Objectives:

• To describe the health and emotional needs of the nonbinary/transgender community

• Identify attitudes, actions, behaviors that create a gender-affirming clinic environment

• Define gender identity, gender dysphoria, and gender affirming treatment

• Describe the benefits, risks, and monitoring protocols of gender affirming hormone therapy
GENDER ≠ SEX

Sex:
• Based on the biological characteristics used to label people as male or female such as X and Y chromosomes, internal and external sex organs
• Conventionally assigned at birth

Gender (identity):
• Ones internal sense of being male, female, neither or both
• Cisgender: Gender identity aligns with sex recorded at birth
• Transgender: Gender aligns with opposite gender than sex recorded at birth
• Nonbinary/ Gender-nonconforming: Identify with a gender that is not male or female, or has features of both
• Described in patient’s own words
Gender Dysphoria

Being transgender is not a disorder (*gender identity disorder is out*)

**Gender dysphoria:** DSM-5 diagnosis of discomfort/distress due to misalignment of sex recorded at birth and gender identity; NOT experienced by all patients who are gender non-conforming

**Gender incongruence:** Proposed ICD-11 term for individuals whose gender identity does not align with sex recorded at birth
<table>
<thead>
<tr>
<th>Transgender population is more likely to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack insurance</td>
</tr>
<tr>
<td>Poor access to preventive care</td>
</tr>
<tr>
<td>Suffer delays in diagnosis</td>
</tr>
<tr>
<td>Delay care due to discrimination</td>
</tr>
<tr>
<td>Be refused treatment by a healthcare provider</td>
</tr>
<tr>
<td>Have limited covered benefits for needed healthcare services</td>
</tr>
<tr>
<td>Teach a provider how to care for them</td>
</tr>
<tr>
<td>Be poor</td>
</tr>
<tr>
<td>Be unemployed</td>
</tr>
<tr>
<td>Be victims of violence</td>
</tr>
<tr>
<td>Attempt suicide</td>
</tr>
<tr>
<td>Have HIV</td>
</tr>
<tr>
<td>Chronic stress, shame, guilt</td>
</tr>
</tbody>
</table>

Cahill S. PLOS ONE, 2014.  
AAMC, Curricular Changes for LBGT, 2014.  
What Patients Need: An Affirming Environment

1. Consistent use of chosen pronouns, verbally and in EMR
2. Consistent use of chosen name, verbally and in EMR
3. A gender inclusive environment:
   ◦ Signage
   ◦ Gender neutral bathroom
   ◦ Patient education materials (with faces that look like them!)
   ◦ All patient facing staff to be gender competent
   ◦ Diverse workforce
   ◦ Gender neutral language: “Partner/spouse” instead of “husband”, “parent” instead of “mother”
4. Validation of their struggles with health disparities and discrimination
5. Extra time for clinic visits to plan for heavy emotions
6. Educated primary providers on best practices for care
7. A network of specialists that can help care for them: UPMC working on compilation of this (surgeons, medical subspecialists, derm, ENT, vocal therapy, psych, legal)
8. Ample patient education resources
Don’t Overthink It, Just Ask!

Treat pronouns as a vital sign, ”My name is Dr. Tilstra, I use she/her pronouns, what is your name?”

“What are your pronouns?” “What pronouns do you use?”

“What is your gender identity?”

“Tell me about your gender identity”

“Tell me about your experiences with gender”

◦ If you/someone makes a mistake, apologize and move on
Gender
Affirming
Treatment
Gender Affirming Treatment

• Medical or surgical interventions that gender non-conforming individuals might want

• Process of aligning physical characteristics and/or gender expression with gender identity

• Treatment is different for everyone: What alleviates one patient’s gender dysphoria may not alleviate another patient’s gender dysphoria

• Patients with untreated gender dysphoria are at high risk for morbidity and mortality
Types of Gender Affirmation

Social transition: The way one presents oneself in public including → name, clothing, and hairstyle

Medical transition: Medical treatments that help achieve desired gender-related features including → hormone therapy, hair removal, speech therapy

Surgical transition: Surgical procedures performed to achieve desired gender-related features including → chest, facial, and genital surgeries

Legal transition: Changing the name and gender markers on legal documentation (i.e. driver’s license, passport) to reflect one’s gender identity
Criteria for Hormone Therapy

1. Persistent, well-documented gender dysphoria
2. Capacity to make a fully informed decision and to consent for treatment
3. Age of majority in a given country
4. If significant medical or mental health concerns are present, they must be reasonably well controlled

**who makes this determination?
Gender-affirming Providers

- WPATH SOC 7: “WPATH strongly encourages the increased training and involvement of primary care providers in the area of feminizing/masculinizing hormone therapy”
- Primary providers can diagnose, consent for, and prescribe gender affirming therapy
- If you understand the DSM diagnosis of gender dysphoria, you can diagnosis it
- Medications used (estradiol, testosterone, spironolactone, etc) are used to treat other medical conditions and are not necessarily more lethal/risky than other drugs we use (anticoagulants/antiepileptics/psych drugs etc)

The First Visit

Identify, describe, and document gender dysphoria
- Timeline of feelings/thoughts
- Gender expression
- What is dysphoric? Parts of body - voice, pelvic area/chest, menses/fertility, hair, body shape, muscle mass

Identify, describe, and document patient’s wishes for treatment of gender dysphoria, “Gender Affirmation Plan”

Identify, describe any prior hormone, surgical treatments, complications, provider team (names/numbers of prior surgeons is important)
The First Visit: Risks for Therapy

- Family/personal history of VTE, CAD, sudden cardiac death, lipid disorders, hormone sensitive cancers
- Unstable mental health, hx of mental health (SI/hosp), treatments and teams UTD with cancer screening? Undiagnosed vaginal bleeding?
- Smoking
- HTN
- Obesity
- Logistics with follow-up, can they get labs? Where?
- Discordance with expectations of hormones
The First Visit

• Provide information about the expected effects from hormones
  ◦ Discuss the 3 A’s: Affirming, Annoying, Adverse Effects

• Discuss aspects that hormones do NOT change

• Discuss reproductive plans

• Obtain baseline labs

• Provide educational resources

• Share timeline/process for obtaining hormones
The Second Visit

• Discuss reproductive plans, again
• Any abnormal labs
• Discuss what the patient has learned, method of administration patient prefers (these patients are educated!)
• Revisit the 3 A’s
• Benefits of treatment
• Consent, however you feel comfortable doing this
• Teach administration of medications
Feminizing Hormone Therapy

Estrogens (17-beta estradiol, NOT Ethinyl estradiol)
- oral
- sublingual
- injection

Spironolactone (anti-androgen)
- for suppression of male-pattern baldness, skin changes, decreased body hair

Sometimes progesterone (controversial)
- May help breast growth (provera)
<table>
<thead>
<tr>
<th>Hormone</th>
<th>Initial-low</th>
<th>Initial</th>
<th>Maximum$^c$</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estradiol</td>
<td>1mg/day</td>
<td>2-4mg/day</td>
<td>8mg/day</td>
<td>if &gt;2mg recommend divided bid</td>
</tr>
<tr>
<td>oral/sublingual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estradiol</td>
<td>50mcg</td>
<td>100mcg</td>
<td>100-400 mcg</td>
<td>Max single patch dose available is 100mcg. Changed every 3-4 days</td>
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<td>transdermal</td>
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<td></td>
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<tr>
<td>Estradiol</td>
<td>&lt;20mg IM q 2 wk</td>
<td>20mg IM q 2 wk</td>
<td>40mg IM q 2 wk</td>
<td>May divide dose into weekly injections for cyclical symptoms</td>
</tr>
<tr>
<td>valerate IM$^a$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estradiol</td>
<td>&lt;2mg q 2wk</td>
<td>2mg IM q 2 wk</td>
<td>10mg IM q 2 wk</td>
<td>May divide dose into weekly injections for cyclical symptoms</td>
</tr>
<tr>
<td>cypionate IM</td>
<td></td>
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</tbody>
</table>
## Anti-Androgen Regimens

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Initial Dose</th>
<th>Maximum Dose</th>
<th>Microdose</th>
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</thead>
<tbody>
<tr>
<td>Spironolactone</td>
<td>PO</td>
<td>25-50 mg/day</td>
<td>200 mg/day</td>
<td>25 mg/day</td>
</tr>
<tr>
<td>Finasteride</td>
<td>PO</td>
<td>1-5 mg mg/day</td>
<td>5 mg/day</td>
<td>1 mg/day</td>
</tr>
<tr>
<td>Dutasteride</td>
<td>PO</td>
<td>0.5 mg/day</td>
<td>0.5 mg/day</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from: [transcare.ucsf.edu/guidelines](https://transcare.ucsf.edu/guidelines) and Tangprincha V, Safer JD. Transgender Women: Evaluation and Management. In: *UpToDate*, Post TW (Ed), UpToDate, Waltham, MA.
Feminizing Transition: Change Timeline

- Decreased libido
- Decreased spontaneous erections

<table>
<thead>
<tr>
<th>Initiation</th>
<th>3 months</th>
<th>6 months</th>
<th>9 months</th>
<th>12 months</th>
</tr>
</thead>
</table>
| Redistributio of body fat
Decrease in muscle mass, strength
Softening of skin
Breast growth (2 years)
Breast pain
Decreased testicular volume

Decreased terminal hair growth
Male pattern baldness

Affirming and Annoying?

Hembree WC. et al J Clin Endocrinol Metab. 2009.
Adverse Effects Associated with Estrogen/Antiandrogen Regimens

Likely increased risks
• Venous thromboembolic disease
• Hypertriglyceridemia
• Gallstones
• Weight gain
• Transaminitis

Possible risks
• Hypertension
• Diabetes
• Cardiovascular disease
  ◦ Hyperprolactinemia
• AKI
• Hyperkalemia
• Orthostatic hypotension
• Emotional Instability*

Contraindications
- VTE (can use transdermal)
- End-stage liver disease
- Active/unstable cardiac disease
- Active hormone-sensitive cancers

WPATH Standards of Care 7th Version, 2009
Goal Levels

(Total) Testosterone: <50-55mg/dl (UCSF and Endocrine Society)

Estradiol:
- physiological range for menstruating females 50-375 pg/ml (UCSF)
- 100-200pg/ml (Endocrine Society)
Practical Tips for Estrogen/Antiandrogen Regimens

• Patch > pills, safer for VTE risk
• Often need multiple patches applied at one time to achieve adequate dosing
• >40yo change to transdermal formulations
• Estrogen may affect the metabolism of other drugs – data for PrEP, anti-epileptic drugs
• Early orchiectomy can be beneficial in patients that are poor hormone candidates
• Starting estradiol slow and without spironolactone initially may help facilitate breast development (Wierckx, J Sex Med, 2014)
Masculinizing Hormones

Testosterone
- IM form most common
- Transdermal (Androgel), patches
- Expensive, fall off, site reaction

Progestins
- Used for menstrual suppression early in hormone therapy
<table>
<thead>
<tr>
<th>Androgen</th>
<th>Initial - low dose(^b)</th>
<th>Initial - typical</th>
<th>Maximum - typical(^c)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testosterone Cypionate</td>
<td>20 mg/week IM/SQ</td>
<td>50 mg/week IM/SQ</td>
<td>100 mg/week IM/SQ</td>
<td>For q 2 wk dosing, double each dose</td>
</tr>
<tr>
<td>Testosterone Enthanate</td>
<td>20 mg/week IM/SQ</td>
<td>50 mg/week IM/SQ</td>
<td>100 mg/week IM/SQ</td>
<td></td>
</tr>
<tr>
<td>Testosterone topical gel 1%</td>
<td>12.5-25 mg Q AM</td>
<td>50 mg Q AM</td>
<td>100 mg Q AM</td>
<td>May come in pump or packet form</td>
</tr>
<tr>
<td>Testosterone patch</td>
<td>1-2 mg Q PM</td>
<td>4 mg Q PM</td>
<td>8 mg Q PM</td>
<td></td>
</tr>
<tr>
<td>Testosterone cream</td>
<td>10 mg</td>
<td>50 mg</td>
<td>100 mg</td>
<td></td>
</tr>
<tr>
<td>Testosterone axillary gel 2%</td>
<td>30 mg Q AM</td>
<td>60 mg Q AM</td>
<td>90-120 mg Q AM</td>
<td>Comes in pump only, one pump = 30 mg</td>
</tr>
</tbody>
</table>
Masculinizing Transition: Change Timeline

Initiation

- 3 months
- 6 months
- 9 months
- 12 months

**Acne**
- Cessation of menses
- Increased sex drive

**Clitoral enlargement***
- Vaginal atrophy
- Fat redistribution

**Facial/body hair growth***
- Scalp hair loss
- Increased muscle mass/strength
- Deepening of voice***

*Not reversible

Affirming and Annoying!

Hembree WC. et al J Clin Endocrinol Metab. 2009
WPATH Standards of Care 7th Version, 2009
Adverse Effects Associated with Testosterone Use

Likely increased risks
- Polycythemia
- Weight gain
- OSA

No risk
- Breast, ovarian, cervical, uterine cancer
- Bone loss

Possible risks
- Hyperlipidemia
- Hypertension
- Cardiovascular disease (with other risk factors)
- Transaminitis
- Destabilization of mood DO
- DM2

WPATH Standards of Care 7th Version, 2009
Contraindications with Testosterone Use

- Unstable psychiatric illness
- Polycythemia with Hct >55%
- Unstable coronary disease
- Pregnancy
  - Need to be on highly effective birth control if applicable
- Hormone sensitive cancers
- Undiagnosed vaginal bleeding

WPATH Standards of Care 7th Version, 2009
Goal Levels

Clinical target: cessation of menses at 6 months

(Total) Testosterone:
- physiological range for males: 250-1100mg/dl, per our Epic
- I generally like to keep <1000mg/dl

Estradiol:
- physiological range for males: 6-54 pg/ml per our Epic
Practical Tips for Masculinizing Hormones

• Can be injected both subQ or IM
• Patches fall off and frequently cause a dermatitis
• With gels, be cautious of transfer to partners and pets
• Alpha blockade can be helpful for male pattern baldness
• Acne can be very severe
The Art of Hormones

- Driven by patient goals, side effects, levels, response, provider comfort
- In general, I start at low-initial dose and work up, Dr. Ufomata is more aggressive
- When titrating, consider Q2-3M intervals to check for side effects, affirming characteristics, weight, BP, mental health, labs, including hormone levels
- If all ok, we can increase
- Usually, patients end up on ~100mg testosterone IM weekly or 4-6mg estradiol daily
<table>
<thead>
<tr>
<th>Lab</th>
<th>First Year</th>
<th>&gt; First Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Estrogen/Antiandrogen Hormone Therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estradiol, free/total</td>
<td>Q3M, more often if E is high (no recs for E)</td>
<td>Q6M if dose is stable</td>
</tr>
<tr>
<td>Testosterone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lipids</td>
<td>~6M, <em>(PRN)</em></td>
<td>Q12M <em>(PRN)</em></td>
</tr>
<tr>
<td>LFTs</td>
<td>Q3M <em>(no recs)</em></td>
<td>Q6-12M <em>(no recs)</em></td>
</tr>
<tr>
<td>BUN/Cr/K (spironolactone)</td>
<td>Q3M and with med change</td>
<td>Q6M if on spironolactone, otherwise Q12M</td>
</tr>
<tr>
<td><strong>Testosterone Hormone Therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estradiol, free/total</td>
<td>Q3M, more often if T is high (no recs for E)</td>
<td>Q6M if dose is stable (no recs for E)</td>
</tr>
<tr>
<td>Testosterone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lipids</td>
<td>~3-6M <em>(PRN)</em></td>
<td>Q6-12M <em>(PRN)</em></td>
</tr>
<tr>
<td>LFTs</td>
<td>Q3M <em>(no recs)</em></td>
<td>Q6-12M <em>(no recs)</em></td>
</tr>
<tr>
<td>Hgb/Hct</td>
<td>Q3M</td>
<td>Q6-12M</td>
</tr>
</tbody>
</table>

**Blood pressure, weight, and mood!**

Italicized: UCSF guidelines
Feldman and Safer, Int J Trans, 2009
Don’t Forget Routine Primary Care

• STI screening and PreP

• Risk stratify for CVD
  • Lipids, diabetes screen, smoking, family hx

• Osteoporosis
  • Screen at 65 or
  • 50-64 yo if risk factors or s/p gonadectomy with > 5 years without hormones
Don’t Forget Routine Primary Care

Cancer screening based on anatomy ("Screen what you have")
- Begin mammography in transgender women who are > 50 with at least 5-10 years of estrogen exposure (UCSF)
- Transgender men need mammograms if breast tissue is present
- Cervical cancer screening if cervix present, per cis-gender guidelines
- Shared decision making for prostate cancer screening
- Colon cancer screening guidelines unchanged
# The Primary Care Package

<table>
<thead>
<tr>
<th>Transgender Men</th>
<th>Transgender Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC for polycythemia</td>
<td>BUN/Cr, K, orthostasis (spironolactone)</td>
</tr>
<tr>
<td>Cardiac risk: BP, lipids, a1c</td>
<td>Cardiac risk: BP, lipids, a1c</td>
</tr>
<tr>
<td>Soc: smoking, ETOH, HIV, STI</td>
<td>Soc: smoking, ETOH, HIV, STI</td>
</tr>
<tr>
<td>Mammogram</td>
<td>Excess VTE risk (consider ASA)</td>
</tr>
<tr>
<td>Cervical cancer screening</td>
<td>PSA/DRE</td>
</tr>
<tr>
<td>DEXA age 65 or earlier if risks</td>
<td>Mammogram vs. MRI for implant surveillance</td>
</tr>
<tr>
<td>Vit D</td>
<td>Vaginoplasty care</td>
</tr>
<tr>
<td>Screen for mood DO</td>
<td>DEXA age 65 or earlier if risks; Vit D</td>
</tr>
<tr>
<td></td>
<td>Screen for mood DO</td>
</tr>
</tbody>
</table>
Big Picture

Trans and gender non-conforming patients face discrimination everywhere, including when seeking healthcare

Learning how to adequately care for these patients is rewarding and algorithmic! You can do this!

Goal is to risk stratify, prevent complications, and adequately treat gender dysphoria with shared decision making
Special Thanks

- Eloho Ufomata, MD MS  ufomataeo@upmc.edu
- Maggie Benson, MD MS  bensonmk@upmc.edu
- Jamie Stern, MD MPH  sternjl@upmc.edu
- Rebecca Green, MD  greener@upmc.edu

@MaggieBenson17
@swa304
@ElohoUfomata
THANK YOU!
Resources

World Professional Association for Transgender Health (WPATH)
https://www.wpath.org/

UCSF Guidelines for Primary and Gender-Affirming Care
https://transcare.ucsf.edu/guidelines

Fenway Health
https://fenwayhealth.org/care/medical/transgender-health/

Endocrine Society
Resources

National LGBT Health Education Center: https://fenwayhealth.org/the-fenway-institute/education/the-national-lgbt-health-education-center/

Compilation of National Trans Resources and Programs: https://www.glaad.org/transgender/resources

UPMC Concierge (for resources and UPMC Health Plan Assistance): 844-202-0126

Trans Buddy PGH (for trans-friendly chaperone to health care appointments): 412-944-4261
Resources

Hugh Lane Wellness Foundation: https://hughlane.org/youth-and-family-services/youth-affirm/

Persad Center (Community Center for LGBTQ Wellness): https://www.persadcenter.org/

QBurgh (queer news and community resource for Pittsburgh): https://qburgh.com/

Sisters Pittsburgh (Black and Trans Community Organization): https://www.sisterspgh.org/

Allies for Health and Well-Being (for patients with or at risk for HIV, Hepatitis and infection): https://www.alliespgh.org/

Project Silk (PGH Community for LGBT youth of color, drop in community center): https://chscorp.org/service-area/program/project-silk


TransPridePGH Facebook Page: https://www.facebook.com/transpridepgh

Proud Haven (for LGBTQIa+ youth and adults experiencing homeless): https://www.proudhaven.org/
Key Clinical Resources

• Guidelines:
  • Endocrine Society Guidelines (2017)
  • UCSF Transgender Care and Treatment Guidelines (2016)
  • WPATH Standards of Care Version 7 (2012)

• Review Articles:
  • ACP In the Clinic: Care of the Transgender Patient (2019)
Additional Slides
## Lab Monitoring – Masculinizing Therapy, Alternative Recommendation

<table>
<thead>
<tr>
<th>Lab</th>
<th>Baseline</th>
<th>3 months</th>
<th>6 months</th>
<th>9 months</th>
<th>12 months</th>
<th>Annual</th>
<th>PRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin &amp; Hematocrit (goal HCT &lt; 50%)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Total Testosterone (goal 400-700 ng/dL)</td>
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<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
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<td>SHBG</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Albumin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Estradiol</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Adapted from: [transcare.ucsf.edu/guidelines](transcare.ucsf.edu/guidelines) and Tangprincha V, Safer JD. Transgender Men: Evaluation and Management. In: *UpToDate*, Post TW (Ed), UpToDate, Waltham, MA.
### Lab Monitoring – Feminizing Therapy, Alternative Recommendation

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>3 months</th>
<th>6 months</th>
<th>9 months</th>
<th>12 months</th>
<th>Annual</th>
<th>PRN</th>
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<td>Serum Estradiol</td>
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<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>Serum Testosterone</td>
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<tr>
<td>AST/ALT</td>
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<td>X</td>
<td></td>
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<tr>
<td>BUN/Cre/K if taking spironolactone</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
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<td>Albumin</td>
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</tr>
<tr>
<td>Lipid Panel</td>
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<td>X</td>
<td></td>
<td></td>
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</tbody>
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Adapted from: [transcare.ucsf.edu/guidelines](transcare.ucsf.edu/guidelines) and Tangprincha V, Safer JD. Transgender Women: Evaluation and Management. In: *UpToDate*, Post TW (Ed), UpToDate, Waltham, MA.