REVIEW

The provision of cervical screening for transmasculine patients: A review of clinical and programmatic guidelines

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ABSTRACT

Background: Most cervical cancer can be prevented through routine screening. Disparities in uptake of routine screening therefore translate into disparities in cervical cancer incidence and outcomes. Transmasculine people including transgender men experience multiple barriers to cervical screening and their uptake of screening is low compared with cisgender women. Comprehensive, evidence-based guidelines are needed to improve cervical screening for this group. **Methods:** We searched for, and synthesised, clinical and programmatic guidelines for the provision of cervical screening for transmasculine patients. **Findings:** The guidelines offer recommendations addressing: 1) reception, check-in, and clinic facilities; 2) patient data and invitation to screening; 3) improving inclusion in screening programmes; and 4) sexual history taking, language and identity. Guidelines offer strategies for alleviating physical and psychological discomfort during cervical screening and recommendations on what to do if the screening procedure cannot be completed. Most of the guidelines were from and for high-income countries. **Discussion:** The evidence base is limited, but existing guidelines provide recommendations to ensure life-saving screening services are available to all who need them. We were only able to identify one set of guidelines for a middle-income country, and none for low-income countries. We encourage the involvement of transmasculine people in the development of future guidelines.

Words: 200

TEXT BOX

What is already known on this topic

- Transmasculine people including transgender men experience barriers to cervical screening. This is important because most cervical cancer can be prevented through routine screening.

What this study adds

- Guidelines offer a range of recommendations which are tailored to the specific needs of this population.
- Guidelines vary in terms of their reliance on empirical evidence and are not always developed with input from transmasculine people or their physicians.

How this study might affect research, practice or policy

- Our review suggests that comprehensive, evidence-based guidelines are needed to improve cervical screening for transmasculine people, including transgender men, and to provide expert guidance on meeting needs and preferences that might arise in different types of settings.

INTRODUCTION

The prevention, detection, and management of cervical cancer is an important component of an essential package of sexual and reproductive health interventions (1). Cervical cancer incidence has been decreasing over the last 30 years owing largely to increased cervical screening (2) and HPV vaccination (3, 4). It is estimated that 99.8% of cervical cancer cases could have been prevented through routine screening and early clinical intervention (5). As such, improving efforts to increase access to, and uptake of screening is key to reducing cervical cancer morbidity and mortality (6).

Transgender men are considerably less likely than cisgender women to be up-to-date with cervical screening (7-10) - or to have ever attended cervical screening (11) - suggesting that this population is at an increased risk of developing cervical cancer, delayed clinical presentation, and poorer outcomes compared with cisgender women (12). Furthermore, ongoing risk of exposure to oncogenic HPV types requires continued engagement with screening services which, in turn, requires a favourable balance of incentives to disincentives to attend screening over many years.

Common barriers to uptake of cervical screening amongst transgender men include: 1) not being included in call and recall systems (patients registered with their primary care service as male may not be included); 2) experienced or anticipated stigma/discrimination; 3) poor understanding of trans health on the part of healthcare providers; 4) materials targeted at, or otherwise featuring cisgender women (or materials which appear excessively feminine); and 5) gender dysphoria and discomfort brought about or exacerbated by the procedure, information, or correspondence (13). Improving guidelines for health care providers has the potential to reduce access barriers and increase uptake of screening services among transgender men (7). This review synthesises the available guidelines with a view to informing future consolidated guidance, and in the interests of producing a useful reference document of current best practice for those involved in service delivery.

BACKGROUND

Lesbian, gay, bisexual, transgender, queer, and intersex people face multiple barriers when accessing sexual health services, and there have been global calls for comprehensive medical guidelines to address their specific sexual and reproductive health needs (1).

Cervical screening tests involve the use of a speculum and a device to collect the sample; these are typically designed based on the needs of cisgender women. Screening for cervical cancers has typically involved a cytology test known as a 'smear' test or Pap smear. However, Pap smears (which involve the collection of cells which are tested for cellular changes indicating the presence of cancer, or the risk of developing cervical cancer) have recently been replaced with human papillomavirus (HPV) testing (which involves the collection of cells which are tested for the presence of oncogenic HPV types) in some countries including UK (14), Australia (15) and several European countries (16). Primary HPV testing replaced cytology testing in the UK in 2019, and was endorsed by the World Health Organization (WHO) as a primary screening test for preventing cervical cancer in 2021 (17).

Provision of cervical screening for transmasculine patients – i.e. people who were assigned female at birth but whose gender identity is masculine (including transgender men) - is currently under-researched (7), with few estimates of cervical cancer incidence for transmasculine people due to the lack of inclusion of diverse gender identities in national surveillance systems (11, 13). Transgender patients who have a cervix are under-represented in cervical cancer prevention (18). Given the effectiveness of cervical screening to prevent cancer progression (5) it is essential to increase screening uptake among transmasculine patients. To do this, it is important to ensure screening programmes account for the barriers that transmasculine patients face in accessing cervical screening (13). To this end, previous reviews have described the barriers and facilitators, knowledge, experiences and perceptions of risk in this population (7, 19, 20). Additionally, Labanca et al (2020) have synthesised guidelines for routine gynaecological care and cancer screening for transgender patients. However, a focussed review of cervical screening guidelines has not been conducted for transmasculine individuals specifically (21). Thus, we carried out a review of clinical and programmatic guidelines for cervical screening for transmasculine patients to identify and describe best practice in this area and synthesise current guidelines.

METHODS

We searched for guidelines, protocols, standard operating procedures, and all other documents that provide coherent directives and instruction on the provision of care. We therefore used a broader definition than the Institute of Medicine which defines clinical guidelines as: "statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options" (22, p. 290).

Search strategy

We conducted searches as follows: 1) we searched 'cervical guideline trans', 'cervical guideline non-binary', and 'cervical guideline transgender', using the DuckDuckGo search engine; 2) we conducted manual searches on the websites of a range of non-governmental organisations and international health bodies; and 3) we drew from an existing library of search results from a comprehensive search of the academic literature (carried out 13 June 2021 via MEDLINE, EMBASE, and Global Health) reporting on sexual and reproductive health services for people of diverse sexual orientation, gender identity and sex characteristics. The protocol for the comprehensive review has been published elsewhere (23). The search strategies are detailed in **Appendix 1**.

We did not limit our enquiry to the clinical encounter but considered the full patient journey along a spectrum from care-seeking to after-care. We included all guidelines mentioning cervical screening for transmasculine individuals; this included guidelines focused specifically on cervical screening, as well as guidelines addressing transgender health or service provision (that included reference to cervical screening). We included programmatic and clinical guidelines intended for use in primary care, sexual and reproductive health services, or gynaecological-obstetric settings. We deemed the following out of scope: recommendations on HPV vaccination (which vary worldwide), and discussions of cervical screening where this related to the ways cervical cancer might affect decisions about gender-affirming surgeries.

All guidelines were imported into NVivo 12 and coded according to population group and sexual health service (e.g. conception, pregnancy, perinatal care; fertility or contraception services; integrated services).

Patient and public involvement

The original systematic review protocol was developed in consultation with implementing partners and service providers.

RESULTS

We identified 14 guidelines (see **Table 1**) nearly all of which were from high-income settings: seven from the United States (24-30), three from Australia (15, 31, 32), and three from UK (33-35). One guideline was produced by an organisation operating across multiple countries in Asia and the Pacific (36). The guidelines were published between 2013 and 2021.

Nearly all of the guidelines involved targeted discussion around the provision of screening for transmasculine patients: nine included substantive engagement with the specific needs of this population (24, 25, 27, 28, 30, 33-36), three included minimal engagement (26, 29, 31), and one acknowledged but did not engage with the specific needs of transmasculine people (15). Only four guidelines demonstrated comprehensive and systematic engagement with the evidence base (24, 28-30).

INSERT TABLE 1 HERE

Invitation to participate in screening services

All guidelines reviewed state that all people with a cervix should be invited to attend cervical screening, usually stating that this should be in line with national guidance or standards for non-transgender women. Transgender men and non-binary people may not receive invitations to attend cervical screening even when they are eligible (33, 34).

Beere etal recommend considering opportunistic Pap smears for transgender men and non-binary people where appropriate (e.g. at the same time as examination for sexual health testing) (33). They also state that transgender men and non-binary people should be informed that opportunistic cervical smear tests can be carried out in sexual health clinics at the same time as sexual health testing, where appropriate. Rollston (2019) states that gender affirming hormone therapy should not - and should not be implied to be - contingent on agreeing to cervical cancer screening procedures (28).

Peitzmeier et al (2013) highlight that if the cervix has been completely removed (for instance because of gender affirming surgery) and there is no history of high-grade cervical dysplasia or cervical cancer then there is no need for cervical cancer screening (26).

The built environment

The reception, check-in, and clinic facilities form the broader context of attending cervical screening and several guidelines offer recommendations for ensuring that services are safe and welcoming for transgender patients. Different considerations will be relevant depending on the context of the procedure, including for example, whether the clientele is likely to be mixed, or predeominantly cisgender women (for example, where the procedure is being undertaken in a gynaecology clinic).

Potter et al (2015) recommend not separating waiting rooms by gender (27). Several guidelines recommend that gender neutral toilets should be available where possible (25, 27), and where this is not possible, patients should be told that they are welcome to use the toilets they prefer (24, 36). Clinics with gender-specific examination rooms may only have equipment for cervical screening available in 'female-designated' rooms; thus, Beere et al (2019) recommend that all examination rooms be equipped with examination couches with removable leg rests (33). Where this is not possible, examination rooms should be signposted descriptively rather than by gender.

Several guidelines recommend displaying posters and providing resources which are not only relevant for cisgender women and rather reflect the needs of everyone who may use the service (27, 33). Some guidelines also suggest displaying non-discrimination policies in waiting rooms (25) or signalling a commitment to non-discriminatory and confidential care on the health service's website (31).

The clinical encounter

Sexual history taking

Several guidelines recommend that the clinical consultation should begin by confirming that the correct name and pronouns are being used and by asking patients how they identify their gender (27, 33, 34). Of central importance is the need to avoid making assumptions about the sexual orientation of a patient, how they have sex, or which surgeries they may have undergone (25). The Primary Care Women's Forum (2020) recommends asking a

patient which, if any, gender-affirming genital surgeries they have undergone (34). Other guidelines suggest that clinicians take an 'anatomic inventory' (30) or an 'organ inventory' (24). One guideline suggests that it may be useful to use diagrams or models when asking a patient about their anatomy or sexual practices (33).

When taking a sexual history, several guidelines recommend avoiding assumptions about sexual orientation or how patients have sex. Suggestions for asking these questions include: asking about a person's 'partner' or 'significant other' rather than their husband (31); asking 'what genders are your partners?', rather than, 'are your partners male or female?' (33).

Several guidelines recommend asking patients which words they would prefer their genitals to be called (24, 27, 33, 34). This may include avoiding clinical terms like 'vagina' unless told otherwise. For example, terms like *frontal canal, front hole* or *front* are used in the guidelines and some patients may prefer these or other alternative terms.

The procedure

Traditional methods for screening for cervical cancer can cause or exacerbate body dysphoria for some transmasculine patients (28). Additionally, using testosterone can cause vaginal epithelial atrophy which may make the insertion of a speculum particularly uncomfortable (27). Several guidelines suggest that topical oestrogen is used prior to the appointment to reduce this discomfort (15, 24, 27, 32-34); however, some transmasculine individuals may prefer not to use topical oestrogen due to concerns about potential feminising effects (34).

Speculum examination can also be difficult following metoidioplasty (i.e. the surgical creation of a phallus) due to the resulting narrowing of the vaginal opening. Minor bleeding is common following a Pap test; this may be distressing for all patients but perhaps more so for some trans patients. Potter et al (2015) recommend informing patients that this may occur and using gender-neutral language to communicate this (27). They further recommend that patients are offered absorbent products for after the procedure (27).

Strategies to reduce discomfort

The guidelines suggest several strategies to reduce both physical and emotional discomfort. These can begin at pre-screening counselling; these strategies are detailed in **Table 2**.

INSERT TABLE 2 HERE

Testosterone can cause cervical atrophy and therefore reduces the chance of obtaining a viable sample (29); it may also cause physical discomfort (33). Several guidelines include suggestions for alleviating some of the discomfort relating to testosterone and for increasing the likelihood of a successful sample (see **Table 3**).

INSERT TABLE 3 HERE

Considerations regarding the sample

Transmasculine patients are less likely to yield a viable sample if they are taking testosterone, though this does not fully explain the higher prevalence of inadequate samples (9, 37). Although not explicitly referenced in the guidelines we reviewed, these findings also suggest that the effects of testosterone on the viability of samples may begin around six months after initiation and, as such, the authors recommend that providers encourage service users to undergo cervical screening prior to initiating testosterone, whenever possible (9, 37). However gender affirming care should neither be delayed or dependent upon obtaining a Pap smear.

The guidelines offer several recommendations for sample collection and labelling (see **Table 4**).

INSERT TABLE 4 HERE

If the procedure is refused or not possible

The Primary Care Women's Forum (2020) suggests that if the appointment or procedure are producing excessive emotional or physical discomfort, it may be appropriate to weigh up whether the procedure is necessary, bearing in mind potential risk factors:

> If your patient is finding the appointment really difficult, or taking the sample is causing a lot of discomfort or pain, it may be better for your patient to not go through with the screening test at this moment. It might be better to recommend trying again at another appointment. Sometimes, after thinking about their risk of having HPV, i.e. their sexual activity/ history (if any), a patient may decide against completing their screening. Their overall wellbeing is a priority, particularly if the risk of cervical cancer is low (34, p. 3).

For transmasculine patients who decline a Pap smear (or a physician-administered HPV test), a self-administered vaginal swab HPV test is a possible acceptable alternative (25, 28, 30). Self-administered HPV testing has been trialled in the UK amongst cis women who have not attended cervical screening (28, 38, 39) and has been universally accessible in Australia since July 2022 (40). The European Cancer Organisation has recommended including self-sampling in national screening programmes (41). Alhough the quality of patient-collected samples has been called into question, (27, 42) recent studies of the diagnostic accuracy of PCR tests (as opposed to older signal amplification tests) suggest a negligible difference between self-collected and physician-collected samples (43). Self-collected vaginal swabs for HPV testing have high acceptability amongst transmasculine patients (42, 44). Finally, Rollston et al suggest that patients should be made aware that a positive result on a self-administered swab will require a follow-up cytology test or colposcopy (including the use of a speculum) (28).

Documentation

The most commonly recommended method for recording gender identity data is the two-step method (24, 33), which involves asking respondents to report their gender identity and their sex assigned at birth as separate questions (37, 45, 46). Several guidelines advise that patient intake forms and electronic medical records should include questions that include all gender identities (25, 27). These could also include space for patients to include their chosen name and gender marker (36). Singh (2021) also suggests asking patients if there are any contexts in which it would be unsafe or inappropriate for their chosen name and title to be used (36). Items such as intake forms, patient notes or examination findings should not be visibly gendered (e.g. different colours for different gender identities) (33). Potter et al (2015) recommend that patients are asked their preferences regarding name and pronouns at check-in (27).

After-care

It is notable that after-care received proportionately less attention in the guidelines included in this review, with only one guideline recommending ensuring that service users who experience pain or discomfort have a self-care plan in place (27). A lack of guidance around onward referral for colposcopy is a particularly obvious gap.

Staff training

Several guidelines highlight the importance of equity, diversity, and inclusion training - including gender diversity training for clinical, reception and administrative staff (24, 25, 33). This might include training on how to appropriately ask about names and pronouns, or how to apologise appropriately should one accidentally misgender someone (25). The importance of ensuring that all staff, including security and cleaning staff have received training in confidentiality is also highlighted (36).

DISCUSSION

Our review identified multiple guidance documents to improve cervical screening for transmasculine people which vary in quality and completeness. A more rigorous exercise to map the entire patient journey of transmasculine patients, and to tailor guidelines accordingly, would help inform important improvements to screening services for this under-served population. Crucially, documenting and improving the patient journey must involve the patient population as well as clinicians and other stakeholders (47, 48). We also noticed a lack of guidance on after-care (including referral to colposcopy), which future guidance should address. Developing and improving clinical approaches, and studies of transmasculine patient experience – all of which should include transgender people throughout - will be crucial to refine and improve guidance further. It should be noted that there is also a body of research (13, 49) and several literature reviews which are of relevance to cervical screening in transmasculine patients (7, 19, 20, 50) which, while out of scope of this review, often provide recommendations themselves and should therefore also be used develop future guidance. Ultimately, we identified a number of useful guidelines that include practical, and in some cases evidence-based, advice. This effort will continue to be necessary even where new developments in specimen collection and testing offer the potential for less intrusive methods. For example, non-vaginal-sourced specimens may be an option in the future as there is evidence of concordance between HPV in urine, and HPV in the cervix (24). Trials of new methods and modalities of testing should make efforts to include transmasculine patients and attend to their specific needs.

While we have focused here on cervical screening, other services should also take account of the specific needs and experiences of trans and non-binary patients, ensuring that

services are designed inclusively. It is likely that there are also other applications for many of these recommendations, for example in screening for or identifying endometrial, ovarian, breast or prostate cancer. A number of the recommendations also apply to a wide range of non-screening healthcare services (e.g. clinic built environment, reception processes and data handling).

Although were able to identify guidance for cervical screening for transmasculine people in high and middle-income countries, we did not identify any guidance developed in or for low-income countries. We hope that this review will be a useful reference document where efforts are made to develop guidelines in these settings. Many of the recommendations can be translated into a wide range of settings though it may be necessary to account for localised contextual factors.

Given the increasing access to national cervical screening programmes in low and middle-income countries (51), and the potential of HPV screening to improve testing capacity, maximising the reach of these services is essential if they are to have an optimal effect on cervical cancer detection and prevention, and to avoid creating inequalities where this population is excluded from consideration and under served as a result. This attention to a wider scope is similarly valuable in contexts beyond trans care and where the client population includes individuals with multiple marginalised identities. The accessibility of services for women of minoritised backgrounds in the UK is low (52); as such, tailored and inclusive guidance around screening that recognises minoritised service users will further strengthen the good clinical practice already identified in this review.

Limitations

We may have missed documents which would have met our definition of a guideline but were not referred to as such. We also do not have 'denominator data'; i.e. we cannot comment on how many guidelines do *not* mention transmasculine and non-binary people. In addition, there is a moderate degree of overlap amongst the included guidelines suggesting that some sources may incorporate content from others included in this review; this may give the impression that all sources are based on original data collection and/or clinical experience. Regardless of this potential overlap we assume that the guidelines have included some degree of adaptation of content to suit local needs and/or experience and

we note that even the most derivative guidelines provide unique, contextualised information.

The adoption of HPV testing in place of Pap smears part way through the time period of this review means that some of the guidance included may be considered out of date in some contexts. Moreover, although we have assessed the extent to which guidelines are based on evidence, we have not assessed the strength of individual claims or recommendations as this was beyond the scope of this review meaning that our synthesis may reproduce inaccuracies found in the guidelines themselves. For instance, although one guideline recommended against the use of lubricants, there is some evidence that lubricants which do not include carbomers do not have a significant effect on specimen adequacy (53).

CONCLUSION

This paper synthesises existing guidelines to ensure service providers can access a summary of recommendations; we did not set out to create a global guideline or to summarise the empirical evidence on this topic. However, our review has identified multiple examples of best practice that may help to ensure that services are relevant and appropriate in this population. Despite this, we suggest that more emphasis on after care (including referral for colposcopy) offers the opportunity to improve the entirety of the patient experience of screening and increase the likelihood of ongoing engagement with services. Most of the guidelines we identified should be updated given recent changes in testing practices; we believe this provides an excellent opportunity to engage with transmasculine people and their clinicians to co-produce updated guidance.

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COMPETING INTERESTS

None.

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CONTRIBUTORSHIP STATEMENT

EJN: Conceptualisation, Formal analysis, Investigation, Writing – original draft, Writing – review and editing. CRM: Conceptualisation, Methodology, Writing – original draft, Writing – review and editing, Supervision. SM: Formal analysis, Writing – original draft. LB: Validation, Writing – original draft. LD: Project administration, Supervision, Writing – original draft. SR: Writing – original draft. DM: Writing – original draft, Funding acquisition. CM: Conceptualisation, Writing – original draft, Writing – review and editing, Funding acquisition.

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TABLE 1: List of included studies

#	Organisation	Authors	Type of source	Year	Country	Title	Target population	Targeted guidance†	Evidence base^
1	Committee on Gynecologic Practice and Committee on Health Care for Underserved Women, American College of Obstetricians and Gynecologists		Professional Medical Society (committee opinion)	2021	USA	Healthcare for transgender and gender diverse individuals		3	3B
2	Center of Excellence for Transgender Health, Department of Family & Community Medicine, University of California, San Francisco		University Research Centre (guidelines)	2016	USA	Guideline for the primary and gender affirming care of transgender and gender non binary people	Transgender people	3	4B
3		Jennifer Potter, Sarah M. Peitzmeier, Ida Bernstein, Sari L. Reisner, Natalie M. Alizaga, Madina Agénor, Dana J. Pardee	Academic and clinical research group/Professional Medical Society (recommendations)	2015	USA	Cervical cancer screening for patients on the female-to-male spectrum: a narrative review and guide for clinicians	Transmasculine people	3	3A
4	Fenway Institute	Sarah M. Peitzmeier	Healthcare, research and advocacy organisation (guidelines)	2013	USA	Promoting cervical screening among lesbians and bisexual women	Lesbians, bisexual women and transgender men	2	3A
5	Cancer Institute New South Wales		Government Health Department	2019	Australia	Cancer screening and primary care: quality improvement toolkit	Transgender and intersex people	3	1

			research group (toolkit)						
6	British Association for Sexual Health and HIV	D. Beere, S. Bracewell, M. Crow, R. Tallon de Havilland, J. Ewan, M. Hillyard, et al.	advocacy organisation (recommendations based on patient experiences)	2019	UK	BASHH recommendations for integrated sexual health services for trans, including non-binary people	Transgender and Non-binary people	3	2BC
7	Asia Pacific Transgender Network (APTN)	Sangita Singh	Trans-led community organisation (guidelines)	2021	Asia Pacific	Guidelines for healthcare providers on trans-competent healthcare services for transgender patients	Transgender people	3	2B
8	Australian Department of Health		National Government Health Department (toolkit)	2017	Australia	Toolkit for engaging under-screening and never-screened women in the national cervical screening program	Under-screened and never-screened women	2	2B
9	Primary Care Women's Health Forum		Gynaecological cancer charity (guidance)	2020	UK	Tips for cervical screening in transgender, non-binary and intersex communities	Transgender, non-binary and intersex people	3	1
10	The Fenway Institute	Rebekah Rollston	Healthcare, research and advocacy organisation (guidelines)	2019	USA	Promoting Cervical Cancer Screening Among Female -to Male Transmasculine Patients	Transmen	3	4B
11	* New York State Department of Health (Clinical Guidelines Program), AIDS Institute	Cervical screening for dysplasia and cancer	State Department of Health (guidelines)	2018	USA	Cervical Screening for Dysplasia and Cancer, Medical Care Criteria Committee	Transgender men, Non-binary	2	4C

12	Family Planning NSW		Non-profit organisation (clinical guidance)	2017	Australia	Implementing the changes to the National Cervical Screening Program: A guide for clinicians	All those included in the National Cervical Screening Program	1	2B
13	RM Partners: West London Cancer Alliance	Carter & Verney	NHS Research-clinician alliance (organisation guidance)	2021	UK	Cervical Screening in Trans Men and Non-binary People with a Cervix: Guidance for Primary Care	Trans Men and Non-binary People with a Cervix	3	1C
14	The Fenway Institute	Thompson, J, Hopwood, RA, de Normand, S & Cavanaugh, T	Healthcare, research and advocacy organisation (guidelines)	2021	USA	Medical Care of Trans and Gender Diverse Adults	Trans and Gender Diverse Adults	3	4B

† Targeted guidance: 1. Population groups mentioned but no substantive engagement in specific needs; 2. Some discussion around targeted provision of care for this group; 3. Substantive discussion of the specific needs of these populations.

^ Evidence base: 1. No evidence or no demonstration of being based on evidence; 2. Some evidence; 3. Significant evidence; 4. Comprehensive and systematic engagement with evidence (e.g. NICE Guidelines). A. Empirical research (outdated); B. Empirical research (current); C. Expert consensus; D. Evidence this was developed with or by communities.

* The New York State Department of Health (Clinical Guidelines Program), AIDS Institute guidelines were updated in March 2022 (following the submission of this manuscript) (54).

TABLE 2: Strategies for reducing anxiety

TOPIC	SOURCE	RECOMMENDATION
Counselling and Pre-Procedure	The Fenway Institute (2021)	• Use a trauma informed approach • Give patients the option to defer the procedure • Give patients the option to have multiple appointments prior to the procedure • Clearly state that the procedure can be stopped at any time • Give patients the option to bring a trusted personal advocate with them into the room
	Potter, Peitzmeier et al. (2015)	• Allow the patient to decide how and to what extent they undress, for example only from the waist down. • Reaffirm with the patient that they are in control and they are free to decide not to go ahead • Agree with the patient beforehand how they will communicate that they want to halt the procedure • If a patient has a history of trauma, ensure that they have a self-care plan in place following the clinic visit
	Center of Excellence for Transgender Health (2016)	• Explain the procedure and the order in which things will occur prior to the examination and allow them time to express concerns • Interview a patient prior to them undressing • Ask the patient to undress from the waist down only • Allow the patient to bring someone with them
	Primary Care Women's Forum (2020)	• Ensure you have informed and explicit consent • Give patients the option to have multiple appointments prior to the procedure • Be aware that some patients may have never experienced vaginal penetration • If possible, tell the patient prior to the procedure that it will help if they are relaxed and that they should bring anything with them that might help them relax
During the Examination	Center of Excellence for Transgender Health (2016)	• Allow the patient to use any strategies that might distract them from the procedure, such as listening to music through headphones • Clearly explain each step of the procedure to the patient throughout • One strategy which may help with discomfort is suggesting that the patient move their buttocks to the end of the examination table and encouraging pelvic relaxation • If healthcare provider senses tension or anxiety, a verbal relaxation exercise may help the patient to relax • Allow the patient to observe the procedure using a mirror • Some healthcare providers report that, prior to insertion of a speculum, inserting one or two fingers into the vagina

		and applying posterior pressure while the patient flexes and relaxes their pelvic floor muscles may make the insertion of the speculum more comfortable
	The Fenway Institute (2021)	• Give the patient to option to put their feet on the table instead of using stirrups
	Potter, Peitzmeier et al. (2015), Primary Care Women's Forum (2020)	• Give the patient the option not to use stirrups and/or the dorsal lithotomy position

TABLE 3: Strategies for reducing discomfort

TOPIC	SOURCE	RECOMMENDATION
Use of oestrogen	Center of Excellence for Transgender Health (2016)	• If patient is using testosterone, the use of topical vaginal oestrogens 1-2 weeks prior to the exam may decrease vaginal atrophy and reduce discomfort
	Primary Care Women's Forum (2020)	• If patient is using testosterone, suggest using a natural vaginal moisturiser prior the appointment • If patient is using testosterone, using an oestrogen cream prior to the appointment may be helpful (however, many transgender men will prefer not to)
	Beere, Bracewell et al. (2019)	• If an inadequate sample is taken, topical oestrogen should be used nightly for two weeks prior to repeating the test
	Potter, Peitzmeier et al. (2015)	• Healthcare providers interviewed suggested that low-dose topical oestrogen should be applied for 5 nights prior to the procedure.
	Family Planning NSW (2017), Cancer Institute NSW (2019)	• Topical oestrogen may help to make the procedure more comfortable.
Lubrication	Center of Excellence for Transgender Health (2016)	• Using warm water to lubricate a narrow speculum may decrease discomfort • A small amount of lubricant on a speculum may decrease discomfort, however, this may also increase the risk of an unsatisfactory sample
	Primary Care Women's Forum (2020)	• Use of lubricant with a small speculum may reduce discomfort
Anxiolytics and analgesia	Potter, Peitzmeier et al. (2015)	• Use of topical lidocaine may reduce discomfort • Should benzodiazepines be used, careful consideration should be given with regards to trauma history, as these can reduce a patient's sense of control and therefore have the potential to retraumatise them
	Center of Excellence for Transgender Health (2016)	• Administration of benzodiazepines 20-60 minutes prior to the exam may be appropriate where patients are experiencing severe anxiety
Speculum	Center of Excellence for Transgender Health (2016)	• Using a paediatric speculum may reduce discomfort, however, if it is too short it may require excessive external pressure to visualise the cervix

		• Allowing a patient to insert the speculum themselves and observe the procedure using a mirror may reduce discomfort
	Potter, Peitzmeier et al. (2015)	• Using a long, narrow or paediatric speculum may help to reduce discomfort • Give the patient the option to insert the speculum themselves
	The Fenway Institute (2021)	• Giving patients the option to insert the speculum may reduce discomfort
	Primary Care Women's Forum (2020)	• Using the smallest sized speculum may reduce discomfort • Giving patients the option to guide the speculum may help them to feel in control

TABLE 4: Strategies to ensure a viable sample

TOPIC	SOURCE	RECOMMENDATION
Failed sample and false positives	The Fenway `Institute (2021)	• Discuss the possibility that an inadequate sample may be collected with the patient prior to the procedure. • Use multiple sampling tools (brush, broom, spatula).
	Primary Care Women's Forum (2020)	• Explain to patients that they are more likely to receive an abnormal result if they are taking testosterone, but reassure them that taking testosterone does not increase the risk of cervical cancer. • An extended brush may increase the chance of an adequate sample.
	Potter, Peitzmeier et al. (2015)	• Swab a wide circumference of the cervix using multiple sampling tools to reduce the chances of an inadequate sample.
Labelling and processing	New York State Department of Health AIDS Institute (2018)	• Testosterone and amenorrhea should be recorded to enable more accurate interpretation of the sample.
	Center of Excellence for Transgender Health (2016) Primary Care Women's Forum (2020)	• Testosterone and amenorrhea should be recorded to enable more accurate interpretation of the sample. • Make clear that the sample is clearly marked as a cervical Pap smear. This is especially important if patients' gender is recorded as 'male' as this may result in the sample either being discarded or incorrectly identified as an anal sample.
	Beere, Bracewell et al. (2019)	• Samples may require additional labelling to prevent being rejected by laboratories • Patient consent should be requested where additional labelling includes information regarding gender status and testosterone therapy and that patients should have the reasons for this inclusion explained to them.