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In the Clinic®

Care of the Transgender Patient

Terminology and Initial Evaluation

Medical Management

Transgender-Specific Surgeries

Medicolegal and Societal Issues

Practice Improvement

Transgender persons are a diverse group whose gender identity differs from their sex recorded at birth. Some choose to undergo medical treatment to align their physical appearance with their gender identity. Barriers to accessing appropriate and culturally competent care contribute to health disparities in transgender persons, such as increased rates of certain types of cancer, substance abuse, mental health conditions, infections, and chronic diseases. Thus, it is important that clinicians understand the specific medical issues that are relevant to this population.

CME/MOC activity available at Annals.org.

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doi:10.7326/AITC201907020

CME Objective: To review current evidence for terminology, initial evaluation, medical management, transgender-specific surgeries, medicolegal and societal issues, and practice improvement of transgender patient care.

Funding Source: American College of Physicians.

Disclosures: Dr. Safer, ACP Contributing Author, reports that he is employed at Icahn School of Medicine at Mount Sinai, served on an advisory panel for Endo Pharmaceuticals, and has given invited lectures for various academic institutions and professional organizations. His spouse is employed by Parexel. Dr. Tangpricha, ACP Contributing Author, has nothing to disclose. Disclosures can also be viewed at www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M19-0182.

With the assistance of additional physician writers, the editors of ***Annals of Internal Medicine*** develop **In the Clinic** using **MKSAP** and other resources of the American College of Physicians.

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Transgender and gender-incongruent persons have gender identities that differ from their sex recorded at birth (typically determined by examination of external genitalia). Studies estimate that 0.6% of U.S. adults, or 1.4 million persons, are transgender (1). This population faces disproportionate challenges in accessing health care services and may experience medical mistreatment (2–5). The largest barrier to care reported by transgender persons is a lack of knowledgeable providers (6). Barriers to accessing appropriate and culturally competent care play a significant role in health disparities among transgender persons, such as increased rates of certain types of cancer, substance abuse, mental health conditions, infections, and chronic diseases (3, 4, 7–13). Historically, care was largely limited to select facilities. Improving access to medically and culturally competent care requires involvement of primary care providers outside such specialized settings (14).

Terminology and Initial Evaluation

What does "transgender" mean?

Gender identity refers to a person's sense of being male, female, neither, or a combination of both (**Box**). The terms "transgender," "transsexual," "trans," "gender nonbinary," "gender incongruent," and "genderqueer" are used to describe persons whose gender identity does not align with the sex recorded at birth. Previously, the term "transsexual" indicated that the person had received medical and surgical treatment to align their appearance and gender identity. However, "transgender" has become the preferred term because it also includes those who have had no treatment. "Cisgender" refers to persons who are not transgender—that is, those whose sex recorded at birth aligns with their gender identity.

Transgender men have a male gender identity but were identified as female at birth, and transgender women have a female gender identity but were identified as male at birth. Gender-nonbinary and genderqueer persons may identify with a gender that is neither male nor female or has features of both. Gender expression relates to how a person signals gender identity to others via clothing, hairstyle, actions, and mannerisms. Alignment of physical characteristics with gender identity is referred to as "transition," "gender affirmation," or "gender confirmation."

Gender dysphoria is a mental health diagnosis that describes the discomfort of misalignment of gender identity and the sex recorded at birth. Not all transgender persons have dysphoria, but many U.S. insurance companies require this diagnosis for reimbursement for transgender medical and surgical interventions (15). Although transgender identity does not equate with a mental health condition, the only codes for a transgender diagnosis in the International Classification of Diseases, 10th Revision (ICD-10), are in the mental health section. A tentative plan for ICD-11 is to add gender incongruence to the sexual health section and remove gender dysphoria entirely (16).

What is known about the natural history of transgender identity development?

Although the mechanisms are not known, data suggest a biological underpinning to gender identity that is present at birth (17, 18). Investigators report an inability to manipulate gender identity by external means (19, 20). Twin studies indicate that identical twins have greater concordance with regard to transgender identity than fraternal

Common Terminology

Gender/sex: Broad terms describing the entire category of relevant biological characteristics, self-identification, and stereotypical behaviors that might be considered male, female, or some variation.

Gender identity: The internal sense of being male, female, or neither.

Transgender, transsexual, trans, gender nonbinary, gender incongruent, genderqueer: Adjectives used to refer to persons whose gender identity does not align with their sex recorded at birth (the latter primarily based on visible physical anatomy).

Cisgender, nontransgender: Adjectives used to refer to persons whose gender identity aligns with their sex recorded at birth.

Gender expression: How a person communicates gender identity through appearance, dress, name, pronouns, mannerisms, and speech.

Gender-affirming hormone treatment and surgeries: Broad categories of medical interventions that transgender persons might consider to align their appearance and their gender identity.

Gender transition, gender affirmation, gender confirmation: An overall process of alignment of physical characteristics and/or gender expression with gender identity.

Gender dysphoria: Discomfort felt by some persons due to lack of alignment between gender identity and the sex recorded at birth. Not all transgender persons have dysphoria, but many U.S. insurance companies require this diagnosis for payment for transgender medical and surgical interventions.

twins (21). Further, evidence shows increased rates of male gender identity among some persons with congenital adrenal hyperplasia who were exposed to excess androgen in utero (22), whereas those with complete androgen insensitivity syndrome have female gender identity (23).

Children demonstrate an ability to articulate a gender identity as early as age 2 years and develop facility with gender labeling, including pronouns, by school age (24). High-quality epidemiologic studies and consistent definitions of gender identity among children are lacking. Depending on the ages included in the study and the definitions used, 0.6%–2.7% of children may report some degree of gender incongruence (25). Not all such children seek medical intervention later in life (26). By adolescence, children are increasingly able to articulate gender identity. Puberty can be distressing for gender-incongruent children. The desire to avoid the "wrong puberty" may prompt some adolescents to report their gender incongruence to their parents, health care providers, and others (27).

Most transgender persons present to clinicians in late adolescence or adulthood. Whether this represents delayed recognition of gender incongruence, inability to articulate gender identity, or outside pressure to conform is not known. Despite the late presentation, many transgender persons report becoming aware of their gender incongruence well before puberty.

What is the initial approach for a patient who presents with gender incongruence?

Transgender persons present in myriad ways (14). Some may be confident in their gender identity and have clear treatment goals. Others may be less able to articulate their gender identity and may benefit from greater support from mental health providers. Finally, some are clear about their gender identity but less clear about their desire for medical intervention to align their identity and appearance. This last group may benefit from guidance from both mental health providers and providers who can help set expectations about medical interventions.

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Criteria for Establishing That a Patient Is Transgender or Gender Incongruent*

Persistent gender identity that does not align with sex recorded at birth
Capacity to make medical decisions
Potential confounding mental health conditions are addressed
*From reference 28.

In the clinical setting, transgender identity can be established on the basis of history alone (**Box**). The patient should have persistent gender incongruence and the capacity to make treatment decisions (28). The clinician should also address mental health conditions that may confound the determination. The requirement for persistence does not have a specific time frame, but multiyear histories extending as far back as childhood are typical. Development of gender incongruence over shorter periods (for example, not measured in years) should prompt further exploration of underlying factors and individual goals. Transgender persons have higher rates of anxiety, depression, and suicidality (29), so clinicians should be alert to signs and symptoms of these conditions.

For assessment, relevant mental health conditions are those that would interfere with reliable history taking. For example, there have been reports of patients presenting as transgender who had obsessive compulsive disorder (30) or well-masked psychoses rather than true gender incongruence. Transgender persons can certainly experience obsessions, compulsions, and psychoses, and in such instances, a multidisciplinary approach to assessment and care that involves a mental health provider would be prudent.

Although the Endocrine Society guidelines (31) state a preference for involvement of mental health providers in transgender determination for adults, they acknowledge that any sufficiently knowledgeable provider can make this determination. The provider should be knowledgeable enough to be able to identify mental health conditions that might confound the assessment or should refer the patient to a mental health provider who can help address this. Although the criteria for determining whether someone is transgender are the same for children and adolescents as for adults, children may articulate their gender identity in a more heterogeneous fashion. Thus, the Endocrine Society guidelines (31) recommend that assessment of children and adolescents involve a team of clinicians, including mental health professionals.

Terminology and Initial Evaluation... "Transgender" describes persons whose gender identity does not align with their sex recorded at birth, which is usually based on visible anatomy at the time. In the clinical setting, determination of transgender identity is based entirely on history. In making this determination, the provider should establish that the patient has persistent gender incongruence. The patient should be competent to make an informed decision about transgender medical interventions. For children and adolescents, a qualified pediatric or adolescent mental health provider should be involved in the assessment. For adults, the determination may be made by any provider who is sufficiently knowledgeable in transgender medicine and potential confounding mental health conditions.

CLINICAL BOTTOM LINE

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How should clinicians manage transgender patients considering medical intervention?

Although precise estimates are not available, not all transgender persons seek medical intervention (32). Further, some who want intervention may postpone it because of family circumstances, work environment, insurance coverage, or other barriers. With appropriate knowledge, primary care clinicians can initiate and manage transgender medical interventions, including hormone therapy and other agents that affect hormone levels, with involvement of an endocrinologist if needed.

Before initiating hormone therapy, clinicians should confirm the patient's transgender identity and assess the appropriate timing of therapy, with consideration of both social and health issues. Patients should be informed of the potential risks and benefits of hormone therapy and the time frame for expected changes. Selected laboratory tests are recommended before initiation of therapy (such as serum potassium measurement for spironolactone treatment or complete blood count for testosterone treatment). Clinicians should be knowledgeable about routine monitoring of hormone levels and potential adverse outcomes. In the absence of transgender-specific data, routine cancer screening should be done on the basis of the tissues and organs present and guidelines for the general population.

What is the role of hormone therapy?

Transfeminine (male-to-female) hormone therapy

Many transgender women seek hormone treatment to reduce facial hair growth, induce breast growth, and change fat and muscle to a more classically feminine distribution. Prior effects of androgens on the skeleton (height and size and shape of the hands, feet, jaw, and pelvis) and voice (including visible laryngeal prominence) will not be altered if treatment is initiated after puberty. Many transgender women require electrolysis or laser hair removal, especially if they begin hormone therapy later in life after substantial androgen exposure. Terminal facial hair continues to grow even without continued androgen stimulation. Also, some report a decrease in sexual desire with initiation of transfeminine hormone therapy.

The conventional approach is to decrease testosterone levels from the male range (10.4–34.7 nmol/L [300–1000 ng/dL]) to the female range (<1.7 nmol/L [<50 ng/dL]). Supraphysiologic doses of estrogens alone suppress androgen production via central feedback but may be associated with increased risk for thrombosis. Thus, typical regimens also include other testosterone-lowering agents so that lower estrogen doses can be administered.

Oral 17-β-estradiol is the most commonly prescribed estrogen (**Table**). The Endocrine Society does not list oral conjugated estrogens as first-line agents because they cannot be monitored with routine blood testing, a situation that may lead to unintentional supraphysiologic levels and increased thromboembolic risk. Evidence shows that the excess risk for thrombosis can be mitigated by using lower doses of oral estrogen or by using transdermal or injectable estrogen products, thus avoiding the drug's initial metabolism by the

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Table. **Hormone Regimens Used in Treatment of Transgender Patients**

Category	*Dosing*	*Mechanism of Action*	*Adverse Effects*	*Notes*
Transfeminine (male-to-female) hormone therapy				
Estrogens		Direct estrogen action, and central suppression of reproductive axis to decrease testosterone levels for persons with intact testes	Increased rates of venous thromboembolism	For estrogen therapy, measure total testosterone and estradiol levels approximately every 3 mo (i.e., with dose changes) initially and approximately annually when at steady state Note that the Endocrine Society does not consider conjugated estrogens as first-line therapy because they contain estrogens that cannot be monitored Start at low end of dose range and titrate to lowest effective dose (i.e., that achieves total testosterone level in female range)
Oral				
Estradiol	Initial: 1–2 mg/d Maintenance: 2–6 mg/d			
Conjugated estrogens	Initial: 1.25–2.5 mg/d Maintenance: 5–7.5 mg/d			
Transdermal: Estradiol patch	0.025–0.2 mg/d (new patch placed every 3–5 d)			
Parenteral: Estradiol valerate	2–10 mg IM weekly or 5–30 mg IM every 2 wk			
Androgen-lowering agents				
Spironolactone	100–300 mg/d orally	Inhibition of the androgen receptor decreased testosterone and production	Hyperkalemia risk	Start with 50 mg/d and verify safety of potassium level before each dose increase
Cyproterone acetate	25–50 mg/d orally	Central suppression of reproductive axis to decrease testosterone levels for persons with intact testes	Prolactin elevation	Start at low end of dose range and titrate to lowest effective dose (i.e., that achieves total testosterone level in female range)
Leuprolide	3.75–7.5 mg IM or SQ monthly or 11.25–22.5 mg IM or SQ depot every 3 mo	Central suppression of reproductive axis to decrease testosterone levels for persons with intact testes		Second-line agent for adults
Transmasculine (female-to-male) hormone therapy				
Androgen (testosterone)		Direct action on tissues	Erythrocytosis, acne	Start at low end of dose range and titrate to physiologic total testosterone level Increase dose if menses persist for >3 mo at steady state Consider dose decrease for severe acne
Parenteral				
Testosterone enanthate or cypionate	50–100 mg IM or SQ weekly or 100–200 mg IM or SQ every 2 wk			
Testosterone undecanoate	1000 mg every 12 wk			
Transdermal or transbuccal				
Gel	50–100 mg/d			
Transdermal patch	2–8 mg/d			
Transbuccal patch	30 mg to gums every 12 h			

IM = intramuscularly; SQ = subcutaneously.

liver (33). The Endocrine Society guidelines recommend against use of ethinyl estradiol (31) because data suggest that it is especially thrombogenic (34).

Orchiectomy is the most effective means of decreasing testosterone levels, but many transgender women choose medical treatment only, particularly early in their presentation. Thus, many have intact testes and may require relatively high estrogen doses to suppress testosterone into the female range, even with an adjunct antiandrogen agent (35). The usual approach is to start the estrogen and antiandrogen therapies concurrently. Typical estrogen regimens include oral estradiol, transdermal estradiol, or parenteral estradiol valerate. Patients should take only 1 estradiol formulation at a time but may switch formulations if the response in hormone levels is inadequate, if they have adverse outcomes (such as skin irritation), or if they prefer another formulation.

The 3 most commonly used adjunctive androgen-lowering agents (**Table**) are spironolactone (a potassium-sparing diuretic that blocks androgen action at its receptor and also decreases testosterone levels) (36, 37), cyproterone acetate (a progestin that is especially popular in Europe), and gonadotropin-releasing hormone (GnRH) agonist therapy. Spirono-

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lactone dosing for testosterone lowering is typically higher than for control of hypertension. Cyproterone acetate suppresses gonadotropins and may serve as an androgen-receptor antagonist. GnRH agonists are effective in suppressing testosterone levels but are second-line therapy in the United States because of their high cost.

Although not recommended by the Endocrine Society, progestins, such as medroxyprogesterone acetate and micronized progesterone, can suppress gonadotropins and, therefore, testosterone secretion. Medroxyprogesterone acetate has been associated with excess cardiovascular and breast cancer risk in older postmenopausal women receiving conjugated estrogens (38).

Finasteride inhibits 5-α-reductase-2 activity and, therefore, partially inhibits conversion of testosterone to the more potent dihydrotestosterone, which targets some tissues, including the prostate and the scalp. Finasteride has little utility if testosterone levels are already in the female range (providing no substrate to generate dihydrotestosterone) and is not routinely needed in transgender women. However, it may be an option for those with higher testosterone levels who are experiencing male pattern hair loss.

After treatment for approximately 6–18 months, transgender women often report breast growth, decreased muscle mass, softer skin, decreased sexual desire, and fewer erections.

Similar to the approach used for prescribing hormone replacement for postmenopausal women, clinicians should consider the relative contraindications for estrogen therapy, such as history of breast cancer, venous thromboembolic disease, cardiovascular disease, or cerebrovascular disease. Hyperprolactinemia should be addressed before estradiol therapy is started to avoid confusion, although data do not show that the common estrogen–spironolactone regimen stimulates increased prolactin production outside the normal range (39).

Transmasculine (female-to-male) hormone therapy

Similar to transfeminine therapy, the goal for transmasculine hormone therapy is to induce physical changes in patients to match their gender identity. Testosterone is usually administered at an appropriate dose to achieve and maintain hormone levels in the normal physiologic range for men (10.4–34.7 nmol/L [300–1000 ng/dL]). Typical testosterone regimens include esters, gels, or patches (**Table**). In the United States and Europe, a long-acting testosterone (testosterone undecanoate) is available but is associated with pulmonary oil microembolism and anaphylaxis. Thus, certification via a Risk Evaluation and Mitigation Strategy is required to administer this drug in the United States. Buccal testosterone patches are also available but are not commonly prescribed because they are difficult to apply. Injectable testosterone esters may be administered subcutaneously rather than intramuscularly, and good levels are achieved with greater patient comfort (40).

For patients interested in modified regimens, possibly because they have a nonbinary identity, maximum dosing is not required. The chief concern is avoiding hypogonadism and its associated risk to bone health.

Among available testosterone preparations and routes of administration (injectables, gels, skin patches, and buccal patches), no data suggest superiority of 1 form of treatment. However, higher testosterone levels are more easily achieved with

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parenteral therapy. Serum testosterone can be measured either with peaks (24-48 hours after injection) and troughs (immediately before injection) or midway between injections. Some clinicians start with lower testosterone doses because transgender men are often smaller than other men. Testosterone gel may also be used. Because skin patches often induce pruritus, they are rarely used in practice.

After approximately 3–6 months of treatment, transgender men often report cessation of menses, deepening voice, increased muscle mass, increased acne (at least initially), and increased sexual desire. Other changes may become apparent over longer periods, such as male hair pattern (including balding depending on age and family genetic background) and clitoral enlargement. Height is not affected by hormone treatment administered after puberty.

Although guidelines (31) have suggested that practitioners consider hysterectomy for transmasculine patients to avoid cancer risk from endometrial exposure to androgen, there are no data documenting this risk (41).

How should patients receiving hormone therapy be monitored?

Transfeminine patients

The Endocrine Society guidelines suggest monitoring transgender women receiving hormone therapy approximately every 3 months during the first year (that is, with each dose adjustment). The first year of medication adjustments and monitoring should focus on achieving hormone levels in the female range (testosterone levels <1.7 nmol/L [<50 ng/dL] and estradiol levels of approximately ≤734 pmol/L [≤200 pg/mL]). Medications should be adjusted to correct the specific sex-steroid hormone level that is out of range. For example, the testosterone-lowering medication dose should be increased for testosterone levels that remain above the female range. Likewise, for estradiol levels that are not in the female range, the estrogen dose should be altered as needed or changed to another preparation. For transgender women receiving spironolactone, potassium levels should be checked along with hormone levels to ensure that the patient is not hyperkalemic. Once the ideal concentrations of testosterone and estradiol are achieved, the Endocrine Society suggests monitoring sex-steroid hormone concentrations 1–2 times a year or whenever the dose is changed. In addition, the clinician should ask whether the patient is comfortable with the regimen or is experiencing adverse events, including mood changes.

Some practitioners also monitor estrogen-sensitive laboratory values, including triglycerides and serum prolactin. However, as previously noted, there is no evidence that the common estrogen–spironolactone regimen stimulates a clinically significant increase in prolactin production (39). Further, estradiol measurements do not reflect other estrogens that may be present (such as the multiple estrogens present in conjugated estrogen preparations as noted earlier or estrone produced hepatically after oral ingestion of estradiol).

Transmasculine patients

The Endocrine Society guidelines suggest monitoring serum testosterone levels in transmasculine patients every 3 months during the first year (with testosterone dose adjustment) and then 1–2 times per year once the patient is receiving a stable dose (31). Additional typical laboratory testing includes hematocrit, given that erythropoiesis is stimulated by testosterone.

54. Deutsch MB, Green J, Keatley J, et al; World Professional Association for Transgender Health EMR Working Group. Electronic medical records and the transgender patient: recommendations from the World Professional Association for Transgender Health EMR Working Group. J Am Med Inform Assoc. 2013;20:700-3. [PMID: 23631835]
55. Daniel H, Butkus R; Health and Public Policy Committee of American College of Physicians. Lesbian, gay, bisexual, and transgender health disparities: executive summary of a policy position paper from the American College of Physicians. Ann Intern Med. 2015;163:135-7. [PMID: 25961598] doi:10.7326/M14-2482

What adverse effects are related to hormone therapy?

Transgender hormone therapy is generally safe when prescribed under medical supervision (17). However, reports suggest that transgender women who receive hormone therapy may have increased risk for deep venous thrombosis, pulmonary embolism, stroke, and potentially myocardial infarction (42, 43). Data are insufficient to determine whether the cardiac and vascular risks are related to dose, duration of therapy, or another factor unique to transgender persons.

Clinicians should advise tobacco cessation and ensure that estradiol levels are not significantly supraphysiologic. Data from surrogate populations (33, 38) may favor reductions in estrogen dose with age along with a change to cutaneous estrogen preparations (presuming that the first pass of oral estrogens through the liver is more thrombogenic), although there are no data in transgender women.

Androgens stimulate erythropoiesis and explain the difference in hematocrit ranges between men and women. The result is that exogenous androgens can unmask polycythemic states in persons with other reasons for an increased hematocrit, such as sleep apnea. Hematocrit should be monitored with exploration of alternative explanations or treatments if it is found to be elevated. The androgen dose can be decreased as long as levels remain in the normal range and the lower dose has no adverse consequences.

How should clinicians discuss fertility with transgender patients?

Transgender patients who use hormone therapy may have limited fertility unless therapy is stopped. Those who have gender-affirming genital reconstruction surgery that includes removal of gonads lose their reproductive potential altogether. Thus, before starting any treatment, patients should be encouraged to consider fertility issues. Before hormone treatment or surgery, transgender women may consider sperm cryopreservation (44), and transgender men may have the option of cryopreservation of oocytes or embryos (44, 45). Embryo preservation is better established, but the associated costs are high, including ovarian stimulation along with oocyte retrieval, in vitro fertilization, and storage fees.

How do treatment approaches differ for prepubescent versus older persons?

Parents of prepubescent children should seek a multidisciplinary team with expertise in assessment and management of gender-incongruent children (31). If such a team is not available, a mental health provider with expertise in this topic should be identified. No medical intervention is indicated for prepubescent youth. Because male and female youth do not have appreciable levels of either estrogen or testosterone before puberty, puberty-blocking medication would not add benefit in a prepubescent child. The child should be assessed and managed for coexisting mood disorders during this period because risk for suicide is higher than in their cisgender peers (46). A mental health provider can assist the child and family with identifying an appropriate time for a social transition (gender presentation in public). At the earliest signs of puberty (Tanner stage 2), a transgender child may start receiving relatively reversible puberty blockers, such as GnRH agonists. Under the care of a multidisciplinary team, an adolescent with well-established gender identity may begin hormone therapy. Adolescents presenting after puberty may have little benefit from GnRH agonists and may be treated with sex-steroid hormones at the same doses as adults. Before any medical intervention, the clinician should discuss with the patient the effect of these therapies on fertility and potential approaches for preserving reproductive capability later in life.

Are there HIV–related issues that are specific to transgender patients?

Transgender persons are overrepresented among persons with HIV (47). Risk assessment must be customized rather than a single approach being applied to all transgender persons. Clinicians should counsel safe sex practices and screen for HIV, especially in transgender persons whose sexual behaviors place them at higher risk. Preexposure prophylaxis should also be provided to those at high risk.

What is the role of the psychologist or psychiatrist?

Many transgender persons have mental health conditions, such as depression and anxiety, with associated increased risk for suicide and self-harm. A psychologist or psychiatrist is often needed to comanage the patient's mental health issues. In addition, some transgender patients receiving medical interventions (even those without a history of mental health issues) may require mental health support to manage the stress associated with treatment. Although there are no data to demonstrate utility, most payers require that persons who seek gender-affirming genital reconstruction surgeries have referral

letters from qualified mental health providers.

How should clinicians handle screening and disease prevention?

Clinicians should pay attention to all tissues and organs present, regardless of gender identity (for example, prostate, breast, uterus, and cervix). Absent transgender-specific data, guidelines (28, 31) suggest preventive screening based on established guidelines for the general population. Screening for osteoporosis according to established recommendations by national professional associations seems appropriate, with particular attention paid to persons who have had prolonged periods of hypogonadism. The International Society for Clinical Densitometry recommends use of the cisgender female reference range for bone density T-scores to assess fracture risk in both cisgender men and cisgender women. Thus, no adjustment is required for transgender persons. For relative bone density *Z* scores, reference ranges consistent with gender identity may be used. For the latter, the reviewing clinician should consider hormone status and history for the overall bone density assessment.

When should clinicians refer transgender patients to specialists?

For adolescent patients, assessment by a multidisciplinary team is the standard of care, and providers should refer these patients to health care providers with the appropriate training. For adult patients, primary care providers with fewer patients on their panels may find it useful to refer transgender patients to qualified mental health providers for assistance with transgender assessment and to endocrinologists for guidance on initiation of hormone therapy (if desired by the patient).

Medical Management... Primary care clinicians with sufficient knowledge of transgender medicine can determine whether patients are transgender. Although hormones are reasonably safe when monitored, clinicians should be aware of potential adverse effects. Qualified mental health providers can assist with the initial assessment as well as comanagement of any mental health conditions. Clinicians may ask for guidance from endocrinologists on prescribing and managing hormone therapy. Absent transgender-specific data, cancer surveillance and other disease prevention strategies should follow general guidelines for all tissues and organs present in the patient, regardless of gender identity.

CLINICAL BOTTOM LINE

Transgender-Specific Surgeries

Approximately half of medically treated transgender persons also seek transgender-specific surgeries (32, 48). Transgender patients typically but not always seek surgical interventions after hormone therapy. Hormone therapy before transgender-specific surgeries is not obligatory. For patients seeking transgender-specific surgeries, clinicians should have a rudimentary understanding of the options and their limitations. They should also understand the usual preparation required for these surgeries.

At the initial encounter, clinicians should discuss potential surgical plans and medical interventions. Surgical plans may shift over time, so providers should plan to revisit surgical options with transgender patients periodically. Hormone therapy and surgery can significantly affect fertility, and patients may require time to address fertility concerns. Most surgeons follow World Professional Association for Transgender Health (WPATH) and Endocrine Society guidelines, which suggest that surgeries take place only after a year of hormone treatment (28, 31). The rationale is that patients should have a stable treatment regimen before undergoing more invasive interventions. For the rarer patients who seek surgery without hormone treatment, a different surrogate for a stable regimen might be considered, such as living in the gender role that matches the identity for a year.

As with other operations, providers should refer their patients to experienced surgeons with good outcomes in gender-affirmation procedures. Unfortunately, standards for evaluating surgeons' qualifications (such as number of surgeries) or quality of surgical outcomes do not exist. Surgical quality measures should include assessment of appearance and function. For genital surgery, quality measures should evaluate sexual and urinary function.

What surgical options are available?

Transfeminine surgeries

There are 3 categories of transgender-specific surgeries for transgender women (**Box**). Facial feminization surgeries are sometimes performed to create

more feminine features (49). Breast augmentation is another surgical option chosen by some transgender women, but there is no consensus on the optimal timing (50). Finally, some transgender women may desire genital reconstruction surgery (51).

Because facial feminization surgeries have historically been considered cosmetic, they remain uncovered by some payers even when other transgender-specific surgeries are covered. For many transgender women, especially those having medical intervention later in life when their faces show more signs of androgen exposure, facial feminization procedures are a necessary component of their care. Matching their gender identity with their anatomy that is visible to the public (for example, face and chest) can be a higher priority for some patients than anatomical changes that only the patient and his or her intimate contacts can appreciate. In addition to improving the patient's quality of life, such surgery can be necessary for their safety. Facial feminization surgeries are typically done by plastic surgeons with experience in transfeminine procedures.

Breast augmentation surgery can be more important than some realize for the same reasons as facial feminization surgery. Because breast augmentation is available to cisgender women, there are larger numbers of experienced surgeons and transgender women can anticipate fewer access barriers than with other transgender-specific surgeries.

Although some transgender women seek complete genital reconstruction, others seek more intermediate genital surgeries due to ease of care or preference. Elements of genital reconstruction surgery include bilateral orchiectomy, penectomy, and vaginoplasty (the last of which typically involves surgical construction of a vagina, a clitoris, and labia, often using the penile skin for the vaginal lining). Genital reconstruction surgeries are highly specialized. Patients should be advised to seek specialized surgical centers with both wide transgender-specific experience and good outcomes.

Surgical Options for Transgender Patients

Transgender Women

- Facial feminization surgeries
- Breast augmentation
- Genital reconstruction surgeries: vaginoplasty, orchiectomy

Transgender Men

- Chest reconstruction surgery
- Oophorectomy and/or hysterectomy
- Genital reconstruction surgeries: vaginectomy, metoidioplasty, phalloplasty

Transmasculine surgeries

For transgender men, the most common transgender-specific surgery is chest reconstruction surgery (50). In one report, 93% of transgender men seeking gender-affirming surgery at a single center sought chest masculinization surgery (48). Because of the substantial overlap with other chest masculinization surgeries (for example, for gynecomastia), more surgeons are able to perform these types of surgeries than other transgender-specific surgeries. Still, providers should seek surgeons with transgender-specific experience who can address the greater volume of mammary tissue that is present in a high-quality fashion as well as the occasionally different priorities expressed by transgender men relative to cisgender men with gynecomastia.

Some transgender men choose to have some combination of oophorectomy, hysterectomy, and vaginectomy. The first 2 are the most widely available transgender-related surgeries because they follow standard gynecologic procedures. Although data are limited, a minority of transgender men are reported to undergo oophorectomy or hysterectomy in the United States (48). Most report satisfaction with cessation of menses from testosterone treatment alone.

Genital reconstruction surgeries are the least common gender-affirming surgeries because of their relatively high morbidity (52). The 2 major procedures are phalloplasty (creation of a neophallus) and metoidioplasty.

For phalloplasty, tissue from elsewhere on the body (often the forearm) is used to create a phallus to attach to the body. The scar at the donor site can be disfiguring. The neophallus may have sensation but will not have erectile function. A prosthesis can be placed for vaginal penetration if desired. Sexual function is maintained by preserving the clitoral tissue in various locations. Harvesting tissue to extend the urethra through the neophallus is common, although current techniques are often associated with urethral strictures, which require additional operations.

The classic metoidioplasty involves release of ligaments surrounding the clitoris. When coupled with extensive androgen exposure, a microphallus up to several centimeters in length can be achieved. The clitoral release should preserve sensation for good sexual function. A version of

metoidioplasty includes urethral lengthening, which increases risk for urethral strictures.

Because of the substantial complexity and the likelihood of subsequent procedures, genital reconstruction surgeries for transgender men are best performed in centers with specific expertise.

How can clinicians help with decision making regarding surgery?

Primary care providers play an important role in counseling patients about gender-affirming surgeries. They must ascertain fertility plans in advance and must also set appropriate expectations with regard to sexual function and risk for additional procedures. Chest reconstruction surgeries, hysterectomy, and oophorectomy are widely available, even outside dedicated centers. Facial feminization surgeries and feminizing genital reconstruction surgeries are well established but require experienced surgeons with specific training and focus. Masculinizing genital reconstruction surgeries carry higher risk for morbidity and revisions, and the number of qualified surgeons practicing at regional centers is limited.

What preoperative evaluations need to be done?

As with most major surgeries, any medical and mental health conditions should be optimized to the degree needed for safe surgery and recovery. In addition, for genital reconstruction surgeries, hair must be removed from the relevant body regions. Laser hair removal or electrolysis may require several sessions over multiple months. Time for such treatment must be factored into preoperative planning.

For many gender-affirming surgeries, U.S. payers require letters from both medical and mental health providers to support the patient's plans, although there are no data showing the need for such a requirement. For surgeries that compromise fertility (such as gonadectomy or genital reconstruction surgeries), it is common for payers to require letters from 2 mental health professionals. Some payers stipulate that at least 1 of the letters come from a doctorate-level provider (such as a psychiatrist or clinical psychologist).

How should the patient's medications be managed before surgery?

Although neither data nor similar protocols exist for other operations, some surgeons require transgender women to stop estrogen treatment for several weeks immediately before and after surgery to decrease risk for perioperative thromboses. Surgical practice varies, but stopping treatment for 2–4 weeks is common.

How will the medication regimen change after surgery?

For transgender women who have had surgery that includes gonadectomy (for example, orchiectomy or vaginoplasty), the primary postoperative medication change is discontinuation of androgen-lowering medical treatment. Many providers typically decrease the estrogen dose by half with the thought that pharmacologic estrogen dosing serves in part as a testosterone-lowering method through central feedback. Absent testes, such therapy may no longer be necessary. There are no data to guide practitioners, and positions remain ad hoc.

How should patients be monitored after surgery?

Beyond monitoring hormone treatments in the usual fashion, transgender persons who have had gender-affirming surgeries may require specific follow-up. Facial feminization and chest reconstruction surgeries do not have transgender-specific monitoring requirements. Given their complexity, genital reconstruction has postoperative practices and potential issues that should be monitored.

Transgender women who have had vaginoplasty need to use vaginal dilators regularly to maintain the patency of the neovagina. Daily use of dilators may be required during the early postoperative period, with frequency decreasing modestly over time. It also should be noted that standard vaginoplasty procedures leave the prostate in place. With substantially lower levels of circulating androgens, the prostate shrinks in transgender women, so most prostate morbidity (such as benign prostatic hypertrophy) is unlikely. However, transgender women with vaginoplasty continue to have the potential for medical conditions involving the prostate, including cancer (53). Absent transgender-specific data, surveillance and screening for prostate cancer should follow general population guidelines.

Transgender men who have had phalloplasty are at significantly increased risk for urethral stricture. Awareness of this and the potential need for urgent intervention must be part of ongoing health care.

Do patients who have had transgender–specific surgeries have special health care needs?

Providers should follow usual practice, including monitoring of hormone treatment regimens. In addition, providers should perform cancer surveillance based on the organs that are present rather than gender identity. For example, a transgender man with a uterus and cervix requires appropriate cervical cancer screening.

Transgender-Specific Surgeries... Transgender persons have many surgical options, including facial, chest, and genital procedures. Chest reconstruction surgeries, hysterectomy, and oophorectomy are widely available. Facial feminization operations and feminizing genital reconstruction surgeries are well established but require surgeons with transgender-specific experience. Masculinizing genital reconstruction procedures carry high risk for morbidity. Facial and chest operations do not have transgender-specific monitoring requirements; however, clinicians should be aware that genital reconstruction procedures carry several postoperative risks. Transgender persons require medical surveillance of tissues that are present in the body regardless of gender identity.

CLINICAL BOTTOM LINE

Medicolegal and Societal Issues

Is it ethical or legal for clinicians to decline to care for a patient on the basis of gender identity?

Targeting specific medical conditions for discriminatory behavior is a straightforward violation of standard professional practice. Most major medical societies are developing best practices related to transgender health care.

How should clinicians document the patient's identity in the medical record?

For many institutions in the United States, the electronic medical record (EMR) presents a barrier to optimal documentation for transgender patients (54). In order to provide a safe, respectful environment, the EMR should have the capacity to record the pronouns used by the patient in addition to their used name, their gender identity, and the organs and tissues present.

Typically, the gender marker (in most states, the legal sex ["F" for female and "M" for male]) and the legal name require formal government-approved changes, with processes varying widely among states. Transgender persons may present according to their gender identity long before such documentation has occurred, including using names to match their identity. In addition, they may report their gender identity as male, female, or something else (including nonbinary), requiring further flexibility for appropriate data collection. Thus, relevant demographic characteristics to collect would be legal name, used name (if different), legal sex, sex recorded on the birth certificate, gender identity, and pronoun. In addition, providers should record organs and tissues that are and have ever been present to set the correct reminders in the system.

Organs and tissues that are present may change over time, and the medical record may need to be updated. Similarly, legal name and gender marker may be changed formally to match the used name over time, with analogous updating needed.

Are transgender medical and surgical interventions covered by insurance?

Approximately 20 states consider insurance for transgender care obligatory, with coverage details influenced by the evidence base and recommendations from established medical societies. The Patient Protection and Affordable Care Act made the obligation to provide transgender care nationwide.

Medicolegal and Societal Issues... National medical societies are unified with regard to the professional obligation of physicians to provide high-quality care to transgender persons according to current guidelines and practice. EMRs will need to be updated to correctly, safely, and respectfully record relevant medical and social details for transgender patients.

CLINICAL BOTTOM LINE

Practice Improvement

What are the elements of a successful care environment for transgender patients?

A successful care environment requires training of staff in addition to providers (**Box**). Staff should be comfortable with potential changes in names, pronouns, and physical appearance among transgender patients. Such changes may result in some identifiers not matching the older record or the insurance demographic information. Staff should be aware of these typical circumstances for transgender patients and should maintain an environment that is respectful and helpful. Part of the environment includes a change in the EMR to accommodate such shifts along with facilitating care for tissues present in patients regardless of their gender identity (54).

Clinic operations may require upgrades to improve the patient experience and to model good transgender-inclusive practice. Accommodations may require changes, including efforts to make restrooms inclusive of all gender identities.

Extra attention may be required to navigate certain circumstances to maintain respect but avoid confidentiality breaches for patients visiting the clinic with relatives who are unaware of certain medical details (for example, transgender adolescents whose parents are not aware of the child's gender identity).

Elements of a Successful Care Environment

- Transgender-specific staff training, with annual refreshers
- Transgender-specific provider training as required
- Transgender-friendly environment (e.g., inclusive bathroom use policies)
- EMR updated to collect legal name, used name, sex on birth certificate, gender identity, and pronouns

Because transgender medicine has not been part of conventional medical training, many providers will feel more comfortable if they receive specific training, such as society-specific sessions at national meetings and formal courses provided by WPATH, before providing care to transgender patients. A near-term goal must be to integrate transgender medical care into relevant specialty training, which will eventually obviate the need for independent transgender-specific training.

What do professional organizations recommend with regard to management of transgender patients?

In its most recent position statement, the American College of Physicians advocated for complete insurance coverage for transgender-specific health care and EMR improvements for appropriate collection of demographic data on transgender patients (55). The Endocrine Society and WPATH provide straightforward approaches to medical care for transgender patients (28, 31). For children and adolescents, the latter 2 organizations promote a multidisciplinary approach that includes both mental health professionals for assessment and medical professionals for medical interventions. For adults, clinical providers must determine that patients are persistent in their gender identity and must be versed in mental health conditions that might confound the determination. When desired, medical intervention should be managed by qualified providers who can address primary care, hormone regimens, and surgical procedures as appropriate with corresponding monitoring.

In the Clinic
Tool Kit

Care of the Transgender Patient

Patient Information

www.hormone.org/diseases-and-conditions/transgender-health
Patient resources from the Endocrine Society's Hormone Health Network.

http://transhealth.ucsf.edu/trans?page=lib-00-00
Transgender Health Learning Center from the University of California, San Francisco, Center of Excellence for Transgender Health.

http://transhealth.ucsf.edu/trans?page=lib-00-05
Transgender Health Fact Sheets from the University of California, San Francisco, Center of Excellence for Transgender Health in English and Spanish.

www.glma.org/index.cfm?fuseaction=Page.viewPage&pageID=692
Ten Things Transgender Persons Should Discuss with Their Health Care Provider from the GLMA: Health Professionals Advancing LGBTQ Equality.

www.cdc.gov/lgbthealth/Transgender.htm
Patient resources from the Centers for Disease Control and Prevention.

Information for Health Professionals

www.endocrine.org/guidelines-and-clinical-practice/clinical-practice-guidelines/gender-dysphoria-gender-incongruence
2017 Clinical Practice Guideline on the Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons from the Endocrine Society.

http://transhealth.ucsf.edu/protocols
Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender Nonbinary People from the University of California, San Francisco, Center of Excellence for Transgender Health.

www.wpath.org/publications/soc
Standards of Care, Version 7, from the World Professional Association for Transgender Health; free download available in 18 languages.

www.mayoclinic.org/medical-professionals/endocrinology/news/addressing-the-challenges-of-transgender-health-care/mac-20429315
Addressing the Challenges of Transgender Health Care information page from the Mayo Clinic.

WHAT YOU SHOULD KNOW ABOUT CARE OF THE TRANSGENDER PATIENT

What does it mean to be transgender?

Being transgender means that your gender identity differs from the sex recorded on your birth certificate. Gender identity is an internal sense of being male, female, or neither. Other common terms for this include "gender nonbinary," "gender incongruent," or "genderqueer."

Do transgender persons have special health considerations?

As a transgender man or woman, you may face challenges in accessing high-quality health care. It may be hard to find a provider who knows about transgender health issues and feels comfortable providing culturally sensitive care. Transgender persons are at higher risk for:

- Substance abuse
- Anxiety, depression, and suicide
- Certain types of cancer
- Infections

What is gender transition?

Transitioning is the process of making physical traits match gender identity, which may occur through clothing, hairstyle, or actions and mannerisms. Some transgender persons have medical treatment to make their physical appearance match their gender identity.

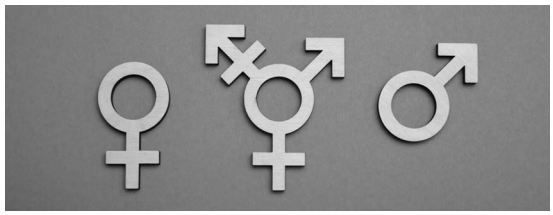
What can I expect when talking to my health care provider about my gender identity?

Maybe you feel confident in your gender identity and know which steps you want to take next. Or, maybe you feel clear about your gender identity but less sure about what, if any, medical intervention you want to align your gender identity and appearance.

Either way, it is important to find a trusted health care provider who can help you manage what comes next. During your first visit, your provider will:

- Take a detailed medical history
- Ask questions to find out how long your gender identity has differed from the sex recorded on your original birth certificate
- Assess your ability to make medical decisions

Transgender persons often have mental health issues, such as depression and anxiety. If your primary care provider believes you would benefit from seeing a mental health professional, they will refer you to one.



What medical options are available to transgender persons?

Hormone therapy is often the first approach. It can be used on its own or before surgical interventions. Talk to your health care provider about the risks and benefits of hormone therapy and the time frame of expected changes.

What are the risks and considerations of hormone therapy?

Hormone therapy is generally safe when it is medically supervised. Your provider will monitor you regularly during the first year and periodically thereafter. Let your provider know if you have any serious adverse effects, including mood changes.

What surgical options are available to transgender persons?

Surgical options for transgender men include:

- Chest reconstruction surgery
- Removal of the ovaries and/or uterus
- Genital reconstruction surgery

Surgical options for transgender women include:

- Surgery to make the face appear more feminine
- Breast augmentation
- Removal of 1 or both testicles
- Genital reconstruction surgery

Surgical interventions have risks. Talk to your provider about finding a surgeon who specializes in transgender-specific surgery and any preoperative and postoperative considerations.

Questions for My Doctor

- Do you have experience caring for transgender patients?
- Are transgender medical and surgical interventions covered by my insurance?
- What are the risks and benefits of hormone therapy?
- When will I start to see changes in my body after starting hormone therapy?
- I would like to have children one day. How can I preserve my fertility?

For More Information

ACP℠
American College of Physicians
Leading Internal Medicine, Improving Lives

Centers for Disease Control and Prevention
www.cdc.gov/lgbthealth/transgender.htm

National LGBT Health Education Center
www.lgbthealtheducation.org/topic/transgender-health

Patient Information