

Case Studies in Health Disparities

Evaluation of Allergic Diseases in Transgender and Gender-Diverse Patients: A Case Study of Asthma

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CASE

A 35-year-old woman with a past medical history significant for asthma, allergic rhinitis, and anaphylaxis to shellfish presents to Allergy/Immunology clinic with increasing wheezing and dyspnea for the past several months since the start of the coronavirus disease 2019 pandemic. She reports adherence with her prescribed medications including fluticasone/salmeterol 234-14 µg/lactation inhaler 1 puff twice daily, montelukast 10 mg nightly, cetirizine 10 mg daily, omeprazole 20 mg daily, olopatadine as needed, escitalopram 20 mg daily, and an epinephrine auto-injector. Asthma symptom triggers include viral respiratory infections and food allergens. She has no history of intubation or intensive care unit stays for asthma but experienced 2 asthma exacerbations requiring oral prednisone courses last year. She reports vaping several times per day and increasingly so during the pandemic. As a transgender individual, she recently initiated several new medications for gender affirmation therapy including estradiol 6 mg daily and leuprolide 22.5 mg intramuscularly every three months.

Approximately 1 to 1.4 million persons in the United States identify as transgender and gender-diverse (TGD).¹ Proposed terminology related to gender identity is reviewed in Table 1. Compared with cisgender individuals, TGD patients experience significant health disparities, with increased rates of chronic conditions including asthma.² Drivers of health disparities in the TGD population are complex: systemic discrimination and social stigma affect access to care (untreated disease) and underlie explicit or unconscious provider bias (decreased quality of care).^{1,5} The social determinants of health for TGD patients may be magnified in the context of allergic disease, and for asthma in particular. However, practical guidance for allergists and research

on the role of gender identity in asthma and allergic diseases are lacking.

At the start of the visit, the patient's allergist reviews the gender identity fields in the electronic health record, which list female as the gender identity and sex assigned at birth as male. While confirming this information, the allergist asks for the patient's pronouns; she uses the female pronoun series (she/her).

Several demonstrated sociodemographic disparities may increase the risk of symptomatic asthma in TGD patients. Transgender individuals are twice as likely to live in poverty compared with the general US population.⁶ Lower income neighborhood housing is associated with higher rates of symptomatic asthma, attributable to traffic-related air pollution exposures and condemned or pest-infested conditions.⁷ These environmental risk factors demonstrate the magnifying effect of intersectionality (eg, race and gender) on asthma for TGD patients. In a previous study, transgender adults of color were 2.3 times more likely to have asthma when compared with White transgender adults.⁸ Disparities in occupational exposures (eg, salon, construction, and house cleaning) based on gender roles may additionally contribute to asthma triggers and allergy risk. These disparities extend to long-term asthma management: TGD patients may have lower rates of insurance coverage,¹ reducing engagement in subspecialty care. TGD patients are also more likely to delay seeking medical care,² increasing potential morbidity from poor asthma control. Lack of clinician education on gender-specific practices, such as chest binding (Table 1), which may contribute to symptoms mimicking asthma, and population-level risk factors such as higher rates of e-cigarette smoking may further delay appropriate diagnosis and care.⁵

Her allergist recommends decreasing e-cigarette use and encourages the patient to reach out to her primary care physician for alternative stress management strategies and longitudinal smoking cessation counseling.

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Abbreviations used

TGD- transgender and gender-diverse

Comorbid chronic medical conditions associated with asthma may potentially increase the risk for poor outcomes in TGD patients.¹ TGD patients have higher rates of mental health conditions including depression and anxiety. In studies of adolescents and adults with asthma, prevalence of depression raises the risk for worse asthma-related outcomes.⁹ These potentially heightened risks among TGD patients highlight the importance of pulmonary function testing to guide management and therapeutic decision making. However, as in many laboratory tests, spirometry algorithms use a binary reference range—male versus female—and depend on the sex reference range used. Current guidelines recommend the use of “birth sex” for predicted value calculation, although this approach diverges from recommendations in other fields where consideration of both gender references may be used to provide gender-affirming care.⁵

Past spirometry for the patient uses a female sex reference range consistent with her gender identity but discordant from sex assigned at birth. In shared decision making with the patient, her allergist agrees to continue using female sex for spirometry. Her FEV₁ and FEV₁/forced vital capacity has gradually declined over time, though today's spirometry is similar to last year's results.

Emerging associations between asthma and sex hormones raise additional considerations for allergist care of TGD patients.¹⁰ Male children are more likely to have asthma symptoms resolve during puberty, whereas females may develop later-onset (and more persistent) asthma.¹¹ Circulating sex hormones from endogenous and exogenous sources may also influence sex differences in asthma-related outcomes in adults.^{10,12} The impact of sex hormones on asthma may also vary by specific asthma phenotypes such as the role of the androgen receptor in type-2 airway inflammation,¹⁰ perimenstrual symptoms in aspirin-exacerbated respiratory disease,¹³ and effect modification of sex hormones in patients with asthma and comorbid obesity.¹¹ Gender-affirming hormone therapy in pediatric patients (eg, puberty suppression) may also affect sex-specific trends across the lifespan previously observed in asthma prevalence. Yet, it remains unclear whether the use of exogenous hormones for gender affirmation in TGD patients affects acute and/or long-term asthma risk, or how this risk may vary across the lifespan, and further work is needed to elucidate this.

Estradiol and leuprolide are the patient's only new medications. The patient agrees to monitor her symptoms while continuing to use leuprolide and estradiol; no medication changes are made.

Three months later at a follow-up visit, the patient reports noticeable symptom improvement with decreased vaping and improved stress management.

This case highlights clinical considerations for allergists caring for TGD patients with asthma and allergic disease including environmental and occupational exposures, mental health comorbidities, binary-based reference ranges in diagnostic tools, and exogenous hormone use (Table II). Although evidence-based clinical guidelines in the specific Allergy/Immunology practice setting are lacking, general medical practice guidelines for provision of gender-affirming care are widely available.^{1,2} Allergists' expertise in identification and management of environmental and occupational allergic disease

TABLE I. Selected gender-related concepts and terminology^{1,2*} to support gender-affirming care in the allergy/immunology encounter

Concepts and terminology	Description
Administrative name/ name on legal documents	Refers to the possibility that a person's name may differ on documentation (eg, insurance) from the person's chosen name (to use for the patient encounter)
Ally	Describes a person who supports the identity and rights of another person or community, even though they may not be a member of that community
Binary/nonbinary	Refers to the fixed (either/or) options of male vs female gender identity; a person's gender identity may not be congruent with these fixed options
Chest binding	Refers to the use of materials to minimize the appearance of breasts
Cisgender	Describes congruence of sex assigned at birth (eg, male sex) with a person's self-identified gender identity (eg, man)
Gender	Describes a set of sociocultural norms, identities, and behaviors that are distinct from sex and shape a person's experience with the surrounding environment
Gender-affirming/ gender affirmation	Describes the use of medical procedures (eg, surgery) or medications (eg, hormones) to align physical characteristics with a person's gender identity/as well as social and legal changes to express a chosen gender identity
Gender identity	Describes how a person perceives and expresses themselves
Gender relations	Refers to the ways in which gender frames interactions with institutions (eg, health care systems) and individuals (eg, with physicians)
Intersectionality	Describes overlapping forms of discrimination (eg, gender and race; age and socioeconomic status) that shape a person's experience of inequality
Misgendering	Refers to using a word, especially a pronoun or form of address, which does not correctly reflect the gender with which they identify
Outing	Describes unwanted disclosure of gender identity and/or sharing of gender identity information with others
Pronouns	Refers to the words used when referring to a person (eg, she/her) and can prevent misgendering (eg, “what pronouns do you use?”)
Pubertal suppression	Describes gender-affirming hormone use in adolescents, such as gonadotropin-releasing hormone analogues, that may be used to block endogenous hormone production during puberty
Sex assigned at birth	Describes the sex assigned to a person at birth; integration of the term “assigned” acknowledges that the identification of sex is not self-identified, but may be based on anatomical observation or genetic tests at birth
Transgender	Describes a range of gender identities that differs from the sex assigned at birth
Trans man	May refer to a transgender person whose gender identity is male/man

(continued)

TABLE I. (Continued)

Concepts and terminology	Description
Trans woman	May refer to a transgender person whose gender identity is female/woman
Gender fluid	Refers to a gender identity that may not be binary at any given time and may also not be static over time

*Descriptions may vary across patients and change over time. For a full glossary of terms, see [Reference 3](#). For additional information on concepts presented here, see [Reference 4](#).

TABLE II. Patient-provider considerations for the evaluation of asthma in TGD patients in an allergy practice

Domain	Consideration
Sociodemographic	Use of structured gender identity information in the medical record (eg, administrative name, sex assigned at birth, gender identity, and pronouns) Housing-based exposures (pollution, violence) Occupations favored by gender roles Insurance coverage (health care access)
Past medical history	Mental health (eg, depression, anxiety, suicide, and stress) Triggers of asthma exacerbations
Past surgical history	Chest-based gender-affirming surgeries
Allergies	Exogenous hormones
Medication use	Gender-affirming hormone therapy Pubertal suppression
Social history	Environmental exposures Cigarette or e-cigarette use
Spirometry	Reference range options (male vs female, or use both)
Patient-reported outcome measures	Alternative symptom triggers (eg, chest binding leading to dyspnea)
Care coordination	Primary care (or establishing care if absent), endocrinology

risk factors, and training in patient care across the age spectrum, uniquely positions them to improve the clinical care of pediatric and adult TGD patients.

PRACTICAL TIPS

1. Use patients' pronouns and other gender-affirming language during the clinical visit and in documentation.
2. Discuss current recommendations to use "birth sex" for spirometry reference range with patients before performing spirometry and consider the limitations of these recommendations in providing gender-affirming care.
3. Consider the contribution of exogenous hormone use to new or worsening asthma or allergic disease in pediatric and adult patients.

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