The Privilege of Providing Care: Basics of Best Practices for Caring for Trans Patients with HIV Infection

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January 25, 2018
Objectives

• Be familiar with appropriate terminology.
• Discuss issues related to HIV infection within the transgender community.
• Be acquainted with basic health maintenance issues.
• Basics on hormone therapy and surgical options.
‘A Whole New Being’

How Kricket Nimmons Seized the Transgender Moment

By DEBORAH SONTAG
Photographs by TODD HEISLER
Video by KASSIE BRACKEN
DEC. 12, 2015
The Quest for Transgender Equality
THE TRANSGENDER TIPPING POINT

America's next civil rights frontier

BY KATY STEINMETZ
Why is this important?

- Survey of 132 Deans of Medical Education
- Median time dedicated to teaching LGBT-related content in curriculum was 5 hours
- 9 reported 0 hours taught during preclinical years
- 44 reported 0 hours during clinical years
- 128 taught students to ask patients if they “have sex with men, women, or both” when obtaining a sexual history

Why is this important?

• The 2008–2009 U.S. National Transgender Discrimination Survey
• 28% of transgender adults experienced harassment in medical settings
• 19% reported being refused care
• 28% postponed care because of discrimination
• 50% of those who received care reported having to teach their clinicians about transgender care.

Schuster NEJM 2016
Concepts

• Transgender- umbrella term for all people whose internal sense of their gender is different from societal norms for one’s sex assigned at birth.

• Some transgender people who do not identify as either male or female, but rather identify outside of a gender binary.
  – Genderqueer, gender nonconforming, non-binary
  – 41% in one MA study on substance abuse identified as nonbinary/nonconforming

Policy brief: Transgender people and HIV: WHO July 2015
Concepts

• Transition- the process that transgender people undergo to express their gender identity.

• “The process of bringing the body and mind into alignment.”
  – Physical (hormones, surgery), social, legal, psychological, linguistic, intellectual, and spiritual aspects of self.

Policy brief: Transgender people and HIV
WHO July 2015
Basic Concepts

• Biologic gender may differ from gender identity.

• Gender identity is distinct from sexual orientation.

• Sexual behaviors may differ from sexual orientation.

How many individuals identify as transgender?

- Numbers are difficult to define, as definitions and gender identity are fluid.
- 1 per 11,900 men, 1 per 30,400 women in the Netherlands identify as transgender.
- 1.4 million US Adults
- For approximately 66%, begins in childhood.

Gooren, NEJM 364;13, 2011
Schuster NEJM 2016.
However... Limitations of Research

• Reliance on convenience samples.
• Inconsistent or inaccurate definitions of transgender populations.
• *Conflation of transgender and LGB groups or MSM.
• Does not capture those that identify as nonconforming.

HIV and STIs in Transgender Populations, IDWeek 2016,
Dr. Kevin ARD
National LGBT Health Education Center
Oct 2016
The Failure of the EMR... and other things.

- No reliable system nationwide for collecting sex and gender identity information
- Lack of reliable HIV surveillance data for transgender populations
- Inadequate EMR
- Provider discomfort with discussing sex and gender identity with patients
- Health departments not equipped to account for sex and gender identity information

HIV and Transgender: A Global View

• Data are lacking!
• HIV prevalence data are less robust
  – Sampling challenges, lack of population size estimates, stigma
• Transgender people remain severely underserved in the response to HIV
• In one study in Canada only 46% of transwomen had ever been tested for HIV.

Transwomen and HIV

• Transwomen have an odds of HIV infection that is ____ times greater than the general population?
  • A) 2x
  • B) 10x
  • C) 25x
  • D) 50x
A Global View

- Pooled HIV prevalence of 19% in transwomen in 15 countries.

- Transwomen had odds of HIV infection 49x greater than the general population.

“"All human beings are born free and equal in dignity and rights."

- ARTICLE 1 OF THE UNIVERSAL DECLARATION OF HUMAN RIGHTS

Lancet Infect Dis 2013;13 (3) : 214–222
A Global View- Transmen

• The only published studies on HIV prevalence among transgender men are from North America.
• The most recently published meta-analysis found only two studies with laboratory-confirmed HIV status among transgender men.
  – One of the studies found no infections among participants
  – The other found a prevalence of 2% (one HIV-positive participant)

HIV disproportionately burdens transgender women.

Graph showing HIV prevalence among adults, %
- General population
- Transgender women

Prevalence ~56% among African-American transgender women

References:
A Local View: U.S.

- 11-28% of trans-women were HIV positive.
- More than half (52%) of testing events with transgender persons occurred in non-clinical settings.
- 3x higher community viral load than in non-trans individuals.
- Compared with MSM, transwomen are less likely to achieve viral suppression.

Herbst et al, AIDS Behav. 2008 Jan;12(1)
Special Challenges

• STIGMA
• Intimate partner violence
• Difficulty accessing education, employment, housing
• Lack of access to HIV testing, care, prevention
• Transwomen in NYC with HIV
  – 50% had history of substance use, sex work, homelessness, incarceration, sexual abuse

http://www.cdc.gov/hiv/transgender/index.htm?source=govdelivery
Concerns

Top 5 Health Concerns for Trans PLWHA:

1. Accessing gender-affirming, non-discriminatory health care
2. Hormone therapy
3. Mental Health Care
4. Personal care (nutrition, etc)
5. Antiretroviral therapy

HIV and STIs in Transgender Populations, IDWeek 2016,
Dr. Kevin ARD
National LGBT Health Education Center Oct 2016
Health Maintenance and Basic Healthcare
• Transhealth.ucsf.edu
• Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender Nonbinary People
• Care of the HIV Infected Transgender Patient
• http://www.hivguidelines.org/clinical-guidelines/transgender/care-of-the-hiv-infected-transgender-patient/
Basic Care: Psychosocial Assessment

“As part of the routine management of HIV-infected patients, clinicians should perform a psychosocial assessment at baseline and at least annually in HIV-infected transgender patients.”

Psychosocial Assessment

• Support network
  – Family and partner contacts, including level of knowledge and support of patient’s gender identity
  – Stability in relationships

• Transgender-related discrimination or violence

• Housing status*

• Employment and insurance
  – If employed, are the patient’s employer and coworkers accepting of the patient’s gender identity?
  – If insured, can the patient be reimbursed for transgender-related care?

• Educational level

• Legal issues
  – Living will and healthcare proxy
  – Permanency planning for dependents
  – Potential obstacles to legal gender change and name change

Harm Reduction

Clinicians should assess for the following behaviors in HIV-infected transgender patients:

• Silicone use- ARDS
• Hormones obtained without prescription, including specific hormones used
• Needle-sharing among those who inject hormones, silicone, and/or drugs
• Genital taping
• Sexual risk behaviors

A word on STIs...

- **US systematic review:**
  - Self-report of lifetime STI 21.1%
  - Higher in MTF > FTM

- **Prospective study of 230 MTF people in NYC**
  - Syphilis incidence 3.6% per year
  - GC/CT incidence 4.2%/4.5% per year

- **Retrospective study of 145 in Boston**
  - Prevalence syphilis 2.8%
  - Prevalence GC/CT 2.1% each

HIV and STIs in Transgender Populations, IDWeek 2016, , Dr. Kevin ARD Herbst, et al. AIDS Behavior 2008
Nuttbrock Am J Public Helath 2013
Residner AIDS Care 2015
Physical Exam

- “Should be relevant to the anatomy that is present, regardless of gender presentation, and without assumptions as to anatomy or identity.”
- Keep in mind potential prior negative experiences within the health care setting, including discrimination as well as physical or emotional abuse.

http://transhealth.ucsf.edu/trans?page=guidelines-physical-examination
Basic Care: Physical Exam

• May be traumatic for the patient
  – Explain each step of exam
  – Consider mental health referral
  – Defer if patient not comfortable
• However, every effort should be made to provide the appropriate care
• Ensure patient understands risks of deferral

Basic Care: Pap Smears

- Clinicians should perform routine cervical Pap tests in any FTM patient with HIV with cervical tissue.
- Not indicated if no cervical tissue present.
- Transmasculine persons are less likely to be up to date on cervical cancer screenings.
- Must notify the laboratory that the sample being provided is indeed a cervical pap smear.
- The use of testosterone or presence of amenorrhea should be indicated on the requisition.

http://transhealth.ucsf.edu/trans?page=guidelines-physical-examination
Tucking/Binding

• Skin breakdown
• Tucking of testes/penis
  – Hernias
  – External inguinal ring complications
  – Perineal skin breakdown
  – Abnormal CT findings
Breast Cancer Screening

• “Screening mammography should be performed every 2 years, once the age of 50 and 5-10 years of feminizing hormone use criteria have been met. Providers and patients should engage in discussions that include the risks of overscreening and an assessment of individual risk factors.”

http://transhealth.ucsf.edu/trans?page=guidelines-breast-cancer-women/
Hormonal Therapy
Overview of transgender health care issues

Goals of treatment:
1. Safely reduce endogenous sex hormones

Slide courtesy of Meghan Hayes, NP
Overview of transgender health care issues

Goals of treatment:

2. Safely administer exogenous cross-gender hormones

Slide courtesy of Meghan Hayes, NP
Overview of transgender health care issues

**hormones**

Goals of treatment:

3. Achieve desired secondary sex characteristics

**TABLE 14.** Feminizing effects in MTF transsexual persons

<table>
<thead>
<tr>
<th>Effect</th>
<th>Onset(^a)</th>
<th>Maximum(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redistribution of body fat</td>
<td>3–6 months</td>
<td>2–3 yr</td>
</tr>
<tr>
<td>Decrease in muscle mass and strength</td>
<td>3–6 months</td>
<td>1–2 yr</td>
</tr>
<tr>
<td>Softening of skin/decreased oiliness</td>
<td>3–6 months</td>
<td>Unknown</td>
</tr>
<tr>
<td>Decreased libido</td>
<td>1–3 months</td>
<td>3–6 months</td>
</tr>
<tr>
<td>Decreased spontaneous erections</td>
<td>1–3 months</td>
<td>3–6 months</td>
</tr>
<tr>
<td>Male sexual dysfunction</td>
<td>Variable</td>
<td>Variable</td>
</tr>
<tr>
<td>Breast growth</td>
<td>3–6 months</td>
<td>2–3 yr</td>
</tr>
<tr>
<td>Decreased testicular volume</td>
<td>3–6 months</td>
<td>2–3 yr</td>
</tr>
<tr>
<td>Decreased sperm production</td>
<td>Unknown</td>
<td>&gt;3 yr</td>
</tr>
<tr>
<td>Decreased terminal hair growth</td>
<td>6–12 months</td>
<td>&gt;3 yr(^b)</td>
</tr>
<tr>
<td>Scalp hair</td>
<td>No regrowth</td>
<td></td>
</tr>
<tr>
<td>Voice changes</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Estimates represent clinical observations. See Refs. 81, 92, and 93.

\(^b\) Complete removal of male sexual hair requires electrolysis, or laser treatment, or both.

\(^c\) Familial scalp hair loss may occur if estrogens are stopped.

\(^d\) Treatment by speech pathologists for voice training is most effective.

(Hembree et al., 2009, p. 3145)

Slide courtesy of Meghan Hayes, NP
Overview of transgender health care issues hormones

“To date, no controlled clinical trials of any feminizing/masculinizing hormone regimen have been conducted to evaluate safety or efficacy in producing physical transition” (WPATH, 2012, p. 47)
Hormone Therapy

- Analysis of 28 studies; 1093 MTF, 801 FTM
- 80% reported significant improvement in gender dysphoria
- 78% reported significant improvement in psychological symptoms
- 80% reported significant improvement in quality of life
- 72% reported improvement in sexual function

Murad Clin Endocrinol 2010
Informed Consent

- Hormone therapy may lead to irreversible physical changes
- Document in medical record that all information about risks/benefits have been explained, including impact on reproductive capacity

Hormone Therapy- Feminizing Rx

• Body fat redistribution, decreased muscle mass, softening of skin
• Enlarged breasts
• Decreased libido/spontaneous erections
• Male sexual dysfunction, decreased sperm production/testicular volume
• Thinning of body and facial hair
• *Hormones will not effect pitch of voice.
• *Breast size generally not reversible.

Standards for Hormone Therapy

- World Professional Association for Transgender Health (WPATH) 2012
- Endocrine Society Clinical Practice Guidelines 2009
- NEJM Review 2011
- Tom Waddell Health Center Protocols
- Fenway Community Health Clinic
<table>
<thead>
<tr>
<th>Method</th>
<th>Endocrine Society</th>
<th>Tom Waddell</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testosterone undecanoate</td>
<td>Dose 160-240 mg/d</td>
<td>Dose</td>
</tr>
<tr>
<td><strong>Parenteral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testosterone cypionate</td>
<td>Dose 100-200mg IM q 2 wk</td>
<td>Dose 100-400mg IM q2-4wk</td>
</tr>
<tr>
<td>Testosterone undecanoate</td>
<td>Dose 1000 mg IM q12 wks</td>
<td></td>
</tr>
<tr>
<td><strong>Transdermal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testosterone gel 1%</td>
<td>Dose 2.5-10 g/d</td>
<td>Apply daily</td>
</tr>
<tr>
<td>Testosterone patch</td>
<td>Dose 2.5-7.5 mg/d</td>
<td>2.5mg patch, 1-2 per day</td>
</tr>
</tbody>
</table>

Hembree J Endocrin Metab, 2009
http://www.sfdph.org/dph/comupg/oservices/medSvs/hlthCtrs/TransGendprotocols122006.pdf
MTF Hormone Therapy

• Anti-androgen therapy + estrogen
• Anti-androgens reduce endogenous testosterone levels down to levels found in biologic females
• Anti-androgens:
  – Spironolactone/Finasteride
  – GnRH Agonists (goserelin acetate)
  – Bilateral orchiectomy

Hembree J Endocrin Metab, 2009
http://www.sfdph.org/dph/comupg/oservices/medSvs/hlthCtrs/TransGendprotocols122006.pdf
Estrogen Therapy

- Nonprescription use, inquire about illicit use
- Ethinyl estradiol not recommended-associated with 3x increased risk for CV event
- Response is variable
- Stop estrogens prior to major surgery, resume 1 week after
- Consider adding ASA for smokers, >40, obese, cardiac risk factors

http://www.sfdph.org/dph/comupg/oservices/medSvs/hlthCtrs/TransGendprotocols122006.pdf
# MTF- Estrogen

<table>
<thead>
<tr>
<th>Route</th>
<th>Endocrine Society</th>
<th>Tom Waddell</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estradiol</td>
<td>2.0-6.0mg/d</td>
<td>Starting: 2-3mg/d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typical: 4mg/d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max: 8mg/d</td>
</tr>
<tr>
<td><strong>Parenteral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estradiol valerate</td>
<td>2-10mg IM q week</td>
<td>Starting: 20-40mg IM q2wks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typical: 40mg IM q2 wks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max: 40-80mg IM q 2 wks</td>
</tr>
<tr>
<td><strong>Transdermal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estradiol patch</td>
<td>0.1-0.4 mg twice weekly</td>
<td>Starting: 0.1-0.2mg/d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typical: 0.2-0.3mg/d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max: 0.3mg/d</td>
</tr>
</tbody>
</table>

Hembree J Endocrin Metab, 2009

http://www.sfdph.org/dph/comupg/oservices/medSvs/hlthCtrs/TransGendprotocols122006.pdf
Drug Interactions with ART?

- Not much data- thought to be safe!
- Most interactions between PI and estrogens decrease estrogen level
- If estrogen is continued but PI’s are stopped, can lead to sudden increase in estrogen levels and increased risk of adverse events
- Hormonal contraception does not effect PrEP efficacy in cisgender women
- Watch for TMP/SMX and spironolactone-hyperK!

HIV and STIs in Transgender Populations, IDWeek 2016, Dr. Kevin ARD
National LGBT Health Education Center Oct 2016
Surgery
Surgery

• Should not be done until:
  - Patient is of legal age
  - Patient has lived continuously for at least 12 months in gender role
• Chest surgery for FTM can be done earlier
• After surgery, hormonal therapy must continue

Surgery

- Letter required from mental health professional
- 1 referral for breast/chest surgery
- 2 referrals for TAH/BSO, orchiectomy, genital reconstructive surgeries
- Criteria for letter laid out in WPATH guidelines
- Often not an option

MTF SRS

- Penectomy
- Orchiectomy
- Construction of neovagina
- Penile skin/colon for vaginal lining
- Scrotal skin for labia

Gooren, NEJM 364;13, 2011
FTM SRS

- TAH/BSO
- Mastectomy
- Metoidioplasty or Phalloplasty
- Vaginectomy
- Scrotoplasty

Gooren, NEJM 364;13, 2011
SRS

• Medicare as of May 2014 will cover SRS
• 9 state Medicaid programs cover transgender related health care to some extent
• No more than 10 surgeons nationwide perform vaginoplasties, and that fewer than six perform both male-to-female and female-to-male genital surgery

Sontag Nytimes.com Dec 17, 2015
How can we help?

• Support! Act as an ally/advocate for our patients.
• Address the risk of verbal and physical assault
• Help with emotional challenges related to disclosing gender identity
• Discussing medical options for gender affirmation (e.g., hormone therapy).
• Offer appropriate clinical care based on a person’s anatomy regardless of gender identity (e.g., Pap tests for a transgender man who has a cervix).
• We need a National Trans Continuum of Care.

Schuster NEJM 2016
Improving Care

• Make health care settings welcoming for transgender patients!
• Use correct names/pronouns and reflect in EMR when possible.
• Train ALL staff- including front desk.
• For researchers, avoid lumping MSM and transgender individuals into a single group.
• Include nonbinary/nonconforming individuals!
Conclusion

• Transwomen are at dramatically increased risk for HIV infection
• Physical exams may be traumatic but appropriate health maintenance should be goal
• ART and Hormone therapy are likely safe and there may be benefits to providing both together
• We can always strive to do better and provide compassionate care
Questions?
• Thank you!
And now for... TransCare Bingo!

• Rules:
• First to 5 in a row wins!
• Answers must be correct...
• This is all in good fun 😊
#1

- This test is indicated for transwomen with breast tissue who have received hormone therapy for 5 years or more.
#2

- Considered by many to be the Gold Standard for Trans-related health care.
#3

• The odds of HIV infection for transwomen is __ times higher than the general population.
• In one study, the community HIV viral load for trans individuals living with HIV was ___ times higher than cisgender individuals with HIV.
#5

- Health care providers should screen for _____ at each clinic visit.
- (Two possible correct answers)
#6

• As of May 2014, _____ will now cover sexual reassignment surgery.
#7

- Screening for off-label silicone injection can be an example of _____________. 
#8

- Hormone therapy will not affect _______.

• Risks for cardiovascular complications with estrogen therapy are increased with ____ use.
#10

- Star of Orange is the New Black.
#11

- Nearly ____% of transgender adults experienced harassment in a medical setting according to one study.
#12

• A super informative conference for all things Trans-empowering.
#13

- A term to describe an individual whose self-identity conforms with the gender that corresponds to their biological sex.
• Shown to improve mental and sexual health of those who are prescribed this.
#15

- Not recommended for hormone therapy for cross-sex purposes, ______ is associated with a 3x increased risk for cardiovascular events.
A television show starring Jeffrey Tambor transitioning.
Electronic health records can help improve the care of transgender patients by including the patient’s preferred ______.
#18

- Antiretroviral therapy is not thought to have serious interactions with hormonal therapy, but caution should be used when starting or stopping this class of antiretroviral:
• This surgery, using a pedicled or a free vascularized flap, is a lengthy, multi-stage procedure that can include urinary complications.
#20

- Caring for trans patients is a unique and special _____ for medical providers.
Compared with MSM, transwomen living with HIV are less likely to achieve ____.
#22

- Harm reduction may include screening for _____ use, which could lead to ARDS or disseminated S. aureus infections.
• Thank you!
<table>
<thead>
<tr>
<th>Table 1. Diagnostic Criteria for Gender Identity Disorder.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong and persistent cross-sex identification (not merely a desire for any perceived cultural advantages of being the other sex)</td>
</tr>
<tr>
<td>Children (at least four criteria must be met)</td>
</tr>
<tr>
<td>Repeatedly stated desire to be a member of the other sex or insistence on actually being a member of the other sex</td>
</tr>
<tr>
<td>In boys, preference for cross-dressing or simulating female attire; in girls, insistence on wearing only stereotypically masculine clothing</td>
</tr>
<tr>
<td>Strong and persistent preferences for cross-sex roles in make-believe play or persistent fantasies of being a member of the other sex</td>
</tr>
<tr>
<td>Intense desire to participate in the stereotypical games and pastimes of the other sex</td>
</tr>
<tr>
<td>Strong preference for playmates of the other sex</td>
</tr>
<tr>
<td>Adolescents and adults (at least one criterion must be met)</td>
</tr>
<tr>
<td>Stated desire to be of the other sex</td>
</tr>
<tr>
<td>Frequent attempts to pass as the other sex</td>
</tr>
<tr>
<td>Desire to live or be treated as the other sex lives or is treated</td>
</tr>
<tr>
<td>Conviction of having the typical feelings and reactions of the other sex</td>
</tr>
<tr>
<td>Discomfort with original sex or sense of inappropriateness in the role of that sex</td>
</tr>
<tr>
<td>Children (at least one criterion must be met)</td>
</tr>
<tr>
<td>In boys, assertion that penis or testes are disgusting or will disappear, assertion that it would be better not to have a penis, or aversion to rough-and-tumble play and rejection of male stereotypical toys, games, and activities; in girls, rejection of urinating in a sitting position, assertion that she has or will have a penis, assertion that she does not want to have breasts or menstruate, or marked aversion to normative feminine clothing</td>
</tr>
<tr>
<td>Adolescents and adults (at least one criterion must be met)</td>
</tr>
<tr>
<td>Preoccupation with getting rid of primary and secondary sex characteristics (e.g., request for hormones, surgery, or other procedures to physically alter sexual characteristics and simulate the other sex) or belief in having been born with the wrong sex</td>
</tr>
<tr>
<td>No concurrent physical intersex condition</td>
</tr>
<tr>
<td>Clinically significant distress or impairment in social, occupational, or other important areas of functioning</td>
</tr>
</tbody>
</table>

* These criteria were adapted from the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) (fourth edition, text revision).*
Risks of Hormone Rx- Mortality

- 966 MTF and 365 FTM individuals
- Median f/u 18.5 years
- MTF received estrogens + cyproterone acetate
- FTM parenteral/oral testosterone or testosterone gel

Asscheman, European Journal of Endocrinology (2011) 164 635–642
Risks of Hormone Rx- Mortality

• MTF group had 51% higher mortality than general population
  – Suicide, HIV/AIDS, cardiovascular disease, drug abuse
  – No increase in total cancer mortality
    • Lung and hematological cancer mortality rates were elevated
  – Current ethinyl estradiol use 3x higher rate CV death
• FTM group no difference in mortality from general population

Asscheman, European Journal of Endocrinology (2011) 164 635–642
Risks- Feminizing Therapy

• VTE- 20 fold increase in one cohort
  – Ethinyl estradiol (OCP’s)

• Higher with oral estrogens, lowest with transdermal
  – Age, smoking status increase risk

• Androgen deprivation + estrogen therapy increased triglyceride levels, insulin resistance, blood pressure

Gooren NEJM 2011
Risks- Masculinizing Therapy

• 712 FTM from 1975 to 2004
• Average dose 250mg IM q 2-3 weeks

• Benefits/Observations
  – Virilization of clitoris, skin
  – Ovaries appeared polycystic
  – Bone mass preserved
  – Spatial ability improved

• Risks
  – Verbal fluency diminished
  – Hct increased
  – Weight, visceral fat increased
  – Lipid profile changes

Gooren, J Sex Med 2008;5:765–776
POLICY BRIEF

TRANSGENDER PEOPLE AND HIV

JULY 2015

World Health Organization