

Medical Basics for Trans and Gender Expansive Youth



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Disclosures



- No financial interests
- The medications discussed are off-label using national and international guidelines



Objectives

1. Recall the importance of **collaborative care** between medical and mental health providers in caring for transgender and gender expansive youth
2. Describe the mechanism of **Puberty Blockers** (GnRH agonists)
3. Describe the **Tanner Stages** of Puberty and the **timing** of administration of Puberty Blockers
4. Identify the **hormones** used in gender transition, reversible and permanent effects and the informed consent process
5. Describe basics of surgical considerations for adolescents
6. Recognize the **individualized approach** to administration of cross hormones for transgender and gender expansive youth, taking into account care setting (university/research vs community)

MAKING A MAN | THE SCIENCE OF GENDER | GIRLS AT RISK

NATIONAL GEOGRAPHIC

SPECIAL ISSUE

GENDER REVOLUTION

"The best thing about being a girl is,
now I don't have to pretend
to be a boy."

JANUARY 2017

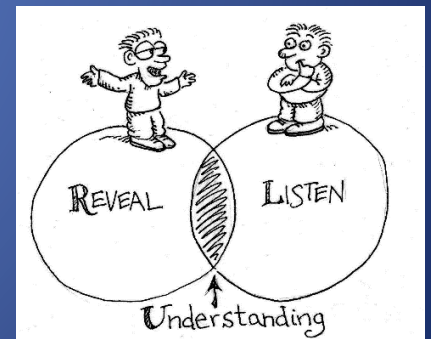
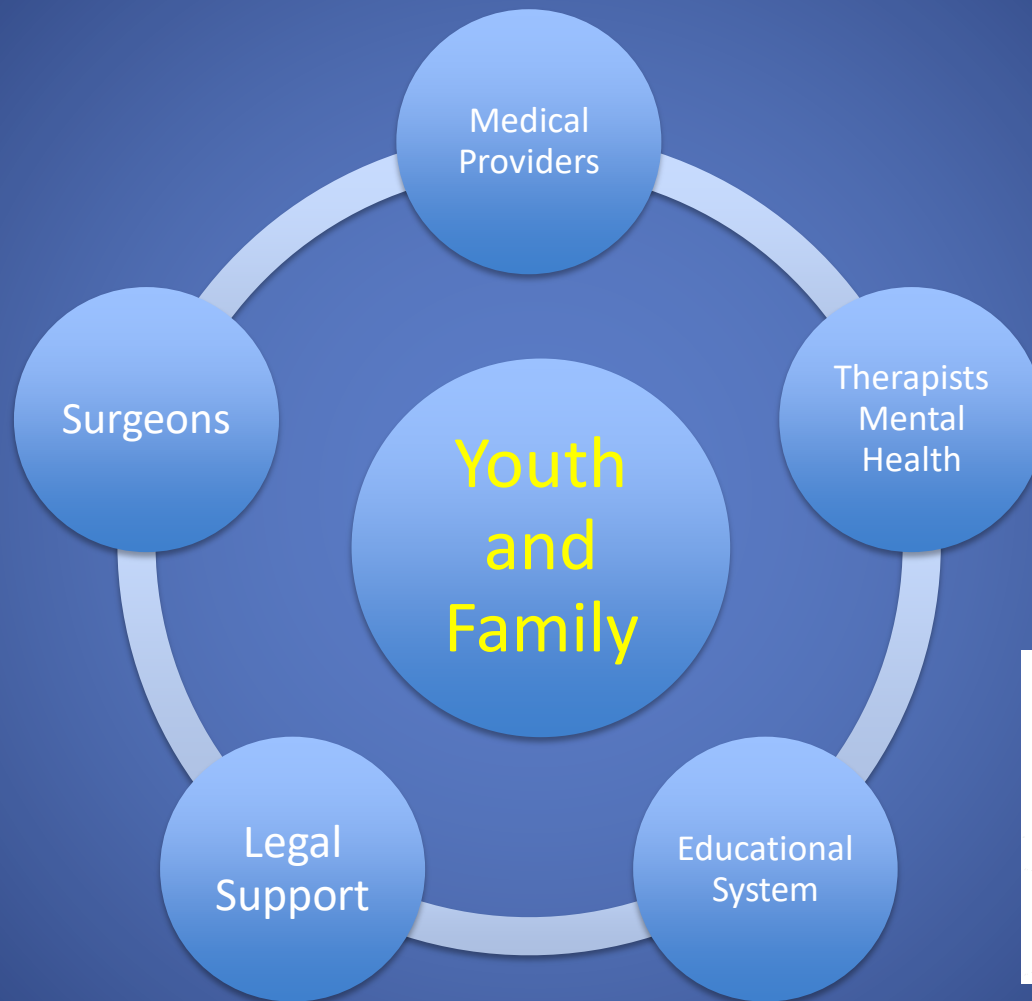
What We Know: Family Acceptance Saves Lives



- Higher rates of family rejection = poor outcomes in LGBT kids
 - **8.4x increased attempted suicide**
 - 5.9x increased depression
 - 3.4x more likely to use illegal drugs
 - 3.4x more likely to engage in unprotected sex
- Family Acceptance Project shows that LGBT kids do better with even small amounts of acceptance

Ryan, C., Huebner, D. et al. "Family Rejection as a predictor of negative health outcomes in white and Latino lesbian, gay, and bisexual young adults." *Pediatrics* 123/1 (2009): 346-352.

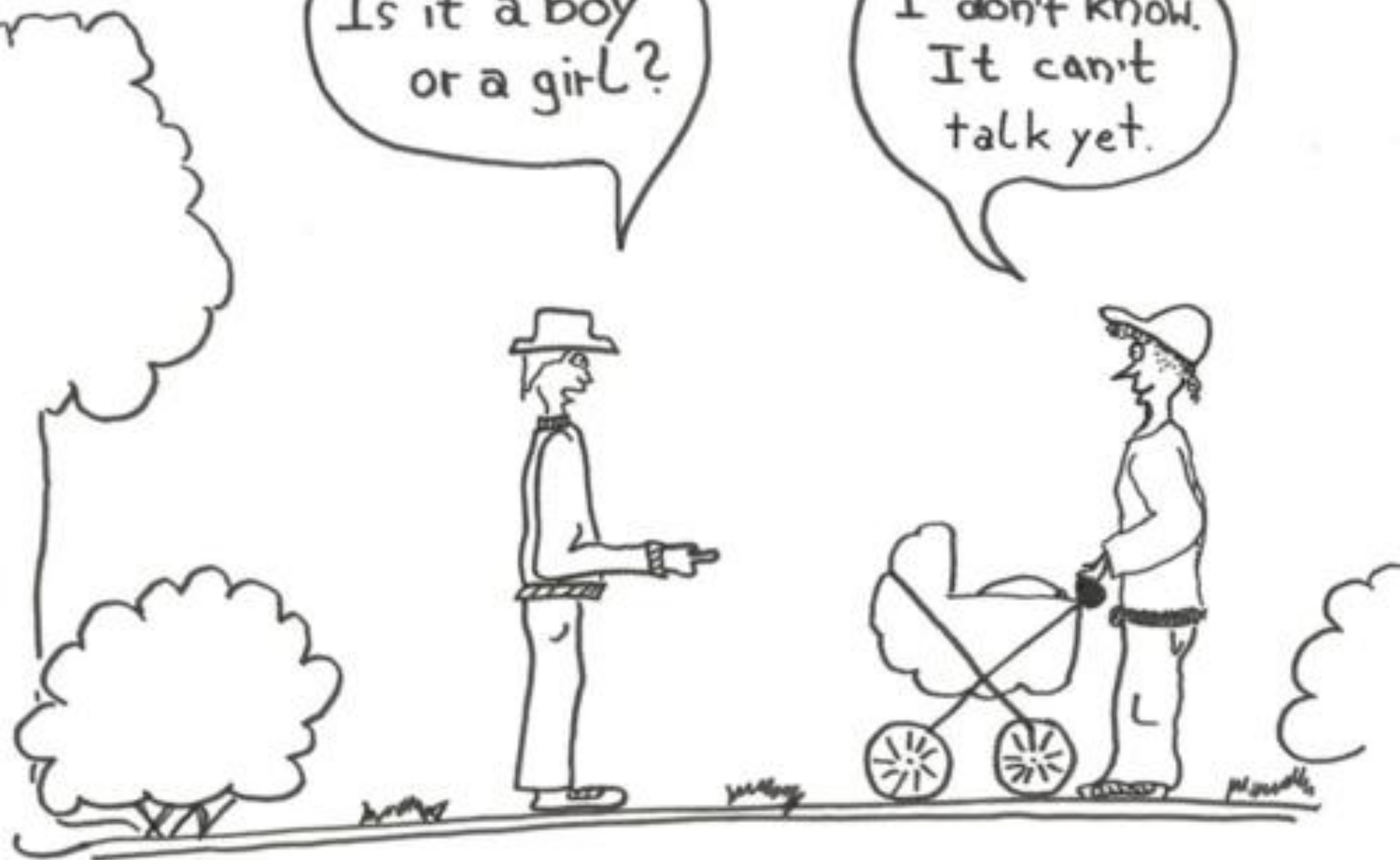
Patient Centered Collaborative Care



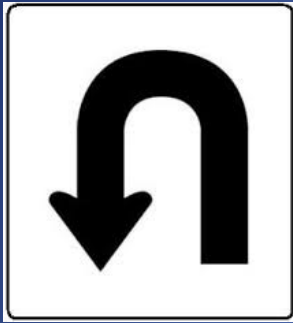
Mental Health, Medical, Legal Educational: working together with youth and family

Is it a boy
or a girl?

I don't know.
It can't
talk yet.



Medical Transition for Youth: WPATH Guidelines



Reversible: pre and peri-puberty

- social transition (clothes, haircut, name)
- puberty blockers/GnRH agonists



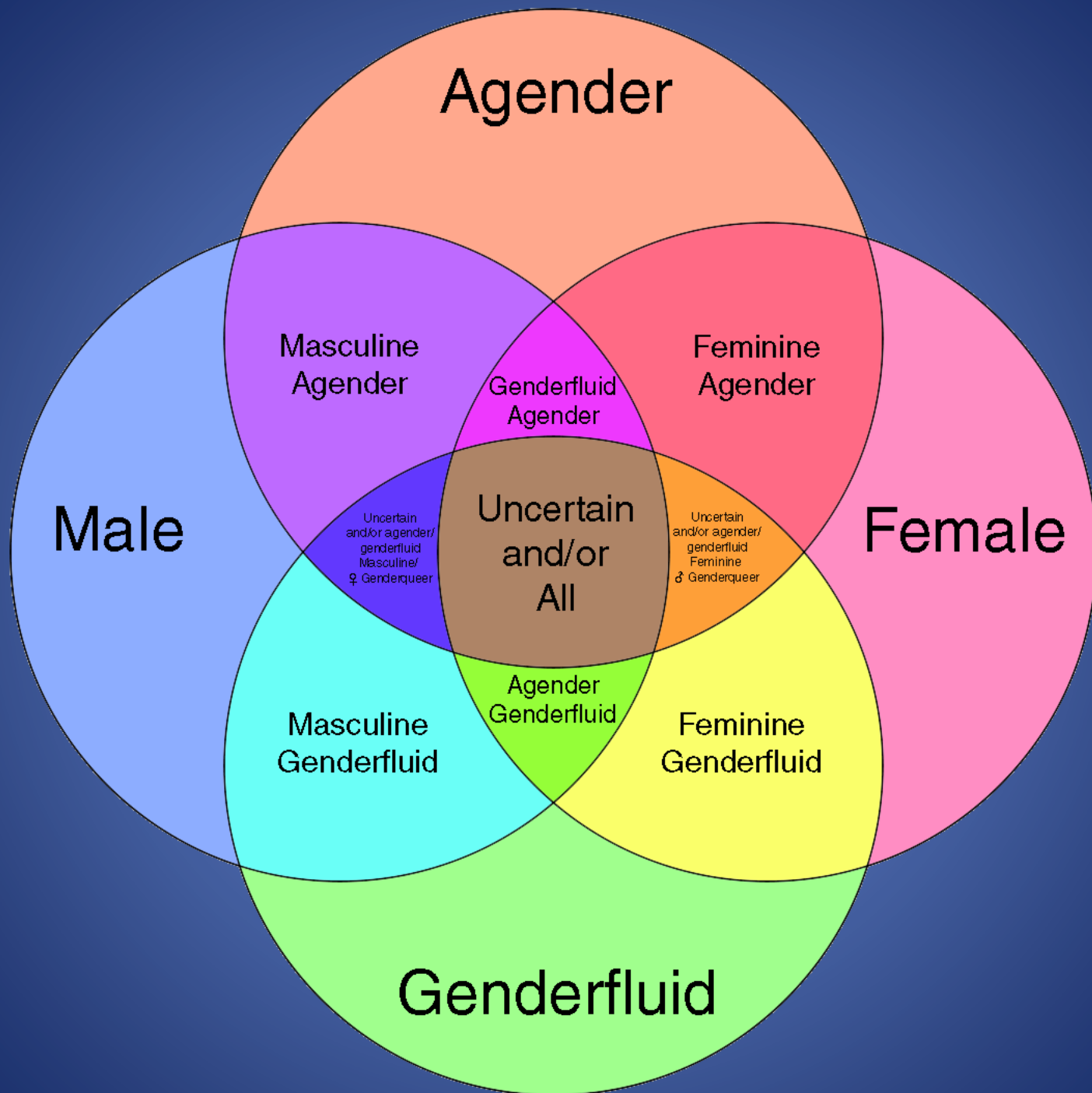
Partially reversible: puberty

- Masculinizing and feminizing cross sex hormones
- Timing individualized



Irreversible: late puberty to adult

- some hormonal effects
- surgery for gender affirmation
- Timing individualized



Gender Affirming Transition

Psychological Transition

Adjusting to changes in thinking, emotions, behavior, and relationships resulting from mental shift of accepting **one's gender identity**

Social Transition

Coming out to people in your life as transgender, letting people know that you identify as male/female/other, letting people know that you have a new name, etc.

Legal Transition

Changing the name and gender on identity documents such as your Birth Certificate, DMV ID, Passport, Social Security Card, etc.

Medical Transition

Accessing transition related health treatments such as hormone therapy, surgery, etc.

BUILD YOUR OWN TRANSITION PATH

CAREFULLY CUT OUT EACH BLOCK



ARRANGE BLOCKS IN DESIRED ORDER

(ADD OR REMOVE BLOCKS AS DESIRED)



Pubertal Suppression



Puberty can be a **CRISIS**

- Physical changes are traumatizing
- Increase in anxiety, depression
- Social isolation and self harm common
- High suicide risk






Use of hormone blockers for pubertal suppression can be very helpful for teen and family

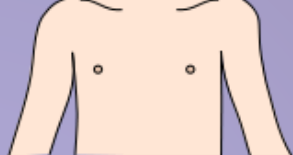














Blocking Puberty

- Puberty Blockers
 - Are a pause button on puberty
 - Injection every several months or yearly implant
 - Safe- used for precocious puberty since 1970s
 - If stopped, puberty resumes in 3-6 months
 - Can be started at early puberty: Tanner II



Tanner Staging

I		3 ↕ <2,5
II		4 ↕ 2,5-3,2
III		10 ↕ 3,6
IV		16 ↕ 4,1-4,5
V		25 ↕ >4,5

I			
II			
III			
IV			
V			

Puberty and Blocking Puberty

Puberty Blockers = “GnRH” analogues

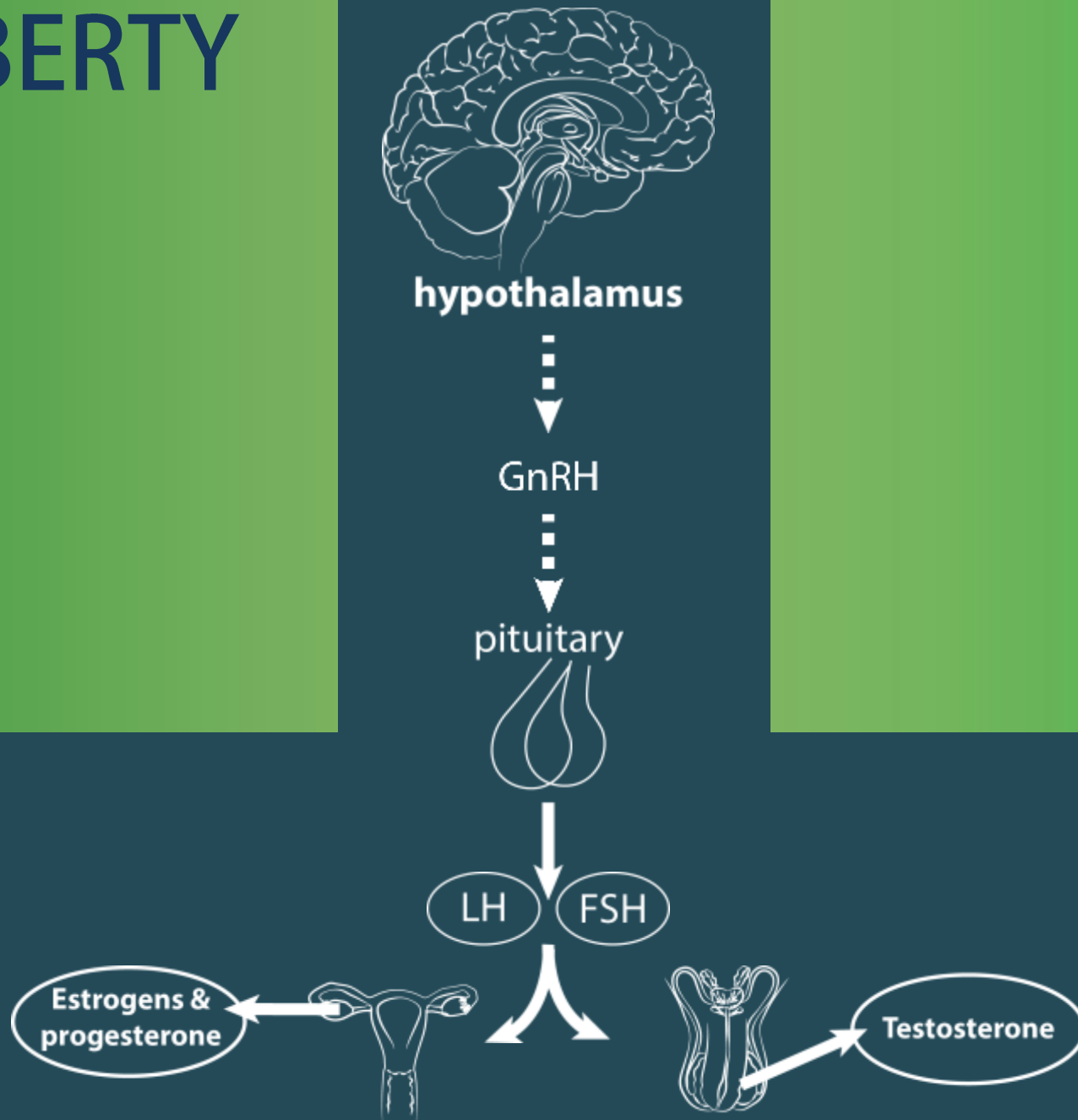
Gonadatropin **R**eleasing **H**ormone

Gonads = ovaries, testicles

Gametes = eggs, sperm



PUBERTY



HOW DO BLOCKERS WORK ?



hypothalamus



GnRH agonist



pituitary



No production of
estrogen &
progesterone



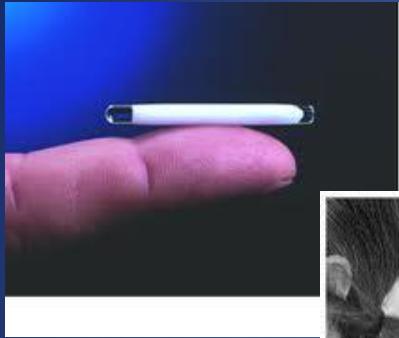
LH FSH



No production of
testosterone



Puberty Blockers are...



Histrelin

- Implant in upper arm
- Yearly or every other year
- \$3,000 Vantas- \$18,000 Supprelin

Leuprolide Acetate

(Lupron IM or Eligard subcutaneous)

- Monthly Injection \$1.5- \$3000/year
- 3 Month Injection \$2-\$6000/year
- 4 Month Injection \$1500-\$5000/year



Advantages of Puberty Blockers

- Allows time for exploration of gender identity
- Prevents the development of secondary sex characteristics (Adam's apple, facial hair, breasts) that are traumatizing
- Prevents the need for surgeries and procedures
- Improved self esteem, functioning, less distress
- Lower doses of cross hormones if stay on blocker

Puberty Blockers: **Avoid Later Surgery**



Nicole (RMAB Wyatt), and identical twin brother, Jonas. Nicole started blockers at Tanner II

Disadvantages of Puberty Blockers

- Expensive (improvements with insurance/ACA)
- Bone density concerns (if on for more than ~2 yrs)
 - our bones require a sex hormone for strength
 - studies in process re regaining bone density after puberty blockers
 - consider addressing by starting cross hormones sooner
- Fertility issues
 - egg and sperm do not mature when puberty blocked
 - research freezing immature tissue, mature in vitro
- Initial surge in hormone level (menses, depression)
- Associations with weight gain, depression, mood issues, pain or complications with injection site.

When is the right time to start hormones?



Timing of Hormones



- Timing of adding cross hormone individualized
- Consideration of bone density if on blockers
- Consideration of fusion of growth plates, height
- Rising consensus that age 16 is too late to begin cross hormones (now acknowledged in Guidelines)
- Peer concordance is important
- Balancing of social/family issues with medical issues

Initiating Hormones

1. Assess for pre-existing medical and mental health conditions

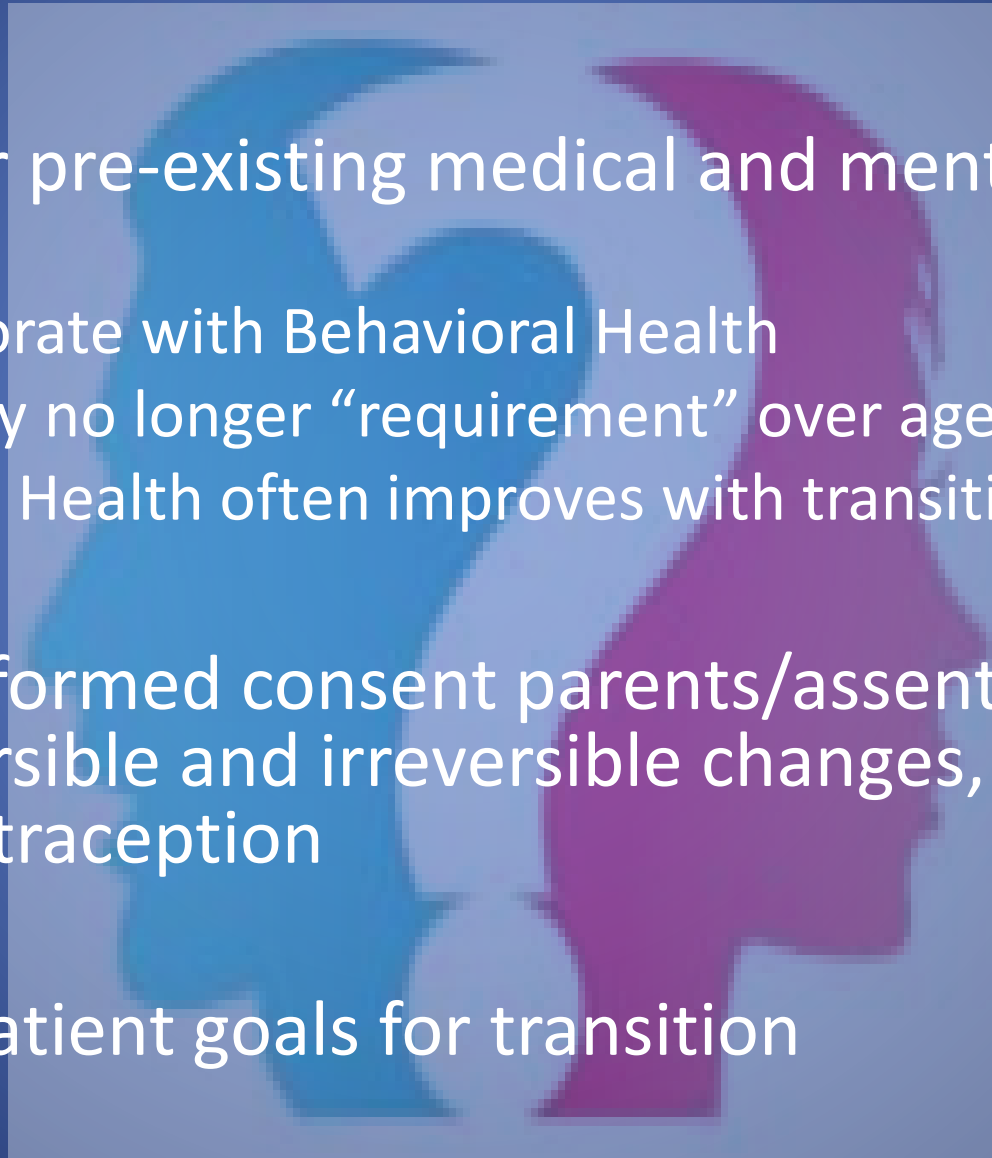
Collaborate with Behavioral Health

Therapy no longer “requirement” over age of 18

Mental Health often improves with transition

2. Obtain informed consent parents/assent youth: review reversible and irreversible changes, review fertility/contraception

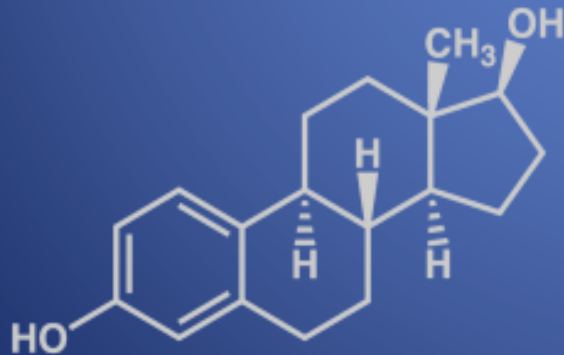
3. Discuss patient goals for transition



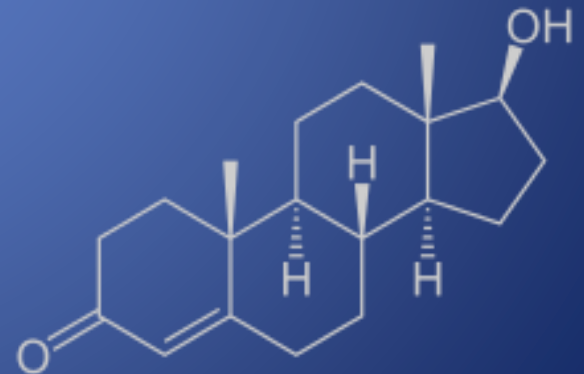
Cross sex hormones

Testosterone and Estrogen

- Masculinize or feminize
- Improve body image, self-esteem
- Decrease gender dysphoria
- Diminish anxiety, depression
- Decrease high risk behaviors



estrogen



testosterone

Overview of Hormones



Trans* female spectrum:

Rx to feminize, overcome testosterone

ESTROGEN: IM, patch, cream, or oral formulation taken as sublingual; 17 B estradiol NOT ethinyl estradiol

ANTI-ANDROGEN: spironolactone, finasteride

PROGESTERONE: historically not always used

Trans* male spectrum:

Rx to masculinize

TESTOSTERONE: IM/subcutaneous most common
vs gel, patch, pellet; never oral (although used in Europe)

Slow titration to PHYSIOLOGIC LEVELS: desired physical response



Trans* feminine



Estrogen and anti-androgen, progesterone

Feminization, a slow process...

What are the patient's goals?

What about genetics?

Feminizing Effects of Estrogen

After Testosterone Puberty

Effects Depend on Dose, Route, Genetics

Action	Onset	Max
↓ libido, ↓ erections	1–3 mo	3–6 mo
↓ testicular volume	25% 1 yr	50% 2–3 yr
↓ sperm production	?	?
Breast growth	3–6 mo	2–3 yr
Body fat redistribution	3–6 mo	2–3 yr
↓ muscle mass	1 yr	1–2 yr
Softens skin	3–6 mo	?
↓ terminal hair	6–12 mo	> 3 yr
No change in voice		

Informed Consent: Effects of Estrogen for those who have gone through testosterone puberty

Irreversible

breast development (can slightly decrease with cessation of hormones)

Somewhat reversible

testicular atrophy can reverse, unknown effect on sperm viability, fertility; trans women have contributed to pregnancy

Reversible

decreased libido, fat/muscle changes and redistribution



Cannot reverse permanent effects of “testosterone puberty”

Future fertility possible if testosterone puberty

Informed Consent – Estrogen and Spironolactone



Being aware of rare risks in context of benefits

Blood Clots

Liver/Gallbladder (rare)

High Prolactin (rare)

Weight gain

Lipid changes

Increase BP (rare)

Risks of Spironolactone: high K, low BP

Additional Body support for Trans Girls

- Tucking:
 - Pushing testicles into each inguinal canal, and penis between legs so pubis is flat
 - Tape or “gaff” (tight thong) or panty hose top
 - Risks: pain, N/V, skin irritation, dysuria
 - Recommend: remove when urinating and at night
 - Many use duck tape
 - Recommend medical tape
- Padding:
 - Breast forms of soft silicone gel
 - Padded bras
 - Padded underwear to accentuate hips/buttocks





Trans* masculine

Testosterone

Intramuscular, subcutaneous, topical

What are patient's goals?



Effects of Masculinizing Hormones

After Estrogen Puberty

Effects Depend on Dose, Route, Genetics

Action	Onset	Max
Male pattern facial/body hair	6–12 mo	4–5 yrs
Acne	1–6 mo	1–2 yrs
Voice deepening	1–3 mo	1–2 yrs
Clitoromegaly	3–6 mo	1–2 yrs
Vaginal atrophy	2–6 mo	1–2 yrs
Amenorrhea	2–6 mo	
Emotional changes/ ↑ libido		
Increased muscle mass	6–12 mo	2–5 yrs
Fat distribution	1–6 mo	2–5 yrs

Informed Consent: Testosterone effects for bodies that have undergone estrogen puberty

Reversible

- Cessation of menses
- Increase in libido
- Fat/muscle distribution

Irreversible

- Thickening of vocal chords
- Facial and body hair
- Adam's apple
- Male-pattern balding
- Clitoral enlargement

Future fertility possible if estrogen puberty

Testosterone is not contraception

Cannot reverse permanent effects of estrogen puberty

Informed Consent:

discuss risks in context of benefits

- Weight gain
- Male pattern baldness
- RBC increase (usually normal cis male range)
- Acne
- Lipid changes (not universal)
- Rare liver dysfunction (not seen with non oral)
- Blood pressure increase (rare)



Additional Body Support for Trans Boys

- Binders:
 - Compression garments for chest
 - Avoid compression bandages, duct tape, saran wrap
 - Recommend: remove at night
- Packing and STP:
 - Penile prosthesis
 - Dildo
 - Un-lubricated condom filled with hair gel
 - Stand to Pee Devices





Gender Spectrum

Non Binary/Gender Fluid



Neutrois.me

Non binary medical transition



- There is no “non binary” hormone at this time
- Need a hormone for bone strength
- Can stop and start hormones with support
- Low dose hormones
- Conversation about goals and possibility



Cross Gender Hormones

Monitoring every 3-12 months

- Estrogen

- Serum estradiol/testosterone
- Physical exam or discussion to follow body changes
- Consider lipid panel

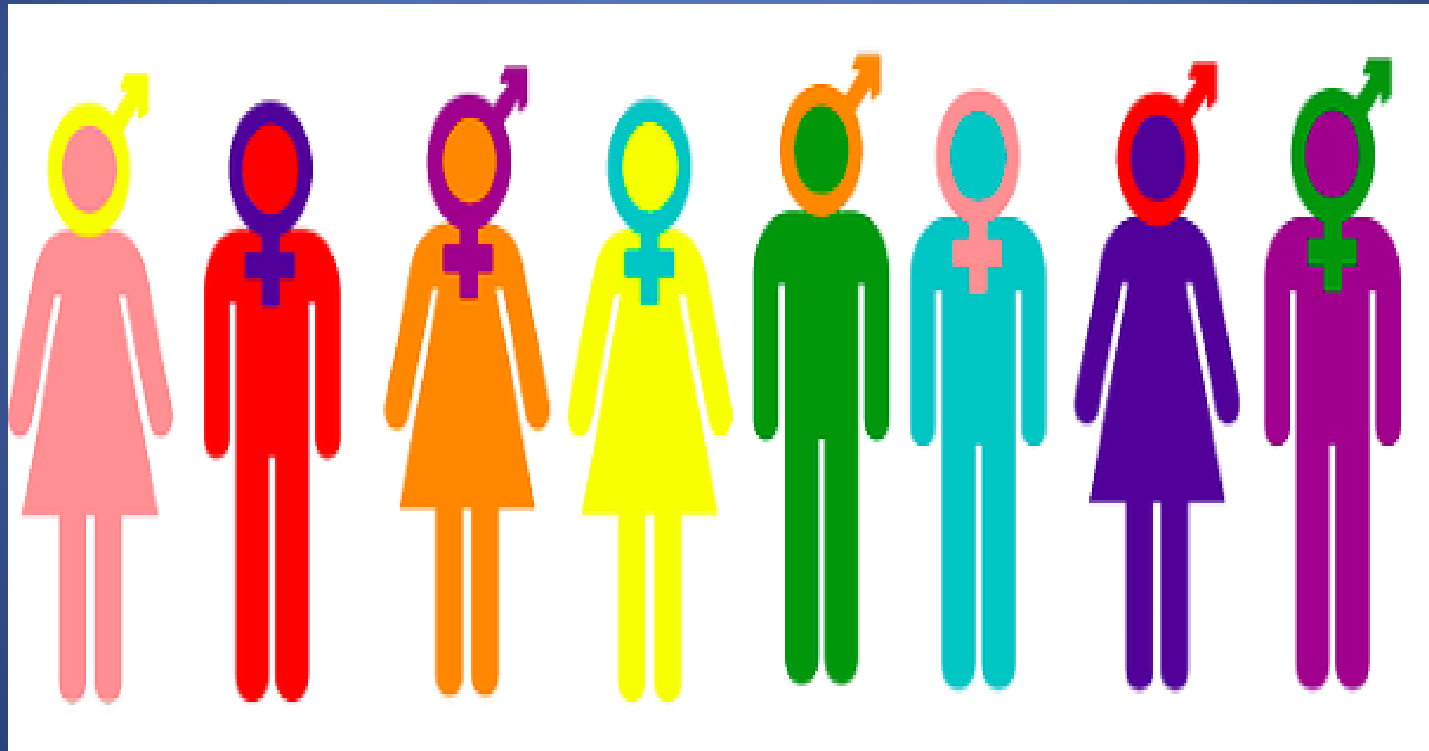
- Spironolactone

- blood pressure
- potassium

Testosterone

- Testosterone level
- Hemoglobin
- Blood pressure
- Physical exam or discussion to follow body changes
- Consider lipid panel

Surgeries



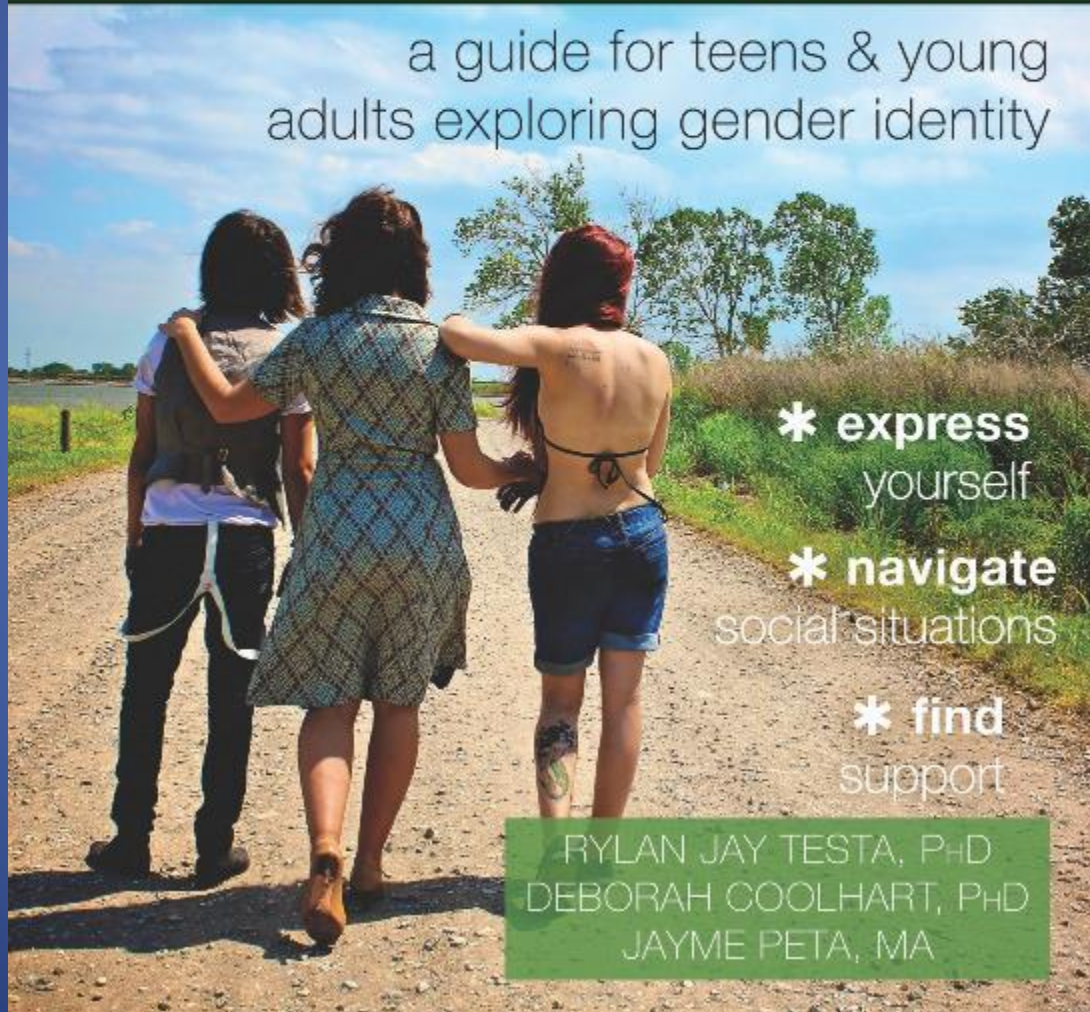
Surgery

The image features a pair of rich red theater curtains. The top of the curtains is gathered into a decorative valance. The main body of the curtains consists of deep vertical pleats. On the left and right sides, the curtains are held back by gold-colored tassels. The word "Surgery" is printed in a white, sans-serif font, centered in the upper portion of the image, superimposed over the top of the curtains.

a n i n s t a n t h e l p b o o k f o r t e e n s

the gender quest workbook

a guide for teens & young
adults exploring gender identity



*** express**
yourself

*** navigate**
social situations

*** find**
support

RYLAN JAY TESTA, PhD
DEBORAH COOLHART, PhD
JAYME PETA, MA

Key Concepts:

- Gender identity often emerges in early childhood
- Family acceptance and support can prevent suicide and distress
- Mental health and medical providers work together to support family and child
- Support and interventions can include:

Before puberty: “social transition”

clothing, hair, name, pronouns

During and after Puberty: social and medical

- hormone blockers
- cross hormones
- surgery

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