# Transgender Health Primer

Family Medicine Refresher Course
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**Terms**

- *Sex*- Also referred to as "sex assigned at birth." Usually assigned based on appearance of external genitalia. In addition to outward appearance, sex is based on chromosomes, presence of reproductive organs and their functionality. There are intersex conditions, also referred to as disorders of sexual development (DSD) that may present in multiple scenarios, including ambiguous genitalia in infants or primary amenorrhea in adolescents. The designations for sex are male, female, or intersex. Typically, even intersex infants are assigned either a male or female sex shortly after birth.
- *Gender*- Includes gender expression, gender role, and gender identity. Gender expression is the way that one presents themselves in terms of their dress, mannerisms, voice, and hairstyle. Gender role is how a person fits into society's expectation for each gender with regard to profession, attitude, and relationships. Gender identity is one's personal sense of being a gendered individual. For most people it is quite binary and either man or woman. For some people it non-binary and possibly on a spectrum or a different concept altogether. Designations for gender are man, woman, or transgender.
- *Transgender*- Umbrella terms that describes a person whose sex assigned at birth is incongruent with their gender identity. The opposite of this is cisgender, when sex assigned at birth and gender identity are aligned.
    - *Transman:* Female to male transgender person. Sex assigned at birth was female and gender identity is man.
    - *Transwomen:* Male to female transgender person. Sex assigned at birth was male and gender identity is woman.
    - *Non-binary:* Folks who reject the binary gender and do not identify as either a man or woman. This is in itself an umbrella term and some of the different identities under this include *third gender, gender queer, bi-gender, gender fluid, androgynous.*
- *Sexual Orientation*- A person's emotional and physical attraction for others. Options include *straight, gay, bisexual, pansexual, asexual, or queer.* Sexual orientation is completely separate from gender identity; it is important to remember that one does not predict the other.

**Diagnosis**

- DSM-V recently changed *Gender Identity Disorder* to *Gender Dysphoria.* The criteria is largely the same, including an incongruence between experienced gender and sex characteristics and a desire to be of the other or an alternative gender from one's assigned gender. This must importantly be associated with distress or impairment in social, occupation, or other important areas of functioning or be associated with distress or disability. The new DSM-V clearly state that gender nonconformity itself is not a mental disorder. However, some people experience dysphoria and distress associated with gender nonconformity, which makes it a diagnosable and treatable condition.

**Guidelines**

- WPATH- World Professional Association for Transgender Health Version 7 of the Standards of Care for the Health of Transsexual, Transgender, and Gender Non-Conforming People, 2011.
    - Eligibility for Hormones/Surgery
        - Persistent gender dysphoria
        - Capacity to give consent
        - >18 years
        - Controlled co-morbidities

- Recommendations for Hormones
  - One mental health evaluation is required
  - On-going psychotherapy is encouraged, not required
- Additional Recommendations for Surgery
  - Mental health evaluation from two providers
  - Continued therapy is encouraged, but not required
  - 12 continuous months of hormone therapy
    - Need not be present for chest surgery (male chest reconstruction or breast augmentation)
  - 12 months of living in the affirmed gender
    - Needed for phalloplasty, metoidioplasty, vaginoplasty
    - Need not be present for gonadectomy or chest surgery

**Medical Necessity**

- American Medical Association Resolution, 2008: "An established body of medical research demonstrates that effectiveness and medical necessity of mental health care, hormone therapy, and sex reassignment surgery as forms of therapeutic treatment for many people diagnosed with GID….Resolved, that our AMA support public and private insurance coverage for treatment of gender identity disorder as recommended by the patient's physician."

**Establishing Rapport**

- Name and pronouns- Asking a patient their preference and honoring it is one of the simplest and most fundamental things you can do to show them respect. Most transgender people will have binary pronouns such as she or he. However, some people use pronouns such as they, zir, or nir. Make note of the preferred name and pronouns in the chart and use this when talking to the patient, about the patient, and when completing your documentation.

| Terms to Avoid | Terms to Use |
|---|---|
| +/- Queer | Gay, Lesbian, Bisexual, or Transgender |
| +/- Homosexual | Gay, Lesbian |
| Hermaphrodite | Intersex |
| Transvestite | Cross Dresser |
| Transgender*ed* | Trans*/Transgender |
| +/- Transsexual | Trans*/Transgender |
| She-Male, Tranny | Trans*/Transgender, Gender Non-Conforming |
| MTF | Transwoman |
| FTM | Transman |
| Sex Reassignment Surgery | Gender Affirming Surgery |

**Resources**

- **Center of Excellence for Transgender Health:** http://transhealth.ucsf.edu/
- **The World Professional Association for Transgender Health Standards Of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People;** Seventh Version, 2011: www.wpath.org/soc.html
- **UI LGBTQ Clinic:** www.uilgbtqclinic.com
- **Unger, Cecile. Care of the transgender patient: the role of the gynecologist.** Am J Obstet Gynecol 2013.
- **Medical Therapy and Health Maintenance for Transgender Men: A Guide For Health Care Providers:** www.nickgorton.org
- **Endocrine Treatment of Transsexual Persons: An Endocrine Society Clinical Practice Guideline, 2009:** http://press.endocrine.org/doi/pdf/10.1210/jc.2009-0345
- **Quick Tips for Providers of Transgender Clients:** Forge Forward: http://forge-forward.org/wp-content/docs/caregiver_quicktips.pdf

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# Feminizing Hormone Medication Regimen

| | | Estrogen | | | Androgen antagonist | | Progesterone[7] | | |
|---|---|---|---|---|---|---|---|---|---|
| Agent | | 17β- estradiol[1] | | | Spironolactone | Finasteride[4] | Micronized progesterone | Medroxyprogesterone acetate | |
| Administration | | Transdermal[2] | Oral (sublingual) | Intramuscular[3] | Oral | Oral | Oral | Oral | IM |
| Brand Name | | Vivelle Dot/ Climara | Estrace | Depo-Estradiol (cypionate)/ Delestrogen (valerate) | Aldactone | Proscar (5mg)[5] | Prometrium[8] | Provera | Depo-Provera |
| Pre-orchiectomy | Starting Dose | 0.1 mg/24 hrs | 1-2 mg daily | 10 mg q 1-2 weeks | 100 mg daily (single or divided) | 1-5 mg daily | 100 mg qhs | 5 mg daily | 150 mg IM q 3 months |
| | Max Dose | 0.2 mg/24 hrs | 6 mg daily (single or divided) | 20-40 mg q 1-2 weeks | 200 mg BID | 1-5 mg daily | 200 mg daily (divided BID) | 30 mg daily (divided BID) | x 2-3 years max |
| Post-orchiectomy[9] | | 0.05-0.1 mg/24 hrs weekly | 1-2 mg daily | ------- | ------- | 1-2.5 mg daily[6] | --- | --- | --- |

1. Clinical trials among transgender women (Toorians et al, 2003) show higher risk of blood clots with ethinyl estradiol (OCPs) and conjugated estrogens (Premarin). 17 β- estradiol is the preferred estrogen because of this.
2. Transdermal administration thought to have lower risk for VTE. Recommended for those with highest thrombosis risk and >40 years old.
3. IM estradiol may maximize breast growth. May start initially for 1-2 years before switching to other preparations. May also try for 3-6 months if minimal breast development or early plateau on maximum oral or transdermal dose.
4. May add finasteride to spironolactone. If using finasteride for systemic anti-androgen effect, start with 2.5-5 mg daily. If using for male pattern baldness, can cut 5 mg tabs into halves or fourths and dose 1.25 mg daily or 2.5 mg qod. Finasteride 5 mg (Proscar) is significantly cheaper than Finasteride 1 mg (Propecia). Counsel patients on side effects including decreased libido and ejaculatory or erectile dysfunction.
5. Finasteride 5 mg daily is the dose used for BPH. This dose has been shown to decrease PSA values by ~ 50%. If PSA values are checked, they should be multiplied by a factor of 2 for the first 2 years and 2.5 anytime afterwards. Finasteride 5 mg daily was shown to decrease overall incidence of prostate cancer, but may increase the incidence of high-grade lesions. Annual DRE should be considered.
6. Post-orchiectomy anti-androgens can be discontinued. There still may be some androgens produced from the adrenal glands, which may cause hirsutism. Finasteride may be continued post-orchiectomy for male pattern baldness.
7. Progesterone use is controversial. May be helpful for full nipple development. Some providers offer a 6-month trial. Potential adverse effects: depression, weight gain, lipid changes, increased risk of CAD, stroke, VTE. Can use if further androgen suppression effects are required after maximum estrogen doses or if patient cannot tolerate an estrogen-based regimen.
8. Prometrium may have more favorable side effect profile and be less androgenic. May improve insomnia and mood swings.
9. It is essential to continue hormones post-orchiectomy to maintain desired effects and preserve bone health.

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# Feminizing Hormone Laboratory Protocol

| Timeline for Laboratory Tests | |
|---|---|
| Baseline | Fasting lipid panel[1], fasting glucose[2], AST/ALT[3], potassium, creatinine |
| 1 week after starting/changing dose of spironolactone | Potassium |
| 3 months after starting/changing dose of estrogen | Testosterone(free and total)[4], estradiol[5], potassium, AST/ALT |
| 6 months after starting/changing dose of estrogen | Testosterone (free and total)[4], estradiol[5], potassium, creatinine, AST/ALT |
| 12 months after starting/changing dose of estrogen and annually thereafter | Testosterone (free and total) [4], estradiol[5], Potassium, creatinine, AST/ALT, fasting lipids, fasting glucose, prolactin[6], PSA[7] |

1. Estrogen may actually lead to favorable changes in lipid parameters. Rationale for checking lipids at baseline and annually is to screen for and control possibly co-morbid conditions.
2. Can consider Hemoglobin A1c if risk factors present.
3. If patient is on oral estrogen it may be useful to check transaminases. If elevation occurs, can consider switching to transdermal or IM route.
4. Goal testosterone level is at the lower end of normal female range. If above goal, increase anti-androgens if not at max dose and estrogen level is at goal. If estrogen level is not at goal, can increase estrogen by 10-25%. Testosterone level may not need to be checked unless the patient has little evidence of feminization. If testosterone is checked and suppressed and dose is stable, no need to recheck.
5. Estradiol levels are controversial and expensive. Can consider them if patient not feminizing as expected or testosterone level not adequately suppressed on max doses on anti-androgens. Goal level is to maintain average physiologic female levels. May consider checking estradiol levels to assure adherence to prescribed regimen.
6. Check prolactin annually for 1-3 years once dose is stable.
    a. If level >25-40: Question outside source of estrogen or other medications (psychotropics) and monitor. Discontinue any progestin/progesterone.
    b. >40: If associated with elevated estrogen, decrease estrogen dose by 50% and recheck in 6-8 weeks. If estrogen normal, continue to monitor.
    c. >100: Stop all estrogen, recheck in 6-8 weeks. If continued elevation, consider MRI. If prolactin falls with discontinuation of estrogen, restart estrogen at 25% of previous dose and monitor q 6-8 weeks.
7. PSA considered after discussion of risks/benefits with the patient. If patient is on anti-androgen, the PSA level may be falsely low. If on finasteride 5 mg daily, multiply the PSA by 2-2.5x to interpret the result. Consider DRE annually in conjunction as finasteride has been shown to decrease overall incidence of prostate cancer, yet increase the incidence of high-grade prostate cancer.

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# Masculinizing Hormone Medication Regimen

| | | Intramuscular/Subcutaneous Injection[1] | | Transdermal Gel[5] | Transdermal Topical Solution | Transdermal Patch |
|---|---|---|---|---|---|---|
| Agent | | Testosterone Cypionate | Testosterone Enanthate | Testosterone crystals dissolved in gel[4] | | |
| Brand Name | | Depo-Tesosterone | Delatestryl | AndroGel[6]/Testim[7] | Axiron[8] | Androderm (2 or 4 mg/patch) |
| Pre-oophorectomy | Starting Dose | 50-100 mg weekly (or 100-200 mg q 2 weeks)[2] | | 50mg daily | 30 mg (1 pump) to each underarm (60 mg/day) | 2-4 mg daily |
| | Max Dose | 125 mg weekly (or 250 mg q 2 weeks)[3] | | 100 mg daily | 120 mg/day | 10 mg daily |
| Post-oophorectomy | | Decrease dose by ¾[9] | | | | |

1. Preliminary data suggests that if administered SQ, testosterone levels and masculinizing effects are similar to that of intramuscular injections.
2. Consider weekly dosing if route is SQ or if history of mood disorders, PCOS, obesity, lack of menstrual cycle suppression.
3. Caution increasing dose too high as excessive testosterone is converted to estrogen.
4. Transdermal preparations tend to masculinize slower. May be appropriate for maintenance after oophorectomy.
5. Caution patients regarding possibility of virilizing others with whom they come into skin-to-skin contact.
6. AndroGel is available in packets or a pump. Dosage is expressed in mg of testosterone. For AndroGel 1%: 50 mg testosterone = 4 pump actuations = two 2.5 gram packets = one 5 gram packet. For AndroGel 1.62%: 40.25 mg testosterone = 2 pump actuations = two 20.25 mg packets = one 40.5 mg packet.
7. Testim is available as a gel in a tube form. Dosage is expressed in mg of testosterone. For Testim 1%: 50 mg testosterone = one 5 gram gel tube.
8. Less likely to cause secondary exposure to others due to underarm application.
9. It is essential to continue hormones post-oophorectomy to maintain desired effects and preserve bone health.

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# Masculinizing Hormone Laboratory Protocol

| Timeline for Laboratory Tests | |
|---|---|
| Baseline | Fasting lipid panel[1], hemoglobin (CBC)[2], fasting glucose[3], AST/ALT[4] |
| 3 months after starting/changing dose of testosterone | Testosterone (total)[5], AST/ALT, CBC[2] |
| 6 months after starting/changing dose of testosterone | Testosterone (total)[5], AST/ALT, CBC[2], lipids |
| 12 months after starting/changing dose of testosterone and annually thereafter | Testosterone (total) [5], AST/ALT, CBC[2], lipids, fasting glucose[3] |

1. Testosterone may lead to decrease in HDL and overall increased risk of cardiovascular disease. Rationale for checking lipids at baseline is to manage potential co-morbidities.
2. Compare H/H to normal male levels. Testosterone may cause erythrocytosis.
3. Can consider Hemoglobin A1c if risk factors present.
4. Most protocols recommend checking liver enzymes at baseline and periodically, though there is no strong evidence for non-oral preparations of testosterone causing elevated levels.
5. Recommend checking level if patient is having a difficult time virilizing, stopping menses, or experiencing anxiety. Measure testosterone mid trough if route is IM, can measure at any time if route is transdermal or SQ weekly. Goal total testosterone level is 250-900 ng/dL. Can adjust based on levels. Consider switch to IM if levels still low with maximal transdermal preparation. If level is elevated, repeat test and consider free testosterone panel. For the first 6-9 months of testosterone therapy, the total levels may be high, but the free testosterone levels may be normal due to high SHBG levels in some assigned sex female at birth persons.