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Imaging Care for Transgender and Gender Diverse Patients: Best Practices and Recommendations

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Profession(s)

Radiographer

Graduate Clinical Technologist

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Supplementary Diagnostic Radiographer

Restricted Supplementary Diagnostic Radiographer

Electro-Encephalographic Technician

You can complete any one, or all the parts of this activity

Part 1 is approved for **THREE (3) Clinical** Continuing Education Units (CEU's)

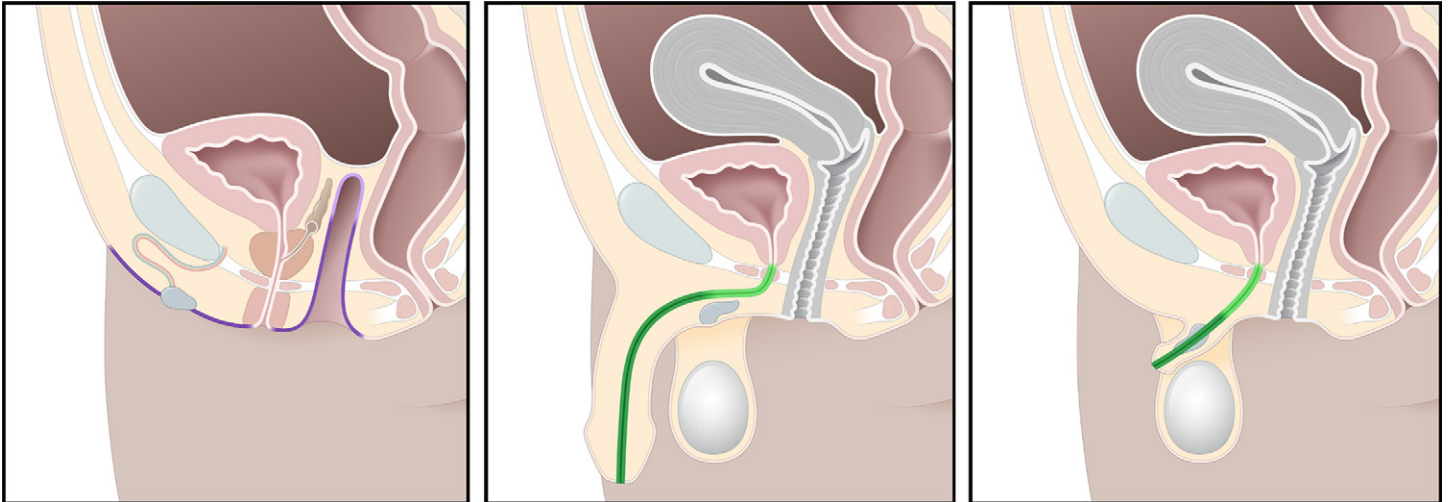
Part 2 is approved for **TWO (2) Clinical** Continuing Education Units (CEU's)

Imaging Care for Transgender and Gender Diverse Patients: Best Practices and Recommendations

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See the invited commentary by [Stowell](#) in this issue. Conflicts of interest are listed at [the end of this article](#).



Transgender and gender diverse (TGD) people experience health disparities, and many avoid necessary medical care because of fears of discrimination or mistreatment. Disparate care is further compounded by limited understanding of gender-affirming hormone therapy (GAHT) and gender-affirming surgery among the medical community. Specific to radiology, TGD patients report more negative imaging experiences than negative general health encounters, highlighting the need for guidance and best practices for inclusive imaging care. A patient's imaging journey provides numerous opportunities for improvement. Inclusive practice in a radiology department starts with ordering and scheduling the examination, facilitated by staff education on appropriate use of a patient's chosen name, gender identity, and pronouns. Contemporary electronic health record systems have the capacity for recording detailed sexual orientation and gender identity data, but staff must be trained to solicit and use this information. A welcoming environment can help TGD patients to feel safe during the imaging experience and may include institutional nondiscrimination policies, gender-neutral signage, and all-gender single-user dressing rooms and bathrooms. Image acquisition should be performed using trauma-informed and patient-centered care. Finally, radiologists should be aware of reporting considerations for TGD patients, such as avoiding the use of gender in reports when it is not medically relevant and using precise, respectful language for findings related to GAHT and gender-affirming surgical procedures. As a field, radiology has a range of opportunities for improving care delivery for TGD patients, and the authors summarize recommended best practices.

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Introduction

Transgender and gender diverse (TGD) people are becoming more visible as acceptance improves. More than one in 200 adults and more than one in 100 high school students identify as TGD (1,2). TGD people are often marginalized and face disparities in health care, housing, employment, criminal justice, and insurance coverage (3).

Twenty-three percent of TGD people avoid seeking necessary medical care because of fears of discrimination or mistreatment (3). Health care discrimination includes refusal of service, provider inexperience, verbal harassment, and even violence (3). Diagnostic errors can result from lack of knowledge about TGD health, such as overlooking pregnancy as a cause of abdominal pain in a transgender man (4). When



Supplemental Material



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Abbreviations: ACR = American College of Radiology, DXA = dual x-ray absorptiometry, EHR = electronic health record, GAHT = gender affirming hormone therapy, ISCD = International Society for Clinical Densitometry, SOGI = sexual orientation and gender identity TGD = transgender and gender diverse

Quiz questions for this article are available in the supplemental material.

TEACHING POINTS

- The patient's chosen name and personal pronouns should always be used.
- If misgendering occurs, the appropriate response is to apologize briefly, use the correct pronouns, and move on.
- EHR software from all the major vendors has the capacity to store SOGI information, but health system personnel must activate this feature and train staff to collect and use these data.
- Transgender status and gender identity should not be included in the report unless they are pertinent to the examination.
- Gender diversity training, even through short learning modules, is effective at improving comfort for both providers and patients and should be required for all radiology staff.

medical professionals receive even short educational sessions about issues faced by TGD people, provider transphobia is reduced (5). Moreover, patient perception of provider knowledge affects health care engagement; TGD patients who believe providers are knowledgeable about TGD care are more likely to seek medical attention (6). The cultural view of gender as a binary system not only degrades care for individual patients but also stifles research by obscuring TGD people in public health records.

TGD patients experience disparities specific to radiology. Physician and staff ignorance about TGD health is a barrier to effective care and unfairly transfers responsibility to the patient. One-third of TGD patients report having to educate imaging staff to receive appropriate care (7). More than 70% of TGD patients have had at least one negative imaging experience (7). This compares unfavorably to the results of a 2015 survey (3), in which only 33% of respondents reported at least one negative general health care encounter. This discrepancy suggests that radiology may be less likely than other specialties to provide inclusive TGD care, highlighting a clear opportunity for improvement (7). US, mammography, and image-guided procedures are particularly linked to emotional discomfort. Use of incorrect terminology, staff discomfort in caring for TGD people, and the lack of an inclusive environment are other negative contributors.

Radiologists are an integral part of the medical team and share responsibility for patient experiences and outcomes. A road map of the patient's imaging journey is depicted in Figure 1, which provides a framework for this article and identifies opportunities for improvement. Through four specific patient vignettes, common scenarios that TGD patients face are presented to provide context and illustrate the importance of this topic. Recommendations of best practices are provided throughout this article to guide radiology departments in providing inclusive imaging care.

Review of Appropriate Language

When caring for TGD people, it is important to use proper terminology (Table 1) (8,9). TGD people have a gender identity that is discordant with their assigned sex at birth. Transgender women were assigned male at birth and identify as women. Transgender men were assigned female at birth and identify as men. Some gender diverse individuals may not conform to a traditional binary gender construct and may describe their gender identity as nonbinary, genderqueer, genderfluid, or agender, among many others. Transfeminine and transmasculine are adjectives that may be used for gender diverse persons to localize their gender identity along an axis of masculine and feminine. The patient's chosen name and personal pronouns should always be used. Some TGD people may not legally change their name because of personal or legal barriers; thus it is important to ask patients what they prefer to be called. Honorifics such as Mr, Mrs, and Ms should be avoided unless otherwise stated by the patient. Sexual orientation and gender identity (SOGI) are distinct entities, and one should not make assumptions about a person's sexual orientation on the basis of their gender identity. Furthermore, questions about a patient's sex assigned at birth, genitals, or transition status (social, medical, or surgical) should be avoided unless they are relevant to the medical encounter (Table 2).

Terminology related to TGD people continues to evolve; terms that have been used previously in medical literature may be seen as outdated or even offensive today. Transgender is an adjective, not a noun or a verb (eg, a patient is a transgender woman, not "a transgender" or "transgendered"). Each person's pronouns are personal and not "preferred." Some TGD individuals may use nongendered they/them pronouns, used grammatically as singular pronouns, or other neopronouns such as ze/zir. Other individuals may use names instead of pronouns. A patient's chosen name and pronouns should never be placed in quotation marks because this can be invalidating. Misgendering is when the wrong pronouns are used when referring to someone. If misgendering occurs, the appropriate response is to apologize briefly, use the correct pronouns, and move on. Lengthy explanations and excuses only increase awkwardness and may make TGD patients feel more uncomfortable.

Health care that respects and supports TGD patients is termed *gender-affirming care*; this term includes but is not limited to care related to medical and surgical gender transition. Although not all TGD people need or seek gender-affirming hormone therapy (GAHT) or surgery, gender-affirming interventions have been proven to be effective in treating gender dysphoria and improving quality of life for those who seek them (10–13). The World Professional Association for Transgender Health and medical societies such as the American Medical Association agree that gender-affirming surgical procedures are medically necessary and not cosmetic or elective surgery (14–16).

Patient Imaging Journey: Before Examination

Vignette 1

A 42-year-old transgender man referred for screening mammography before chest masculinization surgery has a 10-year

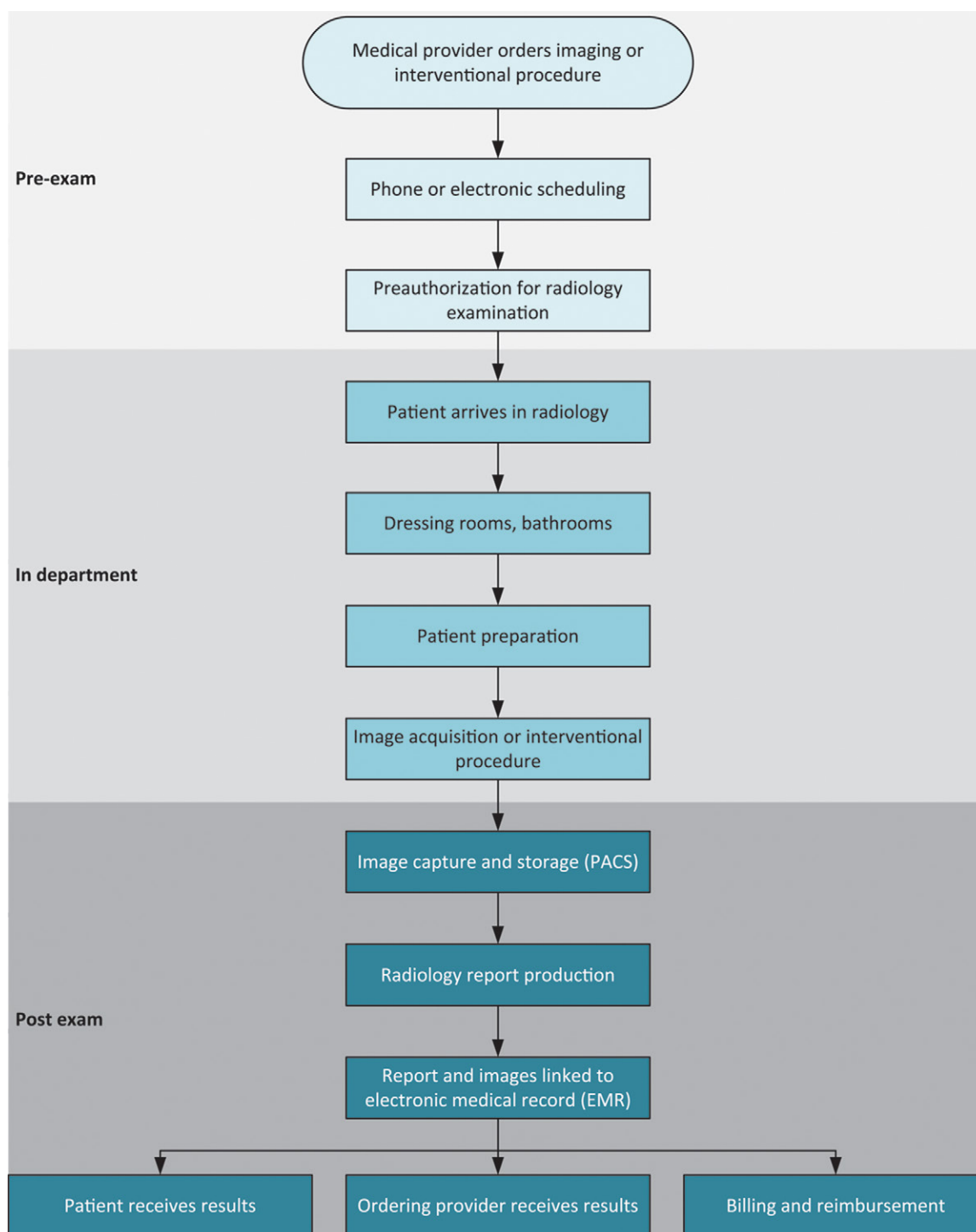


Figure 1. Road map of the patient imaging journey. PACS = picture archiving and communication system.

history of taking masculinizing GAHT and a family history of breast cancer. Scheduling is confusing and awkward, he receives a pink informational guide all about breasts, and he is directed to the “Women’s Imaging” department for his appointment.

Electronic Health Records, Ordering, and Scheduling

In 2015, the U.S. Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology announced that electronic health record (EHR) systems must have the ability to collect SOGI data

(17–19). Both the Institute of Medicine and The Joint Commission recommend routine collection of SOGI information and inclusion of it in the EHR (8,19,20). Thus, practitioners at most medical centers can distinguish gender identity from sex assigned at birth through the EHR (Fig 2).

Collection of SOGI data is designed to help address health disparities. EHR software from all the major vendors has the capacity to store SOGI information, but health system personnel must activate this feature and train staff to collect and use these data. Patients recognize the importance

Table 1: Terminology

Term	Definition
Gender	A social and legal status; may include societal expectations for men and women, including roles, behaviors, characteristics, and standards; can be described as feminine, masculine, androgynous, and much more
Sex (sex assigned at birth)	Assigned or identified at birth primarily on the basis of phenotypes including reproductive anatomy and secondary sex characteristics Outdated terms: birth sex, natal sex, biologic sex
Gender identity	A person's internal, deeply felt sense of gender, which may or may not align with one's sex assigned at birth
Transgender (trans)	Umbrella term for people whose gender identity does not align with assigned sex at birth Transgender man: assigned female at birth, identifies as male Transgender woman: assigned male at birth, identifies as female Outdated or offensive terms: transsexual, transvestite, transgenders, transgendered
Cisgender (cis)	Gender identity aligns with assigned sex at birth
Gender diverse	Gender identity does not exclusively align with a binary male or female gender; may identify as nonbinary, genderqueer, genderfluid, or agender among others
Pronouns	Words used to refer to someone when a noun is not needed (eg, he/him/his, she/her/hers, they/them/theirs, ze/hir/hirs, ze/zir/zirs)*
Gender expression	Outward manifestations of gender (eg, behavior, dress, grooming, voice, facial or body characteristics)
Gender transition	Taking personal, legal, or medical steps to change one's gender Personal: telling other people, use of affirmed name and pronouns, dress, grooming Legal: changing one's legal name and gender Medical: gender-affirming hormonal therapy and surgery Outdated or offensive terms: sex change, sex reassignment
Gender dysphoria	DSM-V term describing psychologic distress due to incongruence between one's experienced gender and one's assigned gender, lasting at least 6 months and requiring societal, occupational, or functional impairment for diagnosis Note that not all transgender people have gender dysphoria Outdated terms: gender identity disorder, transsexualism
Gender-affirming care	"Holistically attends to transgender people's physical, mental, and social health needs and well-being while respectfully affirming their gender identity" (72)

Note.—For more information, visit the National Center for Transgender Equality (www.transequality.org) or GLAAD (www.glaad.org).

* Or use the patient's name instead of pronouns.

† DSM-V = *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition).

of discussing SOGI with providers (21–26). Chosen name, pronouns, and legal name may be asked at initial intake, but sensitive questions regarding SOGI should be asked privately during the clinical encounter (27). Although data collection is largely dependent on clinicians, radiology departments should encourage staff to solicit and use this information in guiding patient interactions.

The workflow for ordering and scheduling examinations varies among health systems. For most EHRs, any imaging study can be ordered for patients of any gender. Ordering clinicians may communicate directly with the radiology call center or scheduling team, or patients may call to schedule appointments. When scheduling the examination, staff should be trained to ask patients what they prefer to be called and to ensure that their chosen name and pronouns are available in the EHR. If there are questions about the appropriateness of the study, clerical staff should address discrepancies with their supervisor or the ordering provider rather than with the patient.

Preauthorization

Insurance coverage for general health care and transition-related care for TGD people is slowly improving through Medi-

care, state Medicaid programs, and private insurers. However, 10% of TGD patients still experience exclusions in coverage for imaging studies on the basis of their gender identity (7). Medicare coverage decisions for transition-related care are made on a case-by-case basis, making TGD patients vulnerable to coverage gaps in the absence of a national standard (28). Thus, practitioners should be aware that coverage is variable, even within the same state, where gender nondiscrimination policies may vary between public and private insurers.

Preauthorization from insurance payers is usually not required for mammography or US but may be needed for advanced imaging such as CT, MRI, and PET/CT. If imaging is not preauthorized, patients may be asked to sign a form accepting that they may be financially responsible for the examination. Preauthorization coordinators obtain approval from insurance companies by supplying the patient name, date of birth, examination requested, and indication. Sex and gender are usually not required fields in the preauthorization process (personal communication, Lauren Esch, University of Michigan Department of Radiology, 4/11/2022). However, each health system or insurance payer is different, and this process may be problematic for patients in some centers. For example,

Table 2: Do’s and Don’ts in Delivery of Imaging Care for TGD Patients

Do
Greet people using their chosen name and pronouns
Apologize briefly if you misgender someone, while avoiding lengthy explanations
Prominently display inclusive symbols and an institutional or departmental nondiscrimination policy
Encourage staff to wear pronoun pins or stickers on their work badge
Use chaperones for sensitive examinations
Use a trauma-informed approach to image acquisition, including patient-centered care
Review the EHR to understand a patient’s expected imaging findings (surgical anatomy, GAHT appearance)
Allow patients’ preferred terminology to guide references to sensitive anatomy during the examination
Use precise, anatomic language throughout the radiology dictation
Establish departmental educational modules on TGD health care, implicit bias, and bystander intervention
Don’t
Use gendered honorifics (Mr, Ms, Mrs), unless otherwise specified
Use “transgenders,” “a transgender,” or “transgendered”; transgender is an adjective
Make gendered assumptions on the basis of outward appearance, including a patient’s reproductive capacity
Reveal a person’s transgender status; this is protected by HIPAA (Health Insurance Portability and Accountability Act) and outing a patient could be potentially dangerous for them
Ask invasive questions about a person’s gender transition or intimate anatomy not related to the visit
Question patients if there are discrepancies when scheduling the imaging study; questions should be addressed with the ordering providers
Use unnecessarily gendered signage (eg, “Women’s Imaging”), decorating schemes, or gowns
Provide only binary gender-labeled options for dressing rooms and restrooms
Assume anatomy on the basis of preconceived expectations of cisgender patient anatomy
Auto-populate gender and sex into a dictation, which increases the likelihood of misgendering and misinterpretation

transgender women who qualify for screening breast MRI may be denied coverage if their legal sex is listed as male. Furthermore, insurance may cover surgical or postoperative gender-affirming care but not preoperative evaluation (eg, CT angiography for phalloplasty planning). When possible, the best practice is for coordinators to submit preauthorization claims before the patient has incurred costs for any transition-related imaging care (29).

Although ordering clinicians are largely responsible for diagnoses in the patient’s EHR, radiologists and administrative staff should be aware of ICD (*International Classification of*

Diseases) or DSM (*Diagnostic and Statistical Manual of Mental Disorders*) codes for billing purposes related to gender-affirming care. Diagnoses of gender incongruence (ICD-11) and gender dysphoria (DSM-V) may be required for insurance coverage of corresponding CPT (*Current Procedural Terminology*) codes. Suggestions for best practices include ensuring documentation of relevant diagnostic codes to minimize obstacles to insurance coverage (30). Staff should be prepared to work with ordering clinicians as needed to appeal insurance claim denials (29).

Patient Instructions

Patient education materials should be concise, patient-centered, and written in plain language. Patient information should be assessed for inherent assumptions and projections about sex and gender. For example, breast and pelvic imaging should not be called “Women’s Imaging.” When in doubt, use the words *patient* or *person* rather than *woman* or *man*, and employ basic anatomic terms. Describing the purpose and use of the examination using anatomic and gender-neutral terminology shows respect for both patient autonomy and gender identity. Some TGD patients, such as the man in Vignette 1, may be uncomfortable with anatomic terms such as *breast* and may prefer *chest*. Because *breast* is a nongendered medical term, it is a reasonable choice to use before meeting a patient and asking their preferred language. It may be helpful to highlight terms such as *cancer screening* or *mammography*. Research on patient preferences is needed to optimize precise medical language that is maximally inclusive for both TGD and cisgender patients.

Patient Imaging Journey: Day of Examination

Vignette 2

A 29-year-old transgender woman taking feminizing GAHT for 3 years is referred for an outpatient US examination. She has not yet legally changed her name. Despite filling out her chosen name and gender on the registration form, she is called from the waiting room by her legal name. She is very embarrassed and considers leaving the radiology department.

Arrival in Radiology Department or Imaging Center

First impressions of the radiology suite are important. An inclusive environment signals that the department is welcoming and safe for TGD persons and may alleviate patient anxiety. Departments should display affirmative and supportive symbols (eg, transgender equality or rainbow flags), diversity-affirming reading materials, a visible nondiscrimination policy, staff badge pronouns, and gender-neutral signage and decor that support a culture of acceptance (7,30,31) Outside the radiology department, organizational leaders should create a welcoming environment, with the same visual cues throughout the entire facility (32).

Check-in with Clerical Staff

Ideally, the patient’s chosen name and gender identity are available in the EHR at the time of patient registration. Radiology staff should be trained to confirm this information

Figure 2. Example of sexual orientation and gender identity (SOGI) information that can be stored in the Epic EHR (Verona, Wisconsin). (©2022 Epic Systems Corporation.)

to avoid misgendering or “outing” patients (33,34). TGD patients can feel exposed when their legal name is used rather than their chosen name (35). As with the patient in vignette 2, this can be a source of severe distress or invalidation. Patients should always be greeted or announced by their chosen name if it is listed in the EHR. If the chosen name is not yet known, staff should call patients by their last name, then use their date of birth for verification. Alternatively, practices could consider assigning a number when patients check in for an imaging study and announcing that number when it is their turn; this approach eliminates the risk of calling patients by nonpreferred names and protects privacy for everyone in the waiting area. Additional intake forms should be completed privately to protect confidentiality (31,36,37). A recommended two-step approach is to ask about a patient’s gender identity first and then query for sex assigned at birth (37–39).

Staff should avoid assumptions regarding reproductive capacity. For studies in which ionizing radiation is used, urine pregnancy testing should be considered in any patient with the potential to become pregnant. This may include cisgender women, transgender men, and gender diverse individuals assigned female at birth.

Dressing Rooms and Restrooms

Dressing rooms are often labeled with gender-specific terms (eg, men and women) or symbols, which is a potential source of patient anxiety. Single-user, gender-neutral dressing rooms are the best practice. If a binary structure must be retained for de-

sign or structural purposes, ask patients which dressing room they prefer, and ensure that a single-user option is available. When hospital gowns or robes are needed, they should be gender-neutral in cut and color, with a range of sizes. There should be gender-neutral waiting rooms for gowned patients awaiting imaging studies. Single-user, all-gender restrooms with clear labels should also be available throughout the facility.

Trauma-informed Care

TGD people are more likely to have experienced trauma compared with the general population, with approximately 50% having experienced intimate partner violence or sexual assault in their lifetime (3). Trauma-informed care is an approach that enables providers to serve trauma survivors better and improve health outcomes. A basic understanding of trauma-informed care should guide interactions with all patients and is of particular importance in marginalized populations.

Providers should use universal trauma precautions, including patient-centered communication, provision of a safe environment, and protection of patient privacy (40). Such precautions are essential for more potentially traumatizing imaging procedures, particularly for US, mammography, and image-guided procedures (7). Trauma-specific care further uses knowledge of an individual’s trauma history to guide care that allows patients to have a sense of control. Radiology personnel can help to ease anxiety by thoroughly explaining imaging procedures and empowering patients to participate

in the examination, giving patients control when possible; examples of these practices are discussed in the next section. Patients should be warned when image acquisition will be invasive (eg, endoluminal imaging), constrictive (eg, MRI), or weighted (eg, lead apron shielding) (41).

Patient Imaging Journey: During Examination

Vignette 3

An 18-year-old nonbinary patient (they/them pronouns) assigned female at birth is referred for pelvic US. The patient is initially misgendered by the sonographer. After the patient points out that they have been misgendered, the sonographer offers a lengthy apology and explanation. The patient feels guilty and remains uncomfortable. During the transvaginal portion of the pelvic US, the patient becomes severely anxious about exposure to the invasive US probe and the way to which their genitals are referred.

Respectful Imaging Acquisition

The process of image acquisition provides several opportunities to improve inclusivity. When obtaining the patient's clinical history, the provider should avoid questions about the patient's genitalia, surgical status, or current point in transition if they are not directly relevant to the examination (31). If knowledge of a patient's intimate anatomy is integral to performing the imaging study, radiology personnel should respectfully ask patients about their anatomy and explain the basis for the question (42). Providers should ask patients their preferred terminology for anatomic organs (eg, chest instead of breast). For TGD and cisgender patients undergoing pelvic US or other endoluminal procedures, departments should routinely offer chaperones. Inviting patients to manually or verbally guide an endoluminal probe, syringe, or dilator during initial placement may confer a sense of control over the examination and may make the experience less uncomfortable; this may have helped the patient in vignette 3. Patients should be empowered to stop examinations or procedures at any time.

In addition, radiologists and staff should be aware of modality-specific considerations for image acquisition (Table 3) (30,43). For radiography, fluoroscopy, and CT, gonadal or lead shielding may be used to protect reproductive organs. Although the use of gonadal shielding has declined, when local policy favors shielding or when patients request it, technologists should explain the purpose of shielding and respectfully inquire which pelvic organs require protection.

For US, radiologists and sonographers should be aware that nearly 50% of TGD patients report emotional discomfort, particularly with transvaginal, testicular, and breast or chest US (7). This highlights the necessity of a trauma-informed approach. Providers must complete a detailed EHR review, understand the patient's surgical history, and communicate openly with patients to perform a nontraumatic diagnostically complete examination. Additional considerations are discussed in Table 3.

MRI-specific considerations include choosing and following an imaging protocol and interpreting the images. Appropriate

sequence selection requires understanding the patient's anatomy and the clinical question. For example, in a transgender woman with a genetic predisposition to breast cancer who is receiving estrogen therapy, hormonal changes in breast tissue may affect the sensitivity of screening breast MRI and dynamic contrast-enhanced MRI sequences. As another example, in a transgender man who underwent metoidioplasty with a concern for a urethral fistula, a pelvic MRI fistula protocol with high-spatial-resolution sequences and a small field of view would be most appropriate. Depending on the protocol, these examinations may be more invasive and uncomfortable for patients if rectal gel or neovaginal dilators are used (43). In such cases, it is necessary to employ a trauma-informed approach. For detailed discussion about MRI protocols for TGD patients, readers are referred to excellent existing resources (43,44).

Guidelines and Screening Recommendations

Radiology has lagged behind other disciplines in original research and guidelines for the TGD population (45). A survey of breast imaging radiologists showed that only one-third follow guidelines or provide screening recommendations for transgender women or transgender men with residual breast tissue (46). This may, in part, be responsible for lower screening rates in TGD people (range, 2%–50% of TGD patients) when compared with those for cisgender women (range, 67%–78% of cisgender women) (47). In 2021, the American College of Radiology (ACR) took a step toward addressing these disparities by developing guidelines on the basis of expert consensus, retrospective cohort studies, and extrapolation from cisgender populations (48). Annual screening is recommended for TGD persons assigned male at birth who have been taking feminizing GAHT for 5 or more years, starting at the age of 40 years. Breast cancer screening recommendations for TGD persons assigned female at birth who have residual breast tissue are the same as those for cisgender women. For TGD people who have undergone gender-affirming bilateral mastectomy, screening is not recommended (49). Additional recommendations based on risk profile, age, and gender-affirming therapies are detailed in the ACR Appropriateness Criteria (48).

TGD people have additional special considerations for bone health. Sex hormones are important for osseous metabolism, and insufficient hormone replacement therapy increases the risk of osteoporosis, particularly after gonadectomy. The International Society for Clinical Densitometry (ISCD) issued guidelines regarding the use of dual x-ray absorptiometry (DXA) in TGD patients (50). Bone mineral density monitoring is not indicated for those who are taking standard GAHT regimens. However, baseline DXA is recommended in patients who have undergone gonadectomy or hypogonadal patients who are not taking GAHT. Serial DXA examinations are suggested for individuals who are suppressing puberty or for patients with insufficient hormone replacement therapy. Detailed recommendations are provided in published guidelines by the ISCD (50).

A lack of longitudinal research and epidemiologic data has created uncertainty surrounding other cancer screening in the TGD population. In general, if a TGD patient has a body part or organ that meets criteria for screening, standard screening

Table 3: Considerations in Imaging Acquisition for TGD Patients

Modality	Indications Specific to Gender-affirming Care	Patient-centered Changes in Technique
US		
Breast or chest	Complications after MCS or FCS Extracapsular rupture of a silicone implant US-guided aspiration or drain placement	Invite patients to help with manipulation of breast or chest tissue Be sensitive to applied pressure in patients with scarring or less volume of residual tissue
Pelvic	Complications after MGS Postoperative complications in neovagina	Consider alternative approaches for diagnosis (eg, transabdominal over transvaginal) or different modalities Invite patients to insert the endoluminal probe
Obstetric	...	Avoid gendering pregnant patients (eg, “mommy”) Use assigned sex rather than gender in discussions about the fetus (73)
Testicular	Complications from feminizing orchiectomy Postoperative complications in a neoscrotum	Invite patients to help with genital manipulation (eg, dorsal penile or neophallus displacement)
Mammography	Screening before MCS Screening in patients with residual breast tissue after masculinizing GAHT or MCS Screening in patients taking feminizing GAHT after breast augmentation	Be sensitive to pain in patients with scarring or less residual tissue Use smaller compression paddles Include implant-displaced views per standard protocols
Radiography	...	Per standard imaging protocols
Fluoroscopy	Neovaginal stenosis or fistula Rectal fistula Urethral stenosis or fistula	Administer endoluminal water-soluble contrast material Invite patients to insert endoluminal syringes themselves Consider antegrade or retrograde urethrography Allow additional time for voiding
CT		
Maxillofacial	Preoperative planning for facial gender-affirming surgery Postoperative complications	Contrast-enhanced imaging
Abdominal and pelvic	Preoperative planning for phalloplasty flap Complications after gender-affirming genital surgery CT-guided aspiration or placement of a drain	CT angiography; thin sections with three-dimensional and maximum intensity projection reconstructions Contrast-enhanced CT, with field of view extended to the mid thighs Consider delayed urography, cystography, and endoluminal injection (eg, water-soluble contrast material in the neovagina or rectum) Invite patients to insert endoluminal syringe
MRI		
Breast	Assess silicone implants or injections Breast cancer screening in patients after silicone injections	Silicone-suppression sequences Consider supine imaging after MCS
Pelvic		
After FGS	Neovaginal stenosis or fistula Neovaginal prolapse Assess residual erectile tissue Prostate cancer in patients assigned male at birth	Gadolinium-enhanced MRI Invite patients to insert dilators and endoluminal syringes and coils High resolution and small field of view, neovaginal water-based gel Dynamic maneuvers (eg, rest, Kegel exercises, Valsalva maneuver, or rectal evacuation), use neovaginal or rectal water-based gel Use a silicone or plastic neovaginal dilator
After MGS	Evaluate erectile implants or testicular prostheses	Gadolinium-enhanced MRI Dorsal displacement of the neophallus, z-axis alignment Invite patients to inflate and deflate devices and manipulate genitalia
Angiography	Postoperative vascular compromise	Digital subtraction angiography Protect patient privacy with adequate draping of sensitive areas

Note.—An important patient-centered consideration with all modalities is asking and using patients’ preferred terminology for intimate anatomic structures (eg, breast or chest, genitalia, gonads). Radiology personnel should be particularly sensitive to emotional distress in patients with these indications, because postoperative complications may be seen as a setback in gender transition. FCS = feminizing chest surgery, FGS = feminizing genital surgery, MCS = masculinizing chest surgery, MGS = masculinizing genital surgery.

Table 4: Common Gender-affirming Surgical Procedures

Feminizing procedures
Facial feminization
Thyroid cartilage shave (chondroplasty)
Breast augmentation
Orchiectomy
Urethroplasty
Vaginoplasty
Labiaplasty
Masculinizing procedures
Facial masculinization
Thyroid cartilage graft (thyroplasty)
Mastectomy, nipple grafting
Hysterectomy, oophorectomy, vaginectomy
Urethral lengthening
Phalloplasty versus metoidioplasty
Scrotoplasty, testicular and erectile prostheses

should be performed regardless of GAHT (51). For example, although imaging procedures are not the primary method of screening for cervical cancer or prostate cancer, radiologists should be aware that TGD patients are still at risk, and screening recommendations follow the guidelines used for cisgender women and men with these organs (51,52).

Patient Imaging Journey: Examination Complete

Vignette 4

A 43-year-old transgender woman presents to the emergency department with acute abdominal pain. She has been taking feminizing GAHT for 13 years and underwent gender-affirming genital surgery 5 years ago. On viewing her abdominal and pelvic CT report, she notices that the radiologist reported that she underwent hysterectomy, which is inaccurate.

Radiologic Reporting

Radiologic reporting provides another important opportunity for inclusive practice. Pitfalls for radiologists include limited understanding of gender transition–related changes, the absence of a lexicon to report such changes in an inclusive and affirmative manner, unknown individual patient history, and apparent sex and gender mismatches among information in the EHR, PACS (picture archiving and communication system), and imaged anatomy. As with the patient in vignette 4, this apparent mismatch can lead to erroneous reporting and confusion. Under the 21st Century Cares Act of 2016, electronic radiologic reports are immediately visible to patients once they are finalized; thus, radiologists must be sensitive to patient experience and perception of their reports. The objective for this section is to provide guidelines for patient-centered reports that are anatomically precise and inclusive for those who have undergone gender-affirming interventions. For detailed information on imaging manifestations of gender-affirming surgical procedures or hor-

monal treatments, readers are referred to recent articles in the literature (43,44).

Transgender status and gender identity should not be included in the report unless they are pertinent to the examination. Misgendering in radiology reports is not uncommon and affects one in four TGD patients (7). Gender is usually not necessary to include in the report, especially because this information has multiple possible sources of inaccuracy. Although contemporary EHRs include various SOGI options, the information is only valid if a staff member has taken the time to solicit and enter it correctly. Many PACS pull the legal sex from the EHR SOGI data; if DICOM (Digital Imaging and Communications in Medicine) data are then used to autopopulate a radiology report, the report may reflect legal sex rather than gender identity. Misgendering can result in errors in interpretation, patient distress, and mistrust in report accuracy.

Reporting Lexicon for Gender-affirming Care

TGD patients may take steps to better align their physical body with their gender identity through GAHT and gender-affirming surgery. Three major categories of gender-affirming surgery are genital reconstruction, maxillofacial contouring, and body contouring. For the purposes of this article, gender-affirming procedures are classified as masculinizing or feminizing (Table 4). Accurate anatomic terminology and descriptions of postsurgical changes are essential for all patients. When possible, radiologists should also use affirming language when reporting on sensitive areas for TGD patients (eg, breast, genitalia, and reproductive system). It is important to note that preferred terminology is constantly evolving, and there is no uniform agreement among TGD people. For example, although *gender-reassignment surgery* and *gender-confirmation surgery* have been replaced by *gender-affirming surgery* as the preferred terminology, some TGD individuals still favor these older terms. These terms are different from *sex reassignment*, which is universally outdated. In the next subsections we discuss current inclusive terminology that is most widely accepted by TGD patients and how to avoid reporting pitfalls.

Feminizing Gender-affirming Interventions.—Feminizing GAHT typically includes estradiol and an androgen blocker, inducing the development of breast tissue that is histologically identical to that in cisgender women (53,54). Therefore, breast tissue in transfeminine patients who were assigned male at birth should not be reported as gynecomastia, which is a frequent misconception. The most common feminizing body contouring technique is breast augmentation, which can be reported in the same manner as for cisgender women who have undergone this procedure.

Vaginoplasty and orchiectomy are the two primary feminizing genital reconstruction surgical procedures. Vaginoplasty is the creation of a functional and cosmetically acceptable neovagina. Penoscrotal inversion vaginoplasty is the most common technique (Fig 3). Preferred terminology for transgender women who have undergone vaginoplasty include vaginoplasty, gender-affirming genital surgery, or feminizing genital reconstruction surgery. The prostate remains intact after vaginoplasty or orchiectomy. Radiologists should

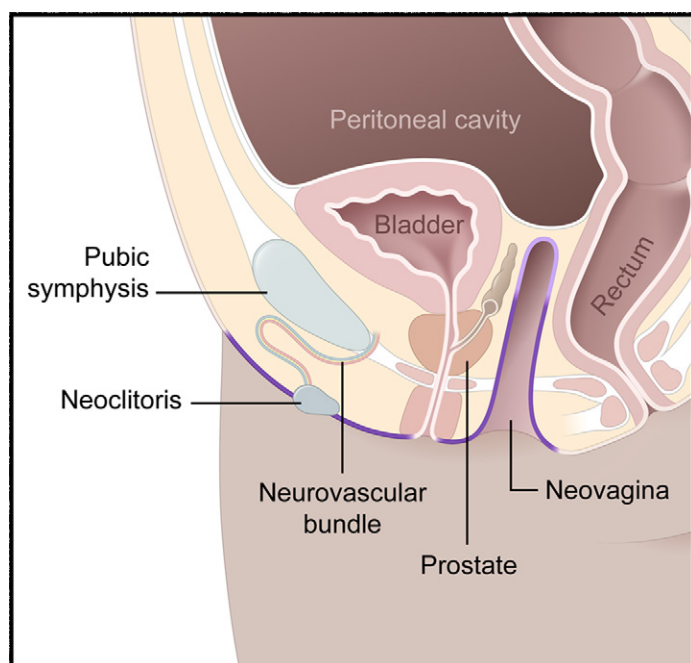


Figure 3. Illustration shows penile inversion vaginoplasty, a feminizing surgical procedure in which the penile (purple) and scrotal (lavender) skin are used to construct the neovagina. The remaining scrotal skin is used for labiaplasty, and a sensate neoclitoris is created using the glans penis and penile neurovascular bundle. The prostate and seminal vesicles remain in place.

use SOGI data and confirm surgical history in the EHR, when possible, to avoid misinterpretation, such as reporting unremarkable ovaries or a prior hysterectomy in a transgender woman, as illustrated by vignette 4. The use of standardized templates for male or female patients could easily be a source of error in TGD patients; heightened attention by the radiologist is needed to avoid this pitfall.

Facial feminization surgery encompasses gender-affirming maxillofacial procedures that transform masculine facial features into a more typically feminine appearance. Preoperative surgical planning may include imaging with maxillofacial radiography or CT when structural osseous surgical techniques are planned. If it is relevant to the clinical context, findings should be reported as postoperative changes of facial feminization surgery or facial gender-affirmation surgery.

Masculinizing Gender-affirming Interventions.—Masculinizing GAHT consists of testosterone. Bodily changes begin within weeks to months of beginning masculinizing GAHT, with maximum effect after 2–3 years, including body fat redistribution, increased muscle mass, clitoral enlargement, and vaginal atrophy (51). Masculinizing chest surgery is the most commonly performed gender-affirming surgery (55). Its goal is to create a masculine-appearing chest by removing breast tissue, the inframammary fold, and excess skin and repositioning the nipples. Subcutaneous mastectomy, which preserves nipple and subareolar tissue, remains susceptible to malignant transformation, even for patients taking testosterone (56). Although bilateral mastectomy is technically correct, the best practice reporting terminology includes chest-masculinization surgery or gender-affirming chest surgery.

Transgender men may undergo masculinizing genital reconstruction surgical procedures including hysterectomy, oophorectomy, phalloplasty, metoidioplasty, scrotoplasty, vaginectomy, and placement of testicular or penile prostheses. Phalloplasty (Fig 4A) is a complex gender-affirming surgery in which a multidisciplinary subspecialized team creates a neophallus through donor flap reconstruction. Preoperative CT angiography may be performed for surgical planning to evaluate the perforating arteries and the flap size (57). Metoidioplasty (Fig 4B) is an alternative to phalloplasty, in which a neophallus is created by lengthening a hormonally hypertrophied clitoris through degloving of the ligamentous attachment (58). Radiologists should take care to avoid erroneous reporting on organs that are not present in transgender men, such as the prostate.

Departmental Inclusivity

Any variation from the dominant binary gender construct is associated with workplace discrimination and stigma (59). Despite increasing awareness of the challenges faced by the TGD population, there is still substantial opportunity to improve workplace inclusivity (60). Patients from underrepresented groups express greater satisfaction with their care and better outcomes when they perceive representation among physicians and staff (61–63). Therefore, teams must include representation from all patient cultures and groups we serve, including TGD individuals.

Physician and Staff Education

Insufficient knowledge of issues faced by TGD people is a barrier to an inclusive workplace culture (31). The Joint Commission and the Association of American Medical Colleges have both advocated for incorporating LGBTQ+ (lesbian, gay, bisexual, transgender, queer, plus) education in medical school curricula. However, only 36% of medical schools include gender transition–related care in their curricula, highlighting the need for pre- and postgraduate physician education (64). Furthermore, only 33% of radiographic technologist programs include content on imaging considerations for TGD people (65), which illustrates that secondary staff education is of equal importance. Educational and resource committees should include both TGD and cisgender individuals. Gender diversity training, even through short learning modules, is effective at improving comfort for both providers and patients and should be required for all radiology staff (5,66). Readers are referred to reputable resources with continuing education modules about health care for TGD people (35,67).

TGD individuals may encounter microaggressions or overt harassment from other patients or staff. When witnessing harassment, staff should consider interrupting and redirecting the behavior, removing the target from the situation, providing support, and reporting the event (68). Bystander intervention training can be effective by providing personnel with actionable plans to intervene (69). Such additional training should also be considered and could be applied to other at-risk populations.

Institutional Policies

Including gender identity in institutional nondiscrimination policies creates a welcoming, safe culture for TGD colleagues

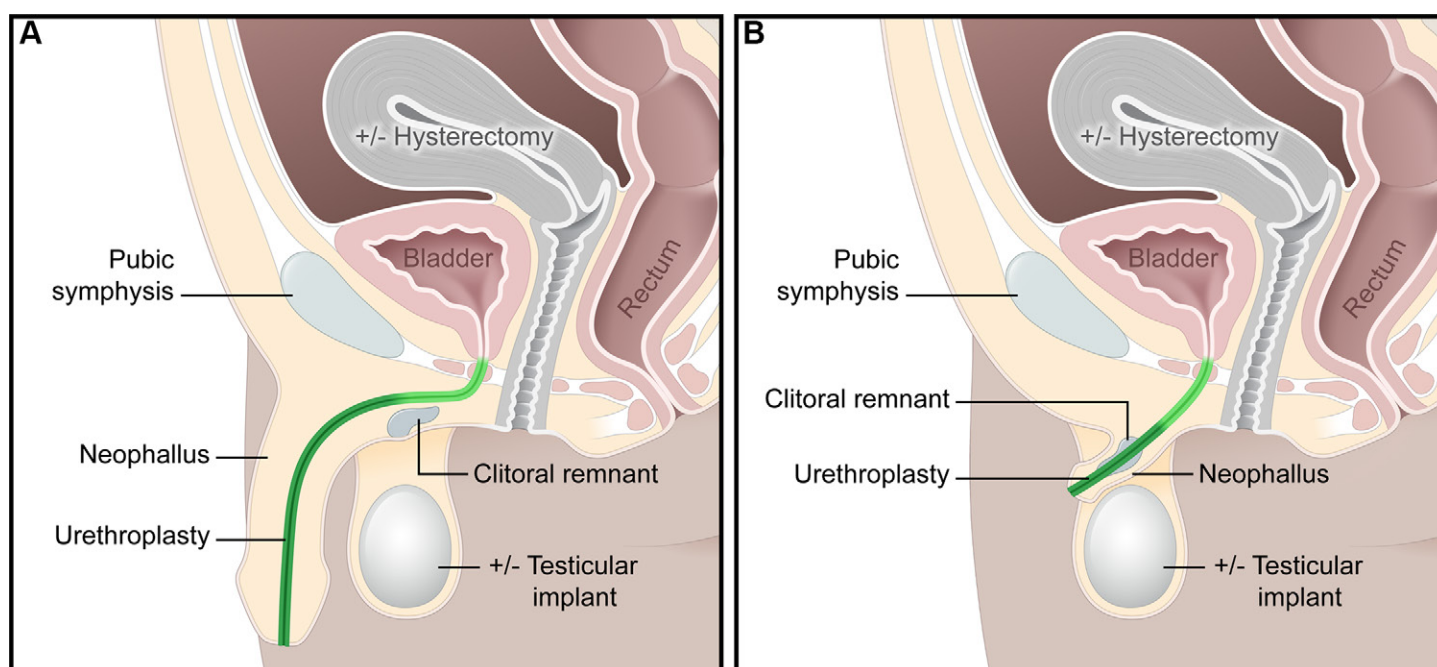


Figure 4. (A) Illustration shows phalloplasty, a masculinizing surgical procedure to form a neophallus using tube-in-tube flap reconstruction from several potential sites, including forearm free flap, anterolateral thigh, abdominal wall, and gracilis. Urethral lengthening is an optional component, in which a neourethra using vaginal mucosa (dark green) is anastomosed to the native urethra (light green). Scrotoplasty can be performed using labial skin, and additional components of this complex multistage procedure may include testicular or erectile implants, hysterectomy, oophorectomy, and vaginectomy. (B) Illustration of metoidioplasty, a masculinizing surgical procedure in which a neophallus is formed from the clitoris, which is enlarged before surgery by GAHT. Urethral lengthening may be performed, with the neourethra (dark green) formed from labia minora or vaginal mucosal grafts anastomosed to the native urethra (light green). This procedure is less complex and less costly than phalloplasty and has the benefit of physiologic erectile function; note, the neophallus is smaller.

and protects their rights (8,59). Dress codes should include TGD perspectives and needs, giving employees scope for personal expression within institutional guidelines. Single-user, gender-neutral bathrooms and dressing rooms benefit TGD employees as well as patients. Human resources policies regarding gender transition should guarantee confidentiality and support throughout the process (59). Institutions should encourage and facilitate the use of chosen name and pronouns in employee e-mail signatures, business cards, name tags, and even hospital records to avoid misgendering (8).

Unconscious implicit bias limits inclusive recruitment of trainees, faculty, and staff (70,71), but bias mitigation training can improve equity (71). Diverse representation in both selection committees and applicant pools is essential. Emphasizing institutional commitment to the equal employment opportunity policy may attract diverse applicants. Inclusion of minority groups, including TGD professionals, is a long-term goal, but each step brings our field closer to bridging disparities.

Conclusion

Radiology departments have opportunities to optimize inclusive care for TGD patients at every stage in the imaging process. Potential sites for intervention include EHRs, registration and scheduling procedures, patient instructions, the physical environment, physician and staff training, language and terminology (including radiology reporting), institutional policies, and employee recruitment. Radiology is important to patient care, and we have the capacity to change TGD patient experiences and outcomes for the better. We encourage read-

ers to examine their own personal and local practices and to make changes that provide a safe, welcoming, and inclusive environment for all.

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References

1. Johns MM, Lowry R, Andrzejewski J, et al. Transgender Identity and Experiences of Violence Victimization, Substance Use, Suicide Risk, and Sexual Risk Behaviors Among High School Students - 19 States and Large Urban School Districts, 2017. *MMWR Morb Mortal Wkly Rep* 2019;68(3):67–71.
2. Crissman HP, Berger MB, Graham LF, Dalton VK. Transgender Demographics: A Household Probability Sample of US Adults, 2014. *Am J Public Health* 2017;107(2):213–215.
3. James SE, Herman JL, Rankin S, Keisling M, Mottet L, Anafi M. The Report of the 2015 U.S. Transgender Survey. Washington, DC: National Center for Transgender Equality, 2016. <https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf>. Accessed October 20, 2022.
4. Stroumsa D, Roberts EFS, Kinnear H, Harris LH. The Power and Limits of Classification: A 32-Year-Old Man with Abdominal Pain. *N Engl J Med* 2019;380(20):1885–1888.

5. Braun HM, Garcia-Grossman IR, Quiñones-Rivera A, Deutsch MB. Outcome and Impact Evaluation of a Transgender Health Course for Health Profession Students. *LGBT Health* 2017;4(1):55–61.
6. Jaffee KD, Shires DA, Stroumsa D. Discrimination and Delayed Health Care Among Transgender Women and Men: Implications for Improving Medical Education and Health Care Delivery. *Med Care* 2016;54(11):1010–1016.
7. Grimstad FW, Stowell JT, Gaddis M. Survey of Experiences of Transgender and Gender Nonbinary Patients During Imaging Encounters and Opportunities for Improvement. *AJR Am J Roentgenol* 2020;215(5):1136–1142.
8. The Joint Commission. Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: A Roadmap for Hospitals. Oakbrook Terrace, Ill: The Joint Commission, 2010. <https://www.jointcommission.org/-/media/tjc/documents/resources/patient-safety-topics/health-equity/roadmapforhospitalsfinalversion727pdf.pdf>. Accessed April 10, 2022.
9. Standards of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People, Version 7. World Professional Association for Transgender Health (WPATH). <https://www.wpath.org/publications/soc>. Accessed April 26, 2022.
10. Owen-Smith AA, Gerth J, Sineath RC, et al. Association Between Gender Confirmation Treatments and Perceived Gender Congruence, Body Image Satisfaction, and Mental Health in a Cohort of Transgender Individuals. *J Sex Med* 2018;15(4):591–600.
11. Gijs L, Brewaeys A. Surgical Treatment of Gender Dysphoria in Adults and Adolescence: Recent Developments, Effectiveness, and Challenges. *Annu Rev Sex Res* 2007;18(1):178–224. <https://www.tandfonline.com/doi/abs/10.1080/10532528.2007.10559851>.
12. Castellano E, Crespi C, Dell'Aquila C, et al. Quality of life and hormones after sex reassignment surgery. *J Endocrinol Invest* 2015;38(12):1373–1381.
13. van de Grift TC, Elaut E, Cerwenka SC, Cohen-Kettenis PT, Kreukels BPC. Surgical Satisfaction, Quality of Life, and Their Association After Gender-Affirming Surgery: A Follow-up Study. *J Sex Marital Ther* 2018;44(2):138–148.
14. Coleman E, Bockting W, Botzer M, et al. Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People, Version 7. *Int J Transgend* 2012;13(4):165–232.
15. World Professional Association for Transgender Health. Position Statement on Medical Necessity of Treatment, Sex Reassignment and Insurance Coverage in the U.S.A. <https://www.wpath.org/newsroom/medical-necessity-statement>. Published December 21, 2016. Accessed October 20, 2022.
16. Victoria L. Davidson v. Aetna Life & Casualty Insurance Co. 101 Misc2d 1, 420 NYS2d 450. Sup. Ct. 1979.
17. Office of the National Coordinator for Health Information Technology (ONC), Department of Health and Human Services (HHS). 2015 Edition Health Information Technology (Health IT) Certification Criteria, 2015 Edition Base Electronic Health Record (EHR) Definition, and ONC Health IT Certification Program Modifications. Final rule. *Fed Regist* 2015;80(200):62601–62759.
18. Centers for Medicare & Medicaid Services (CMS), HHS. Medicare and Medicaid Programs; Electronic Health Record Incentive Program—Stage 3 and Modifications to Meaningful Use in 2015 Through 2017. Final rules with comment period. *Fed Regist* 2015;80(200):62761–62955.
19. Cahill SR, Baker K, Deutsch MB, Keatley J, Makadon HJ. Inclusion of Sexual Orientation and Gender Identity in Stage 3 Meaningful Use Guidelines: A Huge Step Forward for LGBT Health. *LGBT Health* 2016;3(2):100–102.
20. Institute of Medicine. Committee on Lesbian, Gay, Bisexual, and Transgender Health Issues and Research Gaps and Opportunities. The Health of Lesbian, Gay, Bisexual, and Transgender (LGBT) People: Building a Foundation for Better Understanding. National Academies Press. <https://www.ncbi.nlm.nih.gov/books/NBK64806/>. Accessed October 20, 2022.
21. Cahill S, Singal R, Grasso C, et al. Do ask, do tell: high levels of acceptability by patients of routine collection of sexual orientation and gender identity data in four diverse American community health centers. *PLoS One* 2014;9(9):e107104.
22. Haider AH, Schneider EB, Kodadek LM, et al. Emergency Department Query for Patient-Centered Approaches to Sexual Orientation and Gender Identity: The EQUALITY Study. *JAMA Intern Med* 2017;177(6):819–828.
23. Maragh-Bass AC, Torain M, Adler R, et al. Is It Okay To Ask: Transgender Patient Perspectives on Sexual Orientation and Gender Identity Collection in Healthcare. *Acad Emerg Med* 2017;24(6):655–667.
24. Maragh-Bass AC, Torain M, Adler R, et al. Risks, Benefits, and Importance of Collecting Sexual Orientation and Gender Identity Data in Healthcare Settings: A Multi-Method Analysis of Patient and Provider Perspectives. *LGBT Health* 2017;4(2):141–152.
25. Rullo JE, Foxen JL, Griffin JM, et al. Patient Acceptance of Sexual Orientation and Gender Identity Questions on Intake Forms in Outpatient Clinics: A Pragmatic Randomized Multisite Trial. *Health Serv Res* 2018;53(5):3790–3808.
26. Thompson HM. Patient Perspectives on Gender Identity Data Collection in Electronic Health Records: An Analysis of Disclosure, Privacy, and Access to Care. *Transgend Health* 2016;1(1):205–215.
27. Thompson HM, Weathers AL, Karnik NS, Re: Inclusion of Sexual Orientation and Gender Identity in Stage 3 Meaningful Use Guidelines: A Huge Step Forward for LGBT Health, by Cahill et al. (*LGBT Health* 2016;3:100–102). *LGBT Health* 2016;3(4):319–321.
28. Zaliznyak M, Jung EE, Bresee C, Garcia MM. Which U.S. States' Medicaid Programs Provide Coverage for Gender-Affirming Hormone Therapy and Gender-Affirming Genital Surgery for Transgender Patients?: A State-by-State Review, and a Study Detailing the Patient Experience to Confirm Coverage of Services. *J Sex Med* 2021;18(2):410–422.
29. Stroumsa DE-SZ, Kalra AJ, de Haan G, et al. Health records, billing, insurance, and legal documents in transgender medicine. Transgender healthcare curriculum, Improving care for transgender and nonbinary individuals, Module 5. <https://medicine.umich.edu/dept/obgyn/education/continuing-medical-education-cme/transgender-healthcare-curriculum>. Accessed July 25, 2022.
30. Stowell JT, Zavaletta VA, Carroll EF, Grimstad FW. Multidisciplinary approach to imaging for gender-affirming surgery: engaging surgeons, radiologists, and patients to ensure a positive imaging experience. *Ann Transl Med* 2021;9(7):610.
31. Kirkpatrick DL, Stowell J, Grimstad F, Brown E, Fishback S, Lemons S. Creating a Transgender-Inclusive Interventional Radiology Department. *J Vasc Interv Radiol* 2019;30(6):928–931.
32. Aarne Grossman V. Providing Quality Care to the Transgender Patient in the Radiology Setting. *J Radiol Nurs* 2016;35(3):218–226.
33. Bolderston A, Ralph S. Improving the Health Care Experiences of Lesbian, Gay, Bisexual, and Transgender Patients. *Radiography* 2016;22(3):e207–e211.
34. Daniel H, Butkus R; Health and Public Policy Committee of American College of Physicians. Lesbian, Gay, Bisexual, and Transgender Health Disparities: Executive Summary of a Policy Position Paper From the American College of Physicians. *Ann Intern Med* 2015;163(2):135–137.
35. Crissman H. Providing Gender Affirming Health Care: Foundational Training for Health Care Providers. 2020 CREOG & APGO Annual Meeting - Film Festival. Published 2020. <https://ohei.med.umich.edu/news/video-series-caring-transgendergender-nonconforming-patients-and-visitors>. Accessed October 20, 2022.
36. Deutsch MB, Buchholz D. Electronic health records and transgender patients—practical recommendations for the collection of gender identity data. *J Gen Intern Med* 2015;30(6):843–847.
37. Deutsch MB, Green J, Keatley J, et al. Electronic medical records and the transgender patient: recommendations from the World Professional Association for Transgender Health EMR Working Group. *J Am Med Inform Assoc* 2013;20(4):700–703.
38. Cahill S, Makadon H. Sexual Orientation and Gender Identity Data Collection in Clinical Settings and in Electronic Health Records: A Key to Ending LGBT Health Disparities. *LGBT Health* 2014;1(1):34–41.
39. Center for Excellence for Transgender Health. How to Accurately Capture Data on Trans Clients. <http://www.transhealth.ucsf.edu/trans?page=lib-trans-count>. Published 2007. Accessed April 16, 2022.
40. Raja S, Hasnain M, Hoersch M, Gove-Yin S, Rajagopalan C. Trauma informed care in medicine: current knowledge and future research directions. *Fam Community Health* 2015;38(3):216–226.
41. Ravi A, Little V. Providing Trauma-Informed Care. *Am Fam Physician* 2017;95(10):655–657.
42. Sanders V, Pedersen S. Improving communication with the gender diverse community in diagnostic imaging departments. *Radiography (Lond)* 2018;24(Suppl 1):S3–S6.
43. Stowell JT, Grimstad FW, Kirkpatrick DL, et al. Imaging Findings in Transgender Patients after Gender-affirming Surgery. *RadioGraphics* 2019;39(5):1368–1392.
44. Shergill AK, Camacho A, Horowitz JM, et al. Imaging of transgender patients: expected findings and complications of gender reassignment therapy. *Abdom Radiol (NY)* 2019;44(8):2886–2898.
45. Kennedy J, Perchik JD, Porter KK. Systematic Review of Transgender-Related Research in Radiology Over a Decade: There Is Work to Be Done. *J Am Coll Radiol* 2021;18(1 Pt A):93–102.
46. Sonnenblick EB, Lebron-Zapata L, Yang R, et al. Breast Imaging for Transgender Individuals: Assessment of Current Practice and Needs. *J Am Coll Radiol* 2022;19(2 Pt A):221–231.
47. Luehmann N, Ascha M, Chwa E, et al. A Single-Center Study of Adherence to Breast Cancer Screening Mammography Guidelines for Transgender and Non-Binary Patients. *Ann Surg Oncol* 2022;29(3):1707–1717.
48. Expert Panel on Breast Imaging; Brown A, Lourenco AP, et al. ACR Appropriateness Criteria® Transgender Breast Cancer Screening. *J Am Coll Radiol* 2021;18(11S):S502–S515.

49. Sonnenblick EB, Shah AD, Goldstein Z, Reisman T. Breast Imaging of Transgender Individuals: A Review. *Curr Radiol Rep* 2018;6(1):1.
50. Rosen HN, Hamnvik OR, Jaisamrarn U, et al. Bone Densitometry in Transgender and Gender Non-Conforming (TGNC) Individuals: 2019 ISCD Official Position. *J Clin Densitom* 2019;22(4):544–553.
51. Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender Nonbinary People. UCSF Gender Affirming Health Program, Department of Family and Community Medicine, University of California San Francisco. <https://transcare.ucsf.edu/sites/transcare.ucsf.edu/files/Transgender-PGACG-6-17-16.pdf>. Accessed April 28, 2022.
52. Trum HW, Hoebeke P, Gooren LJ. Sex reassignment of transsexual people from a gynecologist's and urologist's perspective. *Acta Obstet Gynecol Scand* 2015;94(6):563–567.
53. Weyers S, Villeirs G, Vanherreweghe E, et al. Mammography and breast sonography in transsexual women. *Eur J Radiol* 2010;74(3):508–513.
54. Kanhai RC, Hage JJ, van Diest PJ, Bloemena E, Mulder JW. Short-term and long-term histologic effects of castration and estrogen treatment on breast tissue of 14 male-to-female transsexuals in comparison with two chemically castrated men. *Am J Surg Pathol* 2000;24(1):74–80.
55. Lane M, Ives GC, Sluiter EC, et al. Trends in Gender-affirming Surgery in Insured Patients in the United States. *Plast Reconstr Surg Glob Open* 2018;6(4):e1738.
56. Claes KEY, D'Arpa S, Monstrey SJ. Chest Surgery for Transgender and Gender Nonconforming Individuals. *Clin Plast Surg* 2018;45(3):369–380.
57. Sinove Y, Kyriopoulos E, Ceulemans P, Houtmeyers P, Hoebeke P, Monstrey S. Preoperative planning of a pedicled anterolateral thigh (ALT) flap for penile reconstruction with the multidetector CT scan. *Handchir Mikrochir Plast Chir* 2013;45(4):217–222.
58. Frey JD, Poudrier G, Chiodo MV, Hazen A. An Update on Genital Reconstruction Options for the Female-to-Male Transgender Patient: A Review of the Literature. *Plast Reconstr Surg* 2017;139(3):728–737.
59. Elias N, Johnson R, Ovando D, Ramirez J. Improving Transgender Policy for a More Equitable Workplace. *J Public Manag Soc Policy* 2018;24(2):7. <https://digitalscholarship.tsu.edu/jpmssp/vol24/iss2/7/>. Accessed October 20, 2022.
60. Thoroughgood C, Sawyer K, Webster J. Creating a Trans-inclusive Workplace. *Harv Bus Rev* 2020;98(2):114–123. <https://hbr.org/2020/03/creating-a-trans-inclusive-workplace>. Accessed October 20, 2022.
61. Laveist TA, Nuru-Jeter A. Is doctor-patient race concordance associated with greater satisfaction with care? *J Health Soc Behav* 2002;43(3):296–306.
62. LaVeist TA, Nuru-Jeter A, Jones KE. The association of doctor-patient race concordance with health services utilization. *J Public Health Policy* 2003;24(3-4):312–323.
63. Saizan AL, Douglas A, Elbuluk N, Taylor S. A diverse nation calls for a diverse healthcare force. *EclinicalMedicine* 2021;34:100846.
64. Obedin-Maliver J, Goldsmith ES, Stewart L, et al. Lesbian, gay, bisexual, and transgender-related content in undergraduate medical education. *JAMA* 2011;306(9):971–977.
65. Clark KR, Veale BL. Assessing Transgender-Related Content in Radiography Programs in the United States: A Survey of Educators. *J Med Imaging Radiat Sci* 2018;49(4):414–419.
66. Dowshen N, Nguyen GT, Gilbert K, Feiler A, Margo KL. Improving transgender health education for future doctors. *Am J Public Health* 2014;104(7):e5–e6.
67. A Program of the Fenway Institute. Learning Resources, Learning Modules. Foundations of LGBTQIA+ Health, Parts 1 and 2. National LGBTQIA+ Health Education Center. <https://www.lgbtqihealtheducation.org/courses/foundations-of-lgbtqi-health/>. Accessed July 26, 2022.
68. Perumalswami CR, Jagsi R. Sexual Harassment in Radiology: Prevalence and Opportunities for Improvement. *J Am Coll Radiol* 2020;17(2):298–303.
69. Koch A, Ritz M, Morrow A, Grier K, McMillian-Bohler JM. Role-play simulation to teach nursing students how to provide culturally sensitive care to transgender patients. *Nurse Educ Pract* 2021;54:103123.
70. Allen BJ, Garg K. Diversity Matters in Academic Radiology: Acknowledging and Addressing Unconscious Bias. *J Am Coll Radiol* 2016;13(12 Pt A):1426–1432.
71. Bucknor MD, Villanueva-Meyer JE, Kumar V, et al. Diversity and Inclusion Efforts in University of California, San Francisco Radiology: Reflections on 3 Years of Pipeline, Selection, and Education Initiatives. *J Am Coll Radiol* 2019;16(12):1716–1719.
72. Reisner SL, Radix A, Deutsch MB. Integrated and Gender-Affirming Transgender Clinical Care and Research. *J Acquir Immune Defic Syndr* 2016;72(Suppl 3):S235–S242.
73. Bahng JJA. Reframing the conversation around the 'gender-reveal': How revealing fetal anatomy, not gender, is inclusive. *ObGyn News*. <https://www.mdedge.com/obgyn/article/197903/obstetrics/reframing-conversation-around-gender-reveal-ultrasound>. Published April 1, 2019. Accessed November 10, 2022.

QUESTIONNAIRE

A17(26) Part 1 of 2

Imaging Care for Transgender and Gender Diverse Patients: Best Practices and Recommendations

INSTRUCTIONS

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

Introduction

Question 1: What percentage of transgender and gender diverse (TGD) people avoid seeking necessary medical care due to fears of discrimination or mistreatment?

- A: 10%
- B: 23%
- C: 50%
- D: 75%

Question 2: What is a significant barrier to effective care for TGD patients in radiology?

- A: Lack of gender-neutral signage
- B: Physician and staff ignorance about TGD health
- C: Limited access to imaging modalities
- D: Unavailability of patient-centred care guidelines

Question 3: What percentage of TGD patients have had at least one negative imaging experience?

- A: 33%
- B: 50%
- C: 70%
- D: 90%

Question 4: Is it **TRUE** that US, mammography and image-guided procedures are particularly linked to emotional discomfort?

- A: YES
- B: NO

Review of Appropriate Language

Question 5: If misgendering occurs, the appropriate response is to

- A: Apologise briefly, use the correct pronouns, and move on
- B: Apologise and record the apology in the patient record
- C: Correct yourself and move on
- D: Excuse yourself and ask another staff member to attend to the patient

Patient Imaging Journey: Before Examination

Question 6: Which of the following is **TRUE** regarding the collection of Sexual Orientation and Gender Identity (SOGI) data in electronic health records (EHRs)?

- A: It is unnecessary for radiology departments
- B: Staff must be trained to solicit and use this information
- C: It is optional for hospitals to collect this data
- D: It should be collected but not recorded in any information retrieval system

[The Protection of Personal Information Act (POPIA) allows health care practitioners to collect and store any personal information from the patient as long as it is relevant to treatment.]

Question 7: Which of the following are do's in delivery of imaging care for TGD patients?

- A: Use chaperones for sensitive examinations
- B: Use precise anatomic language throughout the radiology dictation
- C: Use gendered honorifics
- D: Always use humour

Patient Imaging Journey: Day of Examination

Question 8: Is the following statement **TRUE** or **FALSE**?

"Staff should avoid assumptions regarding reproductive capacity. For studies in which ionizing radiation is used, urine pregnancy testing should be considered in any patient with the potential to become pregnant".

- A: TRUE
- B: FALSE

Question 9: How should radiology departments handle dressing rooms to accommodate TGD patients?

- A: Label dressing rooms with traditional gender symbols
- B: Provide gender-neutral, single-user dressing rooms
- C: Ask patients which binary dressing room they prefer
- D: None of the above

Question 10: TGD people are more likely to have experienced trauma compared with the general population, with approximately % having experienced intimate partner violence or sexual assault in their lifetime?

- A:** 30%
- B:** 15%
- C:** 50%
- D:** 65%

Question 11: Patients should be warned when image acquisition will be?

- A:** Invasive (e.g. endoluminal imaging)
- B:** Of long duration (longer than 15 minutes)
- C:** Constrictive (e.g. MRI)
- D:** Weighted (e.g. lead apron shielding)

Patient Imaging Journey: During examination

Question 12: What is the recommended course of action if a TGD patient is uncomfortable with an anatomic term used during imaging?

- A:** Insist on using standard medical terms
- B:** Use the patient's preferred terminology
- C:** Avoid discussing the term altogether
- D:** Correct the patient on proper terminology

Question 13: Which of the following is a recommendation for improving the imaging experience for TGD patients during image acquisition?

- A:** Use gendered honourifics like Mr., Ms., or Mrs
- B:** Allow patients to guide the insertion of endoluminal probes
- C:** Avoid explaining the procedure to the patient
- D:** Use only male or female chaperones

Question 14: TRUE or FALSE?

"Nearly 80% of TGD patients report emotional discomfort during transvaginal, testicular, and breast or chest ultrasounds, highlighting the need for a trauma-informed approach in radiology."

- A:** TRUE
- B:** FALSE

Question 15: Which of the following statements are TRUE?

- A:** In a transgender woman with a genetic predisposition to breast cancer who is receiving estrogen therapy, hormonal changes in breast tissue may affect the sensitivity of screening breast MRI and dynamic contrast-enhanced MRI sequences
- B:** In a transgender man who underwent metoidioplasty with a concern for a urethral fistula, a pelvic MRI fistula protocol with high-spatial-resolution sequences and a small field of view would be most appropriate
- C:** Depending on the protocol, these examinations may be more invasive and uncomfortable for patients if rectal gel or neovaginal dilators are used
- D:** None of the above

THE END

QUESTIONNAIRE

A17(26) Part 2 of 2

Imaging Care for Transgender and Gender Diverse Patients: Best Practices and Recommendations

INSTRUCTIONS

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

Question 1: With reference to screening and monitoring?

- A:** Breast cancer screening recommendations for TGD persons assigned female at birth who have residual breast tissue are the same as those for cisgender women
- B:** For TGD people who have undergone gender-affirming bilateral mastectomy, screening is recommended
- C:** TGD people have additional special considerations for bone health
- D:** A lack of longitudinal research and epidemiologic data has created uncertainty surrounding other cancer screening in the TGD population

Question 2: Is it **TRUE** that when assessing silicone implants or injections through MRI, silicone suppression sequences are not necessary?

- A:** YES
- B:** NO

Question 3: Which of the following are feminizing surgical procedures?

- A:** Chondroplasty
- B:** Urethroplasty
- C:** Orchiectomy
- D:** Facial feminization

Question 4: Masculinizing procedures include?

- A:** Thyroplasty
- B:** Mastectomy
- C:** Urethral lengthening
- D:** Scrotoplasty

Patient Imaging Journey: Examination Complete

Question 5: What is a recommended approach to addressing the risk of misgendering in radiology reports?

- A:** Always include the patient's legal sex in the report
- B:** Avoid mentioning gender unless it is medically relevant
- C:** Use gender-neutral language throughout the report
- D:** Autopopulate gender from the HER

Question 6: In Vignette 4, was it correct to report that the patient underwent hysterectomy?

- A:** YES
- B:** NO

Question 7: What is the preferred terminology for describing surgery to create a functional and cosmetically acceptable neovagina in transgender women?

- A:** Sex reassignment surgery
- B:** Gender-confirmation surgery
- C:** Vaginoplasty
- D:** Penile inversion surgery

Question 8: What is the recommended terminology when referring to a transgender man's chest surgery in a radiology report?

- A:** Bilateral mastectomy
- B:** Chest masculinisation surgery
- C:** Gender confirmation surgery
- D:** Subcutaneous mastectomy

Departmental Inclusivity

Question 9: What is the role of gender diversity training in radiology departments?

- A:** It is optional for staff
- B:** It helps to improve comfort for both providers and patients
- C:** It is only necessary for clinicians, not for administrative staff
- D:** It should focus solely on medical terminology

Conclusion

Question 10: Which ONE of the following statements is **TRUE** regarding the optimization of inclusive care for TGD patients in radiology departments?

- A:** Radiology departments have limited opportunities to improve care for TGD patients
- B:** Inclusive care for TGD patients can be optimized at various stages in the imaging process
- C:** TGD patients do not require any special considerations in radiology departments
- D:** The physical environment in radiology has no impact on TGD patient experiences

THE END



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ANSWER SHEET

A17(26)

Imaging Care for Transgender and Gender Diverse Patients: Best Practices and Recommendations

*Time spent on activity		hour					min																						
PART 1												PART 2																	
	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E						
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How relevant was the content of this activity to your scope of practice?			
			
Not at all	Somewhat	Mostly	Extremely

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