** complete atrioventricular block	30–60 mg intracavernosal over 1–2 mins
Alpha-Adrenergic Blocker*	**Phentolamine* (PT)** (Rogitine)	Poor efficacy alone – usually combined with prostaglandin and/or papaverine (BiMix or TriMix)	**Common AE**: chest pain, diarrhea, dizziness, headache, hypotension, nasal congestion, nausea, palpitations, ↑ HR, vomiting **Serious AE**: priapism, arrhythmia **CI:** MI, CAD, angina pectoris, hypersensitivity to phentolamine or mannitol, renal impairment, coronary or cerebral arteriosclerosis	1 hour before sexual activity

NAION: nonarteric ischemic optic neuropathy

* Injections are self-administered following clinician instruction

Oral PDE5 inhibitors can be prescribed in NHS primary care for erectile dysfunction, provided the men treated meet the criteria specified in the Scottish Drug Tariff Part 12. The prescription must also be endorsed "SLS". [49] If the patient fails to respond to PDE5 inhibitors despite titration to maximum dose, the patient should be referred to urology for further investigation in line with local health board policy.

Sources: 1) Regier L. Andropause: Testosterone replacement agents. RxFiles. 2018. http://www.rxfiles.ca. **2)** Bella AJ, Lee JC, Carrier S, Benard F, Brock GB. 2015 CUA Practice guidelines for erectile dysfunction. Canadian Urological Association journal. Jan-Feb 2015;9(1-2):23-29.

Patient Handout - Feel Free to Copy

LOW TESTOSTERONE (Low T)

What it means for you

Testosterone (T) is a type of hormone – a chemical substance that acts like a messenger in the body. Most T is made by the testicles. It is needed for:

- Normal sexual development and function in men
- Development of facial hair and deeper voice in growing boys
- Muscle strength
- Production of sperm

What causes low T?

T naturally lowers as you age – about 1% each year starting in your late 30s or 40s. Lower T can also be caused by:

- Being overweight
- Using certain drugs such as narcotics or antidepressants
- Diseases such as diabetes or problems with the pituitary gland (the "master" gland that controls several other hormone glands like the testicles)
- Infections
- Cancer treatments

What are the symptoms of low T?

Some symptoms are more strongly related to low T: lower sex drive, erection problems, painful or swollen breasts in men, loss of height, low bone mineral density (the strength in your bones), hot flushes and sweats.

More general symptoms may or may not be the result of low T: severe tiredness, poor memor y, sleep problems, lower muscle strength, increased body fat and mild anaemia (too few healthy red blood cells in your blood).

How do I know I have low T?

If your doctor finds you have some of the symptoms suggesting low T, he/she may order a test that measures the total amount of T in your blood. It should be done in the morning between 7 and 11am or within three hours of waking up if you do shift work.

If your test shows a low T, your doctor may order a repeat test and sometimes other blood tests to help pinpoint the cause of your low T.

How is low T treated?

Treatments include gels, injections or pills taken by mouth. Your doctor can help you decide if – and which – treatment is right for you.

Sources:

1) Grober ED. Testosterone deficiency and testosterone replacement therapy. The consumer's handbook of urological health. www.cua.org;

2) Testosterone Therapy: A patient guide. 2018. www.urologyhealth.org

Patient Handout - Feel Free to Copy

ERECTILE DYSFUNCTION

Erectile dysfunction (dis-funk-shen) means having problems with erections – not being able to get or keep an erection that is firm enough to have sex. At any age, it's normal to have erection problems now and then. But erection problems are more common in older men who may have other long-time health problems like diabetes or heart disease.

What causes erectile dysfunction?

It can be caused by many things such as:

- Physical problems: injury to the nerves of the penis or loss of blood supply to the penis.
- Health problems: diabetes, heart disease, depression, anxiety.
- Certain medications: blood pressure drugs, antidepressants.
- Lifestyle: smoking, lack of exercise or being overweight.

In fact, erectile dysfunction may be a sign that you might have heart problems, diabetes or other health problems.

Can erectile dysfunction be treated?

Yes. There are many treatments that can help. Your doctor might start by discussing changes to your lifestyle (like quitting smoking, exercising, drinking in moderation) or stopping/changing any medications that may be causing the problem. If your erectile dysfunction is caused by depression or anxiety, you might try counselling or medication.

There are prescription medications taken by mouth that can help you get erections. Talk with your doctor about whether these medications are safe for you to take. This is especially important if you have heart disease. If you do, your doctor will ask you about your ability to do exercise.

Other treatments for erectile dysfunction include:

- Medications placed on or into the penis through injections, creams/gels or suppositories.
- Vacuum devices that gently pull blood into the penis.
- Surgery that places an implant into the penis which is semi-rigid or can be inflated.

It is important to discuss with your doctor all the treatment options including their benefits and side effects.

Sources: 1) Erection Problems (Erectile Dysfunction). HealthLink BC 2017. https://www.healthlinkbc.ca/health-topics/hw112768; **2)** Erectile Dysfunction. Canadian Men's Health Foundation. https://menshealthfoundation.ca/health-information/penis/erectile-dysfunction