Fertility Preservation and Family-Building Options for Transgender People

Evelyn Mok-Lin, MD
Associate Professor
UCSF Department of Obstetrics, Gynecology and Reproductive Sciences
Medical Director
UCSF Center for Reproductive Health

WPATH Reproductive Health SOC7

- *“Health care professionals…should discuss reproductive options with patients prior to initiation of these medical treatments for gender dysphoria.”*

- *“…should not be refused reproductive options for any reason.”*

- *“…prepubertal or pubertal adolescents…At this time there is no technique for preserving function from the gonads of these individuals.”*

WPATH Reproductive Health SOC8

Statements of Recommendations

16.1- We recommend health care professionals who are treating transgender and gender diverse people and prescribing or referring patients for hormone therapies/surgeries advise their patients about:
16.1.a- Known effects of hormone therapies/surgery on future fertility;
16.1.b- Potential effects of therapies that are not well studied and are of unknown reversibility;
16.1.c- Fertility preservation (FP) options (both established and experimental);
16.1.d- Psychosocial implications of infertility.
16.2- We recommend health care professionals refer transgender and gender diverse people interested in fertility preservation to providers with expertise in fertility preservation for further discussion.
16.3- We recommend transgender care teams partner with local reproductive specialists and facilities to provide specific and timely information and fertility preservation services prior to offering medical and surgical interventions that may impact fertility.
16.4- We recommend health care professionals counsel pre- or early-pubertal transgender and gender diverse youth seeking gender-affirming therapy and their families that currently evidence-based/established fertility preservation options are limited.
16.5- We recommend transgender and gender diverse people with a uterus who wish to carry a pregnancy undergo preconception care, prenatal counseling regarding use and cessation of gender-affirming hormones, pregnancy care, labor and delivery, chest/breast feeding supportive services, and postpartum support according to local standards of care in a gender-affirming way.
16.6. We recommend medical providers discuss contraception methods with transgender and gender diverse people who engage in sexual activity that can result in pregnancy.
16.7. We recommend providers who offer pregnancy termination services ensure procedural options are gender-affirming and serve transgender people and those of diverse genders.

WPATH Reproductive Health SOC8

Statement 16.1

We recommend health care professionals who are treating transgender and gender diverse people and prescribing or referring patients for hormone therapies/surgeries advise their patients about:

a. **Known effects of hormone therapies/surgeries on future fertility;**
b. **Potential effects of therapies that are not well studied and are of unknown reversibility;**
c. **Fertility preservation (FP) options (both established and experimental;**
d. **Psychosocial implications of infertility.**

Statement 16.2

We recommend health care professionals refer transgender and gender diverse people interested in fertility preservation to providers with expertise in fertility preservation for further discussion.

Statement 16.4

We recommend health care professionals counsel pre- or early-pubertal transgender and gender diverse youth seeking gender-affirming therapy and their families that currently evidence-based/established fertility preservation options are limited.

Background

- All humans, including transgender individuals, have the reproductive right to decide whether or not to have children (United Nations Population Fund, 2014)

- Fertility is important to transgender men and women
  - Many already have biological children
  - Majority desire future fertility

De Sutter et al. 2002; Auer et al. 2018; Wierckx et al. 2012; Stark et al. 2019; Strang et al. 2018

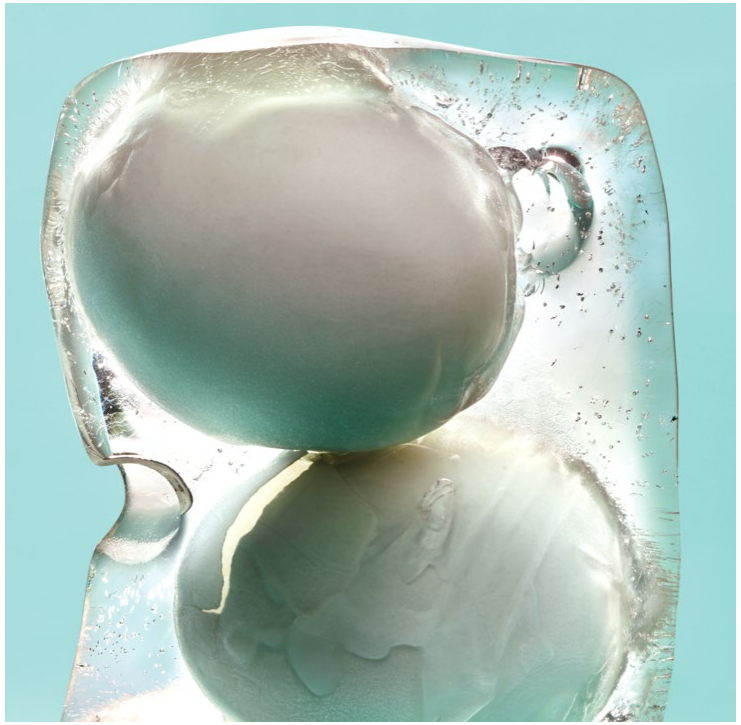
Potential Impact of Gender-Affirming Treatments (GAT) on Future Fertility

1. Are there long-term effects of GAT on:
   - Oocyte (egg) / sperm number?
   - Oocyte quality / overall chances of conception?
   - Future offspring?

2. If so:
   - is it duration- and dose-dependent?
   - is it reversible? If so, in what period of time?

3. Effects of directly transitioning from puberty blockers to gender-affirming hormones?

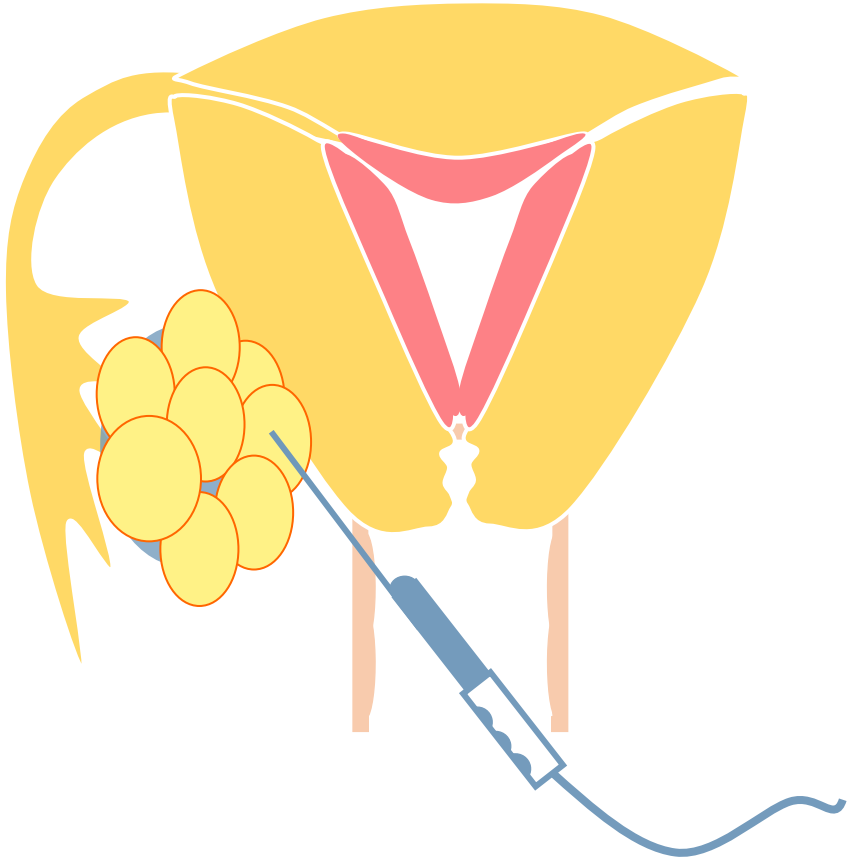
Oocyte or Embryo Cryopreservation



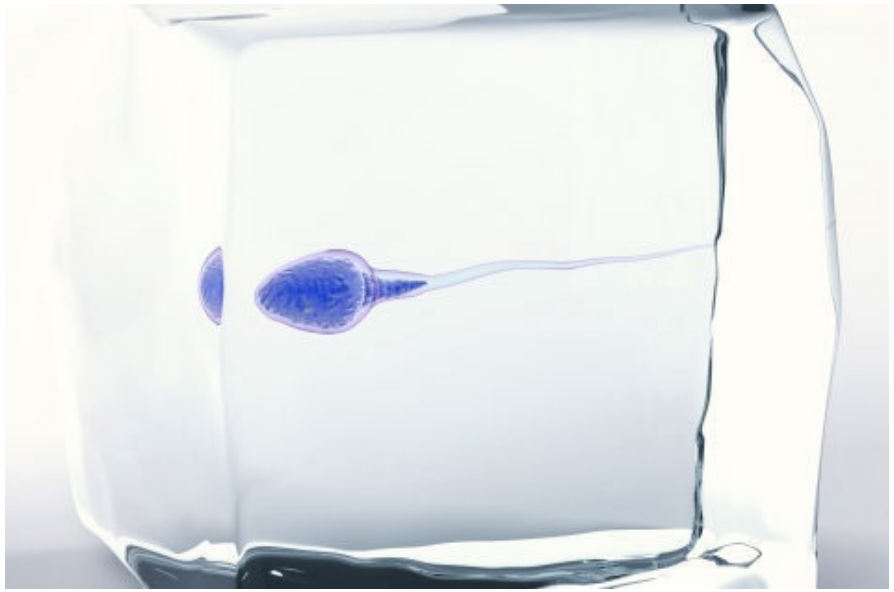
- Gold standard for fertility preservation (FP) in people with ovaries
- Safe and effective with >30 years of data
- Can remain cryopreserved for lengthy period of time
- Cycle can be started immediately and takes 2 weeks to complete
- Ideally done prior to GAT but is possible after testosterone start (limited outcome data)

Oocyte or Embryo Cryopreservation

- Daily, self-administered subcutaneous injections
- 5-6 ultrasounds and blood tests to monitor response
- Oocyte retrieval performed under anesthesia
- < 1% procedure-related risk
- No known long-term risks



Sperm Cryopreservation

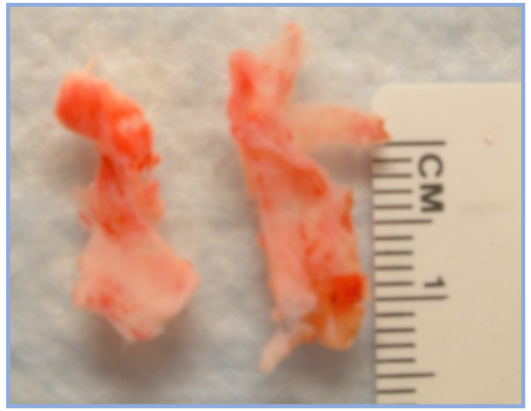


- Gold standard for FP in people with testes
- Safe and effective with >60 years of data
- Can remain cryopreserved for lengthy (indefinite) period of time
- Ejaculated sample can be collected on site or at home
- If unable to ejaculate, alternatives include vibroacoustic or electroejaculation, and surgical sperm extraction

Fertility Preservation for Pre-pubertal Youth

- Limited and mostly experimental at this time

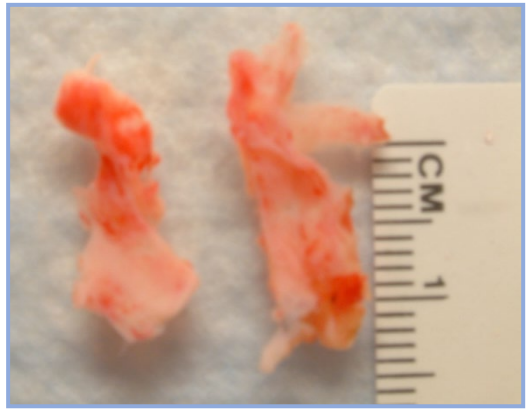
- For people with ovaries:
  1. Oocyte cryopreservation – safe and effective in adults, experimental in this group with total of 8 reported cases thus far
  2. Ovarian tissue cryopreservation (OTC)
     - Does not require hormone injections or time delay to starting GAT
     - Allows for preservation of a large pool of oocytes
     - Requires laparoscopy
     - NOT experimental; however, usage currently limited to re-transplantation into the same person. Ideal future option to extract and grow follicles/oocytes in vitro without need to re-transplant tissue.



Rothenberg et al. 2019; Insogna et al. 2020; Martin et al. 2021

Fertility Preservation for Pre-pubertal Youth

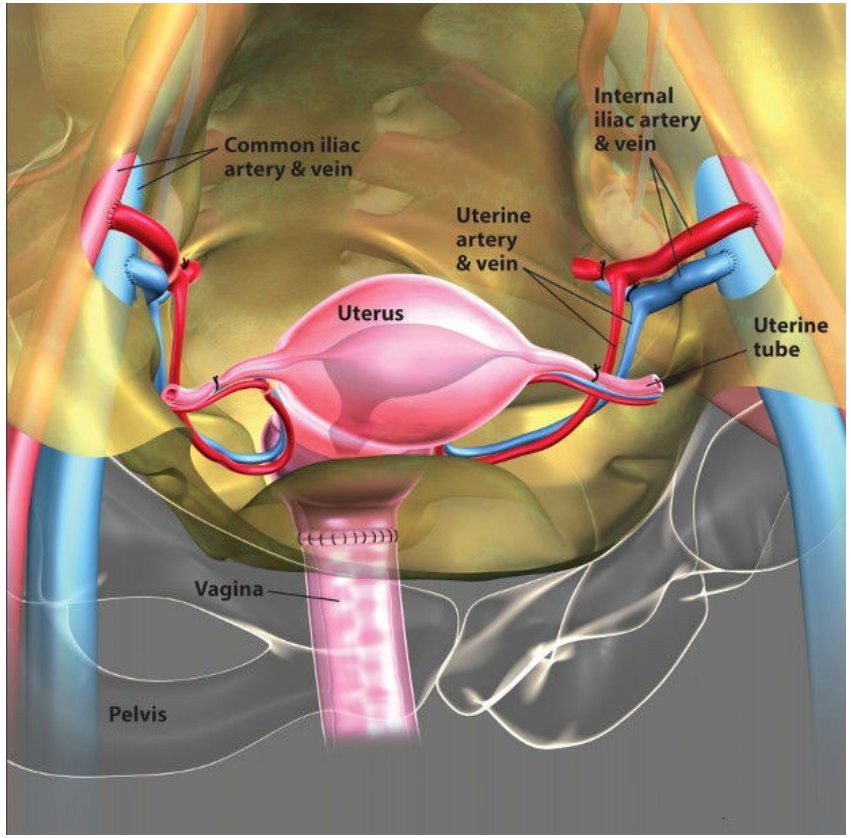
- For people with testes:
    1. Testicular tissue biopsy and cryopreservation
        - Experimental



Family-building Options

- Basic requirements = Egg + Sperm + Uterus
- Method depends on availability of eggs/sperm and who is carrying the pregnancy
  1. Spontaneous conception
  2. Intrauterine insemination (IUI) - with transwoman's sperm vs donor/partner
  3. In vitro fertilization (IVF) – with transman's eggs with donor/partner sperm and transfer to self/partner/gestational carrier

Family-building Options (Future)



- Uterine transplantation to transwoman
  - Experimental
  - First livebirth in 2012
  - Limited centers offering this in research setting

Summary

- Future fertility is important and should be discussed prior to GAT
- There are limited data on gamete quality and overall fertility after GAT
- Safe, non-experimental FP options include sperm, oocyte, embryo, and ovarian tissue cryopreservation
- Experimental FP options include testicular tissue cryopreservation and oocyte cryopreservation from a prepubertal ovary
- Much more data are needed