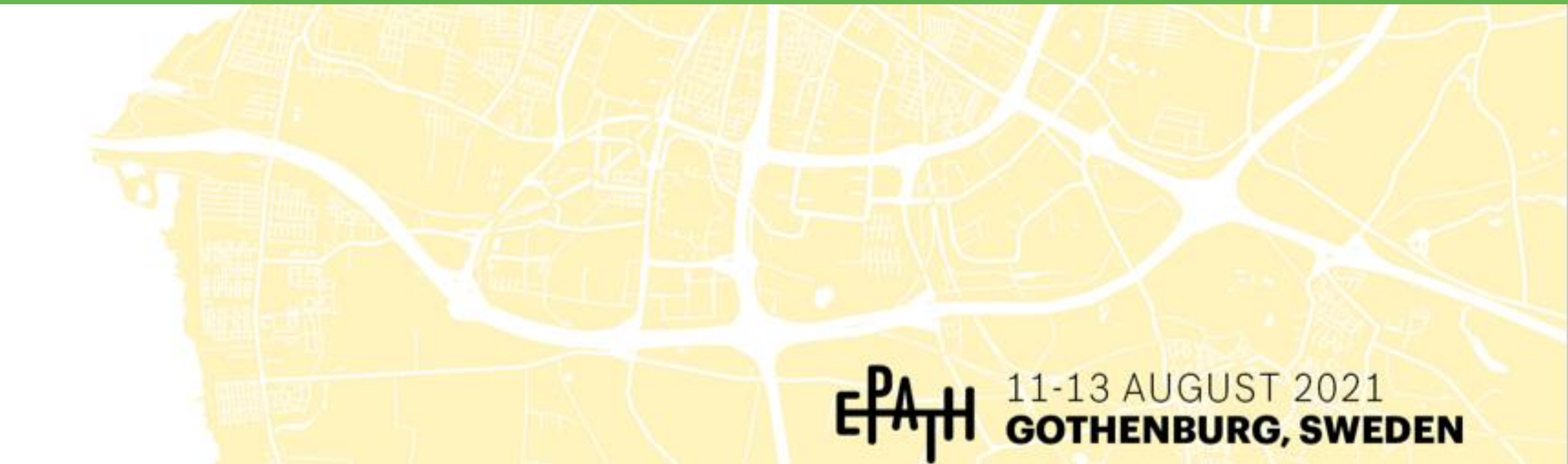
Amsterdam UMC
University Medical Centers

The year in review:
Reproductive Health

Norah van Mello
Gynaecologist Amsterdam UMC



Reproductive health

- Includes physical & psychological well-being
- Reproductive health implies that people are able to have a responsible, satisfying, healthy reproductive system and safer sex life.
- They have the capability to reproduce and the freedom to decide if, when and how often to do so. It provides people with the best chance of having a healthy infant.

REVIEW ARTICLE

Check for updates

SRHM SEXUAL AND REPRODUCTIVE HEALTH MATTERS
MORE THAN A JOURNAL

Mapping the scientific literature on reproductive health among transgender and gender diverse people: a scoping review

Madina Agénor,[a] Gabriel R. Murchison,[b] Jesse Najarro,[c*] Alyssa Grimshaw,[d] Alischer A. Cottrill,[e**] Elizabeth Janiak,[f] Allegra R. Gordon,[g] Brittany M. Charlton[h]

Table 2. Study characteristics of included articles ($N = 37$)

Characteristic	*n*	%
Year		
Pre-2014	3	8.1
2014	4	10.8
2015	4	10.8
2016	7	18.9
2017	9	24.3
2018	10	27.0

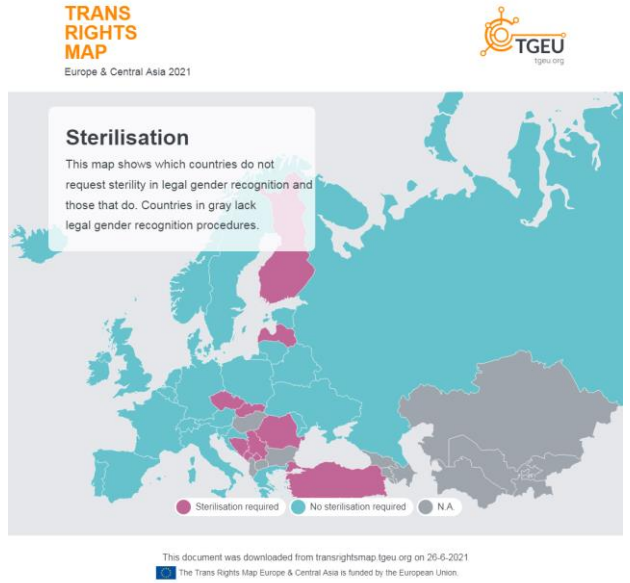
Characteristic	*n*	%
Study design		
Observational	36	97.3
Intervention	1	2.7
Methodology*		
Quantitative	15	40.5
Qualitative	13	35.1
Mixed-methods	9	24.3
Participatory/CBPR	2	5.4

Table 4. Reproductive health topic of included articles ($N = 37$)

Topic	*n*	%
Fertility preservation	8	21.6
Counselling/consultation	3	8.1
Services use/experiences	5	13.5
Knowledge/attitudes	4	10.8
Pregnancy	7	18.9
Risk	1	2.7
Outcomes	1	2.7
Experiences	4	10.8
Involvement	1	2.7
Contraceptive use	3	8.1
Fertility	10	27.0
Desires/intentions/attitudes	8	21.6
Services use/experiences	2	5.4
recommendations	1	2.7
Cervical cancer screening	14	37.8
Results	2	5.4
Frequency	6	16.2
Perceptions/attitudes/preferences	6	16.2
Experiences	4	10.8
Performance	1	2.7
Cervical cancer	2	5.4
Risk perceptions	1	2.7
Treatment experiences	1	2.7
Reproductive health care	2	5.4
Needs	2	5.4
Experiences	2	5.4
Research priorities	1	2.7
Interest	1	2.7
Birth	5	13.5
Outcomes	1	2.7
Experiences	2	5.4
Parenthood experiences	1	2.7
Chest-feeding experiences	1	2.7
Abortion care	0	0.0

Reproductive health for transgender & gender diverse people

- Legal reproductive rights
- LGBTQ discrimination
- Heteronormative sex education vs LGBTQ inclusive
- Barriers to acces reproductive health services
- Knowledge gap – lack of training of health care providers
- Costs and insurance barriers (for example male & OC)
- Non-inclusive and non-affirming clinical environments and practices



- Effect of medical transition on genetical parenting/fertility

Mapping the scientific literature on reproductive health among transgender and gender diverse people: a scoping review. Agénor et al. Sexual and Reproductive Health Matters, 2021

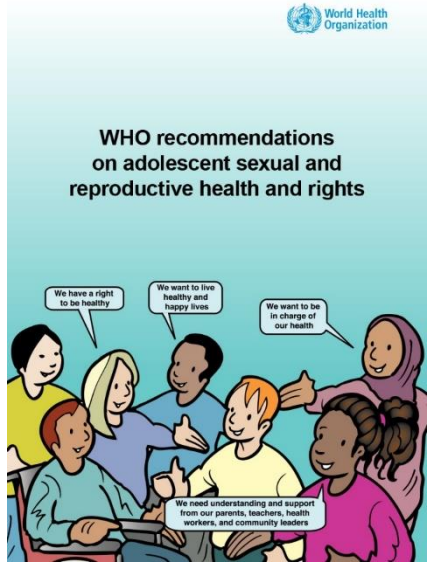
TGEU - Trans Rights Map https://transrightsmap.tgeu.org/home/legal-gender-recognition/sterilisation

Reproductive health starts in adolescence

- Development of sexual identity (attraction, behavior, orientation)

- Transgender adolescents:
  - Start seeking & receiving gender-affirming medical treatments
  - GnRHa therapy for puberty suppression
  - Hormone therapy, and/or surgery

- Specific needs related to fertility preservation and family-building



Reproductive Health Considerations in Sexual and/or Gender Minority Adolescents. Leonardi et al. Journal of pediatric and adolescent gynecology, 2019

Reproductive health

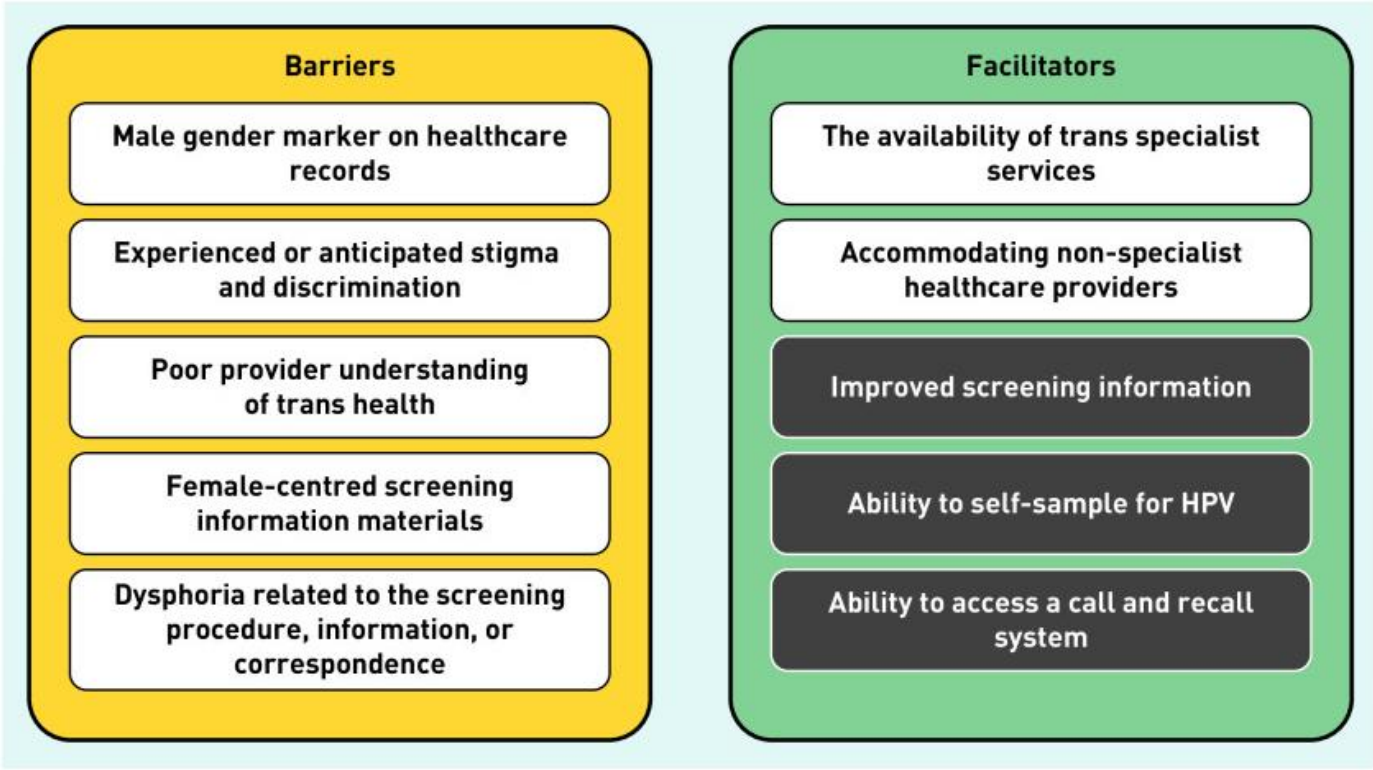
- Sexually transmitted infection
- Screening for reproductive cancers

- Contraception
- Abortion

- Pregnancy
- Fertility
- Fertility preservation

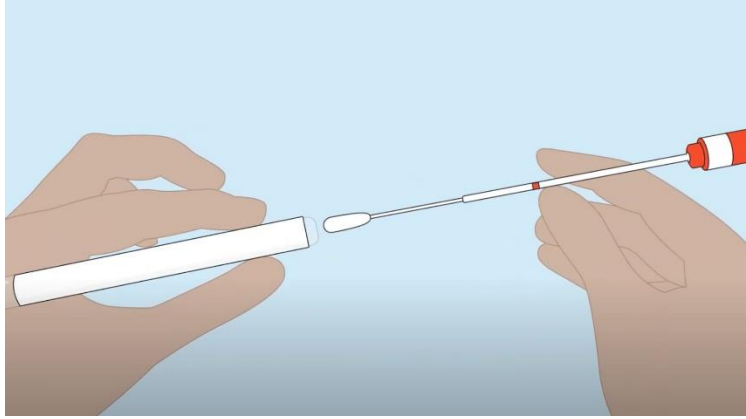
HPV screening for cervical cancer

- 58 % of eligible were screened
- 53% would like option to self-swab hrHPV
- 51% in favour of automatic invitation for cx screening



Attitudes of transgender men and non-binary people to cervical screening: a cross-sectional mixed-methods study in the UK. Berner et al. British journal of general practice, 2021

Self-test hr HPV

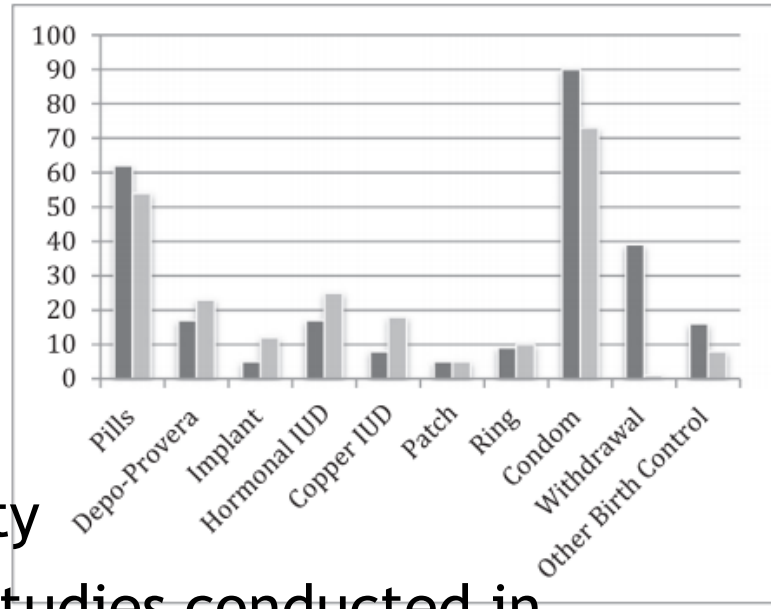


- RCT n= 150 AFAB
- 16.0% positive for hrHPV types via provider-collected vs. 13.0% tested positive for hrHPV types via self-collected.
- Substantial concordance (kappa = 75.40, 95% CI: 0.58, 0.92; p<0.001) between the 2 methods

- Over 90% of participants endorsed a preference for the self-collected vaginal swab over provider-collected cervical swab

Test performance and acceptability of self- versus provider-collected swabs for high-risk HPV DNA testing in female-to-male trans masculine patients. Reisner et al. PLoS one, 2018

Contraception



- GAHT induce a varying degree of reversible loss of fertility
- AMAB: Incomplete spermatogenesis suppression in most studies conducted in transwomen under GAHT → counsel on condom use (or vasectomy)
- AFAB: breakthrough ovulation possible with T use
- Majority reported using contraception (n=110, 60.1%), with condoms and pills (n=90, 49.2% and n=62, 33.9% respectively)
- 16.4% believed that testosterone a form of contraception
- 5.5% reported that healthcare providers advised testosterone as contraception

Contraception across transgender. Mancini et al. Your sexual medicine journal, 2021
Contraception across the transmasculine spectrum. Krempasky et al. Am J Obstet Gynecol, 2020
Family planning and contraception use in transgender men. Light et al. Contraception, 2018

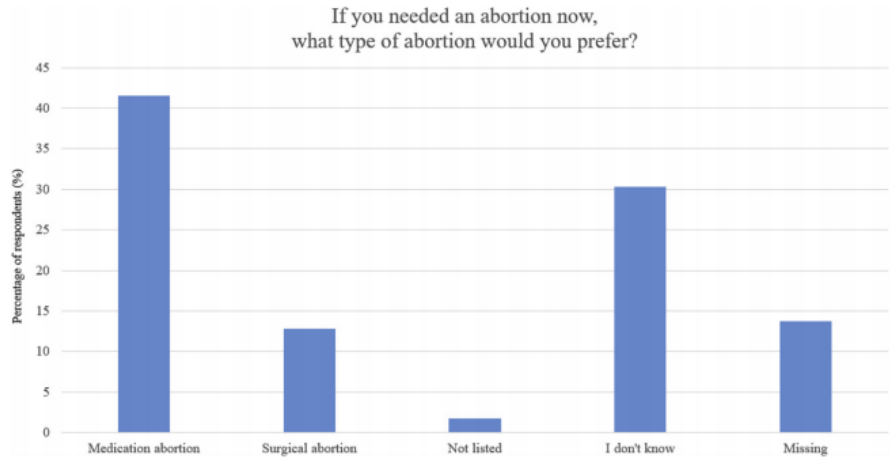
Abortion

- Risk of unintended pregnancy with use of testosterone low (1)
- Estimate several hundred abortions performed in transgender and gender nonbinary (GNB) population in 1 year in the US (2)

- 4% (n=67/N=1694) from online sample of TM, non binary and gender-expansive individuals

- Importance of privacy and minimizing the invasiveness of the experience strong arguments

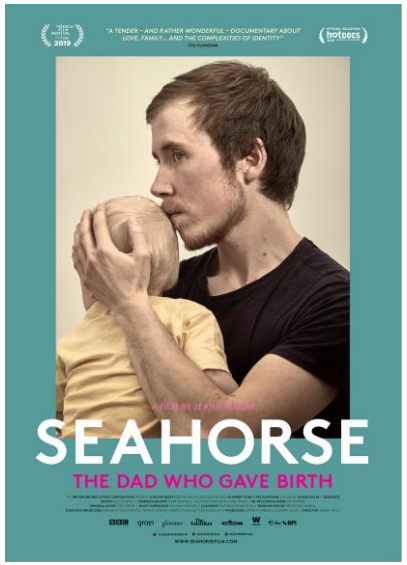
FIGURE
Abortion method preference among transgender, nonbinary, and gender-expansive people (N = 1694)



Moseson et al. Abortion experiences and preferences of transgender and nonbinary people. Am J Obstet Gynecol 2020.

1. Data unclear on pregnancy risk in transmasculine individuals on testosterone. Schubert and Carey, letter to editor, AJOG, 2020
2. Transgender abortion patients and the provision of transgender-specific care at non-hospital facilities that provide abortions. Jones et al. Contracept X. 2020
3. Abortion experiences and preferences of transgender, nonbinary, and gender-expansive people in the United States. Moseson et al. AJOG, 2021

Pregnancy



- Experience-based research
- Pregnant men challenge cultural assumptions about gender and sex congruencies. How to disclose and manage?
- Cooping strategies:
  - passing as a cisgender woman in pregnancy and not disclosing one's transgender identity
  - hiding the pregnancy and presenting as a man
  - present as both pregnant and a man
- Dysphoria increase:
  - cultural assumptions (pregnancy = femininized process)
  - bodily changes that accompany pregnancy

Transgender men who experienced pregnancy after female-to-male gender transitioning. Light et al. Obstet Gynecol. 2014.
From erasure to opportunity: a qualitative study of the experiences of transgender men around pregnancy and recommendations for providers. Hoffkling et al. BMC Pregnancy Childbirth. 2017.
Transmasculine individuals' experiences with lactation, chestfeeding, and gender identity: a qualitative study. MacDonald et al. BMC Pregnancy Childbirth. 2016.

Pregnancy

Table 2. Demographic participant information (n = 12).

Characteristics	n (%)
Previous pregnancy	
Yes	5 (42)
No	7 (58)
Planned pregnancy	
Yes	9 (75)
No	3 (25)
Way of conception	
Intercourse	6 (50)
Insemination in clinic	3 (25)
Home insemination	1 (8)
IVF	2 (17)
Planning for pregnancy	
With a partner	6 (50)
As single parent or unplanned	4 (33)
With several partners	2 (17)
Mode of delivery	
Vaginal delivery	9(75)
Elective cesarean	3(25)

Expectations and experiences of pregnancy related care	Maneuvering to ensure needs
Setting expectations: sterilization law in gender clinics	Selective disclosure
Being excluded and ignored	Bridging knowledge and power gaps
Trusting HCPs: Knowledge, integrity, responsiveness and continuity	
Pregnancy as a contradiction	

Figure 1. Overview of the main categories and sub-categories.

Undergoing pregnancy and childbirth as trans masculine in Sweden: experiencing and dealing with structural discrimination, gender norms and microaggressions in antenatal care, delivery and gender clinics. Falck et al. International Journal of Transgender Health 2020

Fertility & Preservation

Ethics Committee of the ASRM

Access to fertility services by transgender and nonbinary persons: an Ethics Committee opinion

Ethics Committee of the American Society for Reproductive Medicine

American Society for Reproductive Medicine, Birmingham, Alabama, USA.

This statement explores the ethical considerations surrounding the provision of fertility services to transgender individuals and concludes that the denial of access to fertility services is not justified. [Fertil Steril® 2021;115:874–8. ©2021 by American Society for Reproductive Medicine.]

Key Words: Ethics, access, fertility treatment, gender identity, fertility preservation

Discuss: You can discuss this article with its authors and other readers at https://www.fertstertdialog.com/posts/123310

KEY POINTS

- Many transgender and nonbinary persons have the same interests in having children and accessing fertility services for fertility preservation and reproduction as other persons.
- Providers should offer fertility preservation counseling to individuals before gender transition.
- Current data do not support restricting access of transgender persons to reproductive technologies, and concerns that children are harmed from being raised by transgender parents.
- Programs should ensure that transgender patients who seek fertility services are informed about the limited but reassuring data on long-term outcomes for patients and their offspring.
- Programs should treat all requests for assisted reproduction without regard to gender identity status.
- Programs are encouraged to collaborate on the collection of outcome data that explore the social and emotional wellbeing of transgender and nonbinary persons and their offspring.
- Programs should become educated on how to provide culturally competent care.

The term transgender describes a person whose gender identity, the internal sense of being male or female, differs from the gender assigned at birth. The term "nonbinary" is used to define a spectrum of gender identities that are neither exclusively masculine nor exclusively feminine.

Transgender persons report intense and persistent discomfort with their primary and secondary sex characteristics or their birth sex, often described as "being trapped in the wrong body." This distress can appear in early childhood (1). The American Psychiatric Association's Diagnostic and Statistical Manual has termed this emotional distress gender dysphoria while noting that gender nonconformity is itself not a mental disorder (2). Transgender persons describe an enduring wish to change their physical appearance, including their genitalia and secondary sexual characteristics, to bring it in line with their gender identity (1).

Transgender persons may wish to transition from female to male (transgender man or FTM) or male to female (transgender woman or MTF). The term transgender includes people who are at different stages of gender transition physically, emotionally, socially, and temporally. Transitioning to a different gender is complex and unique to each individual (1, 3). Transgender persons may or may not choose to alter their bodies with hormone-based or surgical treatment options. Gender-affirming surgery, which will change a person's body to confirm to their gender identity, is seen as an effective adjuvant treatment. Research indicates mainly positive outcomes, resulting in relief from gender dysphoria and an improved sense of well-being (3). Some transgender persons choose not to have surgery and instead use treatments such as hormone therapy for relief of gender dysphoria (3, 4). Nonbinary people may also undergo body modifications through surgery or hormone therapy. Although increasingly covered by medical insurance, treatment for many transgender patients is still difficult to access or is denied (5).

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Reprint requests: Ethics Committee, American Society for Reproductive Medicine, 1209 Montgomery Highway, Birmingham, Alabama 35216 (E-mail: asrm@asrm.org).

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https://doi.org/10.1016/j.fertnstert.2021.01.049

874 VOL. 115/NO. 4/APRIL 2021

- No evidence that being transgender prevents parents from establishing caring and responsive relationships with their children
- No evidence that parent's gender identity adversely affect the development of the child
- Patients should be informed about reproductive options by qualified mental health professional
- Recommends decisions regarding gonadectomy to be delayed until adolescence, when other options may be available
- Postpubertal minors should receive fertility preservation counseling and be offered options of sperm banking or oocyte cryopreservation

Access to fertility services by transgender and nonbinary persons: an Ethics Committee opinion. Ethics Committee of the American Society for Reproductive Medicine. Fertil Steril 2021

Fertility and gender youth

- Transgender Youth Fertility Attitudes Questionnaire
- 24% of youth interested in biological parenting
- Many unsure/wondered whether attitude on the topic might change with age
- Chen et al:

Survey responses to fertility and family formation questions (N= 156)

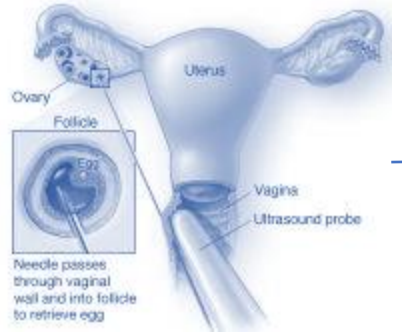
	n (%)
Interest in having children someday	
No	43 (27.6)
Yes	76 (48.7)
Don't Know/Unsure	37 (23.7)
Interest in having biological children	
No	58 (37.2)
Yes	56 (35.9)
Don't Know/Unsure	41 (26.3)
Prefer not to answer	1 (0.6)

Transgender Youth Fertility Attitudes Questionnaire: Measure Development in Nonautistic and Autistic Transgender Youth and Their Parents. Strang et al. Journal of adolescent health, 2018
Attitudes Toward Fertility and Reproductive Health Among Transgender and Gender-Nonconforming Adolescents. Chen et al. Journal of adolescent health, 2018

Fertility preservation trans masculine spectrum

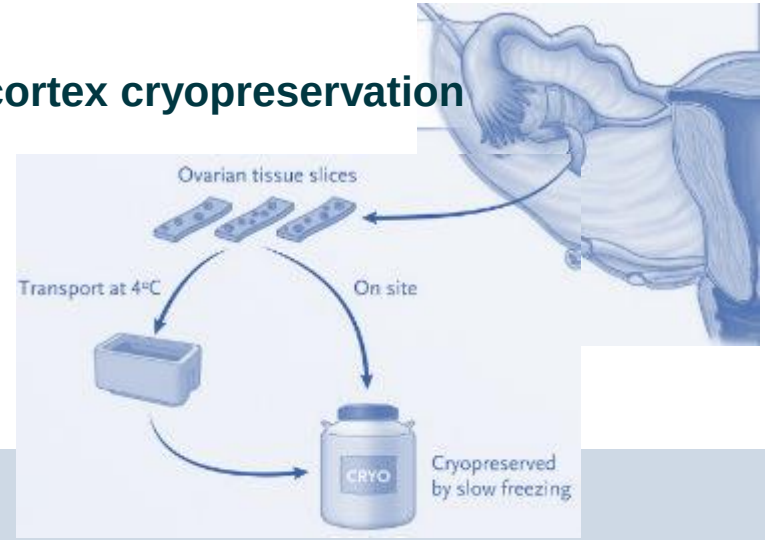
Ovaries +/- uterus in situ

Wish for pregnancy



Oocyte cryopreservation

Ovarian cortex cryopreservation



No fertility preservation

Oocyt cryopreservation

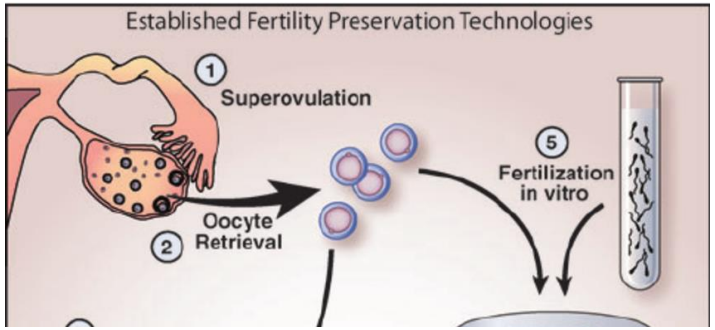


Table III Overview of main categories and subcategories.

The journey to FP	Reactions to the FP proceedings	Strategies for coping
Referral, assessment and diagnosis	Discontinuing the testosterone treatment to regain menstruation	Goal-oriented
A frustrating wait	Resumption of menstruation	Searching for support
Doubts and encouragement	The hormonal treatment	Changing the focus
	Becoming exposed by pelvic examinations and being seen by others	A cognitive approach
	Not as bad as anticipated	

Transgender men's experiences of fertility preservation: a qualitative study. Armuand et al. Hum Reprod. 2017.
Pregnancy outcomes after fertility preservation in transgender men. Maxwell et al. Obstet Gynecol. 2017.

Oocyt cryopreservation

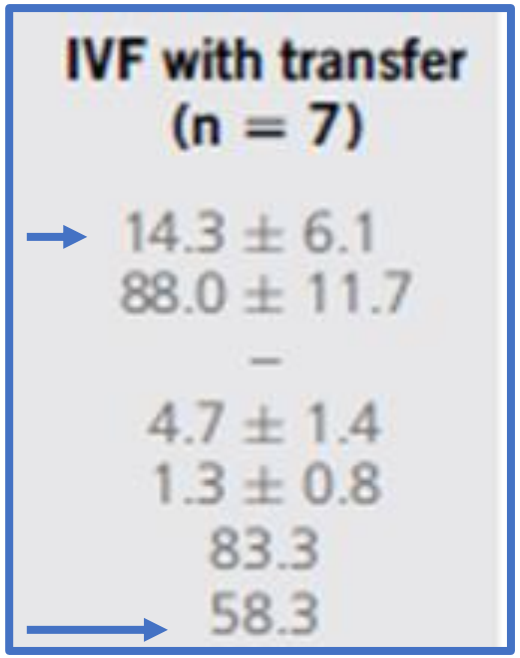
TABLE 1

Characteristics of the transgender male cohort undergoing controlled ovarian hyperstimulation, by (A) patient and (B) cycle.

Patient variable	All patients (n = 26)	Oocyte cryopreservation (n = 16)	Embryo cryopreservation (n = 3)	IVF with transfer (n = 7)
Age (y)	28.3 ± 6.7	25.3 ± 6.2	35.6 ± 3.5	32.06 ± 4.2
BMI (kg/m^2)	26.0 ± 7.0	24.7 ± 7.3	29.4 ± 6.8	27.7 ± 6.4
AMH (ng/mL)	3.4 ± 1.9	3.6 ± 2.2	3.1 ± 1.4	2.7 ± 1.5
FSH (IU/mL)	6.2 ± 2.0	6.0 ± 2.0	6.2 ± 2.1	6.6 ± 2.5
AFC (n)	16.6 ± 5.3	17.2 ± 5.5	18.0 ± 3.6	14.7 ± 6.2
Has partner (%)	69.2	50	100	100
Initiated androgen therapy (%)	61.5	43.8	100	85.7
Time on testosterone (mo)	43.9 ± 31.0	39.7 ± 19.2	126 ± 110.3	48.0 ± 52.3
Time off testosterone (mo)	4.5 ± 3.5	4.4 ± 3.7	4.0 ± 2.6	5.0 ± 4.3
Resumed menses (%)	81.2	85.7	100	66.7
Time to cycle start (mo)	6.4 ± 12.8	2.9 ± 2.2	3.4 ± 3.2	15.6 ± 23.0
Cycle variable	**All cycles (n = 29)**	**Oocyte cryopreservation (n = 17)**	**Embryo cryopreservation (n = 5)**	**IVF with transfer (n = 7)**
Oocytes retrieved (n)	19.4 ± 8.4	22.7 ± 8.4	15.6 ± 7.3	14.3 ± 6.1
Mature oocytes (%)	75.4 ± 20.7	75.4 ± 22.5	59.0 ± 8.8	88.0 ± 11.7
Oocytes frozen (n)	–	17.7 ± 6.1	–	–
Embryos frozen (n)	4.2 ± 0.6	–	3.8 ± 4.2	4.7 ± 1.4
Embryos transferred (n)	–	–	–	1.3 ± 0.8
Pregnancy rate (%)[a,b]	–	–	–	83.3
Live birth rate (%)[b]	–	–	–	58.3

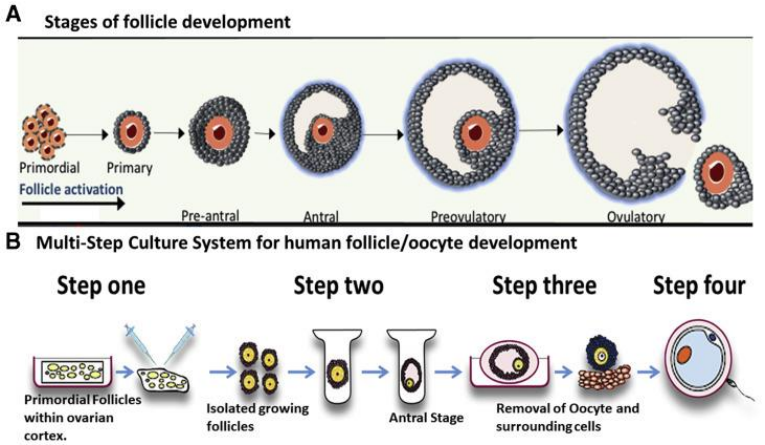
Note: Data are presented as mean ± standard deviation or %. AFC = antral follicle count; AMH = antimüllerian hormone; BMI = body mass index; IVF = in vitro fertilization.
[a] Clinical pregnancy defined as positive fetal heart beat on ultrasound.
[b] Rates calculated per transfer, including fresh and frozen (see Supplemental Table 1 [available online at www.fertstert.org] for more details).

Leung. ART outcomes in transgender male patients. Fertil Steril 2019.



Assisted reproductive technology outcomes in female-to-male transgender patients compared with cisgender patients: a new frontier in reproductive medicine. Leung et al. Fertil Steril. 2019

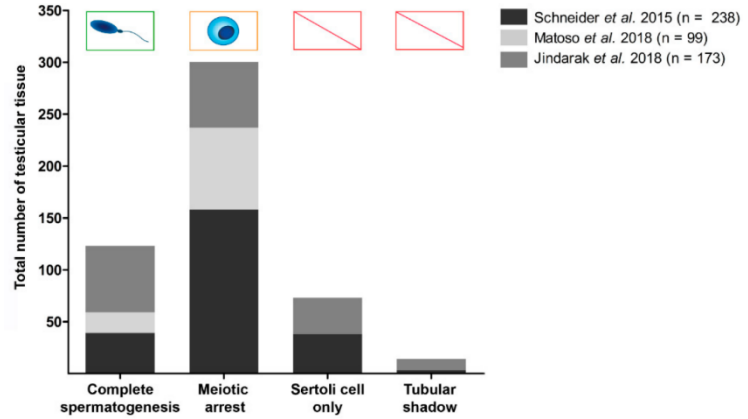
Ovarian tissue cryopreservation



- No need for ovarian stimulation
- Performed at time of gender affirming surgery
- Suitable for autologous transplantation or IVM
- Ovarian tissue apparently not affected by prolonged testosterone treatment (1,2). IVM rate 39%
- Fertilization rate (34.5% of the oocytes injected) low compared with 71.8% in fresh oocytes (3)
- Low developmental capacity (early embryo arrest)

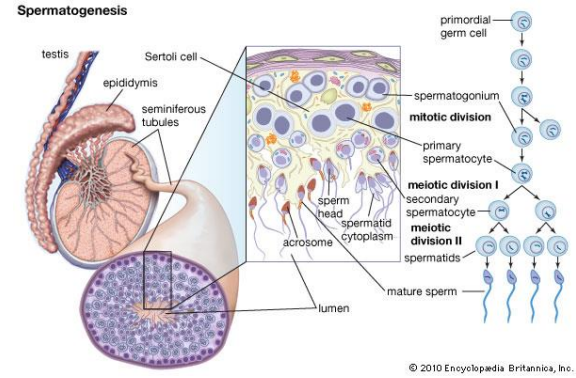
1. Fertility preservation for trans men: frozen-thawed in vitro matured oocytes collected at the time of ovarian tissue processing exhibit normal meiotic spindles. Lierman et al. J Assist Reprod Genet, 2017
2. Ovarian tissue cryopreservation in female-to-male transgender people: insights into ovarian histology and physiology after prolonged androgen treatment. De Roo et al. Reprod Biomed Online, 2017
3. Low feasibility of in vitro matured oocytes originating from cumulus complexes found during ovarian tissue preparation at the moment of gender confirmation surgery and during testosterone treatment for fertility preservation in transgender men. Lierman et al. Fertil Steril 2021

Fertility preservation trans feminine spectrum



- Effect of GAHT → impaired spermatogenesis
- Conflicting results at time of GAS:
  - no mature sperm (1)
  - relatively normal spermatogenesis in a variable minority (e.g. 11-40%) (2,3)

- Spermatogenesis might restore after discontinuation (4)
- Takes time: 3-6 months or longer



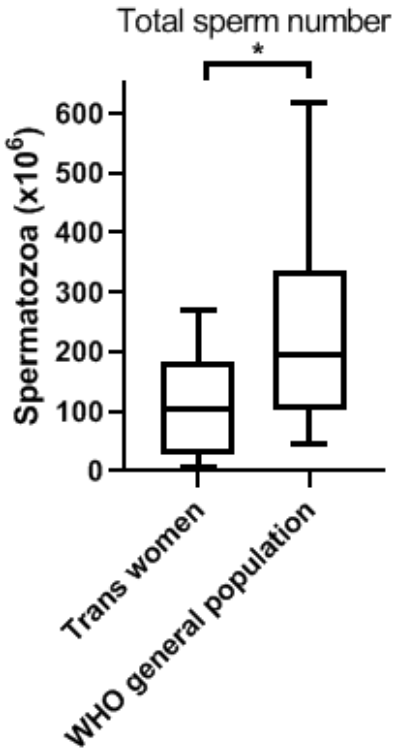
1. Characterisation of testicular function and spermatogenesis in transgender women. Vereecke et al. Hum Reprod, 2021
2. Effects of Estrogen on Spermatogenesis in Transgender Women. Jiang et al. Urology, 2019
3. Options for Fertility Treatments for Trans Women in Germany. Schneider et al. J Clin Med 2019
4. Semen Parameters Among Transgender Women With a History of Hormonal Treatment. Adeleye et al. Urology, 2019

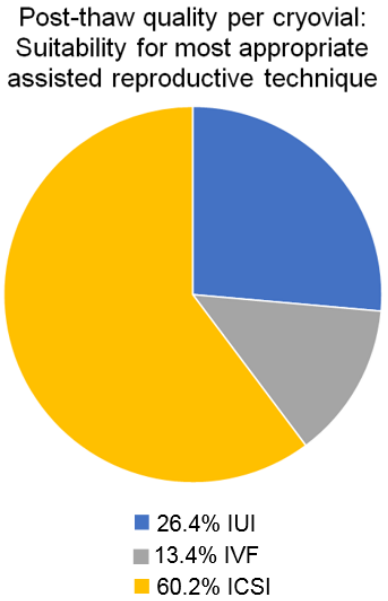
Semen cryopreservation

- Impaired semen quality
- Post thaw samples 26% adequate for IUI

- Specific life style factors?

- Surgically obtained spermatozoa (TESE) may serve as an alternative for those who are unable to ejaculate or when no spermatozoa are found in the ejaculate

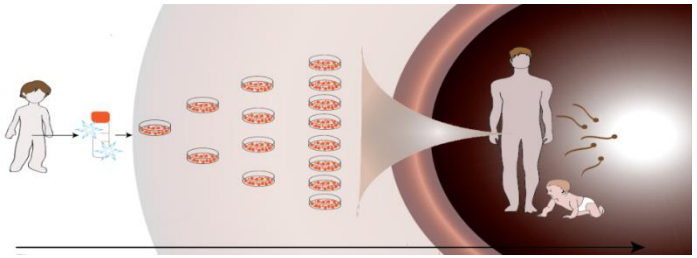




Impaired semen quality in trans women: prevalence and determinants. De Nie et al. Hum Reprod, 2020
Sperm cryopreservation of transgender individuals: trends and findings in the past decade. Li et al. Andrology, 2018

Testicular tissue cryopreservation

- GnRHa aims to suppress pubertal development (> Tanner stage 2), reversible inhibition of spermatogenesis
- Early pubertal trans girls often continue towards GAHT following pubertal suppression



- Cryopreservation of immature germ cells?
- Relies on the feasibility of maturation techniques outside the human body:
  - *de novo* testicular morphogenesis or *in vitro* spermatogenesis
- These techniques are still experimental and far from the clinical practice

Spermatogonial Stem Cell Culture in Oncofertility. David & Orwig. Urol Clin North Am, 2020.
Progress in translational reproductive science: testicular tissue transplantation and in vitro spermatogenesis. Pelzman et al. Fertil Steril, 2020.

Reproductive health

- Sexually transmitted infection
- Screening for reproductive cancers

- Contraception
- Abortion

- Pregnancy
- Fertility
- Fertility preservation

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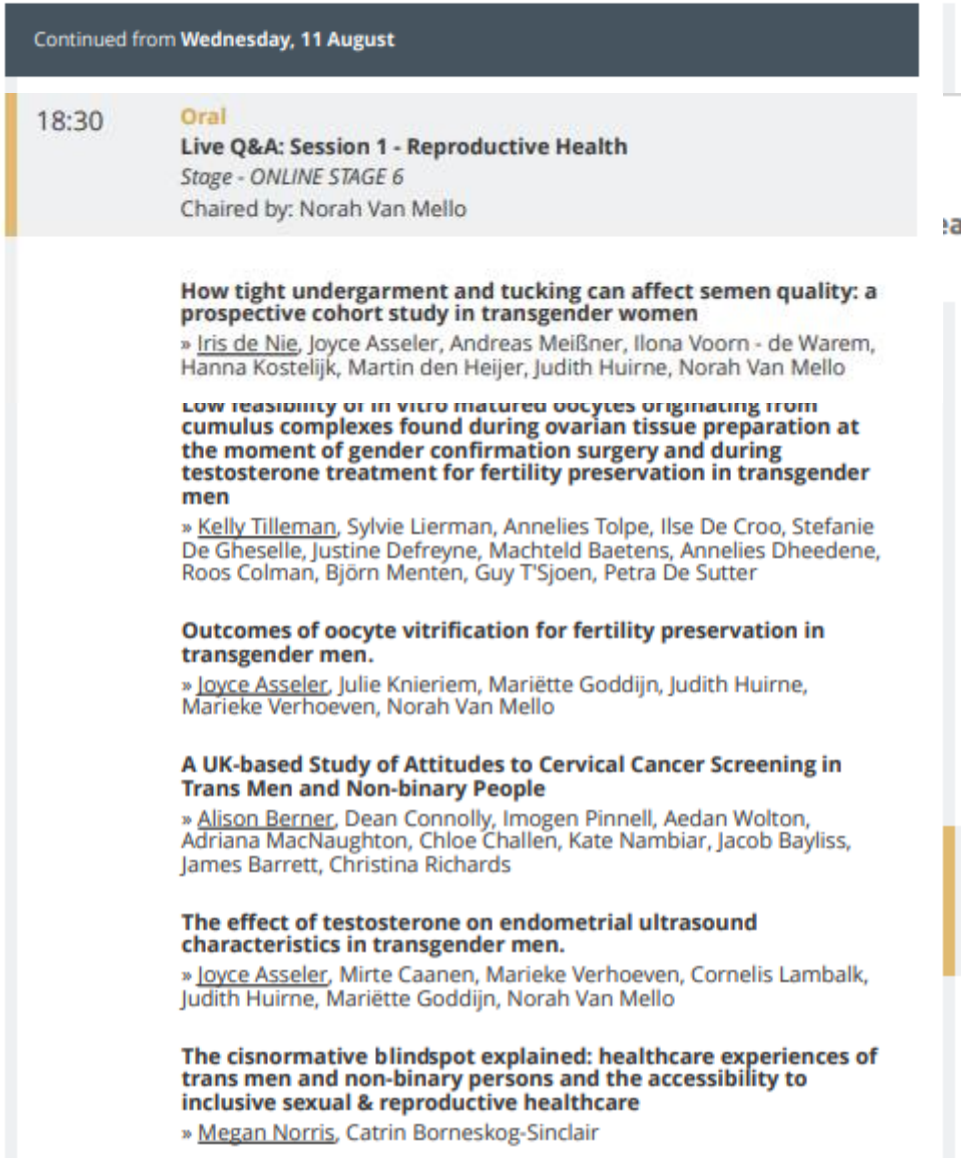

Continued from **Wednesday, 11 August**

18:30 Oral

Live Q&A: Session 1 - Reproductive Health

Stage - ONLINE STAGE 6

Chaired by: Norah Van Mello

How tight undergarment and tucking can affect semen quality: a prospective cohort study in transgender women

» Iris de Nie, Joyce Asseler, Andreas Meißner, Ilona Voorn - de Warem, Hanna Kostelijk, Martin den Heijer, Judith Huirne, Norah Van Mello

Low feasibility of in vitro matured oocytes originating from cumulus complexes found during ovarian tissue preparation at the moment of gender confirmation surgery and during testosterone treatment for fertility preservation in transgender men

» Kelly Tilleman, Sylvie Lierman, Annelies Tolpe, Ilse De Croo, Stefanie De Gheselle, Justine Defreyne, Machteld Baetens, Annelies Dheedene, Roos Colman, Björn Menten, Guy T'Sjoen, Petra De Sutter

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