Intersex

Introduction

Terminology

"Intersex" (from Latin, literal translation "between the sexes") is a term grounded in the binary system of sex underlying mammalian (including human) reproduction. In medicine the term is colloquially applied to individuals with significant variations in the reproductive tract. Some variations, often labeled "genital ambiguity," preclude the simple recognition of somatic sex as male or female and require a comprehensive physical, endocrine, and genetic work-up, before a sex/gender can be "assigned." In recent years "intersex" has also become an identity label adopted by some individuals with intersex conditions and a subset of (non-intersex) individuals with a non-binary gender identity (Tamar-Mattis et al., 2018). However, in this chapter, the term "intersex" refers to congenital physical manifestations only.

At a 2005 international consensus conference on intersex management, conditions of somatic intersexuality were subsumed under a new standard medical term, "Disorders of Sex Development" (DSD), defined as "congenital conditions in which development of chromosomal, gonadal, or anatomical sex is atypical" (Hughes, Houk, Ahmed, Lee, & LWPES/ESPE Consensus Group, 2006). DSD covers a much wider range of conditions than those included in traditional intersexuality and comprises conditions such as Turner's syndrome and Klinefelter syndrome, which are much more prevalent. In addition, many affected individuals dislike the term "disorder," viewing it as inherently stigmatizing (Carpenter, 2018; Griffiths, 2018; Johnson et al., 2017; Lin-Su, Lekarev, Poppas, & Vogiatzi, 2015; Lundberg, Hegarty, & Roen, 2018; Tiryaki et al., 2018). Clinicians also vary in their acceptance of the term (Miller et al., 2018). The wide-spread alternative reading of DSD as "Differences in Sex Development" can be seen as less pathologizing, but is semantically unsatisfactory, as this term does not distinguish the typical genital differences between males and females from atypical sexual differentiation. Other recent attempts to come up with less obviously stigmatizing terms such as "Conditions Affecting Reproductive Development" (CARD; Delimata et al., 2018) are identical to DSD in their intended coverage and are not specific to intersexuality. Given these definitional issues, in this chapter we are using the term "physical intersexuality" for purposes of descriptive clarity and historical continuity. This choice is not meant to indicate an intention on our part to take sides in the ongoing discussion regarding the concept of sex/gender as a bipolar system or as a continuum, which may vary with considerations of context and utility (Meyer-Bahlburg, 2019). In 21st century societies the concepts of sex and gender are in a process of evolution.

Incidence

The incidence of intersex conditions depends on the definition used. Obvious genital atypicality ("ambiguous genitalia") occurs with an estimated frequency ranging from approximately 1:2000 – 1:4500 people (Hughes, Nihoul-Fékété, Thomas, & Cohen-Kettenis, 2007). The most inclusive definitions of DSD estimate an incidence of up to 1.7% (Blackless et al., 2000). Although these numbers are high in aggregate, the individual conditions associated with the intersex variations tend to be much rarer. For instance, androgen insensitivity syndrome (AIS) occurs in approximately 1 in 100,000 46,XY births (Mendoza & Motos, 2013), and classic congenital adrenal hyperplasia (CAH) in approximately 1 in 15,000 46,XX births (Therrell, 2001). Incidence figures for individual syndromes may vary dramatically between countries and ethnic groups.

Presentation

The presentation of individuals with intersex traits varies widely. Physical intersexuality can be recognized during prenatal ultrasound imaging, although most patients will be identified during genital examinations at birth. Within the first weeks of life, such children will undergo extensive medical diagnostic procedures. Taking into consideration the specific medical diagnosis, physical and hormonal findings, and information from long-term follow-up studies about gender outcome, joint decision-making between the health-care team and the parents leads to the newborn being assigned to a male or female sex/gender. Some individuals with physical intersexuality come to the attention of specialists only around the age of puberty when they are evaluated for primary amenorrhea.

Health professionals (HPs) assisting patients with both gender identity exploration and physical intersexuality need to be aware that the medical context in which such patients have grown up is typically very different from that of people without physical intersexuality. There are many different syndromes of physical intersexuality, and each syndrome can vary in its degree of severity. Thus, hormonal and surgical treatment approaches vary accordingly, and this needs to be taken into consideration in the planning of treatment in the minority of cases who develop gender dysphoria.

Some physical manifestations of intersexuality may require early urgent intervention, as in cases of urinary obstruction or of adrenal crisis in CAH. Most physical variations among individuals with intersexuality neither impair function, at least in the early years, nor risk safety for the individual. Yet, the psychosocial stigma associated with atypical genital appearance often motivates early "normalizing" genital surgery long before the patient reaches the age of consent. This approach is highly controversial, because it conflicts with ethical principles supporting patient autonomy (Belmont Report, 1979; Carpenter, 2021; Kon, 2015). In addition, among the manifestations without immediate safety concerns, some individuals, when older, may opt for a range of medical interventions to optimize function and appearance. The specifics of medical treatments are far beyond the scope of what can be addressed in this chapter, and the interested reader should consult the respective endocrine and surgical literature.

Some conditions of physical intersexuality are associated with a greater variability in long-term gender-identity outcome than others (Dessens, Slijper, & Drop, 2005). For instance, the incidence of a non-cisgender gender identity in 46,XX individuals with CAH assigned female may be as high as 5-10%, compared with 0.6% in the general population (Furtado et al., 2012). The substantial biological component underlying gender identity is a critical factor that must be considered when offering psychosocial, medical, and surgical interventions for individuals with conditions of physical intersexuality.

There is also ample evidence that people with physical intersexuality and their families may experience psychosocial distress (de Vries et al., 2019; Rosenwohl-Mack et al., 2020; Wolfe-Christensen et al., 2017)), in part related to psychosocial stigma (Meyer-Bahlburg, Khuri, Reyes-Portillo, & New, 2017a; Meyer-Bahlburg, Reyes-Portillo, Khuri, Ehrhardt, & New, 2017b; Meyer-Bahlburg, Khuri, Reyes-Portillo, Ehrhardt, & New, 2018).

Rationale for Addition to the SOC

Since 1980, the American psychiatric nomenclature recognized individuals with physical intersexuality who meet the criteria for gender-identity variants; however their diagnostic categorization changed with successive DSM editions. For instance, in DSM-III (American

Psychiatric Association, 1980), the Axis-I category of "transsexualism" could not be applied to such individuals in adulthood, but such children were labeled "gender identity disorder of childhood," with the medical intersex condition to be specified in Axis III. In DSM-IV-TR (American Psychiatric Association, 2000), individuals with physical intersexuality were excluded from the Axis-I category of "gender identity disorder" regardless of age and, instead, grouped with other conditions under the category "gender identity disorder not otherwise specified." In DSM-5 (American Psychiatric Association, 2013), which moved away from the multiaxial system, "gender identity disorder" was re-defined as "gender dysphoria" and applied regardless of age and physical intersex status, but individuals with physical intersexuality received the added specification "with a disorder of sex development" (Zucker et al., 2013). The forthcoming text revision of DSM-5 will keep the term gender dysphoria, but will refer in the text to the recent change of the International Classification of Diseases [ICD-11], i.e., the move of "gender incongruence" from the chapter "Mental, Behavioral or Neurodevelopmental Disorders" to a new chapter "Conditions Related to Sexual Health" (J. Drescher, personal communication, May 14, 2021).

Given this background, the decision was made to include a chapter on the clinical approach to individuals with both gender-identity variants and physical intersexuality in SOC-7, which will also be continued in SOC-8. A separate chapter is devoted to such individuals because they differ from those without physical intersexuality in phenomenological presentation, life trajectories, epidemiology, etiology, and stigma risks. In addition, this chapter provides recommendations on the general clinical approach to the management of individuals with physical intersexuality regardless of the specific gender-identity outcome.

The following statements are based on a thorough review of the pertinent available literature and a favorable risk-benefit ratio by clinical judgment.

Summary of Recommendations

Statement 1: We suggest that a multidisciplinary team, knowledgeable in diversity of gender identity and expression as well as in physical intersexuality, provide care to patients with physical intersexuality and their families.

Statement 2: We recommend that health professionals providing care for transgender youth and adults seek training and education in the aspects of intersex care relevant to their professional discipline.

Statement 3: We suggest that health professionals educate and counsel families of children with physical intersexuality from the time of diagnosis onward about their child's specific intersex condition and its psychosocial implications.

Statement 4: We suggest that both providers and parents engage children/individuals with physical intersexuality in ongoing, developmentally appropriate communications about their intersex condition and its psychosocial implications.

Statement 5: We suggest that health professionals and parents support children/individuals with physical intersexuality in exploring their gender identity throughout their life.

Statement 6: We suggest that health professionals promote well-being and minimize the potential stigma of having an intersex condition by working collaboratively with both medical and non-medical individuals/organizations.

Statement 7: We suggest that health professionals refer patients with physical intersexuality and their families to mental-health providers as well as peer and other psychosocial supports as indicated.

Statement 8: We recommend that health professionals counsel patients with physical intersexuality and their families about puberty suppression and/or hormone treatment options within the context of the patient's gender identity, age and unique medical circumstances.

Statement 9: We suggest that health professionals counsel parents and patients with physical intersexuality (if cognitively sufficiently developed) to delay gender-confirming genital surgery, gonadal surgery, or both, when feasible, so as to optimize the child's self-determination and ability to participate in the decision based on informed consent.

Statement 10: We suggest that only surgeons experienced in intersex genital or gonadal surgery operate on patients with physical intersexuality.

Statement 11: We recommend that health professionals who are prescribing or referring patients for hormonal therapies/surgeries counsel individuals with physical intersexuality and fertility potential and their families about a) known effects of hormonal therapies/surgery on future fertility; b) potential effects of therapies that are not well studied and are of unknown reversibility; c) fertility preservation options; and d) psychosocial implications of infertility.

Statement 12: We suggest that health professionals caring for patients with physical intersexuality and congenital infertility introduce them and their families, early and gradually, to the various alternative options of parenthood.

Statement 1:
We suggest that a multidisciplinary team, knowledgeable in diversity of gender identity and expression as well as in physical intersexuality, provide care to patients with physical intersexuality and their families.

Physical intersexuality, a subtype of DSD, is a complex congenital condition that requires the involvement of experts from various medical and behavioral disciplines (Hughes et al., 2006). Team composition and function can vary depending on team location, local resources, diagnosis, and the needs of the individual with physical intersexuality and her/his family. The ideal team includes pediatric subspecialists in endocrinology, surgery and/or urology, psychology/psychiatry, gynecology, genetics, and, if available, personnel trained in social work, nursing, and medical ethics (Lee, Houk, Ahmed & Hughes, 2006). The structure of the team can be in line with 1) the traditional multidisciplinary medical model, 2) the interdisciplinary or interprofessional model, or 3) the transdisciplinary model. Although these structures can appear similar, they are in fact very different and can exert varying influences on how the team functions (Sandberg & Mazur, 2014). The 2006 Consensus Statement makes no decision about which model is best—multidisciplinary, interdisciplinary, or transdisciplinary—and only states that the models "imply different degrees of collaboration and professional autonomy" (Lee et al., 2016). Since the publication of the Consensus Statement in 2006, such teams have been

created both in Europe and in the United States. A listing of teams in the United States can be found on the DSD-Translational Network (DSD-TRN) website. There are also teams in a number of European countries (Thyen et al., 2018). While there are barriers to the creation of teams as noted by Sandberg and Mazur (2014), interdisciplinary teams help address a number of problems that have undermined the successful care of individuals with a diagnosis of physical intersexuality and their families, such as the scattered nature of services, the limited or absent communication between professionals, and the resulting fragmented nature of the explanations patients receive that cause more confusion than clarity.

Most individuals born with physical intersexuality will be identified at birth or shortly thereafter, while others will be identified at later times in the life cycle, for example at puberty (see Brain et al., 2010, Table 1). When this happens the team approach will be modified based on the diagnosis, and the age of the person. In some circumstances, the composition of the team can be expanded to include other specialists as needed.

It has been reported that children seen by an interdisciplinary team were significantly more likely to receive nearly the full range of services rather than only those services offered by a single provider (Crerand et al., 2019). Parents who received such care positively endorsed psychosocial services and the team approach and reported receiving more information than those who did not interact with such a team (Crerand et al., 2019).

Statement 2:
We recommend that health professionals providing care for transgender youth and adults seek training and education in the aspects of intersex care relevant to their professional discipline.

Results from interviews with medical trainees (Zelin et al., 2018; Liang, Gardner, Walker & Safer, 2017) and from programmatic self-audits and surveys (DeVita, Bishop & Plankey, 2018; Khalili, Leung, & Diamant, 2015) suggest that medical training programs are not adequately preparing practitioners to provide competent care to individuals presenting with gender dysphoria and intersexuality. Professional and stakeholder attendees of intersex-specific events have identified ongoing education and collaboration as an important professional development need (Mazur, Cohen-Kettenis, Meyer, Meyer-Bahlburg, & Zucker, 2007; Bertalan et al., 2018). This may be especially true for adult-care providers who may have less clinical guidance or support in assisting those individuals who are transitioning from pediatric to adult care (Crouch & Creighton, 2014).

However, there are few guidelines for training or assessing practitioner competency in managing these topics, and those that are available primarily apply to mental health professionals (MHPs) (ALGBTIC LGBQQIA Competencies Taskforce et al., 2013; Hollenbach, Eckstrand, Dreger, & AAMC Advisory Committee SOGI & SD, 2014).

For HPs wanting to improve their competency, seeking consultation from experts may be an option when formal education or empirical guidelines are otherwise unavailable. Given the relative widespread adoption of multidisciplinary expert teams in the treatment of intersexuality (Pasterski, Prentice & Hughes, 2010), individuals serving on these teams are well positioned to consult with and educate other health care staff who may not have received adequate training (Hughes et al., 2006). Therefore, it is recommended that the training of other professionals be a central component of team development (Auchus et al., 2010) and that members of multidisciplinary teams receive training specific to team-based work, including strategies for

engaging in interprofessional learning (Bisbey, Reyes, Traylor, & Salas, 2019; Interprofessional Education Collaborative Expert Panel, 2011).

Statement 3:
We suggest that health professionals educate and counsel families of children with intersexuality from the time of diagnosis onward about the child's specific intersex condition and its psychosocial implications.

Full disclosure of medical information to families of children with intersex conditions through education and counseling should begin at the time of diagnosis and should be consistent with guidance from multiple international consensus guidelines. The practice of disclosure seeks to enable more fully informed decision-making about care. Additionally, while shame and stigma surrounding physical intersexuality is associated with poorer psychosocial outcomes, open and proactive communication of health information has been proposed as a strategy to reduce those risks (de Vries et al., 2019). Depending on the person's diagnosis and developmental stage, intersex conditions may differentially impact individuals and their health care needs. Intersex-health-related communication must therefore be continuous and tailored to the individual. Research on decision-making in intersex care suggests that families are influenced by how clinical teams communicate (Timmermans et al., 2018). In keeping with the SOC, we encourage providers to adopt normalizing, affirming language and attitudes across education and counseling functions. For example, describing genital atypia as a "variation" or "difference" is more affirming than using the terms "birth defect" or "abnormality."

All HPs involved in a patient's care can provide essential education and information to families. In interdisciplinary teams, the type of education may align with an HP's area of expertise, for example a surgeon educating the patient on their anatomy, an endocrinologist teaching the specifics of hormonal development, or an MHP conveying the spectrums of gender and sexual identity. Other HPs may need to provide comprehensive education. Families should receive information that is pertinent to the patient's specific intersex variation, when known. All HPs can supplement this information with patient-centered resources available from support groups. People with physical intersexuality have also been hired as team members to provide education using their lived experience.

Consensus guidelines also recommend that families be offered ongoing peer and professional psychosocial support (Hughes et al., 2006) that may involve counseling with a focus on problem-solving and anticipatory guidance (Hughes et al., 2006). For example, families may seek guidance in educating other people – siblings, extended family, and caregivers – about the specific intersex condition of an individual. Other families may need support or mental-health care to manage the stress of intersex treatment. Adolescents may benefit from guidance on how to disclose information to peers as well as from support when navigating dating and sex. Providing counsel may also involve guiding families and individuals of all ages through a shared decision-making process around medical or surgical care. Providers may employ decision aids to support this process (Sandberg et al., 2019; Weidler, Baratz, Muscarella, Hernandez, & van Leeuwen, 2019).

Statement 4:
We suggest that both providers and parents engage children/individuals with intersexuality in ongoing, developmentally appropriate communications about their intersex condition and its psychosocial implications.

Communicating health information is a multi-directional process that includes the transfer of information from providers to patients, from parents to patients, as well as from patients back to their providers (Weidler & Peterson, 2019). While much emphasis has been placed on communicating to parents around issues of diagnosis and surgical decision-making, youth with DSD have reported barriers to engaging with healthcare providers and may not always turn to their parents for support (Callens, Kreukels, & van de Grift, 2021). To prepare individuals to be fully engaged and autonomous in their treatment, it is critical that both providers and parents communicate continuously with children/individuals.

Providers must set an expectation as soon as possible for ongoing, open communication between all parties, especially since parents may experience distress due to the uncertainty associated with DSD and may seek quick fixes (Roberts et al., 2020, Crissman et al., 2011). Models of shared decision-making as well as related decisional tools have been developed to support ongoing communication between healthcare providers and families/individuals (Weidler et al., 2019; Sandberg et al., 2019; Siminoff & Sandberg, 2015; Karkazis, Tamar-Mattis, & Kon, 2010). In addition to setting an expectation for dialogue, providers can also set the tone of communication. Providers can help parents and individuals tolerate diagnostic uncertainty while simultaneously providing education on anatomic variations, modeling openness to gender and sexual identity, and welcoming the child's/individual's questions. As they age, children/individuals may have questions or need age-appropriate information on issues of sex, menstruation, fertility, the need for hormone treatment (adrenal/sex), bone health, and cancer risk.

Parents also play a critical role in educating their children and may be the first people to disclose health information to their child (Callens et al., 2021). As part of expectation-setting around communication, providers should prepare parents to educate their child and members of their support system about the intersex diagnosis and treatment history. Some parents report difficulties in knowing how much to disclose to others as well as to their own children (Danon & Kramer, 2017; Crissman et al., 2011). The stress parents experience while raising children with an intersex condition is increased when parents adopt an approach that minimizes disclosure/discussion of their child's diagnosis (Crissman et al., 2011). The level of stress also varies by developmental stage, with parents of adolescents reporting higher rates of stress (Hullman, Fedele, Wolfe-Christensen, Mullins, & Wisniewski, 2011). Therefore, HPs should assist parents in developing strategies specific to their child's developmental stage that address their psychosocial or cultural concerns and values (Weidler & Peterson, 2019; Danon & Kramer, 2017). Finally, broader research on sexuality and gender variance has found that – counter to the associations between shame/stigma and negative health outcomes – supportive family behaviors (including talking with children about their identity and connecting them with peers) predicted greater self-esteem and better health outcomes in individuals (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010).

Statement 5:
We suggest that health professionals and parents should support children/individuals with intersexuality in exploring their gender identity throughout their life.

Psychological, social, and cultural constructs all intersect with biological factors to form an individual's gender identity. As a group, individuals with physical intersexuality show increased rates of gender nonconforming behavior, gender-questioning, and cross-gender wishes in childhood, dependent in part on the discrepancy between the prenatal sex-hormonal milieu, in

which the fetal brain has differentiated, and the sex assigned at birth (Callens et al., 2016; Hines, Constantinescu, & Spencer, 2015; Meyer-Bahlburg et al., 2016; Pasterski et al., 2015). Gender identity problems are observed at different rates in individuals with physical intersexuality (de Vries, Doreleijers, & Cohen-Kettenis, 2007). More recently, some individuals have been documented to develop a non-binary identity, at least privately (Kreukels et al., 2018). Although the majority of people with physical intersexuality may not experience gender dysphoria or wishes for gender transition, they may still have feelings of uncertainty and unanswered questions regarding their gender (Kreukels et al., 2018). Questions about gender identity may arise from such factors as genital appearance, pubertal development, and knowledge of items such as the diagnostic term of the medical condition, gonadal status, sex chromosome status, and history of genital surgery. Therefore, HPs need to be accessible for clients to discuss such questions and feelings, openly converse about gender diversity, and adopt a less binary approach to gender. HPs are advised to guide parents as well in supporting their children in exploring gender.

Furthermore, such support should not be confined to the childhood years. Rather, individuals should be given the opportunity to explore their gender identity throughout their lifetime, because different phases may come with new questions regarding gender (for example, puberty/adolescence, childbearing age). Children in general may have questions regarding their gender identity at salient points during their maturation and evolution. When faced with additional stressors, for example, genital ambiguity, genital examinations and procedures, as well as the intersectionality of cultural bias and influences, individuals with physical intersexuality may need support and should be encouraged to seek educated professional assistance and guidance when needed. Also, HPs should inquire regularly to determine if their clients with physical intersexuality are in need of such support.

When people experience gender incongruence, gender-affirming interventions may be considered. Procedures that should be applied in such interventions are described in other chapters.

Statement 6:
We suggest that health professionals promote well-being and minimize the potential stigma of having an intersex condition by working collaboratively with both medical and non-medical individuals/organizations.

Individuals with physical intersexuality are reported to experience stigma, feelings of shame, guilt, anger, sadness and depression (Carroll, Graff, Wicks, & Thomas, 2020; Joseph et al., 2017, Schützmann, Brinkmann, Schacht, & Richter-Appelt, 2009). Higher levels of psychological problems are observed in this population than in the general population (Liao & Simmonds, 2013; de Vries et al., 2019). In addition, parental fear of stigmatization still plays an important role in clinical decision-making (Fleming, Kanfl & van Riper, 2017; Rolston, Gardner, Vilain, & Sandberg, 2015; Timmermans et al., 2019).

Thyen, Richter-Appelt, Wiesemann, Holterhus and Hiort (2005) found that repeated genital examinations appear to be correlated with shame, fear and pain and may increase the likelihood of developing post-traumatic stress disorder (PTSD) later in life (Alexander et al., 1997; Money & Lamacz, 1987). Exposure to repeated genital examinations, fear of medical interventions, parental and physician secrecy about being intersex, ultimately undermines the self-empowerment and self-esteem of the person with intersexuality (Meyer-Bahlburg et al., 2018; Thyen et al., 2005; Tishelman, Shumer, & Nahata, 2017; van de Grift, Cohen-Kettenis, de Vries,

& Kreukels, on behalf of dsd-LIFE, 2018). For recommendations on how to conduct genital examinations to minimize adverse psychological side effects please see Tishelman et al. (2017).

There is an active movement within the intersex community to alleviate stigma, and return human rights and dignity to intersex people, rather than viewing them as medical anomalies and curiosities (Yogyakarta Principles, 2007, 2017). Chase (2003) summarizes the major reasons for the intersex advocacy movement and outlines how stigma and emotional trauma are the outcome of ignorance and the perceived need for secrecy. Public awareness of intersex conditions is infrequent, and images and histories of individuals with intersexuality are still presented as "abnormalities of nature". We, therefore, advise HPs to actively educate their colleagues, intersex patients, their families, and communities, raise public awareness, and increase knowledge about physical intersexuality. Societal awareness and knowledge regarding intersexuality may help reduce discrimination and stigmatization. Tools and education/information materials may also help individuals with physical intersexuality disclose their condition, if desired (Ernst et al., 2016).

HPs should be able to recognize and address stigmatization in their clients (see Meyer-Bahlburg et al., 2017a, 2017b, 2018) and should encourage people with physical intersexuality of various ages to connect via support groups. There is a need for developing specific techniques/methods for assisting clients to cope with stigma related to intersex.

Statement 7:
We suggest that health professionals refer patients with intersexuality and their families to mental-health providers as well as peer and other psychosocial supports as indicated.

For almost all parents, the birth of a child with somatic intersexuality is entirely unexpected and comes as a shock. Their inability to respond immediately to the ubiquitous question, "Is your baby a boy or a girl?", their lack of knowledge about the child's condition, the uncertainty regarding the child's future, and the pervasive intersex stigma are likely to cause distress, sometimes to the level of PTSD, and may lead to prolonged anxiety and depression (Pasterski, Mastroyannopoulou, Wright, Zucker, & Hughes, 2014; Roberts et al., 2020; Wisniewski & Sandberg, 2015). This situation may affect parental care and long-term outcome of their child with physical intersexuality (Schweizer, Brunner, Gedrose, Handford, & Richter-Appelt, 2017). As these children grow up, they are also at risk of experiencing intersex stigma in its three major forms (enacted, anticipated, internalized) in all spheres of life (Meyer-Bahlburg et al., 2017a, 2017b, 2018), along with other potential difficulties such as body-image problems, gender-atypical behavior, gender-identity questioning. Many may face the additional challenge presented by the awareness of the incongruence between their assigned gender and biological characteristics such as sexual karyotype, gonads, past and/or current sex-hormonal milieu, and reproductive-tract configuration. This situation may also adversely affect patients' mental health (Godfrey, 2021; Meyer-Bahlburg, in press). As intersex conditions are rare, parents of such children and later the patients themselves may experience their situation as unique and very difficult for others to understand.

Thus, based on clinical experience, there is a consensus among PHs who are experienced in intersex care, that social support is a crucial component of intersex care, not only through professional support by MPHs (Pasterski et al., 2010), but also, importantly, through support groups of individuals with intersex conditions (Baratz, Sharp, & Sandberg, 2014; Cull & Simmonds, 2010; Hughes et al., 2006; Lampalzer, Briken, & Schweizer, 2021). A detailed

international listing of DSD and intersex peer support and advocacy groups with their websites has been provided by Lee et al. (2016). Given the heterogeneity of intersex conditions and treatment regimens, a patient may find it most helpful to associate with a support group that include members with the same or similar condition as that of the patient. It is important that HPs specializing on intersex care also collaborate closely with such support groups so that occasional differences in opinions regarding specific aspects of care can be resolved through detailed discussions. Close contacts between HPs and support groups also facilitate community-based participatory research that benefits both sides.

Statement 8:
We recommend that health professionals counsel patients with intersexuality and their families about puberty suppression and/or hormone treatment options within the context of the patient's gender identity, age and unique medical circumstances.

While the majority of people with intersexuality have a gender identity in line with their XX or XY karyotype, there is sufficient heterogeneity that HPs should be able to provide customized approaches. For example, among XX individuals with virilizing CAH, a larger than expected minority have a male gender identity (Dessens et al., 2005). Among XY individuals with partial androgen insensitivity syndrome, gender identity can vary significantly (Babu & Shah, 2021). Furthermore, among XY individuals with 5α-reductase-2 (5α-RD-2) deficiency and with 17beta-hydroxysteroid dehydrogenase-3 deficiency who are assigned the female sex at birth, a large fraction (56–63% and 39–64%, respectively) change from a typical female gender role to a typical male gender role as they age (Cohen-Kettenis, 2005).

One of the most fraught issues for a child with intersexuality, particularly when associated with noticeable genital ambiguity, is sex assignment, and, from the parents' perspective, the gender of rearing (Fisher et al., 2016). For many years, it was believed that sex assignment had to be made as quickly as a thorough diagnostic evaluation would permit (Houk & Lee, 2010; Yang, Baskin, & Disandro, 2010). For instance, a female sex assignment was traditionally recommended for 46,XX newborns with CAH and a male sex assignment for those with 46,XY 5α-RD-2 deficiency. However, this approach did not consider the patient's potential gender identity or the patient's participation in the decision-making process.

People with intersexuality have a wide range of medical options open to them depending on their gender identity and its alignment with anatomy. Options include puberty-suppression medication, hormone treatment, and surgeries all customized to the unique circumstances of the patient (Weinand & Safer, 2015; Safer & Tangpricha, 2019a) (see Adolescent Medicine and Hormone Therapy chapters). Specifically, when functional gonads are present, puberty may be temporarily suspended by using gonadotropin-releasing hormone analogues (GnRHas). Such intervention can facilitate the necessary passage of time needed by the patient to explore gender identity and to actively participate in sex designation, especially for conditions in which sex role change is common (i.e., in 5α-RD-2 deficiency; Cocchetti et al., 2020; Fisher et al., 2016).

HPs can counsel patients and their families directly if the providers have sufficient expertise and can leverage expertise needed to determine both a course of treatment appropriate for the patient and the logistics involved in implementing the chosen therapeutic option.

Statement 9:

We suggest that health professionals counsel parents and patients with intersexuality (when cognitively sufficiently developed) to delay gender-confirming genital surgery, gonadal surgery, or both, so as to optimize the child's self-determination and ability to participate in the decision based on informed consent.

International human rights organizations have increasingly expressed their concerns that surgeries performed before a child can participate meaningfully in decision-making may endanger the child's human rights to autonomy, self-determination, and an open future (e.g., Human Rights Watch, 2017). Numerous medical and patient advocacy organizations, as well as several countries, have joined these international human rights groups in recommending the delay of surgery when medically feasible (Dalke et al., 2020; National Academies of Sciences, Engineering, and Medicine, 2020).

However, it is important to note that some anatomic variations, such as obstruction of urinary flow or exposure of pelvic organs, pose an imminent risk to physical health (Mouriquand et al., 2016). Others, such as menstrual obstruction or long-term malignancy risk in undescended testes, have eventual physical consequences. A third group of variations, i.e., variations in the appearance of external genitals or vaginal depth, pose no immediate or long-term physical risk. The above recommendation addresses only those anatomic variations that, if left untreated, have no immediate adverse physical consequences and where delaying surgical treatment poses no physical health risk.

Non-urgent surgical care for patients with these variations is complex and often contested, particularly when a patient is an infant or a young child and cannot yet participate in the decision-making process. Older people with intersexuality have reported psychosocial and sexual health problems, including depression, anxiety, and sexual and social stigma (Rosenwohl-Mack et al., 2020; de Vries et al., 2019). Some studies have suggested that patients with a specific variation (e.g., 46,XX CAH) agree with surgery being performed before adolescence (Bennecke et al., 2021). Recent studies suggest that some adolescents and adults are satisfied with the appearance and function of the genitals after childhood surgery (Rapp et al., 2020). A child's genital difference can also become a source of stress for parents, and there is research that reports a correlation of surgery to create binary genitals with a limited amount of reduction in parental distress (Wolfe-Christensen et al., 2017), although a minority of parents may report decisional regret (Ellens et al., 2017). Consequently, some organizations recommend that surgery be offered to very young children (American Urological Association, 2019; Pediatric Endocrine Society, 2020).

Nonetheless, long-term outcomes studies are limited, and most studies reporting positive outcomes lack a non-surgical comparison group (Dalke, Baratz, & Greenberg, 2020; National Academies of Sciences, Engineering, and Medicine, 2020). There is also no evidence that surgery protects children with intersex conditions from stigma (Roen, 2019). Adults with intersexuality do experience stigma, depression, and anxiety related to their genitalia, but can also experience stigma whether or not they have surgery (Ediati et al., 2017; Meyer-Bahlburg et al., 2017a, 2017b, 2018). There is also evidence that surgeries may lead to significant cosmetic, urinary, and sexual complications extending into adulthood (Gong & Cheng, 2017; National Academies of Sciences, Engineering, and Medicine, 2020). Recent studies suggest that some groups of patients may have particularly negative experiences with gonadectomy, though this risk has to be weighed against that of gonadal malignancy (Duranteau et al., 2020; Rapp et al., 2020). People with intersex conditions are also far more likely than the general population to be gender diverse or have gender dysphoria (Almasri et al., 2018; Pasterski et al., 2015). Genital

surgeries may therefore irreversibly reinforce a binary sex assignment that a child may not identify with in the future.

However, it is very important to note the division within the medical field regarding its management guidelines for early genital surgery, and also the authors of this chapter did not reach a consensus. Some intersex specialists consider it inappropriate and potentially harmful to insist on a universal deferral of early genital surgery for genital variations without immediate medical risks. Multiple reasons supporting this view include: 1) intersex conditions are highly heterogeneous with respect to type and severity as well as associated gonadal structure, function, and malignancy risk; 2) societies and families vary tremendously in gender ideologies and intersex-stigma potential; 3) early surgery may present certain technical advantages; and 4) most importantly, ten published surveys of clinic patients with intersexuality (most of whom had previously undergone genital surgery) show that the majority endorse surgery before the age of consent, overwhelmingly so in the case of patients with 46,XX CAH and less strongly in patients with XY intersex conditions (Meyer-Bahlburg, under review). Under these circumstances, a syndrome- and syndrome-severity-specific, individualized approach to decisions regarding genital surgery and its timing is called for, an approach that has been adopted adopted by medical societies whose members include primary intersex specialists (Bangalore Krishna et al., 2021; Pediatric Endocrine Society, 2020; Speiser et al., 2018; Stark, Shoag, & Poppas, 2019) and by certain support organizations of patients/families with 46,XX CAH (CARES Foundation; Krege et al., 2019, Appendix). To withhold information about such conflicting guidelines from patients and families would appear to violate informed-consent regulations.

Statement 10:
We suggest that only surgeons experienced in intersex genital or gonadal surgery operate on patients with intersexuality.

Intersex conditions are rare, and intersex genital and gonadal anatomy is heterogeneous. Surgeries have been associated with a risk of significant long-term complications (e.g., National Academies of Sciences, Engineering, and Medicine, 2020), and most surgical training programs do not prepare trainees to provide this specialized care (Grimstad, Kremen, Streed, & Dalke, 2021). In recognition of the complexity of surgical care across the lifespan, standards produced by expert and international consensus recommend that this care be provided by an interdisciplinary teams of experts (Krege et al, 2019; Lee et al., 2016; Pediatric Endocrine Society, 2020). Therefore, we advise that surgical care be limited to intersex-specialized, interdisciplinary settings that include experienced surgeons.

Statement 11:
We recommend that health professionals who are prescribing or referring for hormonal therapies/surgeries counsel individuals with intersexuality and fertility potential and their families about a) known effects of hormonal therapies/surgery on future fertility; b) potential effects of therapies that are not well studied and are of unknown reversibility; c) fertility preservation options; and d) psychosocial implications of infertility.

Patients with certain intersex conditions may have reproductively functional genitalia but experience infertility due to gonad development. Others may have functioning gonads with viable germ cells but an inability to achieve natural fertility secondary to incongruent internal or external genitalia (van Batavia & Kolon, 2016). Pubertal suppression, hormone treatment with sex steroid hormones, and gender-affirmation surgeries may all have an adverse impact on

future fertility. The potential consequences of the treatment and fertility preservation options should therefore be reviewed and discussed.

Individuals with functioning testes should be advised that prolonged treatment with estrogen and suppression of testosterone, as studied in people with transgenderism without physical intersexuality, may cause testicular atrophy and a reduction in sperm count (Mattawanon, Spencer, Schirmer, & Tangpricha, 2018). Although interruption of such cross-sex hormone treatment may improve sperm quality, a complete reversal of semen impairment cannot be guaranteed (Sermondade et al., 2021). The principal fertility preservation option for individuals with functioning testes is cryopreservation of sperm collected through masturbation or vibratory stimulation (de Roo, Tilleman, T'Sjoen, & de Sutter, 2016). Although there are no data for success in humans, there is a proposal to offer direct testicular extraction and cryopreservation of immature testicular tissue to adolescents who have not yet undergone spermarche (Mattawanon et al., 2018).

Individuals with functioning ovaries should be advised that testosterone therapy usually results in cessation of both menses and ovulation, often within a few months of initiating therapy. There are major gaps in knowledge regarding the potential effects of testosterone on oocytes and subsequent fertility. In transgender people, one study reported that testosterone treatment may be associated with the development of polycystic ovarian morphology (Grynberg et al., 2010). However, other researchers have not found evidence of polycystic ovarian syndrome (PCOS) among transgender men receiving gender-affirming hormone therapy, based on metabolic (Chan, Liang, Jolly, Weinand, & Safer, 2018) or histologic parameters (de Roo et al., 2017). Individuals with an intact uterus and functioning ovaries may regain their fertility potential if testosterone therapy is discontinued.

Fertility preservation options in post-pubertal people with physical intersexuality and functioning ovaries include hormonal stimulation for mature oocyte cryopreservation or ovarian tissue cryopreservation. Alternatively, stimulated oocyte extraction has been reported even for a patient continuing testosterone therapy (Safer & Tangpricha, 2019b). Similarly, oocyte cryopreservation after ovarian stimulation has been reported in a transgender boy on GnRHa therapy (Rothenberg, Witchel, & Menke, 2019). It should be noted that ovarian stimulation, temporary cessation of GnRHa, testosterone treatment, or both, and gynecological procedures, all can be psychologically distressing to individuals, with the stress reaction being influenced by mental health, gender identity, and other medical experience. Applicability of certain interventions may depend on the support of others including potential partners.

Statement 12:
We suggest that health professionals caring for patients with intersexuality and congenital infertility should introduce them and their families, early and gradually, to the various alternative options of parenthood.

For people with intersex characteristics, the likelihood of infertility may be recognized in infancy, childhood, adolescence as well as in adulthood, without first engaging in attempts to conceive. For many individuals, a diagnosis of infertility accompanies the intersex diagnosis (Jones, 2020). For some patients, assisted heterologous fertilization (e.g., oocyte or sperm donation) may be an option.

Multiple adoption pathways exist. Some may require commitment and a considerable investment of time. Individuals who are either not interested in engaging in the efforts to achieve

fertility previously described or for whom fertility is not possible, can benefit from early exposure to the options available for adoption and alternative parenthood. While uterus transplantation has had preliminary success in people with Mullerian agenesis (Richards et al., 2021), there is no protocol to date that avoids exposure of the developing fetus to the risks associated with the medications used to avoid transplant rejection.

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Eunuch

Background

Among the many people who benefit from gender affirming medical care, those who identify as eunuchs are the least visible. The 8th version of the SOC includes a discussion of eunuch-identified individuals because they are indeed present and in need of gender affirming services. In this chapter we describe the relationship between eunuch-identified people and other transgender and gender-diverse people and present best practices specific to serving the needs of people who embrace a eunuch identity.

For the purpose of the Standards of Care, we define eunuch as an individual assigned male at birth whose testicles have been surgically removed or rendered non-functional, and who identifies as a eunuch[1]. Eunuch individuals may have other identities as well. Most live as men and some may also identify as transgender or nonbinary. But the identity of eunuch is a gender identity of its own and for many it is the sole identity with no other gender or transgender affiliation. Our identity-based definition for those who embrace the term eunuch, does not include others, such as men who have been treated for advanced prostate cancer. We focus here on those who are eunuch-identified, individuals who feel that their true self is best expressed by the term eunuch. Eunuch-identified individuals generally desire to have their testicles surgically removed or rendered non-functional. Health care providers will see eunuch-identified people requesting medical care. They ask for castration, to become eunuchs, because they are eunuch-identified. They may also benefit from eunuch community because of the identification – with or without actual castration.

While there is a 4000-year history of eunuchs in society, the greatest wealth of information about contemporary eunuch-identified people is found within the large on-line peer-support community that congregates on sites such as the Eunuch Archive (www.eunuch.org) which was established in 1998. The moderators of this site attempt to maintain both medical and historical accuracy in its discussion forums, although there is certainly misinformation there as well. The Fiction Archive, which is part of the Eunuch Archive, is neither medically nor historically accurate and is filled with fantasy (Piccolo et al 2019; Piccolo et al submitted). According to the website, as of November 2021, there have been over 130,000 registered members and frequently over 90% of those reading the site are "guests," rather than members. The website listed 22,951 threads and 215,405 posts. For example, two threads giving instructions for self-castration by injection of different toxins directly into the testicles each have over 2,000 posts and have each been read over one million times. There have been 20 annual international gatherings of the Eunuch Archive community in Minneapolis and many regional gatherings elsewhere. While the topic of castration is of interest to the great majority of people who participate in the discussions, it is a minority of the membership who seriously seek or who have obtained castration. Many former Eunuch Archive members have achieved their goals and no longer participate.

[1] The authors acknowledge that there may be female-assigned eunuchs but at this date there is insufficient documented evidence to include them in this chapter.

Our current set of recommendations are directed at professionals working with individuals who identify as eunuchs and may be said to have Male-to-Eunuch (MtE) gender dysphoria (Vale et al. 2010; Johnson & Wassersug 2016). Although not an official diagnostic category in the ICD or DSM, MtE gender dysphoria is a useful construct as it speaks to the specifics of eunuch experience while also connecting it to the experience of gender dysphoria more broadly. MtE gender dysphoria can manifest itself in different ways. The common thread is that eunuch-identified individuals wish for a body that is compatible with a eunuch identity; a body that does not have fully functional male genitalia. Some individuals with MtE gender dysphoria feel acute discomfort with their male genitals and need to have them removed in order to feel comfortable in their bodies (Johnson et al. 2007; Roberts et al. 2008)). Others are indifferent to having male external genitalia, so long as they are only physically present and do not function to produce androgens and male secondary sexual features (Brett et al. 2007). Chemical means may be used to suppress the production of androgens, although orchiectomy provides a permanent solution (Wibowo et al. 2016). Throughout this chapter we use eunuch-identified and MtE (Male-to-Eunuch) interchangeably.

There are similarities and differences between eunuch-identified people and the larger population of people who are regularly included within the transgender spectrum (Johnson & Wassersug 2016). Eunuch-identified people may share with other gender diverse people a desire for reduction or elimination of masculine physical features, masculine genitals or genital functioning. However, the motivation for those physical changes, the interpretation of those changes, and the experience of those changes is processed primarily through the lens of eunuch identity and experience rather than thoughts of feminization (Vale et al. 2010). It is possible that some non-binary individuals may also seek castration to better align their bodies with their gender without identifying as eunuchs. In view of this, we advocate for eunuch-identified people as gender nonconforming individuals who have needs for gender affirming care. (Johnson et al. 2007; Brett et al. 2007; Roberts et al. 2008)

As there is no recognized public presentation for eunuch-identified people in the western world, most continue to present socially as male, some present socially as women, and some opt for a more androgynous appearance (Wassersug & Lieberman 2010). Because of misconceptions and prejudice about historic eunuchs, the invisibility of contemporary eunuchs, and the social stigma that affects all gender and sexual minorities, few come out publicly as eunuch and many will tell no one, share only with like-minded people in an on-line community, or be known as such only to close family and friends. (Wassersug & Lieberman 2010)

Most of the information we have regarding health issues post castration is from research into the health and experience of prostate cancer patients (Wassersug, Walker & Robinson, 2018). A number of those seeking castration are likely to cite Hamilton & Mestler (1969) or Min et al. (2012), both of which found that castrated male-bodied people lived twelve to fifteen years longer than those not castrated. It will need to be pointed out that the populations studied were of prepubertal individuals, not those castrated after puberty. However, Sugrue et al. (2021) have demonstrated that castration in sheep (and other mammalian species) delays epigenetic aging.

The stereotypes of eunuchs are often highly negative (Lieberman 2018). Eunuch-identified people may suffer the same minority stress as other stigmatized groups (Wassersug & Lieberman 2010). Research into minority stress that affects gender non-conforming people should include eunuch-identified people.

Summary of Recommendations

Statement 1: We recommend that health professionals and other users of the Standards of Care 8th guidelines should apply the recommendations of the standards of care in ways that meet the needs of eunuch-identified people.

Statement 2: We recommend that health professionals should offer medical and surgical intervention to eunuch identified individuals when there is a high risk that withholding treatment will cause individuals harm through self-surgery, surgery by unqualified practitioners, or unsupervised use of medications that affect hormones.

Statement 3: We suggest that health professionals who are assessing eunuch-identified individuals for treatment have demonstrated competency in assessing these individuals.

Statement 4: We suggest that health professionals providing care to eunuch-identified individuals provide sexuality education relevant to any medical interventions they might consider or receive.

Statement 1:
We recommend that health professionals and other users of the Standards of Care 8th guidelines should apply the recommendations of the standards of care in ways that meet the needs of eunuch-identified people.

Male-to-Eunuch individuals are part of the population of gender diverse people who experience gender dysphoria and/or who seek gender affirming care in order to bring their body into alignment with their identity. Like other transgender and non-binary people, individuals with MtE gender dysphoria require access to affirming care to gain comfort with their gendered self. Each section of the SOC addresses the needs of diverse individuals and eunuchs can be included within that group. They may particularly have commonality with some non-binary individuals in that social transition may not be a desired option and hormonal therapy may not play the same role as it might in a social transition or transition within the binary. Like other gender diverse individuals Eunuch identified individuals may be aware of their identity in childhood or adolescence and recommendations for the assessment of children and adolescents may also be relevant for youth who identify as MtE. Due to the lack of research into the treatment of children who are MtE, we refrain from making specific suggestions.

MtE individuals may seek medical or surgical care (hormone suppression, orchiectomy, and in some cases, penectomy) to achieve physical, psychological and/or sexual changes (Wassersug & Johnson 2007). It is important that all patients, including eunuch-identified individuals, establish and maintain a relationship with a health care provider that is built upon trust and mutual understanding. Given a lack of awareness of MtEs within the general medical community and a fear among many eunuch-identified people that they will not be accepted, many do not receive appropriate primary care and screening tests (Jäggi et al. 2018). Increased awareness and education among medical providers will help to address the need to be informed about the need to include MtEs in discussions of gender diversity (Deutsch 2016).

When desired, castration can be achieved either chemically or surgically. For some eunuch-identified individuals, chemical castration can be an appropriate trial before surgical castration to

see how the individual feels when hypogonadal (Vale et al. 2010). Chemical castration is usually reversible if the medications are stopped. The most common types of medications used to lower testosterone levels are the antiandrogens, progesterone and estrogen. The two most commonly used antiandrogens, cyproterone acetate and spironolactone, are oral. Estrogen and progesterone lower serum testosterone levels via negative feedback at the hypothalamus and pituitary gland. Estrogens and antiandrogens may not fully suppress testosterone levels into the female or castrate range. Oral estrogens increase the risk of venous thromboembolism. Although not commonly used, due to cost, gonadotropin releasing hormone (GnRH) agonists are a very effective method to shut down the production of sex steroids and fertility. (Hembree et al. 2017). See Table 1 for recommendations and for references on medications for chemical castration.

Although studies on hormone replacement therapy in eunuchs are lacking, findings from cisgender men treated for prostate cancer can be informative regarding the effects of hormone therapy. In a randomized controlled trial of 1694 cisgender men treated for locally advanced or metastatic prostate cancer, one group received a GnRH agonist and the other received transdermal estrogen (Langley et al. 2021). Cisgender Men who received the GnRH agonist developed signs and symptoms of both androgen and estrogen deficiency whereas men who received the estrogen patch only developed androgen-depleting symptoms. Both groups had high rates of sexual side effects (91%) and weight gain was similar among the groups. As compared to cisgender men on the GnRH agonist, cisgender men on the estrogen patches had a higher self-reported quality of life, lower rates of hot-flushes (35% vs 86%) and higher rates of gynecomastia (86% vs 38%). Metabolically, cisgender men on the estrogen patches had favorable changes with a lower mean fasting glucose, fasting total cholesterol, systolic blood pressure and diastolic blood pressure. On the other hand, cisgender men on the GnRH agonist had the opposite effects. Based upon this study, MtEs may consider transdermal estrogen therapy to avoid adverse estrogen-depleting effects which include hot flashes, fatigue, metabolic effects and loss of bone mineral density.

It goes without saying that MtEs require and deserve the same primary care services as the general population. The topic of screening tests for cancers, such as prostate and breast, is an important area for discussion as the risks of hormone-related cancers are likely different among male-assigned people whose testosterone and estrogen levels are not in the male range. Due to a lack of studies looking at the prevalence and incidence of hormone-related cancers in the MtE population, there is no evidence to guide how often to screen for hormone-related cancers with prostate exams, PSA measurements, mammograms, etc. The recommendations in the SOC section that addresses primary health care are appropriate for MtE individuals.

The large literature on prostate cancer patients who have been medically or surgically castrated provides information about some of the effects of post pubertal castration (such as potential osteoporosis, depression, or metabolic syndrome), but voluntary eunuchs may interpret the results very differently from those castrated for medical reasons. Chemical or surgical castration may be experienced as a source of sadness to cis men with prostate cancer while the same treatment may be affirming and a source of pleasure for eunuch individuals. Similarly, transmasculine people who have mastectomy to gain comfort with their bodies experience that surgery differently from ciswomen who have mastectomy to treat breast cancer. (van de Grift et al 2016; Koçan & Gürsoy 2016) The prostate cancer information is well summarized by Wassersug et al. (2018) who provide references to the large literature on the subject. Such information on the effects of castration should be made available to those seeking castration.

Medical options requested by the patient can be considered and prescribed if appropriate. These options can be tailored to the individual to create a plan that reflects their specific needs and preferences. The number and type of interventions applied and the order in which these take place may differ from person to person. Treatment options to consider include:

- Hormone suppression to explore the effects of androgen deficiency for those with Male-to Eunuch gender dysphoria who wish to become asexual, nonsexual, or androgynous;
- Orchiectomy to stop testicular production of testosterone for those who identify as Male-to-Eunuch;
- Orchiectomy with or without penectomy to alter their body to match their self-image.

Statement 2:
We recommend that health professionals should offer medical and surgical intervention to eunuch-identified individuals when there is a high risk that withholding treatment will cause individuals harm through self-surgery, surgery by unqualified practitioners, or unsupervised use of medications that affect hormones.

The Eunuch Archive has a large number of posts from individuals seeking medical providers who will perform castration surgery. There are also a large number of posts by those who have performed self-surgery or have had surgery performed by people who are not credentialed medical providers. There are also clinical reports of patients who have self-castrated and accounts of patients who have misled the medical providers in order to obtain castration. (Mukhopadhyay & Chowdhury 2009; Hermann & Thorstenson 2015) There is no doubt that when members of this population are denied access to quality medical treatment they will take actions that may cause them great harm, such as bleeding and infection that may require a hospital admission (Johnson & Irwig 2014; Jackowich et al. 2014; Hay 2021).

There are frequent posts on the Eunuch Archive by members (not medical personnel) requesting or providing information about relevant pharmaceuticals, their varieties, sources, proper dosage. There are ratings for various on-line pharmacies and descriptions of their international shipping policies. There are posts describing the effects, both positive and negative, of the various pharmaceuticals, which are taken without proper medical supervision. This "folk knowledge" can be problematic or inaccurate and may need to be countered by more accurate information. (See www.eunuch.org for multiple threads and posts containing such folk knowledge)

Table 1. Medications to lower androgen levels

MEDICATION	ABILITY TO LOWER ANDROGENS	FEMINIZING EFFECTS	COST	ADMINISTRATION ROUTE	POTENTIAL EFFECTS*
Spironolactone	Partial	No	Inexpensive	Oral	decreased libido, erectile dysfunction, gout, gynecomastia, hyperkalemia, hyperuricemia, hypomagnesemia,

					hyponatremia, hypovolemia
Progesterone	Partial	No	Inexpensive	Oral	Increased risk of depressive mood, increased risk of cerebrovascular accident, meningioma
GnRH agonist	Full	No	Expensive	Intramuscular, subcutaneous	decreased libido, decreased hemoglobin, depression, dizziness, edema, emotional lability, fatigue, flushing/hot flashes, headache, increased serum cholesterol, increased serum triglycerides, insomnia/sleep disorder, infertility, nausea, testicular atrophy, weight changes
Estrogen	Partial	Yes	Inexpensive	Oral, sublingual, transdermal, intramuscular	gynecomastia, emotional lability, increased adiposity, increased serum triglycerides, infertility, less muscle/strength, sexual dysfunction, softer skin, testicular atrophy

References: Angus et al. 2021; Butler et al. 2017; Efstathiou et al. 2019; Tosun et al. 2019

Eunuch-identified individuals are often driven to obtain surgery that is not generally available upon request (Johnson & Irwig 2014). One of their options has been to damage their testicles, frequently through direct injections of toxins, to create an abnormal appearance that would lead a urologist to perform an orchiectomy (Johnson & Irwig 2014). Another option has been to enter treatment programs for transgender individuals, presenting themselves as transgender. (Johnson & Irwig 2014). Historically such programs assumed that a transgender person would undergo both social and medical transition. As MtEs would welcome some aspects of the medical transition, they participate in these programs long enough to obtain the medical interventions that they desire and then drop out. In order to obtain surgery they may be required to undergo some social transition and they may reverse that social transition once the surgery is acquired. (Johnson & Wassersug 2010; Cohen-Kettenis & Pfäfflin 2009) Individuals who drop out of gender programs, and those who "return to original role" remain an understudied group. Several authors have speculated that this group represents nonbinary people or those for whom standard gender diagnosis were not appropriate(Rachlin et al. 2010). We would suggest that

this group also likely contains eunuch-identified individuals who were seeking a way to obtain the care they needed. (Johnson & Wassersug 2010).

Statement 3:
We recommend that health professionals who are assessing eunuch-identified individuals for treatment have demonstrated competency in assessing these individuals.

A frequent topic on the discussion boards of the Eunuch Archive is the difficulty of finding practitioners able to understand their needs. Eunuch-identified people usually are less visible than other gender minorities (Wassersug & Lieberman 2010). In contemporary societies they are likely to live and identify socially as men, regardless of their self-identity as eunuchs. We recognize that they may not voluntarily disclose their identity and/or desires, even to their medical or mental health providers, due to stigma and fear of rejection by the medical community. In some environments medical providers may not be aware that MtEs exist and may not even know that they have treated eunuch-identified patients.

The SOC section on assessment is applicable to MtE individuals. Like other gender diverse individuals, MtE individuals can engage in an informed consent process in which qualified providers conduct assessments to ensure that individuals are capable of informed consent prior to medical interventions and that includes making certain that a mental health problem is not the etiology of the desire. As with other sexual and gender minorities, working with MtE individuals requires an understanding that they are a diverse population and that each person is eunuch in their own way (Johnson et al. 2007). The person seeking services benefits from the professional's accepting stance, open inquiry, suspension of judgement, and flexible expectations, combined with professional competency and expertise.

In order to provide appropriate treatment, providers must establish trust and respect by creating an inclusive environment for eunuch-identified people. For eunuch-identified individuals the ideal intake form would ask assigned sex and identified gender with multiple gender options including a "eunuch" and an "other" option. Individuals may identify with more than one option and should be able to check more than one.

Health professionals may be involved in assessment, psychotherapy (if required), preparation and follow-up for medical and surgical gender affirming interventions. They may also provide support for partners and families. Eunuch-identified individuals who want the support of a qualified mental health provider.

While some eunuch-identified individuals come to counseling or therapy because they want emotional support or help with decision-making, many come to providers for assessment in preparation for specific medical interventions (Vale et al. 2010). The definition of someone eunuch-identified is someone who needs castration in order to bring their body into alignment with their gender identity. The testimonials and cases of self-surgery demonstrate the anguish people experience in a body that is not syntonic with their gender identity. (Johnson & Irwig 2014)

Statement 4:

We suggest that health professionals providing care to eunuch-identified individuals provide sexuality education relevant to any medical interventions they might consider or receive.

A number of research studies have contributed to our knowledge of contemporary eunuch-identified people and have explored demographic characteristics and sexuality (Wibowo, et al. 2012; Vale et al. 2013; Handy et al 2015; Wibowo et al. 2016). Medical and mental health professionals should assume that eunuch-identified individuals are sexual people who are capable of sexual activity, pleasure, and relationships, unless they report otherwise (Wibowo et al. 2021). Research has shown that there is great diversity among eunuch-identified individuals regarding the level of desire, type of preferred physical or sexual contact, and nature of preferred relationships (Johnson et al. 2007; Brett et al. 2007; Roberts et al. 2008). While some enjoy active sex lives with or without romantic relationships, others identify as asexual or aromantic and are relieved by the loss of libido achieved through surgical or chemical castration (Brett et al. 2007). Each person is different and one's genital status does not determine sexual or romantic attraction (Walton et al. 2016; Yule et al. 2015).

Regardless of the type of chemical suppression or surgery a person has had, they may be capable of sexual pleasure and sexual activity. Contrary to popular belief, eunuchs are not necessarily asexual or non-sexual (Aucoin & Wassersug 2006). Safer sex education is necessary for all people who engage in sexual activity that could involve exchange of body fluids. Please see the Sexual Health Across the Lifespan chapter of the SOC for a discussion of sex education and safe sex options for people with diverse genders and sexualities.

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Education

Introduction

This chapter will provide a general review of the literature related to education in transgender and gender diverse (TGD) health care. Recommendations are offered at governmental, nongovernmental, institutional, and provider levels with the goal of increasing access to competent, compassionate health care. In turn, this increased access should improve health outcomes in TGD populations. As this is a new chapter in the World Professional Association for Transgender Health (WPATH) Standards of Care, the intent is to lay the groundwork for the education area and invite a broader and deeper discussion among educators and health professionals.

Health professionals involved in transgender care encompass a broad range of disciplines. Health professional education varies considerably by country or region in terms of structure, licensure, and policy. Published literature on education in TGD health care is predominantly from North America, Europe, ,Australia and New Zealand (Winter et al, 2021) This chapter does not provide a review of the education literature for each discipline, the needs specific to each discipline (which can be found in the relevant chapters), or the needs specific to each country/region's health education system. Greater understanding and research are needed on the intersection of health education systems, licensure, and transgender health across the world.

On a global level, TGD health education is imperative if national and international health disparities are to be addressed. Cultural competency related to TGD communities continues to be lacking. The World Bank (2018) reports widespread discrimination, harassment, violence, and abuse affecting TGD people. They also report TGD people face the highest rates of violence and discrimination (World Bank Group, 2018). Although many higher income countries have national antidiscrimination laws with gender identity as a protected characteristic, discrimination in the workplace, in education, and in health care remains problematic (World Bank Group, 2018).

Across disciplines, curricula at all levels—undergraduate, graduate, residency, or continuing education— historically have ignored TGD cultural or clinical education. The Joint Commission (US) has recommended healthcare organizations "provide educational programs and forums that support the unique needs of the LGBT community" and "offer educational opportunities that address LGBT health issues" (The Joint Commission, 2011). However, this is not enforced.

On an individual level, several questions need answers. What type of education interventions can most effectively address transphobia and lead to long-standing changes in attitudes? What interventions translate into increasing the number of care providers in this area as well as the number of TGD people receiving care? Does clinical exposure increase the confidence of providers over time? What educational interventions lead to improved health outcomes in the TGD population and, if so, when and how did these interventions accomplish this? Although health professions have begun to incorporate TGD health into education using a variety of modalities and at varying levels of training, efforts differ by health profession and are neither systemic nor systematic in nature (See, e.g. Lim et al, 2015; Obedin-Maliver et al., 2011, Brennan et al, 2012; Chinn, 2013; Eliason et al., 2010; Rondahl, 2009).

Considering these deficits, the following recommendations are made based on the large amount of background literature that supports a favorable risk-benefit ratio to providing TGD education. We recognize that, in some cases, evidence is limited and education may not be accessible.

Summary of Recommendations

Statement 1: We recommend all personnel working in governmental, nongovernmental, and private agencies receive cultural-awareness training focused on treating transgender and gender diverse individuals with dignity and respect.

Statement 2: We recommend all members of the healthcare workforce receive cultural-awareness training focused on treating transgender and gender diverse individuals with dignity during orientation and as part of annual or continuing education.

Statement 3: We recommend institutions involved in the training of health professionals develop competencies and learning objectives for transgender and gender diverse health within each of the competency areas for their specialty.

Statement 1:
We recommend all personnel working in governmental, nongovernmental, and private agencies receive cultural-awareness training focused on treating transgender and gender diverse individuals with dignity and respect.

Article 1 of the United Nations Universal Declaration of Human Rights states, "All human beings are born free and equal in dignity and rights" (United Nations, 1948). Only recently has this fundamental statement included the recognition that TGD rights are human rights (UNOCHR, 2018). Globally, training at all levels about TGD communities continues to be lacking. As recently as 2002, only 3% of Fortune 500 companies had antidiscrimination protection for TGD employees, and none offered insurance coverage for gender-affirming health care· (Human Rights Campaign Foundation, 2017). By 2021, 94% of Fortune 500 companies included gender identity in nondiscrimination policies, and 71% offered TGD-inclusive insurance coverage. However, only 71% provide any form of lesbian, gay, bisexual, transgender and queer/questioning (LGBTQ) cultural knowledge training for their workforce (Human Rights Campaign Foundation, 2021 This lack of understanding fosters discrimination across the board. Taken together, these inconsistencies negatively affect the health of individuals and communities and exacerbate the health disparities and inequities they face. In Britain, only 28% of TGD workers felt that senior leadership were committed to TGD equality; only 21% of TGD employees would consider reporting transphobic harassment in the workplace (Stonewall, 2018). For those who are openly TGD 34% were excluded by their coworkers, 35% were abused by customers, 24% were denied promotion due to their gender identity, and 11% were fired (Stonewall, 2018). In southeastern Europe, the World Bank stated that there is widespread discrimination, harassment, violence, and abuse, and TGD people in that region faced the highest rates of violence and discrimination (World Bank Group, 2018). Often the discrimination went unreported with 60% of individuals not filing a report because of a lack of faith the complaint would be addressed, a fear of further discrimination or ridicule, and a reluctance to be outed (World Bank Group, 2018). Although many countries in the region have national antidiscrimination laws with gender identity as a protected characteristic, discrimination in the workplace, in education, and in healthcare remains problematic (World Bank Group, 2018). It

is the responsibility of the governmental, nongovernmental, and private agencies in these countries with anti-discrimination laws to ensure the rights of the TGD population. They are, therefore, obligated to find ways in which discrimination and stigma are decreased. One of these is through education. Local culture that often fosters anti-TGD sentiment is often a barrier to this needed education. Although cultural competency trainings have led to equivocal results, Shepherd (2019) recommends that providing cultural knowledge training that prioritizes local cultural issues and focuses on the values of openness, non-judgment, and responsiveness may lead to the desired results. Implementing cultural knowledge training requires a leadership willing to prioritize the training and to dedicate the time, money, and human capital to delivering initial and ongoing training.

Statement 2:
We recommend all members of the healthcare workforce receive cultural-awareness training focused on treating transgender and gender diverse individuals with dignity during orientation and as part of annual or continuing education.

Across disciplines, curricula at all levels— undergraduate, graduate, residency, or continuing education— historically have ignored TGD cultural or clinical education. Factors contributing to this lack of inclusion include lack of faculty knowledge, experience, and comfort with the subject matter, faculty bias, limited space within the existing curriculum, and lack of guidance on how to integrate the topics (McDowell et al., 2015). Research into the lack of and the need for such education does not specifically address TGD health concerns. Rather, the existing literature subsumes TGD health education within the broader discussion of the lack of LGBTQ-focused cultural and clinical-competency training. As an example, nursing baccalaureate programs included only an average of 2.12 hours of instruction on LGBT health (Lim et al, 2015). A fair assumption is that the amount of time devoted to TGD-specific health issues constituted only a fraction of this time.

Within the broader context of LGBTQ competency, the lack of TGD cultural- and clinical-competency training is a long-known shortfall of healthcare education (Aldridge et al, 2021). In the US, The United States Department of Health and Human Services' *Healthy People 2020,* (United States Department of Health and Human Services (2013, April 10)) the National Academy of Medicine (The Institute of Medicine, 2011) and the Joint Commission (The Joint Commission, 2011) all recognized that lack of education negatively impacts the ability of LGBTQ people, including TGD individuals, to obtain appropriate, medically necessary care. The UK's House of Commons Women and Equalities Committee found lack of education contributed to TGD health disparities in the National Health Service (House of Commons Women and Equalities Committee, 2015, December 8). The lack of TGD healthcare education has been identified in the US (Obedin-Maliver et al, 2011), UK (Tollemache et al, 2021), South Africa (Wilson et al., 2014; Taylor et al., 2018; deVries et al, 2021), Canada (Bauer et al., 2014), Australia (Riggs & Bartholomaeus, 2016), Sweden, Spain, Serbia, Poland (Burgwal et al., 2021), and Pakistan (Martins et al, 2020) among other countries.

In addition to developing curriculum, Shepherd (in press) states that both clinical and organizational components are necessary to improve clinical encounters and consumer satisfaction. On an organizational level, it must be feasible and practically oriented (Shepherd, in press). On an individual level, in addition to knowledge training, clinicians are better served employing generic traits that focus on the values of openness, non-judgment, and responsiveness (Shepherd, 2018).

Statement 3:
We recommend institutions involved in the training of health professionals develop competencies and learning objectives for transgender and gender diverse health within each of the competency areas for their specialty.

Each health profession has its own educational institutions, administrative, and licensing bodies, which vary by country and specialization within the profession. No major health professional organizations, educational institutions, or licensing bodies appear to require training in TGD health. While these organizations increasingly recommend including lesbian gay bisexual transgender queer questioning intersex (LGBTQI) health, rarely do they specify competencies, skills, or learning objectives for working with TGD people within their specialty. Published material on health professional education in TGD health is focused primarily on nursing, medicine, and mental health, and is predominantly from North America, Europe, Australia, and New Zealand (Winter et al., 2021). An increased understanding of transgender health and medical/health professional education systems and requirements globally is esssential.

Despite the increasing visibility of TGD people, access to knowledgeable and culturally-competent health professionals remains an overwhelming need around the world (James et al., 2016; Müller, 2017; Lerner et al., 2020). Lack of knowledgeable providers is a major barrier to gender-affirming care for trans persons (Safer et al., 2016; Puckett et al., 2018) and contributes to large health disparities (Giffort & Underman, 2016; Poteat et al., 2019; Reisman et al., 2019). The lack of adequate professional education in TGD health is a global problem (Parameshwaran et al., 2017; Do & Nguyen, 2020; Martins et al., 2020) that occurs at all levels of training (Dubin et al., 2018) and traverses health disciplines (Johnson & Federman, 2014; Glick et al., 2020; Gunjawate et al., 2020) and medical specialties (Korpaisarn & Safer, 2018; Fung et al., 2020).

Challenges remain as studies to date have small sample sizes, involve one-time training, include multiple disciplines at multiple career levels, focus on short-term outcomes, and often cover all LGBTQI topics rather than TGD-specific which are usually acquired post licensure and not the focus of most currently studied educational interventions (Dubin et al., 2018).

To successfully implement the recommendations, institutions may need to consider developing: 1) systemic and systematic approaches to developing and implementing competencies for each health discipline across the professional lifespan, 2) standardized assessments for learners, with input from the TGD community, and 3) allotment of curricular resources, including trained faculty, as well as time in accordance with clear, consensual learning objectives (Dubin et al., 2018; Pratt-Chapman, 2020). In addition, evaluations of these interventions should not only focus on outcomes but also strive to understand how, when and why these outcomes are occurring (Allen et al., 2021).

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Ethics

Introduction

This chapter provides an overview of the ethical considerations that arise in the field of transgender health. We begin with a brief history of the evolution of the current ethical perspective as reflected in the World Professional Association for Transgender Health Standards of Care (WPATH SOC). We then acknowledge cultural differences in the practices required in transgender health, describe ethical principles and how these relate to health care for transgender people, discuss transgender health research ethics, and describe WPATH's role in dispute resolution.

Ethics and the Standards of Care

From the outset, the field of transgender health has been fraught with what have been seen as ethical dilemmas. Exploring the then-nascent field of sexology in Western Europe, researchers and health professionals (HPs) in the late 1800s encountered people who questioned their sex and were seeking affirming care. These patients had no linguistic frame within which they could explain themselves, and HPs had only a binary, heterosexual perspective that conflated morality and perversion with almost anything that exceeded the boundaries of traditional sex and gender roles for men and women. Transgender and gender diverse (TGD) people were regarded as sinners or moral failures, and only a few curious and compassionate scientists and HPs were willing to try to help them (Ettner, 2020; Green, 2020; Whitehead and Schechter, 2020).

By the 1940s and 50s, in both Europe and the US, professional journal articles and legal documents offer a historical record of medical, mental health, surgical, and legal cases where hormonal and surgical care, as well as legal arguments, helped to make the case in courts of law that "transsexuals" (as they were coming to be called) were a kind of "intersex persons" whose psychological and sometimes physical make-up was neither precisely male nor female. Medical opinion frequently asserted that, in each specific case, either the male or the female "predominated" in order to support the patient's gender identity. At the same time, laws were being promulgated to criminalize surgeons who committed "mayhem" (the excision of healthy tissue), and letters to the editor in both surgical journals and lay publications decried the "barbaric process of sex-change," often casting those who sought care as mentally ill, and those who endeavored to provide care as colluding with delusion (Ettner, 2020; Gooren, 1993; Green, 2020).

Through the 1960s and 70s, university gender clinics were established in both Europe and North America to study the phenomenon and provide treatment, and although the criteria for entry to many of these clinics could be restrictive and rigid, HPs were trying to understand why individuals sought hormonal and surgical gender-affirming care, to establish clinical treatment protocols that would successfully help people live more comfortable and productive lives, and to learn the factors that would predict success when treatment protocols were followed. HPs' definitions of success were limited at first by a binary and heteronormative view of "sex-change," which reinforced gender and sex role stereotypes for program 'graduates.' The work of these clinics was hampered in the US by political forces aimed at eliminating access to care, and overwhelmingly the professional literature of the day was rooted in a view that variance from gender norms was pathological. By 1975, HPs who listened to their patients and rejected

pathologizing views (to varying degrees) had formed a loose network that included researchers and patient advocates. By 1979, a group of these providers formed the Harry Benjamin International Gender Dysphoria Association and published the first international "Standards of Care [for] the hormonal and surgical sex reassignment of gender dysphoric persons." That initial document and all subsequent versions of the Standards of Care (SOC) have constituted an effort to establish both clinical and ethical guidelines pertaining to the treatment of TGD people, to the extent that the document's authors understood both clinical protocols and their ethical obligations according to the standards of the day. WPATH's public policy statements, available at www.wpath.org, are further articulations of the ethical positions supported by the Association, beginning with the 2008 Statement on Medical Necessity and Health Insurance Coverage in the US and the 2010 Identity Recognition Statement (updated in 2016 and 2017, respectively), both of which had a significant impact on improved access to health care and legal rights for TGD people in the US and globally.

By 2010, clinical experience, research studies, and the courage of TGD individuals to speak out through community-based activism, had led to protective legislation and removal of exclusions for transsexual or transgender treatments in many private health insurance plans in the US and many public health plans and services in other parts of the world. Public health coverage in the US followed with the removal of exclusions from Medicare in 2014. The available coverage led to increased demand for services, the establishment of medical and mental health training programs, expansion of clinical experience, and judicial rulings affirming TGD people's human and civil rights in Europe, Australasia, Africa, Asia, and North and South America (Green, 2020; Whitehead and Schechter, 2020).

Each profession represented within WPATH has its own ethical standards. Continuing education is required of most licensed professionals and often includes some number of required ethics course credits. WPATH's ethical standards are never meant to substitute for any profession's ethical tenets. WPATH operates from the fundamental principles that inform medical ethics in the Global North and works to assist HPs in reconciling challenges, discrepancies, or conflicts that may arise between providers, patients, clients, and institutions when TGD people are patients, clients, or research participants. A foundational principle is that WPATH recognizes TGD patients or clients deserve to have their gender identity and expression recognized, validated, and affirmed in the course of care, even if that gender changes over time or proves not to be the one that the provider or the individual first assumed it to be. WPATH also recognizes all people deserve quality, responsible care, as our organization's vision statement attests, "We envision a world wherein people of all gender identities and gender expressions have access to evidence-based health care, social services, justice, and equality."

One of the most important practical values that WPATH emphasizes, both through our recognition of the interdisciplinary nature of transgender health and in our approach to ethics, is that "ethics is a conversation." By this, we mean that ethical considerations must always be deliberated among the participants in any decision-making process to ensure that all aspects of the matter are fully understood by all who are impacted by the question or the anticipated action.

Acknowledging Differences Between Cultural Contexts

WPATH makes every effort to work within the cultural contexts of its members, and our Board and Ethics Committee members are continually working to acquire knowledge about ethical

systems that are relied upon in cultures outside of the Global North. Below we outline the ethical principles applied to TGD health in the Global North as these are the principles most frequently discussed in the English language scholarly literature. There are perhaps other ethical approaches that could be applied to practice with TGD people that may translate better across cultures, including rights-based ethics, relational ethics, and justice doing (Clark, 2017), some of which are encompassed in *The Yogyakarta Principles* and *The Yogyakarta Principles Plus 10*, which are collaborative international statements not dominated by the Global North.

International Human Rights: The Yogyakarta Principles

In 2006, in response to "well-documented patterns of abuse," a distinguished panel of twenty-nine international human rights experts met in Yogyakarta, Indonesia with the goal of identifying a set of principles that incorporated sexual orientation and gender identity (SOGI) issues into established human rights concepts. They produced *The Yogyakarta Principles* that has since become a guiding document informing the human and legal rights of TGD people globally. In 2017, another panel of thirty-three experts, five of whom were also on the original panel, published additional principles expanding on the original document and reflecting developments in international human rights law and practice since the original Principles were drafted. The second document, *The Yogyakarta Principles Plus 10*, also contains "additional state obligations" related to areas such as torture, asylum, privacy, health, and the protection of human rights defenders. The full texts of both these documents are available at www.yogyakartaprinciples.org. WPATH recognizes the importance of these principles and advocates for their adoption in every context in which their application can improve the health and quality of life of TGD people, which should result in similar improvements for all people.

Ethical Principles

Consideration of the ethical principles that guide clinical practice and research promotes critical thinking and reflection on the beliefs and values of the professionals working to support and provide transgender health care. The insights that arise can also assist HPs in articulating to their patients and colleagues the justification for the decisions they make (Clark, 2017). The provision of transgender health care often occurs within an interdisciplinary context. As such, WPATH encourages interdisciplinary conversation and deliberation about ethical considerations when possible. The absence of an interdisciplinary team should not automatically disqualify a person from accessing medically necessary gender-affirming health care. In making decisions, HPs should consider the ethical principles in this chapter, including the risk of harm induced through not providing care. The principles WPATH relies upon to guide ethical practice are outlined by Beauchamp and Childress, Principles of Biomedical Ethics (8th edition, 2019). Ethical challenges emerge when there is conflict among the principles. These principles are described below.

Respect for Autonomy

According to Beauchamp and Childress, competent people should be able to "(1) act intentionally, (2) with understanding, and (3) without controlling influences that determine their action" (2019, p. 102). To have respect for the autonomy of patients or clients is to acknowledge they have the right to make voluntary decisions about their own bodies, free from coercive or

controlling influences of others (Wren, 2019). Self-determination is at the core of this ethical principle (Hale, 2007; Toivonen & Dobson, 2017).

The principle of respect for autonomy refers primarily to the patient's absolute moral right not to be subjected to any form of treatment or experimentation to which they do not provide valid informed consent, which unnecessarily violates their bodily integrity or which violates their own moral values and personal preferences. This principle also encompasses the right to be enabled to make informed decisions: clinicians have a corresponding moral duty to provide accurate, truthful information about the available alternatives, with their expected risks and benefits (Coggon, 2016).

The provision of gender-affirming care relies upon a combination of the clinical expertise of the provider and a clear understanding of the risks and benefits of that care on the part of the patient/client as those risks and benefits may impact their personal life.

HPs retain a moral and legal right, and a professional obligation, to only provide treatment which they deem to be in the client/patients' best interests. Whereas individuals are usually the best judges of what is good for them, HPs might ethically refuse to provide services which they consider inappropriate, unethical, which they don't consider themselves competent to provide, or which they regard contrary to their own understanding of the legitimate goals of their profession (Huxtable, 2014; Coggon, 2016). In making such judgments, though, HPs should be aware of prevailing social norms marginalizing TGD people, which may potentially bias a HP's judgments (see Synthesis below). Debates concerning what respect for autonomy entails are nuanced and complex debate. Certainly, though, if the HP is not technically or clinically capable of providing the requested service, or if the HP understands that the patient will be harmed if they attempt to provide that service, they must decline provision of that service. Conversely, if the patient weighs the evidence and determines that the service will put them at risk of harm, they are within their rights to decline that service.

Respectful and honest discussion may on many occasions lead to an agreed course of action; we must acknowledge however that in some cases the views of patients and HPs might be irreconcilable. In these morally challenging cases, respect for each other's integrity (including professional integrity) and compassion should remain the guiding principles.

Respect for patient's autonomy is the foundation of the patient's moral and legal right to provide informed consent to treatment, and of the HP's duty to enable patients to do so. Careful consultation between the client/patient and HP to work toward informed consent can allow this care to be carried out with the greatest respect for autonomy (Cavanaugh et al., 2016.; Hale, 2007; shuster, 2019). It is the HP's responsibility to provide the information, and the patient/client's responsibility to consent to accept the potential risks as well as any benefits of the care in question. Informed consent means TGD people should be able to make decisions about their care, free from any coercion (Cavanaugh et al., 2016; Clark, 2017; Hann et al., 2017; shuster, 2019). Providing informed consent in gender-affirming care involves facilitating a comprehensive understanding between the patient/client and the care provider about what the desires and goals of this care are, what the known risks and benefits are for this type of care, and what the limits to our knowledge about these are (Kimberly et al., 2018; Bernal & Coolhart, 2012; Wren, 2019). Health care that has higher benefits and lower risks requires a lower level of capacity to consent (Lipshie-Williams, 2020). Due to their specific knowledge of the risks and benefits, those who provide gender-affirming health care (i.e., physicians, nurse practitioners, and surgeons) are most appropriate for delivering the information necessary for a patient/client to carefully weigh the risks and benefits of treatment for themselves. See Chapters X of these

Standards for more details about the informed consent process as applied to gender-affirming care.

The principle of respect for autonomy has been given relatively little weight in the provision of gender-affirming health care in the past; some bioethicists have argued that requiring mental health assessments for accessing gender-affirming hormones and surgeries has meant TGD people have been given less autonomy than people accessing most types of similar health care, thereby undermining their self-determination, a practice that may portray TGD people as lacking capacity, being mentally unwell, or lacking full moral status (Hale, 2007; Lipshie-Williams, 2020; Toivonen & Dobson, 2017). However, a biopsychosocial assessment is common in most mental health settings and is often required before treatment begins even for concerns such as depression or anxiety (Sommers-Flanagan, J., & Sommers-Flanagan, R., 2017). These patients are not characterized as lacking capacity or being mentally unwell. Nor are patients who participate in assessments prior to administration of insulin (a hormone for the treatment of diabetes) or surgical procedures such as organ transplants (as living donors or recipients) or bariatric surgery seen as unwell or lacking moral status. Because of a history of psychopathologization and marginalization, some health care systems have been known to regard TGD patients/clients as mentally disordered, which has resulted in mental health professionals being put in a role as gatekeepers of gender-affirming care, which creates barriers to care rather than serving the best interests of the TGD client/patient. The general expectation of a preparedness assessment prior to hormones or surgery is that a preparedness assessment may contribute to readiness and eventual adaptation to physical changes as well as psychological or physical healing post-treatment and should be distinguished from therapy or the assumption of mental disorder. See Chapter X of these Standards for more details about assessments.

Recognizing TGD people as capable, independent, no less moral than cisgender people, may allow TGD clients/patients to feel more in control of determining their own lives and empowered to be responsible for their own actions (Hale, 2007; Lipshie-Williams, 2020). This may also result in TGD patients/clients gaining greater self-esteem and self-respect, which enables them to become more able to engage in equitable and mutually affirming relationships with other people in their lives (Hale, 2007).

Also relevant to the principle of respect for autonomy is for TGD clients/patients' correct names, genders, and pronouns to be recorded on their records and respected when communicating with the client/patient themselves and with other HPs (Hann et al., 2017; Markman, 2011; McCarthy et al., 2016; Seigel et al., 2019; Toivonen & Dobson, 2017). TGD clients/patients also have the right to privacy and confidentiality, as well as the right not to have arbitrary age requirements imposed on them to access care (Clark, 2017; Hann et al., 2017); age requirements should be medically justified. Persons who lack the capacity to act intentionally and with understanding due to their age or intellectual capacity may have diminished autonomy. In these cases, determining the capacity of a client/patient to provide informed consent is the task of HPs (Kimberly et al., 2018), and families and guardians may play a role in the informed consent process (see the Child and Adolescent chapters of these SOC for further discussion). Information should be provided in a way that is accessible and appropriate to the patient's/client's age or level of understanding (Wren, 2019).

Nonmaleficence

Most simply understood, nonmaleficence is the duty to "first, do no harm" or "above all, do no harm" and includes both intentional and unintentional acts of harm and endangerment. Nonmaleficence generally forbids actions of a certain kind. A function of this principle is the duty of providers to operate within one's own level of competency (refer to the Education Chapter in this document for further information about competencies). A key part of nonmaleficence requires the HP to evaluate the risks and benefits of the proposed treatment. This requires understanding the perspective of the patient/client's lived experience and expertise about their gender and as an independent moral agent; if the risks outweigh the benefits, the professional must refuse to do what might be technically possible if the risks are too high or the gains too temporary. When considering risks and benefits, HPs should be cognizant of prevailing social norms that marginalize transgender people and consider whether these norms are influencing the fairness of their decision-making (see Beneficence and Synthesis sections below).

Beneficence

As a principle, beneficence requires that providers contribute to the welfare of or confer maximal benefit to the patient/client (Toivonen & Dobson, 2017). Many acts of beneficence may be supererogatory (i.e., go beyond the minimum of what is morally necessary), while some acts of beneficence are morally required. In the field of transgender health, beneficence means providing affirming, supportive, and nonjudgmental health care (Hann et al., 2017).

Health care professionals should be aware of how they can help mitigate antitransgender stigma, discrimination, and prejudice in their patients'/clients' lives (American Psychological Association, 2015). To provide maximal benefit to patients/clients, HPs can advocate for their patients/clients to access identity documents, social services, and public accommodations, for example by providing documentation where this is needed (American Psychological Association, 2015).

Requiring that TGD patients/clients undertake objectifying or unjustified mental health treatment, especially for protracted lengths of time, in order to access gender-affirming care creates a power imbalance between mental health professionals and their patients/clients. Such requirements may create distrust and negatively impact the rapport built between mental health providers and their patients/clients and may also make the patient/client cautious about disclosing information related to their mental health for which they might have otherwise been able to receive help (Cavanaugh et al., 2016.; Hann et al., 2017). Eliminating unnecessary assessments allows MHPs more freedom to confer benefit to patients/clients by focusing on providing supportive mental health care (Cavanaugh et al., 2016), which is often needed given the serious mental health and social disparities faced by many transgender people. However, there are times when a mental health assessment may be necessary to assess capacity to make a medical decision for various types of care, not just gender-related care. In cases of questionable capacity to make a medical decision, a MHPs assistance can be helpful to physicians or surgeons. A physician's request for a mental health consult should not uniformly be interpreted as a maleficent act toward a TGD person; it may reflect due diligence to preserve the patient/client's autonomy, an act of beneficence, or both. A mental health assessment or consult may help a surgical patient prepare for the procedure and can contribute to better postoperative outcomes, but when considering whether this should be a requirement, HPs should consider whether they would require such assessments for other surgeries with similar risks and benefits, such as bariatric surgery and organ transplants.

WPATH also incorporates *ethics of care*, which emphasize the role of

- Compassion—emotional responses of sympathy and tenderness and regard for the welfare of others;
- Discernment—insight, clear judgment free of extraneous or undue influences;
- Trustworthiness—established confidence in one's character and conduct, creating a good climate of trust;
- Integrity—fidelity to one's moral convictions, and
- Conscientiousness—extending appropriate effort and due diligence in determining what is right and in acting accordingly.

This articulation of the ethics of care is largely derived from Carol Gilligan (1982) and summarized by Beauchamp & Childress (2019).

Justice

As an ethical principle, justice requires working toward the fair and equitable provision of health care for everyone. Injustices faced by some TGD people in society include discrimination within housing and employment and barriers to accessing health care, social services, and education (American Psychological Association, 2015; Watson et al., 2019). In some regions in the world, accessing gender-affirming health care is criminalized or highly pathologized (Kimberly et al., 2018). Despite recent legal and social advances, societal injustices mean that public health providers and insurance companies in many parts of the world still require TGD people to undertake psychiatric diagnoses or obtain documentation of psychotherapy or court orders to be able to access gender-affirming care. Governments and legal systems also often require similar measures to allow changes to identity documents. HPs should acknowledge that the process of navigating medical and legal systems to access basic health care and identity documents can be resource-consuming and emotionally taxing for many TGD people (American Psychological Association, 2015).

Injustices that create barriers for transgender people to access health care services include stigma and discrimination, as well as geographic, financial, language, and cultural barriers (Kimberly et al., 2018; Seigel et al., 2019). HPs should be aware of these barriers and strive to create environments that are positive and accessible enough for all people, including TGD people, to comfortably navigate (Clark, 2017; Seigel et al., 2019). One way to make a practice more accessible is to have transgender positive resources displayed in waiting areas (American Psychological Association, 2015). HPs should be cognizant of the authority they hold over patients/clients as well as the intersecting oppressions that exist in society that might further the authority that they hold (shuster, 2019; Sue & Sue, 2008).

HPs should work as "collaborative advocates" with patients/clients to identify and work toward improving public attitudes and the systems and institutions that perpetuate these injustices (American Psychological Association, 2015, p. 841; Markman, E.R., 2011; Toivonen & Dobson, 2017; Bernal & Coolhart, 2012; Wren, 2019). This could include conducting training or consulting about policy improvements within these institutions.

Finally, HPs should acknowledge and respect differences in knowledge, culture, beliefs, and values among their clients/patients, including the diversity of lived genders that exist within these differences (Bauer et al., 2019; Hidalgo et al., 2013). This includes indigenous and non-western understandings of gender and sexuality, and HPs should be aware of the history of medicalization of TGD people, which has had an effect of erasing these understandings (Bauer et al., 2019; binaohan, 2014). An effective way to begin increasing one's competence in

accepting diversity is to be respectfully curious about the patient/client's experience and background.

Synthesis

The ethical principles outlined above do not exist in isolation and should be considered in dialogue with each other. HPs commonly consider beneficence and nonmaleficence together, looking to maximize benefit and minimize harm (McCarthy et al., 2016; Toivonen & Dobson, 2017). Providing gender-affirming care based on informed consent acknowledges that clients/patients are best placed to judge beneficence, giving HPs a more complete sense of the balance between beneficence and nonmaleficence (Cavanaugh et al., 2016). The principle of informed consent does not absolve the health care provider of the duty to precede any intervention with an assessment of the patient/client's capacity to give informed consent, as well as their preparedness for hormonal or surgical interventions, which might include a recommendation for addressing any health conditions, situations of daily life, or mental health care; such recommendations should not categorically restrict a patient/client's ability to access medically necessary gender-affirming care. Beneficence and nonmaleficence should be considered alongside respect for autonomy (for patient *and* provider) and justice, and clear evidence of a very high level of risk is required before beneficence and nonmaleficence override the principle of respect for autonomy (Frohard-Dourlent et al., 2020; Hale, 2007; Toivonen & Dobson, 2017). Ethical discussions that involve more than one provider warrant consideration of the provider's professional integrity as well as of the autonomy of the patient because not all providers may view the balance of these ethical principles in precisely the same way.

Examples of harmful behavior by HPs that are particular to TGD people include conversion therapy efforts and the refusal to provide treatment (American Psychological Association, 2015; Bernal & Coolhart, 2012). Surgeries performed by unskilled professionals may also be harmful. Religious objections to providing gender-affirming care can become a hindrance to the provision of health care when the act of refusing to provide care is done in a deliberate effort to inhibit any access to care. All persons are entitled to hold their own religious beliefs, but HPs should not use their religion to justify harmful or unethical behavior toward TGD people (Boskey et al., 2019). HPs have an ethical obligation to ensure that medically necessary care, such as gender-affirming care, is provided; this means referring patients/clients to another provider if they cannot provide this care themselves (McCarthy et al., 2016). TGD people who cannot access gender-affirming care through HPs may resort to potentially harmful self-medication (Kimberly et al., 2018) and self-performed surgery such as auto castration, silicone injections, or both. The ethos of harm reduction that has inspired earlier versions of these SOC should also call HPs to consider the far-reaching consequences of their omissions should they feel themselves called to withhold care without a referral to a competent provider.
Research has also identified potentially harmful attitudes and actions TGD people may encounter when accessing health care. These include the assumption that mental health problems exist because a person is transgender; the use of pathologizing, hurtful, or insulting language; asking inappropriate questions about transgender people's bodies; and focusing on patients/clients as being transgender, even when their presenting issues or symptoms have little or nothing to do with gender or gender-affirming care (American Psychological Association, 2015; Hann et al., 2017). As with any patient/client, inappropriate boundaries between providers and TGD patients/clients are a breach of professional ethics.

When considering ethical decisions such as evaluating these risks and benefits, HPs should be aware of prevailing social norms that privilege cisgender people and binary genders, and that

marginalize TGD people (Butler et al., 2019). These norms have potential to create bias and discrimination in ethical judgments; education in TGD cultural competency and humility is important to reduce these biases. See the Education chapter in these Standards.

We encourage HPs to thoughtfully consider their own language use, beliefs, and stereotypes about TGD people (Adams et al., 2017; Morris, et al., 2020; Seigel et al., 2019). HPs can develop and maintain competence in working with TGD people through continued education (such as that available through WPATH's Global Education Institute and other medical education centers), supervision, and engagement with the TGD community outside of their practice, such as attending community events or consuming media produced by TGD people (American Counseling Association, 2010; American Psychological Association, 2015; Bernal & Coolhart, 2012). Hospitals and clinical practices can also reduce harm by providing training for support staff about TGD competency, having demographic questionnaires that are inclusive of nonbinary genders and employ contemporary language, and providing restrooms that are inclusive of people of all genders (American Psychological Association, 2015; Hann et al., 2017).

Ethical challenges may occur between providers and clients/patients, between providers and institutions, and between clients/patients and institutions (where the provider may play a role in resolving the issue). When problems arise, the key principles must be weighed and balanced to determine an optimal course of action. The process of ethical decision-making should be deliberate and conscientious, taking into consideration various viewpoints and factors pertaining uniquely to each situation.

When feasible, it can be very useful to convene an ad hoc Ethics Committee within a provider's institution or professional community to discuss the specifics of an ethically challenging patient case. In such cases, it is helpful to open the discussion to providers whose professional background is both similar and different from that of the patient's primary provider(s)—and possibly include trusted lay participants—to help ensure qualified, but also neutral input. While it is certainly helpful to include a bioethicist when one is available, even if one is not available, the assembly of a diverse group of professional and lay providers to discuss ethical challenges from the different perspectives outlined herein can often provide fresh insights and brings transparency, organized discussion, and a record of deliberation to the process of managing ethical challenges.

WPATH's Global Education Institute (GEI) training program offers an advanced ethics course that provides HPs with the opportunity to engage in anonymized case discussions to learn how the SOC may be applied in clinical situations.

Research Ethics

The ethical principles described above also apply to conducting transgender health research. Many issues discussed in this section are unique to transgender health in that boards and committees conducting standard ethical reviews might not be trained to notice these issues (Adams et al., 2017.; Vincent, 2018). Institutional Review Boards (IRBs) might also be called Independent Ethics Committees (IECs) or a Research Ethics Board (REB). These bodies exist to protect the rights, privacy, and welfare of research participants, including TGD participants.

Research projects may get formal IRB approval but still be experienced as stigmatizing, oppressive, unethical, or both, by TGD individuals and communities (Bauer et al., 2019). Well-

meaning researchers may inadvertently increase the likelihood of harm. If one's goal is to demonstrate cultural competence and minimize potential harm or stigmatization of TGD individuals and communities (i.e., nonmaleficence), then one should take great care in how a study is framed and discussed.

Engage with Transgender Communities

It is important that health researchers meaningfully engage with TGD communities throughout the research process, including in the formulation research questions. Where possible findings should be disseminated in ways that are accessible and usable to TGD people and other stakeholders. Authorship, acknowledgment, learning opportunities, and other compensation are factors that should be considered when transgender people provide expertise about their communities as active members of research teams (Adams et al., 2017; Bauer et al., 2019; Vincent, 2018).

Researchers should be aware of the history of research in transgender health and be cognizant that suspicion of researchers and research fatigue may be a result of this history (Adams et al., 2017; American Psychological Association, 2015; Ashley, 2020; Bauer et al., 2019; Vincent, 2018). Researchers should be transparent about their research questions, and it may take significant work to establish trust with transgender communities to achieve meaningful engagement and collect data representative of transgender people (Adams, et al. 2017; Vincent, 2018). Researchers should also be aware of the heterogeneity within transgender communities and consider how those who are most marginalized may be excluded from participating in the research and how research questions, recruitment strategies, and analyses might meet the needs of these groups (Bauer et al., 2019; Vincent, 2018).

Continued engagement with transgender people with analysis, interpretation, and dissemination of results can help to ensure results are contextualized and presented in a way that maximizes the benefit for transgender people, HPs, and policy makers, and that minimizes the likelihood that these will be misinterpreted in ways that would be harmful to transgender people (e.g., reinforcing stereotypes or stigma; Adams et al., 2017; American Psychological Association, 2015; Bauer et al., 2019). Active engagement with the media may help to reinforce the correct interpretation of research findings (Adams et al., 2107).

When conducting research that might be potentially sensitive or distressing for vulnerable transgender participants, researchers should work with transgender community groups to identify support services that are inclusive of transgender people to which research participants can be referred (Adams et al., 2017).

Note that the current landscape of academic literature is such that the research is frequently inaccessible to many behind a paywall. If one grants that well-conducted research can beneficially impact HPs, policy makers, and community organizations, then, in upholding the principle of beneficence, there may be an impetus to make our research more freely available. Potential ways to accomplish this include sharing preprint copies of manuscripts and incorporating funding for open access journals in the budgets for grants.

Consider Positionality

Researchers should be aware of their own authority and social location, and it is important that transgender health researchers consider how this positionality might influence their research design, analysis, and interpretation of findings (Adams et al., 2017; Bauer et al., 2019).

In situations where gender-affirming care providers are also conducting research, this dual role needs to be carefully managed to ensure transgender people do not feel coerced or obliged to participate in the research (Bauer et al., 2019). Researchers should take care to ensure research and clinical materials are clearly distinguished (Bauer et al., 2019) and should be aware that this dual role may cause those who participate to give inaccurate responses (Vincent, 2018). This dual role should be managed with special care when research is being conducted by the only provider of gender-affirming care in a local region (Adams et al., 2017). Researchers should clearly state not consenting to participate in the research will not affect a client/patient's access to or quality of the health care they seek, including gender-affirming care (Adams et al., 2017; Bauer et al., 2019). Adams and colleagues suggested that researchers who provide gender-affirming care should designate an alternative independent contact person to whom any concerns or inquiries should be addressed. It is important to separate the consent process for research from the consent process for clinical care. IRBs often require consent for research be obtained on an occasion separate from when the option to participate in the research is first introduced. In addition, consent to participate in research should be discussed before consent for care so the patient understands the two activities are clearly separate.

Use Appropriate Language and Measures

As with clinical practice, it is important language used as part of the research process be inclusive, affirming of people's genders, nonpathologizing, respectful of participants' autonomy, and free of harm (Adams et al., 2017; Bouman et al., 2017). This includes not describing transgender identities as *extreme* or *comorbid* with mental health issues (Adams et al., 2017). Language must be clear and written at an appropriate language level to be understood by the average reader. Many research questionnaire items and clinical measures that use male and female reference ranges can be adapted in ways that are appropriate for transgender people and their bodies (Bauer et al., 2019).

Consider Privacy, Confidentiality, and Consent Issues

It is important transgender health researchers be aware of the possibility that information that appears to be de-identified may actually be identifiable due to the small size of transgender communities (Bauer et al., 2019). This may cause transgender participants to be more cautious about what they disclose (Adams et al., 2017). In many regions of the world, disclosing sensitive research data could put transgender people at serious personal risk (Adams et al., 2017).

It is common practice in the US for IRBs to grant "Waivers of Informed Consent" for retrospective studies (e.g., chart reviews)—where all information is de-identified prior to publication—and for studies with no more than minimal risk to participants. Arguments in favor of such waivers assert that waivers of informed consent increase the feasibility of research (by reducing barriers to conducting research) and do not put participants at any meaningful risk. Clinical researchers should ask themselves whether patients/clients/participants understand that their medical records may be reviewed, anonymized (de-identified), and reported on at a future date without them having to give informed consent.

Researchers may need to consider alternative consent procedures for adolescent transgender participants who may not be able to obtain parental or guardian consent for a number of reasons, including not having disclosed they are transgender to their family, having parents who are unsupportive of a child's transgender identity, being involved in parental disagreement/disputes, etc. Alternatives that can be employed independently or together include considering the mature-minor research consent principle, involving independent advocates to safeguard young participants' rights, and using a questionnaire to assess comprehension for obtaining informed consent (Adams et al., 2017). Different countries may have different legal provisions for minors concerning consent to participate in research.

WPATH's Role in Claims of Ethical Misconduct

WPATH is not a mediator nor does the association have any authority to investigate or adjudicate claims of ethical misconduct. State licensing boards, other government agencies, employers, and hospital (or clinic) administrators are the bodies with authority to investigate or prosecute claims of unethical conduct, malfeasance, negligence, or malpractice. When issues are brought to the association's attention, WPATH can suggest referring the issue to the proper regulatory body, offer to explain the SOC, provide a member with an opportunity to discuss a problem, offer education (for individuals, teams, or institutions) to assist in remediating problems, and potentially sanction or expel a member from WPATH.

The role of the Ethics Committee within WPATH is to raise issues of ethical import and provide advice on ethical issues to the WPATH Board, generate discussion on ethical issues for WPATH member engagement, and to develop continuing education training content and materials. The Ethics Committee consists of a maximum of twelve members and includes mental health providers, surgeons, researchers, professional ethicists, and transgender advocates.

Conclusion

Ethics is a conversation that has been ongoing in the medical and medicolegal professions since the origins of practice. Negotiating new developments in the care of people and in the treatment of their conditions, particularly regarding aspects of life that are not well understood, or are regarded as morally contentious, is always problematic, especially for individuals in need of care. WPATH's interests are to promote responsible research and clinical practice that are helpful—not harmful—to people whose gender identity differs from their sex assigned at birth. SOC are an important component of establishing the field of practice, the literature, and the evolution of the field. The ethical foundations of the field are now well-established, and the evolving questions only deepen the richness of the endeavor. Providers who are dedicated to this field and who are engaged in interdisciplinary care and committed to sound research and robust continuing education in the area of transgender health have done much to advance the field. The increased involvement of transgender people in the ongoing dialogue, both as health care providers and as patients/clients and participants in research, has been a catalyst for exponential improvement in the quality of transgender health around the globe.

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IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
HUNTINGTON DIVISION

CHRISTOPHER FAIN, *et al.*, individually and on behalf of all others similarly situated, *Plaintiffs*, v. WILLIAM CROUCH, *et al.*, *Defendants*.	CIVIL ACTION NO. 3:20-cv-00740 HON. ROBERT C. CHAMBERS, JUDGE

EXPERT DISCLOSURE REPORT OF LOREN S. SCHECHTER, M.D.

I. PRELIMINARY STATEMENT

1. I am a board-certified plastic surgeon. I specialize in performing gender confirming surgeries (including chest reconstruction surgeries, genital reconstruction surgeries, and other procedures to feminize or masculinize the face and body, as described in more detail below), and I am a recognized expert in this field.

2. I have been retained by counsel for Plaintiffs in the above-captioned lawsuit to provide an expert opinion on: 1) the standards of care for treating individuals diagnosed with gender dysphoria; 2) the safety, efficacy, and cost of gender confirming surgeries as treatment for gender dysphoria; 3) the similarities between surgical techniques to treat gender dysphoria with those utilized for surgical treatment of other diagnoses; and 4) whether the categorical exclusions of transition-related surgical care in both the West

Virginia state employee healthcare plans and West Virginia's Medicaid Program are consistent with the standards of care for treating transgender individuals diagnosed with gender dysphoria.

3. I refer to the family of procedures discussed in this report as "gender confirmation," "gender confirming surgeries," or "gender affirming surgeries" because they are one of the therapeutic tools used to enable people to be comfortable living in accordance with their gender identities. Out of the myriad of labels I've heard for these procedures—"sex reassignment surgery," "gender reassignment surgery," and "sex change operation," to name but a few—none is as accurate when it comes to describing what is actually taking place as "gender confirmation" or "gender affirmation surgery." Most, if not all, of the other names used for these procedures suggest that a person is making a choice to switch genders, or that there is a single "surgery" involved. From the hundreds of discussions I have had with patients over the years, nothing could be further from the truth. This is not about choice; it is about using one or more surgical procedures as therapeutic tools to enable people to live authentically.

II. BACKGROUND AND QUALIFICATIONS

A. Qualifications

4. The information provided regarding my professional background, experiences, publications, and presentations are detailed in my curriculum vitae ("CV"). A true and correct copy of my most up-to-date CV is attached as Exhibit A.

5. I received my medical degree from the University of Chicago, Pritzker

School of Medicine. I completed my residency and chief residency in plastic and reconstructive surgery and a fellowship in reconstructive microsurgery at the University of Chicago Hospitals.

6. I previously served as a Clinical Professor of Surgery at the University of Illinois at Chicago, and resigned that position to become the Director of Gender Affirmation Surgery at Rush University Medical Center beginning April 2022. I will also serve as Professor of Surgery at Rush University Medical Center (pending academic review). I also maintain a clinical practice in plastic surgery in Illinois where I treat patients from around the country, as well as from around the world.

7. I have been performing gender confirming surgeries for more than 27 years. For at least the past five years, I have been performing approximately 150 gender confirmation procedures every year. I have performed over 1,500 gender confirmation surgeries during my medical career. Currently, approximately 90 percent of the patients in my clinical practice are transgender individuals seeking gender confirmation surgeries.

8. I was a contributing author to the Seventh Version (current) of the World Professional Association for Transgender Health's ("WPATH") Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People ("Standards of Care"). In particular, I wrote the section focused on the relationship of the surgeon with the treating mental health professional and the physician prescribing hormone therapy. WPATH is in the final stages of drafting the eighth version of the Standards of Care, and I am the co-lead author of the surgical and postoperative care chapter.

9. The Standards of Care provide clinical guidance for health professionals based on the best available science and expert professional consensus. The purpose of the Standards of Care is to assist health providers in delivering medical care to transgender people in order to provide them with safe and effective pathways to achieving lasting personal comfort with their gendered selves and to maximize their overall health, psychological well-being, and self-fulfillment.

10. In addition, I have written a number of peer-reviewed journal articles and chapters in professional textbooks about gender confirmation surgeries. In 2016, I published Surgical Management of the Transgender Patient, the first surgical atlas (a reference guide for surgeons on how to perform surgical procedures using safe, well-established techniques) dedicated to gender confirming surgeries. In 2020, I published a guide for surgeons entitled Gender Confirmation Surgery: Principles and Techniques for an Emerging Field. A full and complete list of my publications is included in my CV.

11. I am a guest reviewer for several peer-reviewed medical journals, including the Journal of Plastic and Reconstructive Surgery, the Journal of Reconstructive Microsurgery, the Journal of the American College of Plastic Surgeons, the Journal of Plastic and Reconstructive Surgery, The Journal of Plastic and Aesthetic Research, and the Journal of Sexual Medicine. I also serve on the editorial board of both Transgender Health and the International Journal of Transgender Health. Each of these publications is a peer-reviewed medical journal. A full and complete list of my reviewerships and editorial roles is included in my CV.

12. I am actively involved in training other surgeons to perform gender confirmation surgeries. In 2017, I started the surgical fellowship in gender surgery, now placed at Rush University Medical Center in Chicago. I am also the Medical Director of the Center for Gender Confirmation Surgery at Weiss Memorial Hospital. I am a co-investigator on a study regarding uterine transplantation for transgender women.

13. I have given dozens of public addresses, seminars, and lectures on gender confirming surgery, including many through the American Society of Plastic Surgeons. I have also taught a number of courses through WPATH's Gender Education Institute, which provides training courses toward a member certification program in transgender health for practitioners around the world. In addition, in 2018, I co-directed the first live surgery course in gender confirming procedures at Mount Sinai Hospital in New York City, and I am the Director for that live surgery course in 2022. In 2019, I directed the inaugural Gender Affirming Breast, Chest, and Body Master Class for the American Society of Plastic Surgeons.

14. I am also a founding member and president of the American Society of Gender Surgeons; a current member of the Executive Committee of the Board of Directors of the World Professional Association for Transgender Health, where I serve as treasurer; and a former member of the Board of Governors of the American College of Surgeons. I am a guest examiner for the American Board of Plastic Surgery, which involves administering the plastic surgery oral board exam to surgeons who have completed their plastic surgery training and seek board certification. I am the former

Chair of the Patient Safety Committee for the American Society of Plastic Surgeons. I have been an invited discussant at the Pentagon regarding transgender servicemembers.

B. Compensation

15. I am being compensated at an hourly rate of $400/hour plus expenses for my time spent preparing written testimony and reports, and providing local testimony (including deposition or providing hearing testimony by telephone or video-teleconference). I will be compensated a flat daily rate of $7,500 for any out-of-town deposition or hearing testimony. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I may provide.

C. Previous Testimony

16. Over the past four years, I have given expert testimony at trial or by deposition in the following cases:

- *Willis v. Flagg*, Cook County, IL (trial)
- *Bruce v. South Dakota*, D. S.D. (deposition)
- *Boyden v. State of Wisconsin*, W.D. Wis. (deposition)
- *Kadel v. Folwell*, M.D.N.C. (deposition)
- *Toomey v. State of Arizona*, D. Ariz. (deposition)

To the best of my recollection, I have not given expert testimony at a trial or at a deposition in any other case during this period.

III. BASIS FOR OPINIONS

17. My opinions contained in this report are based on all of the following: (1)

my clinical experience of over 27 years of caring for transgender individuals; (2) my review and familiarity with relevant peer-reviewed literature;[1] and (3) discussions with colleagues and other experts in the field, including attendance and participation in various educational conferences both nationally and internationally. The research I relied on in preparing this report is cited in the footnotes and detailed in the reference list attached as Exhibit B to this report. I also have reviewed the First Amended Class Action Complaint (ECF No. 140) in this case, as well as the exclusions being challenged in this matter.

IV. DISCUSSION

A. Background on Gender Identity and Gender Dysphoria

18. The term "transgender" is used to describe a diverse group of individuals whose gender identity, or internal sense of gender, differs from the sex they were assigned at birth.

19. Many transgender individuals experience gender dysphoria at some point in their lives. Gender dysphoria is a serious medical condition, defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) published by the American Psychiatric Association as "a difference between one's experienced/expressed gender and

[1] I regularly and routinely perform literature searches as an educator, including in my roles as clinical professor of surgery at the University of Illinois and attending surgeon at Rush University, where I participate in fellow, resident, and student education; Director of the Center for Gender Confirmation Surgery at Weiss Memorial Hospital; lecturer for the Global Education Initiative for WPATH; invited lecturer at national and international conferences; co-lead author of the surgery and post-operative care chapter of the upcoming WPATH Standards of Care Version 8; an editor and reviewer for peer-reviewed publications; and a course director for various educational opportunities for WPATH, American Society of Plastic Surgeons, and other organizations.

assigned gender, and significant distress or problems functioning." Gender dysphoria is also recognized by the International Classification of Diseases-11 (ICD-11), under the label of gender incongruence, and the International Classification of Diseases-10 (ICD-10). Individuals diagnosed with gender dysphoria have an intense and persistent discomfort with the primary and/or secondary sex characteristics of the sex they were assigned at birth. Gender dysphoria can lead to debilitating anxiety and depression, as well as serious incidents of self-harm, including self-mutilation, suicide attempts, and suicide.

20. Appropriate medical care, including mental health services, hormone therapy, and gender confirmation surgeries can help alleviate gender dysphoria. Gender confirmation surgeries, which bring a person's body into better alignment with their gender identity, have been shown to be an effective treatment for gender dysphoria.

B. Gender Confirming Surgeries are Standard, Medically Accepted, and Medically Necessary Treatments for Gender Dysphoria for Transgender People

21. It is my professional opinion, supported by the prevailing consensus of the medical community, that procedures used to treat gender dysphoria are medically necessary treatments for many transgender individuals; these procedures are properly considered as medically necessary, and are not cosmetic in nature; and these procedures are safe and effective treatments for gender dysphoria.

1. Applicable Standards of Care for Treating Gender Dysphoria

22. WPATH is a non-profit professional and educational organization devoted

to transgender health. WPATH's mission is "to promote evidence-based care, education, research, advocacy, public policy, and respect in transgender health."[2] WPATH publishes the Standards of Care. The Standards of Care are based on the best available scientific evidence and expert professional consensus. WPATH published the first version of the Standards of Care in 1979. Since that time, the guidelines have been updated through seven versions, reflecting the significant advances made in the understanding, management, and care of transgender individuals. The Standards of Care are widely recognized guidelines for the clinical management of transgender individuals with gender dysphoria. Most surgeons who regularly treat individuals experiencing gender dysphoria, including myself, practice in accordance with the Standards of Care.

23. As indicated in the Standards of Care, effective treatment options for gender dysphoria include mental health care, hormone therapy, and various surgical procedures to align a person's primary and/or secondary sex characteristics with the person's gender identity. (Standards of Care at 9-10.) Surgery is often the last and most considered of the treatment options for gender dysphoria in transgender individuals. Not every transgender person may undergo every available surgical procedure. In fact, the Standards of Care note that "[t]he number and sequence of surgical procedures may vary from patient to patient, according to their clinical needs." (Standards of Care at 58.) Evidence shows that while some transgender individuals do not require surgery, "for many others surgery is essential and medically necessary to alleviate their gender dysphoria. For the latter group,

[2] WPATH, Mission and Vision, https://www.wpath.org/about/mission-and-vision.

relief from gender dysphoria cannot be achieved without modification of their primary and/or secondary sex characteristics to establish greater congruence with their gender identity." (Standards of Care at 54-55.)

24. The Standards of Care set forth criteria for initiation of surgical treatment. The Endocrine Society—the leading professional organization devoted to research on hormones and the clinical practice of endocrinology—has also issued clinical guidelines for the treatment of transgender individuals.[3] The guidelines indicate, that for transgender individuals, gender confirming surgeries often are necessary and effective treatments.[4]

25. The broader medical community, including the American Medical Association, American Psychological Association, American Psychiatric Association, American College of Obstetricians and Gynecologists, American Academy of Family Physicians, and World Health Organization, recognizes that gender confirming surgeries are standard, appropriate, and often necessary treatments for people with gender dysphoria.

2. Surgical Treatments for Gender Dysphoria

26. For transgender women and non-binary people assigned male at birth, surgical treatment options that are generally accepted in the medical community and are consistent with the Standards of Care include, but are not limited to:

- Chest reconstruction surgery: augmentation mammoplasty (breast

[3] Wylie C Hembree et al., *Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline*, 102 J. Clin. Endocrinology & Metabolism 3869 (2017).
[4] *Id.*

implants);

- Genital reconstruction surgeries: penectomy (removal of the penis), orchiectomy (removal of the testes), vaginoplasty, clitoroplasty, and/or vulvoplasty (creation of female genitalia including the labia minora and majora);
- Non-genital, non-breast surgical interventions: facial feminization surgery, liposuction, lipofilling, voice surgery, thyroid cartilage reduction, gluteal augmentation (implants/lipofilling), and hair reconstruction, among others.

27. For transgender men and non-binary people assigned female at birth, surgical treatment options that are generally accepted in the medical community and are consistent with the Standards of Care include, but are not limited to:

- Chest reconstruction surgery: subcutaneous mastectomy, creation of a male chest;
- Genital surgery: hysterectomy/oophorectomy, reconstruction of the urethra, which can be combined with a metoidioplasty or with a phalloplasty (employing a pedicled or free vascularized flap), vaginectomy, scrotoplasty, and implantation of erection and/or testicular prostheses;
- Non-genital, non-breast surgical interventions: liposuction, lipofilling, pectoral implants, various aesthetic procedures, and sometimes voice surgery (rare).

3. Gender Confirmation Surgeries are Medically Necessary, Not Cosmetic

28. The medical community and insurance providers recognize a distinction between surgery which is medically necessary, and cosmetic surgery, which generally is not. No particular procedure is inherently cosmetic or inherently medically necessary; rather, the underlying diagnosis determines whether the procedure is considered cosmetic or medically necessary.

29. With respect to surgical treatments for gender dysphoria, the medical community generally consider those surgeries to be medically necessary. This is true

even though the same surgical procedures might be considered cosmetic when performed on someone without gender dysphoria. Gender confirming surgeries are not cosmetic because, when performed in accordance with the Standards of Care, they are clinically indicated to treat the underlying medical condition of gender dysphoria. Indeed, as explained further below, the surgical procedures listed above to treat gender dysphoria are similar to surgical procedures performed for other diagnoses (e.g., breast cancer). Because these medically necessary procedures help transgender individuals live and present in a manner more consistent with their gender identity and therefore reduce and/or treat their gender dysphoria, the professional medical consensus is that these are appropriately categorized as medically necessary.

30. Certain surgical procedures are medically necessary when used to treat gender dysphoria or another medical condition, but are cosmetic when they are used only to alter one's appearance without an underlying medical diagnosis (e.g., a non-transgender woman obtaining a breast augmentation for aesthetic reasons). While the procedures themselves are technically similar, the reasons for performing the procedures are not.

C. Gender Confirming Surgeries are Safe, Effective, and Cost Efficient

31. The prevailing peer-reviewed clinical research, as well as my own clinical expertise as a plastic surgeon specializing in gender confirmation surgeries, shows that surgical procedures for gender dysphoria are safe, effective, and cost efficient; and that

many of these procedures are analogous to surgical procedures used to treat other medical conditions.

1. Gender Confirming Surgeries are Safe

32. It is my professional opinion, based on my clinical experience and review of available peer-reviewed research, that gender confirmation surgeries are safe. Notably, when performing gender confirmation surgeries, surgeons use many of the same procedures that they use to treat other medical conditions. The fact that the medical community deems these analogous procedures sufficiently safe to treat conditions other than gender dysphoria is by itself more than sufficient to support the safety of those surgeries to treat gender dysphoria. There is no medical basis to conclude that the same surgical procedures are more or less safe simply because they are used to treat gender dysphoria, versus other underlying medical conditions.

33. For example, surgeons regularly perform mastectomies and chest/breast reconstruction, hysterectomies/salpingo-oophorectomies (which includes removal of the fallopian tubes and ovaries), and orchiectomies to treat individuals with cancer, or a genetic predisposition to cancer (BRCA 1, 2 genes in the case of prophylactic mastectomy or oophorectomy). Similarly, surgeons perform procedures to reconstruct external genitalia for individuals who have certain medical conditions (e.g., cancer) or who have suffered traumatic injuries or disabling infections to their genitalia. This would include procedures to correct conditions such as hypospadias (a disorder in which the urinary opening is not in the typical location on the glans penis), epispadias (a condition where

the urethra is not properly developed), exstrophy (where the bladder develops outside the fetus), fournier's gangrene (where tissue dies because of an infection), penile webbing, or buried penis (which can occur as a result of obesity, diabetes, or recurrent infections). This would also include procedures to correct conditions such as congenital absence of the vagina or reconstruction of the vagina/vulva following oncologic resection, traumatic injury, or infection.

2. Gender Confirmation Surgeries Effectively Treat Gender Dysphoria

34. It is my professional opinion, based on decades of clinical experience, as well as a substantial body of peer-reviewed research, that standard medical surgical treatments for gender dysphoria are effective when performed in accordance with the Standards of Care.

35. Peer-reviewed studies find that transgender women who undergo one or more gender confirmation surgeries report positive health outcomes. For example, a peer-reviewed study of transgender women found that those who underwent breast reconstruction surgeries experienced statistically significant improvements in their psychosocial well-being.[5] Another peer-reviewed study of transgender women who had vaginoplasty found that study participants' mean improvement in quality of life after

[5] Weigert, R., Frison, E., Sessiecq, Q., Mutairi, K. A., & Casoli, V. (2013). Patient Satisfaction with Breasts and Psychosocial, Sexual, and Physical Well-Being after Breast Augmentation in Male-to-Female Transsexuals. Plastic and Reconstructive Surgery, 132(6), 1421-1429. doi:10.1097/01.prs.0000434415.70711.49.

surgery was 7.9 on a scale from one to ten.[6] Another study of transgender women found that surgical interventions were highly correlated with alleviating gender dysphoria.[7] A recent literature review concluded that in appropriately selected individuals, gender confirmation surgery is effective at improving quality of life, overall happiness, and sexual functioning in transgender women who are diagnosed with gender dysphoria.[8] Another recent post-operative and six-month follow-up survey of transgender female patients found improvements in quality of life in a significant majority of patients.[9]

36. The available peer-reviewed literature likewise concludes that when performed in accordance with the prevailing standards of care, male chest reconstruction surgery is safe and effective in alleviating gender dysphoria. For example, one study found that transgender men who received chest reconstruction experienced few clinical complications and were overwhelmingly satisfied with their surgical outcomes.[10] Another peer-reviewed study of transgender men who received chest reconstruction found

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[6] Horbach, S. E. R., Bouman, M., Smit, J. M., Ozer, M., Buncamper, M. & Mullender, M. G. (2015). Outcome of Vaginoplasty in Male-to-Female Transgenders: A Systematic Review of Surgical Techniques.

[7] Hess, J., Neto, R., Panic, L., Rubben, H. & Senf, W. (2014). Satisfaction with Male-to-Female Gender Reassignment Surgery. (Among survey respondents, the majority (90.2%) said that that their expectations for life as a woman were fulfilled after surgery. A similarly high percentage (85.4%) saw themselves as women.)

[8] Hadj-Moussa, M.,et al. Feminizing Genital Gender-Confirmation Surgery, 2018, 1-14. 2018 Jul;6(3):457-468.e2. doi: 10.1016.

[9] Papadopulos, N.A., et al. Male-to-Female Sex Reassignment Surgery Using the Combined Technique Leads to Increase Quality of Life in a Prospective Study. Plast Reconstr Surg. 2017 Aug;140(2):286-294. doi: 10.1097.

[10] Frederick, M. et al., (2017), Chest Surgery in Female to Male Transgender Individuals, Annals of Plastic Surgery, 78(3), 249-253.

that the procedure improved psychosocial well-being and physical well-being among participants.[11] Numerous other studies have reached similar conclusions.[12] These findings extend to adolescents; for example, a recent study in JAMA Pediatrics concluded that: "Chest dysphoria was high among presurgical transmasculine youth, and surgical intervention positively affected both minors and young adults."[13]

37. The overwhelming majority of patients who obtain gender confirmation surgery in a manner consistent with the Standards of Care are both satisfied and experience a reduction of gender dysphoria. For the vast majority of transgender people who seek such surgery, the surgery is successful at treating gender dysphoria and alleviating a lifelong struggle to find peace of mind and comfort with their bodies.

3. Gender Confirmation Surgeries are Cost Efficient

38. When billing insurers for reimbursement, health care providers use Current Procedural Terminology (CPT) codes, which are developed and maintained by the American Medical Association. The same code or codes may apply to a particular

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[11] Agarwal, C. et al., (2018). Quality of life improvement after chest wall masculinization in female-to-male transgender patients: A prospective study using the BREAST-Q and Body Uneasiness Test, 71, 651-657.

[12] *E.g.,* Olson-Kennedy, J. et al., (2018), Chest Reconstruction and Chest Dysphoria in Transmasculine Minors and Young Adults, JAMA Pediatrics, 172(5), 431-436; Van de Grift, T., et al., (2017), Surgical Indications and Outcomes of Mastectomy in Transmen: A Prospective Study of Technical and Self-Reported Measures. Plastic and Reconstructive Surgery, 140(3), 415e-424e. doi:10.1097/PRS.0000000000003607; Berry, M.G. et al., (2012), Female-to-male transgender chest reconstruction: A large consecutive, single-surgeon experience. Journal of Plastic, Reconstructive & Aesthetic Surgery 65, 711-719.

[13] Olson-Kennedy, J. *supra* at n. 12. Additionally, Frederick et al., *supra* at n. 10, included adolescents aged 15-17, as well as adults.

procedure regardless of whether the procedure is performed on a transgender patient or a non-transgender patient. For example, vaginoplasty may be performed for a non-transgender woman as treatment for congenital absence of the vagina or for a transgender woman with gender dysphoria. The same CPT code(s) may be used for both procedures. The same is true for a subcutaneous mastectomy, which may be performed for a non-transgender woman to reduce her risk of breast cancer or for a transgender man with gender dysphoria.

39. Researchers affiliated with the Johns Hopkins Bloomberg School of Public Health, the Commonwealth of Massachusetts Group Insurance Commission, and the University of Colorado, found access to gender confirmation surgeries through insurance to be a likely cost-effective treatment long-term.[14] Gender confirmation surgery typically results in, at a minimum, a significant reduction of gender dysphoria. Transgender people with gender dysphoria who, for lack of insurance access, are unable to obtain gender confirmation surgeries tend to have higher rates of negative health outcomes such as depression, HIV, drug abuse, and suicidality. These researchers found that the one-time costs of gender confirmation surgeries coupled with standard post-operative care, primary and maintenance care, were overall less expensive at 5- and 10-year marks, as compared to the long-term treatment of the negative health outcomes associated with lack of

[14] William V Padula, Shiona Heru & Jonathan D Campbell, Societal Implications of Health Insurance Coverage for Medically Necessary Services in the U.S. Transgender Population: A Cost-Effectiveness Analysis, J Gen Intern Med, 31(4), 394–401 (2015). doi: 10.1007/s11606-015-3529-6.

insurance and resulting healthcare access.[15] Similarly, a RAND Corporation study reported findings that due to discrimination, lack of insurance, and problematic interactions with providers, transgender people often avoid seeking treatment for gender dysphoria and other more common health issues. This avoidance resulted in negative healthcare outcomes and greater potential costs related to treating to those outcomes in the long-term.[16] Additionally, this research confirms that coverage for gender confirmation surgeries is affordable and a nominal percentage of the care offered through group health plans.

V. SUMMARY OF OPINIONS AND CONCLUSIONS

40. Based on over 27 years of clinical experience performing gender confirmation procedures and caring for transgender individuals, my knowledge of the standards of care and relevant peer-reviewed literature, and my discussions and interactions with experts throughout the world, it is my professional opinion that gender confirmation surgeries are safe, effective, and medically necessary treatments for gender dysphoria in transgender individuals. In my experience, the overwhelming number of individuals who undergo gender confirmation procedures describe relief and/or reduction of their gender dysphoria and improvement in their quality of life and overall functioning.

41. Furthermore, based on my clinical and professional experience and my

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[15] *Id.* at 398.

[16] Schaefer, Agnes Gereben, Radha Iyengar Plumb, Srikanth Kadiyala, Jennifer Kavanagh, Charles C. Engel, Kayla M. Williams, and Amii M. Kress, The Implications of Allowing Transgender Personnel to Serve Openly in the U.S. Military. Santa Monica, CA: RAND Corporation, 2016. https://www.rand.org/pubs/research_briefs/RB9909.html.

ongoing review of the literature, it is my professional opinion that the denial of necessary medical care is likely to perpetuate gender dysphoria and create or exacerbate other medical issues, such as depression and anxiety, leading to an increased possibility of self-harm, negative health outcomes, and even suicide.

42. In conclusion, it is my professional opinion that the categorical exclusion of transition-related surgical care in both the West Virginia state employee healthcare plans and West Virginia's Medicaid Program are 1) inconsistent with the Standards of Care for treating transgender individuals diagnosed with gender dysphoria, 2) inconsistent with the peer-reviewed scientific and medical research demonstrating that gender confirmation surgeries are safe, effective, and more cost efficient treatments for gender dysphoria over the long-term, 3) and inconsistent with expert medical and surgical consensus. To the extent the exclusion is premised on the assumption that gender confirmation surgical care is not medically necessary, that assumption is wrong. The Standards of Care confirm, based on clinical evidence, that gender confirmation surgeries are medically necessary to help people alleviate the often serious and life-threatening symptoms of gender dysphoria.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed this 8th day of January, 2022.

Loren Schechter
Loren Schechter (Jan 8, 2022 09:53 CST)

Loren S. Schechter, M.D.

Subscribed and sworn before me, a Notary Public in and for the County of Norfolk,

State of Virginia, this 8 day of January, 2022.

KETSIA MCCLEASE
Electronic Notary Public
Commonwealth of Virginia
Registration No. 327724
My Commission Expires Apr 30, 2023

Ketsia McClease
Signature of Notary

This notarial act was performed online by way of two-way audio/video communication technology.

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Final Audit Report 2022-01-08

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Exhibit A

Curriculum Vitae

NAME: **LOREN SLONE SCHECHTER, MD, FACS**

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Tel: 847.967.5122
Fax: 847.967.5125

E-MAIL: lorenschechter1@gmail.com

MARITAL STATUS: Married (Rebecca Brown Schechter, MD)

CERTIFICATION:
The American Board of Plastic Surgery, 2001
Certificate Number 6271
Date Issued: September 2001
Maintenance of Certification: 2011
Maintenance of Certification: 2021

EDUCATION:

1986-1990	The University of Michigan	BS, 1990
1990-1994	The University of Chicago Pritzker School of Medicine	MD, 1994

POSTGRADUATE TRAINING:

Residency:	The University of Chicago Hospitals 1994-1999 Coordinated Training Program in Plastic and Reconstructive Surgery
Chief Resident:	The University of Chicago Hospitals 1998-1999 Section of Plastic and Reconstructive Surgery
Fellowship:	Reconstructive Microsurgery 1999-2000 The University of Chicago Hospitals Section of Plastic and Reconstructive Surgery

TEACHING APPOINTMENT:
Professor of Surgery, Chief Section of Gender-Affirmation Surgery, Rush University Medical Center-In Process

Clinical Professor of Surgery, The University of Illinois at Chicago-resigned to accept position at Rush University

Adjunct Assistant Professor, Dept. of Surgery, Rush University Medical Center

Associate Professor, Physician Assistant Program, College of Health Professionals, Rosalind Franklin University

LICENSURE:

Illinois
Illinois Controlled Substance
DEA

STAFF APPOINTMENTS:

Rush University Medical Center
Advocate Lutheran General Hospital
Louis A. Weiss Memorial Hospital
Illinois Sports Medicine and Orthopedic Surgery Center

HONORS AND AWARDS:

2021	Chicago Magazine Top Doctor-Surgery
2020	The University of Minnesota Program in Human Sexuality, recipient of 50 Distinguished Sexual and Gender Health Revolutionaries
2017-2020	Castle Connolly Top Doctor (Chicago)
2017	Chicago Consumer Checkbook Top Doctor
2015	University of Minnesota Program in Human Sexuality Leadership Council
2014-2015	Rosalind Franklin University of Medicine and Science Chicago Medical School Honors and recognizes for dedication and commitment to teaching
2014	National Center for Lesbian Rights honored guest
2013	Illinois State Bar Association Award for Community Leadership
2010	Advocate Lutheran General 2009 Physicians Philanthropy Leadership Committee-Outstanding Leadership
2009	Advocate Lutheran General Hospital Value Leader (received for compassion)
1994	Doctor of Medicine with Honors
1994	University of Chicago Department of Surgery Award for Outstanding Performance in the Field of Surgery
1994	Catherine Dobson Prize for the Best Oral Presentation Given at the 48th Annual Senior Scientific Session in The Area of Clinical Investigation
1993	Alpha Omega Alpha

1991	University of Chicago National Institutes Of Health Summer Research Award
1990	Bachelor of Science with High Distinction And Honors in Economics
1990	James B. Angell Award for Academic Distinction
1989	Omicron Delta Epsilon-National Economic Honor Society
1988	College Honors Program Sophomore Honors Award For Academic Distinction
1988	Class Honors (Dean's List)

MEMBERSHIPS:

2018-	The American Association of Plastic Surgeons
2016-	The American Society for Gender Surgeons (founding member and president-elect)
2010-	World Society for Reconstructive Microsurgery
2005-	The University of Chicago Plastic Surgery Alumni Association
2005-	The Chicago Surgical Society
2004-	The American Society for Reconstructive Microsurgery
2003-	The American College of Surgeons
2002-	The American Society of Plastic Surgeons
2001-	Illinois Society of Plastic Surgeons (formerly Chicago Society of Plastic Surgeons)
2001-	The American Society of Maxillofacial Surgeons
2001-	American Burn Association
2001-	Midwest Association of Plastic Surgeons
2001-	WPATH
1994-	The University of Chicago Surgical Society
1994-	The University of Chicago Alumni Association
1992-	American Medical Association
1992-	Illinois State Medical Society
1992-	Chicago Medical Society
1990-	The University of Michigan Alumni Association

CURRENT HOSPITAL COMMITTEES:

Director, Center for Gender Confirmation Surgery, Louis A. Weiss Memorial Hospital

PROFESSIONAL SOCIETY COMMITTEES:

WPATH Executive Committee

Treasurer, The World Professional Association for Transgender Health

Chair, Finance and Investment Committee, The American Society of Plastic Surgeons

WPATH 2020 Biennial Meeting Steering Committee

American Society of Breast Surgeons Research Committee, ASPS representative

American Board of Plastic Surgery, Guest Oral Board Examiner

WPATH Ethics Committee

American College of Radiology Committee on Appropriateness Criteria Transgender Breast Imaging Topic, Expert Panel on Breast Imaging: Transgender Breast Cancer Screening Expert Panel on Breast Imaging

American Society of Plastic Surgeons, Finance and Investment Committee

Board of Directors, at-large, The World Professional Association for Transgender Health

PlastyPac, Board of Governors

Medicare Carrier Advisory Committee

OTHER:

American Board of Plastic Surgery-Oral Board Guest Examiner (2020, 2021)

Guest Reviewer, Pain Management

Guest Reviewer, Plastic and Aesthetic Research

Guest Reviewer, European Medical Journal

Guest Reviewer, Open Forum Infectious Diseases

Guest Reviewer, The Journal of The American College of Surgeons

Guest Book Reviewer, Plastic and Reconstructive Surgery

Editorial Board, Transgender Health

Editorial Board (Associate Editor), International Journal of Transgenderism

Fellow of the Maliniac Circle

Guest Reviewer, Journal of Reconstructive Microsurgery

Guest Reviewer, Journal of Plastic and Reconstructive Surgery

Guest Reviewer, Journal of Sexual Medicine

Guest Editor, Clinics in Plastic Surgery, Transgender Surgery (Elsevier Publishing)

Guest Reviewer, The Journal of Plastic and Reconstructive Surgery

PREVIOUS EDITORIAL ROLE:

Guest Reviewer, EPlasty, online Journal

Module Editor for Patient Safety, Plastic Surgery Hyperguide

Editorial Advisory Board, Plastic Surgery Practice

Guest Reviewer, International Journal of Transgenderism

Guest Reviewer, Pediatrics

PREVIOUS ACADEMIC APPOINTMENT:

Visiting Clinical Professor in Surgery, The University of Illinois at Chicago

Chief, Division of Plastic and Reconstructive Surgery, Chicago Medical School, Rosalind Franklin University of Medicine and Science

Associate Professor of Surgery, The College of Health Professionals, Rosalind Franklin University

Clinical Associate in Surgery, The University of Chicago

PREVIOUS HOSPITAL COMMITTEES:

Division Director, Plastic Surgery, Lutheran General Hospital

Division Director, Plastic Surgery, St. Francis Hospital

Medical Staff Executive Committee, Secretary,
Advocate Lutheran General Hospital

Credentials Committee, Lutheran General Hospital

Pharmacy and Therapeutics Committee Lutheran General Hospital

Operating Room Committee, St. Francis Hospital

Cancer Committee, Lutheran General Hospital
-Director of Quality Control

Risk and Safety Assessment Committee, Lutheran General Hospital

Nominating Committee, Rush North Shore Medical Center

Surgical Advisory Committee, Rush North Shore Medical Center

Section Director, Plastic Surgery, Rush North Shore Medical Center

PREVIOUS SOCIETY COMMITTEES:

PlastyPac, Chair, Board of Governors

Chair of the Metro Chicago District #2 Committee on Applicants, American College of Surgeons

American Society of Plastic Surgery, Health Policy Committee

American Society of Plastic Surgery, Patient Safety Committee

American Society of Plastic Surgeons, Coding and Payment Policy Committee

American Society of Plastic Surgeons, Practice Management Education Committee

Board of Governors, Governor-at-large, The American College of Surgeons

American College of Surgeons, International Relations Committee

Chair, Government Affairs Committee, American Society of Plastic Surgeons

President, The Metropolitan Chicago Chapter of The American College of Surgeons

2012 Nominating Committee, American Society of Plastic Surgeons

Program Committee, The World Society for Reconstructive Microsurgery, 2013 Bi-Annual Meeting

President, Illinois Society of Plastic Surgeons

Vice-President, The Illinois Society of Plastic Surgeons (formerly the Chicago Society of Plastic Surgery)

Vice-President, The Metropolitan Chapter of the American College of Surgeons

American Society of Plastic Surgery, Chairman, Patient Safety Committee

2006-2007 Pathways to Leadership, The American Society of Plastic Surgery

2005 & 2006 President, The University of Chicago Plastic Surgery Alumni Association

2003 Leadership Tomorrow Program, The American Society of Plastic Surgery

Senior Residents Mentoring Program, The American Society of Plastic Surgery

American Society of Maxillofacial Surgery, Education Committee

Alternate Councilor, Chicago Medical Society

American Society of Aesthetic Plastic Surgery, Electronic Communications Committee

American Society of Aesthetic Plastic Surgery, Intranet Steering Committee

American Society of Aesthetic Plastic Surgery, International Committee

Membership Coordinator, The Chicago Society of Plastic Surgeons
The Illinois State Medical Society, Governmental Affairs Council

The Illinois State Medical Society, Council on Economics

Chicago Medical Society, Physician Review Committee
-Subcomittee on Fee Mediation

Chairman, Chicago Medical Society, Healthcare Economics Committee

Secretary/Treasurer, The Metropolitan Chicago Chapter of the American College of Surgeons

Scientific Committee, 2007 XX Biennial Symposium WPATH

Local Organizing Committee 2007 WPATH

Secretary, The Chicago Society of Plastic Surgeons

Treasurer, The Chicago Society of Plastic Surgeons

Council Member, The Metropolitan Chicago Chapter of the American College of Surgeons

INTERNATIONAL MEDICAL SERVICE:

Northwest Medical Teams
Manos de Ayuda (Oaxaca, Mexico)

Hospital de Los Ninos (San Juan, Puerto Rico)

COMMUNITY SERVICE:

Alumni Council, The University of Chicago Medical and Biological Sciences Alumni Association

The University of Minnesota Presidents Club Chancellors Society

Board of Directors, Chicago Plastic Surgery Research Foundation

National Center for Gender Spectrum Health Advisory Council

PREVIOUS COMMUNITY SERVICE:

Board of Directors, Committee on Jewish Genetic Diseases, Jewish United Fund, Chicago, Illinois

Governing Council, Lutheran General Hospital, Park Ridge, Il

Lutheran General Hospital Development Council, Park Ridge, Il

Lutheran General Hospital Men's Association, Park Ridge, Il

Advisory Board, Committee on Jewish Genetic Diseases, Cancer Genetics Subcommittee, Jewish United Fund, Chicago, Illinois

Health Care Advisory Board, Congressman Mark Kirk, 10th Congressional District, Illinois

Major Gifts Committee, Saint Francis Hospital Development Council, Evanston, Il

Visiting Professor:

1. University of Utah, Division of Plastic Surgery, November 6-8, 2014.
2. Northwestern University, Division of Plastic Surgery, April 21-22, 2016.
3. The University of North Carolina, Division of Plastic Surgery, March 28-29, 2017
4. Georgetown University, Department of Plastic Surgery, May 17-18, 2017
5. The University of Basel, Basel, Switzerland, August 31-September 1, 2018
6. The Ochsner Health System, New Orleans, LA January 28-January 30, 2019
7. The University of Toronto, Toronto, Ontario, Canada, February 21-22, 2019
8. The University of Michigan, October3-4, 2019, Ann Arbor, MI,

Invited Discussant:

1. Department of Defense, Military service by people who are transgender, Invitation from Terry Adirim, M.D., M.P.H.Deputy Assistant Secretary of Defense for Health Services Policy & Oversight, The Pentagon, November 9, 2017

2. Aesthetic Surgery Journal, Invited Discussant May 7, 2019, Journal Club. "What is "Nonbinary" and What Do I need to Know? A Primer for Surgeons Providing Chest Surgery for Transgender Patients."

Research Interests:

1. Role of Omental Stem Cells in Wound Healing (Grant: Tawani Foundation)

2. Robotic-Assisted Bilateral Prophylatic Nipple Sparing Mastectomy with Immediate Tissue Expander/Implant Reconstruction (Pending submission to the FDA for Investigational Device Exemption in association with Intuitive Surgical)

3. Transgender Health and Medicine Research Conference, National Institutes of Health, Bethesda, MD May 7-8, 2015

4. Uterine Transplantation, Rush University Medical Center (IRB pending)

5. Gender Affirmation Surgery Prospective Surveys (Rush University-IRB approved)

6. National Network for Gender Affirming Surgeries: Canadian Institute of Health Research, Training Grant – LGBQT 2S Stigma Reduction & Life Course Mental Wellness (application in process)

BIBLIOGRAPHY:
PEER REVIEWED ARTICLES:

1. E. Wall, D. A. Schoeller, **L. Schechter**, L.J. Gottlieb: Measured Total Energy Requirements of Adult Patients with Burns. *The Journal of Burn Care and Rehabilitation* 20:329, 1999.

2. David C. Cronin, II, **Loren Schechter**, Somchi Limrichramren, Charles G. Winans, Robert Lohman, and J. Michael Millis, Advances in Pediatric Liver Transplantation: Continuous Monitoring of Portal Venous and Hepatic Artery Flow with an Implantable Doppler Probe. *Transplantation 74(6):887-889, 2002.*

3. Robert F. Lohman**, Loren S. Schechter**, Lawrence S. Zachary, Solomon Aronson: Evaluation of Changes in Skeletal Muscle Blood Flow in the Dog with Contrast Ultrasonography Revisited: Has the Technique Been Useful, and Where are We Headed Now? *The Journal of Plastic and Reconstructive Surgery* 111(4):1477-1480, 2003.

4. Alvin B. Cohn, Eric Odessey, Francis Casper, **Loren S. Schechter**: Hereditary Gingival Fibromatosis: Aggressive Two-Stage Surgical Resection in Lieu of Traditional Therapy, *The Annals of Plastic Surgery Vol 57, Number 5, November 2006*.

5. Eric Odessey, Al Cohn, Kenneth Beaman, and **Loren Schechter**: Mucormycosis of the Maxillary Sinus: Extensive Destruction with an Indolent Presentation, *Surgical Infections*, Vol. 9, Number 1, 2008

6. Iris A. Seitz, MD, David Tojo, MD, **Loren S. Schechter**, MD Anatomy of a Medication Error: Inadvertent Intranasal Injection of Neosynephrine During Nasal Surgery – A Case Report

and Review of The Literature Plast Reconstr Surg. 2010 Mar;125(3):113e-4e. doi: 10.1097/PRS.0b013e3181cb68f9

7. Iris Seitz, MD Craig Williams, MD, Thomas Weidrich, MD, John Seiler, MD, Ginard Henry, MD, and **Loren S. Schechter, MD**: Omental Free Tissue Transfer for Coverage of Complex Upper Extremity Defects: The Forgotten Flap *(N Y). 2009 Dec;4(4):397-405. doi: 10.1007/s11552-009-9187-6. Epub 2009 Mar 25.*

8. Michael Salvino and **Loren S. Schechter**: Microvascular Reconstruction of Iatrogenic Femoral Artery Thrombus in an Infant: A Case Report and Review of the Literature ePlasty Volume 9 ISSN: 19357-5719, E-location ID: e20

9. Phillip C. Haeck, MD, Jennifer A. Swanson, BS, Med, Ronald E. Iverson, MD., **Loren S. Schechter, MD**, Robert Singer, MD, Bob Basu, MD, MPH, Lynn A. Damitz, MD, Scott Bradley Bradley Glasberg, MD, Lawrence S. Glasman, MD, Michael F. McGuire, MD, and the ASPS Patient Safety Committee: Evidence-Based Patient Safety Advisory: Patient Selection and Procedures in Ambulatory Surgery, Supplement to Plastic and Reconstructive Surgery, Volume 124, Number 4s, October Supplement 2009.

10. Philip C. Haeck, MD, Jennifer A. Swanson, BS, Med, **Loren S. Schechter, MD**, Elizabeth J. Hall-Findlay, MD, Noel B. McDevitt, MD, Gary Smotrich, MD, Neal R. Reisman, MD, JD, Scot Bradley Glasberg, MD, and the ASPS Patient Safety Committee: Evidence-Based Patient Safety Advisory: Blood Dyscrasias, Patient Selection and Procedures in Ambulatory Surgery, Supplement to Plastic and Reconstructive Surgery, Volume 124, Number 4s, October Supplement 2009.

11. **Loren S. Schechter, MD**, The Surgeon's Relationship with The Physician Prescribing Hormones and the Mental Health Professional: Review for Version 7 of the World Professional Association of Transgender Health's Standards of Care *International Journal of Transgenderism* 11 (4), p.222-225 Oct-Dec 2009

12. Iris A Seitz, MD, PhD, Craig Williams, MD, **Loren S. Schechter, MD**, Facilitating Harvest of the Serratus Fascial Flap With Ultrasonic Dissection, *Eplasty 2010 Feb 23;10:e18*

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11. American Society for Reconstructive Microsurgery, January 12-15, 2002, Cancun, Mexico: "The Role to Free Tissue Transfer and Sural Neurocutaneous flaps for Reconstruction of Leg Wounds"

12. American Society of Plastic Surgery, 71st Annual Scientific Meeting, November 2-6, 2002, San Antonio, Texas: "Defining the Role for Negative Pressure Therapy in the Treatment Algorithm of Extremity Wounds"

13. American Society of Reconstructive Microsurgery, Annual Scientific Meeting, January 11-15, 2003, Kauai, Hawaii: "Advances in Pediatric Liver Transplantation: Continuous Monitoring of Portal Venous and Hepatic Artery Flow With an Implantable Doppler Probe"

14. The 5th Annual Chicago Trauma Symposium, August 8-10, 2003, Chicago, Illinois: "Soft Tissue Salvage: Where Are We in 2003?"

15. The Midwestern Association of Plastic Surgeons, 42nd Annual Meeting, Chicago, Il May 1-2, 2004: "The Gastrocnemius-Achilles Tendon Myocutaneous Flap (GAT Flap) for Single Stage Reconstruction of Combined Soft Tissue and Extensor Mechanism Defects of the Knee: An Eighteen Year Experience"

16. The 6th Annual Chicago Trauma Sympsoium, August 12-15, 2004, Chicago, Il "Complex Wound Management"

17. The American Society of Plastic Surgery, October 9-13, 2004, Philadelphia, Pennsylvania: "The Gastrocnemius-Achilles Tendon Myocutaneous Flap (GAT Flap) for Single Stage Reconstruction of Combined Soft Tissue and Extensor Mechanism Defects of the Knee: An Eighteen Year Experience"

18. The American Society for Reconstructive Microsurgery, January 15-18, 2005, Fajardo, Puerto Rico: "Surviving as a Plastic Surgeon"

19. American Hernia Society, Poster Presentation, February 9-12, 2005, San Diego, California: "When Component Separation Isn't Enough"

20. The Midwestern Association of Plastic Surgeons, April 23-24, Chicago, Il: "Hereditary Gingival Fibromatosis in Monozygotic Twins: First Reported Case"

21. The Midwestern Association of Plastic Surgeons, April 23-24, Chicago, Il: "Modified Components Separation Technique for Two Massive Ventral Hernias"

22. The Midwestern Association of Plastic Surgeons, April 23-24, Chicago, Il: "Mucormycosis of the Head and Neck: A Fatal Disease?"

23. The 7th Annual Chicago Trauma Symposium, August 11-14, 2005, Chicago, Il "Management of Complex Injuries"

24. Current Concepts in Advanced Wound Healing: *A Practical Overview*, Rush North Shore Medical Center, Skokie, Il September 18, 2005 "From Flaps to Grafts"

25. Taizoon Baxamusa, M and Loren S.Schechter, MD, Abdominoplasty: Use in Reconstruction of the Mangled Upper Extremity, The American Association For Hand Surgery Annual Scientific Meeting, January 11-14, 2006, Tucson, Arizona.

26. The American Academy of Orthopedic Surgeons 2006 Annual Meeting, March 22-26, 2006, Chicago, Il "Methods of Patella-Femoral and Extensor Mechanism Reconstruction for Fracture and Disruption After Total Knee Arthroplasty"

27. Midwestern Association of Plastic Surgeons 44th Annual Meeting, April 29-30, 2006, Oak Brook, Illinois "Elective Abdominal Plastic Surgery Procedures Combined with Concomitant Intra-abdominal Operations: A Single Surgeon's Four Year Experience"

28. Midwestern Association of Plastic Surgeons 44th Annual Meeting, April 29-30, 2006, Oak Brook, Illinois "Hereditary Gingival Fibromatosis: Aggressive Two-Stage Surgical Resection Versus Traditional Therapy"

29. Midwestern Association of Plastic Surgeons 44th Annual Meeting, April 29-30, 2006, Oak Brook, Illinois "Abdominoplasty Graft & VAC Therapy: Two Useful Adjuncts in Full-Thickness Grafting of the Mangled Upper Extremity"

30. The American Association of Plastic Surgeons 85th Annual Meeting, May 6-9, 2006 Hilton Head, South Carolina "Excision of Giant Neurofibromas"

31. The 8th Annual Chicago Trauma Symposium, July 27-30, 2006, Chicago, Il "Management of Complex Injuries"

32. The American Society of Plastic Surgeons Annual Meeting, October 6-12, 2006, San Francisco, California "Excision of Giant Neurofibromas"

33. The American College of Surgeons Poster Presentation, October, 2006, Chicago, Il "Abdominoplasty: Use in Reconstruction of the Mangled Upper Extremity"

34. American Medical Association-RFS 3rd Annual Poster Symposium, November 10, Las Vegas, NV, 2006 "Abdominal Wall Reconstruction With Alloderm"

35. Advocate Injury Institute: "Trauma 2006: The Spectrum of Care), November 30-December 2, 2006, Lisle, Il, "Pit Bull Mauling: A Case Study"

36. The 9th Annual Chicago Trauma Symposium, August 10-12, 2007, Chicago, Il "Management of Complex Injuries"

37. The World Professional Association for Transgender Health (WPATH) 2007 XX Biennial Symposium, September 5-8. 2007, Chicago, Il Revision Vaginoplasty With Sigmoid Interposition: "A Reliable Solution for a Difficult Problem"

38. Metropolitan Chicago Chapter of the American College of Surgeons, 2008 Annual Meeting, March 15, 2008 "ER Call: Who's Job is it Anyway"

39. The 10th Annual Chicago Trauma Symposium, August 7-10, 2008, Chicago, Il "Management of Complex Injuries"

40. 23nd Annual Clinical Symposium on Advances in Skin & Wound Care: The Conference for Prevention and Healing October 26-30, 2008, Las Vegas, Nevada,poster presentation "Use of Dual Therapies Consisting of Negative Pressure Wound Therapy (NPWT) and Small Intestine Mucosa (SIS) on a Complex Degloving Injury With an Expose Achilles Tendon: A Case Report."

41. The American Society of Plastic Surgeons Annual Meeting, October 31-November 3, 2008, Chicago, Il "Panel: Fresh Faces, Real Cases"

42. The American Association for Hand Surgery Annual Meeting, January 7-13, 2009, Maui, Hawaii, poster session: "Omental Free Tissue Transfer for Coverage of Complex Upper Extremity and Hand Defects-The Forgotten Flap."

43. Plastic Surgery At The Red Sea Symposium, March 24-28, 2009 Eilat, Israel, "Omental Free Tissue Transfer for Coverage of Complex Upper Extremity and Hand Defects-The Forgotten Flap."

44. ASPS/IQUAM Transatlantic Innovations Meeting, April 4-7, 2009 Miason de la Chimie, Paris, France, "Advertising in Plastic Surgery?"

45. ASPS/IQUAM Transatlantic Innovations Meeting, April 4-7, 2009 Miason de la Chimie, Paris, France, "Cost-Effectiveness of Physician Extenders in Plastic Surgery"

46. Midwestern Association of Plastic Surgeons, 47th Annual Meeting, April 18-19, 2009, Chicago, Il, "Microvascular Reconstruction of Iatrogenic Femoral Artery Injury in a Neonate"

47. Midwestern Association of Plastic Surgeons, 47th Annual Meeting, April 18-19, 2009, Chicago, Il,"Two Birds, One Stone: Combining Abdominoplasty with Intra-Abdominal Procedures"

48. The 11th Annual Chicago Trauma Symposium, August 1, 2009, Chicago, Il "Management of Complex Injuries"

49. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, "Omental Free Tissue Transfer for Coverage of Complex Extremity Defects: The Forgotten Flap."

50. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, "Challenging Cases."

51. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, "President's Panel: The Future of the Solo Practice-Can We, Should We Survive?"

52. The 12th Annual Chicago Trauma Symposium, August 5-8, 2010, Chicago, Il "Management of Complex Injuries"

53. Breast MRI to Define The Blood Supply to the Nipple-Areolar Complex. German Society of Plastic, Reconstructive and Aesthetic Surgery (DGPRAEC), Dresden, Germany, September 2010

54. Roundtable Discussion: Electronic Health Records-Implications for Plastic Surgeons, The American Society of Plastic Surgeons Annual Meeting, October 3, 2010, Toronto, CA

55. Breast MRI Helps Define the Blood Supply to the Nipple-Areolar Complex, The American Society of Plastic Surgeons Annual Meeting, October 3, 2010, Toronto, CA.

56. ASPS/ASPSN Joint Patient Safety Panel: Patient Selection and Managing Patient Expectations, The American Society of Plastic Surgeons Annual Meeting, October 4, 2010, Toronto, CA

57. Lunch and Learn: Prevention of VTE in Plastic Surgery Patients, The American Society of Plastic Surgeons Annual Meeting, October 5, 2010, Toronto, CA

58. Breast MRI Helps Define the Blood Supply to the Nipple-Areolar Complex, 16th Congress of The International Confederation for Plastic Reconstructive and Aesthetic Surgery, May 22-27, 2011, Vancouver, Canada

59. Breast MRI Helps Define the Blood Supply to the Nipple-Areolar Complex, The 6th Congress of The World Society for Reconstructive Microsurgery, WSRM 2011, 29 June-2 July, 2011, Helsinki, Finland

60. Applications of the Omentum for Limb Salvage: The Largest Reported Series, The 6th Congress of The World Society for Reconstructive Microsurgery, WSRM 2011, 29 June-2 July, 2011, Helsinki, Finland

61. Successful Tongue Replantation Following Auto-Amputation Using Supermicrosurgical Technique, Poster Session, The 6th Congress of The World Society for Reconstructive Microsurgery, WSRM 2011, 29 June-2 July, 2011, Helsinki, Finland

62. The 13th Annual Chicago Trauma Symposium, August 25-28, 2011, Chicago, Il "Soft Tissue Defects-Getting Coverage"

63. WPATH: Pre-conference Symposium, September 24, 2011, Atlanta, GA "Surgical Options and Decision-Making"

64. American Society of Plastic Surgeons Annual Meeting, September 27, 2011, Denver, CO Closing Session Lunch and Learn: Pathways to Prevention-Avoiding Adverse Events, Part I: Patient Selection and Preventing Adverse Events in the Ambulatory Surgical Setting

65. American Society of Plastic Surgeons Annual Meeting, September 27, 2011, Denver, CO Closing Session Lunch and Learn: Pathways to Prevention-Avoiding Adverse Events, Part III: Preventing VTE

66. XXIV Congresso Nazionale della Societa Italiana di Microchirugia congiunto con la American Society for Reconstructive Microsurgery, October 20-22, 2011, Palermo, Sicily: 3 Step Approach to Lower Extremity Trauma

67. XXIV Congresso Nazionale della Societa Italiana Microchirugia congiunto con la American Society for Reconstructive Microsurgery, October 20-22, 2011, Palermo, Sicily: Applications of the Omentum for Limb Salvage: The Largest Reported Series

68. American Society for Reconstructive Microsurgery, Poster Presentation, January 14-17, 2012, Las Vegas, NV: Neonatal Limb Salvage: When Conservative Management is Surgical Intervention

69. The 14th Annual Chicago Trauma Symposium, August 2-5, 2012, Chicago, Il "Soft Tissue Defects-Getting Coverage"

70. The Annual Meeting of The American Society of Plastic Surgeons, October 25th-30, 2012, New Orleans, LA "Reimbursement in Breast Reconstruction"

71. The Annual Meeting of The American Society of Plastic Surgeons, October 25th-30, 2012, New Orleans, LA "Thriving in a New Economic Reality: Business Relationships and Integration in the Marketplace"

72. The 15th Annual Chicago Trauma Symposium, August 2-5, 2013, Chicago, Il "Soft Tissue Defects-Getting Coverage"

73. 2014 WPATH Symposium, Tansgender Health from Global Perspectives, February 14-18, 2014, "Short Scar Chest Surgery."

74. 2014 WPATH Symposium, Transgender Health from Global Perspectives, February 14-18, 2014, "Intestinal Vaginoplasty with Right and Left Colon."

75. 24th Annual Southern Comfort Conference, September 3-7, 2014, Atlanta, Georgia, "Gender Confirmation Surgery: State of the Art."

76. The 15th Annual Chicago Trauma Symposium, September 4-7, 2014, Chicago, Il "Soft Tissue Defects-Getting Coverage"

77. The Midwest Association of Plastic Surgeons, May 30, 2015, Chicago, Il "Gender Confirmation Surgery: A Single-Surgeon's Experience"

78. The Midwest Association of Plastic Surgeons, May 30, 2015, Chicago, Il, Moderator, Gender Reassignment.

79. the American Society of Plastic Surgeons 2015 Professional Liability Insurance and Patient Safety Committee Meeting, July 17, 2015, "Gender Confirmation Surgery."

80. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. From Fee-for-Service to Bundled Payments

81. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. Moderator, Transgender Surgery

82. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. Efficient Use of Physician Assistants in Plastic Surgery.

83. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. Patient Safety: Prevention of VTE

84. The World Professional Association for Transgender Health, Objective Quality Parameters for Gender Confirmation Surgery, June 18-22, 2016, Amsterdam, Netherlands

85. The World Professional Association for Transgender Health, Resident Education Curriculum for Gender Confirmation Surgery, June 18-22, 2016, Amsterdam, Netherlands

86. The World Professional Association for Transgender Health, Urologic Management of a Reconstructed Urethra(Poster session #195), June 18-22, 2016, Amsterdam, Netherlands

87. The World Professional Association for Transgender Health, Construction of a neovagina for male-to-female gender reassignment surgery using a modified intestinal vaginoplasty technique, poster session (Poster session #198), June 18-22, 2016, Amsterdam, Netherlands

88. Aesthetica Super Symposium, The American Society of Plastic Surgeons, Genital Aesthetics: What are we trying to achieve?, Washington, DC June 23-25, 2016

89. Aesthetica Super Symposium, The American Society of Plastic Surgeons, Female to Male Gender Reassignment, Washington, DC June 23-25, 2016

90. Aesthetica Super Symposium, The American Society of Plastic Surgeons, The journal of retractions, what I no longer do, Washington, DC June 23-25, 2016

91. Aesthetica Super Symposium, The American Society of Plastic Surgeons, The three minute drill, tips and tricks, Washington, DC June 23-25, 2016

92. Aesthetica Super Symposium, The American Society of Plastic Surgeons, Moderator, Mini master class: Male genital plastic surgery, Washington, DC June 23-25, 2016

93. The 16th Annual Chicago Trauma Symposium, August 18-21, 2016, Chicago, Il "Soft Tissue Defects-Getting Coverage"

94. USPATH Poster Session, Feb 2-5, 2017, Los Angeles, CA, Partial Flap Failure Five Weeks Following Radial Forearm Phalloplasty: Case Report and Review of the Literature

95. USPATH Poster Session, Feb 2-5, 2017, Los Angeles, CA, Urethroplasty for Stricture after Phalloplasty in Transmen Surgery for Urethral Stricture Disease after Radial Forearm Flap Phalloplasty–Management Options in Gender Confirmation Surgery

96. USPATH, Feb 2-5, 2017, Los Angeles, CA, Patient Evaluation and Chest Surgery in Transmen: A Pre-operative Classification

97. USPATH, Feb 2-5, 2017, Los Angeles, CA Single Stage Urethral Reconstruction in Flap Phalloplasty: Modification of Technique for Construction of Proximal Urethra

98. USPATH, Feb 2-5, 2017, Los Angeles, CA, Use of Bilayer Wound Matrix on Forearm Donor Site Following Phalloplasty

99. USPATH, Feb 2-5, 2017, Los Angeles, CA, Vaginoplasty: Surgical Techniques

100. USPATH, Feb 2-5, 2017, Los Angeles, CA, Positioning of a Penile Prosthesis with an Acellular Dermal Matrix Wrap following Radial Forearm Phalloplasty

101. USPATH, Feb 2-5, 2017, Los Angeles, CA, Principles for a Gender Surgery Program

102. USPATH, Feb 2-5, 2017, Los Angeles, CA, Construction of a Neovagina Using a Modified Intestinal Vaginoplasty Technique

103. The 18th Annual Chicago Orthopedic Symposium, July 6-9, 2017, Chicago, Il "Soft Tissue Defects-Getting Coverage"

104. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, Moderator: Genital Surgery Trends for Women

105. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, Adding Transgender Surgery to Your Practice, Moderator and Speaker

106. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, Transbottom Surgery

107. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018 A Novel Approach to IPP Implantation Post Phalloplasty: The Chicago Experience

108. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018, A Novel Approach for Neovagina Configuration During Vaginoplasty for Gender Confirmation Surgery

109. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018 Developlment of a Pelvic Floor Physical Therapy Protocol for Patients Undergoing Vaginoplasty for Gender Confirmation

110. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018 Establishing Guidelines for Gender Confirmation Surgery: The Perioperative Risk of Asymptomatic Deep Venous Thrombosis for Vaginoplasty

111. The 19th Annual Chicago Trauma Symposium, August 16-19, 2018, Chicago, Il "Soft Tissue Defects-Getting Coverage"

112. Midwest LGBTQ Health Symposium, September 14-15, 2018, Chicago, Il "Quality Parameters in Gender Confirmation Surgery"

113. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Poster Session, Proposed Guidelines for Medical Tattoo Following Phalloplasty; An Interdisciplinary Approach

114. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Establishment of the First Gender Confirmation Surgery Fellowship

115. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, ISSM Lecture, The Importance of Surgical Training

116. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Tracking Patient-Reported Outcomes in Gender Confirmation Surgery

117. "Theorizing the Phantom Penis," The Psychotherapy Center for Gender and Sexuality's 6th Biannual Conference, Transformations, March 29-March 30, 2019, NY, NY

INSTRUCTIONAL COURSES:

1. Emory University and WPATH: Contemporary Management of Transgender Patients: Surgical Options and Decision-Making, September 5, 2007 Chicago, Il

2. Craniomaxillofacial Trauma Surgery: An Interdisciplinary Approach, February 16-17, 2008, Burr Ridge, Il

3. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, Moderator: Free Papers, Lower Extremity

4. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, Moderator: ASPS/ASPSN Patient Panel: Effective Communication-A Key to Patient Safety and Prevention of Malpractice Claims

5. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, Instructional Course: Strategies to Identify and Prevent Errors and Near Misses in Your Practice

6. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, Roundtable Discussion: Electronic Health Records-Implications for Plastic Surgeons

7. 10th Congress of The European Federation of Societies for Microsurgery, May 2—22, 2010, Genoa, Italy, "The Mangled Lower Extremities: An Algorithm for Soft Tissue Reconstruction."

8. Mulitspecialty Course for Operating Room Personnel-Craniomaxillofacial, Orthopaedics, and Spine, A Team Approach, AO North American, June 26-27, 2010, The Westin Lombard Yorktown Center.

9. Management of Emergency Cases in the Operating Room, The American Society of Plastic Surgeons Annual Meeting, October 4, 2010, Toronto, CA.

10. Surgical Approaches and Techniques in Craniomaxillofacial Trauma, November 6, 2010, Burr Ridge, Il.

11. The Business of Reconstructive Microsurgery: Maximizing Economic value (Chair)The American Society for Reconstructive Microsurgery, January 14-17, 2012, Las Vegas, Nevada.

12. Strategies to Identify and Prevent Errors and Near Misses in Your Practice, The Annual Meeting of The American Society of Plastic Surgeons, October 25th-30th, 2012, New Orleans, LA

13. Strategies to Identify and Prevent Errors and Near Misses in Your Practice, The Annual Meeting of The American Society of Plastic Surgeons, October 11th-15th, 2013, San Diego, CA

14. Mythbusters: Microsurgical Breast Reconstruction in Private Practice, The Annual Meeting of The American Society of Plastic Surgeons, October 11th-15th, 2013, San Diego, CA

15. Minimizing Complications in Perioperative Care, The American Society for Reconstructive Microsurgery, January 11-14, 2014, Kauai, Hawaii

16. Genitourinary and Perineal Reconstruction, The American Society for Reconstructive Microsurgery, January 11-14, 2014, Kauai, Hawaii

17. Transgender Breast Surgery, The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA

18. Gender Confirmation Surgery, The School of the Art Institute (recipient of American College Health Fund's Gallagher Koster Innovative Practices in College Health Award), October 27, 2015, Chicago, Il

19. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Overview of Surgical Treatment Options

20. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015 Chicago, Il Surgical Procedures

21. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Surgical Complications

22. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Post-operative Care

23. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Case Discussions: The Multidisciplinary Team

24. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, January 20-23,2016, Atlanta, GA Overview of Surgical Treatment Options

25. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, January 20-23, 2016, Atlanta, GA Surgical Treatment Options

26. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, March 30-April 1, 2016, Springfield, MO, Surgical Treatment Options.

27. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, March 30-April 1, 2016, Springfield, MO, Multi-disciplinary Case Discussion.

28. Introduction to Transgender Surgery, ASPS Breast Surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

29. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Advanced Training Course, September 28, 2016, Ft. Lauderdale, FL.

30. Cirugias de Confirmacion de Sexo Paso a Paso, XXXV Congreso Confederacion Americana de Urologia (CAU), Panama City, Panama, October 4-8, 2016.

31. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Advanced Training Course, December 3, 2016, Arlington, VA.

32. PSEN (sponsored by ASPS and endorsed by WPATH), Transgender 101 for Surgeons, January 2017-March 2017

33. Surgical Anatomy and Surgical Approaches to M-to-F Genital Gender Affirming Surgery and the Management of the Patient Before, During and After Surgery: A Human Cadaver Based Course, Orange County, CA, Feb. 1, 2017

34. Gender Confirmation Surgery, ALAPP, 2 Congreso Internacional de la Asociacion Latinoamericana de Piso Pelvico, Sao Paulo, Brasil, 9-11 de marzo de 2017

35. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Foundations Training Course, Overview of Surgical Treatment, March 31-April 2, 2017, Minneapolis Minnesota.

36. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Foundations Training Course, The Multi-Disciplinary Team Case Discussions, March 31-April 2, 2017, Minneapolis Minnesota.

37. Transfeminine Cadaver Course, WPATH, May 19-20, 2017, Chicago, Il

38. Transgender/Penile Reconstruction-Penile Reconstruction: Radial Forearm Flap Vs. Anterolateral Thigh Flap, Moderator and Presenter, The World Society for Reconstructive Microsurgery, June 14-17, 2017, Seoul, Korea

39. Primer of Transgender Breast Surgery, ASPS Breast Surgery and Body Contouring Symposium, San Diego, CA, August 10-12, 2017

40. Confirmation Surgery in Gender Dysphoria: current state and future developments, International Continence Society, Florence, Italy, September 12-15, 2017

41. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, ASPS/WPATH Joint Session, Session Planner and Moderator

42.Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Foundations Training Course: Overview of Surgical Treatment, Columbus, OH, October 20-21, 2017

43. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Advanced Training Course: Medical Care in the Perioperative Period, Aftercare: Identifying Potential Complications, Columbus, OH, October 20-21, 2017

44. Webinar: Gender Affirming Surgeries 101: Explore The Latest Topics in Gender Affirmation Surgery, PSEN, April 18, 2018

45. Course Director: MT. Sinai/WPATH Live Surgery Training Course for Gender Affirmation Procedures, April 26-28, 2018, New York, NY

46. Philadelphia Trans Wellness Conference, Perioperative Care of the Transgender Woman Undergoing Vaginoplasty (Workshop), Philadelphia, PA, August 3, 2018

47. Philadelphia Trans Wellness Conference, Gender Confirmation Surgery (Workshop), Philadelphia, PA, August 3, 2018

48. Gender Confirmation Surgery, 2018 Oral and Written Board Preparation Course, The American Society of Plastic Surgeons, August 16-18, 2018, Rosemont, Il

49. Confirmation Surgery in Gender Dysphoria: Current State and Future Developments, The International Continence Society, Philadelphia, PA August 28, 2018

50. WPATH Global Education Initiative, Foundations Training Course, "Overview of Surgical Treatment," Cincinnati, OH, September 14-15, 2018

51. WPATH Global Education Initiative, Foundations Training Course, "The Multi-Disciplinary Team: Case Discussions," Cincinnati, OH, September 14-15, 2018

52. WPATH Global Education Initiative, Advanced Training Course, "Medical Care in the Perioperative Period After Care: Identifying Potential Complications," Cincinnati, OH, September 14-15, 2018

53. 25th WPATH Symposium, Surgeons Conference, November 1, 2018, Buenos Aires, Argentina, Moderator

54. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Global Education Initiative (GEI): Surgery and Ethics

55. WPATH GEI: Best Practices in Medical and Mental Health Care, Foundations in Surgery, New Orleans, March 22, 2019

56. WPATH GEI: Best Practices in Medical and Mental Health Care, Advanced Surgery, New Orleans, March 22, 2019

57. Program Chair: ASPS/WPATH GEI Inaugural Gender-Affirming Breast, Chest, and Body Master Class, Miami, Fl, July 20, 2019

58. Overview of Surgical Management and The Standards of Care (WPATH, v. 7) ASPS/WPATH GEI Inaugural Gender-Affirming Breast, Chest, and Body Master Class, Miami, Fl, July 20, 2019

59. Program Director, Gender Affirming Breast,Chest, and Body Master Class, The American Society of Plastic Surgeons, Miami, Fl, July 20, 2019

60. Gender Confirmation Surgery, The American Society of Plastic Surgeons Oral and Written Board Preparation Course, August 15, 2019, Rosemont, Il

61. Upper Surgeries (chest surgery & breast augmentation), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

62. Preparing for Upper Surgeries-Case Based (chest surgery & breast augmentation), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

63. Preparing for Feminizing Lower Surgeries-Case Based (vaginoplasty), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

64. Lower Surgeries-Masculinizing (phalloplasty & metoidioplasty), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

65. Preparing for Masculinizing Lower Surgeries-Case Based (phalloplasty & metoidioplasty), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

66. Panel Discussion about Ethics in Surgery and Interdisciplinary Care, WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

67. Discussion about Ethics and Tensions in Child and Adolescent Care, WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

68. Transgender Health: Best Practices in Medical and Mental Health Care Foundation Training Courses, Hanoi, Viet Nam, Jan 14-17, 2020 (Foundations in Surgery, Advanced Medical-surgery and complicated case studies), Planning & Documentation (upper surgeries-chest surgery and breast augmentation, preparing for upper surgeries-case based (chest surgery and breast augmentation), lower surgeries (feminizing-vaginoplasty), preparing for feminizing lower surgeries-case based, lower surgeries-masculinizing (phalloplasty and metoidioplasty), preparing

for masculinizing lower surgeries-case-based (phalloplasty and metoidioplasty), Ethics-panel discussion about ethics in surgery and interdisciplinary care)

69. WPATH GEI Panel Cases Discussion, via Webinar, May 29, 30, 31, 2020

70. WPATH GEI: Illinois Dept. of Corrections, Foundations in Surgery, November 20, 2020

71. WPATH GEI: Illinois Dept. of Corrections, Ethical Considerations in Transgender Healthcare, November 20, 2020

72. WPATH GEI: Illinois Dept. of Corrections, Foundations in Surgery, February 26, 2021

73. WPATH GEI: Illinois Dept. of Corrections, Ethical Considerations in Transgender Healthcare, February 26, 2021.

74. Current Concepts in Gender Affirming Surgery for Women in Transition, March 11-12, 2021 (online event), Moderator, Transgender Health.

75. GEI Foundations Course, Live Q&A, March 21, 2021

76. GEI Foundations Course, Live Case Panel Discussion, March 23, 2021

77. GEI Advanced Ethics Workshop; Surgical and Interdisciplinary care ethics panel, May 1, 2021 (virtual)

78. Wpath GEI Foundations course for the Illinois Dept of Corrections, Foundations in Surgery, May 21, 2021

79. Wpath GEI, Foundations course for the Illinois Dept of Corrections, Ethical considerations in Transgender Healthcare, May 21, 2021

80. WPATH GEI, Online GEI Foundations Course, Moderator, August 31, 2001.

81. WPATH Health Plan Provider (HPP) Training, Q&A Panel, September 13, 14, 21 2021, via Zoom

82. WPATH, GEI Advanced Medical Course, Upper and Lower Surgery (via zoom), December 9, 2021

SYMPOSIA:

1. Program Director, 2011 Chicago Breast Symposium, October 15, 2011, The Chicago Plastic Surgery Research Foundation and The Chicago Medical School at Rosalind Franklin University, North Chicago, IL,

2. Fundamentals of Evidence-Based Medicine & How to Incorporate it Into Your Practice, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

3. Understanding Outcome Measures in Breast & Body Contouring Surgery, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

4. Benchmarking Complications: What We Know About Body Contouring Complication Rates from Established Databases, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

5. Special Lecture: VTE Prophylaxis for Plastic Surgery in 2011, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

6. Nipple Sparing Mastectomy: Unexpected Outcomes, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

7. Program Director, 2011 Chicago Breast Symposium, October 13-14, 2012, The Chicago Plastic Surgery Research Foundation and The Chicago Medical School at Rosalind Franklin University, North Chicago, Il

8. Practice Strategies in a Changing Healthcare Environment, Moderator, Midwestern Association of Plastic Surgeons, April 27-28, 2013, Chicago, Il

9. Moderator: Breast Scientific Paper Session, The Annual Meeting of The American Society of Plastic Surgery, October 12, 2014, Chicago, Il.

10. Moderator: The World Professional Association for Transgender Health, Tuesday, June 21, Surgical Session (0945-1045), June 18-22, 2016, Amsterdam, Netherlands

11. Course Director: Transmale Genital Surgery: WPATH Gender Education Initiative, October 21-22, 2016 Chicago, Il

12. Co-Chair and Moderator: Surgeon's Only Session, USPATH, Los Angeles, CA, Feb. 2, 2017

13. Vascular Anastomosis: Options for Lengthening Vascular Pedicle, Surgeon's Only Session, USPATH, Los Angeles, CA, Feb. 2, 2017

14. Transgender Healthcare Mini-Symposium, Chicago Medical School of Rosalind Franklin University, North Chicago, Il March 10, 2017.

15. Moderator: Penile Transplant: Genito-urinary trauma/penile cancer, The European Association of Urologists, Meeting of the EAU Section of Genito-Urinary Reconstructive Surgeons (ESGURS), London, United Kingdom, March 23-26, 2017

16: 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Mini-Symposium: A Comprehensive Approach to Gender Confirming Surgery

17. Program Director, 2nd Annual Live Surgery Conference for Gender Affirmation Procedures, Ichan School of Medicine at Mt. Sinai, NY, NY February 28, 2019-March 2, 2019.

18. Moderator, "Genital Reassignment for Adolescents: Considerations and Conundrums," Discussions on gender affirmation: surgery and beyond, Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

19. Moderator, "Reconstructive Urology and Genitourinary Options in Gender Affirming Surgery," Discussions on gender affirmation: surgery and beyond, Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

20. Moderator, "Complications in Masculinizing Genital Reconstruction Surgery," Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

21. Moderator, "Preparing for Surgery and Recovery," Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

22. Discussant, "WPATH Standards of Care Version 8 Preview," Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

23. Program Coordinator, Surgeon's Only Course, USPATH, September 5, 2019, Washington, DC

24. Master Series in Transgender Surgery 2020: Vaginoplasty and Top Surgery, course co-director, Mayo Clinic, Rochester, MN, August 7-8, 2020

25. WPATH 2020 Surgeons' Program, Co-Chair, November 6-7, 2020, Virtual Symposium (due to covid-19 cancellation of Hong Kong meeting)

26. WPATH Journal Club #3, Uterine Transplantation and Donation in Transgender Individuals; Proof of Concept, December 13, 2021 (Zoom)

FACULTY SPONSORED RESEARCH:

1. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, "Free Tissue Transfer in the Treatment of Zygomycosis." Presented by Michelle Roughton, MD

2. Hines/North Chicago VA Research Day, Edward Hines, Jr., VA Hospital, Maywood, Il, April 29, 2010, "Breast MRI Helps to Define the Blood Supply to the Nipple-Areolar Complex." Presented by Iris A. Seitz, MD, PhD.

3. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010, "Breast MRI Helps to Define the Blood Supply to the Nipple-Areolar Complex." Presented by Iris A. Seitz, MD, PhD.

4. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010, "Achieving Soft Tissue Coverage of Complex Upper and Lower Extremity Defects with Omental Free Tissue Transfer." Presented by Iris A. Seitz, MD, PhD.

5. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010, "Facilitating Harvest of the Serratus Fascial Flap with Ultrasonic Dissection." Presented by Iris A. Seitz, MD, PhD.

6. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010,"Patient Safety: Abdominoplasty and Intra-Abdominal Procedures." Presented by Michelle Roughton, MD

7. The Midwestern Association of Plastic Surgeons, 49th Annual Scientific Meeting, May 15th, 2010, "Breast MRI Helps Define The Blood Supply to the Nipple-Areolar Complex." Presented by Iris A. Seitz, MD, PhD.

8. Jonathan M. Hagedorn, BA, **Loren S. Schechter**, MD, FACS, Dr. Manoj R. Shah, MD, FACS, Matthew L. Jimenez, MD, Justine Lee, MD, PhD, Varun Shah. Re-examining the Indications for Limb Salvage, 2011 All School Research Consortium at Rosalind Franklin University. Chicago Medical School of Rosalind Franklin University, 3/16/11.

9. Jonathan Bank, MD, Lucio A. Pavone, MD, Iris A. Seitz, Michelle C. Roughton, MD, Loren S. Schechter, MD Deep Inferior Epigastric Perforator Flap for Breast Reconstruction after Abdominoplasty The Midwestern Association of Plastic Surgeons, 51st Annual Educational Meeting, April 21-22, 2012, Northwestern Memorial Hospital, Chicago, Illinois

10. Samuel Lake, Iris A. Seitz, MD, Phd, Loren S. Schechter, MD, Daniel Peterson, Phd Omentum and Subcutaneous Fat Derived Cell Populations Contain hMSCs Comparable to Bone Marrow-Derived hMSCsFirst Place, Rosalind Franklin University Summer Research Poster Session

11. J. Siwinski, MS II, Iris A. Seitz, MD PhD, Dana Rioux Forker, MD, Lucio A. Pavone, MD, Loren S Schechter, MD FACS. Upper and Lower Limb Salvage With Omental Free Flaps: A Long-Term Functional Outcome Analysis. Annual Dr. Kenneth A. Suarez Research Day, Midwestern University, Downers Grove, IL, May 2014

12. Whitehead DM, Kocjancic E, Iacovelli V, Morgantini LA, **Schechter LS**. A Case Report: Penile Prosthesis With an Alloderm Wrap Positioned After Radial Forearm Phalloplasty. Poster session presented at: American Society for Reconstructive Microsurgery Annual Meeting, 2018 Jan 13-16; Phoenix, AZ.

13. Whitehead DM, Kocjancic E, Iacovelli V, Morgantini LA, **Schechter LS**. An Innovative Technique: Single Stage Urethral Reconstruction in Female-to-Male Patients. Poster session presented at: American Society for Reconstructive Microsurgery Annual Meeting, 2018 Jan 13-16; Phoenix, AZ.

14. Whitehead, DM Inflatable Penile Prosthesis Implantation Post Phalloplasty: Surgical Technique, Challenges, and Outcomes, MAPS 2018 Annual Scientific Meeting, April 14, 2018, Chicago, Il

15. Whitehead, DM, Inverted Penile Skin With Scrotal Graft And Omission of Sacrospinal Fixation: Our Novel Vaginoplasty Technique MAPS 2018 Annual Scientific Meeting, April 14, 2018, Chicago, Il

16. S. Marecik, J. Singh. **L. Schechter**, M. Abdulhai, K. Kochar, J. Park, Robotic Repair of a Recto-Neovaginal Fistula in a Transgender Patient Utilizing Intestinal Vaginoplasty, The American College of Surgeons Clinical Congress 2020, October 7, 20

Keynote Address:

1. University of Utah, Gender Confirmation Surgery, Transgender Provider Summit, November 8, 2014

INVITED LECTURES:

1. Management of Soft Tissue Injuries of the Face, Grand Rounds, Emergency Medicine, The University of Chicago, August, 1999

2. Case Report: Excision of a Giant Neurofibroma, Operating Room Staff Lecture Series, Continuing Education Series, St. Francis Hospital, Evanston, Il March 2000

3. Wounds, Lincolnwood Family Practice, Lincolnwood, Il April 2000

4. The Junior Attending, Grand Rounds, Plastic and Reconstructive Surgery, The University of Chicago, June 2000

5. Case Report: Excision of a Giant Neurofibroma, Department of Medicine Grand Rounds, St. Francis Hospital, Evanston, Il June 2000

6. Facial Trauma, Resurrection Medical Center Emergency Medicine Residency, September 2000

7. Plastic Surgery of the Breast and Abdomen, Grand Rounds, Dept. of Obstetrics and Gynecology, Evanston Hospital, September, 2000

8. Change of Face; Is Cosmetic Surgery for You?, Adult Education Series, Rush North Shore Medical Center, October, 2000

9. Reconstructive Surgery of the Breast, Professional Lecture Series on Breast Cancer, St. Francis Hospital, October, 2000

10. Plastic Surgery of the Breast and Abdomen, Grand Rounds, Dept. of Obstetrics and Gynecology, Lutheran General Hospital, December, 2000

11. Change of Face; Is Cosmetic Surgery for You?, Adult Education Series, Lutheran General Hospital and The Arlington Heights Public Library, December, 2000

12. Updates in Breast Reconstruction, The Breast Center, Lutheran General Hospital, January 2001

13. Abdominal Wall Reconstruction, Trauma Conference, Lutheran General Hospital, February 2001

14. Wound Care, Rush North Shore Medical Center, March 2001

15. Breast Reconstruction, Diagnosis and Treatment Updates on Breast Cancer, Lutheran General Hospital, April 2001

16. Wound Care and V.A.C. Therapy, Double Tree Hotel, Skokie, Il October 2001

17. The Role of the V.A.C. in Reconstructive Surgery, LaCrosse, WI November 2001

18. Dressing for Success: The Role of the V.A.C. in Reconstructive Surgery, Grand Rounds, The University of Minnesota Section of Plastic and Reconstructive, Minneapolis, MN January, 2002

19. The Vacuum Assisted Closure Device in the Management of Complex Soft Tissue Defects, Eau Claire, WI February, 2002

20. The Vacuum Assisted Closure Device in Acute & Traumatic Soft Tissue Injuries, Orland Park, Il March, 2002

21. Body Contouring After Weight Loss, The Gurnee Weight Loss Support Group, Gurnee, Il April, 2002

22. An Algorithm to Complex Soft Tissue Reconstruction With Negative Pressure Therapy, Owensboro Mercy Medical Center, Owensboro, Ky, April, 2002

23. Breast and Body Contouring, St. Francis Hospital Weight Loss Support Group, Evanston, Il April, 2002

24. The Wound Closure Ladder vs. The Reconstructive Elevator, Surgical Grand Rounds, Lutheran General Hospital, Park Ridge, Il, May, 2002.

25. An Algorithm for Complex Soft Tissue Reconstruction with the Vacuum Assisted Closure Device, The Field Museum, Chicago,Il, May, 2002

26. The Role of Negative Pressure Wound Therapy in Reconstructive Surgery, Kinetic Concepts, Inc. San Antonio, Texas, July 31, 2002

27. Management of Complex Soft Tissue Injuries of the Lower Extremity, Chicago Trauma Symposium, August 2-5, 2002, Chicago, Illinois:

28. Wound Bed Preparation, Smith Nephew, Oak Brook, Il, August 6, 2002

29. Getting Under Your Skin...Is Cosmetic Surgery for You?, Rush North Shore Adult Continuing Education Series, Skokie, Il August 28, 2002.

30. The Role of Negative Pressure Therapy in Complex Soft Tissue Wounds, Columbia/St. Mary's Wound, Ostomy, and Continence Nurse Program, Milwaukee, Wi, September 17, 2002

31. A Systematic Approach to Functional Restoration, Grand Rounds, Dept. of Physical Therapy and Rehabilitation Medicine, Lutheran General Hospital, September 19, 2002

32. The Role of Negative Pressure Wound Therapy in Reconstructive Surgery, Ann Arbor, Mi September 26, 2002

33. Dressing for Success: The Role of the Vaccuum Assisted Closure Device in Plastic Surgery, Indianopolis, In November 11, 2002

34. The Wound Closure Ladder Versus the Reconstructive Elevator, Crystal Lake, Il November 21, 2002

35. A Systematic Approach to Functional Restoration, Grand Rounds, Dept. of Physical Therapy, Evanston Northwestern Healthcare, Evanston, Il February 13, 2003

36. Case Studies in Traumatic Wound Reconstruction, American Association of Critical Care Nurses, Northwest Chicago Area Chapter, Park Ridge, Il February 19, 2003

37. Reconstruction of Complex Soft Tissue Injuries of the Lower Extremity, Podiatry Lecture Series, Rush North Shore Medical Center, Skokie, Il March 5, 2003

38. The Use of Negative Pressure Wound Therapy in Reconstructive Surgery, Kalamazoo, Mi March 19, 2003

39. Updates in Breast Reconstruction, The Midwest Clinical Conference, The Chicago Medical Society, Chicago, Il March 21, 2003

40. Updates of Vacuum Assisted Closure, Grand Rounds, The Medical College of Wisconsin, Department of Plastic Surgery, Milwaukee, Wi March 26, 2003

41. Breast Reconstruction, Surgical Grand Rounds, Lutheran General Hospital, Park Ridge, Il March 27, 2003

42. Decision-Making in Breast Reconstruction: Plastic Surgeons as Members of a Multi-Disciplinary Team, 1st Annual Advocate Lutheran General Hospital Breast Cancer Symposium, Rosemont, Il, April 11, 2003

43. The Wound Closure Ladder Versus The Reconstructive Elevator, Duluth, Mn, April 24, 2003

44. Dressing For Successs: The Role of The Wound VAC in Reconstructive Surgery, Detroit, Mi, May 9, 2003

45. Plastic Surgery Pearls, Grand Rounds Orthopedic Surgery Physician Assistants Lutheran General Hospital and Finch University of Health Sciences, Park Ridge, Il, June 5, 2003

46. A Systematic Approach to Complex Reconstruction, 12th Annual Vendor Fair "Surgical Innovations," October 18, 2003, Lutheran General Hospital, Park Ridge, Il 2003

47. Dressing For Success: The Role of the Wound VAC in Reconstructive Surgery, American Society of Plastic Surgery, October 26, 2003, San Diego, CA

48. Beautiful You: From Botox to Weekend Surgeries, 21st Century Cosmetic Considerations, March 21, 2004 Hadassah Women's Health Symposium, Skokie, Il

49. Updates in Breast Reconstruction, The 2nd Annual Breast Cancer Symposium, Advocate Lutheran General, Hyatt Rosemont, April 2, 2004

50. Head and Neck Reconstruction, Grand Rounds, The University of Illinois Metropolitan Group Hospitals Residency in General Surgery, Advocate Lutheran General Hospital, May 6, 2004

51. Abdominal Wall Reconstruction, Surgeons Forum, LifeCell Corporation, May 15, 2004, Chicago, Il

52. 4th Annual Chicagoland Day of Sharing for Breast Cancer Awareness, Saturday, October 2, 2004, Hoffman Estates, Il

53. Abdominal Wall Reconstruction, University of Illinois Metropolitan Group Hospitals Residency in General Surgery, November 19, 2004, Skokie, Il

54. Advances in Wound Care, Wound and Skin Care Survival Skills, Advocate Good Samaritan Hospital, Tuesday, February 8, 2005, Downer's Grove, Il

55. Plastic Surgery: A Five Year Perspective in Practice, Grand Rounds, The University of Chicago, May 18, 2005, Chicago, Il

56. New Techniques in Breast Reconstruction, The Cancer Wellness Center, October 11, 2005 Northbrook, Il

57. Principles of Plastic Surgery; Soft Tissue Reconstruction of the Hand, Rehab Connections, Inc., Hand, Wrist, and Elbow Forum, October 28, 2005, Homer Glen, Il

58. Principles of Plastic Surgery, Lutheran General Hospital Quarterly Trauma Conference, November 9, 2005, Park Ridge, Il

59. Principles of Plastic Surgery, Continuing Medical Education, St. Francis Hospital, November 15, 2005, Evanston, Il

60. Dressing for Success: A Seven Year Experience with Negative Pressure Wound Therapy, Kinetic Concepts Inc, November 30, 2005, Glenview, Il.

61. Breast Reconstruction: The Next Generation, Breast Tumor Conference, Lutheran General Hospital, May 9, 2006.

62. Complex Wound Care: Skin Grafts, Flaps, and Reconstruction, The Elizabeth D. Wick Symposium on Wound Care, *Current Concepts in Advanced Healing: An Update*, Rush North Shore Medical Center, November 4, 2006.

63. An Approach to Maxillofacial Trauma: Grand Rounds, Lutheran General Hospital/Univ. of Illinois Metropolitan Group Hospital Residency in General Surgery, November 9, 2006.

64. "From Paris to Park Ridge", Northern Trust and Advocate Lutheran General Hospital, Northern Trust Bank, June 7, 2007.

65. "Private Practice Plastic Surgery: A Seven Year Perspective," Grand Rounds, The University of Chicago, Section of Plastic Surgery.

66. "Meet the Experts on Breast Cancer," 7th Annual Chicagoland Day of Sharing, Sunday, April 13th, 2008

67. Gender Confirmation Surgey: Surgical Options and Decision-Making, The University of Minnesota, Division of Human Sexuality, May 10, 2008, Minneapolis, Minnesota.

68. "Private Practice Plastic Surgery: A Seven Year Perspective," Grand Rounds, Loyola University, 2008 Section of Plastic Surgery.

69. "Management of Lower Extremity Trauma," Grand Rounds, The University of Chicago, Section of Plastic Surgery, October, 8, 2008.

70. "Concepts in Plastic Surgery: A Multi-Disciplinary Approach," Frontline Surgical Advancements, Lutheran General Hospital, November 1, 2008

71. "Surgical Techniques-New Surgical Techniques/Plastic Surgery/Prosthetics," Caldwell Breast Center CME Series, Advocate Lutheran General Hospital, November 12, 2008

72. "Genetics: *A Family Affair*" Panel Discussion: Predictive Genetic Testing, 23rd Annual Illinois Department of Public Health Conference, Oak Brook Hills Marriott Resort, Oak Brook, Il, March 18, 2009

73. "Gender Confirmation Surgery" Minnesota TransHealth and Wellness Conference, May 15, 2009, Metropolitan State University, Saint Paul, MN.

74. "The Role of Plastic Surgery in Wound Care, " Practical Wound Care A Multidisciplinary Approach, Advocate Lutheran General Hospital, October 9-10, 2009, Park Ridge, Il.

75. "In The Family," Panel, General Session III, 2009 Illinois Women's Health Conference, Illinois Dept. of Health, Office of Women's Health October 28-29, 2009, Oak Brook, Il.

76. "Patient Safety in Plastic Surgery," The University of Chicago, Section of Plastic Surgery, Grand Rounds, November 18, 2009.

77. "Compartment Syndrome," 6th Annual Advocate Injury Institute Symposium, Trauma 2009: Yes We Can!, November 19-20, 2009.

78. "Maxillofacial Trauma," 6th Annual Advocate Injury Institute Symposium, Trauma 2009: Yes We Can!, November 19-20, 2009.

79. "Management of Complex Lower Extremity Injuries," Grand Rounds, The Section of Plastic Surgery, The University of Chicago, December 16, 2009, Chicago, Il.

80. "Gender-Confirming MTF Surgery: Indications and Techniques," Working Group on Gender, New York State Psychiatric Institute, March 12, 2010

81. "Gender-Confirmation Surgery," Minnesota Trans Health and Wellness Conference, Metropolitan State University, St. Paul Campus, May 14th, 2010

82. "Physical Injuries and Impairments," Heroes Welcome Home The Chicago Association of Realtors, Rosemont, Illinois, May 25th, 2010.

83. "Genetics and Your Health," Hadassah Heals: Healing Mind, Body, & Soul, Wellness Fair, 2010, August 29, 2010, Wilmette, Illinois.

84. "GCS," Southern Comfort Conference 2010, September 6-11, 2010, Atlanta, GA.

85. "Gender Confirming Surgery," The Center, The LGBT Community Center, October 22, 2010 New York, NY.

86. "Gender Confirming Surgery," the Center, The LGBT Community Center, May 20, 2011, New York, NY.

87. "Gender Confirming Surgery," Roosevelt-St. Lukes Hospital, May 20, 2011, New York, NY

88. "Principles of Plastic Surgery," Learn about Ortho, Lutheran General Hospital, May 25, 2011, Park Ridge, Il.

89. "Forging Multidisciplinary Relationships in Private Practice," Chicago Breast Reconstruction Symposium 2011, September 9, 2011, Chicago, Il

90. "Gender Confirming Surgery," Minnesota TransHealth and Wellness Conference, Diverse Families: Health Through Community, September 10, 2011, Minneapolis, Minnesota

91. "Gender Confirming Surgery," University of Chicago, Pritzker School of Medicine, Anatomy Class, September 16, 2011, Chicago, Il

92. "Facial Trauma," 8th Annual Advocate Injury Institute Symposium, Trauma 2011: 40 years in the Making, Wyndham Lisle-Chicago, November 9-10, 2011

93. "Establishing a Community-Based Microsurgical Practice," QMP Reconstructive Symposium, November 18-20, 2011, Chicago, Il

94. "Surgery for Gender Identity Disorder," Grand Rounds, Dept. of Obstetrics and Gynecology, Northshore University Health System, December 7, 2011

95. "Managing Facial Fractures," Trauma Grand Rounds, Lutheran General Hospital, Park Ridge, Il July 17, 2012

96. "Principles of Transgender Medicine," The University of Chicago Pritzker School of Medicine, Chicago, Il, September 7, 2012

97. "State of the art breast reconstruction," Advocate Health Care, 11th Breast Imaging Symposium, January 26, 2013, Park Ridge, Il.

98. "State of the art breast reconstruction," Grand Rounds, Dept. of Surgery, Mount Sinai Hospital, April 25, 2013, Chicago, Il.

99. "Getting under your skin: is cosmetic surgery right for you?" Lutheran General Hospital community lecture series, May 7, 2013, Park Ridge, Il.

100. "Gender Confirming Surgery," University of Chicago, Pritzker School of Medicine, Anatomy Class, September 27, 2013, Chicago, Il

101. "State of the Art Breast Reconstruction," Edward Cancer Center, Edward Hospital, October 22, 2013, Naperville, Il

102. "Transgender Medicine and Ministry," Pastoral Voice, Advocate Lutheran General Hospital, October 23, 2013, Park Ridge, Il

103. "Principles of Transgender Medicine and Surgery," The University of Illinois at Chicago College of Medicine, January 28, 2014, Chicago, Il

104. "Principles of Transgender Medicine and Surgery," Latest Surgical Innovations and Considerations, 22nd Annual Educational Workshop, Advocate Lutheran General Hospital, March 1, 2014, Park Ridge, Il.

105. "Principles of Transgender Medicine: Gender Confirming Surgery," Loyola University Medical Center, March 12, 2014.

106. "Principles of Plastic Surgery," Grand Rounds, Dept. of Obstetrics and Gynecology, Lutheran General Hospital, September 12, 2014.

107. "Gender Confirmation Surgery," The University of Chicago, Pritzker School of Medicine, October 3, 2014

108. "Private Practice: Is There a Future?" The Annual Meeting of The American Society of Plastic Surgical Administrators/The American Society of Plastic Surgery Assistants, Chicago, Il, October 11, 2014.

109. "Private Practice: Is There a Future?" The Annual Meeting of The American Society of Plastic Surgery Nurses, Chicago, Il, October 12, 2014.

110. "Gender Confirmation Surgery" Grand Rounds, The University of Minnesota, Dept. of Plastic Surgery, Minneapolis, MN, October 29, 2014.

111. "Body Contour After Massive Weight Loss," The Bariatric Support Group, Advocate Lutheran General Hospital, February 5, 2015, Lutheran General Hospital, Park Ridge, Il.

112. "Gender Confirmation Surgery," The School of the Art Institute of Chicago, February 1, 2015, Chicago, Il.

113. "Gender Confirmation Surgery," The Community Kinship Life/Bronx Lebanon Department of Family Medicine, Bronx, NY, March 6, 2015

114. "Gender Confirmation Surgery," Educational Inservice, Lutheran General Hospital, Park Ridge, Il, April 20, 2015

115. "Principles of Plastic Surgery, " Surgical Trends, Lutheran General Hospital, Park Ridge, Il, May 16, 2015

116. "Updates on Gender Confirmation Surgery, " Surgical Trends, Lutheran General Hospital, Park Ridge, Il, May 16, 2015

117. "Gender Confirmation Surgery," Lurie Childrens' Hospital, Chicago, Il, May 18, 2015,Chicago, Il 2015.

118. "Gender Confirmation Surgery," TransClinical Care and Management Track Philadelphia Trans-Health Conference, June 5, 2015, Philadelphia, Pa.

119. "Gender Confirmation Surgery: A Fifteen Year Experience," Grand Rounds, The University of Minnesota, Plastic and Reconstructive Surgery and the Program in Human Sexuality, July 30, 2015, Minneapolis, Mn

120. "Gender Confirmation Surgery," Grand Rounds, Tel Aviv Medical Center, Tel Aviv, Israel, August 13, 2015

121. "Gender Confirmation Surgery," Grand Rounds, University of Illinois, Dept of Family Medicine, September 2, 2015

122. "Principles of Plastic Surgery," Grand Rounds, St. Francis Hospital, Evanston, Il September 18, 2015

123. "Gender Confirmation Surgery," Midwest LGBTQ Health Symposium, Chicago, Il, October 2, 2015

124. "Gender Confirmation Surgery," Southern Comfort Conference, Weston, Fl, October 3, 2015

125. "Surgical Transitions for Transgender Patients," Transgender Health Training Institute, Rush University Medical Center, Chicago,Il, October 8, 2015

126. "Gender Confirmation Surgery," The Transgender Health Education Peach State Conference, Atlanta, GA, October 30, 2015

127. "Gender Confirmation Surgery," Weiss Memorial Medical Center, November 4, 2015, Chicago, Il

128. "Gender Confirmation Surgery," University of Illinois at Chicago, Operating Room Staff Inservice, November 18, 2015, Chicago, Il

129. "Gender Confirmation Surgery," University of Illinois at Chicago, Plastic Surgery and Urology Inservice, November 18, 2015, Chicago, Il

130. "Gender Confirmation Surgery," Weiss Memorial Medical Center, November 19, 2015, Chicago, Il

131. "Gender Confirmation Surgery," Section of Plastic Surgery, The University of Illinois at Chicago, January 13, 2016, Chicago, Il

132. "Gender Confirmation Surgery," Dept. of Medicine, Louis A. Weiss Memorial Hospital, February 18, 2016, Chicago, Il

133. "Gender Confirmation Surgery," BCBSIL Managed Care Roundtable
March 2, 2016 Chicago, Il

134. "Gender Confirmation Surgery-MtF," Keystone Conference, March 10, 2016, Harrisburg, PA

135. "Gender Confirmation Surgery-FtM," Keystone Conference, March 10, 2016, Harrisburg, PA

136. "Gender Confirmation Surgery," Grand Rounds, Dept. of Ob-Gyn, March 25, 2016, Lutheran General Hospital, Park Ridge, Il 60068

137. "Surgical Management of the Transgender Patient," Spring Meeting, The New York Regional Society of Plastic Surgeons, April 16, 2016, New York, NY

138. "A Three Step Approach to Complex Lower Extremity Trauma," University of Illinois at Chicago, April 27, 2016, Chicago, Il.

139. "Gender Confirmation Surgery," Howard Brown Health Center, July 12, 2016, Chicago, Il

140. "Creating the Transgender Breast M-F; F-M", ASPS Breast surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

141. "Overview of Transgender Breast Surgery," ASPS Breast surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

142. "VTE Chemoprophylaxis in Cosmetic Breast and Body Surgery: Science or Myth", ASPS Breast surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

143. "Gender Confirmation Surgery," Gender Program, Lurie Childrens', Parent Group, September 20, 201, 467 W. Deming, Chicago, Il

144. "Gender Confirmation Surgery," The American Society of Plastic Surgeons Expo, September 24, 2016, Los Angeles, CA

145. Transgender Surgery, Management of the Transgender Patient, Female to Male Surgery, Overview and Phalloplasty, The American College of Surgeons, Clinical Congress 2016 October 16-20,2016 Washington, DC

146. "Gender Confirmation Surgery," The Department of Anesthesia, The University of Illinois at Chicago, November 9, 2016

147. "Gender Confirmation Surgery," The Division of Plastic Surgery, The University of Illinois at Chicago, December 14, 2016

148. "Gender Confirmation Surgery," Nursing Education, The University of Illinois at Chicago, January 10, 2017

149. "F2M-Radial Forearm Total Phalloplasty: Plastic Surgeon's Point of View," The European Association of Urologists, Meeting of the EAU Section of Genito-Urinary Reconstructive Surgeons (ESGURS), London, United Kingdom, March 23-26, 2017

150. "Gender Confirmation Surgery," Grand Rounds, The Department of Surgery, The University of North Carolina, March 29, 2017.

151. "Transgender Facial Surgery," *The Aesthetic Meeting 2017 – 50 Years of Aesthetics* - in San Diego, California April 27– May 2, 2017.

152. "Gender Confirmation Surgery: A New Surgical Frontier," 15th Annual Morristown Surgical Symposium Gender and Surgery, Morristown, NJ, May 5, 2017.

153. "Gender Confirmation Surgery: A New Surgical Frontier," Dept. of Obstetrics and Gynecology, The Medical College of Wisconsin, May 24, 2017

154. "Gender Confirmation Surgery: A New Surgical Frontier," Dept. of Obstetrics and Gynecology, Howard Brown Health Center, August 8, 2017

155. "Current State of the Art: Gynecomastia," ASPS Breast Surgery and Body Contouring Symposium, San Diego, CA, August 10-12, 2017

156. "Gender Confirmation Surgery-An Overview," ASPS Breast Surgery and Body Contouring Symposium, San Diego, CA, August 10-12, 2017

157. "Gender Confirmation Surgery," Grand Rounds, Dept. of Obstetrics and Gynecology, The University of Chicago, August 25, 2017

158. "Gender Confirmation Surgery," Wake Forest School of Medicine, Transgender Health Conference, Winston-Salem, NC, September 28-29, 2017

159. "Phalloplasty," Brazilian Professional Association for Transgender Health, Teatro Marcos Lindenberg, Universidade Federal de São Paulo (Unifesp), November 1-4, 2017

160. "Gender Confirmation Surgery," Brazlian Professional Association for Transgender Health/WPATH Session, Teatro Marcos Lindenberg, Universidade Federal de São Paulo (Unifesp), November 1-4, 2017

161. "Gender Confirmation Surgery," The Division of Plastic Surgery, The University of Illinois at Chicago, December 13, 2017, Chicago, Il

162. "Gender Confirmation Surgery," Gender and Sex Development Program, Ann and Robert H. Lurie Children's Hospital of Chicago, December 18, 2017, Chicago, Il

163. "Transgender Breast Augmentation," 34th Annual Atlanta Breast Surgery Symposium, January 19-21, 2018, Atlanta, GA

164. "Top Surgery: Transmasculine Chest Contouring," 34th Annual Atlanta Breast Surgery Symposium, January 19-21, 2018, Atlanta, GA

165. "Gender Confirmation Surgery," The 17th International Congress of Plastic and Reconstructive Surgery in Shanghai, March 18-25, 2018, Shanghai, China

166. "Gender Confirmation Surgery: Facial Feminization and Metoidioplasty," 97th Meeting of the American Association of Plastic Surgeons, Reconstructive Symposium, April 7-10, 2018, Seattle, WA

167. Moderator: "Gender Confirmation Surgery: Top Surgery", The Annual Meeting of The American Society of Aesthetic Plastic Surgery, April 26-May 1, 2018, New York, NY

168. "Gender Confirmation Surgery," Econsult monthly meeting, Dept. of Veterans' Affaris, May 24, 2018

169. "Gender Confirmation Surgery," Transgender Care Conference: Improving Care Across the Lifespan, Moses Cone Hospital, Greensboro, NC, June 8, 2018

170. "WPATH State of the Art," 1st Swiss Consensus Meeting on the Standardization of Sex Reassignment Surgery, The University of Basel, August 31, 2018-September 1, 2018

171. "Facial Feminiztion Surgery: The New Frontier?" 1st Swiss Consensus Meeting on the Standardization of Sex Reassignment Surgery, The University of Basel, August 31, 2018-September 1, 2018

172. "Current Techniques and Results in Mastectomies," 1st Swiss Consensus Meeting on the Standardization of Sex Reassignment Surgery, The University of Basel, August 31, 2018-September 1, 2018

173. "Gender Confirmation Surgery," The University of Chicago, Pritzker School of Medicine, September 7, 2018, Chicago, Il.

174. The Business End: Incorporating Gender Confirmation Surgery, Plastic Surgery The Meeting, Annual Meeting of The American Society of Plastic Surgeons, September 29, 2018, Chicago, Il

175. Body Contouring in Men, Gynecomastia, Plastic Surgery The Meeting, Annual Meeting of The American Society of Plastic Surgeons, September 30, 2018, Chicago, Il

176. Moderator: Breast Augmentation and Chest Surgery in Gender Diverse Individuals, Plastic Surgery The Meeting, Annual Meeting of The American Society of Plastic Surgeons, October 1, 2018, Chicago, Il

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203. Breast Augmentation in Transwomen: Optimizing Aesthetics and Avoiding Revisions, 88th Annual Meeting of The American Society of Plastic Surgeons, September 20-23, 2019, San Diego, CA

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212. Principles of Transgender Surgery, National Association of Women's Judges, District 8, Webinar, June 4, 2020

213. Gender-Affirming Surgery, National Association of Women's Judges, District 8, Webinar, July 8, 2020

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217. Breast Augmentation in Transgender Individuals, The American Society of Plastic Surgeons Spring Meeting, March 20, 2021

218. International Continence Society Institute of Physiotherapy Podcast 5-Pelvic Floor Most Common Disorders and Transgender Patients (recorded April 30, 2021)

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223. Gender Confirmation Surgery, The University of Chicago Pritzker School of Medicine, MS-1, Anatomy lecture, September, 14, 2021, Chicago Il.

224. Gender Confirmation Surgery, A Single Surgeon's 22 Year Experience: Where are We Now?, Research Seminar, Section of Endocrinology, The University of Chicago, Chicago, Il, October 4, 2011 (by Zoom)

225. Chest Surgery, The Illinois Dept. of Corrections (by zoom), October 13, 2021.

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December 1, 2021, Mar del Plata, Argentina

231. 51 Congreso Argentino de Cirugia Plastica, Genital Aesthetics and Gender Confirmation Surgery II, Cirugía Genital Masculinizante (Metoidioplastia y Faloplastia), December 2, 2021, Mar del Plata, Argentina

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Exhibit B

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IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
HUNTINGTON DIVISION

CHRISTOPHER FAIN, *et al.*, individually and on behalf of all others similarly situated,

Plaintiffs,

v.

WILLIAM CROUCH, *et al.*,

Defendants.

CIVIL ACTION NO. 3:20-cv-00740
HON. ROBERT C. CHAMBERS

CERTIFICATE OF SERVICE

I hereby certify that the EXPERT REBUTTAL REPORT OF LOREN S. SCHECHTER, M.D. was served electronically on the 18th day of March, 2022 on the following counsel for Defendants in the above-captioned case:

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IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
HUNTINGTON DIVISION

CHRISTOPHER FAIN, *et al.*, individually and on behalf of all others similarly situated, *Plaintiffs*, v. WILLIAM CROUCH, *et al.*, *Defendants.*	CIVIL ACTION NO. 3:20-cv-00740 HON. ROBERT C. CHAMBERS, JUDGE

EXPERT REBUTTAL REPORT OF
LOREN S. SCHECHTER, M.D.

I, Loren S. Schechter, M.D., declare as follows:

1. I have been retained by counsel for Plaintiffs as an expert in connection with the above-captioned litigation.

2. I previously submitted an expert witness report in this case ("Schechter Report"). I submit this report to respond to points raised in the Expert Disclosure Report of Dr. Stephen B. Levine, M.D. ("Levine Report") provided by Defendants.

3. My background, qualifications, and compensation for my services in this case, and the bases for my opinions in this case are described in my original report. In preparing this report, I was provided with and reviewed the Levine Report and the accompanying exhibits.

4. My opinions contained in this report are based on my professional background as described in my updated curriculum vitae (attached as Exhibit A); my clinical experience of nearly 25 years of caring for transgender individuals; my review and familiarity with relevant

peer-reviewed literature, including my own research;[1] and discussions with colleagues and other experts in the field, including attendance and participation in various educational conferences both nationally and internationally. The research I relied on in preparing this report is cited in my curriculum vitae, my original expert report, and the sources cited herein and the updated bibliography attached as Exhibit B.

5. As explained in my original report, I refer to the family of procedures discussed in this report interchangeably as "gender confirmation," "gender confirming surgeries," or "gender affirming surgeries" because they are one of the therapeutic tools used to enable people to live in accordance with their gender identities. This care applies specifically to people who are transgender because they are the only ones who undergo procedures for gender dysphoria (or gender incongruence).

6. I have personal knowledge of the matters stated in this report. I may further supplement these opinions in response to information produced by Defendants in discovery and in response to additional information from Dr. Levine or any other expert testimony Defendants may disclose.

I. QUALIFICATIONS OF DR. LEVINE

7. Based on the disclosures in Dr. Levine's report, he appears to lack the requisite

[1] As mentioned in my original report, I regularly and routinely perform literature searches in my academic roles at Rush University; and as Director of the Center for Gender Confirmation Surgery at Weiss Memorial Hospital (a role I will hold until April 5, 2022, when I will assume the position of Director of Gender Affirmation Surgery at Rush University Medical Center); Guest Examiner for The American Board of Plastic Surgery; lecturer for the Global Education Initiative for WPATH; invited lecturer at national and international conferences; co-lead author of the surgery and post-operative care chapter of the upcoming WPATH Standards of Care Version 8; an editor and reviewer for peer-reviewed publications; and a course director for various educational opportunities for WPATH, American Society of Plastic Surgeons, and other organizations.

qualifications to offer his opinions. Dr. Levine opines on surgical interventions pertaining to gender dysphoria, but he provides no evidence as to training or experience in a surgical discipline. Additionally, he is not a member of the World Professional Association for Transgender Health ("WPATH"), which is recognized by the mainstream medical consensus as the authoritative entity that has established comprehensive Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People ("Standards of Care"). Dr. Levine's previous involvement with the Standards of Care, Version 5 would seem to indicate that he does not support categorical bans on coverage for surgery, since those guidelines recognized that surgery can be medically necessary care for transgender people.

II. DR. LEVINE'S CRITIQUE OF MY EXPERT TESTIMONY IS UNFOUNDED

8. Although Dr. Levine has been designated to rebut my expert opinions, he says little about my expert report specifically. The few points he does raise misrepresent my testimony and the scientific literature, as explained below. Dr. Levine offers a number of other general critiques about the state of the science, and I respond to those further below.

9. Dr. Levine first claims that I seem "to be unaware of the body of literature that shows that gender-affirming interventions fail to improve mental health or to reduce suicidality or suicide long-term." Levine Report at 32 ¶ 62. He cites scant literature in support and largely ignores the extensive sources cited in the bibliography to my original expert report. I am nonetheless familiar with his cited sources, which do not contradict the opinions in my original report.

10. For example, Dr. Levine cites "key systematic review of surgeries for adults conducted by the HHS in 2016." Levine Report at 32 ¶ 63 (citing Tamara Syrek Jensen et al., *Final Decision Memorandum on Gender Reassignment Surgery for Medicare Beneficiaries with*

Gender Dysphoria, Centers for Medicare & Medicaid Services (2016)). He neglects to mention these systematic reviews of the literature followed a decision of the agency to *eliminate* a categorical ban on gender-affirming surgery, like the one West Virginia maintains in its Medicaid program and state employee programs. Dep't of Health and Human Servs., Departmental Appeals Board, Appellate Div., NCD 140.3, Transsexual Surgery (2014). In fact, the agency found that gender-affirming "surgery is an effective, safe and medically necessary treatment for transsexualism." *Id.* While the agency declined to issue a National Coverage Determination ("NCD") requiring the care to be made available without limitation, that was based on factors specific to the average Medicare participant such as age. In older individuals, additional medical conditions may increase the risk for surgery generally. Coverage is still available on a case-by-case basis. Additionally, many widely accepted surgical procedures and surgical conditions do not have NCDs under Medicare. The fact that gender-affirming surgery does not have an NCD is not unusual.

11. Dr. Levine also cites to an article entitled "Reduction in Mental Health Treatment Utilization among Transgender Individuals after Gender-affirming Surgeries: A Total Population Study," by Bränström R, Pachankis, Am J Psychiatry 2020; 177: 727–734. Levine Report at 32 n.101; 55-56 ¶¶ 111-13. I have previously reviewed this article, which found in the Swedish population a correlation between gender-affirming care and "a reduction in mental health treatment as a function of time since completing such treatment." Toward Rigorous Methodologies for Strengthening Causal Inference in the Association Between Gender-Affirming Care and Transgender Individuals' Mental Health: Response to Letters, Am J Psychiatry 2020; 177:769–772; doi: 10.1176/appi.ajp.2020.20050599. A correction was issued after initial publication indicating that language in the article too strongly suggested causation

rather than correlation. *Id.* Nothing about this changes the overall state of the literature; nor is the correction remarkable since proving causation is very difficult in medical literature. Additionally, the fact that some transgender people may need ongoing mental health care does not mean that surgical interventions were unsuccessful. Surgery treats the medical condition of gender dysphoria. Other studies also find improvement in mental health conditions such as depression or anxiety. Additionally, ongoing care for individuals can be important across a host of medical conditions. Patients receive aftercare from their oncologist after surgery for cancer, and may need mental health care as well. That does not mean the surgery was unsuccessful.

12. Dr. Levine also cites Wiepjes CM, den Heijer M, Bremmer MA, et al., Trends in suicide death risk in transgender people: results from the Amsterdam Cohort of Gender Dysphoria study (1972–2017). Acta Psychiatr Scand. 2020;141(6):486-491; doi:10.1111/acps.13164. I am familiar with this article too, which found a slight *reduction* in deaths by suicide for trans women. Additionally, reduction in suicide is not the only measure by which we determine whether care is medically necessary. Regardless, nothing in the literature suggests that categorically denying coverage for surgery, as West Virginia does, improves rates of suicidality or other health outcomes.[2]

13. Finally, Dr. Levine invokes a review by the Hayes Corporation, which reviews treatments for insurance companies. Levine Report at 32-33 ¶ 63. The Hayes Corporation itself, however, states that it is "not intended to be used as the sole basis for determining coverage policy," or "as the sole basis for defining treatment protocols, or medical modalities." The

[2] Additionally, measures already exist to ensure that risk for suicidality is assessed before surgery. For example, my patients undergoing inpatient surgery have a required preoperative suicide assessment as required by The Joint Commission.

Hayes Corporation also describes a key part of its mission as "provid[ing] the best *business solutions* proven to enhance efficiencies, reduce cost, and reduce risk" (emphasis added). *See* https://www.hayesinc.com/about-hayes/.

14. Dr. Levine describes the Hayes Corporation as rating the evidence for gender-affirming surgery for adults and adolescents as low-quality, but this misrepresents the meaning and significance of such reviews. Scientific ratings of evidence generally employ extremely high standards that are not satisfied for many commonly-prescribed treatments and procedures.[3] Such ratings do not mean that the treatment is unsupported in the literature and clinical practice, or that it is not medically necessary. The level of evidence does not always speak to the quality of the research, including because high-level evidence (generally Level I evidence) is not always the optimal or appropriate choice for a particular research question, and in some areas, is not feasible or ethical to conduct. The Hayes Corporation itself acknowledges that the literature shows gender-affirming surgeries improve outcomes across multiple areas for transgender people, including, for example, significant reductions in gender dysphoria. (Hayes Corp. 2018).

15. Dr. Levine mentions two other issues with respect to my testimony specifically, including purported conflicts of interest and rates of complications after surgery. Levine Report at 33 ¶ 65. As I explain below, both points are unsupported.

III. DR. LEVINE'S OPINIONS ARE INCONSISTENT WITH THE MAINSTREAM MEDICAL CONSENSUS

A. Gender-Confirming Surgery is Safe and Effective

16. As discussed in my original report, the research, as well as my own clinical

[3] *See, e.g., Bernard T. Lee, et al., Evidence-Based Clinical Practice Guideline: Autologous Breast Reconstruction with DIEP or Pedicled TRAM Abdominal Flaps*, Plastic and Reconstructive Surgery, 140(5):651e-664e (Nov. 2017); doi: 10.1097/PRS.0000000000003768.

expertise, show that surgical procedures for gender dysphoria are safe and effective, and that many of these procedures are analogous to surgical procedures used to treat other medical conditions. The fact that the medical community deems these analogous procedures sufficiently safe to treat conditions other than gender dysphoria is by itself more than sufficient to support the safety of those surgeries to treat gender dysphoria, since nothing about the safety of these procedures varies when they are used to treat gender dysphoria.

17. Dr. Levine claims that gender-affirming surgeries have high complication rates, *see, e.g.*, Levine Report at 33 ¶ 65; at 60-61 ¶¶ 125-26. But as explained further below, Dr. Levine's interpretation of the surgical literature demonstrates his lack of understanding of surgery. Additionally, Dr. Levine's sources for these opinions share the same flaws that run throughout his report generally. He frequently cites sources in misleading ways, implying that they support his opinions when the sources in fact establish support for access to gender affirming care. *See, e.g.*, Levine Report at 60 n.198 (citing de Vries, et al. (2014), which reported results showing that after gender-affirming care, gender dysphoria was alleviated in young adults and psychological functioning steadily improved); Levine Report at 61 n.199 (Olson-Kennedy, et al. (2018), which reported that serious complications were rare in post-surgical cohort).

18. When compared with analogous procedures for other conditions, gender-confirming surgeries do not have a particularly high rate of complications. For example, a recent study of 7,905 persons with gender dysphoria, of whom 1,047 underwent surgery between 2009-2015, revealed an overall complication rate for all surgical procedures on persons with gender

dysphoria of only 5.8%.[4]

19. Looking specifically at the complication rates for chest surgeries (subcutaneous mastectomy and chest wall contouring), two recent studies reveal a complication rate among transgender men of between 11% -12%,[5] in comparison to the complication rate of 43% for cisgender women undergoing breast reduction shown in a 2005 study.[6] Likewise, in a systematic review of cisgender women undergoing nipple-sparing mastectomy and immediate breast reconstruction using breast implants and acellular dermal matrix the complication rates include: 11% skin necrosis, 5% nipple necrosis, 12% infection, 1% hematoma, 5% seroma, 4% explantation, and 9% unplanned return to the operating room.[7] Similarly, in a study which queried the American College of Surgeons National Surgical Quality Improvement database from 2006-2017 regarding augmentation mammaplasty in 1,360 cisgender and transgender individuals, "the rates of all-cause complications were low in both cohorts, and differences were not significant" (1.6% for transgender women versus 1.8% for cosmetic breast augmentation).[8]

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[4] Megan Lane et al., *Trends in Gender-affirming Surgery in Insured Patients in the United States*, 6 Plastic and Reconstructive Surgery - Global Open e1738 (2018).
[5] M.G. Berry et al., *Female-To-Male Transgender Chest Reconstruction: A Large Consecutive, Single-Surgeon Experience*, 65 Journal of Plastic, Reconstructive & Aesthetic Surgery 711-719 (2012).; Cori A. Agarwal et al., *Quality of Life Improvement After Chest Wall Masculinization in Female-To-Male Transgender Patients: A Prospective Study Using the BREAST-Q and Body Uneasiness Test*, 71 Journal of Plastic, Reconstructive & Aesthetic Surgery 651-657 (2018).
[6] Bruce L. Cunningham et al., *Analysis of Breast Reduction Complications Derived from the BRAVO Study*, 115 Plastic and Reconstructive Surgery 1597-1604 (2005).
[7] Lene Nyhøj Heidemann et al., *Complications following Nipple-Sparing Mastectomy and Immediate Acellular Dermal Matrix Implant-based Breast Reconstruction—A Systematic Review and Meta-analysis*, 6 Plastic and Reconstructive Surgery - Global Open e1625 (2018).
[8] Nicholas G. Cuccolo et al., *Epidemiologic Characteristics and Postoperative Complications following Augmentation Mammaplasty: Comparison of Transgender and Cisgender Females*, 7 Plastic and Reconstructive Surgery - Global Open e2461 (2019).

20. Additionally, complication rates for vaginoplasties in transgender women are commensurate to rates of complications for cisgender women undergoing vaginal or vulvar reconstruction for other medical conditions (*e.g.*, cancer).[9]

21. Dr. Levine also asserts, without supporting literature, that "[r]e-operations are frequently performed." Levine Report at 61 ¶ 126. This statement reflects a lack of understanding of surgical literature. Re-operations are not uncommon across many areas in plastic surgery, including for example for breast reconstruction surgeries for cisgender women,[10]

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[9] For example, a 2018 study looking at complications and patient reported outcomes in 3716 cases of male-to-female vaginoplasty found complications rates of 2% fistula, 14% stenosis and strictures, 1% tissue necrosis, and 4% prolapse with patient-reported satisfaction of 93% (overall results). *See* Oscar J. Manrique et al., *Complications and Patient-Reported Outcomes in Male-to-Female Vaginoplasty—Where We Are Today*, 80 Annals of Plastic Surgery 684-691 (2018). An additional 2018 study published in the *Journal of Urology* evaluated 330 patients presenting for primary vaginoplasty. The overall complication rate in this study was 28.7%. Thomas W. Gaither et al., *Postoperative Complications following Primary Penile Inversion Vaginoplasty Among 330 Male-to-Female Transgender Patients*, 199 Journal of Urology 760-765 (2018). In comparison, studies examining complication rates in cisgender women undergoing vaginal and vulvar reconstruction demonstrate complication rates ranging as high as 61%. Melissa A. Crosby et al., *Outcomes of Partial Vaginal Reconstruction with Pedicled Flaps following Oncologic Resection*, 127 Plastic and Reconstructive Surgery 663-669 (2011). And additional studies demonstrate complication rates for cisgender women of 22.3%-26.7% for flap-related complications and between 7%-22% for donor site and flap-related complications. *See* Violante Di Donato et al., *Vulvovagional Reconstruction After Radical Excision From Treatment of Vulvar Cancer: Evaluation of Feasibility and Morbidity of Different Surgical Techniques*, 26 Surgical Oncology 511-521 (2017). (flap-related complications); Adrian McArdle et al., *Vaginal Reconstruction Following Radical Surgery for Colorectal Malignancies: A Systematic Review of the Literature*, 19 Annals of Surgical Oncology 3933-3942 (2012).(donor site and flap-related complications). Additional studies reviewing reconstruction of congenital deformities found complication rates as high as 57%. H. P. Versteegh et al., *Postoperative Complications After Reconstructive Surgery for Cloacal Malformations: A Systematic Review*, 19 Techniques in Coloproctology 201-207 (2015).

[10] Amanda Roberts et al., *Reoperation cascade in postmastectomy breast reconstruction and its associated factors: Results from a long-term population-based study*, J. Surg. Oncol., 2020 Dec;122(7):1300-1306 (Dec. 2020), doi: 10.1002/jso.26166; Maryam Saheb-Al-Zamani et al., *Early Postoperative Complications From National Surgical Quality Improvement Program: A Closer Examination of Timing and Technique of Breast Reconstruction*, Ann. Plast. Surg., 86(3S Suppl 2):S159-S164 (March 2021), doi: 10.1097/SAP.0000000000002590.

and reconstruction of soft tissue defects in lower extremity (i.e., the leg, ankle, and foot).[11] That does not affect the fact that the care is medically necessary. Additionally, most revisions for gender-affirming care are minor scar revisions, which are ubiquitous in plastic surgery.

22. In summary, Dr. Levine does appear to acknowledge that "surgical complications are common for all surgeries." Levine Report at 61 ¶ 126. While this paints complication rates with too broad a brush, Dr. Levine is correct to the extent he recognizes that this is generally true regardless of whether the patient is transgender or cisgender, although cisgender patients often receive coverage for this care as a matter of course.

23. Dr. Levine also suggests that "'patient desire' for transgender interventions has supplanted the traditional definition of medical necessity used in all other areas of medicine." This is incorrect. The medical community and insurance providers recognize a distinction between plastic surgery that is cosmetic and reconstructive plastic surgery that is medically necessary. No particular surgery is inherently cosmetic or inherently reconstructive; rather, the underlying diagnosis determines whether the procedure is considered cosmetic or reconstructive. Gender-confirming surgeries are not cosmetic surgeries because, when performed in accordance with the Standards of Care, they are clinically indicated to treat the medical condition of gender dysphoria. The professional medical consensus recognizes that these are appropriately categorized as reconstructive procedures. In a study published in 2019 by Miller, et al., 100% of transgender women who underwent breast augmentation reported improvement in their gender

[11] Lingyun Xiong et al., *Free flaps for reconstruction of soft tissue defects in lower extremity: a meta-analysis on microsurgical outcome and safety*, Microsurgery, 36(6):511-24 (Sept. 2016); doi: 10.1002/micr.30020.

dysphoria and "would undergo the operation again."[12]

24. Additionally, reconstructive surgery often has the additional benefit of promoting and improving a patient's quality of life and well-being, which is often a component of medically necessary care. Indeed, aside from the primary purpose of alleviating or reducing a patient's gender dysphoria, gender confirmation surgery also has been demonstrated to have other salutary effects, such as improving quality of life and reducing negative health outcomes. In a prospective study utilizing a validated quality of life assessment tool, Alcon, et al. demonstrated significant improvements in quality of life up to 1 year following chest surgery.[13] The authors indicated that "the effect sizes were large and…exhibited excellent internal validity." The authors report that "every patient surveyed at 1 year reported that gender-affirming surgery changed their life for the better" and that, "every patient surveyed after surgery said they would choose it (surgery) again knowing what they know." In addition, in a 2006 study published in Quality of Life Research, Newfield, et al. found that, "Chest reconstruction not only enhances the FTM transgender identity, increases self-esteem, and improves body image, but provides some security and safety for those who remove their shirts in public areas, such as gyms or beaches. Those who had received top surgery reported higher QOL (quality of life) scores than those who had not received surgery, statistically significant findings ($p<0.01$) for the General Health, Social Functioning, and all three mental health concepts."[14]

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[12] Travis J. Miller et al., *Breast Augmentation in Male-to-Female Transgender Patients: Technical Considerations and Outcomes*, 21 JPRAS Open 63-74 (2019).
[13] Loren S. Schechter, *Discussion: Quantifying the Psychosocial Benefits of Masculinizing Mastectomy in Trans Male Patients with Patient-Reported Outcomes: The University of California, San Francisco*, Gender Quality of Life Survey, 147 Plastic & Reconstructive Surgery 741e-742e (2021).
[14] Emily Newfield et al., *Female-to-Male Transgender Quality of Life*, 15 Quality of Life Research 1447-1457 (2006).

25. The overwhelming majority of patients who obtain gender confirmation surgery in a manner consistent with the Standards of Care are both satisfied and experience a reduction of gender dysphoria. For the vast majority of transgender people who seek such surgery, the surgery is successful at alleviating and/or reducing gender dysphoria and alleviating a lifelong struggle to find peace of mind and comfort with their bodies.

B. **Medically Necessary Care to Treat Gender Dysphoria is Not Experimental**

26. It is my professional medical opinion that the contention of Dr. Levine that gender-confirming surgeries are experimental is unsupported by the professional medical consensus and prevailing standards of care for treating gender dysphoria, and is inconsistent with mainstream medical standards. Levine Report 37 ¶ 75. To the contrary, the prevailing consensus of the medical community recognizes that procedures used to treat gender dysphoria are reconstructive, not experimental, and are medically necessary.

27. Surgical care is not considered experimental when it uses accepted techniques and has demonstrative benefits. The techniques used in gender-affirming care are employed in other surgeries and are well-established. For example, urethroplasties, orchiectomies, skin grafts, and mastectomies are all accepted techniques for congenital, oncological, and traumatic conditions. They are not experimental simply because they are applied to the well-established diagnosis of gender dysphoria.

28. Gender-affirming surgery has been performed for decades, utilizes accepted surgical techniques, and yields demonstrated benefits for patients. In addition, gender-affirming surgeries are: 1) part of the core curriculum in plastic surgery resident education; and 2) a component of both the written and oral board exams in plastic surgery. I have given presentations at multiple professional societies, and none of them consider gender-affirming

surgery experimental. In the disclosures required to give presentations of this kind there is no requirement that they be called experimental. It is widely accepted by professional surgical societies that gender-affirming surgeries are not experimental.

C. **Quality of Evidence**

29. The quality of the evidence supporting gender-affirming surgeries is comparable to that supporting many surgeries and clinical procedures. While prospective, randomized, double-blind, placebo-controlled studies are the gold standard, they cannot be used to evaluate many clinical procedures. There are simply inherent limitations to our ability to conduct such studies in clinical medicine. First, it is unethical to withhold medically necessary care. As such, in many situations, clinicians cannot conduct a study that uses a control group who is deprived of the treatment being studied. Practice guidelines published in 2013 by the Royal College of Psychiatrists indicated that a randomized controlled study to evaluate feminizing vaginoplasty would be "impossible to carry out."[15]

30. It is not possible to perform a double-blind study of surgeries that modify body parts, nor is there a placebo that can mimic such a surgery – unlike studies that use placebo drug regimens, for example, people will know if they have had an operation or not. For relatively uncommon conditions like gender dysphoria, sample sizes of individuals with the condition who are available to participate in a clinical study tend to be small. This is especially true where treatment for a condition has not been covered by insurance programs and plans, and where additional barriers (such as ongoing stigmatization) prevent patients from accessing care. That very lack of access to the procedure results in there being fewer people who have received

[15] Good Practice Guidelines for the Assessment and Treatment of Adults with Gender Dysphoria, Royal College of Psychiatrists 1-59 (2013).

treatment and who can participate in a prospective study of that treatment's effect.

31. Put simply, the scientific literature pertaining to gender-affirming surgical interventions is similar to that of other accepted plastic surgery procedures. The recommendation for ongoing research is a standard recommendation in many, if not most or all clinical scenarios. This recommendation for ongoing study in a particular clinical area does not mean that surgical care is withheld.

D. Misrepresentation of the Literature on Medical Necessity, Safety, and Effectiveness

32. The overwhelming weight of the scientific and medical literature supports the benefits of gender-affirming surgical interventions. Gender-affirming interventions have been performed for decades, and the safety and efficacy of these procedures have been reported by multiple surgeons practicing at different institutions in different countries and continents. Dr. Levine fails to acknowledge this literature, referencing instead several non-scientific sources to support his opinions. As a few representative examples, he relies on a conservative website called The Federalist (Levine Report at 33 n.111); and a Canadian website (https://genderreport.ca) which does not represent a professional medical or scientific organization (Levine Report at 35 n.113).

33. Dr. Levine cites a study by Dhejne, et al. to imply that because individuals who received gender confirming surgeries had higher morbidity and mortality rates compared to the general population, the surgeries are not effective. Levine Report at 54 ¶ 109; 59 ¶ 119. He appears to misunderstand that study. First, the study itself clearly states that it is not intended to evaluate whether gender-affirming surgeries are "an effective treatment or not." Second, those who receive medically necessary surgery generally have reduced morbidity and mortality

compared to those with the same condition who do not, even if morbidity and mortality for both groups are higher than average. Third, the study includes patients who had surgery prior to the development of the current standards of care. Finally, the fact that gender confirming surgeries do not entirely resolve all possible causes of morbidity and mortality among transgender individuals is completely unsurprising. While surgery can treat gender dysphoria by aligning transgender people's bodies with their gender identity, surgery alone cannot fully eliminate the stigma and discrimination that transgender people face. Moreover, it is rare for any surgery to eliminate morbidity and mortality. For example, people who have surgery to remove a cancerous tumor may still experience higher rates of morbidity and mortality than the general population, but that does not mean that they should not undergo the surgery. In addition, individuals suffering from other medical conditions (including chronic conditions and traumatic injuries such as burns) are also at elevated risk of suicide. The increased risk of suicide does not preclude treatment of burn patients.[16]

34. For instance, one study cited by Dr. Levine concluded that gender-affirming surgeries "may reduce psychological morbidity for some individuals while increasing it for others."[17] Levine Report at 54 n.173; 59 n.192. The fact that surgery does not always reduce morbidity for everyone who receives it does not mean that the surgery is not safe or effective, particularly given the number of potential confounding factors that can impact morbidity. Similarly, the continued existence of elevated morbidity and mortality rates, compared to the

[16] Sheera F. Lerman et al., *Suicidality After Burn Injuries: A Systematic Review*, 42 Journal of Burn Care & Research 357-364 (2021).
[17] Rikke Kildevæld Simonsen et al., *Long-Term Follow-up of Individuals Undergoing Sex Reassignment Surgery: Psychiatric Morbidity and Mortality*, 70 Nordic Journal of Psychiatry 241-247 (2016).

population at large, say nothing about whether a treatment is a safe and effective way to treat a particular condition. Similarly, in a study regarding "quality of life and patient satisfaction in adults treated for a cleft lip and palate," Kappen, et al. found that although some study participants "had accepted their diagnosis they were not entirely satisfied with their treatment outcome. These participants were still thinking about a possible correction in the future, occasionally inquired about new treatment options, and/or had to weigh the risk of complications or adverse outcomes against the (minor) benefits of surgery." The authors also state that, "Two patients … still had difficulties coping … Both were psychologically affected at the time of interview: one was coping with depression, while the other was experiencing a mild form of generalized anxiety." Additionally, four patients sought "professional psychological help …"[18] But that does not suggest that withholding medically necessary care is appropriate for those patients, any more than it is for transgender people.

35. Dr. Levine conflates various treatment options (i.e., pubertal suppression in adolescents, hormone therapy, gender-affirming surgeries) in a wide range of clinical scenarios (i.e., treatment of children, treatment of adolescents, treatment of adults, etc.). As with many areas of medicine, treatment options may differ depending upon the individual seeking care. The Center for Study of Inequality at Cornell University conducted a systematic review of all peer-reviewed articles published in English between 1991 and June 2017.[19] 93% of the studies "found that gender transition improves the overall well-being of transgender people…" Only 7%

[18] Isabelle F. P. M. Kappen et al., *Quality of Life and Patient Satisfaction in Adults Treated for a Cleft Lip and Palate: A Qualitative Analysis*, 56 The Cleft Palate-Craniofacial Journal 1171-1180 (2019).

[19] What does the scholarly research say about the effect of gender transition on transgender well-being? What We Know (2021), https://whatweknow.inequality.cornell.edu/topics/lgbt-equality/what-does-the-scholarly-research-say-about-the-well-being-of-transgender-people/.

of the studies reported "mixed or null findings." In addition, no studies concluded that gender transition causes overall harm.

E. **Informed Consent**

36. Dr. Levine misunderstands the informed consent process for surgical care. Levine Report at 69 ¶ 149. Gender-affirming surgical procedures have been shown beneficial by multiple surgeons, in multiple countries, over decades. The risks of gender-affirming surgical procedures are well-known and well-described in the literature.[20] Additionally, because analogous surgical techniques have long been used to treat other underlying diagnoses, the risks of these techniques are well-understood.

37. The Standards of Care specifically discuss the obligation of the surgeon to obtain informed consent and recommend health assessments prior to these gender-affirming surgical interventions. The options, including the potential complications, and risks and benefits of each, are discussed with patients. For adolescents, these discussions include the caregiver or parents who must consent as well.

38. The process of securing informed consent is done in a multidisciplinary way. The Standards of Care specifically indicate the importance of health assessments prior to surgery, as well as the importance of a multi-disciplinary and collaborative approach between surgeons, mental health professionals, and primary care providers. *See* Standards of Care at 56-57. Working in this interdisciplinary way, surgeons determine if a patient has any medical or mental

[20] *See, e.g.*, Loren S. Schechter, *The Surgeon's Relationship with the Physician Prescribing Hormones and the Mental Health Professional: Review for Version 7 of the World Professional Association for Transgender Health's Standards of Care*, 11 International Journal of Transgenderism 222-225 (2009).

health conditions that could affect their suitability for surgery or complicate their recovery after surgery. *See* Standards of Care at 59.

39. Accordingly, the patient undergoes a preoperative assessment by a qualified professional. One component of that preoperative mental health evaluation is an assessment of the individual's ability to provide informed consent. This represents a clinical standard which exceeds the threshold to perform many other types of surgical interventions, including those that are sterilizing. For this reason, Dr. Levine's claims that patients are "being rushed into" gender-affirming care are spurious. Levine Report at 68 ¶ 146. To the contrary, the preoperative process is careful and deliberate.

40. Dr. Levine also expresses concern about provisions in the Standards of Care for obtaining informed consent when the person has limited capacity to consent. Levine Report at 69 ¶ 146. I believe that he is referring to a provision of the Standards of Care that describes a series of options for obtaining meaningful consent in this circumstance, including a comprehensive and thorough assessment by a multidisciplinary healthcare team, or an alternative decisionmaker such as a legal guardian. Far from being a detriment, this provision of the Standards of Care recognizes the reality of medicine and healthcare across all fields: at times, people who require interventions have a limited capacity to consent. The Standards of Care go further than many other areas of medicine by first, recognizing this fact and second, describing a process to address it.

1. Fertility Counseling

41. Dr. Levine invokes concerns around care that leads to sterility, but notably his discussion focuses almost entirely on treatment for children. Levine Report at 61-62 ¶¶ 127-30. To clarify, surgical procedures are not performed on children under the Standards of Care, and

select procedures are performed in limited circumstances on adolescents only after extensive evaluation and informed consent. But Dr. Levine does not express any specific concerns about procedures that are sterilizing in adults, stating only that it should be considered as an important factor for any patient. Levine Report at 62 ¶ 130.

42. As discussed in the Standards of Care, individuals are counseled as to fertility-preserving options prior to undergoing sterilizing procedures. Individuals make decisions regarding interventions that affect fertility in a variety of clinical circumstances. These include procedures such as vasectomy, tubal ligation, and oophorectomy (whether for cancer or as a risk-reduction strategy). In the case of gender-affirming surgery, not only does the surgeon discuss the issue of fertility prior to surgery, individuals typically address this with their medical and/or mental health professionals as well. Once again, individuals seeking gender-affirming surgical interventions must meet a higher standard as compared to individuals undergoing sterilizing procedures for diagnoses or reasons other than gender dysphoria.

F. **Sexual Function**

43. Dr. Levine claims that "sexual dysfunction is not an uncommon complication of genital surgery." Levine Report at 63 ¶ 133. Once again, this demonstrates Dr. Levine's lack of understanding of surgery. Both my clinical experience and the literature indicate that sexual function generally improves after surgery where it is medically indicated.[21] Additionally, Dr. Levine fails to mention that lack of access to medically necessary care can be a significant source

[21] *See, e.g.*, Sara Bungener, *Sexual Experiences of Young Transgender Persons During and After Gender-Affirmative Treatment*, Pediatrics, 146(6):e20191411 (Dec. 2020); doi:10.1542/peds.2019-1411 (finding that one year after surgery, young transgender adults reported a significant increase in experiences with all types of sexual activities).

of distress and exacerbate gender dysphoria, leading to decreased rates of intimacy and sexual satisfaction for transgender people.

44. Separately, Dr. Levine suggests that there is a "sexual-romantic risk" to gender-affirming care because few people will want to form relationships with them, and if they "do not pass well" their relationship options are largely limited to those looking for "exotic sexual experiences." Levine Report at 66 ¶ 142. Setting aside Dr. Levine's disparaging suggestion that transgender people are less likely to be able to form healthy and fulfilling relationships, the fact that surgery can affect multiple domains of a person's life is not unique to gender-affirming surgery. For example, an oophorectomy may cause hot flashes and mood swings and affect one's romantic life, but there is no requirement that cisgender women see a mental health professional before obtaining that care. The same is true for prostatectomy, which may result in erectile dysfunction, but does not involve any requirement to see a mental health professional.[22] In contrast, transgender people are subject to a higher standard because they are required to undergo an assessment before accessing the same kinds of surgical procedures.

G. **"Error Rates"**

45. Dr. Levine briefly references "error rates" for clinical decisions. Levine Report at 9 ¶ 12. To the extent Dr. Levine intends to refer to rates of complications or regret, rates of complications are regularly discussed in medical literature on treatments for gender dysphoria. Rates of regret for procedures among individuals with gender dysphoria remain extremely low.[23]

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[22] Jessica C. Emanu et al., *Erectile Dysfunction after Radical Prostatectomy: Prevalence, Medical Treatments, and Psychosocial Interventions*, Curr Opin Support Palliat Care, 10(1): 102–107 (March 2016); doi:10.1097/SPC.0000000000000195.

[23] Sasha Karan Narayan et al., *Guiding the Conversation—Types of Regret After Gender-Affirming Surgery and Their Associated Etiologies*, 9 Annals of Translational Medicine 605-616 (2021).

46. Dr. Levine expresses concerns that transgender patients may "desist" and cease to want to transition. *See, e.g.*, Levine Report at 42 ¶ 89; 43-44 ¶ 91. Among other sources, Dr. Levine cites the work of Dr. Miroslav Djordjevic regarding his experience with patients seeking reversal of their surgeries, Levine Report at 42 n.129, but those patients all received surgery without following the Standards of Care. Dr. Levine also cites "online community of young women who have desisted," Levine Report at 43 ¶ 91, but that is not a medical or scientific source. In fact, all available scientific research indicates that reports of regret are extremely low when gender confirming surgery is provided in accordance with the Standards of Care.[24]

47. Dr. Levine points to his own knowledge of "several" individuals no longer pursuing transition, including in the prison context. Levine Report at 42 ¶ 89. That Dr. Levine states that he has seen this happen several times in almost 40 years does not mean that it is a common occurrence among transgender individuals generally or among those who have received gender confirming surgery. All available research—as well as my own clinical experience—indicates that very few patients experience regret when gender confirming surgery is provided in accordance with the WPATH SOC and by a qualified surgeon. Regret of any kind is rare (0.6% in transgender women and 0.3% in transgender men),[25] but "true regrets," as opposed to regrets due to lack of social or familial acceptance, comprise an even smaller percentage (approximately half this group, roughly 0.3% in transgender women and 0.15% in transgender men).[26] Having

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[24] Chantal M. Wiepjes et al., *The Amsterdam Cohort of Gender Dysphoria Study (1972–2015): Trends in Prevalence, Treatment, and Regrets*, 15 The Journal of Sexual Medicine 582-590 (2018).

[25] *Id.*

[26] *Id.* at 585, 587 (researchers classified "social regrets" as those experienced by individuals who still identified as transgender women, but reported feeling "ignored by surroundings" or regretted loss of relatives," and classified "true regrets" as those experienced by individuals who "thought

performed gender confirming surgeries for over 20 years, I have never had a patient request a reversal of male chest reconstruction.

48. In a recent study I co-authored regarding regret following gender-affirming surgery, Narayan, et al. queried 154 surgeons surgically treating between 18,125 to 27,325 individuals.[27] The rate of regret was found to be between 0.2-0.3%, consistent with previous literature.

49. Moreover, issues pertaining to regret following surgical procedures are not limited to gender-affirming surgical interventions.[28] Some cisgender women experience regret following breast reconstruction (40%), some cisgender women expressed regret following prophylactic mastectomy (6%) and prophylactic oophorectomy (7%). Additionally, in my clinical experience, many people regretted not having access to gender-affirming care before access was expanded through insurance coverage.

H. **Patient Diagnosis**

50. Dr. Levine suggests that gender-affirming care is provided based on a "a patient's self-diagnosis of gender dysphoria," which purportedly clears the way for "rapid approval for hormonal and surgical interventions." Levine Report at 68 ¶ 148. This misrepresents the

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gender affirming treatment would be a 'solution' for, for example, homosexuality or [lack of] personal acceptance, but, in retrospect, regretted the diagnosis and treatment").

[27] Sasha Karan Narayan et al., *Guiding the Conversation—Types of Regret After Gender-Affirming Surgery and Their Associated Etiologies*, 9 Annals of Translational Medicine 605-616 (2021).

[28] Toni Zhong et al., *Decision Regret Following Breast Reconstruction: The Role of Self-Efficacy and Satisfaction With Information in the Preoperative Period*, 132 Plastic and Reconstructive Surgery 724e-734e (2013).; Leslie L. Montgomery et al., *Issues of Regret in Women With Contralateral Prophylactic Mastectomies*, 6 Annals of Surgical Oncology 546-552 (1999).; Elizabeth M. Swisher et al., *Prophylactic Oophorectomy and Ovarian Cancer Surveillance*, 46 The Journal of Reproductive Medicine 87-94 (2001).

preoperative process and multidisciplinary assessment that occurs prior to gender-affirming surgical interventions.[29] Dr. Levine fails to accurately describe the process of diagnosis that is performed before the transgender patient is eligible for surgery, and also the role and responsibility of the surgeon in providing this care.

51. The surgeon receives in writing one or more assessments of the patient's diagnosis and medical necessity of the care by one or more mental health professionals, as required for the relevant procedure under the Standards of Care. But that is only one step in the assessment for surgical interventions. The surgeon remains ultimately responsible for deciding whether a particular surgical intervention is medically indicated. The surgeon evaluates the patient and makes the final decision about whether it is safe and medically indicated to proceed. This includes an evaluation of the patient's understanding of the condition, their self-awareness, and their goals and expectations for the intervention. The surgeon also evaluates other health factors that would affect the patient's fitness for the surgery, and determines whether additional studies might be required, such as x-rays or laboratory work. The surgeon also typically obtains an assessment from their primary care physician about their overall health. In my own clinical practice, I have had occasion to decline to perform a requested intervention based on my exercise of professional judgment.

IV. WPATH STANDARDS OF CARE

A. WPATH is a Professional Medical Association

52. Dr. Levine attempts to discount the broad medical consensus that gender

[29] *See* the Standards of Care; Loren S. Schechter, *The Surgeon's Relationship with the Physician Prescribing Hormones and the Mental Health Professional: Review for Version 7 of the World Professional Association for Transgender Health's Standards of Care*, 11 International Journal of Transgenderism 222-225 (2009).(now International Journal of Transgender Health).

confirming surgeries are medically necessary by claiming that WPATH is an "advocacy organization" and not a professional one. Levine Report at 34 ¶ 69. First, most medical associations and societies engage in advocacy on behalf of health care professionals, their patients, and their medical specialty generally. For example, the Endocrine Society describes itself as devoted to "advocating on behalf of the global endocrinology community," including patients with endocrine conditions. Endocrine Soc'y, Who We Are, https://www.endocrine.org/about-us; *see also* Endocrine Soc'y, Advocacy, https://www.endocrine.org/advocacy, Endocrine Soc'y, Shaping Healthcare and Research Policy, https://www.endocrine.org/our-community/shaping-healthcare-and-research-policy. Similarly, the American Society of Plastic Surgeons uses advocacy "to support its members in the provision of excellent patient care." Am. Soc'y of Plastic Surgeons, About ASPS, https://www.plasticsurgery.org/about-asps. Far from being unique, engaging in advocacy is the norm among professional medical associations. *See, e.g.*, Am. Medical Ass'n, Health Care Advocacy, https://www.ama-assn.org/health-care-advocacy; Am. Psychiatric Ass'n, Make a Difference Through APA Advocacy, https://www.psychiatry.org/psychiatrists/advocacy; Am, Acad. of Pediatrics, Advocacy, https://services.aap.org/en/advocacy/.

53. WPATH has transgender members who are licensed professionals in the wide range of specialties associated with transgender health as well as transgender members who bring the voice of the community into the organization. This is analogous to other professional societies, such as The American Burn Association, in which firefighters may be members. *See* https://ameriburn.org/ (The American Burn Association website).

54. Dr. Levine critiques WPATH because transgender members of the community may attend its biennial meetings, suggesting that it "limits … honest, methodologically

competent debate" and means the organization cannot be considered "purely professional." The presence and participation of transgender people in WPATH in no way restricts "honest, methodologically competent debate" among professionals. Levine Report at 34 ¶ 68. To the contrary, it enriches the discussion of important topics, just as the participation of patients and patient support groups does during discussions at conferences for other professional societies to which I belong. Having transgender members is vital to WPATH and the development of the Standards of Care, but notably, voting privileges are limited to members who are professionals. Thus, the implication that the participation of transgender members degrades WPATH's scientific integrity or impartiality has no merit. Moreover, in conjunction with WPATH's biennial conference, it hosts a meeting that is limited to surgeons and healthcare professionals directly involved in surgical care (a meeting that I started at the 2007 WPATH Biennial meeting in Chicago and continue to organize and participate in at each of the subsequent meetings). During the meeting, surgeons openly discuss a wide range of issues, including surgical techniques and ethical questions.

B. **Every Major Medical Organization Supports the Current Standards of Care**

55. Dr. Levine ignores that every relevant medical and behavioral health association agrees that gender-confirming care is a medically necessary treatment for individuals with gender dysphoria. *See, e.g.*, Schechter Report ¶ 25 (noting that the American Medical Association, American Psychological Association, American Psychiatric Association, American College of Obstetricians and Gynecologists, American Academy of Family Physicians, and World Health Organization recognize gender confirming surgeries as standard, appropriate, and necessary treatments for gender dysphoria); *see also* Am. Psychological Ass'n, Guidelines for Psychological Practice With Transgender and Gender Nonconforming People (2015),

https://www.apa.org/practice/guidelines/transgender.pdf; Am. Psychiatric Ass'n, A Guide for Working With Transgender and Gender Nonconforming Patients (2017), https://www.psychiatry.org/psychiatrists/cultural-competency/education/transgender-and-gender-nonconforming-patients.

C. WPATH Standards of Care 8, and Clinical Guidelines Generally, are Determined Through Literature Review and Expert Testimony

56. Dr. Levine fundamentally mischaracterizes how clinical guidelines, and the Standards of Care 8 specifically, are developed. I am the co-lead author of the surgical and postoperative care chapter of the eighth version of the Standards of Care, which is in the final stages of preparation before release. I also have served as chairman on prior committees that have drafted clinical guidance. In 2011, I helped to co-write the reduction mammaplasty clinical guidelines. The establishment of clinical guidelines generally involves:

- Careful evaluation of the relevant medical and scientific peer-reviewed literature.
- Testimony from experts in the relevant field.
- Disclosure of conflicts of interest.

57. Dr. Levine insinuates that Standards of Care 8 are not evidence-based because purportedly "none of the recommendations are linked to the evidence." Levine Report at 38 ¶ 79. This is incorrect. Contrary to Dr. Levine's assertions, the Standards of Care are the result of careful and deliberate reviews of the relevant medical and scientific literature and expert testimony.

58. Additionally, experts in the field often serve as author or co-author on practice guidelines—including, for example, practice guidelines in other areas of plastic surgery, such as for reduction mammaplasty. Contrary to Dr. Levine's suggestion, that poses no inherent conflict of interest. Levine Report at 33 ¶ 65. This is because it would make no sense to exclude the

providers who actually perform the care for which the guidelines are developed. Professional societies and organizations have mechanisms to address and mitigate potential or perceived conflicts. It is unreasonable to assume that individuals without expertise in a field of study would be asked to author professional guidelines.

59. Review of guidelines is a constant revision process based on the latest available evidence. There is no area of medicine where there is complete and absolute knowledge where no further research is needed.

V. GENDER-AFFIRMING CARE MEETS THE STANDARDS OF MEDICAL NECESSITY UNDER WEST VIRGINIA'S MEDICAID PROGRAM AND STATE EMPLOYEE HEALTH PLANS

60. Dr. Levine states that, "[t]o determine whether West Virginia Medicaid and PEIA should be forced to categorically cover medical and surgical interventions for gender dysphoria, one will need to consider the balance of benefits and harms of such a decision." But that is already what the Standards of Care require, which aligns with how all surgical treatment is provided.

61. Dr. Levine also claims that "[f]inancial considerations must also be taken into account." Levine Report at 75 ¶ 162. But his testimony simply offers unsupported conjecture about costs; he cites no literature or other supporting sources, and fails to respond to the testimony in my original report. Schechter Report at 16-17 ¶¶ 38-39.

62. Dr. Levine describes the standards for medical necessity in the relevant programs and plans as follows:

A. West Virginia Medicaid: "items or services furnished to a patient that are reasonable and necessary for the diagnosis or treatment of illness or injury, to improve the functioning of a malformed body member, to attain, maintain, or regain functional capacity, for

the prevention of illness, or to achieve age appropriate growth and development." Levine Report at 40 ¶ 85 (citing National Academy for State Health Policy, "State Definitions of Medical Necessity under the Medicaid EPSDT Benefit," https://www.nashp.org/medical-necessity/). Chapter 200 of the West Virginia Bureau for Medical Services Policy Manual defines medically necessary services as:

> Services and supplies that are appropriate and necessary for the symptoms, diagnosis, or treatment of an illness. They are provided for the diagnosis or direct care of an illness within the standards of good practice and not for the convenience of the plan, member, caregiver, or provider. The appropriate level of care can be safely provided and the most efficient and cost effective services/supplies to meet the member's need.

See https://dhhr.wv.gov/bms/Provider/Documents/Manuals/Chapter%20200%20Definitions%20and%20Acronyms.pdf.

B. PEIA: "A service is considered to be medically necessary if it is: consistent with the diagnosis and treatment of the injury or illness; in keeping with generally accepted medical practice standards; not solely for the convenience of the patient, family or health care provider; not for custodial, comfort or maintenance purposes; rendered in the most cost-efficient setting and level appropriate for the condition; and not otherwise excluded from coverage under the PEIA PPB Plans." Levine Report at 40 n.124.

63. I am familiar with a variety of definitions of medical necessity across health plans, many of which are similar to the definitions in the health plans at issue here. Gender-affirming surgery satisfies these standards. This care is widely recognized as treating a serious medical condition, significantly improves functioning for a majority of people who receive it, and is generally the most cost efficient and effective treatment for this condition.

64. As explained above, Dr. Levine's prior involvement with the Standards of Care, Version 5 suggests that he does not support categorical bans on coverage for surgical care, since those guidelines recognized that surgery can be medically necessary for transgender people. Instead, his report largely seems to critique the way that some people can access this care. But this does not support West Virginia's categorical exclusions of coverage, which contravene the established research, peer-reviewed literature, and clinical evidence in this area. Instead, the evidence base shows that surgical care can be medically necessary and lead to significant improvement in outcomes for transgender patients.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed this 17 day of March, 2022.

Loren Schechter
Loren Schechter (Mar 17, 2022 11:11 CDT)

Loren S. Schechter, M.D.

Subscribed and sworn before me, a Notary Public in and for the County of Norfolk, State of Virginia, this 17 day of March, 2022.

KETSIA MCCLEASE
Electronic Notary Public
Commonwealth of Virginia
Registration No. 327724
My Commission Expires Apr 30, 2023

Ketsia McClease
Signature of Notary

This notarial act was performed online by way of two-way audio/video communication technology.

1647505231-fain-v-crouch-schechter-rebuttal-report419424-10

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Exhibit A

Curriculum Vitae

NAME: LOREN SLONE SCHECHTER, MD, FACS

OFFICE:
4700 Marine Dr.
Suite 515
Chicago, Il 60640
Tel: 773.564.6500

E-MAIL: lorenschechter1@gmail.com

MARITAL STATUS: Married (Rebecca Brown Schechter, MD)

CERTIFICATION:

	The American Board of Plastic Surgery	2001
	Certificate Number 6271	
	Date Issued: September 2001	
	Maintenance of Certification:	2011
	Maintenance of Certification:	2021

EDUCATION:

1986-1990	The University of Michigan	BS, 1990
1990-1994	The University of Chicago Pritzker School of Medicine	MD, 1994

POSTGRADUATE TRAINING:

Residency:	The University of Chicago Hospitals Coordinated Training Program in Plastic and Reconstructive Surgery	1994-1999
Chief Resident:	The University of Chicago Hospitals Section of Plastic and Reconstructive Surgery	1998-1999
Fellowship:	Reconstructive Microsurgery The University of Chicago Hospitals Section of Plastic and Reconstructive Surgery	1999-2000

TEACHING APPOINTMENT:

Professor of Surgery, Chief Section of Gender-Affirmation Surgery, Rush University Medical Center-In Process, Director, Gender Affirmation Surgery-Rush University Medical Center-effective April 5, 2022

Clinical Professor of Surgery, The University of Illinois at Chicago-resigned to accept position at Rush University

Adjunct Assistant Professor, Dept. of Surgery, Rush University Medical Center

Associate Professor, Physician Assistant Program, College of Health Professionals, Rosalind Franklin University

LICENSURE:

Illinois
Illinois Controlled Substance
DEA

STAFF APPOINTMENTS:

Rush University Medical Center
Advocate Lutheran General Hospital
Louis A. Weiss Memorial Hospital
Illinois Sports Medicine and Orthopedic Surgery Center

HONORS AND AWARDS:

2022	Chicago Magazine Top Doctor
2021	Chicago Magazine Top Doctor-Surgery
2020	The University of Minnesota Program in Human Sexuality, recipient of 50 Distinguished Sexual and Gender Health Revolutionaries
2017-2020	Castle Connolly Top Doctor (Chicago)
2017	Chicago Consumer Checkbook Top Doctor
2015	University of Minnesota Program in Human Sexuality Leadership Council
2014-2015	Rosalind Franklin University of Medicine and Science Chicago Medical School Honors and recognizes for dedication and commitment to teaching
2014	National Center for Lesbian Rights honored guest
2013	Illinois State Bar Association Award for Community Leadership
2010	Advocate Lutheran General 2009 Physicians Philanthropy Leadership Committee-Outstanding Leadership
2009	Advocate Lutheran General Hospital Value Leader (received for compassion)
1994	Doctor of Medicine with Honors
1994	University of Chicago Department of Surgery Award for Outstanding Performance in the Field of Surgery
1994	Catherine Dobson Prize for the Best Oral Presentation Given at the 48th Annual Senior Scientific Session in The Area of Clinical Investigation
1993	Alpha Omega Alpha
1991	University of Chicago National Institutes Of Health Summer Research Award
1990	Bachelor of Science with High Distinction And Honors in Economics
1990	James B. Angell Award for Academic Distinction
1989	Omicron Delta Epsilon-National Economic Honor Society
1988	College Honors Program Sophomore Honors Award For Academic Distinction

1988	Class Honors (Dean's List)

MEMBERSHIPS:

2018-	The American Association of Plastic Surgeons
2016-	The American Society for Gender Surgeons (founding member and president-elect)
2010-	World Society for Reconstructive Microsurgery
2005-	The University of Chicago Plastic Surgery Alumni Association
2005-	The Chicago Surgical Society
2004-	The American Society for Reconstructive Microsurgery
2003-	The American College of Surgeons
2002-	The American Society of Plastic Surgeons
2001-	Illinois Society of Plastic Surgeons (formerly Chicago Society of Plastic Surgeons)
2001-	The American Society of Maxillofacial Surgeons
2001-	American Burn Association
2001-	Midwest Association of Plastic Surgeons
2001-	WPATH
1994-	The University of Chicago Surgical Society
1994-	The University of Chicago Alumni Association
1992-	American Medical Association
1992-	Illinois State Medical Society
1992-	Chicago Medical Society
1990-	The University of Michigan Alumni Association

CURRENT HOSPITAL COMMITTEES:

Director, Center for Gender Confirmation Surgery, Louis A. Weiss Memorial Hospital

PROFESSIONAL SOCIETY COMMITTEES:

WPATH Executive Committee

Treasurer, The World Professional Association for Transgender Health

Chair, Finance and Investment Committee, The American Society of Plastic Surgeons

WPATH 2020 Biennial Meeting Steering Committee

American Society of Breast Surgeons Research Committee, ASPS representative

American Board of Plastic Surgery, Guest Oral Board Examiner

WPATH Ethics Committee

American College of Radiology Committee on Appropriateness Criteria Transgender Breast Imaging Topic, Expert Panel on Breast Imaging: Transgender Breast Cancer Screening Expert Panel on Breast Imaging

American Society of Plastic Surgeons, Finance and Investment Committee

Board of Directors, at-large, The World Professional Association for Transgender Health

PlastyPac, Board of Governors

Medicare Carrier Advisory Committee

OTHER:

American Board of Plastic Surgery-Oral Board Guest Examiner (2020, 2021)

Guest Reviewer, Pain Management

Guest Reviewer, Plastic and Aesthetic Research

Guest Reviewer, European Medical Journal

Guest Reviewer, Open Forum Infectious Diseases

Guest Reviewer, The Journal of The American College of Surgeons

Guest Book Reviewer, Plastic and Reconstructive Surgery

Editorial Board, Transgender Health

Editorial Board (Associate Editor), International Journal of Transgenderism

Fellow of the Maliniac Circle

Guest Reviewer, Journal of Reconstructive Microsurgery

Guest Reviewer, Journal of Plastic and Reconstructive Surgery

Guest Reviewer, Journal of Sexual Medicine

Guest Editor, Clinics in Plastic Surgery, Transgender Surgery (Elsevier Publishing)

Guest Reviewer, The Journal of Plastic and Reconstructive Surgery

PREVIOUS EDITORIAL ROLE:

Guest Reviewer, EPlasty, online Journal

Module Editor for Patient Safety, Plastic Surgery Hyperguide

Editorial Advisory Board, Plastic Surgery Practice

Guest Reviewer, International Journal of Transgenderism

Guest Reviewer, Pediatrics

PREVIOUS ACADEMIC APPOINTMENT:

Visiting Clinical Professor in Surgery, The University of Illinois at Chicago

Chief, Division of Plastic and Reconstructive Surgery, Chicago Medical School, Rosalind Franklin University of Medicine and Science

Associate Professor of Surgery, The College of Health Professionals, Rosalind Franklin University

Clinical Associate in Surgery, The University of Chicago

PREVIOUS HOSPITAL COMMITTEES:

Division Director, Plastic Surgery, Lutheran General Hospital

Division Director, Plastic Surgery, St. Francis Hospital

Medical Staff Executive Committee, Secretary, Advocate Lutheran General Hospital

Credentials Committee, Lutheran General Hospital

Pharmacy and Therapeutics Committee Lutheran General Hospital

Operating Room Committee, St. Francis Hospital

Cancer Committee, Lutheran General Hospital
-Director of Quality Control

Risk and Safety Assessment Committee, Lutheran General Hospital

Nominating Committee, Rush North Shore Medical Center

Surgical Advisory Committee, Rush North Shore Medical Center

Section Director, Plastic Surgery, Rush North Shore Medical Center

PREVIOUS SOCIETY COMMITTEES:

PlastyPac, Chair, Board of Governors

Chair of the Metro Chicago District #2 Committee on Applicants, American College of Surgeons

American Society of Plastic Surgery, Health Policy Committee

American Society of Plastic Surgery, Patient Safety Committee

American Society of Plastic Surgeons, Coding and Payment Policy Committee

American Society of Plastic Surgeons, Practice Management Education Committee

Board of Governors, Governor-at-large, The American College of Surgeons

American College of Surgeons, International Relations Committee

Chair, Government Affairs Committee, American Society of Plastic Surgeons

President, The Metropolitan Chicago Chapter of The American College of Surgeons

2012 Nominating Committee, American Society of Plastic Surgeons

Program Committee, The World Society for Reconstructive Microsurgery, 2013 Bi-Annual Meeting

President, Illinois Society of Plastic Surgeons

Vice-President, The Illinois Society of Plastic Surgeons (formerly the Chicago Society of Plastic Surgery)

Vice-President, The Metropolitan Chapter of the American College of Surgeons

American Society of Plastic Surgery, Chairman, Patient Safety Committee

2006-2007 Pathways to Leadership, The American Society of Plastic Surgery

2005 & 2006 President, The University of Chicago Plastic Surgery Alumni Association

2003 Leadership Tomorrow Program, The American Society of Plastic Surgery

Senior Residents Mentoring Program, The American Society of Plastic Surgery

American Society of Maxillofacial Surgery, Education Committee

Alternate Councilor, Chicago Medical Society

American Society of Aesthetic Plastic Surgery, Electronic Communications Committee

American Society of Aesthetic Plastic Surgery, Intranet Steering Committee

American Society of Aesthetic Plastic Surgery, International Committee

Membership Coordinator, The Chicago Society of Plastic Surgeons
The Illinois State Medical Society, Governmental Affairs Council

The Illinois State Medical Society, Council on Economics

Chicago Medical Society, Physician Review Committee
-Subcomittee on Fee Mediation

Chairman, Chicago Medical Society, Healthcare Economics Committee

Secretary/Treasurer, The Metropolitan Chicago Chapter of the American College of Surgeons

Scientific Committee, 2007 XX Biennial Symposium WPATH

Local Organizing Committee 2007 WPATH

Secretary, The Chicago Society of Plastic Surgeons

Treasurer, The Chicago Society of Plastic Surgeons

Council Member, The Metropolitan Chicago Chapter of the American College of Surgeons

INTERNATIONAL MEDICAL SERVICE:

Northwest Medical Teams
Manos de Ayuda (Oaxaca, Mexico)

Hospital de Los Ninos (San Juan, Puerto Rico)

COMMUNITY SERVICE:

Alumni Council, The University of Chicago Medical and Biological Sciences Alumni Association

The University of Minnesota Presidents Club Chancellors Society

Board of Directors, Chicago Plastic Surgery Research Foundation

National Center for Gender Spectrum Health Advisory Council

PREVIOUS COMMUNITY SERVICE:

Board of Directors, Committee on Jewish Genetic Diseases, Jewish United Fund, Chicago, Illinois

Governing Council, Lutheran General Hospital, Park Ridge, Il

Lutheran General Hospital Development Council, Park Ridge, Il

Lutheran General Hospital Men's Association, Park Ridge, Il

Advisory Board, Committee on Jewish Genetic Diseases, Cancer Genetics Subcommittee, Jewish United Fund, Chicago, Illinois

Health Care Advisory Board, Congressman Mark Kirk, 10th Congressional District, Illinois

Major Gifts Committee, Saint Francis Hospital Development Council, Evanston, Il

Visiting Professor:

1. University of Utah, Division of Plastic Surgery, November 6-8, 2014.
2. Northwestern University, Division of Plastic Surgery, April 21-22, 2016.
3. The University of North Carolina, Division of Plastic Surgery, March 28-29, 2017
4. Georgetown University, Department of Plastic Surgery, May 17-18, 2017
5. The University of Basel, Basel, Switzerland, August 31-September 1, 2018

6. The Ochsner Health System, New Orleans, LA January 28-January 30, 2019

7. The University of Toronto, Toronto, Ontario, Canada, February 21-22, 2019

8. The University of Michigan, October3-4, 2019, Ann Arbor, MI,

Invited Discussant:

1. Department of Defense, Military service by people who are transgender, Invitation from Terry Adirim, M.D., M.P.H.Deputy Assistant Secretary of Defense for Health Services Policy & Oversight, The Pentagon, November 9, 2017

2. Aesthetic Surgery Journal, Invited Discussant May 7, 2019, Journal Club. "What is "Nonbinary" and What Do I need to Know? A Primer for Surgeons Providing Chest Surgery for Transgender Patients."

Research Interests:

1. Role of Omental Stem Cells in Wound Healing (Grant: Tawani Foundation)

2. Robotic-Assisted Bilateral Prophylatic Nipple Sparing Mastectomy with Immediate Tissue Expander/Implant Reconstruction (Pending submission to the FDA for Investigational Device Exemption in association with Intuitive Surgical)

3. Transgender Health and Medicine Research Conference, National Institutes of Health, Bethesda, MD May 7-8, 2015

4. Uterine Transplantation, Rush University Medical Center (IRB pending)

5. Gender Affirmation Surgery Prospective Surveys (Rush University-IRB approved)

6. National Network for Gender Affirming Surgeries: Canadian Institute of Health Research, Training Grant - LGBQT 2S Stigma Reduction & Life Course Mental Wellness (application in process)

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PEER REVIEWED ARTICLES:

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2. David C. Cronin, II, **Loren Schechter**, Somchi Limrichramren, Charles G. Winans, Robert Lohman, and J. Michael Millis, Advances in Pediatric Liver Transplantation: Continuous Monitoring of Portal Venous and Hepatic Artery Flow with an Implantable Doppler Probe. *Transplantation 74(6):887-889, 2002.*

3. Robert F. Lohman, **Loren S. Schechter**, Lawrence S. Zachary, Solomon Aronson: Evaluation of Changes in Skeletal Muscle Blood Flow in the Dog

with Contrast Ultrasonography Revisited: Has the Technique Been Useful, and Where are We Headed Now? *The Journal of Plastic and Reconstructive Surgery* 111(4):1477-1480, 2003.

4. Alvin B. Cohn, Eric Odessey, Francis Casper, **Loren S. Schechter:** Hereditary Gingival Fibromatosis: Aggressive Two-Stage Surgical Resection in Lieu of Traditional Therapy, *The Annals of Plastic Surgery Vol 57, Number 5, November 2006.*

5. Eric Odessey, Al Cohn, Kenneth Beaman, and **Loren Schechter:** Mucormycosis of the Maxillary Sinus: Extensive Destruction with an Indolent Presentation, *Surgical Infections*, Vol. 9, Number 1, 2008

6. Iris A. Seitz, MD, David Tojo, MD, **Loren S. Schechter**, MD Anatomy of a Medication Error: Inadvertent Intranasal Injection of Neosynephrine During Nasal Surgery - A Case Report and Review of The Literature Plast Reconstr Surg. 2010 Mar;125(3):113e-4e. doi: 10.1097/PRS.0b013e3181cb68f9

7. Iris Seitz, MD Craig Williams, MD, Thomas Weidrich, MD, John Seiler, MD, Ginard Henry, MD, and **Loren S. Schechter, MD:** Omental Free Tissue Transfer for Coverage of Complex Upper Extremity Defects: The Forgotten Flap *(N Y). 2009 Dec;4(4):397-405. doi: 10.1007/s11552-009-9187-6. Epub 2009 Mar 25.*

8. Michael Salvino and **Loren S. Schechter:** Microvascular Reconstruction of Iatrogenic Femoral Artery Thrombus in an Infant: A Case Report and Review of the Literature ePlasty Volume 9 ISSN: 19357-5719, E-location ID: e20

9. Phillip C. Haeck, MD, Jennifer A. Swanson, BS, Med, Ronald E. Iverson, MD., **Loren S. Schechter, MD**, Robert Singer, MD, Bob Basu, MD, MPH, Lynn A. Damitz, MD, Scott Bradley Bradley Glasberg, MD, Lawrence S. Glasman, MD, Michael F. McGuire, MD, and the ASPS Patient Safety Committee: Evidence-Based Patient Safety Advisory: Patient Selection and Procedures in Ambulatory Surgery, Supplement to Plastic and Reconstructive Surgery, Volume 124, Number 4s, October Supplement 2009.

10. Philip C. Haeck, MD, Jennifer A. Swanson, BS, Med, **Loren S. Schechter, MD**, Elizabeth J. Hall-Findlay, MD, Noel B. McDevitt, MD, Gary Smotrich, MD, Neal R. Reisman, MD, JD, Scot Bradley Glasberg, MD, and the ASPS Patient Safety Committee: Evidence-Based Patient Safety Advisory: Blood Dyscrasias, Patient Selection and Procedures in Ambulatory Surgery, Supplement to Plastic and Reconstructive Surgery, Volume 124, Number 4s, October Supplement 2009.

11. **Loren S. Schechter, MD**, The Surgeon's Relationship with The Physician Prescribing Hormones and the Mental Health Professional: Review for Version 7 of the World Professional Association of Transgender Health's Standards of Care *International Journal of Transgenderism* 11 (4), p.222-225 Oct-Dec 2009

12. Iris A Seitz, MD, PhD, Craig Williams, MD, **Loren S. Schechter, MD**, Facilitating Harvest of the Serratus Fascial Flap With Ultrasonic Dissection, *Eplasty 2010 Feb 23;10:e18*

13. Seitz, I, Friedewald SM, Rimler, J, **Schechter, LS**, Breast MRI helps define the blood supply to the nipple-areolar complex, Plastische Chirurgie, Supplement 1, 10. Jahrgang, September 2010, p. 75

14. Iris A. Seitz, Sally Friedwald, MD; Jonathon Rimler, **Loren S. Schechter**, Breast MRI to Define The Blood Supply to The Nipple-Areolar Complex. *Plast Recon Surg Suppl 126 (26) p. 27 Oct 2010*

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12. American Society of Plastic Surgery, 71st Annual Scientific Meeting, November 2-6, 2002, San Antonio, Texas: "Defining the Role for Negative Pressure Therapy in the Treatment Algorithm of Extremity Wounds"

13. American Society of Reconstructive Microsurgery, Annual Scientific Meeting, January 11-15, 2003, Kauai, Hawaii: "Advances in Pediatric Liver Transplantation: Continuous Monitoring of Portal Venous and Hepatic Artery Flow With an Implantable Doppler Probe"

14. The 5th Annual Chicago Trauma Symposium, August 8-10, 2003, Chicago, Illinois: "Soft Tissue Salvage: Where Are We in 2003?"

15. The Midwestern Association of Plastic Surgeons, 42nd Annual Meeting, Chicago, Il May 1-2, 2004: "The Gastrocnemius-Achilles Tendon Myocutaneous Flap (GAT Flap) for Single Stage Reconstruction of Combined Soft Tissue and Extensor Mechanism Defects of the Knee: An Eighteen Year Experience"

16. The 6th Annual Chicago Trauma Sympsoium, August 12-15, 2004, Chicago, Il "Complex Wound Management"

17. The American Society of Plastic Surgery, October 9-13, 2004, Philadelphia, Pennsylvania: "The Gastrocnemius-Achilles Tendon Myocutaneous Flap (GAT Flap) for Single Stage Reconstruction of Combined Soft Tissue and Extensor Mechanism Defects of the Knee: An Eighteen Year Experience"

18. The American Society for Reconstructive Microsurgery, January 15-18, 2005, Fajardo, Puerto Rico: "Surviving as a Plastic Surgeon"

19. American Hernia Society, Poster Presentation, February 9-12, 2005, San Diego, California: "When Component Separation Isn't Enough"

20. The Midwestern Association of Plastic Surgeons, April 23-24, Chicago, Il: "Hereditary Gingival Fibromatosis in Monozygotic Twins: First Reported Case"

21. The Midwestern Association of Plastic Surgeons, April 23-24, Chicago, Il: "Modified Components Separation Technique for Two Massive Ventral Hernias"

22. The Midwestern Association of Plastic Surgeons, April 23-24, Chicago, Il: "Mucormycosis of the Head and Neck: A Fatal Disease?"

23. The 7th Annual Chicago Trauma Symposium, August 11-14, 2005, Chicago, Il "Management of Complex Injuries"

24. Current Concepts in Advanced Wound Healing: *A Practical Overview*, Rush North Shore Medical Center, Skokie, Il September 18, 2005 "From Flaps to Grafts"

25. Taizoon Baxamusa, M and Loren S.Schechter, MD, Abdominoplasty: Use in Reconstruction of the Mangled Upper Extremity, The American Association For Hand Surgery Annual Scientific Meeting, January 11-14, 2006, Tucson, Arizona.

26. The American Academy of Orthopedic Surgeons 2006 Annual Meeting, March 22-26, 2006, Chicago, Il "Methods of Patella-Femoral and Extensor Mechanism Reconstruction for Fracture and Disruption After Total Knee Arthroplasty"

27. Midwestern Association of Plastic Surgeons 44th Annual Meeting, April 29-30, 2006, Oak Brook, Illinois "Elective Abdominal Plastic Surgery Procedures Combined with Concomitant Intra-abdominal Operations: A Single Surgeon's Four Year Experience"

28. Midwestern Association of Plastic Surgeons 44th Annual Meeting, April 29-30, 2006, Oak Brook, Illinois "Hereditary Gingival Fibromatosis: Aggressive Two-Stage Surgical Resection Versus Traditional Therapy"

29. Midwestern Association of Plastic Surgeons 44th Annual Meeting, April 29-30, 2006, Oak Brook, Illinois "Abdominoplasty Graft & VAC Therapy: Two Useful Adjuncts in Full-Thickness Grafting of the Mangled Upper Extremity"

30. The American Association of Plastic Surgeons 85th Annual Meeting, May 6-9, 2006 Hilton Head, South Carolina "Excision of Giant Neurofibromas"

31. The 8th Annual Chicago Trauma Symposium, July 27-30, 2006, Chicago, Il "Management of Complex Injuries"

32. The American Society of Plastic Surgeons Annual Meeting, October 6-12, 2006, San Francisco, California "Excision of Giant Neurofibromas"

33. The American College of Surgeons Poster Presentation, October, 2006, Chicago, Il "Abdominoplasty: Use in Reconstruction of the Mangled Upper Extremity"

34. American Medical Association-RFS 3rd Annual Poster Symposium, November 10, Las Vegas, NV, 2006 "Abdominal Wall Reconstruction With Alloderm"

35. Advocate Injury Institute: "Trauma 2006: The Spectrum of Care), November 30-December 2, 2006, Lisle, Il, "Pit Bull Mauling: A Case Study"

36. The 9th Annual Chicago Trauma Symposium, August 10-12, 2007, Chicago, Il "Management of Complex Injuries"

37. The World Professional Association for Transgender Health (WPATH) 2007 XX Biennial Symposium, September 5-8. 2007, Chicago, Il Revision Vaginoplasty With Sigmoid Interposition: "A Reliable Solution for a Difficult Problem"

38. Metropolitan Chicago Chapter of the American College of Surgeons, 2008 Annual Meeting, March 15, 2008 "ER Call: Who's Job is it Anyway"

39. The 10th Annual Chicago Trauma Symposium, August 7-10, 2008, Chicago, Il "Management of Complex Injuries"

40. 23nd Annual Clinical Symposium on Advances in Skin & Wound Care: The Conference for Prevention and Healing October 26-30, 2008, Las Vegas, Nevada,poster presentation "Use of Dual Therapies Consisting of Negative Pressure Wound Therapy (NPWT) and Small Intestine Mucosa (SIS) on a Complex Degloving Injury With an Expose Achilles Tendon: A Case Report."

41. The American Society of Plastic Surgeons Annual Meeting, October 31-November 3, 2008, Chicago, Il "Panel: Fresh Faces, Real Cases"

42. The American Association for Hand Surgery Annual Meeting, January 7-13, 2009, Maui, Hawaii, poster session: "Omental Free Tissue Transfer for Coverage of Complex Upper Extremity and Hand Defects-The Forgotten Flap."

43. Plastic Surgery At The Red Sea Symposium, March 24-28, 2009 Eilat, Israel, "Omental Free Tissue Transfer for Coverage of Complex Upper Extremity and Hand Defects-The Forgotten Flap."

44. ASPS/IQUAM Transatlantic Innovations Meeting, April 4-7, 2009 Miason de la Chimie, Paris, France, "Advertising in Plastic Surgery?"

45. ASPS/IQUAM Transatlantic Innovations Meeting, April 4-7, 2009 Miason de la Chimie, Paris, France, "Cost-Effectiveness of Physician Extenders in Plastic Surgery"

46. Midwestern Association of Plastic Surgeons, 47th Annual Meeting, April 18-19, 2009, Chicago, Il, "Microvascular Reconstruction of Iatrogenic Femoral Artery Injury in a Neonate"

47. Midwestern Association of Plastic Surgeons, 47th Annual Meeting, April 18-19, 2009, Chicago, Il,"Two Birds, One Stone: Combining Abdominoplasty with Intra-Abdominal Procedures"

48. The 11th Annual Chicago Trauma Symposium, August 1, 2009, Chicago, Il "Management of Complex Injuries"

49. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, "Omental Free Tissue Transfer for Coverage of Complex Extremity Defects: The Forgotten Flap."

50. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, "Challenging Cases."

51. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, "President's Panel: The Future of the Solo Practice-Can We, Should We Survive?"

52. The 12th Annual Chicago Trauma Symposium, August 5-8, 2010, Chicago, Il "Management of Complex Injuries"

53. Breast MRI to Define The Blood Supply to the Nipple-Areolar Complex. German Society of Plastic, Reconstructive and Aesthetic Surgery (DGPRAEC), Dresden, Germany, September 2010

54. Roundtable Discussion: Electronic Health Records-Implications for Plastic Surgeons, The American Society of Plastic Surgeons Annual Meeting, October 3, 2010, Toronto, CA

55. Breast MRI Helps Define the Blood Supply to the Nipple-Areolar Complex, The American Society of Plastic Surgeons Annual Meeting, October 3, 2010, Toronto, CA.

56. ASPS/ASPSN Joint Patient Safety Panel: Patient Selection and Managing Patient Expectations, The American Society of Plastic Surgeons Annual Meeting, October 4, 2010, Toronto, CA

57. Lunch and Learn: Prevention of VTE in Plastic Surgery Patients, The American Society of Plastic Surgeons Annual Meeting, October 5, 2010, Toronto, CA

58. Breast MRI Helps Define the Blood Supply to the Nipple-Areolar Complex, 16th Congress of The International Confederation for Plastic Reconstructive and Aesthetic Surgery, May 22-27, 2011, Vancouver, Canada

59. Breast MRI Helps Define the Blood Supply to the Nipple-Areolar Complex, The 6th Congress of The World Society for Reconstructive Microsurgery, WSRM 2011, 29 June-2 July, 2011, Helsinki, Finland

60. Applications of the Omentum for Limb Salvage: The Largest Reported Series, The 6th Congress of The World Society for Reconstructive Microsurgery, WSRM 2011, 29 June-2 July, 2011, Helsinki, Finland

61. Successful Tongue Replantation Following Auto-Amputation Using Supermicrosurgical Technique, Poster Session, The 6th Congress of The World Society for Reconstructive Microsurgery, WSRM 2011, 29 June-2 July, 2011, Helsinki, Finland

62. The 13th Annual Chicago Trauma Symposium, August 25-28, 2011, Chicago, Il "Soft Tissue Defects-Getting Coverage"

63. WPATH: Pre-conference Symposium, September 24, 2011, Atlanta, GA "Surgical Options and Decision-Making"

64. American Society of Plastic Surgeons Annual Meeting, September 27, 2011, Denver, CO Closing Session Lunch and Learn: Pathways to Prevention-Avoiding Adverse Events, Part I: Patient Selection and Preventing Adverse Events in the Ambulatory Surgical Setting

65. American Society of Plastic Surgeons Annual Meeting, September 27, 2011, Denver, CO Closing Session Lunch and Learn: Pathways to Prevention-Avoiding Adverse Events, Part III: Preventing VTE

66. XXIV Congresso Nazionale della Societa Italiana di Microchirugia congiunto con la American Society for Reconstructive Microsurgery, October 20-22, 2011, Palermo, Sicily: 3 Step Approach to Lower Extremity Trauma

67. XXIV Congresso Nazionale della Societa Italiana Microchirugia congiunto con la American Society for Reconstructive Microsurgery, October 20-22, 2011, Palermo, Sicily: Applications of the Omentum for Limb Salvage: The Largest Reported Series

68. American Society for Reconstructive Microsurgery, Poster Presentation, January 14-17, 2012, Las Vegas, NV: Neonatal Limb Salvage: When Conservative Management is Surgical Intervention

69. The 14th Annual Chicago Trauma Symposium, August 2-5, 2012, Chicago, Il "Soft Tissue Defects-Getting Coverage"

70. The Annual Meeting of The American Society of Plastic Surgeons, October 25th-30, 2012, New Orleans, LA "Reimbursement in Breast Reconstruction"

71. The Annual Meeting of The American Society of Plastic Surgeons, October 25th-30, 2012, New Orleans, LA "Thriving in a New Economic Reality: Business Relationships and Integration in the Marketplace"

72. The 15th Annual Chicago Trauma Symposium, August 2-5, 2013, Chicago, Il "Soft Tissue Defects-Getting Coverage"

73. 2014 WPATH Symposium, Tansgender Health from Global Perspectives, February 14-18, 2014, "Short Scar Chest Surgery."

74. 2014 WPATH Symposium, Transgender Health from Global Perspectives, February 14-18, 2014, "Intestinal Vaginoplasty with Right and Left Colon."

75. 24th Annual Southern Comfort Conference, September 3-7, 2014, Atlanta, Georgia, "Gender Confirmation Surgery: State of the Art."

76. The 15th Annual Chicago Trauma Symposium, September 4-7, 2014, Chicago, Il "Soft Tissue Defects-Getting Coverage"

77. The Midwest Association of Plastic Surgeons, May 30, 2015, Chicago, Il "Gender Confirmation Surgery: A Single-Surgeon's Experience"

78. The Midwest Association of Plastic Surgeons, May 30, 2015, Chicago, Il, Moderator, Gender Reassignment.

79. the American Society of Plastic Surgeons 2015 Professional Liability Insurance and Patient Safety Committee Meeting, July 17, 2015, "Gender Confirmation Surgery."

80. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. From Fee-for-Service to Bundled Payments

81. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. Moderator, Transgender Surgery

82. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. Efficient Use of Physician Assistants in Plastic Surgery.

83. The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA. Patient Safety: Prevention of VTE

84. The World Professional Association for Transgender Health, Objective Quality Parameters for Gender Confirmation Surgery, June 18-22, 2016, Amsterdam, Netherlands

85. The World Professional Association for Transgender Health, Resident Education Curriculum for Gender Confirmation Surgery, June 18-22, 2016, Amsterdam, Netherlands

86. The World Professional Association for Transgender Health, Urologic Management of a Reconstructed Urethra(Poster session #195), June 18-22, 2016, Amsterdam, Netherlands

87. The World Professional Association for Transgender Health, Construction of a neovagina for male-to-female gender reassignment surgery using a modified intestinal vaginoplasty technique, poster session (Poster session #198), June 18-22, 2016, Amsterdam, Netherlands

88. Aesthetica Super Symposium, The American Society of Plastic Surgeons, Genital Aesthetics: What are we trying to achieve?, Washington, DC June 23-25, 2016

89. Aesthetica Super Symposium, The American Society of Plastic Surgeons, Female to Male Gender Reassignment, Washington, DC June 23-25, 2016

90. Aesthetica Super Symposium, The American Society of Plastic Surgeons, The journal of retractions, what I no longer do, Washington, DC June 23-25, 2016

91. Aesthetica Super Symposium, The American Society of Plastic Surgeons, The three minute drill, tips and tricks, Washington, DC June 23-25, 2016

92. Aesthetica Super Symposium, The American Society of Plastic Surgeons, Moderator, Mini master class: Male genital plastic surgery, Washington, DC June 23-25, 2016

93. The 16th Annual Chicago Trauma Symposium, August 18-21, 2016, Chicago, Il "Soft Tissue Defects-Getting Coverage"

94. USPATH Poster Session, Feb 2-5, 2017, Los Angeles, CA, Partial Flap Failure Five Weeks Following Radial Forearm Phalloplasty: Case Report and Review of the Literature

95. USPATH Poster Session, Feb 2-5, 2017, Los Angeles, CA, Urethroplasty for Stricture after Phalloplasty in Transmen Surgery for Urethral Stricture Disease after Radial Forearm Flap Phalloplasty-Management Options in Gender Confirmation Surgery

96. USPATH, Feb 2-5, 2017, Los Angeles, CA, Patient Evaluation and Chest Surgery in Transmen: A Pre-operative Classification

97. USPATH, Feb 2-5, 2017, Los Angeles, CA Single Stage Urethral Reconstruction in Flap Phalloplasty: Modification of Technique for Construction of Proximal Urethra

98. USPATH, Feb 2-5, 2017, Los Angeles, CA, Use of Bilayer Wound Matrix on Forearm Donor Site Following Phalloplasty

99. USPATH, Feb 2-5, 2017, Los Angeles, CA, Vaginoplasty: Surgical Techniques

100. USPATH, Feb 2-5, 2017, Los Angeles, CA, Positioning of a Penile Prosthesis with an Acellular Dermal Matrix Wrap following Radial Forearm Phalloplasty

101. USPATH, Feb 2-5, 2017, Los Angeles, CA, Principles for a Gender Surgery Program

102. USPATH, Feb 2-5, 2017, Los Angeles, CA, Construction of a Neovagina Using a Modified Intestinal Vaginoplasty Technique

103. The 18th Annual Chicago Orthopedic Symposium, July 6-9, 2017, Chicago, Il "Soft Tissue Defects-Getting Coverage"

104. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, Moderator: Genital Surgery Trends for Women

105. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, Adding Transgender Surgery to Your Practice, Moderator and Speaker

106. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, Transbottom Surgery

107. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018 A Novel Approach to IPP Implantation Post Phalloplasty: The Chicago Experience

108. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018, A Novel Approach for Neovagina Configuration During Vaginoplasty for Gender Confirmation Surgery

109. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018 Developlment of a Pelvic Floor Physical Therapy Protocol for Patients Undergoing Vaginoplasty for Gender Confirmation

110. 14th Congress of The European Federation of Societies for Microsurgery, Belgrade, May 5-8, 2018 Establishing Guidelines for Gender Confirmation Surgery: The Perioperative Risk of Asymptomatic Deep Venous Thrombosis for Vaginoplasty

111. The 19th Annual Chicago Trauma Symposium, August 16-19, 2018, Chicago, Il "Soft Tissue Defects-Getting Coverage"

112. Midwest LGBTQ Health Symposium, September 14-15, 2018, Chicago, Il "Quality Parameters in Gender Confirmation Surgery"

113. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Poster Session, Proposed Guidelines for Medical Tattoo Following Phalloplasty; An Interdisciplinary Approach

114. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Establishment of the First Gender Confirmation Surgery Fellowship

115. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, ISSM Lecture, The Importance of Surgical Training

116. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Tracking Patient-Reported Outcomes in Gender Confirmation Surgery

117. "Theorizing the Phantom Penis," The Psychotherapy Center for Gender and Sexuality's 6th Biannual Conference, Transformations, March 29-March 30, 2019, NY, NY

INSTRUCTIONAL COURSES:

1. Emory University and WPATH: Contemporary Management of Transgender Patients: Surgical Options and Decision-Making, September 5, 2007 Chicago, Il

2. Craniomaxillofacial Trauma Surgery: An Interdisciplinary Approach, February 16-17, 2008, Burr Ridge, Il

3. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, Moderator: Free Papers, Lower Extremity

4. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, Moderator: ASPS/ASPSN Patient Panel: Effective Communication-A Key to Patient Safety and Prevention of Malpractice Claims

5. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, Instructional Course: Strategies to Identify and Prevent Errors and Near Misses in Your Practice

6. American Society of Plastic Surgeons Annual Meeting, October 23-27, 2009, Seattle, WA, Roundtable Discussion: Electronic Health Records-Implications for Plastic Surgeons

7. 10th Congress of The European Federation of Societies for Microsurgery, May 2–22, 2010, Genoa, Italy, "The Mangled Lower Extremities: An Algorithm for Soft Tissue Reconstruction."

8. Mulitspecialty Course for Operating Room Personnel-Craniomaxillofacial, Orthopaedics, and Spine, A Team Approach, AO North American, June 26-27, 2010, The Westin Lombard Yorktown Center.

9. Management of Emergency Cases in the Operating Room, The American Society of Plastic Surgeons Annual Meeting, October 4, 2010, Toronto, CA.

10. Surgical Approaches and Techniques in Craniomaxillofacial Trauma, November 6, 2010, Burr Ridge, Il.

11. The Business of Reconstructive Microsurgery: Maximizing Economic value (Chair)The American Society for Reconstructive Microsurgery, January 14-17, 2012, Las Vegas, Nevada.

12. Strategies to Identify and Prevent Errors and Near Misses in Your Practice, The Annual Meeting of The American Society of Plastic Surgeons, October 25th-30th, 2012, New Orleans, LA

13. Strategies to Identify and Prevent Errors and Near Misses in Your Practice, The Annual Meeting of The American Society of Plastic Surgeons, October 11th-15th, 2013, San Diego, CA

14. Mythbusters: Microsurgical Breast Reconstruction in Private Practice, The Annual Meeting of The American Society of Plastic Surgeons, October 11th-15th, 2013, San Diego, CA

15. Minimizing Complications in Perioperative Care, The American Society for Reconstructive Microsurgery, January 11-14, 2014, Kauai, Hawaii

16. Genitourinary and Perineal Reconstruction, The American Society for Reconstructive Microsurgery, January 11-14, 2014, Kauai, Hawaii

17. Transgender Breast Surgery, The American Society of Plastic Surgeons, October 16-20, 2015, Boston, MA

18. Gender Confirmation Surgery, The School of the Art Institute (recipient of American College Health Fund's Gallagher Koster Innovative Practices in College Health Award), October 27, 2015, Chicago, Il

19. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Overview of Surgical Treatment Options

20. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015 Chicago, Il Surgical Procedures

21. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Surgical Complications

22. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Post-operative Care

23. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, November 5-7, 2015, Chicago, Il Case Discussions: The Multidisciplinary Team

24. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, January 20-23,2016, Atlanta, GA Overview of Surgical Treatment Options

25. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, January 20-23, 2016, Atlanta, GA Surgical Treatment Options

26. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, March 30-April 1, 2016, Springfield, MO, Surgical Treatment Options.

27. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Certified Training Course, March 30-April 1, 2016, Springfield, MO, Multi-disciplinary Case Discussion.

28. Introduction to Transgender Surgery, ASPS Breast Surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

29. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Advanced Training Course, September 28, 2016, Ft. Lauderdale, FL.

30. Cirugias de Confirmacion de Sexo Paso a Paso, XXXV Congreso Confederacion Americana de Urologia (CAU), Panama City, Panama, October 4-8, 2016.

31. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Advanced Training Course, December 3, 2016, Arlington, VA.

32. PSEN (sponsored by ASPS and endorsed by WPATH), Transgender 101 for Surgeons, January 2017-March 2017

33. Surgical Anatomy and Surgical Approaches to M-to-F Genital Gender Affirming Surgery and the Management of the Patient Before, During and After Surgery: A Human Cadaver Based Course, Orange County, CA, Feb. 1, 2017

34. Gender Confirmation Surgery, ALAPP, 2 Congreso Internacional de la Asociacion Latinoamericana de Piso Pelvico, Sao Paulo, Brasil, 9-11 de marzo de 2017

35. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Foundations Training Course, Overview of Surgical Treatment, March 31-April 2, 2017, Minneapolis Minnesota.

36. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Foundations Training Course, The Multi-Disciplinary Team Case Discussions, March 31-April 2, 2017, Minneapolis Minnesota.

37. Transfeminine Cadaver Course, WPATH, May 19-20, 2017, Chicago, Il

38. Transgender/Penile Reconstruction-Penile Reconstruction: Radial Forearm Flap Vs. Anterolateral Thigh Flap, Moderator and Presenter, The World Society for Reconstructive Microsurgery, June 14-17, 2017, Seoul, Korea

39. Primer of Transgender Breast Surgery, ASPS Breast Surgery and Body Contouring Symposium, San Diego, CA, August 10-12, 2017

40. Confirmation Surgery in Gender Dysphoria: current state and future developments, International Continence Society, Florence, Italy, September 12-15, 2017

41. The American Society of Plastic Surgeons Annual meeting, October 6-10, 2017, Orlando, FL, ASPS/WPATH Joint Session, Session Planner and Moderator

42.Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Foundations Training Course: Overview of Surgical Treatment, Columbus, OH, October 20-21, 2017

43. Transgender Health: Best Practices in Medical and Mental Health Care. A WPATH Global Education Initiative Advanced Training Course: Medical Care in the Perioperative Period, Aftercare: Identifying Potential Complications, Columbus, OH, October 20-21, 2017

44. Webinar: Gender Affirming Surgeries 101: Explore The Latest Topics in Gender Affirmation Surgery, PSEN, April 18, 2018

45. Course Director: MT. Sinai/WPATH Live Surgery Training Course for Gender Affirmation Procedures, April 26-28, 2018, New York, NY

46. Philadelphia Trans Wellness Conference, Perioperative Care of the Transgender Woman Undergoing Vaginoplasty (Workshop), Philadelphia, PA, August 3, 2018

47. Philadelphia Trans Wellness Conference, Gender Confirmation Surgery (Workshop), Philadelphia, PA, August 3, 2018

48. Gender Confirmation Surgery, 2018 Oral and Written Board Preparation Course, The American Society of Plastic Surgeons, August 16-18, 2018, Rosemont, Il

49. Confirmation Surgery in Gender Dysphoria: Current State and Future Developments, The International Continence Society, Philadelphia, PA August 28, 2018

50. WPATH Global Education Initiative, Foundations Training Course, "Overview of Surgical Treatment," Cincinnati, OH, September 14-15, 2018

51. WPATH Global Education Initiative, Foundations Training Course, "The Multi-Disciplinary Team: Case Discussions," Cincinnati, OH, September 14-15, 2018

52. WPATH Global Education Initiative, Advanced Training Course, "Medical Care in the Perioperative Period After Care: Identifying Potential Complications," Cincinnati, OH, September 14-15, 2018

53. 25th WPATH Symposium, Surgeons Conference, November 1, 2018, Buenos Aires, Argentina, Moderator

54. 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Global Education Initiative (GEI): Surgery and Ethics

55. WPATH GEI: Best Practices in Medical and Mental Health Care, Foundations in Surgery, New Orleans, March 22, 2019

56. WPATH GEI: Best Practices in Medical and Mental Health Care, Advanced Surgery, New Orleans, March 22, 2019

57. Program Chair: ASPS/WPATH GEI Inaugural Gender-Affirming Breast, Chest, and Body Master Class, Miami, Fl, July 20, 2019

58. Overview of Surgical Management and The Standards of Care (WPATH, v. 7) ASPS/WPATH GEI Inaugural Gender-Affirming Breast, Chest, and Body Master Class, Miami, Fl, July 20, 2019

59. Program Director, Gender Affirming Breast,Chest, and Body Master Class, The American Society of Plastic Surgeons, Miami, Fl, July 20, 2019

60. Gender Confirmation Surgery, The American Society of Plastic Surgeons Oral and Written Board Preparation Course, August 15, 2019, Rosemont, Il

61. Upper Surgeries (chest surgery & breast augmentation), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

62. Preparing for Upper Surgeries-Case Based (chest surgery & breast augmentation), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

63. Preparing for Feminizing Lower Surgeries-Case Based (vaginoplasty), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

64. Lower Surgeries-Masculinizing (phalloplasty & metoidioplasty), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

65. Preparing for Masculinizing Lower Surgeries-Case Based (phalloplasty & metoidioplasty), WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

66. Panel Discussion about Ethics in Surgery and Interdisciplinary Care, WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

67. Discussion about Ethics and Tensions in Child and Adolescent Care, WPATH, Global Education Initiative, September 4-5, 2019, Washington, DC

68. Transgender Health: Best Practices in Medical and Mental Health Care Foundation Training Courses, Hanoi, Viet Nam, Jan 14-17, 2020 (Foundations in Surgery, Advanced Medical-surgery and complicated case studies), Planning & Documentation (upper surgeries-chest surgery and breast augmentation, preparing for upper surgeries-case based (chest surgery and breast augmentation), lower surgeries (feminizing-vaginoplasty), preparing for feminizing lower surgeries-case based, lower surgeries-masculinizing (phalloplasty and metoidioplasty), preparing for masculinizing lower surgeries-case-based (phalloplasty and metoidioplasty), Ethics-panel discussion about ethics in surgery and interdisciplinary care)

69. WPATH GEI Panel Cases Discussion, via Webinar, May 29, 30, 31, 2020

70. WPATH GEI: Illinois Dept. of Corrections, Foundations in Surgery, November 20, 2020

71. WPATH GEI: Illinois Dept. of Corrections, Ethical Considerations in Transgender Healthcare, November 20, 2020

72. WPATH GEI: Illinois Dept. of Corrections, Foundations in Surgery, February 26, 2021

73. WPATH GEI: Illinois Dept. of Corrections, Ethical Considerations in Transgender Healthcare, February 26, 2021.

74. Current Concepts in Gender Affirming Surgery for Women in Transition, March 11-12, 2021 (online event), Moderator, Transgender Health.

75. GEI Foundations Course, Live Q&A, March 21, 2021

76. GEI Foundations Course, Live Case Panel Discussion, March 23, 2021

77. GEI Advanced Ethics Workshop; Surgical and Interdisciplinary care ethics panel, May 1, 2021 (virtual)

78. Wpath GEI Foundations course for the Illinois Dept of Corrections, Foundations in Surgery, May 21, 2021

79. Wpath GEI, Foundations course for the Illinois Dept of Corrections, Ethical considerations in Transgender Healthcare, May 21, 2021

80. WPATH GEI, Online GEI Foundations Course, Moderator, August 31, 2001.

81. WPATH Health Plan Provider (HPP) Training, Q&A Panel, September 13, 14, 21 2021, via Zoom

82. WPATH, GEI Advanced Medical Course, Upper and Lower Surgery (via zoom), December 9, 2021

83. I want to be a gender surgeon: where do I even start, American Society for Reconstructive Microsurgery, Annual Meeting, January 17, 2022, Carlsbad, CA

SYMPOSIA:

1. Program Director, 2011 Chicago Breast Symposium, October 15, 2011, The Chicago Plastic Surgery Research Foundation and The Chicago Medical School at Rosalind Franklin University, North Chicago, IL,

2. Fundamentals of Evidence-Based Medicine & How to Incorporate it Into Your Practice, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

3. Understanding Outcome Measures in Breast & Body Contouring Surgery, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

4. Benchmarking Complications: What We Know About Body Contouring Complication Rates from Established Databases, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

5. Special Lecture: VTE Prophylaxis for Plastic Surgery in 2011, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

6. Nipple Sparing Mastectomy: Unexpected Outcomes, Challenging Complications in Plastic Surgery: Successful Management Strategies, The American Society of Plastic Surgeons, July 13-14, 2012 Washington, DC

7. Program Director, 2011 Chicago Breast Symposium, October 13-14, 2012, The Chicago Plastic Surgery Research Foundation and The Chicago Medical School at Rosalind Franklin University, North Chicago, Il

8. Practice Strategies in a Changing Healthcare Environment, Moderator, Midwestern Association of Plastic Surgeons, April 27-28, 2013, Chicago, Il

9. Moderator: Breast Scientific Paper Session, The Annual Meeting of The American Society of Plastic Surgery, October 12, 2014, Chicago, Il.

10. Moderator: The World Professional Association for Transgender Health, Tuesday, June 21, Surgical Session (0945-1045), June 18-22, 2016, Amsterdam, Netherlands

11. Course Director: Transmale Genital Surgery: WPATH Gender Education Initiative, October 21-22, 2016 Chicago, Il

12. Co-Chair and Moderator: Surgeon's Only Session, USPATH, Los Angeles, CA, Feb. 2, 2017

13. Vascular Anastomosis: Options for Lengthening Vascular Pedicle, Surgeon's Only Session, USPATH, Los Angeles, CA, Feb. 2, 2017

14. Transgender Healthcare Mini-Symposium, Chicago Medical School of Rosalind Franklin University, North Chicago, Il March 10, 2017.

15. Moderator: Penile Transplant: Genito-urinary trauma/penile cancer, The European Association of Urologists, Meeting of the EAU Section of Genito-Urinary Reconstructive Surgeons (ESGURS), London, United Kingdom, March 23-26, 2017

16: 25th WPATH Symposium, November 2-6, 2018, Buenos Aires, Argentina, Mini-Symposium: A Comprehensive Approach to Gender Confirming Surgery

17. Program Director, 2nd Annual Live Surgery Conference for Gender Affirmation Procedures, Ichan School of Medicine at Mt. Sinai, NY, NY February 28, 2019-March 2, 2019.

18. Moderator, "Genital Reassignment for Adolescents: Considerations and Conundrums," Discussions on gender affirmation: surgery and beyond, Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

19. Moderator, "Reconstructive Urology and Genitourinary Options in Gender Affirming Surgery," Discussions on gender affirmation: surgery and beyond, Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

20. Moderator, "Complications in Masculinizing Genital Reconstruction Surgery," Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

21. Moderator, "Preparing for Surgery and Recovery," Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

22. Discussant, "WPATH Standards of Care Version 8 Preview," Dignity Health Saint Francis Memorial Hospital and WPATH GEI, San Francisco, CA, May 30-June 1, 2019

23. Program Coordinator, Surgeon's Only Course, USPATH, September 5, 2019, Washington, DC

24. Master Series in Transgender Surgery 2020: Vaginoplasty and Top Surgery, course co-director, Mayo Clinic, Rochester, MN, August 7-8, 2020

25. WPATH 2020 Surgeons' Program, Co-Chair, November 6-7, 2020, Virtual Symposium (due to covid-19 cancellation of Hong Kong meeting)

26. WPATH Journal Club #3, Uterine Transplantation and Donation in Transgender Individuals; Proof of Concept, December 13, 2021 (Zoom)

FACULTY SPONSORED RESEARCH:

1. Societa Italiana Di Microchirurgia, XXIII Congresso Nazionale della Societa Italiana di Microchirurgia, First Atlanto-Pacific Microsurgery Conference, Modena, Italy, October 1-3, 2009, "Free Tissue Transfer in the Treatment of Zygomycosis." Presented by Michelle Roughton, MD

2. Hines/North Chicago VA Research Day, Edward Hines, Jr., VA Hospital, Maywood, Il, April 29, 2010, "Breast MRI Helps to Define the Blood Supply to the Nipple-Areolar Complex." Presented by Iris A. Seitz, MD, PhD.

3. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010, "Breast MRI Helps to Define the Blood Supply to the Nipple-Areolar Complex." Presented by Iris A. Seitz, MD, PhD.

4. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010, "Achieving Soft Tissue Coverage of Complex Upper and Lower Extremity Defects with Omental Free Tissue Transfer." Presented by Iris A. Seitz, MD, PhD.

5. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010, "Facilitating Harvest of the Serratus Fascial Flap with Ultrasonic Dissection." Presented by Iris A. Seitz, MD, PhD.

6. Advocate Research Forum, Advocate Lutheran General Hospital, May 5, 2010,"Patient Safety: Abdominoplasty and Intra-Abdominal Procedures." Presented by Michelle Roughton, MD

7. The Midwestern Association of Plastic Surgeons, 49th Annual Scientific Meeting, May 15th, 2010, "Breast MRI Helps Define The Blood Supply to the Nipple-Areolar Complex." Presented by Iris A. Seitz, MD, PhD.

8. Jonathan M. Hagedorn, BA, **Loren S. Schechter**, MD, FACS, Dr. Manoj R. Shah, MD, FACS, Matthew L. Jimenez, MD, Justine Lee, MD, PhD, Varun Shah. Re-examining the Indications for Limb Salvage, 2011 All School Research Consortium at Rosalind Franklin University. Chicago Medical School of Rosalind Franklin University, 3/16/11.

9. Jonathan Bank, MD, Lucio A. Pavone, MD, Iris A. Seitz, Michelle C. Roughton, MD, Loren S. Schechter, MD Deep Inferior Epigastric Perforator Flap for Breast Reconstruction after Abdominoplasty The Midwestern Association of Plastic Surgeons, 51st Annual Educational Meeting, April 21-22, 2012, Northwestern Memorial Hospital, Chicago, Illinois

10. Samuel Lake, Iris A. Seitz, MD, Phd, Loren S. Schechter, MD, Daniel Peterson, Phd Omentum and Subcutaneous Fat Derived Cell Populations Contain hMSCs Comparable to Bone Marrow-Derived hMSCsFirst Place, Rosalind Franklin University Summer Research Poster Session

11. J. Siwinski, MS II, Iris A. Seitz, MD PhD, Dana Rioux Forker, MD, Lucio A. Pavone, MD, Loren S Schechter, MD FACS. Upper and Lower Limb Salvage With Omental Free Flaps: A Long-Term Functional Outcome Analysis. Annual Dr. Kenneth A. Suarez Research Day, Midwestern University, Downers Grove, IL, May 2014

12. Whitehead DM, Kocjancic E, Iacovelli V, Morgantini LA, **Schechter LS**. A Case Report: Penile Prosthesis With an Alloderm Wrap Positioned After Radial Forearm Phalloplasty. Poster session presented at: American Society for Reconstructive Microsurgery Annual Meeting, 2018 Jan 13-16; Phoenix, AZ.

13. Whitehead DM, Kocjancic E, Iacovelli V, Morgantini LA, **Schechter LS**. An Innovative Technique: Single Stage Urethral Reconstruction in Female-to-Male Patients. Poster session presented at: American Society for Reconstructive Microsurgery Annual Meeting, 2018 Jan 13-16; Phoenix, AZ.

14. Whitehead, DM Inflatable Penile Prosthesis Implantation Post Phalloplasty: Surgical Technique, Challenges, and Outcomes, MAPS 2018 Annual Scientific Meeting, April 14, 2018, Chicago, Il

15. Whitehead, DM, Inverted Penile Skin With Scrotal Graft And Omission of Sacrospinal Fixation: Our Novel Vaginoplasty Technique MAPS 2018 Annual Scientific Meeting, April 14, 2018, Chicago, Il

16. S. Marecik, J. Singh. **L. Schechter**, M. Abdulhai, K. Kochar, J. Park, Robotic Repair of a Recto-Neovaginal Fistula in a Transgender Patient Utilizing Intestinal Vaginoplasty, The American College of Surgeons Clinical Congress 2020, October 7, 20

Keynote Address:

1. University of Utah, Gender Confirmation Surgery, Transgender Provider Summit, November 8, 2014

INVITED LECTURES:

1. Management of Soft Tissue Injuries of the Face, Grand Rounds, Emergency Medicine, The University of Chicago, August, 1999

2. Case Report: Excision of a Giant Neurofibroma, Operating Room Staff Lecture Series, Continuing Education Series, St. Francis Hospital, Evanston, Il March 2000

3. Wounds, Lincolnwood Family Practice, Lincolnwood, Il April 2000

4. The Junior Attending, Grand Rounds, Plastic and Reconstructive Surgery, The University of Chicago, June 2000

5. Case Report: Excision of a Giant Neurofibroma, Department of Medicine Grand Rounds, St. Francis Hospital, Evanston, Il June 2000

6. Facial Trauma, Resurrection Medical Center Emergency Medicine Residency, September 2000

7. Plastic Surgery of the Breast and Abdomen, Grand Rounds, Dept. of Obstetrics and Gynecology, Evanston Hospital, September, 2000

8. Change of Face; Is Cosmetic Surgery for You?, Adult Education Series, Rush North Shore Medical Center, October, 2000

9. Reconstructive Surgery of the Breast, Professional Lecture Series on Breast Cancer, St. Francis Hospital, October, 2000

10. Plastic Surgery of the Breast and Abdomen, Grand Rounds, Dept. of Obstetrics and Gynecology, Lutheran General Hospital, December, 2000

11. Change of Face; Is Cosmetic Surgery for You?, Adult Education Series, Lutheran General Hospital and The Arlington Heights Public Library, December, 2000

12. Updates in Breast Reconstruction, The Breast Center, Lutheran General Hospital, January 2001

13. Abdominal Wall Reconstruction, Trauma Conference, Lutheran General Hospital, February 2001

14. Wound Care, Rush North Shore Medical Center, March 2001

15. Breast Reconstruction, Diagnosis and Treatment Updates on Breast Cancer, Lutheran General Hospital, April 2001

16. Wound Care and V.A.C. Therapy, Double Tree Hotel, Skokie, Il October 2001

17. The Role of the V.A.C. in Reconstructive Surgery, LaCrosse, WI November 2001

18. Dressing for Success: The Role of the V.A.C. in Reconstructive Surgery, Grand Rounds, The University of Minnesota Section of Plastic and Reconstructive, Minneapolis, MN January, 2002

19. The Vacuum Assisted Closure Device in the Management of Complex Soft Tissue Defects, Eau Claire, WI February, 2002

20. The Vacuum Assisted Closure Device in Acute & Traumatic Soft Tissue Injuries, Orland Park, Il March, 2002

21. Body Contouring After Weight Loss, The Gurnee Weight Loss Support Group, Gurnee, Il April, 2002

22. An Algorithm to Complex Soft Tissue Reconstruction With Negative Pressure Therapy, Owensboro Mercy Medical Center, Owensboro, Ky, April, 2002

23. Breast and Body Contouring, St. Francis Hospital Weight Loss Support Group, Evanston, Il April, 2002

24. The Wound Closure Ladder vs. The Reconstructive Elevator, Surgical Grand Rounds, Lutheran General Hospital, Park Ridge, Il, May, 2002.

25. An Algorithm for Complex Soft Tissue Reconstruction with the Vacuum Assisted Closure Device, The Field Museum, Chicago,Il, May, 2002

26. The Role of Negative Pressure Wound Therapy in Reconstructive Surgery, Kinetic Concepts, Inc. San Antonio, Texas, July 31, 2002

27. Management of Complex Soft Tissue Injuries of the Lower Extremity, Chicago Trauma Symposium, August 2-5, 2002, Chicago, Illinois:

28. Wound Bed Preparation, Smith Nephew, Oak Brook, Il, August 6, 2002

29. Getting Under Your Skin...Is Cosmetic Surgery for You?, Rush North Shore Adult Continuing Education Series, Skokie, Il August 28, 2002.

30. The Role of Negative Pressure Therapy in Complex Soft Tissue Wounds, Columbia/St. Mary's Wound, Ostomy, and Continence Nurse Program, Milwaukee, Wi, September 17, 2002

31. A Systematic Approach to Functional Restoration, Grand Rounds, Dept. of Physical Therapy and Rehabilitation Medicine, Lutheran General Hospital, September 19, 2002

32. The Role of Negative Pressure Wound Therapy in Reconstructive Surgery, Ann Arbor, Mi September 26, 2002

33. Dressing for Success: The Role of the Vaccuum Assisted Closure Device in Plastic Surgery, Indianopolis, In November 11, 2002

34. The Wound Closure Ladder Versus the Reconstructive Elevator, Crystal Lake, Il November 21, 2002

35. A Systematic Approach to Functional Restoration, Grand Rounds, Dept. of Physical Therapy, Evanston Northwestern Healthcare, Evanston, Il February 13, 2003

36. Case Studies in Traumatic Wound Reconstruction, American Association of Critical Care Nurses, Northwest Chicago Area Chapter, Park Ridge, Il February 19, 2003

37. Reconstruction of Complex Soft Tissue Injuries of the Lower Extremity, Podiatry Lecture Series, Rush North Shore Medical Center, Skokie, Il March 5, 2003

38. The Use of Negative Pressure Wound Therapy in Reconstructive Surgery, Kalamazoo, Mi March 19, 2003

39. Updates in Breast Reconstruction, The Midwest Clinical Conference, The Chicago Medical Society, Chicago, Il March 21, 2003

40. Updates of Vacuum Assisted Closure, Grand Rounds, The Medical College of Wisconsin, Department of Plastic Surgery, Milwaukee, Wi March 26, 2003

41. Breast Reconstruction, Surgical Grand Rounds, Lutheran General Hospital, Park Ridge, Il March 27, 2003

42. Decision-Making in Breast Reconstruction: Plastic Surgeons as Members of a Multi-Disciplinary Team, 1st Annual Advocate Lutheran General Hospital Breast Cancer Symposium, Rosemont, Il, April 11, 2003

43. The Wound Closure Ladder Versus The Reconstructive Elevator, Duluth, Mn, April 24, 2003

44. Dressing For Successs: The Role of The Wound VAC in Reconstructive Surgery, Detroit, Mi, May 9, 2003

45. Plastic Surgery Pearls, Grand Rounds Orthopedic Surgery Physician Assistants Lutheran General Hospital and Finch University of Health Sciences, Park Ridge, Il, June 5, 2003

46. A Systematic Approach to Complex Reconstruction, 12th Annual Vendor Fair "Surgical Innovations," October 18, 2003, Lutheran General Hospital, Park Ridge, Il 2003

47. Dressing For Success: The Role of the Wound VAC in Reconstructive Surgery, American Society of Plastic Surgery, October 26, 2003, San Diego, CA

48. Beautiful You: From Botox to Weekend Surgeries, 21st Century Cosmetic Considerations, March 21, 2004 Hadassah Women's Health Symposium, Skokie, Il

49. Updates in Breast Reconstruction, The 2nd Annual Breast Cancer Symposium, Advocate Lutheran General, Hyatt Rosemont, April 2, 2004

50. Head and Neck Reconstruction, Grand Rounds, The University of Illinois Metropolitan Group Hospitals Residency in General Surgery, Advocate Lutheran General Hospital, May 6, 2004

51. Abdominal Wall Reconstruction, Surgeons Forum, LifeCell Corporation, May 15, 2004, Chicago, Il

52. 4th Annual Chicagoland Day of Sharing for Breast Cancer Awareness, Saturday, October 2, 2004, Hoffman Estates, Il

53. Abdominal Wall Reconstruction, University of Illinois Metropolitan Group Hospitals Residency in General Surgery, November 19, 2004, Skokie, Il

54. Advances in Wound Care, Wound and Skin Care Survival Skills, Advocate Good Samaritan Hospital, Tuesday, February 8, 2005, Downer's Grove, Il

55. Plastic Surgery: A Five Year Perspective in Practice, Grand Rounds, The University of Chicago, May 18, 2005, Chicago, Il

56. New Techniques in Breast Reconstruction, The Cancer Wellness Center, October 11, 2005 Northbrook, Il

57. Principles of Plastic Surgery; Soft Tissue Reconstruction of the Hand, Rehab Connections, Inc., Hand, Wrist, and Elbow Forum, October 28, 2005, Homer Glen, Il

58. Principles of Plastic Surgery, Lutheran General Hospital Quarterly Trauma Conference, November 9, 2005, Park Ridge, Il

59. Principles of Plastic Surgery, Continuing Medical Education, St. Francis Hospital, November 15, 2005, Evanston, Il

60. Dressing for Success: A Seven Year Experience with Negative Pressure Wound Therapy, Kinetic Concepts Inc, November 30, 2005, Glenview, Il.

61. Breast Reconstruction: The Next Generation, Breast Tumor Conference, Lutheran General Hospital, May 9, 2006.

62. Complex Wound Care: Skin Grafts, Flaps, and Reconstruction, The Elizabeth D. Wick Symposium on Wound Care, *Current Concepts in Advanced Healing: An Update*, Rush North Shore Medical Center, November 4, 2006.

63. An Approach to Maxillofacial Trauma: Grand Rounds, Lutheran General Hospital/Univ. of Illinois Metropolitan Group Hospital Residency in General Surgery, November 9, 2006.

64. "From Paris to Park Ridge", Northern Trust and Advocate Lutheran General Hospital, Northern Trust Bank, June 7, 2007.

65. "Private Practice Plastic Surgery: A Seven Year Perspective," Grand Rounds, The University of Chicago, Section of Plastic Surgery.

66. "Meet the Experts on Breast Cancer," 7th Annual Chicagoland Day of Sharing, Sunday, April 13th, 2008

67. Gender Confirmation Surgey: Surgical Options and Decision-Making, The University of Minnesota, Division of Human Sexuality, May 10, 2008, Minneapolis, Minnesota.

68. "Private Practice Plastic Surgery: A Seven Year Perspective," Grand Rounds, Loyola University, 2008 Section of Plastic Surgery.

69. "Management of Lower Extremity Trauma," Grand Rounds, The University of Chicago, Section of Plastic Surgery, October, 8, 2008.

70. "Concepts in Plastic Surgery: A Multi-Disciplinary Approach," Frontline Surgical Advancements, Lutheran General Hospital, November 1, 2008

71. "Surgical Techniques-New Surgical Techniques/Plastic Surgery/Prosthetics," Caldwell Breast Center CME Series, Advocate Lutheran General Hospital, November 12, 2008

72. "Genetics: *A Family Affair*" Panel Discussion: Predictive Genetic Testing, 23rd Annual Illinois Department of Public Health Conference, Oak Brook Hills Marriott Resort, Oak Brook, Il, March 18, 2009

73. "Gender Confirmation Surgery" Minnesota TransHealth and Wellness Conference, May 15, 2009, Metropolitan State University, Saint Paul, MN.

74. "The Role of Plastic Surgery in Wound Care, " Practical Wound Care A Multidisciplinary Approach, Advocate Lutheran General Hospital, October 9-10, 2009, Park Ridge, Il.

75. "In The Family," Panel, General Session III, 2009 Illinois Women's Health Conference, Illinois Dept. of Health, Office of Women's Health October 28-29, 2009, Oak Brook, Il.

76. "Patient Safety in Plastic Surgery," The University of Chicago, Section of Plastic Surgery, Grand Rounds, November 18, 2009.

77. "Compartment Syndrome," 6th Annual Advocate Injury Institute Symposium, Trauma 2009: Yes We Can!, November 19-20, 2009.

78. "Maxillofacial Trauma," 6th Annual Advocate Injury Institute Symposium, Trauma 2009: Yes We Can!, November 19-20, 2009.

79. "Management of Complex Lower Extremity Injuries," Grand Rounds, The Section of Plastic Surgery, The University of Chicago, December 16, 2009, Chicago, Il.

80. "Gender-Confirming MTF Surgery: Indications and Techniques," Working Group on Gender, New York State Psychiatric Institute, March 12, 2010

81. "Gender-Confirmation Surgery," Minnesota Trans Health and Wellness Conference, Metropolitan State University, St. Paul Campus, May 14th, 2010

82. "Physical Injuries and Impairments," Heroes Welcome Home The Chicago Association of Realtors, Rosemont, Illinois, May 25th, 2010.

83. "Genetics and Your Health," Hadassah Heals: Healing Mind, Body, & Soul, Wellness Fair, 2010, August 29, 2010, Wilmette, Illinois.

84. "GCS," Southern Comfort Conference 2010, September 6-11, 2010, Atlanta, GA.

85. "Gender Confirming Surgery," The Center, The LGBT Community Center, October 22, 2010 New York, NY.

86. "Gender Confirming Surgery," the Center, The LGBT Community Center, May 20, 2011, New York, NY.

87. "Gender Confirming Surgery," Roosevelt-St. Lukes Hospital, May 20, 2011, New York, NY

88. "Principles of Plastic Surgery," Learn about Ortho, Lutheran General Hospital, May 25, 2011, Park Ridge, Il.

89. "Forging Multidisciplinary Relationships in Private Practice," Chicago Breast Reconstruction Symposium 2011, September 9, 2011, Chicago, Il

90. "Gender Confirming Surgery," Minnesota TransHealth and Wellness Conference, Diverse Families: Health Through Community, September 10, 2011, Minneapolis, Minnesota

91. "Gender Confirming Surgery," University of Chicago, Pritzker School of Medicine, Anatomy Class, September 16, 2011, Chicago, Il

92. "Facial Trauma," 8th Annual Advocate Injury Institute Symposium, Trauma 2011: 40 years in the Making, Wyndham Lisle-Chicago, November 9-10, 2011

93. "Establishing a Community-Based Microsurgical Practice," QMP Reconstructive Symposium, November 18-20, 2011, Chicago, Il

94. "Surgery for Gender Identity Disorder," Grand Rounds, Dept. of Obstetrics and Gynecology, Northshore University Health System, December 7, 2011

95. "Managing Facial Fractures," Trauma Grand Rounds, Lutheran General Hospital, Park Ridge, Il July 17, 2012

96. "Principles of Transgender Medicine," The University of Chicago Pritzker School of Medicine, Chicago, Il, September 7, 2012

97. "State of the art breast reconstruction," Advocate Health Care, 11th Breast Imaging Symposium, January 26, 2013, Park Ridge, Il.

98. "State of the art breast reconstruction," Grand Rounds, Dept. of Surgery, Mount Sinai Hospital, April 25, 2013, Chicago, Il.

99. "Getting under your skin: is cosmetic surgery right for you?" Lutheran General Hospital community lecture series, May 7, 2013, Park Ridge, Il.

100. "Gender Confirming Surgery," University of Chicago, Pritzker School of Medicine, Anatomy Class, September 27, 2013, Chicago, Il

101. "State of the Art Breast Reconstruction," Edward Cancer Center, Edward Hospital, October 22, 2013, Naperville, Il

102. "Transgender Medicine and Ministry," Pastoral Voice, Advocate Lutheran General Hospital, October 23, 2013, Park Ridge, Il

103. "Principles of Transgender Medicine and Surgery," The University of Illinois at Chicago College of Medicine, January 28, 2014, Chicago, Il

104. "Principles of Transgender Medicine and Surgery," Latest Surgical Innovations and Considerations, 22nd Annual Educational Workshop, Advocate Lutheran General Hospital, March 1, 2014, Park Ridge, Il.

105. "Principles of Transgender Medicine: Gender Confirming Surgery," Loyola University Medical Center, March 12, 2014.

106. "Principles of Plastic Surgery," Grand Rounds, Dept. of Obstetrics and Gynecology, Lutheran General Hospital, September 12, 2014.

107. "Gender Confirmation Surgery," The University of Chicago, Pritzker School of Medicine, October 3, 2014

108. "Private Practice: Is There a Future?" The Annual Meeting of The American Society of Plastic Surgical Administrators/The American Society of Plastic Surgery Assistants, Chicago, Il, October 11, 2014.

109. "Private Practice: Is There a Future?" The Annual Meeting of The American Society of Plastic Surgery Nurses, Chicago, Il, October 12, 2014.

110. "Gender Confirmation Surgery" Grand Rounds, The University of Minnesota, Dept. of Plastic Surgery, Minneapolis, MN, October 29, 2014.

111. "Body Contour After Massive Weight Loss," The Bariatric Support Group, Advocate Lutheran General Hospital, February 5, 2015, Lutheran General Hospital, Park Ridge, Il.

112. "Gender Confirmation Surgery," The School of the Art Institute of Chicago, February 1, 2015, Chicago, Il.

113. "Gender Confirmation Surgery," The Community Kinship Life/Bronx Lebanon Department of Family Medicine, Bronx, NY, March 6, 2015

114. "Gender Confirmation Surgery," Educational Inservice, Lutheran General Hospital, Park Ridge, Il, April 20, 2015

115. "Principles of Plastic Surgery, " Surgical Trends, Lutheran General Hospital, Park Ridge, Il, May 16, 2015

116. "Updates on Gender Confirmation Surgery, " Surgical Trends, Lutheran General Hospital, Park Ridge, Il, May 16, 2015

117. "Gender Confirmation Surgery," Lurie Childrens' Hospital, Chicago, Il, May 18, 2015,Chicago, Il 2015.

118. "Gender Confirmation Surgery," TransClinical Care and Management Track Philadelphia Trans-Health Conference, June 5, 2015, Philadelphia, Pa.

119. "Gender Confirmation Surgery: A Fifteen Year Experience," Grand Rounds, The University of Minnesota, Plastic and Reconstructive Surgery and the Program in Human Sexuality, July 30, 2015, Minneapolis, Mn

120. "Gender Confirmation Surgery," Grand Rounds, Tel Aviv Medical Center, Tel Aviv, Israel, August 13, 2015

121. "Gender Confirmation Surgery," Grand Rounds, University of Illinois, Dept of Family Medicine, September 2, 2015

122. "Principles of Plastic Surgery," Grand Rounds, St. Francis Hospital, Evanston, Il September 18, 2015

123. "Gender Confirmation Surgery," Midwest LGBTQ Health Symposium, Chicago, Il, October 2, 2015

124. "Gender Confirmation Surgery," Southern Comfort Conference, Weston, Fl, October 3, 2015

125. "Surgical Transitions for Transgender Patients," Transgender Health Training Institute, Rush University Medical Center, Chicago,Il, October 8, 2015

126. "Gender Confirmation Surgery," The Transgender Health Education Peach State Conference, Atlanta, GA, October 30, 2015

127. "Gender Confirmation Surgery," Weiss Memorial Medical Center, November 4, 2015, Chicago, Il

128. "Gender Confirmation Surgery," University of Illinois at Chicago, Operating Room Staff Inservice, November 18, 2015, Chicago, Il

129. "Gender Confirmation Surgery," University of Illinois at Chicago, Plastic Surgery and Urology Inservice, November 18, 2015, Chicago, Il

130. "Gender Confirmation Surgery," Weiss Memorial Medical Center, November 19, 2015, Chicago, Il

131. "Gender Confirmation Surgery," Section of Plastic Surgery, The University of Illinois at Chicago, January 13, 2016, Chicago, Il

132. "Gender Confirmation Surgery," Dept. of Medicine, Louis A. Weiss Memorial Hospital, February 18, 2016, Chicago, Il

133. "Gender Confirmation Surgery," BCBSIL Managed Care Roundtable March 2, 2016 Chicago, Il

134. "Gender Confirmation Surgery-MtF," Keystone Conference, March 10, 2016, Harrisburg, PA

135. "Gender Confirmation Surgery-FtM," Keystone Conference, March 10, 2016, Harrisburg, PA

136. "Gender Confirmation Surgery," Grand Rounds, Dept. of Ob-Gyn, March 25, 2016, Lutheran General Hospital, Park Ridge, Il 60068

137. "Surgical Management of the Transgender Patient," Spring Meeting, The New York Regional Society of Plastic Surgeons, April 16, 2016, New York, NY

138. "A Three Step Approach to Complex Lower Extremity Trauma," University of Illinois at Chicago, April 27, 2016, Chicago, Il.

139. "Gender Confirmation Surgery," Howard Brown Health Center, July 12, 2016, Chicago, Il

140. "Creating the Transgender Breast M-F; F-M", ASPS Breast surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

141. "Overview of Transgender Breast Surgery," ASPS Breast surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

142. "VTE Chemoprophylaxis in Cosmetic Breast and Body Surgery: Science or Myth", ASPS Breast surgery and Body Contouring Symposium, Santa Fe, NM, August 25-27, 2016

143. "Gender Confirmation Surgery," Gender Program, Lurie Childrens', Parent Group, September 20, 201, 467 W. Deming, Chicago, Il

144. "Gender Confirmation Surgery," The American Society of Plastic Surgeons Expo, September 24, 2016, Los Angeles, CA

145. Transgender Surgery, Management of the Transgender Patient, Female to Male Surgery, Overview and Phalloplasty, The American College of Surgeons, Clinical Congress 2016 October 16-20,2016 Washington, DC

146. "Gender Confirmation Surgery," The Department of Anesthesia, The University of Illinois at Chicago, November 9, 2016

147. "Gender Confirmation Surgery," The Division of Plastic Surgery, The University of Illinois at Chicago, December 14, 2016

148. "Gender Confirmation Surgery," Nursing Education, The University of Illinois at Chicago, January 10, 2017

149. "F2M-Radial Forearm Total Phalloplasty: Plastic Surgeon's Point of View," The European Association of Urologists, Meeting of the EAU Section of Genito-Urinary Reconstructive Surgeons (ESGURS), London, United Kingdom, March 23-26, 2017

150. "Gender Confirmation Surgery," Grand Rounds, The Department of Surgery, The University of North Carolina, March 29, 2017.

151. "Transgender Facial Surgery," *The Aesthetic Meeting 2017 - 50 Years of Aesthetics* - in San Diego, California April 27- May 2, 2017.

152. "Gender Confirmation Surgery: A New Surgical Frontier," 15th Annual Morristown Surgical Symposium Gender and Surgery, Morristown, NJ, May 5, 2017.

153. "Gender Confirmation Surgery: A New Surgical Frontier," Dept. of Obstetrics and Gynecology, The Medical College of Wisconsin, May 24, 2017

154. "Gender Confirmation Surgery: A New Surgical Frontier," Dept. of Obstetrics and Gynecology, Howard Brown Health Center, August 8, 2017

155. "Current State of the Art: Gynecomastia," ASPS Breast Surgery and Body Contouring Symposium, San Diego, CA, August 10-12, 2017

156. "Gender Confirmation Surgery-An Overview," ASPS Breast Surgery and Body Contouring Symposium, San Diego, CA, August 10-12, 2017

157. "Gender Confirmation Surgery," Grand Rounds, Dept. of Obstetrics and Gynecology, The University of Chicago, August 25, 2017

158. "Gender Confirmation Surgery," Wake Forest School of Medicine, Transgender Health Conference, Winston-Salem, NC, September 28-29, 2017

159. "Phalloplasty," Brazilian Professional Association for Transgender Health, Teatro Marcos Lindenberg, Universidade Federal de São Paulo (Unifesp), November 1-4, 2017

160. "Gender Confirmation Surgery," Brazlian Professional Association for Transgender Health/WPATH Session, Teatro Marcos Lindenberg, Universidade Federal de São Paulo (Unifesp), November 1-4, 2017

161. "Gender Confirmation Surgery," The Division of Plastic Surgery, The University of Illinois at Chicago, December 13, 2017, Chicago, Il

162. "Gender Confirmation Surgery," Gender and Sex Development Program, Ann and Robert H. Lurie Children's Hospital of Chicago, December 18, 2017, Chicago, Il

163. "Transgender Breast Augmentation," 34th Annual Atlanta Breast Surgery Symposium, January 19-21, 2018, Atlanta, GA

164. "Top Surgery: Transmasculine Chest Contouring," 34th Annual Atlanta Breast Surgery Symposium, January 19-21, 2018, Atlanta, GA

165. "Gender Confirmation Surgery," The 17th International Congress of Plastic and Reconstructive Surgery in Shanghai, March 18-25, 2018, Shanghai, China

166. "Gender Confirmation Surgery: Facial Feminization and Metoidioplasty," 97th Meeting of the American Association of Plastic Surgeons, Reconstructive Symposium, April 7-10, 2018, Seattle, WA

167. Moderator: "Gender Confirmation Surgery: Top Surgery", The Annual Meeting of The American Society of Aesthetic Plastic Surgery, April 26-May 1, 2018, New York, NY

168. "Gender Confirmation Surgery," Econsult monthly meeting, Dept. of Veterans' Affaris, May 24, 2018

169. "Gender Confirmation Surgery," Transgender Care Conference: Improving Care Across the Lifespan, Moses Cone Hospital, Greensboro, NC, June 8, 2018

170. "WPATH State of the Art," 1st Swiss Consensus Meeting on the Standardization of Sex Reassignment Surgery, The University of Basel, August 31, 2018-September 1, 2018

171. "Facial Feminiztion Surgery: The New Frontier?" 1st Swiss Consensus Meeting on the Standardization of Sex Reassignment Surgery, The University of Basel, August 31, 2018-September 1, 2018

172. "Current Techniques and Results in Mastectomies," 1st Swiss Consensus Meeting on the Standardization of Sex Reassignment Surgery, The University of Basel, August 31, 2018-September 1, 2018

173. "Gender Confirmation Surgery," The University of Chicago, Pritzker School of Medicine, September 7, 2018, Chicago, Il.

174. The Business End: Incorporating Gender Confirmation Surgery, Plastic Surgery The Meeting, Annual Meeting of The American Society of Plastic Surgeons, September 29, 2018, Chicago, Il

175. Body Contouring in Men, Gynecomastia, Plastic Surgery The Meeting, Annual Meeting of The American Society of Plastic Surgeons, September 30, 2018, Chicago, Il

176. Moderator: Breast Augmentation and Chest Surgery in Gender Diverse Individuals, Plastic Surgery The Meeting, Annual Meeting of The American Society of Plastic Surgeons, October 1, 2018, Chicago, Il

177. Moderator: Aesthetic Surgery of The Male Genitalia, Plastic Surgery The Meeting, Annual Meeting of The American Society of Plastic Surgeons, October 1, 2018, Chicago, Il

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182. Gender Confirmation Surgery: An Update, Division of Plastic Surgery, The University of Illinois at Chicago, January 23, 2019

183. Gender Confirmation Surgery from Top to Bottom: A 20 Year Experience, Grand Rounds, The Department of Surgery, Ochsner Health System, January 30, 2019, New Orleans, LA

184. Master Series of Microsurgery: Battle of the Masters

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186. Gender Confirmation Surgery: Where are We, The University of Toronto, Toronto, Canada, February 21, 2019

187. Professors' Rounds: Gender Confirmation Surgery: A Twenty Year Experience, Princess Margaret Hospital, Toronto, Canada, February 22, 2019

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202. Moderator, Patient Selection in Gender Affirming Survey Surgery, 88th Annual Meeting of The American Society of Plastic Surgeons, September 20-23, 2019, San Diego, CA

203. Breast Augmentation in Transwomen: Optimizing Aesthetics and Avoiding Revisions, 88th Annual Meeting of The American Society of Plastic Surgeons, September 20-23, 2019, San Diego, CA

204. Breast Reconstruction, State of the Art, NYU-Langone Health, NYU School of Medicine, Standards of Care and Insurance Coverage, Saturday, November 23, 2019, New York, NY.

205. ASRM Masters Series in Microsurgery: Think Big, Act Small: The Building Blocks for Success, "Building a Microsurgery Private Practice from the Ground Up", 2020 ASRM Annual Meeting, Ft. Lauderdale, Florida, January 10-14, 2020

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207. Rush University Medical Center, Division of Urology, Grand Rounds, "Gender Confirmation Surgery: A Single Surgeon's Experience," January 22, 2020

208. Rush University Medical Center, Department of General Surgery, Grand Rounds, "Gender Confirmation Surgery: A Single Surgeon's Experience," February 5, 2020.

209. WPATH/AMSA (American Medical Association) Gender Scholar Course, Webinar, March 11, 2020

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211. Legal Issues Faced by the Transgender Community, ISBA Standing Committee on Women and The Law and the ISBA Standing Committee on Sexual Orientation and Gender Identity, Co-Sponsored by the National Association of Women Judges District 8, Live Webinar, May 28, 2020

212. Principles of Transgender Surgery, National Association of Women's Judges, District 8, Webinar, June 4, 2020

213. Gender-Affirming Surgery, National Association of Women's Judges, District 8, Webinar, July 8, 2020

214. Gender-Affirming Surgery, The University of Chicago, Pritzker School of Medicine, 1st year Anatomy, September 15, 2020

215. Gender-Affirming Surgery, Rush University Medical School, 2nd year Genitourinary Anatomy, September 16, 2020.

216. Surgical Management of the Transgender Patient, Rosalind Franklin University, The Chicago Medical School, Plastic Surgery Interest Group, October 7, 2020

217. Breast Augmentation in Transgender Individuals, The American Society of Plastic Surgeons Spring Meeting, March 20, 2021

218. International Continence Society Institute of Physiotherapy Podcast 5-Pelvic Floor Most Common Disorders and Transgender Patients (recorded April 30, 2021)

219. The American Association of Plastic Surgeons Annual Meeting, Reconstructive Symposium, Gender Affirmation Panel, Complications of GCS, Miami, FL, May 15, 2021 (presented virtually)

220. Gender Confirmation Surgery, Grand Rounds, Rush University, Section of Urology, June 8, 2021.

221. Genitourinary introduction lecture, M2, Rush University School of Medicine, September 2, 2021 (by Zoom)

222. Demystifing Gender: Fostering Gender Friendly Healthcare, Gender Affirmative Care in Adults, Querencia (lady hardinge medical college, WHO Collaborating Center for Adolescent Health, Dept of Paediatrics, JSCH & LHMC, New Delhi, WPATH September 5, 2021 (by zoom)

223. Gender Confirmation Surgery, The University of Chicago Pritzker School of Medicine, MS-1, Anatomy lecture, September, 14, 2021, Chicago Il.

224. Gender Confirmation Surgery, A Single Surgeon's 22 Year Experience: Where are We Now?, Research Seminar, Section of Endocrinology, The University of Chicago, Chicago, Il, October 4, 2011 (by Zoom)

225. Chest Surgery, The Illinois Dept. of Corrections (by zoom), October 13, 2021.

226. Vaginoplasty, The Illinois Dept. of Corrections (by zoom), October 15, 2021.

227. International Continence Society, 20th Physioforum, Pelvic Floor Physical Therapy and Gender-Affirming Surgery, October 16, 2021, Melbourne, Australia (by Zoom)

228. Rush University Division of Plastic Surgery, Gender Affirmation Surgery: Where Are We Now?, educational conference, November 23, 2021, Chicago, Il

229. 51 Congreso Argentino de Cirugia Plastica, Microsurgery Symposium, SACPER-FILACP, 3 Step Approach to Lower Extremity Trauma, November 29, 2021, Mar del Plata, Argentina

230. 51 Congreso Argentino de Cirugia Plastica, Genital Aesthetics and Gender Confirmation Surgery I, "Gestión Quirúrgica de la Disforia de Género: Descripción general del manejo quirúrgico y los estándares de atención," December 1, 2021, Mar del Plata, Argentina

231. 51 Congreso Argentino de Cirugia Plastica, Genital Aesthetics and Gender Confirmation Surgery II, Cirugía Genital Masculinizante (Metoidioplastia y Faloplastia), December 2, 2021, Mar del Plata, Argentina

232. 51 Congreso Argentino de Cirugia Plastica, Genital Aesthetics and Gender Confirmation Surgery III, Faloplastia: optimización de resultados y reducción de complicaciones, December 2, 2021, Mar del Plata, Argentina

233. Government of India, Ministry of Health and Welfare, National AIDS Control Organization, Meeting with AIIMS on Gender Affirmation Care (GAC) Clinic Pilot Intervention, December 21,2021, New Delhi (virtual)

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236. Strategies for Penile Transplantation, American Society for Reconstructive Microsurgery, Annual Meeting, January 16, 2022, Carlsbad, CA

237. ASRM/WSRM/ASRT Battle of the Frontiers: To Transplant or Not? Conventional Reconstruction (Phalloplasty), American Society for Reconstructive Microsurgery, Annual Meeting, January 16, 2022, Carlsbad, CA

238. Strategies for Penile Innervation, American Society for Gender Surgeons, Annual Meeting, January 18, 2022, Carlsbad, CA

239. Pathway To Informed Consent: Vaginoplasty, Illinois Dept. of Corrections (virtual), February 10, 2022

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Exhibit B

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ORIGINAL PAPER

Individuals Treated for Gender Dysphoria with Medical and/or Surgical Transition Who Subsequently Detransitioned: A Survey of 100 Detransitioners

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Abstract

The study's purpose was to describe a population of individuals who experienced gender dysphoria, chose to undergo medical and/or surgical transition and then detransitioned by discontinuing medications, having surgery to reverse the effects of transition, or both. Recruitment information with a link to an anonymous survey was shared on social media, professional listservs, and via snowball sampling. Sixty-nine percent of the 100 participants were natal female and 31.0% were natal male. Reasons for detransitioning were varied and included: experiencing discrimination (23.0%); becoming more comfortable identifying as their natal sex (60.0%); having concerns about potential medical complications from transitioning (49.0%); and coming to the view that their gender dysphoria was caused by something specific such as trauma, abuse, or a mental health condition (38.0%). Homophobia or difficulty accepting themselves as lesbian, gay, or bisexual was expressed by 23.0% as a reason for transition and subsequent detransition. The majority (55.0%) felt that they did not receive an adequate evaluation from a doctor or mental health professional before starting transition and only 24.0% of respondents informed their clinicians that they had detransitioned. There are many different reasons and experiences leading to detransition. More research is needed to understand this population, determine the prevalence of detransition as an outcome of transition, meet the medical and psychological needs of this population, and better inform the process of evaluation and counseling prior to transition.

Keywords Gender dysphoria · Detransition · Transgender

Introduction

Detransition is the act of stopping or reversing a gender transition. The visibility of individuals who have detransitioned is new and may be rapidly growing. As recently as 2014, it was challenging for an individual who detransitioned to find another person who similarly detransitioned (Callahan, 2018). Between 2015 and 2017, a handful of blogs written by individual detransitioners started to appear online, private support groups for detransitioners formed, and interviews with detransitioners began to appear in news articles, magazines, and blogs (Anonymous, 2017; 4thwavenow, 2016; Herzog, 2017; McCann, 2017). Although few YouTube videos about detransition existed prior to 2016, multiple detransitioners started to post videos documenting their experiences in 2016 and the numbers of these videos continues to increase.[1] In late 2017, the subreddit r/detrans (r/detrans, 2020) was revitalized and in four years has grown from 100 members to more than 21,000 members. A member poll of r/detrans conducted in 2019 estimated that approximately one-third of the members responding to the survey were desisters or detransitioners (r/detrans, 2019). The Pique Resilience Project, a group of four detransitioned or desisted young women, was founded in 2018 as a way to share the experiences of detransitioners with the public (Pique Resilience Project, 2019). In late 2019, the Detransition Advocacy Network, a nonprofit organization to "improve the well-being of detransitioned people everywhere" was launched (The

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[1] A search of the word "detransition" in YouTube can be filtered by date of upload. https://www.youtube.com/results?search_query=%22detransition%22&sp=CAI%253D22.

Detransition Advocacy Network, 2020) and the first formal, in-person conference for detransitioned people was held (Bridge, 2020). In the face of this massive change, clinicians have called for more research into the experiences of detransitioners (Butler & Hutchinson, 2020; Entwistle, 2021; Marchiano, 2020).

Although there were rare published reports about detransitioners prior to 2016, most of the published literature about detransition is recent (Callahan, 2018; D'Angelo, 2018; Djordjevic et al., 2016; Kuiper & Cohen-Kettenis, 1998; Levine, 2018; Marchiano, 2017; Pazos Guerra et al., 2020; Stella, 2016; Turban & Keuroghlian, 2018; Turban et al., 2021; Vandenbussche, 2021). The prevailing cultural narratives about detransition are that most individuals who detransition will retransition and that the reasons for detransition are discrimination, pressures from others, and nonbinary identification (Turban et al., 2021). However, case reports are shedding light on a broader and more complex range of experiences that include trauma, worsened mental health with transition, re-identification with natal sex, and difficulty separating sexual orientation from gender identity (D'Angelo, 2018; Levine, 2018; Pazos Guerra et al., 2020).[2] Detransitioners and desisters, in their own words, have provided additional depth to the discussion, describing that:

(1) Trauma (including sexual trauma) and mental health conditions contributed to their transgender identification and transition (Callahan, 2018; Herzog, 2017; twitter.com/ftmdetransed & twitter.com/radfemjourney, 2019)
(2) Their dysphoria and transition were due to homophobia and difficulty accepting themselves as homosexual (Bridge, 2020; Callahan, 2018; upperhandMARS, 2020)
(3) Peers, social media, and online communities were influential in the development of transgender identification and desire to transition (Pique Resilience Project, 2019; Tracey, 2020; upperhandMARS, 2020)
(4) Their dysphoria was rooted in misogyny (Herzog, 2017)

Two recently published convenience sample reports provide additional context about the topic of detransition. First, Turban et al. (2021) analyzed data from the United States Trans Survey (USTS) (James et al., 2016). The USTS contains data from 27,715 transgender and gender diverse adults from the U.S. who were recruited through lesbian, gay, bisexual, transgender, queer (LGBTQ), and allied organization outreach. The USTS included the question, "Have you ever detransitioned? In other words, have you ever gone back to living as your sex assigned at birth, at least for a while?" with the multiple choice options of "yes," "no," and "I have never transitioned." For the 2,242 participants who answered "yes," Turban et al. analyzed the responses to the multiple choice question, "Why did you detransition? In other words, why did you go back to living as your sex assigned at birth? (Mark all that apply)." Although most of the offered answer options were about external pressures to detransition (pressure from spouse or partner, pressure from family, pressure from friends, pressure from employer, discrimination, etc.), participants could write in additional reasons that were not listed. Turban et al.'s sample included more natal males (55.1%) than natal females (44.9%). Roughly half (50.2%) had taken cross-sex hormones and 16.5% had obtained surgery. The findings revealed that most (82.5%) of the sample expressed at least one external factor for detransitioning and 15.9% expressed at least one internal factor (factors originating from self).

The second study by Vandenbussche (2021) recruited detransitioners from online communities of detransitioners and analyzed data for the participants who answered affirmatively to the question, "Did you transition medically and/or socially and then stopped?" The sample of 237 participants was predominantly natal female (92%), and from the U.S. (51%) and Europe (32%). Most (65%) had transitioned both medically and socially. Participants selected from multiple choice options to indicate why they detransitioned with options covering a range of experiences. Respondents also had the option to write in additional reasons. Frequently endorsed reasons for detransition included realizing that their gender dysphoria was related to other issues (70%); health concerns (62%); observing that transition did not help their dysphoria (50%); and that they found alternatives to deal with their dysphoria (45%). In contrast to Turban et al. (2021), external factors such as lack of support, financial concerns, and discrimination were less common (13%, 12%, and 10%, respectively). Many in the sample described that when they detransitioned they lost support or were ostracized from lesbian, gay, bisexual, and transgender (LGBT) communities, suggesting that many of the participants in Vandenbussche (2021) would not have been reached by the recruitment efforts of the USTS (James et al., 2016).

The objective of the current study was to describe a population of individuals who experienced gender dysphoria, chose to undergo medical and/or surgical transition and then detransitioned by discontinuing medications, having surgery to reverse the effects of transition, or both. In contrast to Turban et al. (2021) and Vandenbussche (2021), this study focused only on

[2] The debate about the terminologies used to describe an individual's sex (including "assigned sex at birth," "biological sex," "natal sex," "birth sex," "sex," etc.) is far from settled. Although some professionals have argued for the use of "assigned sex at birth," others argue that this terminology is misleading and not consistent with the events that occur at birth and prior to birth (Bouman et al., 2017; Byng et al., 2018; Dahlen, 2020; Griffin et al., 2020). Supporting the unsettled nature of the discussion, I received conflicting comments from the reviewers of this manuscript about my selection of natal sex terms–one reviewer asked that I justify my preference for natal sex over the other terminologies; another reviewer expressed support for my use of natal sex. I prefer to use "natal sex" and "birth sex" because they are accurate and objective. Further, I propose that "natal sex" and "birth sex" might be seen as reasonable, polite compromise terms between "biological sex" and "assigned sex at birth."

individuals who transitioned and detransitioned medically, surgically, or both. For the purpose of this study, medical transition refers to the use of puberty blockers, cross-sex hormones, or anti-androgens and surgical transition refers to any of a variety of surgical procedures (common surgical procedures include mastectomy, genital surgery, and breast augmentation). This study does not describe the population of individuals who undergo medical or surgical transition without issue nor is it designed to assess the prevalence of detransition as an outcome of transition. Instead, the goal was to identify detransition reasons and narratives in order to inform clinical care and future research.

Method

Participants and Procedure

During the recruitment period, 101 individuals who met the study criteria completed online surveys. Inclusion criteria were (1) completion of a survey via Survey Monkey; (2) answering that they had taken or had one or more of the following for the purpose of gender transition: cross-sex hormones, anti-androgens, puberty blockers, breast surgery, genital surgery, other surgery; and (3) answering that they had done any of the following for the purpose of detransitioning: stopped taking cross-sex hormones, stopped taking anti-androgens, stopped taking puberty blockers, had any surgery to reverse transition. One survey was excluded for nonsense answers leaving 100 surveys for analysis. The sample included more natal females (69.0%) than natal males (31.0%) with respondents who were predominantly White (90.0%), non-Hispanic (98.0%), resided in the U.S. (66.0%); had no religious affiliation (63.0%), and support the rights of gay and lesbian couples to marry legally (92.9%) (see Table 1). At the time of survey completion, the mean age of respondents was 29.2 years (SD = 9.1) though natal females were significantly younger ($M = 25.8$; SD = 5.0) than natal males ($M = 36.7$; SD = 11.4), $t(98) = -6.56$, $p < .001$. Prior to transitioning, natal females were more likely to report an exclusively homosexual sexual orientation and natal males were more likely to report an exclusively heterosexual sexual orientation.

A 115-question survey instrument with multiple choice, Likert-type, and open-ended questions was created by the author and two individuals who had personally detransitioned. The author had met both detransitioners by way of introductions from colleagues. The author and both individuals who had detransitioned created questions for the survey, provided feedback, and revised the survey questions collaboratively with a focus on content, clarity, and relevance to a variety of transition and detransition experiences. The survey instrument included two questions that were adapted from an online survey of female detransitioners (Stella, 2016). Once completed, the survey was uploaded onto Survey Monkey (SurveyMonkey, Palo Alto, CA) via an account that was HIPAA-enabled.

Recruitment information with a link to the survey was posted on blogs that covered detransition topics and shared in a private online detransition forum, in a closed detransition Facebook group, and on Tumblr, Twitter, and Reddit. Recruitment information was also shared on the professional listservs for the World Professional Association for Transgender Health, the American Psychological Association Section 44, and the SEXNET listserv (which is a listserv of sex researchers and clinicians) and the professionals on the listservs were asked to share recruitment information with anyone they knew who might be eligible. Efforts were made to reach out to communities with varied views about the use of medical and surgical transition and recruitment information stated that participation was sought from individuals regardless of whether their transition experiences were positive, negative or neutral. Potential participants were invited to share recruitment information with any potentially eligible person or community with potentially eligible people. The survey was active from December 15, 2016 to April 30, 2017 (4.5 months). The median time to complete a survey was 49 min; 50% of the surveys were completed between 32 and 71 min. There were no incentives offered for participating. Data were collected anonymously, without IP addresses, and stored securely with Survey Monkey.

Participation in this study was voluntary. Electronic consent was obtained from all participants in the following manner. The first page of the online survey informed respondents about the research purpose, potential risks and benefits, that participation was voluntary, and provided contact information for the researcher. Survey questions were only displayed if the participant clicked "agree" which indicated that they read the information, voluntarily agreed to participate and were at least 18 years of age.

Measures

Demographic and Baseline Characteristics

Information was collected about participant age, natal sex, race/ethnicity, country of residence, educational attainment, socioeconomic status, religion, attitudes about legal marriage for gay and lesbian couples, and where they first heard about the study. The term sexual orientation in this article is intended to refer to the natal sex of the participant and the natal sex of the individuals with whom they are sexually attracted. Participants were asked to select one or more labels for how they identified their sexual orientation prior to transition with options inclusive of participant sex (e.g., asexual female, bisexual female, heterosexual female, etc.). These responses were coded to be consistent with participant natal sex and were categorized into homosexual, heterosexual, bisexual, pansexual, asexual, and multiple. The multiple category included respondents who

Table 1 Demographic and baseline characteristics

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Race/ethnicity**		
White	62 (89.9%)	28 (90.3%)
Multiracial	6 (8.7%)	3 (9.7%)
Other	4 (5.8%)	0 (0%)
Asian	1 (1.4%)	1 (3.2%)
Hispanic	1 (1.4%)	1 (3.2%)
Black	0 (0%)	0 (0%)
Country of residence		
USA	46 (66.7%)	20 (64.5%)
UK	8 (11.6%)	1 (3.2%)
Canada	5 (7.2%)	4 (12.9%)
Australia	2 (2.9%)	2 (6.5%)
Other	8 (11.6%)	4 (12.9%)
Education		
Bachelor's or graduate degree	29 (42.0%)	18 (58.1%)
Associates degree	3 (4.3%)	1 (3.2%)
Some college but no degree	28 (40.6%)	9 (29.0%)
High school graduate or GED	8 (11.6%)	2 (6.5%)
< High school	1 (1.4%)	0 (0%)
Other	0 (0%)	1 (3.2%)
Socioeconomic status compared to others in country of residence		
Above average (somewhat or very much)	19 (27.5%)	12 (38.7%)
About average	20 (29.0%)	7 (22.6%)
Below average (somewhat or very much)	27 (39.1%)	12 (38.7%)
Prefer not to say	3 (4.3%)	0 (0%)
Categorized sexual orientation (by natal sex) prior to transition[a]		
Homosexual	18 (26.1%)	2 (6.5%)
Heterosexual	6 (8.7%)	12 (38.7%)
Bisexual	15 (21.7%)	8 (25.8%)
Pansexual	4 (5.8%)	1 (3.2%)
Multiple	20 (29.0%)	5 (16.1%)
Asexual	6 (8.7%)	3 (9.7%)
Religious affiliation		
No religious affiliation	41 (59.4%)	22 (73.3%)
Liberal Christian	5 (7.2%)	3 (10.0%)
Liberal Jewish	5 (7.2%)	0 (0%)
Conservative Christian	1 (1.4%)	2 (6.7%)
Liberal Muslim	1 (1.4%)	0 (0%)
Conservative Jewish	0 (0%)	0 (0%)
Conservative Muslim	0 (0%)	0 (0%)
Other	16 (23.2%)	3 (10.0%)
Legal marriage for gay and lesbian couples		
Favor	65 (97.0%)	26 (83.9%)
Oppose	1 (1.5%)	5 (16.1%)
Don't know	1 (1.5%)	0 (0%)
Source where participant first heard about study		
Detransition blogs	26 (37.7%)	15 (48.4%)
Other social media	37 (53.6%)	11 (35.5%)
A person they know	3 (4.3%)	3 (9.7%)
Other	3 (4.3%)	2 (6.5%)

*May select more than one answer

[a]Natal females were more likely to express an exclusively homosexual sexual orientation prior to transition ($\chi^2 = 5.15$. The p-value is .023). Natal males were more likely to express an exclusively heterosexual sexual

Table 1 (continued)

orientation prior to transition ($\chi^2 = 13.05$. The p value is $< .001$). Natal sex differences were not significant for individuals expressing pre-transition sexual orientations of bisexual, pansexual, multiple, and asexual. For bisexual sexual orientation, $\chi^2 = 0.20$. For pansexual sexual orientation, $\chi^2 = 0.29$. For multiple sexual orientations reported, $\chi^2 = 1.88$. For asexual sexual orientation, $\chi^2 = 0.02$

selected more than one response where responses indicated more than one pattern of sexual attraction (e.g., lesbian female and heterosexual female). Other questions about baseline characteristics included questions about diagnosed psychiatric disorders and neurodevelopmental disabilities, trauma, and non-suicidal self-injury (NSSI) before the onset of gender dysphoria.

Gender Dysphoria Onset and Typologies

Participants were asked how old they were when they first experienced gender dysphoria and whether this was during childhood, at the onset of puberty, during puberty, or later. Respondents were categorized as having early-onset gender dysphoria if they indicated that their gender dysphoria began "during childhood" and late-onset gender dysphoria if their gender dysphoria began "at the onset of puberty" or later. To evaluate typologies, participants were characterized by Blanchard's (1985, 1989) typology as homosexual (if the sexual orientations listed prior to transition were exclusively homosexual) or non-homosexual which includes heterosexual, asexual, bisexual, pansexual, and multiple responses.

Transition

Participants were asked for their age and the year that they first sought care to transition, sources that encouraged them to believe that transition would be helpful to them, and whether they felt pressured to transition. The friendship group dynamics that were identified in previous work were assessed by asking respondents whether their friendship group mocked people who were not transgender, whether people in their pre-existing friend group transitioned before the participant decided to transition, and how participant popularity changed after announcing that they would transition (Littman, 2018). Questions were asked about participant experiences with clinicians, the social, medical, and surgical steps they took to transition, and the duration of time spent taking each medication.

Detransition

Participants were asked for their age and the year that they decided to detransition, how long they were transitioned before deciding to detransition, their reasons for wanting to detransition, what sources encouraged them to believe that detransition would be helpful to them, and whether they felt pressured to detransition. Participants were also asked which social, medical, and surgical steps they took to detransition and whether they contacted the doctor or clinic that they used for their transition to tell them that they detransitioned.

Transition and Detransition Narratives

In this article, "narratives" denote participant interpretations of their experiences and rationales surrounding their decisions to transition and detransition. To associate each participant survey with a set of relevant narratives, the data were reviewed with horizontal (beginning to end) passes and vertical passes for selected questions (these questions are listed in the supplemental materials). Surveys were coded as belonging to zero or more of the following narrative categories: discrimination, nonbinary, retransition, trauma and mental health, internalized homophobia, social influence, and misogyny. Each narrative and the responses that were associated with them are detailed below. Example quotes were selected with care taken to avoid quoting a participant more than once per narrative. Narratives are ordered and reported with the more commonly accepted narratives first and the newer narratives next.

The *discrimination* narrative was defined as when someone detransitioned due to experiencing discrimination or external social pressures. The *nonbinary* narrative consisted of answering that their current identification was "nonbinary/genderqueer" or providing open-text responses that described aspects of discovering or maintaining a nonbinary identification. Although there were no questions in the survey specifically asking about retransition, the *retransition* narrative was identified if participants expressed that they had retransitioned or resumed transition in any of the open-text responses in the survey. The *gender dysphoria was caused by trauma or a mental health condition* narrative was identified by selection for the answers, "what I thought were feelings of being transgender were actually the result of trauma," "what I thought were feelings of being transgender were actually the result of a mental health condition," "I discovered that my gender dysphoria was caused by something specific (ex. trauma, abuse, mental health condition)" or open-text responses consistent with these reasons. The *internalized homophobia/difficulty accepting oneself as a lesbian female, gay male, or bisexual person* narrative consisted of descriptions that the respondents' discomfort and distress about being lesbian, gay, or bisexual was related to their gender dysphoria, transition, or detransition, or that they assumed they were transgender because they did not yet understand themselves to be lesbian, gay or bisexual. The *social pressure to transition* narrative was identified with an affirmative

answer to whether they felt pressured to transition with an open-text response indicating that the pressure came from a person or group of people. The *misogyny* narrative was identified for natal female respondents with open-text responses using the word "misogyny" or expressing a hatred of femaleness.

Gender Identification at Start of Transition and at Survey Completion

Participants were asked how they identified their gender when they started their transition and at the time of survey completion. They were given options of female, male, nonbinary/genderqueer, trans man/FTM, trans woman/MTF, none of the above, and other. Responses were coded by natal sex and categorized as transgender, birth sex, nonbinary, and other. Answers that were combinations of the above categories were reported as combinations such as "birth sex and nonbinary."

Self-Appraisal of Transition and Detransition

One question asked if participants believe they were helped and another if they were harmed by their transition with options of "very much," "a little," or "not at all." These results were categorized into exclusively helped, exclusively harmed, and both helped and harmed. Participants were asked which of the following reflected their feelings about their transition: "I am glad that I transitioned," "I wish I had never transitioned," "Transitioning distracted me from what I should have been doing," "Transition was a necessary part of my journey." Participants were asked to rate their regret about their transition ("no regrets," "mild regrets," "strong regrets," and "very strong regrets") and were asked to indicate their satisfaction with their decisions to transition and detransition ("extremely satisfied," "very satisfied," "somewhat satisfied," "somewhat dissatisfied," "very dissatisfied," and "extremely dissatisfied"). Satisfaction options were collapsed into "satisfied" and "dissatisfied." In addition, participants were asked if they knew then what they know now, would they have chosen to transition.

Data Analysis

After data were cleaned, statistical analyses were performed using google sheets. Results are presented as frequencies, percentages, medians, means and standard deviations. *t* tests and chi-square tests were performed for selected variables and were considered significant for $p < .05$. Qualitative data were obtained from the open-text answers to questions that allowed participants to provide additional information. Selected open-text responses were categorized, tallied, and reported numerically. Salient respondent quotes and summaries from the qualitative data were selected to illustrate the quantitative results and to provide relevant examples.

Results

Before Transition

Mental health diagnoses and traumatic experiences before the onset of gender dysphoria. Table 2 shows data about psychiatric disorders, neurodevelopmental disabilities, NSSI, and trauma that were reported as occurring prior to the onset of gender dysphoria. Because these conditions and events occurred before participants began to feel gender dysphoric, they cannot be considered to be secondary to gender incongruence or transphobia.

Gender dysphoria onset and typology. Most participants (82.0%) were living with one or both parents when they first experienced gender dysphoria at a mean age of 11.2 years (SD = 5.6). The mean age of gender dysphoria onset was not statistically different between natal females ($M = 11.3$; SD = 5.4) and natal males ($M = 11.0$; SD = 5.9), $t(96) = 0.25$. By Blanchard typologies, 26.1% of natal females were exclusively homosexual and 73.9% non-homosexual while 6.5% of natal males were exclusively homosexual and 93.5% non-homosexual (Blanchard, 1985, 1989). Slightly more than half of the respondents (56.0%) experienced early-onset gender dysphoria and slightly less than half (44.0%) experienced late-onset gender dysphoria. Although late-onset gender dysphoria in natal females was largely absent from the scientific literature prior to 2012 (Steensma et al., 2013; Zucker & Bradley, 1995; Zucker et al., 2012a), 55.1% of the natal female participants reported that their gender dysphoria began with puberty or later. Because the information about the timing of gender dysphoria onset was obtained from participants reporting on their own experiences, it can be assumed that these cases were indeed late-onset rather than early-onset gender dysphoria that was concealed from parents and other people.

Transition reasons. Table 3 shows data about the reasons that individuals wanted to transition and the most frequently endorsed were: wanting to be perceived as the target gender (77.0%); believing that transitioning was their only option to feel better (71.0%); the sensation that their body felt wrong the way it was (71.0%), and not wanting to be associated with their natal sex (70.0%). Most participants believed that transitioning would eliminate (65.0%) or decrease (63.0%) their gender dysphoria and that with transitioning they would become their true selves (64.0%).

Sources of transition encouragement and friend group dynamics. Participants identified sources that encouraged them to believe transitioning would help them. Social media and online communities were the most frequently reported, including YouTube transition videos (48.0%), blogs (46.0%), Tumblr (45.0%), and online communities (43.0%) (see supplemental materials). Also common were people who the respondents knew offline such as therapists (37.0%); someone (28.0%) or a group of friends (27.0%) that they knew in-person. A subset of

Table 2 Mental health diagnoses and traumatic experiences prior to the onset of gender dysphoria

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Diagnosed with a mental illness or neurodevelopmental disability**[a]		
Depression	27 (39.1%)	5 (16.1%)
Anxiety	22 (31.9%)	5 (16.1%)
Attention deficit hyperactivity disorder (ADHD)	10 (14.5%)	2 (6.5%)
Post-traumatic stress disorder (PTSD)	10 (14.5%)	1 (3.2%)
Eating disorders	10 (14.5%)	0 (0%)
Autism spectrum disorders	9 (13.0%)	1 (3.2%)
Bipolar disorder	9 (13.0%)	0 (0%)
Obsessive compulsive disorder	6 (8.7%)	3 (9.7%)
Borderline personality disorder	5 (7.2%)	0 (0%)
Schizophrenia or other psychotic disorders	1 (1.4%)	0 (0%)
None of the above	28 (40.6%)	17 (54.8%)
Other	7 (10.1%)	2 (6.5%)
Non-suicidal self-injury (NSSI)[b]		
Engaged in NSSI before the onset of gender dysphoria	19 (27.5%)	5 (16.1%)
Trauma[c]		
Experienced a trauma less than one year before the start of gender dysphoria	33 (47.8%)	4 (12.9%)

*May select more than one answer

[a]Natal sex difference for one or more pre-existing diagnoses (100-none of the above) was not significant [$\chi^2(1, 100) = 1.76$]

[b]Natal sex differences for NSSI before the onset of gender dysphoria was not significant ($\chi^2 = 1.52$)

[c]Experiencing a trauma less than one year before the start of gender dysphoria was statistically different [$\chi^2(1, 100) = 11.19, p < .001$] with natal females > natal males

Table 3 Transition reasons

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Reasons for transition**		
I wanted others to perceive me as the target gender	53 (76.8%)	24 (77.4%)
I thought transitioning was my only option to feel better	50 (72.5%)	21 (67.7%)
My body felt wrong to me the way it was	50 (72.5%)	21 (67.7%)
I didn't want to be associated with my natal sex/natal gender	51 (73.9%)	19 (61.3%)
It made me uncomfortable to be perceived romantically/sexually as a member of my natal sex/natal gender	49 (71.0%)	18 (58.1%)
I thought transitioning would eliminate my gender dysphoria	43 (62.3%)	22 (71.0%)
I felt I would become my true self	42 (60.9%)	22 (71.0%)
I identified with the target gender	40 (58.0%)	24 (77.4%)
I thought transitioning would lessen my gender dysphoria	45 (65.2%)	18 (58.1%)
I felt I would fit in better with the target gender	36 (56.5%)	20 (64.5%)
I felt I would be more socially acceptable as a member of the target gender	38 (55.1%)	11 (35.5%)
I felt I would be treated better if I was perceived as the target gender	35 (50.7%)	14 (45.2%)
I saw myself as a member of the target gender	31 (44.9%)	18 (58.1%)
I thought transitioning would reduce gender-related harassment or trauma I was experiencing	35 (50.7%)	5 (16.1%)
I had erotic reasons for wanting to transition	9 (13.0)	12 (38.7%)
Other	9 (13.0%)	3 (9.7%)

*May select more than one answer

participants experienced the friendship group dynamics identified in previous work, including belonging to a friendship group that mocked people who were not transgender (22.2%), having one or more friend from the pre-existing friend group transition before the participant decided to transition (36.4%), and experiencing an increase in popularity after announcing plans to transition (19.6%) (Littman, 2018). Most did not have this experience (68.7%, 61.6%, and 62.9%, respectively).

Pressure to transition. More than a third of the participants (37.4%) felt pressured to transition. Natal sex differences in feeling pressured to transition were significant by chi-square test with natal females > natal males $\chi^2(1, 99) = 4.22$, $p = .04$. Twenty-eight participants provided open-text responses of which 24 described sources of pressure (17 described social pressures and 7 described sources that were not associated with other people). Clinicians, partners, friends, and society were named as sources that applied pressure to transition, as seen in the following quotes: "My gender therapist acted like it [transition] was a panacea for everything;" "[My] [d]octor pushed drugs and surgery at every visit;" "I was dating a trans woman and she framed our relationship in a way that was contingent on my being trans;" "A couple of later trans friends kept insisting that I needed to stop delaying things;" "[My] best friend told me repeatedly that it [transition] was best for me;" "The forums and communities and internet friends;" "By the whole of society telling me I was wrong as a lesbian;" and "Everyone says that if you feel like a different gender…then you just are that gender and you should transition." Participants also felt pressure to transition that did not involve other people as illustrated by the following: "I felt pressured by my inability to function with dysphoria" and "Not by people. By my life circumstances."

Experiences with clinicians. When participants first sought care for their gender dysphoria or desire to transition, more than half of the participants (53.0%) saw a psychiatrist or psychologist; about a third saw a primary care doctor (34.0%) or a counselor (including licensed clinician social worker, licensed professional counselor, or marriage and family therapist) (32.0%); and 17.0% saw an endocrinologist. For transition, 45.0% of participants went to a gender clinic (44.4% of those attending a gender clinic specified that the gender clinic used the informed consent model of care); 28.0% went to a private doctor's office; 26.0% went to a group practice; and 13.0% went to a mental health clinic (see supplemental materials).

The majority (56.7%) of participants felt that the evaluation they received by a doctor or mental health professional prior to transition was not adequate and 65.3% reported that their clinicians did not evaluate whether their desire to transition was secondary to trauma or a mental health condition. Although 27.0% believed that the counseling and information they received prior to transition was accurate about benefits and risks, nearly half reported that the counseling was overly positive about the benefits of transition (46.0%) and not negative enough about the risks (26.0%). In contrast, only a small minority found the counseling not positive enough about benefits (5.0%) or too negative about risks (6.0%) suggesting a bias toward encouraging transition.

Transition

Participants were on average 21.9 years old (SD = 6.1) when they sought medical care to transition with natal females seeking care at younger ages ($M = 20.0$; SD = 4.2) than natal males ($M = 26.0$; SD = 7.5), $t(97) = -5.07$, $p < .001$. Given that the majority of natal males were categorized as Blanchard typology non-homosexual, the finding that natal males sought medical care to transition at older ages than natal females is concordant with previous research (Blanchard et al., 1987). The average year for seeking care was more recent for natal females ($M = 2011$; SD = 3.8) than natal males ($M = 2007$; SD = 6.9), $t(96) = 2.78$, $p = .007$, and thus, there may have been differences in the care they received due to differences in the culture surrounding transition and the prevailing medical approaches to gender dysphoria for the time.

At the start of transitioning, nearly all (98.0%) of the participants identified as either transgender (80.0%), nonbinary (15.0%), or both transgender and nonbinary (3.0%). Participants identified which social, medical, and surgical steps they had taken to transition. Table 4 shows these steps, separated by natal sex where appropriate. Most respondents adopted new pronouns (91.0%) and names (88.0%), and the vast majority (97.1%) of natal females wore a binder. Most participants took cross-sex hormones (96.0%) and most natal males took anti-androgens (87.1%). The most frequent transition surgery was breast or chest surgery for natal females (33.3%). Genital surgery was less common (1.4% of natal females and 16.1% of natal males). Natal females took testosterone for a mean duration of 2.0 years (SD = 1.6). Natal males took estrogen for a mean duration of 5.1 years (SD = 5.9) and anti-androgens for 2.8 years (SD = 2.6). The minority of patients who took puberty blockers took them for a mean duration of less than a year ($M = 0.9$ years; SD = 0.6).

Detransition

Before deciding to detransition, participants remained transitioned for a mean duration of 3.9 years (SD = 4.1) with natal females remaining transitioned for a shorter period of time ($M = 3.2$ years; SD = 2.7) than natal males ($M = 5.4$ years; SD = 6.1), $t(96) = -2.40$, $p = .018$. When participants decided to detransition they were a mean age of 26.4 years old (SD = 7.4) though natal females were significantly younger ($M = 23.6$; SD = 4.5) than natal males ($M = 32.7$; SD = 8.8), $t(97) = -6.75$, $p < .001$. The mean calendar year when participants decided to detransition was 2014 ($M = 2014$; SD = 3.3), but the difference

Table 4 Steps taken for social, medical, and surgical transition

	N (%)
*Social transition**	
Pronouns	91 (91.0%)
Different name	88 (88.0%)
Clothes/hair/makeup	90 (90.0%)
Legal name change	49 (49.0%)
Gender/sex changed on government documents	36 (36.0%)
Voice training	20 (20.0%)
Natal female	
Wore a binder	67 (97.1%)
*Medical transition**	
Cross-sex hormones	96 (96.0%)
Puberty blockers	7 (7.0%)
Natal male	
Anti-androgens	27 (87.1%)
*Surgical transition**	
Face/neck surgery	5 (5.0%)
Natal female	
Breast/chest surgery	23 (33.3%)
Genital surgery (to create a penis)	1 (1.4%)
Natal male	
Breast implants	5 (16.1%)
Genital surgery (to create a vagina)	5 (16.1%)

*May select more than one answer

between natal females and natal males was not significant ($M=2014$, SD = 3.3; $M=2014$, SD = 3.5), $t(95)=0.52$.

Respondents detransitioned for a variety of reasons and most (87.0%) selected more than one reason. The most frequently endorsed reason for detransitioning was that the respondent's personal definition of male and female changed and they became comfortable identifying with their natal sex (60.0%) (see Table 5). Other commonly endorsed reasons were concerns about potential medical complications (49.0%); transition did not improve their mental health (42.0%); dissatisfaction with the physical results of transition (40.0%); and discovering that something specific like trauma or a mental health condition caused their gender dysphoria (38.0%). External pressures to detransition such as experiencing discrimination (23.0%) or worrying about paying for treatments (17.0%) were less common.

Encouragement and pressure to detransition. Participants were asked to select sources that encouraged them to believe that detransitioning would help them. These included blogs (37.0%), Tumblr (35.0%), and YouTube detransition videos (23.0%) (see supplemental materials). At some point in their process, 23.2% felt pressured to detransition. There was no significant difference between natal females and natal males for feeling pressured to detransition, $\chi^2(1, 99)=1.11$. Of the 21 open-text responses provided, 14 respondents expressed social pressure to detransition; three expressed internal pressure to detransition and four provided responses that were neither

Table 5 Reasons for detransitioning

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Reasons for detransitioning**		
My personal definition of female or male changed and I became more comfortable identifying as my natal sex	45 (65.2%)	15 (48.4%)
I was concerned about potential medical complications from transitioning	40 (58.0%)	9 (29.0%)
My mental health did not improve while transitioning	31 (44.9%)	11 (35.5%)
I was dissatisfied by the physical results of the transition/felt the change was too much	35 (50.7%)	5 (16.1%)
I discovered that my gender dysphoria was caused by something specific (ex, trauma, abuse, mental health condition)	28 (40.6%)	10 (32.3%)
My mental health was worse while transitioning	27 (39.1%)	9 (29.0%)
I was dissatisfied by the physical results of the transition/felt the change was not enough	22 (31.9%)	11 (35.5%)
I found more effective ways to help my gender dysphoria	25 (36.2%)	7 (22.6%)
My physical health was worse while transitioning	21 (30.4%)	11 (35.5%)
I felt discriminated against	12 (17.4%)	11 (35.5%)
I had medical complications from transitioning	12 (17.4%)	7 (22.6%)
Financial concerns about paying for transition care	11 (15.9%)	6 (19.4%)
My gender dysphoria resolved	10 (14.5%)	5 (16.1%)
My physical health did not improve while transitioning	9 (13.0%)	2 (6.5%)
I resolved the specific issue that was the cause of my gender dysphoria	6 (8.7%)	4 (12.9%)
I realized that my desire to transition was erotically motivated	1 (1.4%)	5(16.1%)
Other	19 (27.5%)	6 (19.4%)

*May select more than one answer

or unclear. Regarding social pressure to detransition, seven participants expressed that the pressure came from partners, parents, or other family members as shown in the following example quotes: "I was threatened that if I did not immediately detransition I would NEVER see my [...] children again," "My father very much wanted me to desist," and "Parents constantly encouraging me to detransition." Five participants expressed societal pressure to detransition as expressed in the following quotes: "I did not pass, I was mocked in public, I could not get a job. It was not ok to be trans" and "Well, I mean basically the entire world was against me transitioning, so yeah." One participant felt pressured by doctors and another one from a blog.

Detransition steps. Table 6 shows data about the social, medical, and surgical steps participants took to detransition. Nearly all participants medically detransitioned by ceasing cross-sex hormones (95.0%). Social detransition steps were also common and included returning to the use of previously used pronouns (63.0%) and birth names (33.0%) and changing one's clothes and hair presentations (48.0%). Surgical detransition steps were less common (9.0%).

Finding better ways of coping with gender dysphoria**.** Participants were asked to select responses that that they considered to have been better ways for them to cope with their gender dysphoria. Responses included community (44.0%), mindfulness/meditation (41.0%), exercise (39.0%), therapy (24.0%), trauma work (24.0%), medication to treat a mental health condition (18.0%), and yoga (14.0%).

Table 6 Social, medical, and surgical detransition steps

	N (%)
*Social detransition**	
Previous pronouns	63 (63.0%)
Clothes/hair/makeup	48 (48.0%)
Birth name	33 (33.0%)
New name (not birth name)	24 (24.0%)
None of the above	2 (2.0%)
*Medical detransition**	
Stopped cross-sex hormones	95 (95.0%)
Stopped puberty blockers	4 (4.0%)
Started hormones consistent with natal sex	14 (14.0%)
Natal male	
Stopped anti-androgens	17 (54.8%)
*Surgical detransition**	
Surgery to reverse changes from transition	9 (9.0%)

*May select more than one answer

Transition and Detransition Narratives

Several transition and detransition narratives emerged from the data. A sizable minority of participants (41.0%) expressed more than one narrative in their responses.

The *discrimination and external pressures to detransition* narrative was described by 29.0% of participants. Examples include: "I had to detransition in order to get a job"; "I was afraid of being homeless and unable to support myself"; "I felt much happier with myself but I couldn't go anywhere without being afraid. I passed okay but not perfectly. I was stared down and sneered at in the women's clothes section, I wouldn't dare use a public toilet because I'd find either violent men or women who wished an encounter with a violent man on me."

A *nonbinary* narrative was expressed by 16.0% of participants. Some described that they discovered their nonbinary gender identity during their transition, as in the following quotes: "I still was uncomfortable with my body and figured I should stop and make sure I really wanted to keep going. I didn't and I decided I must be nonbinary, not FTM"; "Transitioning didn't do what I thought I wanted it to. I had transitioned to the wrong gender. I still felt wrong. Then, I realized I was not male, but genderqueer. I detransitioned to suit my true identity." And others described a consistent nonbinary identification, as in the following quote, "I identified the same way that I did before. I had gotten what I wanted out of HRT and was ready to stop taking it." (Cross-sex hormones are sometimes referred to as "hormone replacement therapy" and abbreviated as HRT).

Three participants (3.0%) expressed the *retransition* narrative in open-text answers indicating that they had retransitioned, including the following quotes: "I am now transitioning for a second time"; I retransitioned after 5 years of detransitioning"; and "Anyway, I retransitioned over 10 years after detransitioning."

Most participants (58.0%) expressed the *gender dysphoria was caused by trauma or a mental health condition* narrative which included endorsing the response options indicating that their gender dysphoria was caused by something specific, such as a trauma or a mental health condition. More than half of the participants (51.2%) responded that they believe that the process of transitioning delayed or prevented them from dealing with or being treated for trauma or a mental health condition. The following are example quotes that were in response to why participants chose to detransition: "I slowly began addressing the mental health conditions and traumatic experiences that caused such a severe disconnect between myself and my body..."; "I was starting to become critical of transition because I felt that many people were doing it out of self-hatred and started to realize that applied to me as well"; "I was deeply uncomfortable with my secondary sex characteristics, which I now understand was a result of childhood trauma and associating my secondary sex characteristics with those events."

Despite the absence of any questions about this topic in the survey, nearly a quarter (23.0%) of the participants expressed the *internalized homophobia and difficulty accepting oneself as lesbian, gay, or bisexual* narrative by spontaneously describing that these experiences were instrumental to their gender dysphoria, their desire to transition, and their detransition. All

of the participants in this category indicated that they were either same-sex attracted exclusively or were same-sex attracted in combination with opposite-sex attraction (such as bisexual, pansexual, etc.). The following responses were written in as "other" for the question about why participants transitioned: "Transitioning to male would mean my attraction to girls would be 'normal'"; "being a 'gay trans man' (female dating other females) felt better than being a lesbian, less shameful"; "I felt being the opposite gender would make my repressed same-sex attraction less scary"; "I didn't want to be a gay man." Some participants described that it took time for them to gain an understanding of themselves as lesbian, gay, or bisexual as seen in the following: "At the time I was trying to figure out my identity and felt very male and thought I was transgender. I later discovered that I was a lesbian…"; and "Well, after deep discovery, I realized I was a gay man and realized that a sexual trauma after puberty might [have] confused my thought. I wanted to live as a gay man again." Several natal female respondents expressed that seeing other butch lesbians would have been helpful to them as shown by the following: "What would have helped me is being able to access women's community, specifically lesbian community. I needed access to diverse female role-models and mentors, especially other butch women."

The *social influence* narrative was identified where participants added information to the question about if they had felt pressured to transition and the response described pressure from a person or people. One-fifth (20.0%) of participants expressed that they felt pressured by a person or people to transition. Example quotes for social influence were described in a previous section.

Of the natal females, 7.2% expressed the *misogyny* narrative. Example quotes include: "…I realized how much of it [dysphoria] may have been caused by internalized misogyny and homophobia"; "Finally realizing there's nothing wrong or disgusting or weak about being female"; and "My transition was a desperate attempt to distance myself from womanhood and femaleness due to internalized lesbophobia and misogyny combined with a history of sexual trauma."

After Detransition

Disposition. At the time of survey completion, most participants had returned to identifying solely as their birth sex (61.0%) with an additional 10.0% identifying as their birth sex plus another identification. Fourteen percent of the participants identified solely as nonbinary with an additional 11.0% identifying as nonbinary plus a second identification. Eight percent of the participants identified solely as transgender with an additional 5.0% identifying as transgender plus another identification. Four percent of the responses did not fit into the above categories and were coded as "other." Figure 1 illustrates the distribution of participants' current gender identification (post-detransition). Only 24.0% of participants had informed

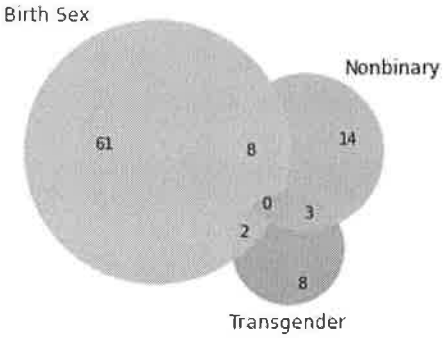

Fig. 1 Distribution of participants' current gender identification (after detransition) (n = 100). *Notes*: The sum of the numbers appearing in the "Birth Sex" circle indicates the number of participants who returned to identifying with their birth sex (71)—either as birth sex alone (61) or birth sex in addition to a second identification (10) represented in the overlap between two circles. For example, eight participants identify as their birth sex and as nonbinary. The sum of the numbers appearing in the "Nonbinary" circle indicates the number of participants who identify as nonbinary (25)—either as nonbinary alone (14) or nonbinary in addition to a second identification (11). The sum of the numbers appearing in the "Transgender" circle indicates the number of participants who identify as transgender (13)—either as transgender alone (8) or transgender in addition to a second identification (5). Four participants had responses that did not fit the categories above and were coded as "other"

the doctor or clinic that facilitated their transitions that they had detransitioned.

Self-appraisal of past transgender identification. Table 7 presents the data for responses endorsed by participants to reflect how they feel currently about having identified as transgender in the past. The statements most frequently selected included: "I thought gender dysphoria was the best explanation for what I was feeling" (57.0%), "My gender dysphoria was similar to the gender dysphoria of those who remain transitioned" (42.0%), "What I thought were feelings of being transgender actually were the result of trauma" (36.0%), "What I thought were feelings of being transgender actually were the result of a mental health condition" (36.0%).

Self-appraisal of transition and detransition. When asked to select which statement best reflects their feelings about their transition, nearly a third (30.0%) indicated that they wish they had never transitioned while 11.0% indicated they were glad they transitioned. Some (34.0%) selected the statement that transition "was a necessary part of [their] journey" but others (21.0%) indicated that the process of transitioning distracted them from what they should have been doing. Responses about whether transition helped or harmed them were also complicated. While 50.5% selected answers consistent with being both helped and harmed, 32.3% indicated that they were only harmed and 17.2% indicated that they were only helped. The majority of respondents were dissatisfied with their decision to transition (69.7%) and satisfied with their decision to detransition (84.7%). At least some amount of transition regret was

Table 7 Self-appraisal of past transgender identification

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Self-appraisal about identifying as transgender in the past**		
I thought gender dysphoria was the best explanation for what I was feeling	39 (56.5%)	18 (58.1%)
My gender dysphoria was similar to the gender dysphoria of those who remain transitioned	32 (46.4%)	10 (32.3%)
What I thought were feelings of being transgender actually were the result of trauma	31 (44.9%)	5 (16.1%)
What I thought were feelings of being transgender actually were the result of a mental health condition	28 (40.6%)	8 (25.8%)
Someone else told me that the feelings I was having meant that I was transgender and I believed them	25 (36.2%)	10 (32.3%)
I still identify as transgender	20 (29.0%)	10 (32.3%)
I believed I was transgender then, but I was mistaken	16 (23.2%)	6 (19.4%)
I was transgender then but I am not transgender now	15 (21.7%)	7 (22.6%)
I formerly identified as transgender and now identify as genderqueer/nonbinary	12 (17.4%)	5 (16.1)
My gender dysphoria was different from the gender dysphoria of those who remain transitioned	11 (15.9%)	4 (12.9%)
I was never transgender	8 (11.6%)	3 (9.7%)
I thought I had gender dysphoria but I was mistaken	4 (5.8%)	4 (12.9%)
I never had gender dysphoria	1 (1.4)	2 (6.5%)
N/A as I did not identify as transgender in the past	0 (0%)	1 (3.2%)
Other	18 (26.1%)	5 (16.1%)

*May select more than one answer

common (79.8%) and nearly half (49.5%) reported strong or very strong regret. Most respondents (64.6%) indicated that if they knew then what they know now, they would not have chosen to transition.

Discussion

This study was designed to explore the experiences of individuals who obtained medical and surgical treatment for gender dysphoria and then detransitioned by discontinuing the medications or having surgery to reverse the changes from transition. The findings of this study, however, should not be assumed to be representative of all individuals who detransition. Although this study further documents that detransitioners exist, the prevalence of detransition as an outcome of transition is unknown. Only a small percentage of detransitioners (24.0%) informed the clinicians and clinics that facilitated their transitions that they had detransitioned. Therefore, clinic rates of detransition are likely to be underestimated and gender transition specialists may be unaware of how many of their own patients have detransitioned, particularly for patients who are no longer under their care.

This research demonstrates that the experiences of individuals who detransition are varied and the reasons for detransition are complex. Nearly all participants identified as transgender or nonbinary at the start of their transition and most sought transition because they did not want to be associated with their natal sex, their bodies felt wrong the way they were, and they believed that transition was the only option to relieve their distress. Some were helped by transition and only detransitioned because they were pressured to do so by people in their lives, society, or because they had medical complications. Some were harmed by transition and detransitioned because they concluded that their gender dysphoria was caused by trauma, a mental health condition, internalized homophobia, or misogyny—conditions that are not likely to be resolved with transition. These findings highlight the complexity of gender dysphoria and suggest that, in some cases, failure to explore co-morbidities and the context in which the gender dysphoria emerged can lead to misdiagnosis, missed diagnoses, and inappropriate gender transition. Some individuals detransitioned because their gender dysphoria resolved, because they found better ways to address their symptoms, or because their personal definitions of male and female changed and they became comfortable identifying as their natal sex.

The study sample was predominantly young natal females, many of whom experienced late-onset gender dysphoria which mirrors the recent, striking changes in the demographics of gender dysphoric youth seeking care as well as the youth described by their parents in Littman (2018) (see also Aitken et al., 2015; de Graaf et al., 2018; Zucker, 2019). Concerns have been raised that this new cohort of gender dysphoric individuals is unlike previous cohorts. Professionals have started to call for caution before treating this cohort with interventions with permanent effects because the etiologies, desistance and persistence rates,

expected duration of symptoms, and whether this new population is helped or harmed by gender transition is still unknown (D'Angelo et al., 2021; Kaltiala-Heino et al., 2018). The natal females and natal males in this sample differed on several dimensions, including that natal females were younger than natal males when they sought transition, when they decided to detransition, and at the time of survey completion. Natal females were more likely than natal males to have experienced a trauma less than one year before the onset of their gender dysphoria and were more likely to have felt pressured to transition. Compared to natal males, natal females remained transitioned for a shorter duration of time before deciding to detransition. Additionally, natal females transitioned more recently than natal males, so their experiences may vary due to changing trends in the clinical management of gender dysphoria and the cultural settings in which they became gender dysphoric.

The study findings covered a wide range of detransition experiences that are consistent with the diversity of experiences described in previously published clinical case reports and case series. Overlap of findings include: transition regret; absence of transition regret; re-identification with birth sex; continued identification as transgender; improvement or worsening of well-being with transition; retransitioning; detransitioning due to external social pressures; nonbinary identification; and recognizing and accepting oneself as homosexual or bisexual (D'Angelo, 2018; Djordjevic et al., 2016; Levine, 2018; Pazos Guerra et al., 2020; Turban & Keuroghlian, 2018; Turban et al., 2021; Vandenbussche, 2021). The population in this study is similar to the population in Vandenbussche in that both were predominantly natal females in their mid-20s. Because the current study recruited in 2016–2017 and Vandenbussche recruited in 2019, the similar mean age of participants may reflect the age of individuals who can be reached in online detransitioner communities. Several findings in this study were consistent with Vandenbussche's findings, including similar reasons for detransition (realizing that their gender dysphoria was related to other issues, finding alternatives to address gender dysphoria, gender dysphoria resolved, etc.). Although these two studies were recruited in different years, had different eligibility criteria, and included participants from several countries, it is possible that there may be some overlap of study populations.

The current study findings provide additional insight into the complex relationships between internalized homophobia, gender dysphoria, and desire to transition. Contrary to arguments against the potential role of homophobia in gender transitions (Ashley, 2020), participants reported that their own gender dysphoria and desire to transition stemmed from the discomfort they felt about being same-sex attracted, their desire to not be gay, and the difficulties that they had accepting themselves as lesbian, gay or bisexual. For these individuals, exploring their distress and discomfort around sexual orientation issues may have been more helpful to them than medical and surgical transition or at least an important part of exploration before making the decision to transition. This research adds to the existing evidence that gender dysphoria can be temporary (Ristori & Steensma, 2016; Singh et al., 2021; Zucker, 2018). It has been established that the most likely outcome for prepubertal youth with gender dysphoria is to develop into lesbian, gay, bisexual (LGB) (non-transgender) adults (Ristori & Steensma, 2016; Singh et al., 2021; Wallien & Cohen-Kettenis, 2008; Zucker, 2018). And, temporary gender dysphoria may be a common part of LGB identity development (Korte et al., 2008; Patterson, 2018). Therefore, intervening too soon to medicalize gender dysphoric youth risks iatrogenically derailing the development of youth who would otherwise grow up to be LGB non-transgender adults. Participants who detransitioned because they became comfortable identifying as their natal sex and because their gender dysphoria resolved further support that gender dysphoria is not always permanent.

The data in this study strengthen, with first-hand accounts, the rapid-onset gender dysphoria (ROGD) hypotheses which, briefly stated, are that psychosocial factors (such as trauma, mental health conditions, maladaptive coping mechanisms, internalized homophobia, and social influence) can cause or contribute to the development of gender dysphoria in some individuals (Littman, 2018). Littman also postulated that certain beliefs could be spread by peer contagion, including the belief that a wide range of symptoms should be interpreted as gender dysphoria (and proof of being transgender) and the belief that transition is the only solution to relieve distress. The current study supports the potential role of psychosocial factors in the development of gender dysphoria and further suggests, by participant responses that transitioning prevented or delayed them from addressing their underlying conditions, that maladaptive coping mechanisms may be relevant for some individuals. The potential role of social influence is demonstrated as well. First, when respondents were asked to describe how they currently feel about having identified as transgender in the past, more than a third endorsed the option, "Someone told me that the feelings I was having meant that I was transgender, and I believed them." Second, a subset of participants experienced the unique friendship group dynamics reported in Littman where peer groups mocked people who were not transgender and popularity within the friend group increased when respondents announced their plan to transition. Additionally, respondents identified several social sources that encouraged them to believe that transitioning would help them including: YouTube transition videos, blogs, Tumblr, and online communities. And finally, 20.0% of participants felt pressured to transition by social sources that included friends, partners, and society. More research is needed to further explore these hypotheses.

The current study and the Turban et al. (2021) analysis of the USTS data share some similarities and differences. Similarities include the use of convenience samples, targeted recruitment, and anonymous data collection. The findings of Turban et al. (including external pressures to detransition and transgender

identification after detransition) are a subset of the array of experiences described in the current study. The current study differed from James et al. (2016) and Turban et al. in that it enrolled participants based on the criterion of detransition after medical or surgical transition regardless of how they currently identified, recruited from communities with diverse perspectives about transition and detransition, used a precise definition for detransition that specifies the use of medication or surgery, and included answer options that were relevant to many different types of detransition experiences. In contrast, the USTS only enrolled transgender-identifying individuals regardless of whether they medically or surgically transitioned, recruited from communities likely to have similar perspectives about transition and detransition, and provided multiple choice answer options that were relevant to a narrower range of detransition experiences (James et al., 2016). Further, the definition used by the USTS for "detransitioned" (having "gone back to living as [their] sex assigned as birth, at least for a while") is quite vague. Although Turban et al. provide valuable information about the subset of transgender-identifying people who may have detransitioned, the current study provides a more comprehensive view of individuals who detransition after medical or surgical transition.

Over the past 15 years, there have been substantial changes in the clinical approach to gender dysphoric patients notable for a shift from approaches that employ thorough evaluations and judicious use of medical and surgical transition (the watchful waiting or Dutch approach, the developmentally informed approach, and the medical model of care) to approaches with minimized or eliminated evaluation and liberal use of transition interventions (the affirmative approach and the informed consent model of care) (Cavanaugh et al., 2016; de Vries & Cohen-Kettenis, 2012; Meyer et al., 2002; Rafferty et al., 2018; Schulz, 2018; Zucker et al., 2012b). This trend is prominent in the U.S. where the American Academy of Pediatrics endorsed the affirmative approach in 2018 and Planned Parenthood currently uses the informed consent model to provide medical transition in more than 200 clinics in 35 states (Planned Parenthood, 2021; Rafferty et al., 2018). It is plausible that an unintended consequence of these clinical shifts may be an increase in people who detransition. Many participants in this study believe that they did not receive an adequate evaluation by a clinician before transition. The definition of "adequate evaluation" was not provided in the survey and may be open to respondent interpretation. But given the complexities of the gender dysphoria described in the current study, one might consider a low bar of "adequate" to be the exploration of factors that could be misinterpreted as non-temporary gender dysphoria as well as factors that could be underlying causes for gender dysphoria. The most recently emerging approach to gender dysphoria is called the "exploratory approach" which is a neutral psychotherapeutic approach to help individuals gain a deeper understanding of their gender distress and the factors contributing to their dysphoria (Churcher Clarke & Spiliadis, 2019; Spiliadis, 2019). The study's findings suggest that an exploratory type of approach may have been beneficial to some of the respondents. Future research is needed to determine which patients are best treated by which approaches long term.

Patients considering medical and surgical interventions deserve accurate information about the risks, benefits, and alternatives to that treatment. In this sample, nearly half of the participants reported that the counseling they received about transition was overly positive about the benefits of transition and more than a quarter reported that the counseling was not negative enough about the risks. Several participants felt pressured to transition by their doctors and therapists. If these types of clinical interactions are verified, exploration is needed to determine the extent to which this situation occurs and what measures might be taken to ensure that clinicians provide patients with their options accurately and dispassionately.

There are several obstacles to obtaining accurate rates of detransition and desistance, including stigma and the low numbers of detransitioners who inform their clinicians that they detransitioned. One approach to bypass some of these barriers would be to incorporate non-judgmental questions about detransition and desistance into nationally representative surveys that collect health data. For example, the Behavioral Risk Factor Surveillance System contains an optional module about sexual orientation and gender identity that includes two questions to explore gender issues (Downing & Przedworski, 2018). By changing one existing question, "Do you consider yourself to be transgender?" into two questions, "Have you ever, at any point in your life, considered yourself to be transgender?" and "Do you currently consider yourself to be transgender?" and by adding a follow-up question if answers indicate past but not current transgender identification, "Did you ever take puberty blockers, cross-sex hormones, anti-androgens, or have any surgery as part of your transition?", valuable information about desistance, detransition, and current transgender identification could be obtained. These types of questions may also be of use in clinical practice and electronic medical records. The information gained about rates of detransition and desistance would enhance transgender healthcare by aiding informed consent processes at the start of any medical or surgical transition.

One of the strengths of this study is that it is one of the largest samples of detransitioners to date. Other strengths include the use of a precise definition for detransition, enrollment of detransitioners regardless of their post-detransition gender identification, recruitment from communities with likely divergent views about transition and detransition, and collaboration with two individuals who had detransitioned which helped to create a survey instrument with questions relevant to a variety of detransition experiences and enhanced the recruitment efforts.

There are several limitations to this study that should be considered when interpreting the findings. Like Vandenbussche (2021), James et al. (2016), and Turban et al. (2021), this study

used a cross-sectional design, anonymous surveying, and a convenience sample and therefore shares the same limitations that are inherent to these methodologies. These limitations include that conclusions about causation cannot be determined, identities of participants cannot be verified, and the findings of this study may not be generalizable to the entire population of people who detransition or to people outside of the countries where participants were from. Although this study reached out to communities with differing perspectives about transition and detransition, targeted recruitment and convenience samples always introduce the limitations associated with selection biases which should be addressed in future research. Finally, many of the participants in this study had less than ideal outcomes to their medical and surgical transitions, and it is possible that these experiences may have colored some of the responses.

Additional research is needed to determine the prevalence of detransition as an outcome of transition and to identify and meet the psychological and medical needs of the emerging detransitioned population. Because many individuals who detransition re-identify with their birth sex, are no longer connected to LGBT communities, and don't return to gender clinics, future research about detransition needs to expand recruitment efforts beyond gender clinics and transgender communities. The development and testing of non-medical interventions for gender dysphoria could provide valuable options to be used as alternatives or in conjunction with medical and surgical treatments. Because of the potential for some to experience trauma, mental health conditions, internalized homophobia, and misogyny as gender dysphoria, research needs to be conducted on the evaluation process before transition to find approaches that respectfully and collaboratively explore factors that might contribute to gender-related distress. There continues to be an absence of long-term outcomes evidence for youth treated with medical and surgical transition and a lack of information about the trajectories of youth experiencing late-onset gender dysphoria–research is needed to address these gaps. Continued work is needed to reduce rigid gender roles, increase representation of gender stereotype nonconformity, and to address discrimination and social pressures exerted against people who are transgender, lesbian, gay, bisexual, and gender stereotype non-conforming.

Conclusion

This study described individuals who, after transitioning with medications or surgery, have detransitioned. The prevalence of detransitioning after transition is unknown but is likely underestimated because most of the participants did not inform the doctors who facilitated their transitions that they had detransitioned. There is no single narrative to explain the experiences of all individuals who detransition and we should take care to avoid painting this population with a broad brush. Some detransitioners return to identifying with their birth sex, some assume (or maintain) a nonbinary identification, and some continue to identify as transgender. Some detransitioners regret transitioning and some do not. Some of the detransitioners reported experiences that support the ROGD hypotheses, including that their gender dysphoria began during or after puberty and that mental health issues, trauma, peers, social media, online communities, and difficulty accepting themselves as lesbian, gay, or bisexual were related to their gender dysphoria and desire to transition. Natal female and natal male detransitioners appear to have differences in their baseline characteristics and experiences and these differences should be further delineated. Future research about gender dysphoria and the outcomes of transition should consider the diversity of experiences and trajectories. More research is needed to determine how best to provide support and treatment for the long-term medical and psychological well-being of individuals who detransition. Findings about detransition should be used to improve our understanding of gender dysphoria and to better inform the processes of evaluation, counseling, and informed consent for individuals who are contemplating transition.

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Declarations

Conflict of interest The author has no relevant financial or non-financial conflicts of interest to disclose.

Consent to Participate Electronic consent was obtained from all participants included in the study. On the first page of the online survey, participants were informed of the research purpose and potential risks and benefits of participating, that their participation was voluntary, and were presented with a way to contact the researcher. The research survey questions were displayed only if the participant clicked "agree" which indicated that the participant read the information, voluntarily agreed to participate, and were at least 18 years of age.

Ethical Approval The research was determined to be Exempt Human Research by the Program for the Protection of Human Subjects of the Icahn School of Medicine at Mount Sinai in New York, NY. All procedures were performed in accordance with the ethical standards of the Program for the Protection of Human Subjects at the Icahn School of Medicine at Mount Sinai and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

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Cornell University

What does the scholarly research say about the effect of gender transition on transgender well-being?

Overview

We conducted a systematic literature review of all peer-reviewed articles published in English between 1991 and June 2017 that assess the effect of gender transition on transgender well-being. We identified 55 studies that consist of primary research on this topic, of which 51 (93%) found that gender transition improves the overall well-being of transgender people, while 4 (7%) report mixed or null findings. We found no studies concluding that gender transition causes overall harm. As an added resource, we separately include 17 additional studies that consist of literature reviews and practitioner guidelines.

Bottom Line

This search found a robust international consensus in the peer-reviewed literature that gender transition, including medical treatments such as hormone therapy and surgeries, improves the overall well-being of transgender individuals. The literature also indicates that greater availability of medical and social support for gender transition contributes to better quality of life for those who identify as transgender.

Below are the 8 findings of our review, and links to the 72 studies on which they are based. Click here to view our methodology. Click here for a printer-friendly one-pager of this research analysis.

Suggested Citation: What We Know Project, Cornell University, "What Does the Scholarly Research Say about the Effect of Gender Transition on Transgender Well-Being?" (online literature review), 2018.

Research Findings

1. The scholarly literature makes clear that gender transition is effective in treating gender dysphoria and can significantly improve the well-being of transgender individuals.

2. Among the positive outcomes of gender transition and related medical treatments for transgender individuals are improved quality of life, greater relationship satisfaction, higher self-esteem and confidence, and reductions in anxiety, depression, suicidality, and substance use.

3. The positive impact of gender transition on transgender well-being has grown considerably in recent years, as both surgical techniques and social support have improved.

4. Regrets following gender transition are extremely rare and have become even rarer as both surgical techniques and social support have improved. Pooling data from numerous studies demonstrates a regret rate ranging from .3 percent to 3.8 percent. Regrets are most likely to result from a lack of social support after transition or poor surgical outcomes using older techniques.

5. Factors that are predictive of success in the treatment of gender dysphoria include adequate preparation and mental health support prior to treatment, proper follow-up care from knowledgeable providers, consistent family and social support, and high-quality surgical outcomes (when surgery is involved).

6. Transgender individuals, particularly those who cannot access treatment for gender dysphoria or who encounter unsupportive social environments, are more likely than the general population to experience health challenges such as depression, anxiety, suicidality and minority stress. While gender transition can mitigate these challenges, the health and well-being of transgender people can be harmed by stigmatizing and discriminatory treatment.

7. An inherent limitation in the field of transgender health research is that it is difficult to conduct prospective studies or randomized control trials of treatments for gender dysphoria because of the individualized nature of treatment, the varying and unequal circumstances of population members, the small size of the known transgender population, and the ethical issues involved in withholding an effective treatment from those who need it.

8. Transgender outcomes research is still evolving and has been limited by the historical stigma against conducting research in this field. More research is needed to adequately characterize and address the needs of the transgender population.

Below are 51 studies that found that gender transition improves the well-being of transgender people. Click here to jump to 4 studies that contain mixed or null findings on the effect of gender transition on transgender well-being. Click here to jump to 17 studies that consist of literature reviews or guidelines that help advance knowledge about the effect of gender transition on transgender well-being.

Click on any thumbnail to view its abstract; click below each thumbnail to visit the source website.

- **Ainsworth and Spiegel, 2010**

Visit Source Website

Ainsworth, T., & Spiegel, J. (2010). Quality of life of individuals with and without facial feminization surgery or gender reassignment surgery. *Quality of Life Research*, *19*(7), 1019-1024.

Objectives: To determine the self-reported quality of life of male-to-female (MTF) transgendered individuals and how this quality of life is influenced by facial feminization and gender reassignment surgery. Methods: Facial Feminization Surgery outcomes evaluation survey and the SF-36v2 quality of life survey were administered to male-to-female transgender individuals via the Internet and on paper. A total of 247 MTF participants were enrolled in the study. Results: Mental health-related quality of life was statistically diminished ($P < 0.05$) in transgendered women without surgical intervention compared to the general female population and transwomen who had gender reassignment surgery (GRS), facial feminization surgery (FFS), or both. There was no statistically significant difference in the mental health-related quality of life among transgendered women who had GRS, FFS, or both. Participants who had FFS scored statistically higher ($P < 0.01$) than those who did not in the FFS outcomes evaluation. Conclusions: Transwomen have diminished mental health-related quality of life compared with the general female population. However, surgical treatments (e.g. FFS, GRS, or both) are associated with improved mental health-related quality of life.

- **Bailey, Ellis, & McNeil, 2014**

Visit Source Website

Bailey, L., Ellis, S. J., & McNeil, J. (2014). Suicide risk in the UK trans population and the role of gender transition in decreasing suicidal ideation and suicide attempt. ***The Mental Health Review*****,** ***19*****(4), 209-220.**

Purpose: The purpose of this paper is to present findings from the Trans Mental Health Study (McNeil et al., 2012) – the largest survey of the UK trans population to date and the first to explore trans mental health and well-being within a UK context. Findings around suicidal ideation and suicide attempt are presented and the impact of gender dysphoria, minority stress and medical delay, in particular, are highlighted. Design/methodology/approach: This represents a narrative analysis of qualitative sections of a survey that utilised both open and closed questions. The study drew on a non-random sample (n ¼ 889), obtained via a range of UK-based support organisations and services. Findings: The study revealed high rates of suicidal ideation (84 per cent lifetime prevalence) and attempted suicide (48 per cent lifetime prevalence) within this sample. A supportive environment for social transition and timely access to gender reassignment, for those who required it, emerged as key protective factors. Subsequently, gender dysphoria, confusion/denial about gender, fears around transitioning, gender reassignment treatment delays and refusals, and social stigma increased suicide risk within this sample. Research limitations/implications: Due to the limitations of undertaking research with this population, the research is not demographically representative. Practical implications: The study found that trans people are most at risk prior to social and/or medical transition and that, in many cases, trans people who require access to hormones and surgery can be left unsupported for dangerously long periods of time. The paper highlights the devastating impact that delaying or denying gender reassignment treatment can have and urges commissioners and practitioners to prioritise timely intervention and support. Originality/value: The first exploration of suicidal ideation and suicide attempt within the UK trans population revealing key findings pertaining to social and medical transition, crucial for policy makers, commissioners and practitioners working across gender identity services, mental health services and suicide prevention.

- **Bar et al., 2016**

Visit Source Website

Bar, M. A., Jarus, T., Wada, M., Rechtman, L., & Noy, E. (2016). Male-to-female transitions: Implications for occupational performance, health, and life satisfaction. ***The Canadian Journal of Occupational Therapy*****,** ***83*****(2), 72-82.**

Background. People who undergo a gender transition process experience changes in different everyday occupations. These changes may impact their health and life satisfaction. Purpose. This study examined the difference in the occupational performance history scales (occupational identity, competence, and settings) between male-to-female transgender women and cisgender women and the relation of these scales to health and life satisfaction. Method. Twenty-two transgender women and 22 matched cisgender women completed a demographic questionnaire and three reliable measures in this cross-sectional study. Data were analyzed using a two-way analysis of variance and multiple linear regressions. Findings. The results indicate lower performance scores for the transgender women. In addition, occupational settings and group membership (transgender and cisgender groups) were found to be predictors of life satisfaction. Implications. The present study supports the role of occupational therapy in promoting occupational identity and competence of transgender women and giving special attention to their social and physical environment.

- **Bodlund and Kullgren, 1996**

Visit Source Website

Bodlund, O., & Kullgren, G. (1996). Transsexualism–general outcome and prognostic factors: A five-year follow-up study of nineteen transsexuals in the process of changing sex. ***Archives of Sexual Behavior*****, *25*(3), 303-316.**

Nineteen transsexuals, approved for sex reassignement, were followed-up after 5 years. Outcome was evaluated as changes in seven areas of social, psychological, and psychiatric functioning. At baseline the patients were evaluated according to axis I, II, V (DSM-III-R), SCID screen, SASB (Structural Analysis of Social Behavior), and DMT (Defense Mechanism Test). At follow-up all but 1 were treated with contrary sex hormones, 12 had completed sex reassignment surgery, and 3 females were waiting for phalloplasty. One male transsexual regretted the decision to change sex and had quit the process. Two transsexuals had still not had any surgery due to older age or ambivalence. Overall, 68% (n = 13) had improved in at least two areas of functioning. In 3 cases (16%) outcome were judged as unsatisfactory and one of those regarded sex change as a failure. Another 3 patients were mainly unchanged after 5 years. Female transsexuals had a slightly better outcome, especially concerning establishing and maintaining partnerships and improvement in socio-economic status compared to male transsexuals. Baseline factors associated with negative outcome (unchanged or worsened) were presence of a personality disorder and high number of fulfilled axis II criteria. SCID screen assessments had high prognostic power. Negative self-image, according to SASB, predicted a negative outcome, whereas DMT variables were not correlated to outcome.

- **Bouman et al., 2016**

Visit Source Website

Bouman, W. P., Claes, L., Marshall, E., Pinner, G. T., Longworth, J., et al. (2016). Sociodemographic variables, clinical features, and the role of preassessment cross-sex hormones in older trans people. ***The Journal of Sexual Medicine*****, *13*(4), 711-719.**

Introduction: As referrals to gender identity clinics have increased dramatically over the last few years, no studies focusing on older trans people seeking treatment are available. Aims: The aim of this study was to investigate the sociodemographic and clinical characteristics of older trans people attending a national service and to investigate the influence of cross-sex hormones (CHT) on psychopathology. Methods: Individuals over the age of 50 years old referred to a national gender identity clinic during a 30-month period were invited to complete a battery of questionnaires to measure psychopathology and clinical characteristics. Individuals on cross-sex hormones prior to the assessment were compared with those not on treatment for different variables measuring psychopathology. Main Outcome Measures: Sociodemographic and clinical variables and measures of depression and anxiety (Hospital Anxiety and Depression Scale), self-esteem (Rosenberg Self-Esteem Scale), victimization (Experiences of Transphobia Scale), social support (Multidimensional Scale of Perceived Social Support), interpersonal functioning (Inventory of Interpersonal Problems), and nonsuicidal self-injury (Self-Injury Questionnaire). Results: The sex ratio of trans females aged 50 years and older compared to trans males was 23.7:1. Trans males were removed for the analysis due to their small number (n = 3). Participants included 71 trans females over the age of 50, of whom the vast majority were white, employed or retired, and divorced and

had children. Trans females on CHT who came out as trans and transitioned at an earlier age were significantly less anxious, reported higher levels of self-esteem, and presented with fewer socialization problems. When controlling for socialization problems, differences in levels of anxiety but not self-esteem remained. Conclusion: The use of cross-sex hormones prior to seeking treatment is widespread among older trans females and appears to be associated with psychological benefits. Existing barriers to access CHT for older trans people may need to be re-examined.

- **Boza and Nicholson, 2014**

Visit Source Website

Boza, C., & Nicholson Perry, K. (2014). Gender-related victimization, perceived social support, and predictors of depression among transgender Australians. ***International Journal Of Transgenderism, 15*****(1), 35-52.**

This study examined mental health outcomes, gender-related victimization, perceived social support, and predictors of depression among 243 transgender Australians (n= 83 assigned female at birth, n= 160 assigned male at birth). Overall, 69% reported at least 1 instance of victimization, 59% endorsed depressive symptoms, and 44% reported a previous suicide attempt. Social support emerged as the most significant predictor of depressive symptoms ($p>.05$), whereby persons endorsing higher levels of overall perceived social support tended to endorse lower levels of depressive symptoms. Second to social support, persons who endorsed having had some form of gender affirmative surgery were significantly more likely to present with lower symptoms of depression. Contrary to expectations, victimization did not reach significance as an independent risk factor of depression ($p=.053$). The pervasiveness of victimization, depression, and attempted suicide represents a major health concern and highlights the need to facilitate culturally sensitive health care provision.

- **Budge et al., 2013**

Visit Source Website

Budge, S. L., Katz-Wise, S. L., Tebbe, E. N., Howard, K. A. S., Schneider, C. L., et al. (2013). Transgender emotional and coping processes: Facilitative and avoidant coping throughout gender transitioning. ***The Counseling Psychologist, 41*****(4), 601-647.**

Eighteen transgender-identified individuals participated in semi-structured interviews regarding emotional and coping processes throughout their gender transition. The authors used grounded theory to conceptualize and analyze the data. There were three distinct phases through which the participants described emotional and coping experiences: (a) pretransition, (b) during the transition, and (c) posttransition. Five separate themes emerged, including descriptions of coping mechanisms, emotional hardship, lack of support, positive social support, and affirmative emotional experiences. The authors developed a model to describe the role of coping mechanisms and support experienced throughout the transition process. As participants continued through their transitions, emotional hardships lessened and they used facilitative coping mechanisms that in turn led to affirmative emotional experiences. The results of this study are

indicative of the importance of guiding transgender individuals through facilitative coping experiences and providing social support throughout the transition process. Implications for counselors and for future research are discussed.

- **Cardoso da Silva et al., 2016**

Visit Source Website

Cardoso da Silva, D., Schwarz, K., Fontanari, A.M.V., Costa, A.B., Massuda, R., et al. (2016). WHOQOL-100 Before and after sex reassignment surgery in Brazilian male-to-female transsexual individuals. *Journal of Sexual Medicine*, *13*(6), 988-993.

Introduction: The 100-item World Health Organization Quality of Life Assessment (WHOQOL-100) evaluates quality of life as a subjective and multidimensional construct. Currently, particularly in Brazil, there are controversies concerning quality of life after sex reassignment surgery (SRS). Aim: To assess the impact of surgical interventions on quality of life of 47 Brazilian male-to-female transsexual individuals using the WHOQOL-100. Methods: This was a prospective cohort study using the WHOQOL-100 and sociodemographic questions for individuals diagnosed with gender identity disorder according to criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. The protocol was used when a transsexual person entered the ambulatory clinic and at least 12 months after SRS. Main Outcome Measures: Initially, improvement or worsening of quality of life was assessed using 6 domains and 24 facets. Subsequently, quality of life was assessed for individuals who underwent new surgical interventions and those who did not undergo these procedures 1 year after SRS. Results: The participants showed significant improvement after SRS in domains II (psychological) and IV (social relationships) of the WHOQOL-100. In contrast, domains I (physical health) and III (level of independence) were significantly worse after SRS. Individuals who underwent additional surgery had a decrease in quality of life reflected in domains II and IV. During statistical analysis, all results were controlled for variations in demographic characteristics, without significant results. Conclusion: The WHOQOL-100 is an important instrument to evaluate the quality of life of male-to-female transsexuals during different stages of treatment. SRS promotes the improvement of psychological aspects and social relationships. However, even 1 year after SRS, male-to-female transsexuals continue to report problems in physical health and difficulty in recovering their independence.

(Due to a citation error, this study was initially listed twice.)

- **Castellano et al., 2015**

Visit Source Website

Castellano, E., Crespi, C., Dell'Aquila, R., Rosato, C., Catalano, V., et al. (2015). Quality of life and hormones after sex reassignment surgery. *Journal of Endocrinological Investigation*, *38*(12), 1373-1381.

Background: Transpeople often look for sex reassignment surgery (SRS) to improve their quality of life (QoL). The hormonal therapy has many positive effects before and after SRS. There are no studies about correlation between hormonal status and QoL after SRS. Aim: To gather information on QoL, quality of sexual life and body image in transpeople at least 2 years after SRS, to compare these results with a control group and to evaluate the relations between the

chosen items and hormonal status. Subjects and methods: Data from 60 transsexuals and from 60 healthy matched controls were collected. Testosterone, estradiol, LH and World Health Organization Quality of Life (WHOQOL-100) self-reported questionnaire were evaluated. Student's t test was applied to compare transsexuals and controls. Multiple regression model was applied to evaluate WHOQOL's chosen items and LH. Results: The QoL and the quality of body image scores in transpeople were not statistically different from the matched control groups' ones. In the sexual life subscale, transwomen's scores were similar to biological women's ones, whereas transmen's scores were statistically lower than biological men's ones (P = 0.003). The quality of sexual life scored statistically lower in transmen than in transwomen (P = 0.048). A significant inverse relationship between LH and body image and between LH and quality of sexual life was found. Conclusions: This study highlights general satisfaction after SRS. In particular, transpeople's QoL turns out to be similar to Italian matched controls. LH resulted inversely correlated to body image and sexual life scores.

- **Colizzi, Costa, & Todarello, 2014**

Visit Source Website

Colizzi, M., Costa, R. & Todarello, O. (2014). Transsexual patients' psychiatric comorbidity and positive effect of cross-sex hormonal treatment on mental health: Results from a longitudinal study. *Psychoneuroendocrinology*, *39*, 65-73.

The aim of the present study was to evaluate the presence of psychiatric diseases/symptoms in transsexual patients and to compare psychiatric distress related to the hormonal intervention in a one year follow-up assessment. We investigated 118 patients before starting the hormonal therapy and after about 12 months. We used the SCID-I to determine major mental disorders and functional impairment. We used the Zung Self-Rating Anxiety Scale (SAS) and the Zung Self-Rating Depression Scale (SDS) for evaluating self-reported anxiety and depression. We used the Symptom Checklist 90-R (SCL-90-R) for assessing self-reported global psychological symptoms. Seventeen patients (14%) had a DSM-IV-TR axis I psychiatric comorbidity. At enrollment the mean SAS score was above the normal range. The mean SDS and SCL-90-R scores were on the normal range except for SCL-90-R anxiety subscale. When treated, patients reported lower SAS, SDS and SCL-90-R scores, with statistically significant differences. Psychiatric distress and functional impairment were present in a significantly higher percentage of patients before starting the hormonal treatment than after 12 months (50% vs. 17% for anxiety; 42% vs. 23% for depression; 24% vs. 11% for psychological symptoms; 23% vs. 10% for functional impairment). The results revealed that the majority of transsexual patients have no psychiatric comorbidity, suggesting that transsexualism is not necessarily associated with severe comorbid psychiatric findings. The condition, however, seemed to be associated with subthreshold anxiety/depression, psychological symptoms and functional impairment. Moreover, treated patients reported less psychiatric distress. Therefore, hormonal treatment seemed to have a positive effect on transsexual patients' mental health.

- **Colizzi et al., 2013**

Visit Source Website

Colizzi. M., Costa, R., Pace, V., & Todarello, O. (2013). Hormonal treatment reduces psychobiological distress in gender identity disorder, independently of the attachment style. *The Journal of Sexual Medicine*, *10*(12), 3049–3058.

Introduction: Gender identity disorder may be a stressful situation. Hormonal treatment seemed to improve the general health as it reduces psychological and social distress. The attachment style seemed to regulate distress in insecure individuals as they are more exposed to hypothalamic–pituitary–adrenal system dysregulation and subjective stress. Aim: The objectives of the study were to evaluate the presence of psychobiological distress and insecure attachment in transsexuals and to study their stress levels with reference to the hormonal treatment and the attachment pattern. Methods: We investigated 70 transsexual patients. We measured the cortisol levels and the perceived stress before starting the hormonal therapy and after about 12 months. We studied the representation of attachment in transsexuals by a backward investigation in the relations between them and their caregivers. Main Outcome Measures: We used blood samples for assessing cortisol awakening response (CAR); we used the Perceived Stress Scale for evaluating self-reported perceived stress and the Adult Attachment Interview to determine attachment styles. Results: At enrollment, transsexuals reported elevated CAR; their values were out of normal. They expressed higher perceived stress and more attachment insecurity, with respect to normative sample data. When treated with hormone therapy, transsexuals reported significantly lower CAR ($P < 0.001$), falling within the normal range for cortisol levels. Treated transsexuals showed also lower perceived stress ($P < 0.001$), with levels similar to normative samples. The insecure attachment styles were associated with higher CAR and perceived stress in untreated transsexuals ($P < 0.01$). Treated transsexuals did not expressed significant differences in CAR and perceived stress by attachment. Conclusion: Our results suggested that untreated patients suffer from a higher degree of stress and that attachment insecurity negatively impacts the stress management. Initiating the hormonal treatment seemed to have a positive effect in reducing stress levels, whatever the attachment style may be.

- **Colton-Meier et al., 2011**

Visit Source Website

Colton-Meier, S. L., Fitzgerald, K. M., Pardo, S. T., & Babcock, J. (2011). The effects of hormonal gender affirmation treatment on mental health in female-to-male transsexuals. *Journal of Gay & Lesbian Mental Health*, *15*(3), 281-299.

Hormonal interventions are an often-sought option for transgender individuals seeking to medically transition to an authentic gender. Current literature stresses that the effects and associated risks of hormone regimens should be monitored and well understood by health care providers (Feldman & Bockting, 2003). However, the positive psychological effects following hormone replacement therapy as a gender affirming treatment have not been adequately researched. This study examined the relationship of hormone replacement therapy, specifically testosterone, with various mental health outcomes in an Internet sample of more than 400 self-identified female-to-male transsexuals. Results of the study indicate that female-to-male transsexuals who receive testosterone have lower levels of depression, anxiety, and stress, and higher levels of social support and health related quality of life. Testosterone use was not related to problems with drugs, alcohol, or suicidality. Overall findings provide clear evidence that HRT is associated with improved mental health outcomes in female-to-male transsexuals.

- **Costantino et al., 2013**

Visit Source Website

Costantino, A., Cerpolini, S., Alvisi, S., Morselli, P. G., Venturoli, S., & Meriggiola, M. C. (2013). A prospective study on sexual function and mood in female-to-male transsexuals during testosterone administration and after sex reassignment surgery. ***Journal of Sex & Marital Therapy*****,** ***39*****(4), 321-335.**

Testosterone administration in female-to-male transsexual subjects aims to develop and maintain the characteristics of the desired sex. Very little data exists on its effects on sexuality of female-to-male transsexuals. The aim of this study was to evaluate sexual function and mood of female-to-male transsexuals from their first visit, throughout testosterone administration and after sex reassignment surgery. Participants were 50 female-to-male transsexual subjects who completed questionnaires assessing sexual parameters and mood. The authors measured reproductive hormones and hematological parameters. The results suggest a positive effect of testosterone treatment on sexual function and mood in female-to-male transsexual subjects.

- **Davis and Meier, 2014**

Visit Source Website

Davis, S. A. & Meier, S. C. (2014). Effects of testosterone treatment and chest reconstruction surgery on mental health and sexuality in female-to-male transgender people. ***International Journal of Sexual Health*****,** ***26*****(2), 113-128.**

Objectives: This study examined the effects of testosterone treatment with or without chest reconstruction surgery (CRS) on mental health in female-to-male transgender people (FTMs). Methods: More than 200 FTMs completed a written survey including quantitative scales to measure symptoms of anxiety and depression, feelings of anger, and body dissatisfaction, as well as qualitative questions assessing shifts in sexuality after the initiation of testosterone. Fifty-seven percent of participants were taking testosterone and 40% had undergone CRS. Results: Cross-sectional analysis using a between-subjects multivariate analysis of variance showed that participants who were receiving testosterone endorsed fewer symptoms of anxiety and depression as well as less anger than the untreated group. Participants who had CRS in addition to testosterone reported less body dissatisfaction than both the testosterone-only or the untreated groups. Furthermore, participants who were injecting testosterone on a weekly basis showed significantly less anger compared with those injecting every other week. In qualitative reports, more than 50% of participants described increased sexual attraction to nontransgender men after taking testosterone. Conclusions: Results indicate that testosterone treatment in FTMs is associated with a positive effect on mental health on measures of depression, anxiety, and anger, while CRS appears to be more important for the alleviation of body dissatisfaction. The findings have particular relevance for counselors and health care providers serving FTM and gender-variant people considering medical gender transition.

- **De Cuypere et al., 2006**

Visit Source Website

De Cuypere, G., Elaut, E., Heylens, G., Maele, G. V., Selvaggi, G., et al. (2006). Long-term follow-up: Psychosocial outcome of Belgian transsexuals after sex reassignment surgery. ***Sexologies*****,** ***15*****(2), 126-133.**

Background: To establish the benefit of sex reassignment surgery (SRS) for persons with a gender identity disorder, follow-up studies comprising large numbers of operated transsexuals are still needed. Aims: The authors wanted to assess how the transsexuals who had been treated by the Ghent multidisciplinary gender team since 1985, were functioning psychologically, socially and professionally after a longer period. They also explored some prognostic factors with a view to refining the procedure. Method: From 107 Dutch-speaking transsexuals who had undergone SRS between 1986 and 2001, 62 (35 male-to-females and 27 female-to-males) completed various questionnaires and were personally interviewed by researchers, who had not been involved in the subjects' initial assessment or treatment. Results: On the GAF (DSM-IV) scale the female-to-male transsexuals scored significantly higher than the male-to-females (85.2 versus 76.2). While no difference in psychological functioning (SCL-90) was observed between the study group and a normal population, subjects with a pre-existing psychopathology were found to have retained more psychological symptoms. The subjects proclaimed an overall positive change in their family and social life. None of them showed any regrets about the SRS. A homosexual orientation, a younger age when applying for SRS, and an attractive physical appearance were positive prognostic factors. Conclusion: While sex reassignment treatment is an effective therapy for transsexuals, also in the long term, the postoperative transsexual remains a fragile person in some respects.

- **Dhejne et al., 2014**

Visit Source Website

Dhejne, C., Öberg, K., Arver, S., & Landén, M. (2014). An analysis of all applications for sex reassignment surgery in sweden, 1960-2010: Prevalence, incidence, and regrets. ***Archives of Sexual Behavior*****,** ***43*****(8), 1535-1545.**

Incidence and prevalence of applications in Sweden for legal and surgical sex reassignment were examined over a 50-year period (1960-2010), including the legal and surgical reversal applications. A total of 767 people (289 natal females and 478 natal males) applied for legal and surgical sex reassignment. Out of these, 89 % (252 female-to-males [FM] and 429 male-to-females [MF]) received a new legal gender and underwent sex reassignment surgery (SRS). A total of 25 individuals (7 natal females and 18 natal males), equaling 3.3 %, were denied a new legal gender and SRS. The remaining withdrew their application, were on a waiting list for surgery, or were granted partial treatment. The incidence of applications was calculated and stratified over four periods between 1972 and 2010. The incidence increased significantly from 0.16 to 0.42/100,000/year (FM) and from 0.23 to 0.73/100,000/year (MF). The most pronounced increase occurred after 2000. The proportion of FM individuals 30 years or older at the time of application remained stable around 30 %. In contrast, the proportion of MF individuals 30 years or older increased from 37 % in the first decade to 60 % in the latter three decades. The point prevalence at December 2010 for individuals who applied for a new legal gender was for FM 1:13,120 and for MF 1:7,750. The FM:MF sex ratio fluctuated but was 1:1.66 for the whole study period. There were 15 (5 MF and 10 MF) regret applications corresponding to a 2.2 % regret rate for both sexes. There was a significant decline of regrets over the time period.

- **Eldh, Berg, & Gustafsson, 1997**

Visit Source Website

Eldh, J., Berg, A., Gustafsson, M. (1997). Long-term follow up after sex reassignment surgery. *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery*, *27*(1), 39-45.

A long-term follow up of 136 patients operated on for sex reassignment was done to evaluate the surgical outcome. Social and psychological adjustments were also investigated by a questionnaire in 90 of these 136 patients. Optimal results of the operation are essential for a successful outcome. Personal and social instability before operation, unsuitable body build, and age over 30 years at operation correlated with unsatisfactory results. Adequate family and social support is important for postoperative functioning. Sex reassignment had no influence on the person's ability to work.

- **Fisher et al., 2014**

Visit Source Website

Fisher, A. D., Castellini, G., Bandini, E., Casale, H., Fanni, E., et al. (2014). Cross-sex hormonal treatment and body uneasiness in individuals with gender dysphoria. *The Journal of Sexual Medicine*, *11*(3), 709–719.

Introduction: Cross-sex hormonal treatment (CHT) used for gender dysphoria (GD) could by itself affect well-being without the use of genital surgery; however, to date, there is a paucity of studies investigating the effects of CHT alone. Aims: This study aimed to assess differences in body uneasiness and psychiatric symptoms between GD clients taking CHT and those not taking hormones (no CHT). A second aim was to assess whether length of CHT treatment and daily dose provided an explanation for levels of body uneasiness and psychiatric symptoms. Methods: A consecutive series of 125 subjects meeting the criteria for GD who not had genital reassignment surgery were considered. Main Outcome Measures: Subjects were asked to complete the Body Uneasiness Test (BUT) to explore different areas of body-related psychopathology and the Symptom Checklist-90 Revised (SCL-90-R) to measure psychological state. In addition, data on daily hormone dose and length of hormonal treatment (androgens, estrogens, and/or antiandrogens) were collected through an analysis of medical records. Results: Among the male-to-female (MtF) individuals, those using CHT reported less body uneasiness compared with individuals in the no-CHT group. No significant differences were observed between CHT and no-CHT groups in the female-to-male (FtM) sample. Also, no significant differences in SCL score were observed with regard to gender (MtF vs. FtM), hormone treatment (CHT vs. no-CHT), or the interaction of these two variables. Moreover, a two-step hierarchical regression showed that cumulative dose of estradiol (daily dose of estradiol times days of treatment) and cumulative dose of androgen blockers (daily dose of androgen blockers times days of treatment) predicted BUT score even after controlling for age, gender role, cosmetic surgery, and BMI. Conclusions: The differences observed between MtF and FtM individuals suggest that body-related uneasiness associated with GD may be effectively diminished with the administration of CHT even without the use of genital surgery for MtF clients. A discussion is provided on the importance of controlling both length and daily dose of treatment for the most effective impact on body uneasiness.

- **Glynn et al., 2016**

Visit Source Website

Glynn, T. R., Gamarel, K. E., Kahler, C. W., Iwamoto, M., Operario, D., & Nemoto, T. (2016). The role of gender affirmation in psychological well-being among transgender women. ***Psychology Of Sexual Orientation And Gender Diversity*****, *3*(3), 336-344.**

High prevalence of psychological distress, including greater depression, lower self-esteem, and suicidal ideation, has been documented across numerous samples of transgender women and has been attributed to high rates of discrimination and violence. According to the gender affirmation framework (Sevelius, 2013), access to sources of gender-affirmative support can offset such negative psychological effects of social oppression. However, critical questions remain unanswered in regards to how and which aspects of gender affirmation are related to psychological well-being. The aims of this study were to investigate the associations among 3 discrete areas of gender affirmation (psychological, medical, and social) and participants' reports of psychological well-being. A community sample of 573 transgender women with a history of sex work completed a 1-time self-report survey that assessed demographic characteristics, gender affirmation, and mental health outcomes. In multivariate models, we found that social, psychological, and medical gender affirmation were significant predictors of lower depression and higher self-esteem whereas no domains of affirmation were significantly associated with suicidal ideation. Findings support the need for accessible and affordable transitioning resources for transgender women to promote better quality of life among an already vulnerable population. However, transgender individuals should not be portrayed simplistically as objects of vulnerability, and research identifying mechanisms to promote wellness and thriving is necessary for future intervention development. As the gender affirmation framework posits, the personal experience of feeling affirmed as a transgender person results from individuals' subjective perceptions of need along multiple dimensions of gender affirmation. Thus, personalized assessment of gender affirmation may be a useful component of counseling and service provision for transgender women.

- **Gomez-Gil et al., 2012**

Visit Source Website

Gomez-Gil, E., Zubiaurre-Elorz, L., Esteva, I., Guillamon, A., Godas, T., Cruz Almaraz, M., Halperin, I., Salamero, M. (2012). Hormone-treated transsexuals report less social distress, anxiety and depression. ***Psychoneuroendocrinology*****, *37*(5), 662-670.**

Introduction: The aim of the present study was to evaluate the presence of symptoms of current social distress, anxiety and depression in transsexuals. Methods: We investigated a group of 187 transsexual patients attending a gender identity unit; 120 had undergone hormonal sex-reassignment (SR) treatment and 67 had not. We used the Social Anxiety and Distress Scale (SADS) for assessing social anxiety and the Hospital Anxiety and Depression Scale (HADS) for evaluating current depression and anxiety. Results: The mean SADS and HADS scores were in the normal range except for the HAD-Anxiety subscale (HAD-A) on the non-treated transsexual group. SADS, HAD-A, and HAD-Depression (HAD-D) mean scores were significantly higher among patients who had not begun cross-sex hormonal treatment compared with patients in hormonal treatment ($F = 4.362$, $p = .038$; $F = 14.589$, $p = .001$; $F = 9.523$, $p = .002$ respectively). Similarly, current symptoms of anxiety and depression were present in a significantly higher percentage of untreated patients than in treated patients (61% vs. 33% and 31% vs. 8% respectively). Conclusions: The results suggest that most transsexual patients attending a gender identity unit reported subclinical levels of social distress, anxiety, and depression. Moreover, patients under cross-sex hormonal treatment displayed a lower prevalence of these symptoms than patients who had not initiated hormonal therapy. Although the findings do not conclusively demonstrate a direct positive effect of hormone treatment in transsexuals, initiating this treatment may be associated with better mental health of these patients.

- **Gomez-Gil et al., 2014**

Visit Source Website

Gómez-Gil, E., Zubiaurre-Elorza, L., de Antonio, E. D., Guillamon, A., & Salamero, M. (2014). Determinants of quality of life in Spanish transsexuals attending a gender unit before genital sex reassignment surgery. *Quality of Life Research*, *23*(2), 669-676.

Purpose: To evaluate the self-reported perceived quality of life (QoL) in transsexuals attending a Spanish gender identity unit before genital sex reassignment surgery, and to identify possible determinants that likely contribute to their QoL. Methods: A sample of 119 male-to-female (MF) and 74 female-to-male (FM) transsexuals were included in the study. The WHOQOL-BREF scale was used to evaluate self-reported QoL. Possible determinants included age, sex, education, employment, partnership status, undergoing cross-sex hormonal therapy, receiving at least one non-genital sex reassignment surgery, and family support (assessed with the family APGAR questionnaire). Results: Mean scores of all QoL domains ranged from 55.44 to 63.51. Linear regression analyses revealed that undergoing cross-sex hormonal treatment, having family support, and having an occupation were associated with a better QoL for all transsexuals. FM transsexuals have higher social domain QoL scores than MF transsexuals. The model accounts for 20.6 % of the variance in the physical, 32.5 % in the psychological, 21.9 % in the social, and 20.1 % in the environment domains, and 22.9 % in the global QoL factor. Conclusions: Cross-sex hormonal treatment, family support, and working or studying are linked to a better self-reported QoL in transsexuals. Healthcare providers should consider these factors when planning interventions to promote the health-related QoL of transsexuals.

- **Gorin-Lazard et al., 2012**

Visit Source Website

Gorin-Lazard, A., Baumstarck, K., Boyer, L., Maquigneau, A., Gebleux, S., Penochet, J., Pringuey, D., Albarel, F., Morange, I., Loundou, A., Berbis, J., Auquier, P., Lançon, C. and Bonierbale, M. (2012). Is hormonal therapy associated with better quality of life in transsexuals? A cross-sectional study. *The Journal of Sexual Medicine*, *9*(2), 531–541.

Introduction: Although the impact of sex reassignment surgery on the self-reported outcomes of transsexuals has been largely described, the data available regarding the impact of hormone therapy on the daily lives of these individuals are scarce. Aims: The objectives of this study were to assess the relationship between hormonal therapy and the self-reported quality of life (QoL) in transsexuals while taking into account the key confounding factors and to compare the QoL levels between transsexuals who have, vs. those who have not, undergone cross-sex hormone therapy as well as between transsexuals and the general population (French age- and sex-matched controls). Methods: This study incorporated a cross-sectional design that was conducted in three psychiatric departments of public university teaching hospitals in France. The inclusion criteria were as follows: 18 years or older, diagnosis of gender identity disorder (302.85) according to the Diagnostic and Statistical Manual, fourth edition text revision (DSM-IV TR), inclusion in a standardized sex reassignment procedure following the agreement of a multidisciplinary team, and pre-sex reassignment surgery. Main Outcome Measure. QoL was assessed using the Short Form 36 (SF-36). Results: The mean age of the total sample was 34.7 years, and the sex ratio was 1:1. Forty-four (72.1%) of the participants received hormonal therapy. Hormonal therapy and depression were independent predictive factors of the SF-36 mental composite score. Hormonal therapy was significantly associated with a higher QoL, while depression was significantly associated with a lower QoL. Transsexuals' QoL, independently of

hormonal status, did not differ from the French age- and sex-matched controls except for two subscales of the SF-36 questionnaire: role physical (lower scores in transsexuals) and general health (lower scores in controls). Conclusion: The present study suggests a positive effect of hormone therapy on transsexuals' QoL after accounting for confounding factors. These results will be useful for healthcare providers of transgender persons but should be confirmed with larger samples using a prospective study design.

- **Gorin-Lazard et al., 2013**

Visit Source Website

Gorin-Lazard, A., Baumstarck, K., Boyer, L., Maquigneau, A., Penochet, J. C., et al. (2013). Hormonal therapy is associated with better self-esteem, mood, and quality of life in transsexuals. *Journal of Nervous and Mental Disease*, *201*(11), 996–1000.

Few studies have assessed the role of cross-sex hormones on psychological outcomes during the period of hormonal therapy preceding sex reassignment surgery in transsexuals. The objective of this study was to assess the relationship between hormonal therapy, self-esteem, depression, quality of life (QoL), and global functioning. This study incorporated a cross-sectional design. The inclusion criteria were diagnosis of gender identity disorder (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision) and inclusion in a standardized sex reassignment procedure. The outcome measures were self-esteem (Social Self-Esteem Inventory), mood (Beck Depression Inventory), QoL (Subjective Quality of Life Analysis), and global functioning (Global Assessment of Functioning). Sixty-seven consecutive individuals agreed to participate. Seventy-three percent received hormonal therapy. Hormonal therapy was an independent factor in greater self-esteem, less severe depression symptoms, and greater "psychological-like" dimensions of QoL. These findings should provide pertinent information for health care providers who consider this period as a crucial part of the global sex reassignment procedure.

- **Hess et al., 2014**

Visit Source Website

Hess, J., Neto, R. R., Panic, L., Rübben, H., & Senf, W. (2014). Satisfaction with male-to-female gender reassignment surgery: Results of a retrospective analysis. *Deutsches Ärzteblatt International*, *111*(47), 795–801.

Background: The frequency of gender identity disorder is hard to determine; the number of gender reassignment operations and of court proceedings in accordance with the German Law on Transsexuality almost certainly do not fully reflect the underlying reality. There have been only a few studies on patient satisfaction with male-to-female gender reassignment surgery. Methods: 254 consecutive patients who had undergone male-to-female gender reassignment surgery at Essen University Hospital's Department of Urology retrospectively filled out a questionnaire about their subjective postoperative satisfaction. Results: 119 (46.9%) of the patients filled out and returned the questionnaires, at a mean of 5.05 years after surgery (standard deviation 1.61 years, range 1–7 years). 90.2% said their expectations for life as a woman were fulfilled postoperatively. 85.4% saw themselves as women. 61.2% were satisfied, and 26.2% very satisfied, with their outward appearance as a woman; 37.6% were satisfied, and 34.4% very satisfied, with the functional outcome. 65.7% said they were

satisfied with their life as it is now. Conclusion: The very high rates of subjective satisfaction and the surgical outcomes indicate that gender reassignment surgery is beneficial. These findings must be interpreted with caution, however, because fewer than half of the questionnaires were returned.

- **Heylens et al., 2014**

Visit Source Website

Heylens, G., Verroken, C., De Cock, S., T'Sjoen, G., & De Cuypere, G. (2014). Effects of different steps in gender reassignment therapy on psychopathology: a prospective study of persons with a gender identity disorder. *The Journal of Sexual Medicine*, *11*(1), 119–126.

Introduction: At the start of gender reassignment therapy, persons with a gender identity disorder (GID) may deal with various forms of psychopathology. Until now, a limited number of publications focus on the effect of the different phases of treatment on this comorbidity and other psychosocial factors. Aims: The aim of this study was to investigate how gender reassignment therapy affects psychopathology and other psychosocial factors. Methods: This is a prospective study that assessed 57 individuals with GID by using the Symptom Checklist-90 (SCL-90) at three different points of time: at presentation, after the start of hormonal treatment, and after sex reassignment surgery (SRS). Questionnaires on psychosocial variables were used to evaluate the evolution between the presentation and the postoperative period. The data were statistically analyzed by using SPSS 19.0, with significance levels set at $P < 0.05$. Main Outcome Measures: The psychopathological parameters include overall psychoneurotic distress, anxiety, agoraphobia, depression, somatization, paranoid ideation/psychoticism, interpersonal sensitivity, hostility, and sleeping problems. The psychosocial parameters consist of relationship, living situation, employment, sexual contacts, social contacts, substance abuse, and suicide attempt. Results: A difference in SCL-90 overall psychoneurotic distress was observed at the different points of assessments ($P = 0.003$), with the most prominent decrease occurring after the initiation of hormone therapy ($P < 0.001$). Significant decreases were found in the subscales such as anxiety, depression, interpersonal sensitivity, and hostility. Furthermore, the SCL-90 scores resembled those of a general population after hormone therapy was initiated. Analysis of the psychosocial variables showed no significant differences between pre- and postoperative assessments. Conclusions: A marked reduction in psychopathology occurs during the process of sex reassignment therapy, especially after the initiation of hormone therapy.

- **Imbimbo et al., 2009**

Visit Source Website

Imbimbo, C., Verze, P., Palmieri, A., Longo, N., Fusco, F., Arcaniolo, D., & Mirone, V. (2009). A report from a single institute's 14-year experience in treatment of male-to-female transsexuals. *The Journal of Sexual Medicine*, *6*(10), 2736–2745.

Introduction: Gender identity disorder or transsexualism is a complex clinical condition, and prevailing social context strongly impacts the form of its manifestations. Sex reassignment surgery (SRS) is the crucial step of a long and complex therapeutic process starting with preliminary psychiatric evaluation

and culminating in definitive gender identity conversion. Aim: The aim of our study is to arrive at a clinical and psychosocial profile of male-to-female transsexuals in Italy through analysis of their personal and clinical experience and evaluation of their postsurgical satisfaction levels SRS. Methods: From January 1992 to September 2006, 163 male patients who had undergone gender-transforming surgery at our institution were requested to complete a patient satisfaction questionnaire. Main Outcome Measures: The questionnaire consisted of 38 questions covering nine main topics: general data, employment status, family status, personal relationships, social and cultural aspects, presurgical preparation, surgical procedure, and postsurgical sex life and overall satisfaction. Results: Average age was 31 years old. Seventy-two percent had a high educational level, and 63% were steadily employed. Half of the patients had contemplated suicide at some time in their lives before surgery and 4% had actually attempted suicide. Family and colleague emotional support levels were satisfactory. All patients had been adequately informed of surgical procedure beforehand. Eighty-nine percent engaged in postsurgical sexual activities. Seventy-five percent had a more satisfactory sex life after SRS, with main complications being pain during intercourse and lack of lubrication. Seventy-eight percent were satisfied with their neovagina's esthetic appearance, whereas only 56% were satisfied with depth. Almost all of the patients were satisfied with their new sexual status and expressed no regrets. Conclusions: Our patients' high level of satisfaction was due to a combination of a well-conducted preoperative preparation program, competent surgical skills, and consistent postoperative follow-up.

- **Johansson et al., 2010**

Visit Source Website

Johansson, A., Sundbom, E., Höjerback, T., & Bodlund, O. (2010). A five-year follow-up study of Swedish adults with gender identity disorder. *Archives of Sexual Behavior*, *39*(6), 1429-1437.

This follow-up study evaluated the outcome of sex reassignment as viewed by both clinicians and patients, with an additional focus on the outcome based on sex and subgroups. Of a total of 60 patients approved for sex reassignment, 42 (25 male-to-female [MF] and 17 female-to-male [FM]) transsexuals completed a follow-up assessment after 5 or more years in the process or 2 or more years after completed sex reassignment surgery. Twenty-six (62%) patients had an early onset and 16 (38%) patients had a late onset; 29 (69%) patients had a homosexual sexual orientation and 13 (31%) patients had a non-homosexual sexual orientation (relative to biological sex). At index and follow-up, a semi-structured interview was conducted. At follow-up, 32 patients had completed sex reassignment surgery, five were still in process, and five—following their own decision—had abstained from genital surgery. No one regretted their reassignment. The clinicians rated the global outcome as favorable in 62% of the cases, compared to 95% according to the patients themselves, with no differences between the subgroups. Based on the follow-up interview, more than 90% were stable or improved as regards work situation, partner relations, and sex life, but 5–15% were dissatisfied with the hormonal treatment, results of surgery, total sex reassignment procedure, or their present general health. Most outcome measures were rated positive and substantially equal for MF and FM. Late-onset transsexuals differed from those with early onset in some respects: these were mainly MF (88 vs. 42%), older when applying for sex reassignment (42 vs. 28 years), and non-homosexually oriented (56 vs. 15%). In conclusion, almost all patients were satisfied with the sex reassignment; 86% were assessed by clinicians at follow-up as stable or improved in global functioning.

- **Keo-Meier et al., 2015**

Visit Source Website

Keo-Meier, C. L., Herman, L. I., Reisner, S. L., Pardo, S. T., Sharp, C., & Babcock, J. C. (2015). Testosterone treatment and MMPI-2 improvement in transgender men: A prospective controlled study. ***Journal of Consulting and Clinical Psychology, 83,*** **143-156.**

Objective: Most transgender men desire to receive testosterone treatment in order to masculinize their bodies. In this study, we aimed to investigate the short-term effects of testosterone treatment on psychological functioning in transgender men. This is the 1st controlled prospective follow-up study to examine such effects. Method: We examined a sample of transgender men (n = 48) and nontransgender male (n = 53) and female (n = 62) matched controls (mean age = 26.6 years; 74% White). We asked participants to complete the Minnesota Multiphasic Personality Inventory (2nd ed., or MMPI–2; Butcher, Graham, Tellegen, Dahlstrom, & Kaemmer, 2001) to assess psychological functioning at baseline and at the acute posttreatment follow-up (3 months after testosterone initiation). Regression models tested (a) Gender × Time interaction effects comparing divergent mean response profiles across measurements by gender identity; (b) changes in psychological functioning scores for acute postintervention measurements, adjusting for baseline measures, comparing transgender men with their matched nontransgender male and female controls and adjusting for baseline scores; and (c) changes in meeting clinical psychopathological thresholds. Results: Statistically significant changes in MMPI–2 scale scores were found at 3-month follow-up after initiating testosterone treatment relative to baseline for transgender men compared with female controls (female template): reductions in Hypochondria ($p < .05$), Depression ($p < .05$), Hysteria ($p < .05$), and Paranoia ($p < .01$); and increases in Masculinity–Femininity scores ($p < .01$). Gender × Time interaction effects were found for Hysteria ($p < .05$) and Paranoia ($p < .01$) relative to female controls (female template) and for Hypochondria ($p < .05$), Depression ($p < .01$), Hysteria ($p < .01$), Psychopathic Deviate ($p < .05$), Paranoia ($p < .01$), Psychasthenia ($p < .01$), and Schizophrenia ($p < .01$) compared with male controls (male template). In addition, the proportion of transgender men presenting with co-occurring psychopathology significantly decreased from baseline compared with 3-month follow-up relative to controls ($p < .05$). Conclusions: Findings suggest that testosterone treatment resulted in increased levels of psychological functioning on multiple domains in transgender men relative to nontransgender controls. These findings differed in comparisons of transgender men with female controls using the female template and with male controls using the male template. No iatrogenic effects of testosterone were found. These findings suggest a direct positive effect of 3 months of testosterone treatment on psychological functioning in transgender men.

- **Kraemer et al., 2008**

Visit Source Website

Kraemer, B., Delsignore, A., Schnyder, U., & Hepp, U. (2008). Body image and transsexualism. ***Psychopathology, 41*****(2), 96-100.**

Background: To achieve a detailed view of the body image of transsexual patients, an assessment of perception, attitudes and experiences about one's own body is necessary. To date, research on the body image of transsexual patients has mostly covered body dissatisfaction with respect to body perception. Sampling and Methods: We investigated 23 preoperative (16 male-to-female and 7 female-to-male transsexual patients) and 22 postoperative (14 male-to-female and 8 female-to-male) transsexual patients using a validated psychological measure for body image variables. Results: We found that preoperative transsexual patients were insecure and felt unattractive because of concerns about their body image. However, postoperative transsexual patients scored high

on attractiveness and self-confidence. Furthermore, postoperative transsexual patients showed low scores for insecurity and concerns about their body. Conclusions: Our results indicate an improvement of body image concerns for transsexual patients following standards of care for gender identity disorder. Follow-up studies are recommended to confirm the assumed positive outcome of standards of care on body image.

- **Landen et al., 1998**

Visit Source Website

Landén, M., Wålinder, J., Hambert, G., & Lundström, B. (1998). Factors predictive of regret in sex reassignment. *Acta Psychiatrica Scandinavica*, *97*(4), 284-289.

The objective of this study was to evaluate the features and calculate the frequency of sex-reassigned subjects who had applied for reversal to their biological sex, and to compare these with non-regretful subjects. An inception cohort was retrospectively identified consisting of all subjects with gender identity disorder who were approved for sex reassignment in Sweden during the period 1972-1992. The period of time that elapsed between the application and this evaluation ranged from 4 to 24 years. The total cohort consisted of 218 subjects. The results showed that 3.8% of the patients who were sex reassigned during 1972-1992 regretted the measures taken. The cohort was subdivided according to the presence or absence of regret of sex reassignment, and the two groups were compared. The results of logistic regression analysis indicated that two factors predicted regret of sex reassignment, namely lack of support from the patient's family, and the patient belonging to the non-core group of transsexuals. In conclusion, the results show that the outcome of sex reassignment has improved over the years. However, the identified risk factors indicate the need for substantial efforts to support the families and close friends of candidates for sex reassignment.

- **Lawrence, 2003**

Visit Source Website

Lawrence, A. A. (2003). Factors associated with satisfaction or regret following male-to-female sex reassignment surgery. *Archives of Sexual Behavior*, *32*(4), 299-315.

This study examined factors associated with satisfaction or regret following sex reassignment surgery (SRS) in 232 male-to-female transsexuals operated on between 1994 and 2000 by one surgeon using a consistent technique. Participants, all of whom were at least 1-year postoperative, completed a written questionnaire concerning their experiences and attitudes. Participants reported overwhelmingly that they were happy with their SRS results and that SRS had greatly improved the quality of their lives. None reported outright regret and only a few expressed even occasional regret. Dissatisfaction was most strongly associated with unsatisfactory physical and functional results of surgery. Most indicators of transsexual typology, such as age at surgery, previous marriage or parenthood, and sexual orientation, were not significantly associated with subjective outcomes. Compliance with minimum eligibility requirements for SRS specified by the Harry Benjamin International Gender Dysphoria Association was not associated with more favorable subjective outcomes. The physical

results of SRS may be more important than preoperative factors such as transsexual typology or compliance with established treatment regimens in predicting postoperative satisfaction or regret.

- **Lawrence, 2006**

Visit Source Website

Lawrence, A. A. (2006). Patient-reported complications and functional outcomes of male-to-female sex reassignment surgery. *Archives of Sexual Behavior*, *35*(6), 717-727.

This study examined preoperative preparations, complications, and physical and functional outcomes of male-to-female sex reassignment surgery (SRS), based on reports by 232 patients, all of whom underwent penile-inversion vaginoplasty and sensate clitoroplasty, performed by one surgeon using a consistent technique. Nearly all patients discontinued hormone therapy before SRS and most reported that doing so created no difficulties. Preoperative electrolysis to remove genital hair, undergone by most patients, was not associated with less serious vaginal hair problems. No patients reported rectal-vaginal fistula or deep-vein thrombosis and reports of other significant surgical complications were uncommon. One third of patients, however, reported urinary stream problems. No single complication was significantly associated with regretting SRS. Satisfaction with most physical and functional outcomes of SRS was high; participants were least satisfied with vaginal lubrication, vaginal touch sensation, and vaginal erotic sensation. Frequency of achieving orgasm after SRS was not significantly associated with most general measures of satisfaction. Later years of surgery, reflecting greater surgeon experience, were not associated with lower prevalence rates for most complications or with better ratings for most physical and functional outcomes of SRS.

- **Lobato et al., 2006**

Visit Source Website

Lobato M. I., Koff, W. J., Manenti, C., da Fonseca Seger, D., Salvador, J., et al. (2006). Follow-up of sex reassignment surgery in transsexuals: a Brazilian cohort. *Archives of Sexual Behavior, 35(6)*, 711–715.

This study examined the impact of sex reassignment surgery on the satisfaction with sexual experience, partnerships, and relationship with family members in a cohort of Brazilian transsexual patients. A group of 19 patients who received sex reassignment between 2000 and 2004 (18 male- to-female, 1 female-to-male) after a two-year evaluation by a multidisciplinary team, and who agreed to participate in the study, completed a written questionnaire. Mean age at entry into the program was 31.21 ± 8.57 years and mean schooling was 9.2 ± 1.4 years. None of the patients reported regret for having undergone the surgery. Sexual experience was considered to have improved by 83.3% of the patients, and became more frequent for 64.7% of the patients. For 83.3% of the patients, sex was considered to be pleasurable with the neovagina/neopenis. In addition, 64.7% reported that initiating and maintaining a relationship had become easier. The number of patients with a partner increased from 52.6% to 73.7%. Family relationships improved in 26.3% of the cases, whereas 73.7% of the patients did not report a difference. None of the patients reported worse relationships

- **Manieri et al., 2014**

Visit Source Website

Manieri, C., Castellano, E., Crespi, C., Di Bisceglie, C., Dell'Aquila, C., et al. (2014). Medical treatment of subjects with gender identity disorder: The experience in an Italian public health center. ***International Journal Of Transgenderism, 15*****(2), 53-65.**

Hormonal treatment is the main element during the transition program for transpeople. The aim of this paper is to describe the care and treatment of subjects, highlighting both the endocrine-metabolic effects of the hormonal therapy and the quality of life during the first year of cross-sex therapy in an Italian gender team. We studied 83 subjects (56 male-to-female [MtF], 27 female-to-male [FtM]) with hematological and hormonal evaluations every 3 months during the first year of hormonal therapy. MtF persons were treated with 17βestradiol and antiandrogens (cyproterone acetate, spironolactone, dutasteride); FtM persons were treated with transdermal or intramuscular testosterone. The WHO Quality of Life questionnaire was administered at the beginning and 1 year later. Hormonal changes paralleled phenotype modifications with wide variability. Most of both MtF and FtM subjects reported a statistically significant improvement in body image ($p < 0.05$). In particular, MtF subjects reported a statistically significant improvement in the quality of their sexual life and in the general quality of life ($p < 0.05$) 1 year after treatment initiation. Cross-sex therapy seems to be free of major risks in healthy subjects under clinical supervision during the first year. Selected subjects show an optimal adaptation to hormone-induced neuropsychological modifications and satisfaction regarding general and sexual life.

- **Megeri and Khoosal, 2007**

Visit Source Website

Megeri, D., & Khoosal, D. (2007). Anxiety and depression in males experiencing gender dysphoria. ***Sexual & Relationship Therapy, 22*****(1), 77-81.**

Objective: The aim of the study was to compare anxiety and depression scores for the first 40 male to female people experiencing gender dysphoria attending the Leicester Gender Identity Clinic using the same sample as control pre and post gender realignment surgery. Hypothesis: There is an improvement in the scores of anxiety and depression following gender realignment surgery among people with gender dysphoria (male to female – transwomen). Results: There was no significant change in anxiety and depression scores in people with gender dysphoria (male to female) pre- and post-operatively.

- **Nelson, Whallett, & Mcgregor, 2009**

Visit Source Website

Nelson, L., Whallett, E., & McGregor, J. (2009). Transgender patient satisfaction following reduction mammaplasty. *Journal of Plastic, Reconstructive & Aesthetic Surgery*, *62*(3), 331-334.

Aim: To evaluate the outcome of reduction mammaplasty in female-to-male transgender patients. Method: A 5-year retrospective review was conducted on all female-to-male transgender patients who underwent reduction mammaplasty. A postal questionnaire was devised to assess patient satisfaction, surgical outcome and psychological morbidity. Results: Seventeen patients were identified. The senior author performed bilateral reduction mammaplasties and free nipple grafts in 16 patients and one patient had a Benelli technique reduction. Complications included two haematomas, one wound infection, one wound dehiscence and three patients had hypertrophic scars. Secondary surgery was performed in seven patients and included scar revision, nipple reduction/realignment, dog-ear correction and nipple tattooing. The mean follow-up period after surgery was 10 months (range 2–23 months). Twelve postal questionnaires were completed (response rate 70%). All respondents expressed satisfaction with their result and no regret. Seven patients had nipple sensation and nine patients were satisfied with nipple position. All patients thought their scars were reasonable and felt that surgery had improved their self-confidence and social interactions. Conclusion: Reduction mammaplasty for female-to-male gender reassignment is associated with high patient satisfaction and a positive impact on the lives of these patients.

- **Newfield et al., 2006**

Visit Source Website

Newfield, E., Hart, S., Dibble, S., & Kohler, L. (2006). Female-to-male transgender quality of life. *Quality of Life Research*, *15*(9), 1447-1457.

Objectives: We evaluated health-related quality of life in female-to-male (FTM) transgender individuals, using the Short-Form 36-Question Health Survey version 2 (SF-36v2). Methods: Using email, Internet bulletin boards, and postcards, we recruited individuals to an Internet site (http://www.transurvey.org), which contained a demographic survey and the SF36v2. We enrolled 446 FTM transgender and FTM transsexual participants, of which 384 were from the US. Results: Analysis of quality of life health concepts demonstrated statistically significant ($p<0.0\backslash$) diminished quality of life among the FTM transgender participants as compared to the US male and female population, particularly in regard to mental health. FTM transgender participants who received testosterone (67%) reported statistically significant higher quality of life scores (/?<0.01) than those who had not received hormone therapy. Conclusions: FTM transgender participants reported significantly reduced mental health-related quality of life and

- **Padula, Heru, & Campbell, 2016**

Visit Source Website

Padula, W. V., Heru, S. & Campbell, J. D. (2016). Societal implications of health insurance coverage for medically necessary services in the U.S. transgender population: A cost-effectiveness analysis. *Journal of General Internal Medicine*, 31(4), 394-401.

Background: Recently, the Massachusetts Group Insurance Commission (GIC) prioritized research on the implications of a clause expressly prohibiting the denial of health insurance coverage for transgender-related services. These medically necessary services include primary and preventive care as well as transitional therapy. Objective: To analyze the cost-effectiveness of insurance coverage for medically necessary transgender-related services. Design: Markov model with 5- and 10-year time horizons from a U.S. societal perspective, discounted at 3 % (USD 2013). Data on outcomes were abstracted from the 2011 National Transgender Discrimination Survey (NTDS). Patients: U.S. transgender population starting before transitional therapy. Interventions: No health benefits compared to health insurance coverage for medically necessary services. This coverage can lead to hormone replacement therapy, sex reassignment surgery, or both. Main Measures: Cost per quality-adjusted life year (QALY) for successful transition or negative outcomes (e.g. HIV, depression, suicidality, drug abuse, mortality) dependent on insurance coverage or no health benefit at a willingness-to-pay threshold of $100,000/QALY. Budget impact interpreted as the U.S. per-member-per-month cost. Key Results: Compared to no health benefits for transgender patients ($23,619; 6.49 QALYs), insurance coverage for medically necessary services came at a greater cost and effectiveness ($31,816; 7.37 QALYs), with an incremental cost-effectiveness ratio (ICER) of $9314/QALY. The budget impact of this coverage is approximately $0.016 per member per month. Although the cost for transitions is $10,000–22,000 and the cost of provider coverage is $2175/year, these additional expenses hold good value for reducing the risk of negative endpoints —HIV, depression, suicidality, and drug abuse. Results were robust to uncertainty. The probabilistic sensitivity analysis showed that provider coverage was cost-effective in 85 % of simulations. Conclusions: Health insurance coverage for the U.S. transgender population is affordable and cost-effective, and has a low budget impact on U.S. society. Organizations such as the GIC should consider these results when examining policies regarding coverage exclusions.

- **Parola et al., 2010**

Visit Source Website

Parola, N., Bonierbale, M., Lemaire, A., Aghababian, V., Michel, A., & Lançon, C. (2010). Study of quality of life for transsexuals after hormonal and surgical reassignment. *Sexologies*, *19*(1), 24-28.

Aim: The main objective of this work is to provide a more detailed assessment of the impact of surgical reassignment on the most important aspects of daily life for these patients. Our secondary objective was to establish the influence of various factors likely to have an impact on the quality of life (QoL), such as biological gender and the subject's personality. Methods: A personality study was conducted using Eysenck Personality Inventory (EPI) so as to analyze two aspects of the personality (extraversion and neuroticism). Thirty-eight subjects who had undergone hormonal surgical reassignment were included in the study. Results: The results show that gender reassignment surgery improves the QoL for transsexuals in several different important areas: most are satisfied of their sexual reassignment (28/30), their social (21/30) and sexual QoL (25/30) are improved. However, there are differences between male-to-female (MtF) and female-to-male (FtM) transsexuals in terms of QoL: FtM have a better social, professional, friendly lifestyles than MtF. Finally, the results of this study did not evidence any influence by certain aspects of the personality, such as extraversion and neuroticism, on the QoL for reassigned subjects.

- **Pfäfflin, 1993**

Visit Source Website

Pfäfflin, F. (1993). Regrets after sex reassignment surgery. *Journal of Psychology & Human Sexuality*, 5(4), 69-85.

Using data draw from the follow-up literature covering the last 30 years, and the author's clinical data on 295 men and women after SRS, an estimation of the number of patients who regretted the operations is made. Among female-to-male transsexuals after SRS, i.e., in men, no regrets were reported in the author's sample, and in the literature they amount to less than 1%. Among male-to- female transsexuals after SRS, i.e., in women, regrets are reported in 1-1.5%. Poor differential diagnosis, failure to carry out the real-life- test, and poor surgical results seem to be the main reasons behind the regrets reported in the literature. According to three cases observed by the author in addition to personality traits the lack of proper care in treating the patients played a major role.

- **Pimenoff and Pfäfflin, 2011**

Visit Source Website

Pimenoff, V., & Pfäfflin, F. (2011). Transsexualism: Treatment outcome of compliant and noncompliant patients. *International Journal Of Transgenderism*, *13*(1), 37-44.

The objective of the study was a follow-up of the treatment outcome of Finnish transsexuals who sought sex reassignment during the period 1970–2002 and a comparison of the results and duration of treatment of compliant and noncompliant patients. Fifteen male-to-female transsexuals and 17 female-to-male transsexuals who had undergone hormone and surgical treatment and legal sex reassignment in Finland completed a questionnaire on psychosocial data and on their experience with the different phases of clinical assessment and treatment. The changes in their vocational functioning and social and psychic adjustment were used as outcome indicators. The results and duration of the treatment of compliant and noncompliant patients were compared. The patients benefited significantly from treatment. The noncompliant patients achieved equally good results as the compliant ones, and did so in a shorter time. A good treatment outcome could be achieved even when the patient had told the assessing psychiatrist a falsified story of his life and sought hormone therapy, genital surgery, or legal sex reassignment on his own initiative without a recommendation from the psychiatrist. Based on these findings, it is recommended that the doctor-patient relationship be reconsidered and founded on frank cooperation.

- **Rakic et al., 1996**

Visit Source Website

Rakic, Z., Starcevic, V., Maric, J., & Kelin, K. (1996). The outcome of sex reassignment surgery in Belgrade: 32 patients of both sexes. *Archives of Sexual Behavior*, *25*(5), 515-525.

Several aspects of the quality of life after sex reassignment surgery in 32 transsexuals of both sexes (22 men, 10 women) were examined. The Belgrade Team for Gender Identity Disorders designed a standardized questionnaire for this purpose. The follow-up period after operation was from 6 months to 4 years, and four aspects of the quality of life were examined: attitude towards the patients' own body, relationships with other people, sexual activity, and occupational functioning. In most transsexuals, the quality of life was improved after surgery inasmuch as these four aspects are concerned. Only a few transsexuals were not satisfied with their life after surgery.

- **Rehman et al., 1999**

Visit Source Website

Rehman, J., Lazer, S., Benet, A. E., Schaefer, L. C., & Melman, A. (1999). The reported sex and surgery satisfactions of 28 postoperative male-to-female transsexual patients. *Archives of Sexual Behavior*, *28*(1), 71-89.

From 1980 to July 1997 sixty-one male-to-female gender transformation surgeries were performed at our university center by one author (A.M.). Data were collected from patients who had surgery up to 1994 (n = 47) to obtain a minimum follow-up of 3 years; 28 patients were contacted. A mail questionnaire was supplemented by personal interviews with 11 patients and telephone interviews with remaining patients to obtain and clarify additional information. Physical and functional results of surgery were judged to be good, with few patients requiring additional corrective surgery. General satisfaction was expressed over the quality of cosmetic (normal appearing genitalia) and functional (ability to perceive orgasm) results. Follow-up showed satisfied who believed they had normal appearing genitalia and the ability to experience orgasm. Most patients were able to return to their jobs and live a more satisfactory social and personal life. One significant outcome was the importance of proper preparation of patients for surgery and especially the need for additional postoperative psychotherapy. None of the patients regretted having had surgery. However, some were, to a degree, disappointed because of difficulties experienced post operatively in adjusting satisfactorily as women both in their relationships with men and in living their lives generally as women. Findings of this study make a strong case for making a change in the Harry Benjamin Standards of Care to include a period of postoperative psychotherapy.

- **Rotondi et al., 2011**

Visit Source Website

Rotondi, N. K., Bauer, G. R., Scanlon, K., Kaay, M., Travers, R., & Travers, A. (2011). Prevalence of and risk and protective factors for depression in female-to-male transgender Ontarians: Trans PULSE Project. ***Canadian Journal Of Community Mental Health*****,** ***30*****(2), 135-155.**

Although depression is understudied in transgender and transsexual communities, high prevalences have been reported. This paper presents original research from the Trans PULSE Project, an Ontario-wide, community-based initiative that surveyed 433 participants using respondent-driven sampling. The purpose of this analysis was to determine the prevalence of, and risk and protective factors for, depression among female-to-male (FTM) Ontarians (n = 207). We estimate that 66.4% of FTMs have symptomatology consistent with depression. In multivariable analyses, sexual satisfaction was a strong protective factor. Conversely, experiencing transphobia and being at the stage of planning but not having begun a medical transition (hormones and/or surgery) adversely affected mental health in FTMs.

- **Ruppin and Pfäfflin, 2015**

Visit Source Website

Ruppin, U., & Pfäfflin, F. (2015). Long-term follow-up of adults with gender identity disorder. ***Archives of Sexual Behavior*****,** ***44*****(5), 1321-1329.**

The aim of this study was to re-examine individuals with gender identity disorder after as long a period of time as possible. To meet the inclusion criterion, the legal recognition of participants' gender change via a legal name change had to date back at least 10 years. The sample comprised 71 participants (35 MtF and 36 FtM). The follow-up period was 10–24 years with a mean of 13.8 years (SD = 2.78). Instruments included a combination of qualitative and quantitative methods: Clinical interviews were conducted with the participants, and they completed a follow-up questionnaire as well as several standardized questionnaires they had already filled in when they first made contact with the clinic. Positive and desired changes were determined by all of the instruments: Participants reported high degrees of well-being and a good social integration. Very few participants were unemployed, most of them had a steady relationship, and they were also satisfied with their relationships with family and friends. Their overall evaluation of the treatment process for sex reassignment and its effectiveness in reducing gender dysphoria was positive. Regarding the results of the standardized questionnaires, participants showed significantly fewer psychological problems and interpersonal difficulties as well as a strongly increased life satisfaction at follow-up than at the time of the initial consultation. Despite these positive results, the treatment of transsexualism is far from being perfect.

- **Smith et al., 2005**

Visit Source Website

Smith, Y. L. S., Van Goozen, S. H. M., Kuiper, A. J., & Cohen-Kettenis, P. (2005). Sex reassignment: Outcomes and predictors of treatment for adolescent and adult transsexuals. ***Psychological Medicine, 35*****(1), 89-99.**

Background: We prospectively studied outcomes of sex reassignment, potential differences between subgroups of transsexuals, and predictors of treatment course and outcome. Method: Altogether 325 consecutive adolescent and adult applicants for sex reassignment participated: 222 started hormone treatment, 103 did not; 188 completed and 34 dropped out of treatment. Only data of the 162 adults were used to evaluate treatment. Results between subgroups were compared to determine post-operative differences. Adults and adolescents were included to study predictors of treatment course and outcome. Results were statistically analysed with logistic regression and multiple linear regression analyses. Results: After treatment the group was no longer gender dysphoric. The vast majority functioned quite well psychologically, socially and sexually. Two non-homosexual male-to-female transsexuals expressed regrets. Post-operatively, female-to-male and homosexual transsexuals functioned better in many respects than male-to-female and non-homosexual transsexuals. Eligibility for treatment was largely based upon gender dysphoria, psychological stability, and physical appearance. Male-to-female transsexuals with more psychopathology and cross-gender symptoms in childhood, yet less gender dysphoria at application, were more likely to drop out prematurely. Non-homosexual applicants with much psychopathology and body dissatisfaction reported the worst post-operative outcomes. Conclusions: The results substantiate previous conclusions that sex reassignment is effective. Still, clinicians need to be alert for non-homosexual male-to-females with unfavourable psychological functioning and physical appearance and inconsistent gender dysphoria reports, as these are risk factors for dropping out and poor post-operative results. If they are considered eligible, they may require additional therapeutic guidance during or even after treatment.

- **van de Grift et al., 2017**

Visit Source Website

van de Grift, T. C., Elaut, E., Cerwenka, S. C., Cohen-Kettenis, P. T., Cuypere, G. D., Richter-Appelt, H., & Kreukels, B. P. (2017). Effects of medical interventions on gender dysphoria and body image. ***Psychosomatic Medicine, 79*****(7), 815-823.**

Objective: The aim of this study from the European Network for the Investigation of Gender Incongruence is to investigate the status of all individuals who had applied for gender confirming interventions from 2007 to 2009, irrespective of whether they received treatment. The current article describes the study protocol, the effect of medical treatment on gender dysphoria and body image, and the predictive value of (pre)treatment factors on posttreatment outcomes. Methods: Data were collected on medical interventions, transition status, gender dysphoria (Utrecht Gender Dysphoria Scale), and body image (Body Image Scale for transsexuals). In total, 201 people participated in the study (37% of the original cohort). Results: At follow-up, 29 participants (14%) did not receive medical interventions, 36 hormones only (18%), and 136 hormones and surgery (68%). Most transwomen had undergone genital surgery, and most transmen chest surgery. Overall, the levels of gender dysphoria and body dissatisfaction were significantly lower at follow-up compared with clinical entry. Satisfaction with therapy responsive and unresponsive body characteristics both improved. High dissatisfaction at admission and lower psychological functioning at follow-up were associated with persistent body dissatisfaction. Conclusions: Hormone-based interventions and surgery were followed by

improvements in body satisfaction. The level of psychological symptoms and the degree of body satisfaction at baseline were significantly associated with body satisfaction at follow-up.

- **van de Grift et al., 2017**

Visit Source Website

van de Grift, T. C., Elaut, E., Cerwenka, S. C., Cohen-Kettenis, P. T., & Kreukels, B. P. (2017). Surgical satisfaction, quality of life, and their association after gender-affirming surgery: A follow-up study. *Journal of Sex & Marital Therapy*, *44*(2), 138-148.

We assessed the outcomes of gender-affirming surgery (GAS, or sex-reassignment surgery) 4 to 6 years after first clinical contact, and the associations between postoperative (dis)satisfaction and quality of life (QoL). Our multicenter, cross-sectional follow-up study involved persons diagnosed with gender dysphoria (DSM-IV-TR) who applied for medical interventions from 2007 until 2009. Of 546 eligible persons, 201 (37%) responded, of whom 136 had undergone GAS (genital, chest, facial, vocal cord and/or thyroid cartilage surgery). Main outcome measures were procedure performed, self-reported complications, and satisfaction with surgical outcomes (standardized questionnaires), QoL (Satisfaction With Life Scale, Subjective Happiness Scale, Cantril Ladder), gender dysphoria (Utrecht Gender Dysphoria Scale), and psychological symptoms (Symptom Checklist-90). Postoperative satisfaction was 94% to 100%, depending on the type of surgery performed. Eight (6%) of the participants reported dissatisfaction and/or regret, which was associated with preoperative psychological symptoms or self-reported surgical complications (OR= 6.07). Satisfied respondents' QoL scores were similar to reference values; dissatisfied or regretful respondents' scores were lower. Therefore, dissatisfaction after GAS may be viewed as indicator of unfavorable psychological and QoL outcomes.

- **Vujovic et al., 2009**

Visit Source Website

Vujovic, S., Popovic, S., Sbutega-Milosevic, G., Djordjevic, M., & Gooren, L. (2009). Transsexualism in Serbia: A twenty-year follow-up study. *The Journal of Sexual Medicine*, *6*(4), 1018-1023.

Introduction: Gender dysphoria occurs in all societies and cultures. The prevailing social context has a strong impact on its manifestations as well as on applications by individuals with the condition for sex reassignment treatment. Aim: To describe a transsexual population seeking sex reassignment treatment in Serbia, part of former Yugoslavia. Methods: Data, collated over a period of 20 years, from subjects applying for sex reassignment to the only center in Serbia, were analyzed retrospectively. Main Outcome Measures: Age at the time of application, demographic data, family background, sex ratio, the prevalence of polycystic ovarian syndrome (PCOS) among female-to-male (FTM) transsexuals, and readiness to undergo surgical sex reassignment were tabulated. Results: Applicants for sex reassignment in Serbia are relatively young. The sex ratio is close to 1:1. They often come from single-child families. More than 10% do not wish to undergo surgical sex reassignment. The prevalence of PCOS among FTM transsexuals was higher than in the general population but considerably lower than that reported in the literature from other populations. Of those who had undergone sex reassignment, none expressed

regret for their decision. Conclusions: Although transsexualism is a universal phenomenon, the relatively young age of those applying for sex reassignment and the sex ratio of 1:1 distinguish the population in Serbia from others reported in the literature.

- **Weigert et al., 2013**

Visit Source Website

Weigert, R., Frison, E., Sessiecq, Q., Al Mutairi, K., & Casoli, V. (2013). Patient satisfaction with breasts and psychosocial, sexual, and physical well-being after breast augmentation in male-to-female transsexuals. ***Plastic and Reconstructive Surgery, 132*****(6), 1421-1429.**

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.

- **Weyers et al., 2009**

Visit Source Website

Weyers, S., Elaut, E., De Sutter, P., Gerris, J., T'Sjoen, G., et al. (2009). Long-term assessment of the physical, mental, and sexual health among transsexual women. ***The Journal of Sexual Medicine, 6*****(3), 752-760.**

Introduction: Transsexualism is the most extreme form of gender identity disorder and most transsexuals eventually pursue sex reassignment surgery (SRS). In transsexual women, this comprises removal of the male reproductive organs, creation of a neovagina and clitoris, and often implantation of breast prostheses. Studies have shown good sexual satisfaction after transition. However, long-term follow-up data on physical, mental and sexual functioning are lacking. Aim: To gather information on physical, mental, and sexual well-being, health-promoting behavior and satisfaction with gender-related body features of transsexual women who had undergone SRS. Methods: Fifty transsexual women who had undergone SRS >or=6 months earlier were recruited.

Main Outcome Measures: Self-reported physical and mental health using the Dutch version of the Short-Form-36 (SF-36) Health Survey; sexual functioning using the Dutch version of the Female Sexual Function Index (FSFI). Satisfaction with gender-related bodily features as well as with perceived female appearance; importance of sex, relationship quality, necessity and advisability of gynecological exams, as well as health concerns and feelings of regret concerning transition were scored. Results: Compared with reference populations, transsexual women scored good on physical and mental level (SF-36). Gender-related bodily features were shown to be of high value. Appreciation of their appearance as perceived by others, as well as their own satisfaction with their self-image as women obtained a good score (8 and 9, respectively). However, sexual functioning as assessed through FSFI was suboptimal when compared with biological women, especially the sublevels concerning arousal, lubrication, and pain. Superior scores concerning sexual function were obtained in those transsexual women who were in a relationship and in heterosexuals. Conclusions: Transsexual women function well on a physical, emotional, psychological and social level. With respect to sexuality, they suffer from specific difficulties, especially concerning arousal, lubrication, and pain.

Back to Top

Below are 4 studies that contain mixed or null findings on the effect of gender transition on transgender well-being. Click here to jump to the 17 studies that consist of literature reviews or guidelines that help advance knowledge about the effect of gender transition on transgender well-being. Click here to jump to the 51 studies that found that gender transition improves the well-being of transgender people.

Click on any thumbnail to view its abstract; click below each thumbnail to visit the source website.

- **Barrett, 1998**

Visit Source Website

Barrett J. (1998). Psychological and social function before and after phalloplasty. *The International Journal of Transgenderism*, *2*(1), 1-8.

There are no quantitative assessments of the benefits of phalloplasty in a female transsexual population. The study addresses this question, comparing transsexuals accepted for such surgery with transsexuals after such surgery has been performed. A population of 23 transsexuals accepted for phalloplasty was compared to a population of 40 who had undergone such surgery between six and one hundred and sixty months previously. The General Health Questionnaire (GHQ), Symptom Checklist 90 (SCL-90), Bem Sex Role Inventory and Social Role Performance Schedule (SRPS) were employed. Additionally, a questionnaire assessing satisfaction with cosmetic appearance, sexual function, relationship and urinary function was used, along with a semi-structured interview quantifying alcohol, cigarette and drug usage, and current sexual practice. There were significant differences between the populations. The post operative group showed higher depression ratings on the depression subscale of the GHQ. The masculine pre-operative Bem scores were neutral post-operatively as feminine sub-scores increased. There was improved satisfaction with genital appearance post-operatively, but satisfaction with relationships fell, although to a non-significant extent. Most other changes were in the expected direction but did not achieve significance. Transsexuals accepted for phalloplasty have very good psychological health. Tendency to further improvement is the case after phalloplasty. Depression is commoner, however, and quality of relationships declines somewhat, perhaps in consequence. Surgeons might advise partners as well as patients of realistic expectations from such surgery.

- **Lindqvist et al., 2017**

Visit Source Website

Lindqvist, E. K., Sigurjonsson, H., Möllermark, C., Rinder, J., Farnebo, F., et al. (2017). Quality of life improves early after gender reassignment surgery in transgender women. ***European Journal of Plastic Surgery*****,** ***40*****(3), 223-226.**

Background: Few studies have examined the long-term quality of life (QoL) of individuals with gender dysphoria, or how it is affected by treatment. Our aim was to examine the QoL of transgender women undergoing gender reassignment surgery (GRS). Methods: We performed a prospective cohort study on 190 patients undergoing male-to-female GRS at Karolinska University Hospital between 2003 and 2015. We used the Swedish version of the Short Form-36 Health Survey (SF-36), which measures QoL across eight domains. The questionnaire was distributed to patients pre-operatively, as well as 1, 3, and 5 years post-operatively. The results were compared between the different measure points, as well as between the study group and the general population. Results: On most dimensions of the SF-36 questionnaire, transgender women reported a lower QoL than the general population. The scores of SF-36 showed a non-significant trend to be lower 5 years post-GRS compared to pre-operatively, a decline consistent with that of the general population. Self-perceived health compared to 1 year previously rose in the first post-operative year, after which it declined. Conclusions: To our knowledge, this is the largest prospective study to follow a group of transgender patients with regards to QoL over continuous temporal measure points. Our results show that transgender women generally have a lower QoL compared to the general population. GRS leads to an improvement in general well-being as a trend but over the long-term, QoL decreases slightly in line with that of the comparison group. Level of evidence: Level III, therapeutic study.

- **Simonsen et al., 2016**

Visit Source Website

Simonsen, R. K., Giraldi, A., Kristensen, E., & Hald, G. M. (2016). Long-term follow-up of individuals undergoing sex reassignment surgery: Psychiatric morbidity and mortality. ***Nordic Journal Of Psychiatry*****,** ***70*****(4), 241-247.**

Background: There is a lack of long-term register-based follow-up studies of sex-reassigned individuals concerning mortality and psychiatric morbidity. Accordingly, the present study investigated both mortality and psychiatric morbidity using a sample of individuals with transsexualism which comprised 98% (n = 104) of all individuals in Denmark. Aims: (1) To investigate psychiatric morbidity before and after sex reassignment surgery (SRS) among Danish individuals who underwent SRS during the period of 1978–2010. (2) To investigate mortality among Danish individuals who underwent SRS during the period of 1978–2010.Method: Psychiatric morbidity and mortality were identified by data from the Danish Psychiatric Central Research Register and the Cause of Death Register through a retrospective register study of 104 sex-reassigned individuals. Results: Overall, 27.9% of the sample were registered with psychiatric morbidity before SRS and 22.1% after SRS (p = not significant). A total of 6.7% of the sample were registered with psychiatric morbidity both before and after SRS. Significantly more psychiatric diagnoses were found before SRS for those assigned as female at birth. Ten individuals were registered as deceased post-SRS with an average age of death of 53.5 years. Conclusions: No significant difference in psychiatric morbidity or mortality was found between male to female and female to male (FtM) save for the total number of psychiatric diagnoses where FtM held a significantly higher number of psychiatric diagnoses overall. Despite the over-representation of psychiatric diagnoses both pre- and post-SRS the study found that only a relatively limited

number of individuals had received diagnoses both prior to and after SRS. This suggests that generally SRS may reduce psychological morbidity for some individuals while increasing it for others.

- **Udeze, 2008**

Visit Source Website

Udeze, B., Abdelmawla, N., Khoosal, D., & Terry, T. (2008). Psychological functions in male-to-female transsexual people before and after surgery. *Sexual & Relationship Therapy*, *23*(2), 141-145.

Patients with gender dysphoria (GD) suffer from a constant feeling of psychological discomfort related to their anatomical sex. Gender reassignment surgery (GRS) attempts to release this discomfort. The aim of this study was to compare the functioning of a cohort or patients with GD before and after GRS. We hypothesized that there would be an improvement in the scores of the self-administered SCL-90R following gender reassignment surgery among male-to-female people with gender dysphoria. We studied 40 patients with a DSM-IV diagnosis of Gender Identity Disorder (GID) who attended Leicester Gender Identity Clinic. We compared their functioning as measured by Symptom Check List-90R (SCL-90R) which was administered to 40 randomly selected male-to-female patients before and within six months after GRS using the same sample as control pre-and post-surgery. There was no significant change in the different sub-scales of the SCL-90R scores in patients with male-to-female GID pre- and within six months post-surgery. The results of the study showed that GRS had no significant effect on functioning as measured by SCL-90R within six months of surgery. Our study has the advantage of reducing inter-subject variability by using the same patients as their own control. This study may be limited by the duration of reassessment post-surgery. Further studies with larger sample size and using other psychosocial scales are needed to elucidate on the effectiveness of surgical intervention on psychosocial parameters in patients with GD.

Back to Top

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Click on any thumbnail to view its abstract; click below each thumbnail to visit the source website.

- **American Psychological, 2015**

Visit Source Website

Guidelines for psychological practice with transgender and gender nonconforming people. (2015). *American Psychologist, 70*(9), 832-864.

In 2015, the American Psychological Association adopted *Guidelines for Psychological Practice with Transgender and Gender Nonconforming Clients* in order to describe affirmative psychological practice with transgender and gender nonconforming (TGNC) clients. There are 16 guidelines in this document that guide TGNC-affirmative psychological practice across the lifespan, from TGNC children to older adults. The Guidelines are organized into five clusters: (a) foundational knowledge and awareness; (b) stigma, discrimination, and barriers to care; (c) lifespan development; (d) assessment, therapy, and intervention; and (e) research, education, and training. In addition, the guidelines provide attention to TGNC people across a range of gender and racial/ethnic identities. The psychological practice guidelines also attend to issues of research and how psychologists may address the many social inequities TGNC people experience.

- **Bockting et al., 2016**

Visit Source Website

Bockting, W., Coleman, E., Deutsch, M. B., Guillamon, A., Meyer, W., et al. (2016). Adult development and quality of life of transgender and gender nonconforming people. *Current Opinion in Endocrinology & Diabetes and Obesity*, *23*(2), 188–197.

Purpose of review: Research on the health of transgender and gender nonconforming people has been limited with most of the work focusing on transition-related care and HIV. The present review summarizes research to date on the overall development and quality of life of transgender and gender nonconforming adults, and makes recommendations for future research. Recent findings: Pervasive stigma and discrimination attached to gender nonconformity affect the health of transgender people across the lifespan, particularly when it comes to mental health and well-being. Despite the related challenges, transgender and gender nonconforming people may develop resilience over time. Social support and affirmation of gender identity play herein a critical role. Although there is a growing awareness of diversity in gender identity and expression among this population, a comprehensive understanding of biopsychosocial development beyond the gender binary and beyond transition is lacking. Summary: Greater visibility of transgender people in society has revealed the need to understand and promote their health and quality of life broadly, including but not limited to gender dysphoria and HIV. This means addressing their needs in context of their families and communities, sexual and reproductive health, and successful aging. Research is needed to better understand what factors are associated with resilience and how it can be effectively promoted.

- **Byne et al., 2012**

Visit Source Website

Byne, W., Bradley, S.J., Coleman, E., et al. (2012). Report of the American Psychiatric Association task force on treatment of gender identity disorder. *Archives of Sexual Behavior, 41*(4): 759–796.

Both the diagnosis and treatment of Gender Identity Disorder (GID) are controversial. Although linked, they are separate issues and the DSM does not evaluate treatments. The Board of Trustees (BOT) of the American Psychiatric Association (APA), therefore, formed a Task Force charged to perform a critical review of the literature on the treatment of GID at different ages, to assess the quality of evidence pertaining to treatment, and to prepare a report that included an opinion as to whether or not sufficient credible literature exists for development of treatment recommendations by the APA. The literature on treatment of gender dysphoria in individuals with disorders of sex development was also assessed. The completed report was accepted by the BOT on September 11, 2011. The quality of evidence pertaining to most aspects of treatment in all subgroups was determined to be low; however, areas of broad, clinical consensus were identified and were deemed sufficient to support recommendations for treatment in all subgroups. With subjective improvement as the primary outcome measure, current evidence was judged sufficient to support recommendations for adults in the form of an evidence-based APA Practice Guideline with gaps in the empirical data supplemented by clinical consensus. The report recommends that the APA take steps beyond drafting treatment recommendations. These include issuing position statements to clarify the APA's position regarding the medical necessity of treatments for GID, the ethical bounds of treatments of gender variant minors, and the rights of persons of any age who are gender variant, transgender or transsexual.

- **Carroll, 1999**

Visit Source Website

Carroll, R. A. (1999). Outcomes of treatment for gender dysphoria. *Journal of Sex Education and Therapy*, *24*(3), 128–136.

This paper reviews the empirical research on the psychosocial outcomes of treatment for gender dysphoria. Recent research has highlighted the heterogeneity of transgendered experiences. There are four possible outcomes for patients who present with the dilemma of gender dysphoria: an unresolved outcome, acceptance of one's given gender, engaging in a cross-gender role on a part-time basis, and making a full-time transition to the other gender role. Clinical work, but not empirical research, suggests that some individuals with gender dysphoria may come to accept their given gender role through psychological treatment. Many individuals find that it is psychologically sufficient to express the transgendered part of themselves through such activities as cross-dressing or gender blending. The large body of research on the outcome of gender reassignment surgery indicates that, for the majority of those who undergo this process, the outcome is positive. Predictors of a good outcome include good pre-reassignment psychological adjustment, family support, at least 1 year of living in the desired role, consistent use of hormones, psychological treatment, and good surgical outcomes. The outcome literature provides strong support for adherence to the Standards of Care of the Harry Benjamin International Gender Dysphoria Association. Implications to be drawn from this research include an appreciation of the diversity of transgendered experience, the need for more research on non-reassignment resolutions to gender dysphoria, and the importance of assisting the transgendered individual to identify the resolution that best suits him or her.

- **Cohen-Kettenis and Gooren, 1999**

Visit Source Website

Cohen-Kettenis, P. T., & Gooren, L. J. G. (1999). Transsexualism: A review of etiology, diagnosis and treatment. *Journal of Psychosomatic Research*, *46*(4), 315-333.

Transsexualism is considered to be the extreme end of the spectrum of gender identity disorders characterized by, among other things, a pursuit of sex reassignment surgery (SRS). The origins of transsexualism are still largely unclear. A first indication of anatomic brain differences between transsexuals and nontranssexuals has been found. Also, certain parental (rearing) factors seem to be associated with transsexualism. Some contradictory findings regarding etiology, psychopathology and success of SRS seem to be related to the fact that certain subtypes of transsexuals follow different developmental routes. The observations that psychotherapy is not helpful in altering a crystallized cross-gender identity and that certain transsexuals do not show severe psychopathology has led clinicians to adopt sex reassignment as a treatment option. In many countries, transsexuals are now treated according to the Standards of Care of the Harry Benjamin International Gender Dysphoria Association, a professional organization in the field of transsexualism. Research on postoperative functioning of transsexuals does not allow for unequivocal conclusions, but there is little doubt that sex reassignment substantially alleviates the suffering of transsexuals. However, SRS is no panacea. Psychotherapy may be needed to help transsexuals in adapting to the new situation or in dealing with issues that could not be addressed before treatment.

- **Coleman et al., 2012**

Visit Source Website

Coleman, E., Bockting, W., Botzer, M., Cohen-Kettenis, P., DeCuypere, G., et al. (2012). Standards of care for the health of transsexual, transgender, and gender-nonconforming people, version 7. *International Journal of Transgenderism*, *13*(4), 165-232.

The Standards of Care (SOC) for the Health of Transsexual, Transgender, and Gender Nonconforming People is a publication of the World Professional Association for Transgender Health (WPATH). The overall goal of the SOC is to provide clinical guidance for health professionals to assist transsexual, transgender, and gender nonconforming people with safe and effective pathways to achieving lasting personal comfort with their gendered selves, in order to maximize their overall health, psychological well-being, and self-fulfillment. This assistance may include primary care, gynecologic and urologic care, reproductive options, voice and communication therapy, mental health services (e.g., assessment, counseling, psychotherapy), and hormonal and surgical treatments. The SOC are based on the best available science and expert professional consensus. Because most of the research and experience in this field comes from a North American and Western European perspective, adaptations of the SOC to other parts of the world are necessary. The SOC articulate standards of care while acknowledging the role of making informed choices and the value of harm reduction approaches. In addition, this version of the SOC recognizes that treatment for gender dysphoria i.e., discomfort or distress that is caused by a discrepancy between persons gender identity and that persons sex assigned at birth (and the associated gender role and/or primary and secondary sex characteristics) has become more individualized. Some individuals who present for care will have made significant self-directed progress towards gender role changes or other resolutions regarding their gender identity or

gender dysphoria. Other individuals will require more intensive services. Health professionals can use the SOC to help patients consider the full range of health services open to them, in accordance with their clinical needs and goals for gender expression.

- **Committee on Health Care for Underserved, 2011**

Visit Source Website

Committee Opinion No. 512: Health Care for Transgender Individuals. (2011). *Obstetrics & Gynecology*, *118*(6), 1454–1458.

Transgender individuals face harassment, discrimination, and rejection within our society. Lack of awareness, knowledge, and sensitivity in health care communities eventually leads to inadequate access to, underutilization of, and disparities within the health care system for this population. Although the care for these patients is often managed by a specialty team, obstetrician–gynecologists should be prepared to assist or refer transgender individuals with routine treatment and screening as well as hormonal and surgical therapies. The American College of Obstetricians and Gynecologists opposes discrimination on the basis of gender identity and urges public and private health insurance plans to cover the treatment of gender identity disorder.

- **Costa and Colizzi, 2016**

Visit Source Website

Costa, R., & Colizzi, M. (2016). The effect of cross-sex hormonal treatment on gender dysphoria individuals' mental health: A systematic review. *Neuropsychiatric Disease and Treatment*, *12*, 1953-1966.

Cross-sex hormonal treatment represents a main aspect of gender dysphoria health care pathway. However, it is still debated whether this intervention translates into a better mental well-being for the individual and which mechanisms may underlie this association. Although sex reassignment surgery has been the subject of extensive investigation, few studies have specifically focused on hormonal treatment in recent years. Here, we systematically review all studies examining the effect of cross-sex hormonal treatment on mental health and well-being in gender dysphoria. Research tends to support the evidence that hormone therapy reduces symptoms of anxiety and dissociation, lowering perceived and social distress and improving quality of life and self-esteem in both male-to-female and female-to-male individuals. Instead, compared to female-to-male individuals, hormone-treated male-to-female individuals seem to benefit more in terms of a reduction in their body uneasiness and personality-related psychopathology and an amelioration of their emotional functioning. Less consistent findings support an association between hormonal treatment and other mental health-related dimensions. In particular, depression, global psychopathology, and psychosocial functioning difficulties appear to reduce only in some studies, while others do not suggest any improvement in these domains. Results from longitudinal studies support more consistently the association between hormonal treatment and improved mental health. On the contrary, a number of cross-sectional studies do not support this evidence. This review provides possible biological explanation vs psychological explanation (direct effect vs indirect effect) for the hormonal treatment-induced better mental well-being. In conclusion, this review indicates that gender dysphoria-related mental distress may benefit from hormonal treatment intervention, suggesting a transient reaction to the nonsatisfaction connected to the incongruent

body image rather than a stable psychiatric comorbidity. In this perspective, timely hormonal treatment intervention represents a crucial issue in gender dysphoria individuals' mental health-related outcome.

- **Dhejne et al., 2016**

Visit Source Website

Dhejne, C., Van Vlerken, R., Heylens, G., & Arcelus, J. (2016). Mental health and gender dysphoria: A review of the literature. *International Review Of Psychiatry*, *28*(1), 44-57.

Studies investigating the prevalence of psychiatric disorders among trans individuals have identified elevated rates of psychopathology. Research has also provided conflicting psychiatric outcomes following gender-confirming medical interventions. This review identifies 38 cross-sectional and longitudinal studies describing prevalence rates of psychiatric disorders and psychiatric outcomes, pre- and post-gender-confirming medical interventions, for people with gender dysphoria. It indicates that, although the levels of psychopathology and psychiatric disorders in trans people attending services at the time of assessment are higher than in the cis population, they do improve following gender-confirming medical intervention, in many cases reaching normative values. The main Axis I psychiatric disorders were found to be depression and anxiety disorder. Other major psychiatric disorders, such as schizophrenia and bipolar disorder, were rare and were no more prevalent than in the general population. There was conflicting evidence regarding gender differences: some studies found higher psychopathology in trans women, while others found no differences between gender groups. Although many studies were methodologically weak, and included people at different stages of transition within the same cohort of patients, overall this review indicates that trans people attending transgender health-care services appear to have a higher risk of psychiatric morbidity (that improves following treatment), and thus confirms the vulnerability of this population.

- **Gijs and Brewaeys, 2007**

Visit Source Website

Gijs, L., & Brewaeys, A. (2007). Surgical treatment of gender dysphoria in adults and adolescents: Recent developments, effectiveness, and challenges. *Annual Review of Sex Research*, *18*(1), 178-224.

In 1990 Green and Fleming concluded that sex reassignment surgery (SRS) is an effective treatment for transsexuality because it reduced gender dysphoria drastically. Since 1990, many new outcome studies have been published, raising the question as to whether the conclusion of Green and Fleming still holds. After describing terminological and conceptual developments related to the treatment of gender identity disorder (GID), follow-up studies, including both adults and adolescents, of the outcomes of SRS are reviewed. Special attention is paid to the effects of SRS on gender dysphoria, sexuality, and regret. Despite methodological shortcomings of many of the studies, we conclude that SRS is an effective treatment for transsexualism and the only treatment that has been evaluated empirically with large clinical case series.

- **Gooren, 2011**

Visit Source Website

Gooren, L. J. (2011). Care of transsexual persons. ***New England Journal of Medicine*****,** ***364*****(13), 1251–1257.**

This Journal feature begins with a case vignette highlighting a common clinical problem. Evidence supporting various strategies is then presented, followed by a review of formal guidelines, when they exist. The article ends with the author's clinical recommendations. A healthy and successful 40-year-old man finds it increasingly difficult to live as a male. In childhood he preferred playing with girls and recalls feeling that he should have been one. Over time he has come to regard himself more and more as a female personality inhabiting a male body. After much agonizing, he has concluded that only sex reassignment can offer the peace of mind he craves. What would you advise? A healthy and successful 40-year-old man finds it increasingly difficult to live as a male. In childhood he preferred playing with girls and recalls feeling that he should have been one. Over time he has come to regard himself more and more as a female personality inhabiting a male body. After much agonizing, he has concluded that only sex reassignment can offer the peace of mind he craves. What would you advise?

- **Hembree et al., 2009**

Visit Source Website

Hembree, W. C., Cohen-Kettenis, P., Delemarre-van de Waal, H. A., Gooren, L. J., Meyer, W., et al. (2009). Endocrine treatment of transsexual persons: An endocrine society clinical practice guideline. ***The Journal of Clinical Endocrinology & Metabolism, 94*****(9), 3132–3154.**

Objective: The aim was to formulate practice guidelines for endocrine treatment of transsexual persons. Evidence: This evidence-based guideline was developed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system to describe the strength of recommendations and the quality of evidence, which was low or very low. Consensus Process: Committees and members of The Endocrine Society, European Society of Endocrinology, European Society for Paediatric Endocrinology, Lawson Wilkins Pediatric Endocrine Society, and World Professional Association for Transgender Health commented on preliminary drafts of these guidelines. Conclusions: Transsexual persons seeking to develop the physical characteristics of the desired gender require a safe, effective hormone regimen that will 1) suppress endogenous hormone secretion determined by the person's genetic/biologic sex and 2) maintain sex hormone levels within the normal range for the person's desired gender. A mental health professional (MHP) must recommend endocrine treatment and participate in ongoing care throughout the endocrine transition and decision for surgical sex reassignment. The endocrinologist must confirm the diagnostic criteria the MHP used to make these recommendations. Because a diagnosis of transsexualism in a prepubertal child cannot be made with certainty, we do not recommend endocrine treatment of prepubertal children. We recommend treating transsexual adolescents (Tanner stage 2) by suppressing puberty with GnRH analogues until age 16 years old, after which cross-sex hormones may be given. We suggest suppressing endogenous sex hormones, maintaining physiologic levels of gender-appropriate sex hormones and monitoring for known risks in adult

transsexual persons. Endocrine treatment of transsexual persons should include suppression of endogenous sex hormones, physiologic levels of gender-appropriate sex hormones, and suppression of puberty in adolescents (Tanner stage 2).

- **Michel et al., 2002**

Visit Source Website

Michel, A., Ansseau, M., Legros, J., Pitchot, W., & Mormont, C. (2002). The transsexual: What about the future? *European Psychiatry*, *17*(6), 353-362.

Since the 1950s, sexual surgical reassignments have been frequently carried out. As this surgical therapeutic procedure is controversial, it seems important to explore the actual consequences of such an intervention and objectively evaluate its relevance. In this context, we have carried out a review of the literature. After looking at the methodological limitations of follow-up studies, the psychological, sexual, social, and professional futures of the individuals subject to a transsexual operation are presented. Finally, prognostic aspects are considered. In the literature, follow-up studies tend to show that surgical transformations have positive consequences for the subjects. In the majority of cases, transsexuals are very satisfied with their intervention and any difficulties experienced are often temporary and disappear within a year after the surgical transformation. Studies show that there is less than 1% of regrets, and a little more than 1% of suicides among operated subjects. The empirical research does not confirm the opinion that suicide is strongly associated with surgical transformation.

- **Murad et al., 2010**

Visit Source Website

Murad, M. H., Elamin, M. B., Garcia, M. Z., Mullan, R. J., Murad, A., Erwin, P. J., & Montori, V. M. (2010). Hormonal therapy and sex reassignment: A systematic review and meta-analysis of quality of life and psychosocial outcomes. *Clinical Endocrinology*, *72*(2), 214-231.

Objective: To assess the prognosis of individuals with gender identity disorder (GID) receiving hormonal therapy as a part of sex reassignment in terms of quality of life and other self-reported psychosocial outcomes. Methods: We searched electronic databases, bibliography of included studies and expert files. All study designs were included with no language restrictions. Reviewers working independently and in pairs selected studies using predetermined inclusion and exclusion criteria, extracted outcome and quality data. We used a random-effects meta-analysis to pool proportions and estimate the 95% confidence intervals (CIs). We estimated the proportion of between-study heterogeneity not attributable to chance using the I2 statistic. Results: We identified 28 eligible studies. These studies enrolled 1833 participants with GID (1093 male-to-female, 801 female-to-male) who underwent sex reassignment that included hormonal therapies. All the studies were observational and most lacked controls. Pooling across studies shows that after sex reassignment, 80% of individuals with GID reported significant improvement in gender dysphoria (95% CI = 68–89%; 8 studies; I2 = 82%); 78% reported significant improvement in psychological symptoms (95% CI = 56–94%; 7 studies; I2 = 86%); 80% reported significant improvement in quality of life (95%

CI = 72–88%; 16 studies; I2 = 78%); and 72% reported significant improvement in sexual function (95% CI = 60–81%; 15 studies; I2 = 78%). Conclusions: Very low quality evidence suggests that sex reassignment that includes hormonal interventions in individuals with GID likely improves gender dysphoria, psychological functioning and comorbidities, sexual function and overall quality of life.

- **Reisner et al., 2016**

Visit Source Website

Reisner, S. L., Poteat, T., Keatley, J., Cabral, M., Mothopeng, T., et al. (2016). Global health burden and needs of transgender populations: A review. *The Lancet*, *388*(10042), 412-436.

Transgender people are a diverse population affected by a range of negative health indicators across high-income, middle-income, and low-income settings. Studies consistently document a high prevalence of adverse health outcomes in this population, including HIV and other sexually transmitted infections, mental health distress, and substance use and abuse. However, many other health areas remain understudied, population-based representative samples and longitudinal studies are few, and routine surveillance efforts for transgender population health are scarce. The absence of survey items with which to identify transgender respondents in general surveys often restricts the availability of data with which to estimate the magnitude of health inequities and characterise the population-level health of transgender people globally. Despite the limitations, there are sufficient data highlighting the unique biological, behavioural, social, and structural contextual factors surrounding health risks and resiliencies for transgender people. To mitigate these risks and foster resilience, a comprehensive approach is needed that includes gender affirmation as a public health framework, improved health systems and access to health care informed by high quality data, and effective partnerships with local transgender communities to ensure responsiveness of and cultural specificity in programming. Consideration of transgender health underscores the need to explicitly consider sex and gender pathways in epidemiological research and public health surveillance more broadly.

- **Schmidt and Levine, 2015**

Visit Source Website

Schmidt, L., & Levine, R. (2015). Psychological Outcomes and Reproductive Issues Among Gender Dysphoric Individuals. *Endocrinology and Metabolism Clinics of North America*, *44*(4), 773-785.

Gender dysphoria is a condition in which a person experiences discrepancy between the natal anatomic sex and the gender he or she identifies with, resulting in internal distress and a desire to live as the preferred gender. There is increasing demand for treatment, which includes suppression of puberty, cross-sex hormone therapy, and sex reassignment surgery. This article reviews longitudinal outcome data evaluating psychological well-being and quality of life among transgender individuals who have undergone cross-sex hormone treatment or sex reassignment surgery. Proposed methodologies for diagnosis and initiation of treatment are discussed, and the effects of cross-sex hormones and sex reassignment surgery on future reproductive potential.

- **White Hughto and Reisner, 2016**

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White Hughto, J. M., & Reisner, S. L. (2016). A systematic review of the effects of hormone therapy on psychological functioning and quality of life in transgender individuals. *Transgender Health*, *1*(1), 21–31.

Objectives: To review evidence from prospective cohort studies of the relationship between hormone therapy and changes in psychological functioning and quality of life in transgender individuals accessing hormone therapy over time. Data Sources: MEDLINE, PsycINFO, and PubMed were searched for relevant studies from inception to November 2014. Reference lists of included studies were hand searched. Results: Three uncontrolled prospective cohort studies, enrolling 247 transgender adults (180 male-to-female [MTF], 67 female-to-male [FTM]) initiating hormone therapy for the treatment of gender identity disorder (prior diagnostic term for gender dysphoria), were identified. The studies measured exposure to hormone therapy and subsequent changes in mental health (e.g., depression, anxiety) and quality of life outcomes at follow-up. Two studies showed a significant improvement in psychological functioning at 3–6 months and 12 months compared with baseline after initiating hormone therapy. The third study showed improvements in quality of life outcomes 12 months after initiating hormone therapy for FTM and MTF participants; however, only MTF participants showed a statistically significant increase in general quality of life after initiating hormone therapy. Conclusions: Hormone therapy interventions to improve the mental health and quality of life in transgender people with gender dysphoria have not been evaluated in controlled trials. Low quality evidence suggests that hormone therapy may lead to improvements in psychological functioning. Prospective controlled trials are needed to investigate the effects of hormone therapy on the mental health of transgender people.

Back to Top

- Topics
- About
- Contact