Literature Review

Re: Medical necessity of chest reassignment surgery to treat gender
dysphoria in transgender women

Date: May 2, 2019

I. Chest reassignment surgery is medically appropriate for and
consistent with the symptoms and proper diagnosis of the
patient’s disease, gender dysphoria.

Chest reassignment surgery is a procedure that changes male secondary
sex characteristics into female ones for the purpose of treating gender
dysphoria. Chest reassignment has been shown to be highly effective in
treating gender dysphoria.

A. Gender dysphoria is a “disease” under the plan.

Gender dysphoria “is a clinical term used to describe the symptoms of
excessive pain, anguish, agitation, restlessness, and malaise” that
transgender people often experience. It “describes the psychological
discomfort experienced with the physiological body . . . as well as a
presence of clinical [symptoms] associated with emotional
difficulties.”1 Gender dysphoria is “[o]ften experienced as depression,
anxiety, irritation, and/or agitation, [it] describes the sense that
something is very wrong . . . .”2 Before treatment, individuals with
gender dysphoria “live in a dissociated state of mind and body.”3

Similarly, transsexualism—another term for gender dysphoria—is
recognized under the International Classification of Diseases, Tenth
Revision (ICD-10) as “medical condition F.64.0.” It is defined as a
“desire to live and be accepted as a member of the opposite sex, usually

1 Arlene Istar Lev, Transgender Emergence: Therapeutic Guidelines
   for Working with Gender-Variant People and Their Families 10
   (2004).

2 Randi Kaufman, Introduction to Transgender Identity and Health, in
   The Fenway Guide to Lesbian, Gay, Bisexual, and Transgender Health
   331, 337 (Harvey Makadon et al. eds., 2008).

3 David Seil, The Diagnosis and Treatment of Transgendered Patients in
   Transgender Subjectives: A Clinician’s Guide 115 (eds. Ubaldo Leli &
   patients between 1979 and 2001).
accompanied by a sense of discomfort with, or inappropriateness of, one’s anatomic sex, and a wish to have surgery and hormonal treatment to make one’s body as congruent as possible with one’s preferred sex.”

In the forthcoming ICD-11, the World Health Organization has renamed the condition “gender incongruence,” and the condition has been moved from a mental health diagnosis to a physical one.

B. Insurance covers surgical and hormonal treatments to change sex characteristics for the purpose of treating gender dysphoria.

Men and women are sexually dimorphic, that is, they have distinct, sex-linked physical characteristics. Not only do men and women have readily apparent sex differences in genitals, reproductive organs and hormone levels, but men and women also have prominent differences in secondary sex characteristics. These differences can be seen in breasts, facial hair, fat distribution, muscle mass, height, body odor, skin texture, body hair, baldness, voice, Adam’s apple, and facial shape.

Changing physical sex characteristics from one sex to another is the standard treatment for gender dysphoria. The goal is to “ameliorate the discrepancy between an individual’s self-perceived gender identity and assigned sex.” (Ex. A). According to the World Professional Association for Transgender Health (WPATH), the recognized effective treatment of gender dysphoria is a triadic approach of providing mental health treatment, hormone therapy, and surgeries.

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5 World Health Organization, ICD-11: Classifying disease to map the way we live and die (2018), http://www.who.int/health-topics/international-classification-of-diseases (“Gender incongruence, meanwhile, has also been moved out of mental disorders in the ICD, into sexual health conditions. The rationale being that while evidence is now clear that it is not a mental disorder, and indeed classifying it in this can cause enormous stigma for people who are transgender, there remain significant health care needs that can best be met if the condition is coded under the ICD.”).

6 Shane Morrison, Stelios Wilson & Scott Mosser, Breast and Body Contouring for Transgender and Gender Nonconforming Individuals; 45 CLINICS IN PLASTIC SURGERY 333, 338 (2018).

7 See American Medical Association (AMA) House of Delegates’ Resolution 122,
The WPATH Standards of Care recognize that for those who do not experience relief due to other measures, “surgery is essential and medically necessary to alleviate their gender dysphoria . . . relief from gender dysphoria cannot be achieved without modification of their primary and/or secondary sex characteristics to establish greater congruence.”

The value of this treatment protocol is reflected in the fact that insurers cover surgery, hormones, and puberty delaying treatments for the purpose of changing (or preventing the change of) sex characteristics to treat gender dysphoria. This underscores the medical necessity of—as opposed to a cosmetic nature of—sex reassignment treatments.

Insurers correctly designate genital reassignment as medically necessary, recognizing that it is not a cosmetic surgery performed to “improve the appearance” of a person’s genitals, but to change a penis into a vagina or vice versa. That is, it changes the sex of a person’s genitals, making the primary purpose of the surgery functional, not cosmetic. Likewise, chest reassignment surgery is not designed to “improve the appearance” of a person’s chest, but rather to change a male chest into a female one. That is, it changes the sex of a chest so that it functions as a chest that is consistent with the person’s affirmed sex. Just as mastectomy is a core procedure for transgender men, chest

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reassignment is one of the core forms of sex reassignment surgery for transgender women.\textsuperscript{12} Indeed “[b]reast augmentation represents an essential component in gender affirming surgery,”\textsuperscript{13} which is reflected in the fact that it has been clinical practice for 50 years to provide surgery where breasts have not developed sufficiently to alleviate gender dysphoria.\textsuperscript{14}

C. Chest reassignment surgery is performed to change the sex of a chest.

1. Breasts or the absence of breasts are an important sex-specific characteristic used to identify an individual’s sex.

Male and female chests are anatomically distinct.\textsuperscript{15} (Ex. B). Due to estrogen, male and female chests sharply diverge at puberty when girls grow breasts and boys do not. The female thorax is shorter and more conical and outwardly displays the development of breasts.\textsuperscript{16} Mammary fat accounts for “the outer smoothness of the entire female chest, whereas additional axillary fat disguises the form of the” muscles of the

\begin{itemize}
\item \textsuperscript{12} My Andréasson et al., \textit{Patient-Reported Outcome Measures Used in Gender Confirmation Surgery}, 141 Plastic and Reconstructive Surgery 1026, 1026 (2018) (“Surgery performed for the purpose of lessening gender dysphoria is called gender confirmation surgery. Core procedures for transgender women are vaginoplasty and breast augmentation.”); Stan Monstrey, Gennaro Selvaggi & Peter Ceulemans, \textit{Surgery: Male-to-Female Patient in Principles of Transgender Medicine and Surgery} 105, 110 (Randi Ettner, et al. eds., 2007) (listing the three categories of reassignment surgeries: genital surgery, breast surgery, and non-genital, non-breast surgeries).
\item \textsuperscript{13} Richard M. Fakin et al., \textit{Long-Term Outcomes in Breast Augmentation in Trans-Women – A 20-Year Experience}, \textit{Aesthetic Surgery J}. sjy143, https://doi.org/10.1093/asj/sjy143 (Jun 12, 2018).
\item \textsuperscript{14} Donald R. Laub & Bruce Ascough, \textit{Transsexual Surgery}, 113 California Medicine 68 (1970) (“The operation should be combined with augmentation mammoplasty to produce breasts if they have not developed as a result of hormone treatment.”).
\item \textsuperscript{15} Karel E.Y. Claes et al., \textit{Chest Surgery for Transgender and Gender Nonconforming Individuals}, 45 Clinics in Plastic Surgery 369-380, 372 (2018).
\item \textsuperscript{16} Robert C.J. Kanhai, et al., \textit{Augmentation Mammaplasty in Male-to-Female Transsexuals}, 104 Plastic and Reconstructive Surgery, 542, 542 (1999).
\end{itemize}
pectoralis, sides and upper back and arms,\textsuperscript{17} which can be rather masculine in appearance in transgender women.\textsuperscript{18}

Breasts are an important physical sex characteristic that people rely upon in social interactions to determine the sex of another person;\textsuperscript{19} they are “the main external indicator of gender.”\textsuperscript{20} The “gendering” of other people has important social functions, not just in reproduction, but in social interactions in general.\textsuperscript{21} As one surgeon notes, “it is greatly distressing to be identified by others as a member of the opposite sex” in conflict to your own deeply held sense of self.\textsuperscript{22} Outside of being misgendered, there is also internal distress associated with experiencing one’s own body as being drastically incongruent.

For many trans women, the “incongruence between their internal and external manifestations of gender” can lead to a negative social impact from both work and personal environments.\textsuperscript{23} To minimize the impact of gender dysphoria on their lives, the ability to be visibly seen and recognized as women is of the utmost importance.\textsuperscript{24} The bias that trans

\textsuperscript{17} Id. at 542-43.

\textsuperscript{18} Fakin, supra note 13 (“The greater amount of mammary and axillary fat observed in cis-women creates a smoother surface contour and obscures the rather masculine appearance of the underlying pectoralis, serratus and latissimus muscles.”).

\textsuperscript{19} Laura Bond Maycock & Holly Powell Kennedy, Breast Care in the Transgender Individual, 59 J. of Midwifery & Women’s Health 74, 75 (2014) (“Breasts ... are viewed as an external indicator of gender.”).

\textsuperscript{20} Giovanni Papa et al., Surgical Therapy: Mastoplasty in MANAGEMENT OF GENDER DYSPHORIA: A MULTIDISCIPLINARY APPROACH, 145, 145 (Carlo Trombetta et al. eds., 2015).

\textsuperscript{21} Masami K. Yamaguchi et al., Judgment of Gender Through Facial Parts, 24 Perception 563, 563 (1994).

\textsuperscript{22} Jeffrey H. Spiegel, Facial Determinants of Female Gender and Feminizing Forehead Cranioplasty, 121 Laryngoscope 250, 260 (2011).

\textsuperscript{23} Tiffiny A. Ainsworth & Jeffrey H. Spiegel, Quality of life of individuals with and without facial feminization surgery or gender reassignment surgery, 19 Qual. Life Research 1019, 1022 (2010) (“This can include loss of job, home, and social support groups. It is not uncommon for these women to suffer from depression, anxiety, or suicidal tendencies.”).

\textsuperscript{24} Id.
women face takes an incredibly high toll on their health through direct harm, lack of appropriate care, and a hostile environment that can lead to their avoidance of the medical system for any health-related care.

External markers of gender influence trans women’s experiences surviving in daily life, which is often more important than genital appearance, since that is typically only known by one’s closest intimates.\textsuperscript{25} Having adequate female secondary sex characteristics becomes a key component of a successful transition, which can lead to better psychological functioning for a majority of trans women.\textsuperscript{26}

Low satisfaction with breast outcome resulting from hormones is related to the fact that puberty causes a natal male to develop a larger chest wall which can cause the later growth of breasts to appear smaller than objectively same-size breasts in the typical female population.\textsuperscript{27} For these individuals, what truly mattered was the entire appearance of the chest and not just the breasts as an isolated measurement.\textsuperscript{28} Because male frames are more bony and differ greatly from the female, the resulting appearance of the thorax is often more unsatisfactory to patients due to the difference in appearance from that of similarly developed natal females.\textsuperscript{29} This is consistent with studies on puberty induction in natal girls that experienced rapid estrogen exposure that lead to premature breast bud fusion and poor breast development.\textsuperscript{30} A trans woman tends to have other male sex characteristics including “a proportionately larger and less conical torso,”\textsuperscript{31} smaller and rather laterally placed nipple-areolar complexes, android chest and shoulders,


\textsuperscript{26} Leighton John Seal et al., \textit{Predictive markers for mammoplasty and a comparison of side effect profiles in trans women taking various hormonal regimens}, \textit{97 J. Clin. Endocrinol Metabolism} 4422, 4423 (2012).

\textsuperscript{27} Id. at 4426.

\textsuperscript{28} Id.

\textsuperscript{29} Id. at 4423.

\textsuperscript{30} Id. at 4425.

\textsuperscript{31} Fakin, \textit{supra} note 13.
and insufficient breast tissue as compared to pectoral muscles that have been hypertrophied due to testosterone exposure.\textsuperscript{32} Indeed, “[t]here are few changes that occur, even after years of estrogen therapy, which create a feminine appearance in the biologic male body.”\textsuperscript{33} All of these factors necessitate surgery in order to create a female chest.

2. **Hormone therapy is more often than not insufficient to cause the development of a female chest, necessitating surgery.**

That transgender woman may have some breast growth from hormones does not mean surgery is not medically necessary. The standard of review of for medical necessity of chest reassignment surgery is as follows: (a) does the patient have gender dysphoria and (b) will surgery help to alleviate her gender dysphoria. The standard is linked to the patient’s gender dysphoria, not an outsider’s assessment as to the alleged adequacy of the size and shape of her breasts. Similarly, the success of the surgery is not related to the ultimate size of the breasts but rather how well the new chest alleviates gender dysphoria.

Chest reassignment is performed in cases where hormonal treatment has not resulted in the sufficient growth of breasts to alleviate gender dysphoria.\textsuperscript{34} (Ex. C, D). The effect of hormone therapy is “highly variable” on breast growth and “some patients will hardly develop some breast buds even after years of estrogen therapy while others have full breast development after 1–2 years.”\textsuperscript{35} For that reason, a categorical

\textsuperscript{32} Morrison et al. supra note 6, at 338.

\textsuperscript{33} Britt Colebunders, Salvatore D’Arpa & Stan Monstrey, Top Surgery in Gender Affirmation: Medical & Surgical Perspectives 52 (eds. Christopher Salgado et al. eds., 2017).


\textsuperscript{35} S. Weyers et al., Mammography and Breast Sonography in Transsexual Women, 74
exclusion of breast surgery is clinically inappropriate, and individualized consideration must be given as to whether surgery will resolve an individual’s chest dysphoria.

Estrogen therapy can produce some breast development, but it is not as pronounced as in non-transgender (cisgender) women, typically resulting in a gynecomastia-type Tanner stage II-III appearance. For most trans women—particularly those who start hormone therapy when older—the breast growth is insufficient to resolve chest dysphoria. Accordingly, 67% to 75% of trans women require chest reassignment surgery because “hormonal treatment only results in softly pointed breasts as seen in young girls or the small conical form seen in young adolescents (Tanner stage II or III).” In one study of 229 transgender women, most breast growth was found to occur in the first 6 months. After one year of hormone therapy, almost half

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36 Marshall Dahl et al., Physical Aspects of Transgender Endocrine Therapy 9 INT’L J. OF TRANSGENDERISM 111, 113 (2013); S. Reutrakul et al., The Effects of Oestrogen Exposure on Bone Mass in Male to Female Transsexuals, 49 CLINICAL ENDOCRINOLOGY, 49, 811, 812 (1998) (finding Tanner stage II-III in trans women who had been on hormone therapy 13-58 months); Manuel Sosa et al., Serum Lipids and Estrogen Receptor Gene Polymorphisms in Male-to-Female Transsexuals: Effects of Estrogen Treatment, 15. EUROPEAN J. OF INTERNAL MED. 231, 234 (2004) (finding Tanner stage II-III in trans women who had been on hormone therapy for a minimum of 3 years); Fakin, supra note 13 (“Feminizing hormone therapy can provide breast growth that is comparable to breast size seen in the young teenage population.”)

37 Louis Gooren & Henk Asscheman, Sex Reassignment: Endocrinological Interventions in Adults with Gender Dysphoria in Gender Dysphoria and Disorders of Sex Development: Progress in Care and Knowledge, Focus on Sexuality Research 277, 281 (B.P.C. Kreukels et al. eds., 2014).

38 Claes, supra note 15, at 370; Kanhai, supra note 16, at 544 (noting 2/3 of the patients required surgery even after 18 months of hormone treatment); Ralf Dittrich et al., Endocrine Treatment of Male-to-Female Transsexuals Using Gonadotropin-Releasing Hormone Agonist, 113 EXPERIMENTAL AND CLINICAL ENDOCRINOLOGY & DIABETES 586, 589 (2005) (“After 24 months of cross-sex hormone treatment, 5% reported a size larger than a B cup, 30% reported the size of a B cup, 35% reported the size of an A cup, and 30% recognized only an increase in breast size below the A cup. However, 70% of the subjects found that the extent of their breast development was not desirable, or at least acceptable and wished to undergo breast augmentation.”).

39 Christel Josefa Maria de Blok et al., Breast Development in Transwomen After 1 Year
“(48.7%) had a bra cup size of less than an AAA cup.”

Furthermore, 52 transwomen (26.4%) had an AAA cup, 28 (14.2%) an AA cup, 14 (7.1%) an A cup, and only 7 transwomen (3.6%) gained a bra cup size larger than an A cup.

It is clinically inappropriate to say that a transgender woman does not require surgery simply because the size of her breasts might be in the typical range for a cisgender woman. The size of a transgender woman’s breasts cannot directly be measured against what would be considered adequate for other women. Other researchers have found that after 2 years of hormone therapy, at best 35% attain a B cup, which is “often disproportional to the existing male dimensions of the chest and height,” necessitating surgery. After two years of hormone therapy, no further development can be expected.

“[B]ecause of anatomical differences in the male chest compared with the female chest, breast size may appear smaller than the actual objectively measured volume.” Additionally, surgeons must use larger-than-usual implant sizes in transgender women to create a female chest on larger, phenotypically male chests, further illustrating the need for transgender women to have larger breasts than cisgender women to achieve a female chest and female habitus.

3. Breasts are recognized as an important sex characteristic in transgender men and mastectomy is universally covered.

The fact that insurance companies recognize that the presence or absence of breasts is an important secondary sex characteristic is reflected by the universal, categorical coverage of chest reassignment

of Cross-Sex Hormone Therapy: Results of a Prospective Multicenter Study, 103 The J. of Clinical Endocrinology & Metabolism 532, 534 (2017).

40 Id.

41 Id.

42 Gooren & Asscheman, supra note 37, at 281.

43 Id.

44 de Blok, supra note 39, at 533.

45 Papa, supra note 20, at 146-47.
surgery for transgender men. It is covered because like chest feminization, chest masculinization has been shown to alleviate chest dysphoria. However, considering breasts to be an important sex characteristic when it comes to transgender men—but not transgender women—is not only arbitrary, it is also sex discrimination.

Transgender men with very small breasts are still covered for their removal because the criteria for chest surgery in transgender men is not related to the size of their breasts, but rather to the presence of gender dysphoria. Insurance companies do not try to suggest that never taking one’s shirt in public or binding breasts is an appropriate treatment for gender dysphoria in transgender men.

By the same token, for transgender women, the criterion for whether surgery is appropriate is not the size of breasts but rather the presence or absence of gender dysphoria. Appropriate treatment for chest dysphoria in transgender women is never taking one’s shirt off in front of others or wearing breast prosthetics but instead chest reassignment surgery—the only treatment that can permanently eliminate gender dysphoria caused by the chest.

4. **Breasts are recognized as an important sex characteristic in cisgender women and breast reconstruction coverage is legally mandated.**

In the past, coverage for breast reconstruction for breast cancer patients was also deemed “cosmetic” and was denied insurance coverage. After the enactment of the Women’s Health and Cancer Rights Act in the United States in 1998, universal coverage for post-mastectomy breast reconstruction was mandated. Further showing the importance of breast reconstruction to cancer patients, New York, for example, passed a law mandating that surgeons discuss the availability of

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46 See Transcend Legal, Transgender insurance medical policies, https://transcendlegal.org/health-insurance-medical-policies (providing links to 130+ insurance company clinical guidelines on gender reassignment surgery and related treatments).

reconstruction before cancer treatment and provide further information about insurance coverage.\(^{48}\)

When a woman loses her breasts to cancer, there are often “feelings of mutilation and altered body image, diminished self-worth, loss of a sense of femininity, decrease in sexual attractiveness and function, anxiety, depression, hopelessness, guilt, shame, fear of recurrence and abandonment” that can negatively impact a woman’s perception of body image and sexual functioning.\(^{49}\) Women seeking reconstruction “are primarily motivated by a desire for wholeness.”\(^{50}\) Immediate breast reconstruction significantly lessens these negative outcomes when compared to those undergoing mastectomy alone.\(^{51}\) This is likely due to the fact that those that pursue immediate breast reconstruction do not experience the same degree of self-consciousness that accompanies the loss of the breast.\(^{52}\) Much like trans women, women who have reconstruction “are less likely to be ‘repulsed’ by their own naked appearance, and have more freedom to dress than women who do not have reconstruction.”\(^{53}\) The importance of breasts to cisgender women is thus well-established, and for similar reasons, gender dysphoria-related chest reassignment should also be covered.

\(^{48}\) Id.


\(^{50}\) Id.


II. This surgery is provided in accordance with applicable medical and/or professional standards and is known to be effective, as proven by scientific evidence, in materially improving health outcomes.

A. Medical opinions of professional societies and standards of care hold chest reassignment surgery in transgender women to be clinically appropriate.

Internationally recognized medical associations and accepted standards of care acknowledge the medical necessity of chest reassignment. The World Professional Association for Transgender Health is recognized by the American Medical Association (“AMA”) and others as “the leading international, interdisciplinary professional organization devoted to the understanding and treatment of gender identity disorders.” WPATH publishes the Standards of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People, which the AMA and others recognize as the “internationally accepted Standards of Care . . . recognized within the medical community to be the standard of care for treating people with” gender dysphoria.

The WPATH Standards of Care specifically recognize chest reassignment as a treatment for gender dysphoria and provide specific eligibility criteria.

WPATH also released a statement on medically necessary treatment for trans people that specifically listed “chest reconstruction or augmentation” as medically necessary surgeries. WPATH notes that,
“[n]on-genital surgical procedures are routinely performed … notably, … breast augmentation,” and that “[t]hese surgical interventions are often of greater practical significance in the patient’s daily life than reconstruction of the genitals.”\(^{59}\) WPATH also specifically recommends, based on the \textit{Standards of Care}, that breast augmentation should be covered by insurance plans.\(^{60}\)

The Endocrine Society—the world’s oldest, largest, and most active organization devoted to research on hormones and the clinical practice of endocrinology—has published clinical guidelines for treatment of gender dysphoric people, which provide detailed guidance for treatment consistent with the WPATH \textit{Standards of Care}.\(^{61}\) The guidelines note that breast development is “a major concern for transgender females” and that estrogens often do not produce the results a patient expects.\(^{62}\) They endorse breast surgery once the patient has completed two years of estrogen therapy.\(^{63}\)

**B. Breast development reduces gender dysphoria, increases psychological well-being, and improves social functioning and other health outcomes.**

Chest reassignment surgery for transgender women is the clinical standard of care as recognized in peer-reviewed medical literature.\(^{64}\)

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\(^{59}\) \textit{Id.} at 3 (quoting Monstrey et al., \textit{Surgery: Male-to-Female Patient, \textit{supra note 12}}).


\(^{62}\) \textit{Id.} at 20.

\(^{63}\) \textit{Id.} at 25.

\(^{64}\) Linda M. Wesp & Madeline B. Deutsch, \textit{Hormonal and Surgical Treatment Options for Transgender Women and Transfeminine Spectrum Persons}, \textit{40 PSYCHIATRIC CLINICS OF N. AM.} 99, 108 (2017) (“Breast growth may be unsatisfactory with hormonal therapy alone; therefore, some individuals pursue augmentation
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Chest reassignment alleviates gender dysphoria and associated comorbidities. It is only when the external body matches the brain’s sexed expectations of the body that subjective gender dysphoria and gender psychopathology progressively decreases. Clinicians note that “the acquisition of adequate female secondary sexual characteristics is a key part of a successful social gender role transition, upon which depends the good psychological functioning of the majority of transwomen. One of the most obvious of these characteristics is breast development.” Surgery increases psychological and social well-being by eliminating gender dysphoria caused by being seen as male.

A prospective, cross-sectional and longitudinal study evaluating the effects of cross-sex hormonal treatment on the psychological well-being of people with gender dysphoria found that among the effects of cross-sex hormones on the body, it was only breast development that showed a significant effect on decreasing body uneasiness and reducing the symptoms of gender dysphoria. Breast development led to decreases in global body uneasiness, weight phobia, body image concerns, body avoidance, and depersonalization. While the study excluded women who had augmentation mammoplasty, it highlights the impact of having

mammoplasty using saline or silicone implants.”); Britt Colebunders et al., An Update on the Surgical Treatment for Transgender Patients, 5 SEXUAL MEDICINE REVIEWS 103, 104 (2017), doi:10.1016/j.sxmr.2016.08.001 (“For most transwomen, breast augmentation (or breast ‘reconstruction’) greatly increases subjective feelings of femininity.”).


66 Seal, supra note 26, at 4423.

67 Kanhai, Augmentation Mammaplasty, supra note 16, at 203, 205 (“The augmentation will then improve the psychological and social wellbeing of the [patient] reentering society as a woman.”).

68 Fisher, supra note 65, at 4267 (“However, it should be considered that the BUT scale is more related to the private relationship with one’s own body, rather than to the distress caused by how one may appear to others.”).

69 Id. at 4264.
an external appearance that matches one’s brain sex on psychological well-being.\textsuperscript{70}

Transgender women rate the importance of their breasts highly and report high rates of satisfaction with their breasts post-surgery.\textsuperscript{71} Surgical chest reassignment improves numerous health outcomes. A prospective cohort study has shown that gains in breast satisfaction, psychosocial well-being, and sexual well-being after chest reassignment are statistically significant and clinically meaningful to the patient in both the short and long term.\textsuperscript{72} It also improves body satisfaction.\textsuperscript{73} Chest reassignment “is both meaningful and medically necessary in gender dysphoria.”\textsuperscript{74} Surgical intervention can significantly improve

\footnotesize{\textsuperscript{70} Id. at 4261.}

\footnotesize{\textsuperscript{71} Fakin, supra note 13 (the largest gender-affirming center in Switzerland reports a 93% satisfaction rate); Tim C. van de Grift et al., Surgical Satisfaction, Quality of Life, and Their Association After Gender-Affirming Surgery: A Follow-up Study, 44 J. OF SEX & MARITAL THERAPY 138, 143 (2017) (reporting 96% satisfaction rate with augmentation mammoplasty among patients in the European Network on the Investigation of Gender Incongruence); Weyers, supra note 35, at 510 (“When asked for the score (on a VAS from 0 to 10) they would attribute to the importance and the satisfaction of the appearance of their breasts they gave mean scores of 8.84 (±1.25) and of 7.94 (±2.28) respectively.”); Yolanda L. S. Smith et al., Sex Reassignment: Outcomes and Predictors of Treatment for Adolescent and Adult Transsexuals, 35 PSYCHOLOGICAL MEDICINE 89, 95 (2005) (Dutch centers report the “majority (34, 65.4%) were satisfied with their breast augmentation; 15 (28.8%) were not completely satisfied, and three felt uneasy about their breasts being too far apart.”); Griet De Cuypere, et al., Sexual and physical health after sex reassignment surgery, 34 ARCHIVES OF SEXUAL BEHAVIOR 679, 686 (2005) (66.6% were very satisfied 28.6% satisfied, 4.8% neutral, and no one was unsatisfied with breast surgery).}

\footnotesize{\textsuperscript{72} Weigert, supra note 34, at 1421.}

\footnotesize{\textsuperscript{73} Tim C. van de Grift et al., Effects of medical interventions on gender dysphoria and body image: a follow-up study, 79 PSYCHOSOMATIC MED. 815–818 (2017); Smith, supra note 71, at 93.}

\footnotesize{\textsuperscript{74} Morrison et al., supra note 6, at 337.
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quality of life. It is also associated “with lower odds of suicidal ideation, binge drinking, and non-injection drug use.”

Feminizing the chest results in the likelihood that the patient will be recognized by others as a woman, which reduces gender dysphoria. Chest reassignment “can greatly facilitate the experience of living in a gender role that is congruent with a gender identity.” Chest reassignment “provides a more feminine profile, facilitating adjustment to the gender identity.” Feminizing the chest is more important for social recognition as female than genital reassignment surgery—a covered treatment.

While chest reassignment is undertaken primarily to help alleviate the debilitating cognitive dissonance and discomfort of gender dysphoria, there are also effects in terms of reducing negative encounters with others. Misgendering, staring and confusion by others trigger gender dysphoria and threaten the well-being and safety of transgender women. People who are visibly transgender—generally due to their secondary sex characteristics—experience more discrimination than non-visibly transgender people. The more frequently a person is seen as transgender by others, “the more they are subject to major and day-to-day discriminatory treatment.” Experiencing transgender-related discrimination and verbal or physical harassment—which is more likely

75 Nikolaos A. Papadopulos, Quality of Life and Patient Satisfaction Following Male-to-Female Sex Reassignment Surgery, 14 J. of Sexual Med. 721 (2017) (showing a high satisfaction with breasts following genital and/or chest reassignment surgery).

76 Erin C. Wilson et al., Connecting the Dots: Examining Transgender Women’s Utilization of Transition-Related Medical Care and Associations with Mental Health, Substance Use, and HIV, 92 J. of Urban Health: Bulletin of the New York Academy of Medicine, 182, 188 (2014).

77 Claes, supra note 15, at 369; Colebunders et al., supra note 33 at 53.

78 Claes, supra note 15, at 369-70; Kanhai, supra note 16, at 542 (noting that mammoplasty allows the patient to be recognized as a woman “more easily, both in public and in private,” which facilitates living openly as a woman).


80 Id. at 826.
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when people are visibly transgender—specifically increases suicide risk. In addition, being visibly transgender results in a greater likelihood of attempted drug/alcohol abuse and smoking. Chest reassignment thus creates health gains beyond alleviating gender dysphoria and attendant depression and anxiety.

Finally, in a point that emphasizes both the extreme distress caused by gender dysphoria and the need for surgical treatment, when denied access to proper medical treatment, some transgender women attempt to alleviate their chest dysphoria by reshaping their bodies through the use of highly dangerous injections of industrial-grade silicone purchased on the black market. Silicone injection prevalence approaches 1 in 3 among lower-income trans women. These injections can cause severe

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82 Miller, supra note 79, at 826.


84 See Cathy J. Reback et al., The Los Angeles Transgender Health Study: Community Report 17 (2001) (finding one-third of trans women injected silicone or oil); Robert Garofalo, Overlooked, Misunderstood and At-risk: Exploring the Lives and HIV Risk of Ethnic Minority Male-To-Female Transgender Youth, 38 J. OF ADOLESCENT HEALTH 230, 233 (2006) (finding 29% of participants had injected liquid silicone); Society for Public Health Education, Health Impact of Adulterated Silicone on Transgender Health: Call for Education and Awareness about Adulterated Injection Silicone Use (2012) (noting prevalence rates of 25% in Washington, DC, 30% in New York, and 33% in Los Angeles); Paul Kobrak, Bureau of HIV/AIDS Prevention and Control, New York City Department of Health and Mental Hygiene, Transgender Women and HIV Prevention in New York City: A Needs Assessment 17 (2009) (finding 22% of participants in
disfigurement, chronic pain and complications such as pulmonary emboli, silicone pneumonitis, acute respiratory distress syndrome, abscesses, liver disease, septic shock, puncture of internal organs, and death.\textsuperscript{85}

\textsuperscript{85} See, e.g., Ian K. Komenaka, \textit{Free Silicone Injection Causing Polyarthropathy and Septic Shock}, 10 Breed J. 160 (2004) (ongoing infections in the breast that cause arthritis and septic shock are common after injections of silicone); Lindy Peta Fox, \textit{et al.}, \textit{Mycobacterium Abscessus Cellulitis And Multifocal Abscesses of the Breasts in a Transsexual from Illicit Intramammary Injections of Silicone}, 50 J. of Am. Academy of Dermatology at 450 (2004) (infections, which cause chronic lung disease and post-traumatic wound infections, can be added to the potential complications of silicone injections, which also “include cellulitis, granulomatous reactions, migration of material, ulceration, scarring, pneumonitis, granulomatous hepatitis, reactive systemic illnesses, and iatrogenic infection”); Richard F. Clark, \textit{Subcutaneous Silicone Injection Leading to Multi-system Organ Failure}, 46 Clinical Toxicology 834 (2008) (describing five trans women who attended a “pumping party” resulting in the death of one of them); Hage \textit{supra} note 83 (subcutaneous injections of massive quantities of mineral oil or silicone lead to complications ranging from a change in skin color to death, and there are no available treatments to alleviate the effects); Anupam M. Desai, \textit{Etanercept Therapy for Silicorne Granuloma}, 5 J. of Drugs in Dermatology 894 (2006) (injecting silicone leads to difficult-to-treat silicone granulomas that not only cause a local inflammatory response at the injection site, but spread widely throughout the body); Marianna Shvartsbeyn, \textit{Silicon-associated Subcutaneous Lesion Presenting as a Mass: A Confounding Histopathologic Correlation}, 42 Human Pathology 1364 (2011) (discussing the harmful effects and risks of unskilled practitioners using silicone of questionable purity); Antonio Villa, \textit{Severe Pulmonary Complications after Silicone Fluid Injection}, 18 The Am. Journal of Emergency Medicine 336 (2000) (determining that “the risk of adverse systemic effects, particularly severe pulmonary involvement, can be very high for silicone fluid injection, especially when delivered in large volume and when injections are given without medical precautions as with transsexual [women]”); Andreas Schmid, \textit{Silicone Embolism Syndrome a Case Report, Review of the Literature, and Comparison With Fat Embolism Syndrome}, 127 Chest 2276 (2005) (presenting data from thirty-two patients who were hospitalized after illegal silicone injections, six of whom died, while twenty-six were discharged within three weeks after experiencing respiratory symptoms); Ayke L. Oen, \textit{Magnetic Resonance Imaging of Injected Silicone: Findings in Seven Male-to-Female Transsexuals}, 12 European Radiology 1221 (2002) (triggering local as well as systemic reactions, sometimes many years after injection, silicone injections have devastating effects that indicate that silicone is not as inert as previously thought); Tan Duong, \textit{Acute Pneumopathy in a Nonsurgical Transsexual}, 113 Chest 1127 (1998) (discussing the risk of acute and latent pneumopathy for individuals after illicit silicone injections); E. Pastor, \textit{Acute Pneumonitis and Adult Respiratory Distress Syndrome after Subcutaneous Injection of
C. Other insurers and state Medicaid plans acknowledge this care to be medically necessary.

The fact that a categorical ban on chest reassignment surgery is not in alignment with prevailing medical opinion is also reflected in that other private insurers and Medicare advantage Medicaid managed care plans routinely cover chest reassignment procedures and regard them as medically necessary. Independent medical review agencies have long overturned coverage denials for breast augmentation to treat gender dysphoria. (Ex. E, F). Medicaid regulations and coverage guidelines also explicitly cover chest reassignment surgery.  

Liquid Silicone], 41 ARCHIVOS DE BRONCONEUMOLOGÍA 702 (2005) (emphasizing the threat of pneumonitis, which is the potentially fatal inflammation of the lung tissue, following a silicone injection); F. Sanz-Herrero, [Acute Pneumonitis after Subcutaneous Injection of Liquid Silicone as a Breast Implant in a Male-To-Female Transsexual], 42 ARCHIVOS DE BRONCONEUMOLOGÍA 205 (2006) (noting silicone injected into the breast threatens to reach the bloodstream and spread widely throughout the body risking severe systemic (mainly pulmonary) adverse effects).


87 MAXIMUS Federal Services Inc. review (June 26, 2015) (redacted); IPRO review (Feb. 6, 2019) (redacted).

88 See e.g., 10 Col. Code Regs. 2505-10 8.735.5.E(4)(b); Connecticut Medical Assistance Program, Gender Affirmation Surgery (2019); District of Columbia Department of Health Care Finance, Gender Reassignment Surgery Policy; Maryland Medical Assistance Program, Gender Transition: Covered Services, Coverage Criteria, Limitations and Exclusions (2016), MassHealth, Guidelines for Medical Necessity


D. **Enforcement entities regard blanket exclusions for this surgery as unlawful.**

Under the direction of the Washington State Insurance Commissioner, two Kaiser Foundation health plans reversed their practice of categorically denying chest reassignment surgery for transgender women.\(^{89}\) The agreement included re-review of past denials. The action was based on Section 1557 of the Affordable Care Act and Washington state’s mental health parity laws.

Similarly, the New York Attorney General investigated EmblemHealth for its failure to cover breast surgeries.\(^{90}\) As part of the settlement, EmblemHealth changed its coverage criteria, paid full restitution to members and paid $250,000 penalties to New York State. The investigation found that EmblemHealth’s inaccurate guidelines constituted repeated violations of Executive Law § 63 (12) (repeated fraudulent or illegal acts) and General Business Law § 349 (deceptive acts or practices).

E. **Sufficient data exists to cover this treatment.**

Because of historic insurance exclusions for treatments of gender dysphoria, people were unable to access care due to a lack of providers and an inability to afford care. This has led to a dearth of research about

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Medical necessity of chest surgery to treat gender dysphoria in transgender women

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treatments for gender dysphoria as compared to less-stigmatized medical conditions. While transgender individuals could certainly benefit from more research, deferring action until more studies are conducted cannot be used to justify the denial of transgender-related care. Sufficient data exist to demonstrate the benefits of hormonal and surgical care for transgender patients, and surgery—including chest reassignment—is the standard of care in clinical practice.

F. Chest reassignment is designed to change the sex of the chest, not improve appearance.

Exclusions for chest reassignment surgery rest on the incorrect assumption that the surgery is somehow “cosmetic.” In reality, it is not undertaken to “improve appearance,” but rather to change the sex of an individual’s chest from male to female. WPATH explains that “medical procedures attendant to sex reassignment are not ‘cosmetic’ or ‘elective’ or for the mere convenience of the patient. These reconstruction procedures are not optional in any meaningful sense, but are understood to be medically necessary for the treatment of the diagnosed condition.” The AMA has also stated that sex reassignment procedures are not cosmetic.

Covering chest reassignment surgery for transgender women is consistent with providing other treatments for gender dysphoria as well as continuing to exclude all cosmetic procedures. These procedures

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91 See, e.g., Louis Gooren, Care of Transsexual Person, 364 New England J. of Medicine, 1251, 1256 (2011) (recommending sex reassignment even in the face of research limitations and questions about long-term risks).


93 WPATH, Position Statement, supra note 58, at 3.

94 See AMA House of Delegates’ Resolution 122, supra note 7, at 1, ¶¶ 22-28 ("An established body of medical research demonstrates the 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 . . . . Health experts in GID, including WPATH, have rejected the myth that such treatments are ‘cosmetic’ or ‘experimental’ and have recognized that these treatments can provide safe and effective treatment for a serious health condition.").
cannot be viewed outside of the context in which they are provided: namely, treating gender dysphoria.

Just as a cisgender man would not undergo genital reassignment surgery in order to “improve his appearance,” a cisgender man would not “improve his appearance” by undergoing chest reassignment surgery. It would give him a female chest, which on a man, would be regarded as negatively affecting his appearance. It would likely be quite traumatizing to most men, and indeed, many men with gynecomastia seek removal of their breast tissue, not enlargement of it.

Similarly, a cisgender woman with breasts is already recognized as female and the surgery would not be changing her sex in any way. Although the same surgery is used in both instances, the surgery is not performed for the same purpose. Cisgender women seeking cosmetic breast surgery are not seeking sex reassignment or treatment for any medical condition at all. In contrast, “[w]hen a transgender woman presents for this same surgery, it is medically necessary. Though breast augmentation is technically the same procedure in natal and transgender women, the purposes are fundamentally different. The transgender patient usually has a long history of distress caused by gender dysphoria. When surgery is performed to alleviate such intense psychological suffering, mental health support is crucial.”

The WPATH Standards of Care specifically note that “breast/chest surgical treatments for gender dysphoria are not merely another set of elective procedures. Typical elective procedures involve only a private mutually consenting contract between a patient and a surgeon.” In contrast, “breast/chest surgeries as medically necessary treatments for gender dysphoria are to be undertaken only after assessment of the

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95 Even if a cisgender woman had small breasts, she would lack the constellation of other physical characteristics that—in conjunction with a male chest—can cause transgender women to be consistently perceived as male such as height, body size, and voice.


97 WPATH Standards of Care, supra note 8, at 55.
patient by qualified mental health professionals,” as outlined in the Standards of Care.98

Even if there were an incidental effect of improving appearance, that does not bar coverage because the primary purpose is to change the sex of the chest to treat gender dysphoria, not to improve appearance.99 Trans women do not seek surgery simply for the sake of having larger breasts. Instead, “[t]rans women are primarily interested in a sufficient degree of breast development confirming the gender role of a woman to themselves and to the outside world.”100 Chest reassignment surgery goes far beyond any incidental “improvement” in appearance and affects something far more fundamental: the very characteristics that define one’s physical sex.

### III. Conclusion

Peer-reviewed medical literature, medical opinions of professional societies, evidence-based professional standards of care, and the opinions of health care professionals involved in the specialty of treating gender dysphoria all concur that chest reassignment surgery is safe, effective, and medically necessary for treating gender dysphoria in transgender women.

98 Id.

99 E.g., Aetna, Clinical Policy Bulletin No. 0031: Cosmetic Surgery (Mar. 23, 2019), http://www.aetna.com/cpb/medical/data/1_99/0031.html (“Aetna plans … provide coverage when the surgery is needed to improve the functioning of a body part or otherwise medically necessary even if the surgery also improves or changes the appearance of a portion of the body.”)

INTRODUCTION

Individuals with varying gender identities are becoming more widely accepted throughout the world.1–7 With continued progressive societal changes and improvements in insurance coverage, a greater proportion of this population will seek appropriate care. Providers will therefore need to ensure they are adequately trained to care for this often-marginalized population.8–12

The goal of gender affirmation surgery (also referred to as gender confirmation surgery) is to ameliorate the discrepancy between an individual’s self-perceived gender identity and assigned sex.13 Ideally, this transition will help an individual live seamlessly in society without the fear of
stigmatization or physical harm. To that end, there are many different aspects of gender affirmation for both transmen and transwomen, including mental health evaluation, hormonal therapy, and surgery. The surgical options for transgender women include, but are not limited to, breast augmentation, body contouring procedures, vaginoplasty, facial feminization, thyroid cartilage reduction, and vocal cord surgery.\textsuperscript{1,14–17} Given the baseline differences in male and female form, each of the aforementioned procedures offers technical challenges and carries varying degrees of limitation.

The purpose of this article is to discuss breast augmentation and body contouring procedures as they pertain to gender affirmation surgery in transwomen. The surgeon and the patient should be aware of the challenges and limitations of these procedures in order to obtain a proper preoperative informed consent, assist in intraoperative decision making, and to manage postoperative expectations. The overarching goal of this paper is assist surgical providers to be adequately prepared for the challenges faced with feminizing a masculine body.

**DIFFERENCE IN MALE AND FEMALE FORMS**

The bony architecture of the pelvis is distinctly different between the male and female forms (Fig. 1A, B). Cis-men have acute suprapubic angles, narrow pelvic brims, and accentuated iliac crests. Cis-women, on the contrary, have obtuse suprapubic angles, wide pelvic brims, and flattened iliac crests.\textsuperscript{16,19} Meaningful alterations in the bony framework are unlikely with hormone therapy and surgical modification of the pelvis comes with significant risks that outweigh the benefits based on current surgical techniques. Therefore, to obtain a more feminine form, transwomen generally seek body contouring of the overlying soft tissues.

Although fat distribution is a multifactorial process, it tends to follow general trends in both sex and age. Body shape and fat distribution patterns are strikingly similar for both men and women during infancy and preadolescence. Initial changes are noted after puberty when cis-men take on an android body habitus, which is typically characterized by increased subcutaneous fat deposition along the abdomen and flanks as well as intraabdominally.\textsuperscript{20} In contrast, adolescent cis-females begin to develop a gynoid body habitus with a greater proportion of fat deposited in the gluteal region and the hips.\textsuperscript{20} For a given body mass index (BMI), cis-women tend to have 10% higher body fat compared with cis-men, with a higher proportion as subcutaneous adipose tissue compared to visceral adipose tissue.\textsuperscript{21,22} The differences in fat deposition lead to varying degrees of waist-to-hip ratio (WHR) in men and women; adult cis-women tend to remain in the ratio of 0.65 to 0.80, while adult cis-men are generally within the range of 0.85 to 0.95.\textsuperscript{23} As cis-women progress through adult life and into menopause, the WHR tends to move more toward their cis-male counterparts.\textsuperscript{24}

Multiple studies have tried to determine the ideal WHR for cis-women, and although an absolute number is not agreed upon, most tend to suggest that 0.7 is an approximate ideal.\textsuperscript{20,25–29}

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**Fig. 1.** Differences in male and female trunk, hips, and thighs (anterior view) with pelvic bone structure. (A) Male trunk. (B) Female trunk.
Approaches to body contouring in transwomen should therefore aim to obtain this WHR. Depending on the amount of time an individual lived as their biologic sex and the amount of adipose tissue they deposited, there will be a varying degree to the extent to which these soft tissue characteristics are accentuated.

Gluteal forms differ among men and women, and these changes are also noted mainly after puberty (Fig. 2A,B,D,E). The android gluteal form is

![Fig. 2. Differences in male and female trunk, hips, and thighs. Ideal female: (A) posterior; (B) posterior oblique. Ideal male: (B) posterior; (E) posterior oblique. Posthormone /presurgical transfeminine form: (C) posterior; (F) posterior oblique. In the ideal feminine form there is an hourglass shape accentuated as seen in the A and D images. These are illustrated in each panel and labelled (a) to show how they compare. The dotted lines labelled (b) illustrate areas of the mid-lateral gluteal region. In the ideal male form this is a concave area while the ideal female form is more convex. The posthormone /presurgical transfeminine buttock is typically also concave or flattened before a contouring procedure.](image-url)
most often associated with a flatness or concavity at the mid-lateral buttock, and a relative absence of lateral hip fullness, which in the female form would often be confluent with the lateral buttock area (Fig. 2B,E). Gynoid gluteal form differs at the midlateral portion with a fuller and round shape (Fig. 2A,D). Increased adipose tissue in the gluteal region highlights a distinct transition from the lower back. A smooth inward sweep of the waist and lumbosacral region along with separation of the inferior and superior gluteal clefts, accentuating the gluteal cleavage, are more characteristic of a feminine form (Fig. 2A,D). Maximal projection at the midbuttock with no ptosis below the infragluteal crease is also sought in a youthful feminine form. Transforming the android form to a more gynoid form in transwomen can be achieved with body contouring.

Male and female chest anatomy tends to vary significantly (Fig. 3A–B). Cis-women have narrow chests and sternal anatomy with shorter distances between their nipple-areolar complexes (NACs). Wider and more round NACs are also seen commonly in feminine forms (Fig. 3A). When augmenting the breasts in transwomen, all of these nuances must be considered and discussed.

Differing societal and cultural expectations on the ideal forms should not be overlooked. Appearance of the buttocks and nose are among the most common areas where various cultures have different perceptions of what constitutes ideal. Lateral thigh fullness, upper gluteal pole fullness, and projection of the midbuttock can vary between ethnicities and is of utmost priority to explore with patients prior to body contouring.

THE EFFECT OF HORMONE THERAPY ON BODY HABITUS

In order to counteract, or attempt to reduce the physiologic changes from endogenous sex hormones, individuals interested in gender affirmation often seek medical management with hormone therapy. Hormone treatment for transwomen includes both estrogen and antiandrogen medications. The most common form of exogenous estrogen, estradiol, can be administered either orally, transdermally, or intramuscularly, and is used to achieve feminization through induction of breast development, altered fat distribution, softening skin, altering mood, and down-regulating gonadotropin to lower circulating testosterone levels.

With regard to antiandrogens, several medications have been employed, including, but not limited to, spironolactone, gonadotropin-releasing hormone agonists, leuprolide, finasteride, and progesterone with various routes of administration. These medications have different mechanisms of action, but together alter various aspects the testosterone pathway and its ability to produce secondary male characteristics such as male-pattern hair, prostate size, and propensity for erections.

The balance between estrogen and antiandrogens is critical both physiologically and therapeutically. Elevated levels of androgens as found in women with polycystic ovary syndrome have been
associated with increased abdominal adiposity. Further, during menopause and the perimenopausal transition, fat is redistributed toward an android phenotype. Similarly, transmen treated with testosterone had shifts in fat and soft tissue distribution as seen with MRI after less than 12 months of treatment. In contrast, transwomen treated with hormone therapy had significant increases in subcutaneous fat deposits.

Despite the positive effects of hormone therapy on both breast hypertrophy and changes in soft tissue deposition, transwomen are often left with incongruity between their self-perceived gender identity and how the world perceives their gender. Thus, medical management alone is often a suboptimal treatment modality for transwomen.

**BREAST AUGMENTATION**

**Introduction**

Estrogen and antiandrogen therapies stimulate the growth of mammary tissue. Even so, there is a wide range of physiologic responses to hormone therapy, with most transwomen ultimately requesting breast augmentation. One study found that nearly 70% of the transfeminine patient population underwent breast augmentation for their gender dysphoria. In addition, these operations have been shown to improve quality of life in transwomen. Taken together, breast augmentation is both meaningful and medically necessary in gender dysphoria.

**Female Ideal Aesthetic (Chest and Breast)**

Ideal female breast characteristics are difficult to define, as breasts vary in base width, height, shape, projection, density, volume, and placement on the chest wall. In addition, their appearance is also affected by the breasts’ relationship to body height, chest configuration, extremity girth, and body contour. As with any subjective measure, there are cultural factors that guide what certain populations consider to be ideal.

In the 1950s, Penn studied landmarks of 20 female models with ideal breasts but failed to offer inclusion criteria to be considered ideal. In 1997, Westreich studied 50 women with ideal breasts, which he defined as breasts with the absence of ptosis and not requiring surgery other than possible augmentation. In 2002, Vandeput studied nearly 1000 women with near-aesthetically pleasing breasts, with the purpose of determining useful proportion in corrective breast surgery. This study excluded women with ptosis and those who were candidates for breast reduction. In 2010, Avsar defined ideal breasts to be equal on both sides and demonstrate no ptosis, which was found in only 35% of a cohort that included university aged women ages 18 to 26 with a BMI of 20 to 26. More recently, a study performed on plastic surgeons found significant differences in aesthetic preference in female breast shape and nipple characteristics based on country of residence, age of surgeon, and practice type. These studies strongly indicate that patients and surgeons must effectively communicate in order to understand goals and preferences and to achieve mutually satisfying outcomes.

**Identified Challenges, Surgical Techniques, Limitations**

**Insufficient skin envelope**

Many transwomen will have insufficient skin for adequate augmentation, especially if they would like to significantly increase their breast size. Some patients will not tolerate an expander approach due to cost or desire for single-stage procedure. There are several techniques that can be used to increase pocket size in this setting. First, a few millimeters can be gained with judicious and conservative elevation of the more medial fibers of the pectoralis major muscles while taking caution not to predispose patient to excessive medial implant migration, presternal skin elevation, and symmastia. Also, lateral release of the pocket can be performed but with the understanding that the implant will fall away from midline and may not offer the central cleavage desired. Ultimately, the patient should understand these limitations and that an implant much smaller than their desired size may be necessary.

**Constricted breast**

Often transwomen will present breasts that are vertically constricted. Similar to an insufficient skin envelope, the short nipple to inframammary fold (IMF) distance may add uncertainty to the final vertical position of the implant, especially with larger implant sizes. The resulting breast may lack adequate curvature and definition in the inferior pole. In order to address this finding, the
surgon can score the pectoralis major and the overlying breast tissue radially. If the surgeon decides to lower the IMF, which is often necessary, the senior author suggests being conservative and making implant selection decisions that will minimize lowering of the IMF as much as possible. When lowering the fold more than 1 to 1.5 cm it is advised to secure the fold with at least 3 sutures to adhere Scarpa fascia, on the lower skin flap of the IMF incision, to the chest wall. Despite these conservative measures, there is often a less predictable final vertical position when altering the IMF. In addition, it may be advantageous to consider a wide-based anatomic implant to complement breast shape characteristics and splaying of the NACs laterally.

**Insufficient breast tissue versus hypertrophied pectoralis major**
As previously mentioned, hormone therapy has a wide range of responses in breast tissue of transwomen. In many cases, there is insufficient breast tissue to be confident in the result for a subglandular augmentation. This can be determined with preoperative pinch test. To avoid the risk of rippling with a subglandular augmentation in a patient with insufficient breast tissue, a submuscular plane can be dissected. It should be noted that depending on the bulk of the pectoralis major muscle, this might lead to less distinct breast borders and ultimately a wider breast. Unfortunately, there are transwomen who have a well-developed pectoralis major, which some patients have verbalized occurred as the result of years of overcompensating prior to beginning their transition. Overall, the surgeon should discuss the limitations and the patient should be educated on the risks and benefits to both planes during preoperative counseling.

**Android chest and shoulders**
Often patients have passed through adolescence under physiologic androgenic stimulation and thus developed tall, broad shoulders and wide sternums, both of which present challenges for breast augmentation aesthetics. Specifically, individuals who are tall and have broad shoulders would ideally look more aesthetically pleasing with larger implants. The previously mentioned tight skin envelope may limit implant size. The wide sternum of patients also leads to breasts that are more widely spaced apart and that tend to be more lateral on the chest wall. This may leave patients with less than ideal cleavage. Similar to the description for insufficient skin envelope, the surgeon can judiciously elevate a bit more of the medial pectoralis major fibers, but a considerable band of intact medial muscle must be left undisturbed in order to prevent medial implant migration and symmastia. Should either of these complications occur, they remain a difficult problem to correct accurately. Ultimately, a wide sternum and therefore the widely spaced breasts can be an anatomic limitation, which must be discussed preoperatively.

**Nipple-areolar complexes size and position**
Male NACs are smaller, tend to be ovoid rather than circular, and are often more widely spaced compared with female NACs. After augmentation, the overlying skin envelope is placed on stretch, which can give a rounder appearance of the NAC, but the size tends to remain relatively small. This cannot be corrected surgically and must be discussed prior to augmentation. Further, wider spaced male NACs create a difficult balance between maximizing cleavage and centering the NAC on the breast mound. This too should be discussed, and the goals of the patient should guide intraoperative decision-making. In the senior author’s experience, patients tend to prefer NACs that are lateral on the breast mound provided this allows them to obtain better central cleavage.

**BODY CONTOURING**

**Introduction**
Although many transwomen pursue breast augmentation as an initial feminizing procedure of the trunk, other aspects like the abdomen, buttocks, flanks, and hips can be considered for further feminization through body contouring. As discussed previously, estrogen therapy tends to not only alter breast hypertrophy, but also deposition of adipose tissue in the gluteofemoral region. Many of the procedures used in body contouring for transwomen have not been described in the literature, so further identification of specific challenges and operative strategies are warranted.

**Female Ideal Aesthetic (Waist, Hips, Buttock)**
Many studies have sought to define the ideal female aesthetic of the waist, hips, and buttocks. An anthropometric ratio commonly used in this study is WHR, which compares the narrowest aspect of the space between the ribs and iliac crests to the widest aspect of the buttocks. As previously mentioned, there have been numerous studies looking at the ideal female WHR, and most studies have settled on a ratio of 0.7. The inward sweep of the hourglass shape of the lumbosacral area and waist, accentuation of gluteal cleavage, prominence of the midcentra...
buttock, and no ptosis are ideals that are similar across ethnic groups.29 Yet fullness of the lateral thigh, buttock projection, and upper gluteal cleavage often vary based on ethnic background.28 When considering augmentation of the trunk, a focused discussion between the patient and the surgeon is needed to ensure understanding of desired outcomes and limitations.

**General Concepts in Body Contouring**

Like breast augmentation, many of the principles of body contouring in transwomen have been adopted from the aesthetic surgery literature. For the purpose of this article, in which the challenges and limitations in body contouring for transwomen are highlighted, the authors assume expertise in body contouring and microfat grafting. For a brief review, please refer to the seminal articles.29,59,60

**Identified Challenges, Surgical Techniques, Limitations**

**Preoperative assessment and highlighting areas of concern**

Work-up for body contouring procedures should generally begin after 1 year of stable estrogen use in transwomen, although there is no standardized timing utilized by all surgeons. This allows for the cross-sex hormones to have an effect on fat distribution and gluteal shape. The differences in gynoid and android forms should be reviewed with the patient. Specific focus should be placed on the balance between skin elasticity and soft tissue discrepancy. It should be mentioned that the bony architecture of the pelvis will not be modified. When developing a plan for body contouring, the surgeon must identify the most appropriate regions to contour and obtain lipoaspirate as well as understand the most effective areas to fat graft. These strategies will be described.

**Creating a feminine waistline**

The effects of lipodystrophy, especially in the setting of previously higher levels of circulating testosterone, should be reviewed preoperatively. For transwomen, the flank and abdominal subcutaneous fat excess may result in a waistline that is significantly higher than the ideal feminine form. Lowering the waistline through liposuction of these areas can therefore have a significant impact on the fit of feminine clothing, which tends to accentuate the waist. To accomplish this, the waist meridian is marked in the preoperatively area with the patient standing and surgeon sitting. This marking is made at the level of the elbows with arms resting comfortably at the patient’s side, or just above the level of the umbilicus. This will offer the surgeon a target to be most aggressive during liposuction. In patients with limited subcutaneous tissue, this area is aggressively aspirated while the areas just above and below are left alone in attempt to create a feminine abdomen. It should be noted that limiting the volume of liposuction to create this contour may come as a tradeoff for the availability of fat during subsequent augmentation. When done appropriately, contouring will accentuate the hourglass silhouette and allow for a smooth transition of the lumbosacral region to the upper gluteal pole.

**Obtaining sufficient lipoaspirate**

Fat grafting for body contouring can be limited by the amount of lipoaspirate obtained. Transwomen are often found to have less gluteal and hip fatty deposition relative to their abdomen and flanks (Fig. 2C,F). Oftentimes the android habitus has more intra-abdominal fatty distribution, which is not available for lipoaspirate harvest. Even with aggressive liposuction of the waistline and flanks, it is sometimes not possible to obtain enough fat to augment the entire waist and gluteal region. In women, the excess fat underlying the lower bra line can be used for obtaining more lipoaspirate, but this is absent in transwomen, and alternate areas with meaningful volume may be in short supply. In certain areas with significant fibrofatty tissue, the senior author favors the use of basket tip cannulas to improve lipoaspirate yield. More aggressive liposuction can be pursued, but the surgeon must be cognizant of contour deformities. Prioritizing optimal fat grafting locations is typically necessary for this patient population and will be discussed.

**Prioritizing augmentation sites**

After utilizing liposuction to lower the waistline and accentuating the transition zone between the lower back and upper buttock, the surgeon must prioritize anatomic regions to augment. In the senior authors’ experience, the following aspects should be prioritized in descending order of importance:

1. Rounding of the midlateral buttock concavity typical of the android body habitus
2. Creating an hourglass silhouette by enhancing the fullness and transition between the buttocks and hips
3. Filling out projection and rounding the middle- to-upper portion of the buttocks

Often there is only enough fat available to address 1 or 2 of these deficiencies, which underscores the importance of prioritizing. First, the midlateral buttock shadow is identified because
of its often-concave masculine form. It will often take 150 to 200 cc of fat per side to create midlateral buttock roundness (or at least a reduction in outer buttock concavity/flatness). Masking this masculine feature will dramatically improve the feminine form.

If additional fat is available, the outer lateral hips can be fat grafted to create the hourglass silhouette. There are few landmarks in this region to guide the surgeon, but a smooth transition should be attempted.

Finally, any additional fat should be grafted to the upper portion of the buttock. Presacral dimpling will guide the surgeon to create aesthetic lines to the upper buttock in a V form that can be smoothed in a rounded fashion. Yet, even when dimpling is not present, the transition lines along a V can be adequately identified.

**Skin elasticity**
In the android body habitus there is often limited skin elasticity around areas in need of augmentation. If fat is limited, the senior author deliberately grafts in a superficial plane where contour changes can be more noticeable and therefore grafting more efficient. Deep plane grafting can be less likely to result in surface irregularities, especially in patients with suboptimal skin elasticity, but the effect can be considerably less relative to superficial plane grafting, which sometimes is necessary when fat for grafting is in limited supply. Slow and small injections (0.5–1 cc per full length passage of the cannula) with the cannula continuously moving through tissue during injection help to minimize the chance of intravascular fat injection.

**Postoperative care**
Gluteal fat grafting can come with risks of seroma or surgical site infection, although risk can be overall lower than gluteal implants. To prevent seroma formation, it is required to accentuate the compression of the augmented buttock, especially at the transition of the lumbosacral region and upper gluteal pole. Compression garments are used, but in treating transwomen, the authors’ group has noted a paucity of garments available for pregenital surgery transwomen. Modification of the garments can be warranted with opening of the genital aperture of the garment with scissors to ensure greater patient comfort.

**SUMMARY**

Gender dysphoria can have a significant impact on an individual’s psychosocial functioning. Alignment of one’s expressed gender identity with their anatomy can alleviate some of the aspects of gender dysphoria. Gender affirmation assists with this process and can come in the form of mental health evaluation, cross-sex hormones, or surgery. For transwomen, breast feminization is oftentimes the most sought procedure for gender affirmation. Augmentation mammoplasty is limited by various masculine anatomic differences, but with the outlined tips can be overcome. Body contouring for truncal feminization is gaining popularity, but still not a commonly pursued set of procedures. Android body habitus can severely limit the amount of liposuaspirate obtained for augmentation, and prioritization of areas of augmentation is important to discuss with the patient preoperatively. Techniques for increasing yield and outcomes were discussed, but further work is needed within this field. Despite these limitations, body contouring and breast augmentation can be successful operations with proper understanding, adherence to core principals, and goal-directed surgical strategies.

Ultimately, the optimal and necessary aspects to address in surgical gender affirmation are just beginning to be understood, and more research is needed. With continued work, the best care is possible for transgender patients.

**REFERENCES**


Exhibit B
Chest Surgery for Transgender and Gender Nonconforming Individuals

Karel E.Y. Claes, MD, Salvatore D’Arpa, MD, PhD, Stan J. Monstrey, MD, PhD*

KEYWORDS
- Chest surgery • Transgender • Breast augmentation • Subcutaneous mastectomy

KEY POINTS
- Chest surgery (or top surgery) is one of the most commonly performed gender reassignment surgeries.
- Transfeminine chest surgery consists of breast augmentation with implants and/or autologous tissue.
- Transmasculine chest surgery includes mastectomy and creation of a male chest, including a male nipple-areola complex.
- Although not an explicit criterion, it is recommended that transfeminine transgender patients undergo feminizing hormone therapy (minimum 12 months) prior to breast augmentation surgery. The purpose is to maximize breast growth to obtain better surgical (aesthetic) results.
- Top surgery can greatly facilitate the experience of living in a gender role that is congruent with a gender identity. This experience is required for 12 months prior to bottom surgery (vaginoplasty or phalloplasty). For some transgender people, however, top surgery may be the only surgical step that is undertaken during transition.

INTRODUCTION
Chest surgery (or top surgery) is one of the most commonly performed gender reassignment surgeries. Transfeminine chest surgery consists of breast augmentation with implants and/or autologous tissue. Transmasculine chest surgery includes mastectomy and creation of a male chest, including a male nipple-areola complex (NAC).

The World Professional Association of Transgender Health Standards of Care, version 7, offers flexible guidelines for the treatment of people experiencing gender dysphoria and puts forth the following criteria for top surgery¹:

- A persistent, well-documented gender dysphoria
- The capacity to make a fully informed decision and to give consent for treatment
- Age of majority in a given country
- In cases of a significant medical or mental health concern present, it must be well controlled.

For most transfeminine patients, breast augmentation (or breast reconstruction) greatly increases subjective feelings of femininity. Mammoplasty provides a more feminine profile, facilitating...
adjustment to the gender identity (Figs. 1 and 2).
In a prospective, noncomparative, cohort study it has been shown that the gains in breast satisfaction, psychosocial well-being, and sexual well-being after breast augmentation are statistically significant and clinically meaningful to the patient short after surgery as well as in the long term.²

Although some breast formation occurs after hormonal therapy, for many, it is insufficient. Unfortunately there are no studies looking in detail at the minimum period of hormone therapy that must be completed before breast surgery may be performed. Most surgeons recommend, however, a 12-month period of feminizing hormone therapy prior to breast augmentation surgery to maximize breast growth and skin expansion to obtain better surgical (aesthetic) results.

Mammogenesis in transfeminine patients receiving estrogens follows a pattern similar to female pubertal mammogenesis, as described by Marshall and Tanner.³ Because breast development it is not exclusively dose-responsive, 67% to 75% of the trans women require an augmentation mammoplasty, because hormonal treatment only results in softly pointed breasts as seen in young girls or the small conical form seen in young adolescents (Tanner stage II or III).⁴

Surgical Techniques

Breast implant

Because breast prostheses are implanted in transfemales with young adolescent breast development, patients should be informed that the complex feminine form and age-related changes of the breast cannot be imitated by using symmetric implants. Therefore, the result of an augmentation mammoplasty in trans women with minimal hormone-induced mammogenesis may be poor.⁴ Other anatomic differences, which should be taken into consideration in transfeminine transgender patients, are (1) the wider male chest, (2) a stronger pectoral fascia and a more developed pectoralis muscle, and (3) a smaller dimension of a more laterally positioned NAC. Usually a larger volume of breast implant is chosen by trans women than that chosen for breast augmentation by a cis-female patient, but even with a larger implant, it is often impossible to avoid an abnormally wide cleavage between the breasts. The nipple areola should always overlie the implant centrally and a very medial position of these implants could result in a divergent nipple position with an unacceptable breast appearance.⁵

Despite some sexual differences in chest wall and mammary anatomy, the implantation of breast implants is not essentially different from breast augmentation in a female patient, except that, usually, larger prostheses are used. The same choices apply as to the kind of implant, the position of the pocket, the surgical approach, and so forth. Patient and surgeon can choose between a silicone gel-filled implant and a saline-filled implant. In most cases, a textured implant is chosen to reduce the chance of capsular contraction. When a more cohesive gel-filled implant is chosen, it can be a round or a so-called anatomic, the latter resulting in additional filling of prominence in the lower part of breast. On the contrary, Hidalgo and Weinstein⁶ reported a lack of proved aesthetic superiority of anatomic implants over round implants. The important and unique disadvantages of anatomic implants (more firm to touch, risk of rotation, and limited choice of incision) argue against their continued use in breast augmentation.

The incision can be made axillary, inframammary, or even periareolar, although the periareolar incision is less popular in trans women because of the smaller size of the areola. If an inframammary incision is used, it should be positioned lower than the preoperative inframammary fold, because the distance between the inferior areolar margin and the inframammary fold expands after augmentation mammoplasty, likely due to the recruitment of the inframammary or even abdominal skin.⁴
The pocket for the implant can be created behind the glandular tissue or behind the pectoralis muscle. Some investigators recommend implanting the prosthesis in a subglandular position. This is indicated especially in patients who have more subcutaneous and glandular tissue to start with (Tanner stage IV or V). The surgical procedure is easier to perform and less painful. Many surgeons, however, prefer to put the implant in a retropectoral position. In this case, the lower portion (as well as part of the medial origin) of the pectoralis muscle should be detached from the thoracic cage. In the retropectoral position, the prosthesis is covered with more soft tissue (important in case of thin patients), and a lower risk of capsular contraction has also been reported.

**Fat grafting**

Fat grafting or lipofilling is a technique where fat is harvested by liposuction of the abdomen or thighs. Subsequently the fat is centrifuged to separate the oil, fluid, and blood supernatants. As a result a concentrated, purified fat sample is obtained, which can be injected in the subcutaneous plane (Fig. 3). In trans women who already have some breast volume due to hormone treatment, lipofilling can be a good option to provide a moderate augmentation of the breast, therefore avoiding the need for an implant. Patients should be informed, however, that a variable percentage of the injected fat is resorbed and that a second or even third procedure may be necessary to achieve sufficient volume.

The authors have also used fat grafting as an adjunct to breast augmentation with implants. Fat is injected in the subcutaneous plane to make an implant less visible and palpable as well as to narrow the wide cleavage between the breasts.

**Autologous flap surgery**

Breast reconstruction using autologous free flaps or pedicled flaps in trans women have not yet been described. The authors’ department performed an (undescribed) breast reconstruction on a transgender woman with Poland syndrome. The reconstruction consisted of a combination of a muscle flap for thorax reconstruction and 2 perforator flaps (deep inferior epigastric artery perforator [DIEAP] flaps) for breast reconstruction.

In an era where screening for a genetic predisposition of breast cancer is more commonly performed, this procedure might become important in the future. A bilateral prophylactic mastectomy and consecutively primary reconstruction with either autologous tissue (such as a DIEAP flap) or breast implant should be offered in patients with a genetic predisposition of breast cancer.

**Complications**

Kanhai and colleagues reported the main (but rarely occurring) complications after breast augmentation: hematoma, symmastia, capsular contracture, a decreased sensation in the nipple and/or part of the breast, leakage of the prostheses (more obvious in saline-filled prostheses than in cohesive silicone gel–filled prostheses), and malposition of the prostheses. Although it is rare in these patients, mastopexy can be the treatment of choice to correct (substantial) mammary ptosis, but usually an augmentation is sufficient to fill out the (slightly) ptotic breasts.

Galactorrhea is another rare condition that can occur preoperatively or postoperatively. It requires an extensive hormonal evaluation with particular attention to the pituitary gland. Apart from hormonal causes, excessive prolactin secretion causing galactorrhea may also result from a peripheral stimulus, such as breast manipulation or intercostal nerve stimulation. Galactorrhea in the latter case is associated with chest incisions or inflammation of the chest wall and thus may also be caused by mammary implants. In many patients, however, no cause for the galactorrhea can be found and the condition remains idiopathic.

Postoperative follow-up is mandatory in all patients undergoing breast augmentation. Gooren
and colleagues\textsuperscript{11} performed a cohort study documenting the occurrence of breast cancer in 2307 transgender persons with an exposure to cross-sex hormones between 5 years to 30 years and reported 10 cases of breast cancer in trans women. All patients received oral estrogens for prolonged periods to maintain secondary female characteristics. Three of these 10 cases were not estrogen-dependent breast carcinomas. The study suggested that cross-sex hormone administration does not increase the risk of breast cancer development in trans women. Breast carcinoma incidences were comparable to male breast cancers, thus lower than in the female population. The historical use of cross-sex hormones, however, may have been too short for malignancies to develop. Therefore, good screening and follow-up are imperative. Moreover, because breast examinations are also well accepted by trans women, transgender persons should be encouraged to participate in relevant cancer screening protocols, which for breast cancer screening are the same as for cisgender women.\textsuperscript{12}

Routine preoperative investigation of family history is imperative. Screening for genetic predisposition (such as BRCA mutations) should be considered in patients with multiple breast and/or ovarian cancers within their family (often diagnosed at an early age); 2 or more primary breast and/or ovarian cancers in a single family member and/or cases of male breast cancer within their family. In cases of BRCA mutations found in trans women, they should be carefully monitored and if cancers develop, they should be reported. Follow-up should be according to the guidelines for breast cancer screening in biological women and the guidelines for prostate cancer and colon cancer screening in men. Psychological counseling about bilateral prophylactic mastectomy and consecutively primary reconstruction with either autologous tissue or prosthesis should be offered as for all patients with a BRCA1 mutation.

**SUBCUTANEOUS MASTECTOMY IN TRANS MEN**

**Introduction**

Because hormonal treatment has little influence on breast size, the first (and arguably most important) surgery performed in the transmasculine patient is the creation of a male chest by means of subcutaneous mastectomy (SCM). This procedure allows patients to live more easily in the male role and thereby facilitates the experience of living in a gender role that is congruent with their gender identity, which is a prerequisite for external genital surgery.

A large body of literature concerning the optimal technique for performing SCM exists, but most of it focuses on women with breast disease or men with gynecomastia. There is a paucity of information regarding removal of the breasts in trans men.

Obviously, the cis-male chest and the cis-female chests are anatomically different.\textsuperscript{13,14} The cis-female chest has excess skin, excess glandular tissue, and a surrounding surplus of subcutaneous fat. With regard to the inferior confinement of the breast, in the cis-female, the inframammary fold is well defined. In the average cis-male, the chest does not show an inframammary fold and the inferior margin of the pectoralis muscle (often somewhat squared by rudimentary breast tissue and nipple) represents the dim inferior margin of the chest. The importance of obliterating the inframammary fold while contouring the male chest has been stressed by several investigators.\textsuperscript{13}

From a purely anatomic viewpoint, SCM in trans men is virtually identical to that of the mastectomy for breast disease or prophylaxis. The goals for trans men differ, however, because they include aesthetic contouring of the chest wall by removal of breast tissue and excess skin; reduction and proper positioning of the nipple and areola; obliteration of the inframammary fold; and minimization of chest wall scars—in short, the creation of an aesthetically pleasing male chest.\textsuperscript{14} Many of the techniques for the treatment of gynecomastia have been used or modified in SCM for trans men, the methods and indications and complications for each are discussed in the literature.\textsuperscript{14–18} The reports describe liposuction, semicircular circumareolar techniques, concentric circular techniques, transareolar incisional techniques, and more radical procedures, such as breast amputation with a free nipple graft the inferior pedicled mammoplasty.\textsuperscript{19–23}

Poor aesthetic outcomes in transgender patients include contour abnormalities (breast, inframammary fold, and nipple), issues relating to the NAC (size, placement, and viability), skin redundancy, and poor scarring.\textsuperscript{13} Secondary corrections are occasionally necessary.

Performing SCM in trans men is more difficult, however, than correction of gynecomastia in men, because, in most cases, trans men usually have more breast volume and a greater degree of skin excess and ptosis. According to Hage and Bloem,\textsuperscript{14} skin excess, not breast volume, is the factor that should determine the appropriate SCM technique. Based on more than 900 SCMs the authors have performed for trans men over the past 20 years, the authors agree that skin quality—specifically, skin
elasticity—also is a key factor. It can make the
difference between a good aesthetic outcome
and a poor one, especially with a less experi-
enced surgeon. It is important to be aware that,
in this patient population, poor skin quality can
be exacerbated when a patient has engaged in
years of breast binding.

Surgical Techniques

Preoperative parameters to be evaluated include
breast volume, degree of excess skin, NAC size
and position, and skin elasticity. If a patient is a
smoker, the surgeon should discuss the effects
of the habit on the skin quality, wound healing,
and vascularity and encourage the patient to
stop smoking. Hormonal therapy is stopped 2
weeks to 3 weeks preoperatively.

Regardless of the technique, it is extremely
important to preserve all subcutaneous fat when
dissecting the glandular tissue from the flaps.
This ensures thick flaps that produce a pleasing
contour and do not subsequently become tether-
ed to the chest wall. For the same reason, the
authors preserve the pectoralis fascia. The au-
thors do not perform liposuction at the anterior
aspect of the breast. A judicious use of liposuc-
tion, however, can occasionally be indicated
laterally, eventually also a bit inferiorly, or to attain
complete symmetry at the end of the procedure.
The inframammary fold is always released and
is an especially important maneuver for patients
with large breasts. This is done by extending the
inferior flap onto the abdomen and, where a tight
band exists, incising it with multiple transverse
cuts. Postoperatively, a circumferential elastic
bandage is placed around the chest wall and
maintained day and night for a total of 4 weeks
to 6 weeks.

Owing to the multitude of techniques, the dif-
ficulty with SCM lies less in the procedure itself
(although it is wrongly considered an easy pro-
cedure) and more in the choice of technique.
Therefore, the authors have developed an
algorithm that helps choose from 5 techniques,
resulting in an aesthetically pleasing male
chest\(^{24}\) (Fig. 4). Over the past 8 years, the au-
thors have modified this algorithm (discussed
later).

Semicircular technique

The semicircular technique (Fig. 5) is essentially
the same procedure as that described by Webster
in 1946\(^{23}\) for the correction of gynecomastia. It is
useful for individuals with smaller breasts. The
resulting scar is confined to the lower half of the
periphery of the areola (infra-areolar). A sufficient
amount of glandular tissue should be left in situ
beneath the NAC to avoid a depression. The
advantage of this technique is the small and well-
concealed scar, which is confined to the NAC.
The major drawback is the small window through
which to work, making excision of breast tissue
and hemostasis more challenging. Care must be

![Fig. 4. Choosing the appropriate subcutaneous mastectomy technique. IMF, inframammary fold.](image)
taken to avoid overzealous traction on the skin edges with retractors, which could result in wound dehiscence or marginal skin necrosis.

**Transareolar technique**

In cases of smaller breasts with large prominent nipples, the transareolar technique (Fig. 6) is used. This is similar to the procedure described by Pitanguy in 1966. It allows for a subtotal resection of the nipple and usually incorporates the upper aspect, which tends to ameliorate the downward effect of gravity. The resulting scar traverses the areola horizontally and passes around the upper aspect of the nipple. The additional advantage of this technique is that it allows an immediate nipple reduction. The disadvantage is the same as with the semicircular technique, that is, it is more difficult to excise breast tissue and achieve hemostasis. Additionally, the transareolar scar is usually somewhat more apparent.

**Concentric circular technique**

The concentric circular technique was described by Davidson in 1979 (Figs. 7–9). It is used for breasts with a medium-sized skin envelope (B cup) or smaller breasts with poor skin elasticity. The resulting scar is confined to the...


circumference of the areola. The concentric incision can be drawn as a circle or ellipse, enabling de-epithelialization of a calculated amount of skin in the vertical or horizontal direction. Access is gained via an incision in the inferior aspect of the outer circle. Glandular tissue is carefully dissected off the overlying NAC, leaving it widely based on a dermal pedicle. In this case, it is not necessary to leave excess glandular tissue beneath the NAC, because the folded de-epithelialized dermis surrounding the areola provides sufficient NAC projection and prevents nipple–chest wall tethering. A permanent purse-string suture is placed and set to the desired areolar diameter (usually \( \frac{1}{2} \) to \( \frac{3}{4} \) mm). The advantage of this technique is that it allows for reduction and/or repositioning of the areola, where required, and for the removal of excess skin. It also affords good exposure for glandular excision and hemostasis. It does, however, require experience in determining the amount of skin to be de-epithelialized. This technique is less frequent performed in our department because of the disappointing periareolar scars.

**Extended concentric circular technique**
The extended concentric circular technique (Fig. 10) is similar to the concentric circular technique but includes 1 or 2 additional triangular excisions of skin and subcutaneous tissue, which may be inferior and lateral or medial and lateral. Access for excision of the glandular tissue is provided through these additional skin excisions. This technique is useful for correcting skin excess and wrinkling produced by large differences between the inner and outer circles. On the few occasions where a single vertical triangular excision inferior to the NAC was used, the results were suboptimal. Subsequently, this technique was abandoned. Here, too, a permanent purse-string suture is placed and set to the desired areolar diameter. The resulting scars are around the areola, with horizontal extensions onto the breast skin, depending on the degree of excess skin. The advantages of this technique are the wide exposure for glandular excision and hemostasis, NAC reduction and repositioning, and tailoring of excess skin, resulting in fewer wrinkles around the areola. The major drawbacks are that the residual scarring is no longer confined to the NAC, and experience is required in planning the amount of tissue to be excised and/or de-epithelialized. The authors abandoned this technique due to the high rate of complications (21%) and because the majority (75%) of nipple necrosis occurred using this technique.

**Inferior pedicled mammoplasty technique**
The authors included the inferior pedicled mammoplasty technique for large breasts (C cup) with moderate elasticity and grade II ptosis in a flowchart (Figs. 11 and 12). The latter is important because the pedicle cannot be too long. It replaces the extended concentric circular technique. The drawings and incisions parallel the ones from the free nipple graft technique (described later). But instead of harvesting the NAC as a full-thickness skin graft, an inferior pedicle is de-epithelialized. The authors'
preference is to place the incision horizontally 1 cm to 2 cm above the inframammary fold and then move upward laterally below the lateral border of the pectoralis major muscle. The incisions should not cross the midline. In contrast to Wolter and colleagues, who described a width of 30 mm to 40 mm and thickness of 15 mm to 20 mm, the authors’ pedicle measures the inferior scar width minus 30 mm to 40 mm and has a thickness of 10 mm to 15 mm. After breast amputation, the superior flap is pulled downward to eliminate skin redundancy and the inferior pedicle is positioned behind this flap. At this stage, judicious defatting or liposuction may be performed laterally and medially to avoid dog ear formation and ensure symmetric contouring. Care should be taken to leave the fat on the undersurface of the skin flaps. Regarding ideal placement of the NAC, the authors believe that the use of absolute measurements can be misleading. The authors agree with the recommendations of many authors who position the NAC according to a patient’s own anatomic landmarks. Atiyeh and colleagues state that the position of the nipple can be deducted from the distance between umbilicus and anterior axillary fold apex (U-AAF) and the umbilicus to suprasternal notch (U-SN). The internipple distance and the position of the horizontal nipple plane relative to the suprasternal notch can be calculated from these measurements (U-AAF and U-SN). In the authors’ series, the nipples were placed along the existing vertical nipple line and the height was adjusted to approximately 2 cm to 3 cm above the lower border of pectoralis major. In a typical patient, this corresponds to the fourth or fifth intercostal space. Clinical judgment is most important, however, and the authors always sit patients up intraoperatively to check final nipple position. The diameter of the NAC is 20 mm to 25 mm and is fixed in this new position.

**Free nipple graft technique**

The free nipple graft technique has been proposed by several investigators for patients with large and ptotic breasts (Figs. 13–15). It consists of harvesting the NAC as a full-thickness skin graft, amputating the breast, and grafting the NAC onto its new location on the chest wall. The drawings parallel the drawings of the inferior pedicled technique. After breast amputation, the superior flap is pulled downward to eliminate skin redundancy. Like in the previously described technique, judicious defatting or liposuction may be performed laterally and medially to avoid dog ear formation and ensure symmetric contouring. Again, care should be taken to leave the fat on the undersurface of the skin flaps. After closure, the NAC is grafted onto the desired position on the chest wall. The resulting scars include a line on the inferior aspect of the new male breast, in addition to one around the areola. The advantages of the free nipple graft technique are excellent exposure and more rapid resection of tissue as well as nipple reduction, areola resizing, and repositioning. The disadvantages are the long residual scars, NAC pigmenary, sensory changes, and the possibility of incomplete graft take.
Complications

The overall postoperative complication rate in the authors’ series is 10% and similar to that in most other series described in the literature.\textsuperscript{18} A hematoma was the most frequent complication. As might be expected, the frequency of hematoma decreases moving from the first periareolar technique to the extended concentric and free nipple graft technique in which wider access is provided. Some of the other complications were associated with hematoma: (partial) nipple necrosis and abscess formation.
Dranes and compression bandages did not necessarily prevent the occurrence of this troublesome complication. This underscores the importance of achieving good hemostasis intraoperatively. Smaller hematomas and seromas can be evacuated through puncture. In approximately half of cases, however, surgical evacuation was required.

A significant complication includes simple skin slough of the NAC, which can be left to heal by conservative means. The exceptional cases of partial or total nipple necrosis may require a secondary nipple reconstruction. These cases seldom occur in the authors’ practice, from abandoning the extended concentric technique and replacing it with the inferior pedicle mammoplasty technique.

Despite a low complication rate, approximately one-third of the patients require an additional procedure to improve the aesthetic results. The likelihood of an additional aesthetic correction should be discussed with patients in advance.

Some surgeons prefer to perform a planned 2-stage procedure. In the first stage, the skin initially is left oversized to enable it to shrink fully without stretching the scars and areola. This may somewhat reduce the length of the ultimate scar (depending on the elasticity of the skin). The second procedure removes the excess of skin still present after a period of shrinking.

**Recommendations**

For a breast with a small envelope and good skin elasticity, a semicircular technique is suitable. The same breast with an oversized nipple is well suited to a transareolar technique. The same breast with moderate to poor elasticity, or a breast having a larger envelope (B cup, grade I or II ptosis), requires a concentric circular technique. A moderate-sized breast (B–C cup, grade I or II ptosis) with poor skin elasticity requires an inferior pedicled mammoplasty technique. Finally, a large-volume breast (C cup or larger) with substantial skin excess and little or no skin elasticity likely requires a breast amputation with free nipple grafting. This new algorithm demonstrates that moving from left to right in the algorithm, the techniques require progressively longer incisions with an inherent increase in residual scarring. The authors have found that when skin elasticity is suboptimal and all other factors are equal, it is much better to move one step to the right in the algorithm than to risk a poor aesthetic outcome with wrinkled or uneven skin. Inevitably, this involves more incisions and longer scars.

This approach seems in stark contrast to the short scar concepts that are so popular in breast reduction and mastopexy. In the authors’ experience with this patient group, however, increasing scar length is far preferable to puckering, wrinkling, tethering, and excess skin on a masculine-appearing chest. Good skin elasticity leads to fewer incisions, less scarring, and possibly less cutaneous wrinkling. When having to choose between scar or contour, however, the authors have noticed that the majority of patients prefer a better contour above a shorter scar; for this reason, the authors have performed many more free nipple graft technique SCMs in recent years.

Trans men are rightfully becoming better informed and more demanding. Good results, although sometimes difficult to accomplish and possibly requiring an additional correction, are crucial to improve a patient’s body image.

Finally, there have been reports of breast cancer after bilateral SCM in this population. Preservation of the NAC after SCM leaves behind insensate ductal tissue at risk for malignant transformation. Residual breast tissue persists even after the most radical prophylactic mastectomy, and a regular SCM never removes all glandular tissue. Although the precise causative role of androgens in breast cancer etiology is unclear, the association between high androgen levels and breast cancer risk is well documented. Apparently, high-circulating androgen in postmenopausal women may increase estrogens via peripheral aromatization of dehydroepiandrosterone to estradiol and estrone in breast and adipose tissue. This prolonged and unsupported estrogen stimulation could increase breast cancer. Additionally, family history of breast cancer may play a role in this scenario. Lifelong follow-up of these patients is, therefore, required.

**REFERENCES**

Exhibit C
Long-term outcome of augmentation mammoplasty in male-to-female transsexuals: a questionnaire survey of 107 patients

R. C. J. Kanhai, J. J. Hage and J. W. Mulder

Department of Plastic and Reconstructive Surgery, Academisch Ziekenhuis Vrije Universiteit, Amsterdam, The Netherlands

SUMMARY. A retrospective survey of long-term postoperative male-to-female transsexual patients has been performed to evaluate how well augmentation mammoplasty addresses their needs. One hundred and seven (65%) out of 164 anonymous questionnaires sent to the patients were evaluated. Average clinical follow-up of these patients was 4.8 years, whereas the average time lapse between mammoplasty and filling out of the questionnaire was 5.5 years (range, 16 months–17 years). The age of the subjects at the time of this survey ranged from 22 to 76 years (average, 41 years). Seventeen of the 107 patients had undergone further augmentation mammoplasty, on average 57 months after the initial mammoplasty. The average size of implanted prostheses was 258 ml (range, 130–450 ml). Eighty patients (75%) indicated satisfaction with the final outcome of the mammoplasty. The median postoperative cup size in this group was B (range of postoperative bra size, 30B–40D). The remaining 27 patients (25%) were unhappy with the results of mammoplasty. The median postoperative cup size in the 18 patients who still felt their breasts to be too small was also B (range of bra size, 30B–48E). The average size of current prostheses in these 18 patients was 261 ml. For a male-to-female transsexual patient to appreciate the outcome of augmentation mammoplasty, the surgeon should tolerate and address this patient’s urge for a distinctly feminine breast configuration.

Keywords: transsexualism, mammoplasty, follow-up, subjective outcome.

Driven by a persistent and unchangeable need to undo the discrepancy between physical reality of the body and gender of the mind, most male-to-female transsexuals seek demasculinisation and feminisation through hormonal and surgical treatment. Augmentation mammoplasty is often performed in cases where hormonal treatment has not resulted in sufficient growth of the breasts.1,2 This procedure facilitates the adjustment to the female lifestyle and it helps the patient to accept her body. To evaluate how well mammoplasty addresses the needs of these patients, several goals must be addressed.3 These include: (a) a diagnostic selection process that will allow uniform screening of the many patients with gender dysphoria for those who may not be reasonably helped by gender reassignment operations; (b) high-quality operations that give uniformly good aesthetic and functional results with reasonable cost and risk; and (c) careful follow-up of unselected groups of patients over a 10- to 20-year period.1 The Amsterdam gender team has treated well over 1400 patients since its inception in 1975 and a reliable diagnostic selection process and favourable cost–benefit ratio for the surgery have been established.4 Long-term results, however, could only be carefully evaluated after the required period of 10–20 years had passed. We performed an inquiry among these patients to evaluate the long-term subjective outcome of mammoplasty surgery.

Patients and methods

In the 18-year period January 1979 to December 1996, 359 male-to-female transsexuals presented to undergo vaginoplasty in the Academisch Ziekenhuis Vrije Universiteit (AZVU). Working in line with the Standards of Care of the Harry Benjamin International Gender Dysphoria Association, all indications for gender confirming surgery were agreed on by the AZVU gender team.1,5,6 Of these 359 patients, 201 also underwent augmentation mammoplasty in our clinic. To evaluate how well mammoplasty had addressed their needs, a questionnaire was sent to 184 of these 201 patients. Eight of the remaining 17 patients had died since the operation, and no address was known for eight others. One patient was known to regret having undergone male-to-female sex reassignment and was not approached.

The questionnaires were semi-structured. This means that some questions had fixed answers and the subjects only had to pick the possible answer. Apart from these multiple choice questions, the subjects were asked to answer open questions and to give any comment they felt was necessary. Information was collected anonymously. All subjects were approached by mail twice to encourage them to fill up the questionnaire. One hundred and thirty of the 184 questionnaires were returned. On the envelope of 20 of these 130 it was
indicated that the patient was no longer known at that address. Therefore, 164 questionnaires were regarded to have reached the patients. Three questionnaires were returned without being filled out. The following results were extracted from the 107 remaining questionnaires.

Results

The age of the 107 subjects at the time of their first mammaplasty ranged from 18 to 71 years (average, 35.5 years). The average period of hormone treatment prior to this mammaplasty had been 8.4 years (range, 3–26 years). Mammaplasty had been performed simultaneously with vaginoplasty in 85 patients, whereas an average of 2.7 years (range, 2 months–10 years) lapsed between the procedures in the remaining 22 cases. Seventeen of the 107 patients had undergone further augmentation mammaplasty, on average 57 months after the initial mammaplasty (range, 7 months–11 years). The average size of implanted prostheses was 258 ml (range, 130–450 ml). Average clinical follow-up of these 107 patients was 4.8 years (range, 7 months–13 years), whereas the average time lapse between mammaplasty and filling out of the questionnaire was 5.5 years (range, 16 months–17 years). The age of the subjects at the time of this survey study ranged from 22 to 76 years (average, 41 years).

Eighty patients (75%) were satisfied with the final outcome of their mammaplasty. Twelve of these 80 patients had undergone repeated augmentation mammaplasty. The median preoperative cup size in these 80 patients had been A (range of bra size, 28AA–40A) and their median postoperative cup size was B (range of bra size, 30B–40D). The average size of prostheses implanted in the 68 patients who were happy with the result of the initial mammaplasty was 265 ml.

The remaining 27 patients (25%) were unhappy with the results of mammaplasty. Five of these 27 reported having undergone further augmentation. The reasons for dissatisfaction ranged from the breasts being too big or too small, to pain (Table 1). The median preoperative cup size in the 18 patients who still felt their breasts to be too small had been A (range of bra size, 28AA–36A), whereas their median postoperative cup size was also B (range of bra size, 30B–48E). The average size of current prostheses in these 18 patients was 261 ml.

Discussion and conclusions

Oestrogen therapy in male-to-female transsexuals results in increased fat deposition in the breasts and around the waist. The degree of breast development varies and augmentation mammaplasty may be considered whenever hormonal treatment has not resulted in sufficient growth of the breasts. Apart from the 201 patients who underwent breast surgery in our clinic, 40 of 359 patients who had undergone vaginoplasty had the mammaplasty performed elsewhere. Hence, we infer that 67% of our vaginoplasty patients undergo augmentation mammaplasty.

One hundred and seven out of 164 questionnaires (65%) regarded to have reached the patients could be evaluated. Some patients may have changed address since their last visit to our outpatient clinic and the questionnaire may, in fact, not have reached them. Others may not have returned the questionnaire as postoperative transsexuals sometimes feel ‘de-transsexualised’ and are no longer willing to be reminded of their ‘former’ life and treatment. Still, our treatment programme aims to keep transsexuals under life-long medical supervision even after sex reassignment surgery.

Four-fifths of the patients in our series underwent combined mammaplasty and vaginoplasty, whereas the remaining patients underwent these procedures separately. For most patients requiring both vaginoplasty and mammaplasty, both procedures are currently performed simultaneously, as less theatre time is being used and medical costs are kept to a minimum.

Previously, we reported that the average size of implanted mammary prostheses nearly doubled from 165 ml in 1979, to 287 ml in 1996. The average size of implanted prostheses in the current group was 258 ml and this relatively large average size may explain the 75% satisfaction rate. Still, the average size of prostheses implanted in the 80 satisfied patients did not statistically differ from that in the 18 patients who indicated that their breasts were still too small. Likewise, the preoperative and postoperative cup and bra sizes were not different in both groups. No less than 17 patients (16%) of this series had undergone repeated augmentation mammaplasty and, for these reasons, we conclude that for the male-to-female transsexual patient to appreciate the outcome of augmentation mammaplasty, the surgeon should tolerate and address this patient’s urge towards a distinctly feminine breast configuration.

Table 1 Reasons for being dissatisfied by the outcome of (repeated) mammaplasty in 27 of the 107 patients

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breasts too small</td>
<td>18</td>
</tr>
<tr>
<td>Breasts too large</td>
<td>1</td>
</tr>
<tr>
<td>Painful breasts</td>
<td>1</td>
</tr>
<tr>
<td>Asymmetry of breasts</td>
<td>1</td>
</tr>
<tr>
<td>‘Unnatural’ appearance of breasts</td>
<td>2</td>
</tr>
<tr>
<td>Conspicuous inframammary scars</td>
<td>1</td>
</tr>
<tr>
<td>Conspicuous edges of implants</td>
<td>1</td>
</tr>
<tr>
<td>Removal of implants after 6 operations</td>
<td>1</td>
</tr>
<tr>
<td>No reason provided</td>
<td>1</td>
</tr>
</tbody>
</table>

References


The Authors
Robert C. J. Kanhai MD, Junior Resident
J. Joris Hage MD, PhD, Consultant Plastic Surgeon
J. Wiebe Mulder MD, PhD, Professor and Chief

Department of Plastic and Reconstructive Surgery, Academisch Ziekenhuis Vrije Universiteit, P.O. Box 7057, NL-1007 MB Amsterdam, The Netherlands.
Correspondence to Dr J. J. Hage.

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Exhibit D
Breast augmentation in male-to-female transsexuals is part of gender reassignment surgery. Hormonal feminization might not be sufficient to induce mammogenesis, so many patients seek surgery for their chests to resemble the female gender. Literature describes techniques and results. The World Professional Association for Transgender Health, in the seventh version of the Standards of Care for the Health of Transsexual, Transgender, and Gender Non-conforming People emphasizes that, although breast augmentation can be labeled as an aesthetic procedure, this operation can be medically necessary, depending on the unique clinical situation of a given patient’s condition and life situation. No studies report sexual, psychosocial, and health-related quality-of-life changes after breast augmentation in male-to-female transsexuals. The purpose of this study was to evaluate the impact of breast augmentation on patient-reported satisfaction with breasts and sexual, physical, and psychosocial well-being.

**Background:** Satisfaction with breasts, sexual well-being, psychosocial well-being, and physical well-being are essential outcome factors following breast augmentation surgery in male-to-female transsexual patients. The aim of this study was to measure change in patient satisfaction with breasts and sexual, physical, and psychosocial well-being after breast augmentation in male-to-female transsexual patients.

**Methods:** All consecutive male-to-female transsexual patients who underwent breast augmentation between 2008 and 2012 were asked to complete the BREAST-Q Augmentation module questionnaire before surgery, at 4 months, and later after surgery. A prospective cohort study was designed and postoperative scores were compared with baseline scores. Satisfaction with breasts and sexual, physical, and psychosocial outcomes assessment was based on the BREAST-Q.

**Results:** Thirty-five male-to-female transsexual patients completed the questionnaires. BREAST-Q subscale median scores (satisfaction with breasts, +59 points; sexual well-being, +34 points; and psychosocial well-being, +48 points) improved significantly \((p < 0.05)\) at 4 months postoperatively and later. No significant change was observed in physical well-being.

**Conclusions:** In this prospective, noncomparative, cohort study, the current results suggest that the gains in breast satisfaction, psychosocial well-being, and sexual well-being after male-to-female transsexual patients undergo breast augmentation are statistically significant and clinically meaningful to the patient at 4 months after surgery and in the long term. 

**CLINICAL QUESTION/LEVEL OF EVIDENCE:** Therapeutic, IV.
PATIENTS AND METHODS

Study Sample

Research ethics board approval was granted for this study from the University of Bordeaux Segalen, Bordeaux, France. Patients were recruited from the Hospital Transgender Health Network (Bordeaux University Hospital, Bordeaux, France) from July of 2008 through July of 2012. Breast augmentation procedures were all paid for by health insurance after a medical counselor granted approval. Inclusion criteria were age 18 years or older, capacity to make a fully informed decision and to consent for treatment, sex reassignment surgery already performed, at least 12 months of feminizing hormone therapy, no previous breast surgery, and primary augmentation mammoplasty with the same surgeon.

Data Collection

In accordance with the European Directive 95/46/EC of the European Parliament and of the European Council of October 24, 1995, on the protection of individuals with regard to the processing of personal data and on the free movement of such data, the database has been declared at the Commission Nationale de l’Informatique et des Libertés, which is the independent French administrative authority protecting privacy and personal data. After being informed on the study, verbal consent was obtained from the patients. They were asked to complete the BREAST-Q Augmentation module at three time points: (1) at 3 weeks preoperatively and (2) at 4 months and (3) at least 12 months after completion of breast augmentation. Patient and treatment data were collected at baseline and after the procedure. Patient information included age, height, weight, body mass index, employment, tobacco status, date of beginning of hormone therapy, date of sex reassignment surgery, sternal notch–to-nipple distance, and breast width. Treatment information included date of surgery, position of incision, pocket plane, and size and shape of the implants. After surgery, surgical information was obtained from the electronic patient record on operative procedure, significant postoperative complications (e.g., hematoma, infection, and capsular contracture), and hospitalization stay.

BREAST-Q

The BREAST-Q Augmentation module is a patient-reported outcome measure that was specifically designed to assess the health-related quality of life and patient satisfaction after breast augmentation. This instrument was developed and validated with strict adherence to recommended international guidelines to remedy the lack of instruments for breast surgery patients. In the original development study, all scales were found to fulfill criteria for good measurement. The BREAST-Q was further validated to be appropriately used in clinical research and practice. Four subscales measure well-being and satisfaction before and after augmentation:

1. The Augmentation module’s 17-item subscale, satisfaction with breasts, addresses issues such as satisfaction with breast volume and shape; feel to touch; and one’s appearance clothed, unclothed, and in a bra.
2. The Augmentation module’s nine-item subscale, psychosocial well-being, addresses issues such as feelings of beauty, self-confidence, and self-worth.
3. The Augmentation module’s five-item subscale, sexual well-being, addresses issues such as feelings of sexual attractiveness and sexual self-confidence.
4. The Augmentation module’s seven-item subscale, physical well-being, addresses issues such as chest pain, sleeping discomfort, and physical activity discomfort.

Five additional subscales measure postaugmentation outcomes related to the satisfaction with outcome, information, medical staff, and office staff. However, because we were assessing the changes in health-related quality of life and patient satisfaction after breast augmentation, only the four subscales that included preaugmentation scores and postaugmentation scores were analyzed. Good psychometric properties have been reported for the BREAST-Q subscales used in the study (Cronbach α, 0.83 to 0.96). Test-retest reliability has been reported (intraclass correlation coefficient, 0.90 to 0.96). All raw questionnaire data were transformed into BREAST-Q scores using the Q-Score program. Then, scores were computed in summary scores for each BREAST-Q subscale that range from 0 to 100, with higher values representing a more favorable outcome.

Surgery

Preoperative Evaluation

Current cross-sex hormone substitution was not standardized, even if almost all were treated by the same endocrinologist, and consisted of estrogens (100 µg of ethinyl estradiol per day orally).
The selection of implant volume was based both on the patient’s chest anatomy and on preference. Evaluation included the expectations of the patient and other features such as the patient’s height, weight, chest morphology, existing breast appearance, asymmetries, and thickness of the subcutaneous tissue in the upper and lower poles of the future breast. Information to patient emphasizes the difficulty to attenuate the wide intermammary cleft usually present in the masculine thorax. In our practice, we always choose anatomical implants to fulfill the lack of an axillary process.

All breast augmentations were performed with Perïthése Esthea anatomical breast implants (Perouse Plastie, a Mentor Company, Bornel, France) filled with a cohesive silicone gel with a microtextured surface. The Perïthése Esthea mammary anatomical implant line differentiates itself from other devices on the market through its original microtextured surface—the envelope consists of high-mechanical-resistance medical grade silicone elastomer vulcanized during the manufacturing process—and through specific different base shapes. Photographs were taken at the initial consultation and at the follow-up evaluation.

Operative Technique

All operations were performed with the patient under general anesthesia. Intercostal nerve block with 15 ml of 7.5 mg/ml ropivacaine was performed for blocking both sides. Preoperative antibiotics were given (cefazolin, 2 g intravenously). All patients had a 45- to 50-mm-long inframammary incision (Fig. 1). Dissection was performed using the electrocautery knife under direct vision. During the procedure, the center-line of the anatomical implant was positioned parallel to the inferior margin of the pectoralis major muscle so that it filled superolateral region toward the axilla. Wound closure was completed in layers using running 3-0 Monocryl (Ethicon GmbH, Norderstedt, Germany) for the fascia and subcutaneous fat because of its softness. Skin closure was performed with 3-0 monofilament resorbable Monocryl suture, placed intracutaneously at the mid-dermis level.

Postoperative Care

Breasts were immobilized for 2 days in a semi-compressive dressing. Patients were given a specific supportive, properly sized bra with a front clasp. Drains were removed at the time of discharge from the hospital.

Postoperative Controls

Postoperative control assessments were performed at 2 days, 21 days, 4 months, 12 months, and later. Control assessments were performed for all patients by the operating surgeon (R.W.). At 4 months and after 12 months, the patients had to complete the postoperative BREAST-Q Augmentation module, which was followed by a physical examination and photographs.

Sample Size Calculation

According to previous research, we defined a clinically relevant change in the health-related quality of life as a difference that exceeds half a standard deviation of the baseline value. Because greater standard deviation of all scores at baseline is approximately 25 for the sexual well-being BREAST-Q subscale in our study population, the minimum significant difference for each subscale is estimated as 13. When the power is set at 80 percent with a standard $\alpha$ of 0.05 and a minimum difference of 13, a minimum sample size of 32 patients was calculated for this study, using the equation for a one-sample paired $t$ test.

Statistical Analysis

Descriptive data were calculated for continuous variables (i.e., mean, standard deviation, median, interquartile range, minimum, and maximum) and categorical variables (i.e., number and frequency). The responsiveness of the BREAST-Q scales was examined at the group level by testing the difference between scores at baseline and after breast augmentation. Because of nonnormal distribution of BREAST-Q scores, we described them with median and interquartile range, and we used the nonparametric Wilcoxon signed rank test.
test for repeated-measures analysis. We then calculated the standard indicator Kazis effect size calculation, defined as the difference between means of presurgery and postsurgery scores divided by the standard deviation for the data.\(^{18}\) Larger effect sizes indicate greater responsiveness, and it is standard practice to interpret the magnitude using Cohen’s arbitrary criteria, where 0.2 to 0.5 indicates a small effect size, 0.5 to 0.8 indicates a medium effect size, and greater than 0.8 indicates a large effect size.\(^{19}\)

Outcomes assessed by the BREAST-Q were also described at the individual patient level. This was achieved by classifying each patient according to score change between visits. We used our study definition of “minimum significant difference” of 13 (see earlier under Sample Size Calculation) to define five categories: significant improvement (change $\geq +13$ points), nonsignificant improvement ($0 < \text{change} < +13$), no change (change $= 0$), nonsignificant worsening ($-13 < \text{change} < 0$), and significant worsening (change $\leq -13$). We then counted the number and frequency of people achieving each level of change.

Finally, we compared BREAST-Q scores and changes according to implant breast volume using the nonparametric Kruskal-Wallis test. All analyses were performed with a significance level of 0.05, using the SAS Statistical Package (version 9.2; SAS Institute, Inc., Cary, N.C.).

RESULTS

Figures 2 and 3 show postoperative results over time.

Patient Characteristics

A total of 35 patients were recruited for participation. Table 1 lists characteristics of the study sample. In the study, male-to-female transsexual
patients were most often patients who had begun late transition and therefore had a high average age at surgery (42.2 years). The high average size (173.9 cm) regarding masculinity of the patients is counterbalanced by a normal body mass index. Similarly, breast width (13.1 cm) was large regarding masculine chest anatomy. Hormone therapy was started long before the procedure; the World Professional Association for Transgender Health recommends waiting at least 12 months before breast augmentation. Breast surgery was performed on average 16 months after sex reassignment surgery, in relation to vaginoplasty recovery time. All patients completed the BREAST-Q both 3 weeks preoperatively and at a median of 4.0 months (interquartile range, 4.0 to 4.0 months; range, 3.8 to 4.0 months) following augmentation. Twenty-one patients completed the BREAST-Q again at a median of 20.7 months (interquartile range, 8.1 to 28.3 months; range, 12.0 to 39.6 months).

Table 2 lists treatment characteristics. Patient morphology induced high-volume implants (327 ml). In addition, pocket implant was most often located in the retropectoral position (77 percent). Hospitalization stay was long because patients were kept until drains were removed (5.5 days). None of the patients had significant postoperative complications after breast augmentation (Table 2).

**BREAST-Q Scores**

Evolution of BREAST-Q subscales scores is illustrated in Figure 4. BREAST-Q subscale scores for
satisfaction with breasts, psychosocial well-being, and sexual well-being were significantly higher at both postoperative times than the baseline values (Tables 3 and 4). Satisfaction with breast increased by 59 points ($p < 0.0001$) at 4 months and 47 points ($p < 0.0001$) later. A significant improvement in psychosocial well-being was assessed at 4 months (48 points, $p < 0.0001$) and later (37 points, $p < 0.0001$). Sexual well-being increased by 34 points ($p < 0.0001$) at 4 months and 33 points ($p = 0.0003$) later. BREAST-Q subscale physical well-being had a nonsignificant change at both postoperative times: −10 points ($p = 0.1131$) at 4 months and +6 points ($p = 0.3265$) later.

Satisfaction with breast Kazis effect size was very large at 4 months and later, matching with a significant improvement in 97 percent of patients at 4 months and 95 percent later. Kazis effect sizes were large for psychosocial well-being and sexual well-being matching, respectively, with a significant improvement in 85 percent and 86 percent at 4 months and 76 percent and 70 percent later (Tables 3 and 4).

When comparing BREAST-Q subscale between subjects with breast implant volume lower or higher than the mean, only sexual well-being at 4 months after surgery is different. Subjects with breast volume implant below average ($n = 17$) were more sexually satisfied than subjects with volume implant above average ($n = 14$) (median, 100 versus 65; mean, 86.7 versus 61.4; $p = 0.001$).

**DISCUSSION**

Although breast augmentation in male-to-female transsexuals was studied extensively in the late 1990s, the impact on well-being has never been measured before. Acquiring a female phenotype through hormonal and surgical treatments is essential for male-to-female transsexuals to undo the incongruity between their mind and their body. Transsexual patients perceive the breasts as a strong image of the feminine gender and seek feminization through breast surgery. The study’s goal was to measure changes in patient satisfaction level with breasts and sexual, psychosocial, and physical well-being after breast augmentation in male-to-female transsexuals using a valid, reliable, and responsive patient-reported outcome measure (i.e., BREAST-Q). The current results indicate that gains are statistically significant and clinically meaningful as early as 4 months after surgery and later. In this study, procedure length was longer than in native women because we mostly had to choose a retropectoral pocket and the pectoralis muscle was strong.

The high rate of satisfaction with breasts might be explained by the large average volume of implanted prostheses in this study (327 ml) that is, to us, adequate with anatomical characteristics of male-to-female transsexual patients’ chests. In 1999, Kanhai et al. had noticed that the average volume had doubled between 1979 and 1996, going from 165 ml to 287 ml, without mentioning a correlation between volume and patients’ physical characteristics. In their study, they observed a satisfaction rate of 75 percent at 4.8 years, consistent with the

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**Table 1. Characteristics of Male-to-Female Transsexual Patients Undergoing Breast Augmentation Surgery***

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean ± SD</th>
<th>Range</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at time of BA, yr</td>
<td>42.2 ± 12.6</td>
<td>18.9–62.6</td>
<td></td>
</tr>
<tr>
<td>Length, cm</td>
<td>173.9 ± 6.6</td>
<td>159.0–184.0</td>
<td></td>
</tr>
<tr>
<td>Weight, kg</td>
<td>68.6 ± 11.9</td>
<td>49.0–89.0</td>
<td></td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>22.7 ± 3.5</td>
<td>17.0–29.4</td>
<td></td>
</tr>
<tr>
<td>Age of hormonal therapy, yr</td>
<td>4.9 ± 4.2</td>
<td>1.3–16.7</td>
<td></td>
</tr>
<tr>
<td>Age of SRS, mo</td>
<td>15.9 ± 17.1</td>
<td>4.5–81.0</td>
<td></td>
</tr>
<tr>
<td>Sternal notch-to-nipple distance, cm</td>
<td>21.6 ± 3.6</td>
<td>17.0–34.0</td>
<td></td>
</tr>
<tr>
<td>Breast width, cm</td>
<td>13.1 ± 2.7</td>
<td>9.0–20.0</td>
<td></td>
</tr>
<tr>
<td>Socioprofessional group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artisan, storekeeper</td>
<td>12 (34)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed full time or part time</td>
<td>10 (29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>4 (11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed/students/others</td>
<td>9 (26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active smoking</td>
<td>12 (34)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*July 30, 2012, end of follow-up, Bordeaux University Hospital, Bordeaux, France ($n = 35$).

**Table 2. Surgical Characteristics of Breast Augmentation Surgery Performed on Male-to-Female Transsexual Patients***

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean ± SD</th>
<th>Range</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast implant volume, ml</td>
<td>327 ± 61</td>
<td>190.0–425.0</td>
<td></td>
</tr>
<tr>
<td>Procedure length, min</td>
<td>86 ± 20</td>
<td>60.0–120.0</td>
<td></td>
</tr>
<tr>
<td>Hospitalization stay, days</td>
<td>5.5 ± 1.5</td>
<td>4.0–10.0</td>
<td></td>
</tr>
<tr>
<td>Pocket used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subglandular</td>
<td>8 (23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subpectoral</td>
<td>27 (77)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of implant</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ELP</td>
<td>11 (31)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHP</td>
<td>18 (51)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESHP</td>
<td>6 (17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hematoma</td>
<td>0 (0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infection</td>
<td>0 (0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capsular contracture</td>
<td>0 (0)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ELP, Esthea Low profile; EHP, Esthea High profile; ESHP, Esthea Super–high profile.

*July 30, 2012, end of follow-up, Bordeaux University Hospital, Bordeaux, France ($n = 35$).
satisfaction rate of our study of 67 percent at 21 months. So far, interpretation of sexual satisfaction with breast implantation is biased by outcomes of sexual reassignment and brings into light complex considerations, making interpretation difficult. However, sexual well-being was more improved in patients with implanted volumes under the mean. Although biases could exist (e.g., selection of patients, confusion with other variables), this consideration allows surgeons to propose smaller implants and then improve satisfaction.

Whereas changes in physical well-being are nonsignificant in this study, it would be interesting to measure the impact of breast augmentation in male-to-female transsexual patients at work and during sport practice. No such study was considered in native women.

Table 3. Distribution of BREAST-Q Augmentation Module Subscales and Change from before Surgery to 4 Months after Surgery among Male-to-Female Transsexual Patients Undergoing Breast Augmentation Surgery*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>No.</th>
<th>Before surgery</th>
<th>After surgery</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean ± SD</td>
<td>Median (IQR)</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Satisfaction with Breasts</td>
<td>35</td>
<td>18 ± 15</td>
<td>19 (0–26)</td>
<td>75 ± 16</td>
</tr>
<tr>
<td>Psychosocial Well-Being</td>
<td>35</td>
<td>35 ± 16</td>
<td>36 (23–48)</td>
<td>80 ± 21</td>
</tr>
<tr>
<td>Sexual Well-Being</td>
<td>27</td>
<td>33 ± 25</td>
<td>29 (20–42)</td>
<td>75 ± 24</td>
</tr>
<tr>
<td>Physical Well-Being</td>
<td>35</td>
<td>84 ± 18</td>
<td>100 (70–100)</td>
<td>79 ± 14</td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td>Mean ± SD</td>
<td>Median (IQR)</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Significant improvement</td>
<td>34 (97)</td>
<td>30 (85)</td>
<td>33 (86)</td>
<td>34 (86)</td>
</tr>
<tr>
<td>Nonsignificant improvement</td>
<td>1 (3)</td>
<td>2 (6)</td>
<td>2 (7)</td>
<td>2 (7)</td>
</tr>
<tr>
<td>No change</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Nonsignificant worsening</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>2 (7)</td>
</tr>
<tr>
<td>Significant worsening</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

IQR, interquartile range.
*July 30, 2012, end of follow-up, Bordeaux University Hospital, Bordeaux, France (n = 35).
†p-value for Wilcoxon signed rank test.
‡Mean change/SD before surgery (0.2–0.5 = small; 0.5–0.8 = medium; >0.8 = large).
§Significant improvement (change ≥ +13 points), nonsignificant improvement (0 < change < +13), no change (change = 0), nonsignificant worsening −13 < change < 0), and significant worsening (change ≤ −13).
McCarthy et al. have already confirmed the positive psychological effects of breast augmentation in native women, with similar effect sizes.\textsuperscript{21} Whereas native women seek satisfaction with their breasts through breast augmentation, male-to-female transsexual patients seem to look for better social integration. Evaluation of this parameter appears to be of utmost importance for proposing this procedure to male-to-female transsexual patients. This study detects positive psychosocial changes associated with surgery. Murphy et al., in 2009, in a psychosocial quality of life after breast augmentation study, referred to the fact that the Short Form-36 Health Survey currently used to determine the impact of an intervention on the quality of life was especially weighted with questions regarding physical health problems,\textsuperscript{22} whereas the BREAST-Q enables change in psychosocial well-being to be measured.

Despite meaningful results on quality of life, this study has some significant limitations. A significant number of questionnaires were missing in the long term (14 of 35 patients). Eight patients were interviewed too early, as less than 6 months had elapsed since the intervention, and six patients were lost to follow-up. Quantitative data (i.e., age, size, weight, body mass index, sternal notch–to-nipple distance, and breast width) at inclusion of loss to follow-up were on average higher, resulting in a selection of larger prostheses (350 ml versus 325 ml) and implant insertion in the prepectoral pocket in more than 60 percent of cases (unlike 75 percent of cases for patients reinterviewed later). Patients lost to follow-up had better improvement in satisfaction with breasts at 4 months (+91 versus +46). It can be assumed that this improvement of satisfaction is extended in time, which supports the significant findings of this study in the long term. Besides, it has been suggested that satisfaction associated with breast augmentation may be compromised by postoperative complications,\textsuperscript{23} and none of the patients had complications during the follow-up period. Furthermore, only anatomical implants were used in this study. A single-blind prospective study comparing anatomical versus round implants should evaluate the impact of implant selection on outcomes.

It is necessary to analyze these findings not only exclusively based on their statistical significance but also in view of their clinical significance. Effect sizes, such as Kazis effect size, can measure the strength of change and then can help interpret the data. Nevertheless, Kazis effect size calculation is based on the hypothesis of normal distribution of variables that is not satisfied in our study. However, the magnitude of the results is strong enough to support this. Effect sizes were large for the three scale mean change scores, and the vast majority of individual patients underwent highly significant improvement. This finding strongly supports the hypothesis that breast augmentation in male-to-female transsexuals can have a significant and wide positive impact on a

### Table 4. Distribution of BREAST-Q Augmentation Module Subscales and Change between before Surgery and 12 Months after Surgery and Later among Male-to-Female Transsexual Patients Undergoing Breast Augmentation Surgery\textsuperscript{*}

<table>
<thead>
<tr>
<th></th>
<th>Satisfaction with Breasts</th>
<th>Psychosocial Well-Being</th>
<th>Sexual Well-Being</th>
<th>Physical Well-Being</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>21</td>
<td>21</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Before surgery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>23 ± 14</td>
<td>40 ± 10</td>
<td>39 ± 28</td>
<td>77 ± 18</td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>26 (19–31)</td>
<td>40 (34–48)</td>
<td>29 (20–49)</td>
<td>72 (59–100)</td>
</tr>
<tr>
<td>After surgery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>72 ± 16</td>
<td>72 ± 18</td>
<td>64 ± 26</td>
<td>82 ± 11</td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>68 (65–77)</td>
<td>76 (62–85)</td>
<td>72 (45–85)</td>
<td>79 (76–90)</td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>49 ± 21</td>
<td>32 ± 22</td>
<td>29 ± 23</td>
<td>6 ± 23</td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>47 (39–69)</td>
<td>37 (28–49)</td>
<td>33 (12–39)</td>
<td>6 (0–25)</td>
</tr>
<tr>
<td>Kazis effect size†‡</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td>0.0003</td>
<td>0.3265</td>
</tr>
<tr>
<td>Change, no. (%)§</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significant improvement</td>
<td>20 (95)</td>
<td>16 (76)</td>
<td>12 (70)</td>
<td>8 (38)</td>
</tr>
<tr>
<td>Nonsignificant improvement</td>
<td>1 (5)</td>
<td>2 (10)</td>
<td>3 (18)</td>
<td>6 (29)</td>
</tr>
<tr>
<td>No change</td>
<td>0 (0)</td>
<td>2 (10)</td>
<td>0 (0)</td>
<td>2 (9)</td>
</tr>
<tr>
<td>Nonsignificant worsening</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>2 (12)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Significant worsening</td>
<td>0 (0)</td>
<td>1 (4)</td>
<td>0 (0)</td>
<td>5 (24)</td>
</tr>
</tbody>
</table>

IQR, interquartile range.

*July 30, 2012, end of follow-up, Bordeaux University Hospital, Bordeaux, France (n = 35).

†p value for Wilcoxon signed rank test.

‡Mean change/SD before surgery (0.2–0.5 = small; 0.5–0.8 = medium; >0.8 = large).

§Significant improvement (change ≥ +13 points), nonsignificant improvement (0 < change < +13), no change (change = 0), nonsignificant worsening (−13 < change < 0), and significant worsening (change ≤ −13).
Patient’s satisfaction with breasts, psychosocial well-being, and sexual well-being.

According to this study, breast augmentation in male-to-female transsexual patients significantly improves satisfaction with breasts and global psychosocial well-being. However, improvement of sexual well-being is to be balanced with outcomes of sexual reassignment, marital status, and probably other complex personal situations. Finally, physical abilities are not altered significantly, which could have worried some patients who were in stereotypical male trades.

On the basis of our findings, demand exists at all ages, in all occupations, and with all physical aspects regarding height, weight, and body mass index. In France, once approval is granted by a medical insurance counselor, all of the procedure is paid for by the national health insurance; the results of our study support this policy.

In addition, these results could be affected by the onset of capsular contractures in following years and suggests an extended follow-up study. With this aim in mind, we continue the inclusion of patients to gain perspective and increase the power of the study.

Through breast augmentation, the male-to-female transsexual patient improves identification with the female gender and therefore is socially integrated. Regarding results, this study supports breast augmentation in this population. It would be interesting to measure how the surgery affects the patient’s work and artistic production.

Romain Weigert, M.D.
Plastic Surgery and Burns Unit
University Hospital of Bordeaux
Centre FX Michelet
Place Amélie Raba Léon
33076 Bordeaux, France
romain.weigert@chu-bordeaux.fr

ACKNOWLEDGMENTS
The authors thank Adélaïde Doussau for methodologic and statistical advice and Evelyne Le Tallec for assistance in the English translation of the article.

REFERENCES
Exhibit E
Patient: [Redacted]
DMHC#: [Redacted]
Health Plan: [Redacted]

WRITTEN DECISION ADOPTING DETERMINATION OF INDEPENDENT MEDICAL REVIEW ORGANIZATION

Type: Medical Necessity
Medical Condition: Gender Dysphoria
Disputed Treatment: Bilateral Breast Augmentation Surgery
IMRO Determination: Overturned Decision of Health Plan

Thank you for submitting your Application for Independent Medical Review (IMR) to the Help Center at the Department of Managed Health Care (Department). The Department regulates HMOs and other health plans in California.

Your request for bilateral breast augmentation surgery was referred to MAXIMUS Federal Services, Inc. (MAXIMUS), an Independent Medical Review organization, where independent medical providers resolve disputes about health-care services.

In your case, the independent provider determined that the service you requested is medically necessary and is considered reconstructive surgery. This decision overturns the original denial by Kaiser Foundation Health Plan. The service must be authorized within five working days.
If you encounter problems or delays in obtaining this service, please contact me immediately at 916-255-2493. You may also visit our website at www.healthhelp.ca.gov. Our website has additional information regarding the Department and patients’ rights in California.

Help Center
Department of Managed Health Care

cc:
June 26, 2015

Summary: MAXIMUS Federal Services, Inc. ("MAXIMUS") has determined that the requested service is medically necessary for treatment of your medical condition and is considered reconstructive surgery. Therefore, MAXIMUS has decided that [redacted] denial of the requested service should be Overturned.

Enrollee Name: [redacted]
Patient Name: [redacted]
Health Plan: [redacted]
DMHC Case File #: [redacted]
Dates of Service: Pre-Service

Dear [redacted]

You filed an Independent Medical Review request with the California Department of Managed Health Care. The Department assigned your Independent Medical Review to us, MAXIMUS.

We, MAXIMUS are under contract with the Department to make “independent medical review” decisions in appeals such as yours. This means we employ qualified doctors and other health care professionals who study your file and medical records to decide if the care you requested is or is not medically necessary. MAXIMUS and all of our reviewers are impartial and independent. We are paid for this work by the California Department of Managed Health Care, not by health plans.

Summary of Our Decision:

A 63-year-old transgender female enrollee has requested authorization and coverage for bilateral breast augmentation surgery. The Health Plan has denied this request indicating that the requested service is not medically necessary for treatment of the enrollee’s gender dysphoria.

One physician reviewer performed a medical necessity Independent Medical Review. The physician reviewer overturned the Health Plan’s denial on the basis that the requested service is medically necessary and is considered reconstructive surgery.
A MAXIMUS physician reviewer has examined all of the medical records and documentation submitted, and has carefully considered all of the arguments submitted by you, your providers, and the Health Plan.

Physician Reviewer Qualifications:

The MAXIMUS decision was made by an independent physician who has no affiliation with Kaiser Foundation Health Plan. The MAXIMUS physician reviewer is actively practicing and is board certified in plastic surgery.

Attached to this letter you will find the MAXIMUS physician reviewer’s report.

Appeal of the MAXIMUS Decision:

You cannot appeal this decision. The Department of Managed Health Care does not accept appeals of a MAXIMUS decision. The decision of MAXIMUS is final.

Explanation of Our Services:

Please be aware that MAXIMUS is providing an independent review service. MAXIMUS is not engaged in the practice of law or medicine. Decisions about the use or nonuse of health care are the sole responsibility of the patient and that patient’s physician. MAXIMUS is not liable for any consequences arising from these decisions.

Sincerely,
MAXIMUS

California Independent Medical Review Project

CC: State of California Department of Managed Health Care
MAXIMUS FEDERAL SERVICES, INC.
CALIFORNIA MEDICAL PROFESSIONAL REVIEWER REPORT

Biography:

I am board certified in plastic surgery and I am actively practicing. I am knowledgeable in the treatment of the enrollee’s medical condition, knowledgeable about the proposed treatment, and familiar with guidelines and protocols in the area of the treatment under review. In addition, I hold a current certification by a recognized American medical specialty board in the area or areas appropriate to the treatment under review. I have no history of disciplinary action or sanctions against my license.

Adequacy of Medical Records and Clinical Information:

Medical Records and Other Clinical Records for Review

2. Digital photographs of enrollee.
3. Letter from Transgender Law Center dated 5/14/15.

Reviewer Assessment of Records

I find the medical records and other clinical information legible and absent any relevant deficiency.

Summary Review Determination:

A 63-year-old transgender female enrollee has requested authorization and coverage for bilateral breast augmentation surgery. The Health Plan has denied this request indicating that the requested service is not medically necessary for treatment of the enrollee’s gender dysphoria.

A review of the record indicates the enrollee has been diagnosed with gender dysphoria and has been living as a female for over five years. In March 2015, the enrollee consulted a plastic surgeon who noted the enrollee had a very small degree of breast tissue as a result of hormone therapy. The plastic surgeon indicated the enrollee was still within the range of what would be expected for a male chest in an individual aged 50-60. The plastic surgeon reported the enrollee’s chest size was consistent with male anatomy with the presence of “boxy masculine shape of breast tissue” on both sides. The plastic surgeon stated there are no known non-surgical means which would be effective in resolving the patient’s condition.

The Health Plan indicates the requested service is not medically necessary and is considered cosmetic in nature.
At issue in this case is whether the requested service is medically necessary for treatment of the enrollee's medical condition. In addition, is breast augmentation considered reconstructive in nature for treatment of the enrollee's gender identity disorder? Specifically, does the enrollee's condition constitute an abnormal structure of the body? If so, is the abnormal structure of the body caused by any of the following: Congenital Abnormalities, Developmental Abnormalities, Trauma, Infection, Tumors and Disease? If so, is the requested surgery performed to do either of the following: improve function or create a normal appearance to the extent possible. If so, does the surgery provide more than a minimal improvement in the appearance of the enrollee?

**Alternative Service Offered by Health Plan**

Not known at this time.

**Evidence for My Determination:**

**Evidence Submitted for Review**

1. Health Plan Evidence of Coverage.

2. California Department of Managed Health Care All Plan Letter. Health and Safety Code Section 1365.5 Compliance.

3. California Department of Managed Health Care Letter No. 12-K. Gender Nondiscrimination Requirements.


**Evidence Cited by MAXIMUS Reviewer**

I have reviewed the submitted evidence and performed a search of the relevant medical literature. The following evidence supports my decision:


**Summary of Relevant Patient Medical History and Current Condition:**

The patient is a 63-year-old transgender female with documented gender dysphoria who has requested bilateral breast augmentation surgery. The patient has been living as a female for more than five years and has undergone hormone therapy. Her diagnosis has been confirmed by multiple physicians who have determined the patient has significant anxiety due to her breast size. The patient has attempted to use external breast prostheses but this has resulted in skin irritation and tenderness. A recent plastic surgery consultation noted a constricted breast deformity with a relatively small amount of breast tissue. Most of the breast volume is provided by the pectoralis muscle and subcutaneous tissue. Photographs document minimal bilateral breast tissue and findings more consistent with male anatomy. It was noted the patient did not have significantly greater breast tissue enlargement as compared to one year ago while undergoing hormone therapy. The provider recommended bilateral breast reconstruction with placement of implants for treatment of the patient’s gender dysphoria. The Health Plan indicates the proposed procedure is cosmetic in nature and not medically necessary.

**Analysis and Findings:**

The patient is a transgender female whose gender dysphoria is well-documented. Thus, her external anatomy should be more in line with a female than a male. According to Weigert and colleagues, “Breast augmentation in male-to-female transsexuals is part of gender reassignment surgery. Hormonal feminization might not be sufficient to induce mammogenesis, so many patients seek surgery for their chests to resemble the female gender...Through breast augmentation, the male-to-female transsexual patient improves identification with the female gender and therefore is socially integrated.” The authors concluded “the current results suggest that the gains in breast satisfaction, psychosocial well-being, and sexual well-being after male-to-female transsexual patients undergo breast augmentation are statistically significant and clinically meaningful to the patient at 4 months after surgery and in the long term.”

In the case of this patient, the submitted medical documentation adequately establishes the medical necessity of bilateral breast augmentation surgery. Based upon the recent examination and submitted photographs, the patient has had inadequate breast development and her presentation is more consistent with male anatomy. The patient’s photographs are not consistent with the normal appearance of the breasts of a female. The patient has undergone hormonal therapy without significant improvement. Documentation from the patient’s providers indicates she experiences significant morbidity resulting from the lack of breast development. As such, medical necessity for bilateral breast augmentation has been established in this case.
The proposed procedure also meets criteria for reconstructive surgery. The patient presents with well-documented gender dysphoria and her recent examination and photographs are consistent with a male pattern of breast development. Thus, her breast development is considered abnormal for a female. The abnormal condition results from the patient’s diagnosis of gender dysphoria. The planned procedure of bilateral breast augmentation will help to create a more normal female appearance and would likely provide more than a minimal improvement in the appearance of the patient.

In sum, the proposed bilateral breast augmentation surgery is medically necessary and considered reconstructive surgery rather than breast enhancement or cosmetic surgery.

*My Determination*

I have determined that the requested service is medically necessary for treatment of the patient’s medical condition and is considered reconstructive surgery. Therefore, the Health Plan’s denial should be overturned.
Exhibit F
February 6, 2019

Noah Lewis, Esq.
Transend Legal
3553 82nd Street, #6-D
Jackson Heights, NY 11372

Re: External Appeal Application –
Reference #:  
IPRO #:

Dear Noah Lewis, Esq.:

IPRO has completed review of all documentation submitted relative to your request for external appeal on behalf of and has determined that the decision of United Healthcare of NY (Empire Plan) to deny coverage for CPT code 19325 right/left mammoplasty, augmentation; with prosthetic implant should be reversed.

Review of this appeal was conducted by a clinical reviewer in current, active practice, who is Board Certified in Plastic Surgery. This reviewer is licensed in California, Pennsylvania, and Oregon. This reviewer is also a Diplomate of the National Board of Medical Examiners, and is currently the Chief of the Division of Plastic and Reconstructive Surgery at two major medical centers. This reviewer has a number of professional associations and is a member of the American Society of Plastic and Reconstructive Surgeons, and the American College of Surgeons. IPRO has screened this clinical reviewer for any prohibited material affiliation and has determined that none exists. IPRO has no organizational conflict of interest in the review of this appeal.

The case was received by IPRO on 1/7/19. The review was conducted on 2/5/19. A decision was rendered 2/6/19.

Documentation submitted for review included:

- Letter from Amelia Butler, New York State Department of Financial Services to Terese Giorgio, IPRO dated 1/7/19
- Letter from Amelia Butler, New York State Department of Financial Services to Mia Serraino dated 12/17/18
- Letter from Amelia Butler, New York State Department of Financial Services to Margaret Rogers, United Healthcare Inc. Co. of NY (Empire Plan) dated 1/7/19
- New York State External Appeal Application filed by Noah Lewis, Esq., Transend Legal for  
- Patient Consent for the Release of Records for NYS External Appeal Application signed by  
dated 8/20/18
- Letter from Donald Stepita, MD, United Healthcare Insurance Company of New York, Inc. to  
dated 8/23/18
- Letter from Noah E. Lewis, Esq., Transend Legal to Amelia Butler, New York State Department of Financial Services dated 12/26/18
The basis for this determination is as follows:

**Issue:**

According to the letter dated 6/13/18 from Dr. [redacted], Plastic and Reconstruction Surgeon this is a 55-year-old transgender woman. She has been diagnosed with gender dysphoria and has been receiving hormonal therapy with full social transition. The patient’s breast growth from hormonal effect is inadequate (A cup or less). The breast tissue is clearly male in nature with wide set nipple position and broad-chest structure that manifests with disproportionately small breasts. The surgery is for the purpose of treating gender dysphoria.

The insurer has denied coverage for CPT code 19325 right/left mammoplasty augmentation; with prosthetic implant. In their final adverse determination letter dated 8/23/18, they note that the patient is requesting breast augmentation as part of male to female transition. They state that breast augmentation is a cosmetic procedure under the patient’s plan.

Noah Lewis, Esq. Transcend Legal is appealing on behalf of the patient. In an appeal letter dated 12/26/18, he states that the patient has understood herself to be different her entire life and was diagnosed in 2013 with gender dysphoria. The patient began living openly as a female in May 2015 and also began her medical transition at that time. She has been on estrogen for over three years. The patient also had facial electrolysis and in January 2017 underwent genital reassignment surgery. He goes on to explain that the patient experiences gender dysphoria due to the fact that she has a male chest rather than a female chest. Mr. Lewis states that the only effective treatment for this patient is chest reassignment surgery adding that this is a medically necessary surgery.

**Reviewer Findings:**

Per the World Professional Association for Transgender Health (WPATH) “Standards of Care for the Health of Transsexual, Transgender, and Gender- Nonconforming People” 7th Edition guidelines:
Criteria for Breast/Chest Surgery (One Referral)
Criteria for breast augmentation (implants/lipofilling) in MtF (Male to Female) patients:

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 (if younger, follow the SOC (standard of care) for children and adolescents);
4. If significant medical or mental health concerns are present, they must be reasonably well controlled.

Although not an explicit criterion, it is recommended that MtF patients undergo feminizing hormone therapy (minimum 12 months) prior to breast augmentation surgery. The purpose is to maximize breast growth in order to obtain better surgical (aesthetic) results.

The patient meets these guidelines. She has well documented gender dysphoria and has been on hormone therapy for years. Breast growth with hormone therapy has been maximized. She is the age of majority. Significant mental health concerns are not documented. The requested breast augmentation is consistent with the World Professional Association for Transgender Health (WPATH) criteria. The health plan did not act reasonably with sound medical judgment in the best interest of the patient.

The carrier’s denial of coverage for CPT code 19325 right/left mammoplasty, augmentation; with prosthetic implant is reversed. The medical necessity is substantiated.

References:


Should you have any questions in regard to this review determination, please do not hesitate to contact me or Terese Giorgio at (516) 209-5411, fax number 516 326-1034.

Sincerely,

Monty M. Bodenheimer, MD
Medical Director, Health Care Assessment

MMB:JG

cc: Amelia Butler, New York State Department of Financial Services
Margaret Rogers, United Healthcare of NY (Empire Plan)