

Use of Standardized Patients in Endocrinology Fellowship Programs to Teach Competent Transgender Care

Mary O. Stevenson,¹ R. Craig Sineath,¹ J. Sonya Haw,¹ and Vin Tangpricha^{1,2}

¹*Division of Endocrinology, Metabolism and Lipids, Emory University School of Medicine, Atlanta, Georgia 30322* and the ²*Atlanta VA Medical Center, Decatur, Georgia 30033*

ORCID numbers: 0000-0003-0693-6478 (M. O. Stevenson); 0000-0002-4021-5853 (V. Tangpricha).

Purpose: Transgender and gender-nonconforming individuals have unique health care needs and have difficulty accessing health care services because of a lack of qualified health care providers, insurance coverage, mistreatment, and bias by the medical community. Medical trainees and physicians report a lack of education in, and exposure to, the clinical care and unique aspects of this field. We assessed the use of a standardized patient as a tool to evaluate 4 core medical competencies (patient care, medical knowledge, professionalism, and interpersonal communication) of endocrinology fellows at a single training program.

Methods: Endocrine fellows were evaluated by faculty in different aspects of transgender care and completed a self-assessment before and after the exercise. Faculty viewed the fellows during the Objective Clinical Structured Examination. Fellows were provided feedback by a faculty member and the standardized patient after the exercise.

Results: Deficits were found in patient care and professionalism. Fellows scored well in medical knowledge. Fellows did not report an improvement in comfort and communication skills after the exercise. Interestingly, fellows' self-assessment scores in several domains declined after the standardized patient encounter, highlighting an occasion for self-reflection and growth within the realms of cultural competency and medical knowledge.

Main conclusions: We conclude that use of standardized patients to teach medical competencies in transgender medicine may be one approach to improve exposure to, and training in, transgender medicine. Endocrine fellows still had discomfort treating transgender individuals after the standardized patient encounter and require other training activities that may include didactics and clinical case discussions.

© Endocrine Society 2019.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs licence (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial reproduction and distribution of the work, in any medium, provided the original work is not altered or transformed in any way, and that the work is properly cited. For commercial re-use, please contact journals.permissions@oup.com

Key Words: Transgender, medical education, endocrinology, standardized patient

Over the past decade, there has been an increasing awareness within the medical community regarding the need to provide and improve education in transgender health care within all levels of training [1, 2]. Medical students as well as internal, family and emergency medicine, plastic surgery, urology, and otolaryngology residents have all reported a lack of structured curriculum and knowledge in transgender-related content [3–6].

Abbreviations: CMP, comprehensive metabolic panel; NYU, New York University; OSCE, Objective Structured Clinical Examination; SP, standardized patient

Endocrinology fellows also describe inadequate educational guidance and training in this field [7]. In a 2017 survey of 198 second-year endocrinology fellows, 58.9% reported that their training program provided dedicated content in transgender care [7]. Of those who reported dedicated teaching, 40% had received less than 2 hours of content per year, and those who had received education or seen more transgender patients in their training were, not surprisingly, more likely to be confident in treating patients with hormone therapy [7]. Barriers to implementing transgender-specific education interventions include limited curricular time, lack of competency among faculty, and poor institutional support [5].

To address the need for improved training in transgender-related health care topics, many endocrinology fellowship programs are implementing formal education strategies. In a web-based survey of endocrinology program directors done in 2016, there were 54 responses from 104 programs [1]. Of those who responded, 35 of the 54 programs (72.2%) provide dedicated teaching on transgender health topics [1]. These teaching methods include direct patient care, lectures, small group discussions, online modules/webinars, and elective rotations [1]. None of the 54 program directors reported use of patient simulation as a means of teaching transgender care [1].

The Objective Structured Clinical Examination (OSCE) is a teaching tool that was introduced in 1975 and consists of various stations in which a learner or trainee is asked to interact with a standardized patient (SP, or actor) for a specified amount of time within the context of a given medical scenario [8]. The OSCE has been used in more than 50 countries across 5 continents, within various health professional settings (medicine, dentistry, pharmacy, nursing) and in varying phases of education (undergraduate, postgraduate, and continuing professional development) [9]. It has been found to be a reliable and valid tool in assessing skills through varying fields and levels of training [10–13]. There has only been one published case demonstrating the use of OSCE as a tool for training internal medicine/primary care residents in transgender health care [14]. The use of the OSCE and SP in teaching transgender-competent care therefore represents an untapped educational tool and requires further evaluation. In this paper, we provide data on the effectiveness of using the OSCE and SP in teaching transgender competency for endocrinology fellows, specifically.

The purpose of this study was to evaluate the acceptability and effectiveness of an OSCE in providing training and feedback in the delivery of endocrine care for transgender individuals. A single case vignette of a transfeminine patient seeking hormone therapy was used to test 4 of the 6 core medical competencies established by the Accreditation Council for Graduate Medical Education: medical knowledge, patient care, professionalism, and interpersonal and communication skills [15]. Faculty and the SP provided immediate feedback in these competencies following the exercise. Endocrinology fellows provided data regarding their medical knowledge of transgender medicine before and after the exercise.

1. Methods

A. Subjects

A yearly OSCE program using SPs is completed by each clinical endocrinology fellow-in-training at Emory University School of Medicine. During the 2016–2017 academic year, 6 fellows (in both first and second years of training) were remotely observed by video by 2 separate faculty members during a standardized patient encounter of a transfeminine patient seeking hormone therapy. Both faculty members were members of the World Professional Association for Transgender Health and one served on the Endocrine Society guidelines for Transgender and Gender Incongruence. Both faculty members, collectively, had more than 20 years of experience in providing care for transgender individuals. The 2 faculty members viewed the OSCE and discussed feedback for the fellow in the same room. One of the 2 faculty members, on a rotating basis, entered the room where the fellow and SP were located to

provide feedback on the exercise. All fellows that participated gave consent to release data on assessment and feedback.

B. Intervention

The clinical case of a transgender female seeking initial hormone therapy was presented to each of the 6 fellows who participated in the OSCE (Figs. 1–2). The SP was provided with a script and information to volunteer to each fellow as well as information to share if the fellow inquired about a particular topic/subject. Information provided to the SP included gender history, medications, social history (including employment, education, and sexual history), family history, interest in fertility, and a review of systems-pertinent positives (Fig. 3). For the physical examination portion, the SP had 3 cards to provide to each fellow: one general examination card (stating “well appearing person dressed in feminine clothes”) to present at the onset of examination and 2 additional cards to provide if prompted by the fellow, one for breast examination (stating “normal male breasts with no masses”) and one for genitalia examination (stating “penis and scrotum present”) (Fig. 4). After completing a full history and physical examination, each fellow stepped out of the room to order laboratory tests he or she believed were indicated and retrieved the results from the requested laboratory tests (Fig. 5). Finally, the fellow reentered the room and completed the visit by discussing his or her assessment and plan.

Assessment of each of the 6 fellows by 2 separate faculty members was done in predefined metrics in areas including taking a relevant medical history, physical examination, laboratory orders and interpretation, discussion of hormone therapy, and the overall care for a transfeminine patient. Of note, a score of “completed correctly” was only awarded if both faculty members assessed the task to be done correctly. Case-specific feedback points were provided to the faculty members to assess and discuss with the fellows (Fig. 6). Feedback provided to the fellows were mapped to 4 of the 6 Accreditation Council for Graduate Medical Education Core Competencies: patient care, medical knowledge, professionalism, and interpersonal communication [15]. Two core competencies were not evaluated: practice-based learning and improvement and systems-based practice.

Information for the Trainee

Patient: Michael Tobias
Setting: Your office
Chief Complaint: New visit for “Problems with Hormones”
Vital Signs:

Pulse	96
BP	134/85
RR	18
O2 sat	97%

Trainee Instructions

1. You have 30 minutes with the patient (15 minutes for H&P, 15 for testing interpretation and counseling)
2. After the first 15 minutes, you may call your virtual secretary and she will provide you with any test reports that you want performed. This will be delivered to you in an envelope.
3. Elicit an appropriate history and perform an appropriate exam
4. Step out of the room and order the appropriate testing for evaluation of the patient
5. Return to the room to discuss with the patient your assessment and any recommendations you have based on the history and exam and testing

Figure 1. Instructions and description of the Objective Structured Clinical Examination on transgender medicine provided to each fellow.

Information for the Standardized Patient

Information you can volunteer to the fellow:

You are a 28 year old male assigned at birth patient who is seeking hormone therapy for transition into the female gender.

Information you TO SHARE, ONLY IF YOU ARE ASKED, DO NOT VOLUNTEER

If you are misgendered for example called Sir, Mister or use your birth name without asking permission, then respond in a stern way that you would prefer female pronouns and would like to be called Michelle.

If you are asked about what names you like to be called or what pronouns you would like to use, you prefer the use of female pronouns and would like to be called "Michelle". You haven't legally changed your name but plan to in the future.

If asked in an open ended question why you have come to the endocrinologist, you can state that you want to do "hormonal transition".

If asked about your sexual orientation, you can state that you prefer women.

If asked about sexual activity, you are not currently sexually active.

If asked about your employment, you work for a commercial shipping company. You mostly handle loading packages on to trucks. Your co-workers do not know about the transition. You don't know what to tell them.

If asked how long you have thought about this, you have been thinking about transitioning for quite some time but did not really know it would be medically possible until you heard about Caitlyn Jenner transitioning. When you were a child, you always felt uncomfortable in the male role. You prefer girls games and wanted to play with the girls. When you started to have puberty, you didn't quite fit in and expressed more social isolation. You kept to yourself. You felt lonely at times. You have one good friend that you confide in.

If asked about if you have socially transitioned, you can state that on the weekends sometimes you go out dressed in women's clothes but only in towns where no one can recognize her. At work, you appear in the male role.

If asked if you have seen mental health, you have been working with a medical health provider over the past year and she believes it is a good time for you to start hormones.

You live in rural Georgia in Albany. Many neighbors and friends are not accepting of the condition. You are only out to your parents and one brother. Your mother is supportive but your father and brother are not year comfortable with the idea.

If asked about physical activity, you are walking for exercise 2-3 times a week.

If asked about medical history, you don't have any past history or illness or hospitalization.

If asked about HIV risk behavior, you can state that practice safe sex with barrier methods and don't engage in receptive anal intercourse.

If asked about fertility, you can state that you are interested in having biological children of your own and would be interested in possibilities on how that can occur.

If asked about children, you have not had any children of your own.

If asked what medications you use, state you take no medications.

If asked about smoking, state never smoked.

Figure 2. Instructions provided to the standardized patient. The background information for the standardized patient for the case of the new patient who identifies as transgender

Because of the longitudinal nature of these 2 competencies required for assessment. The standardized patient also provided feedback on communication skills and professionalism during the encounter.

If asked about hormone use in the past, state none.

If asked about alcohol, state 2-3 drinks on the weekends. Mostly with dinner.

If asked about stress or depression, you haven't had any depression. In general, you have been in a good mood. You have not had any suicide attempts.

Medical Problems: None

Family history: Your grandmother had breast cancer but no chemotherapy needed, just lumpectomy.

Social history: never smoked, work at a shipping company. Never married. College at UGA but dropped out after 2 years.

Review of systems: some mild depression but doesn't need medications right now.

Figure 3. Additional information to be provided upon interview by the endocrine fellow on the topic of transgender medicine. The additional information is available only upon questioning of the standardized patient.

Physical Exam:

You will be given three cards: Give the first card and hold on the last two until prompted. One will be a general exam, one for the genital exam, and one for breast exam.

The general exam will state: well appearing male dressed in feminine clothes

The genital exam will state: normal male appearing external genitalia

The breast exam will state: normal male breasts with no masses

Figure 4. Additional information on the examination of the standardized patient on the topic of transgender medicine. The physical findings of the standardized patient upon the fellow performing examinations of these organs.

Laboratory tests available:

Comprehensive metabolic panel: electrolytes normal, liver function tests normal

Estradiol: < 5 pg/mL

25-hydroxyvitamin D: 21 ng/mL

PTH: 34 pg/mL

TSH 1.0

Testosterone: 367 ng/dL

Any other test ordered is normal

Figure 5. Results of requested laboratory testing upon ordering by the endocrinology fellow for the Objective Structured Clinical Examination on the topic of transgender medicine. The results of laboratory tests if ordered.

Before and immediately following the OSCE transgender patient case, fellows were asked to fill out a 5-question survey about transgender health care regarding topics such as comfort level, medical knowledge, and awareness of guidelines (Fig. 7). Institutional review board approval was not required for this study because this was a simulated patient encounter.

Possible Case Specific Feedback

1. Need to inquire preferred name and pronouns
2. Need to confirm the diagnosis of gender dysphoria
3. Need to describe risks and benefits of hormone therapy
4. Need to discuss potential treatment options
5. Need to assess readiness for hormones (family and social situation)
6. Need to confirm eligibility for hormones, i.e. no medical contraindications
7. Need to describe time course for hormones and what they can and can't do
8. Bonus: discuss surgical options

Figure 6. Case-specific feedback provided by faculty to endocrinology fellow on the topic of transgender medicine. Key feedback areas for faculty to discuss with fellows.

Fellow Survey

1	2	3	4	5
Poor	Borderline	Satisfactory	Good	Outstanding

1. Please rate your ability to provide patient care that is compassionate, appropriate and effective for the treatment and management of transgender patients.

_____ (1-5 see scale above)

2. Please rate your medical knowledge regarding the endocrine treatment of transgender patients.

_____ (1-5 see scale above)

3. Please rate your communication skills with transgender patients in a medical/ clinical situation.

_____ (1-5 see scale above)

4. Please rate your understanding and sensitivity to the needs of transgender patients.

_____ (1-5 see scale above)

5. Please write in below what guidelines that you are aware that exist for transgender patients.

Figure 7. Fellows self-assessment questionnaire on their comfort in caring for patients who identify as transgender. Fellows completed a self-assessment questionnaire before and after the Objective Structured Clinical Examination with a patient that identifies as transgender.

2. Results

A. Patient care

In taking a relevant medical history, the majority of fellows correctly asked about smoking (6/6), family and social situation (5/6), a personal history of deep vein thrombosis/pulmonary embolism (4/6), mental health and/or history of depression/suicide (4/6), and past use

of hormones (4/6). Four of 6 fellows correctly confirmed a diagnosis of gender dysphoria. Areas of deficits in taking a medical history included correctly asking about plans for future fertility (3/6) and inquiring about sexual history/HIV risk (2/6) (Table 1).

Of the key physical examination components, only one-third of fellows (2/6) examined breast tissue and only one fellow examined genitalia (1/6). All fellows ordered a testosterone level, complete blood count and comprehensive metabolic panel (CMP) (6/6, respectively). Most fellows correctly ordered a serum estradiol level (5/6). Fewer fellows ordered a prolactin level (2/6) (Table 2).

In discussing hormone therapy, most fellows correctly discussed treatment options (e.g., estrogen, anti-androgen) (5/6), time course of physical changes expected on hormone therapy (4/6), and option for sperm banking (4/6). A lesser percentage correctly discussed the effect of hormone treatment on fertility (3/6) and only one fellow correctly discussed surgical options for transgender women (Table 3).

B. Medical knowledge

Almost all fellows correctly discussed the risks and benefits of hormone therapy (5/6), whereas only one-half correctly asked about readiness/eligibility for hormone therapy (3/6) (Table 4).

The fellows listed the Endocrine Society [16], World Professional Association for Transgender Health [17], and University of California San Francisco Center of Excellence for Transgender Health [18] as resources to use for transgender guidelines. The fellows rated their medical knowledge of the endocrine treatment of transgender persons at just below satisfactory (2.8/5); this did not change from pre- to postassessment (Fig. 8, question 2).

C. Professionalism

Two of the 6 fellows correctly asked about use of preferred name and/or pronouns (2/6) (Table 4). The fellows' self-assessment of their understanding and sensitivity to the needs of transgender patients and their ability to provide "compassionate, appropriate, and effective" treatment and management of transgender patients decreased from pre- to postskills assessment surveys [Fig. 8, questions 1 and 4).

D. Interpersonal communication

All fellows correctly introduced themselves by name and elicited an open-ended chief complaint (6/6, respectively) (Table 4). The fellows' self-assessment of their communication skills

Table 1. Number of Fellows Who Correctly Completed Tasks for Categories in Patient Care (Medical History and Diagnosis)

	Number Completed Correctly ^a
Medical History	
Smoking	6/6
Family and social circumstances	5/6
History of deep vein thrombosis/pulmonary embolism	4/6
Mental health/suicide	4/6
Past use of hormones	4/6
Plans for future fertility	3/6
Sexual history/HIV risks	2/6
Diagnosis	
Confirmed diagnosis of gender dysphoria	4/6

^aA score of completed correctly was awarded only if both faculty members assessed the task to be done correctly.

Table 2. Number of Fellows Who Correctly Completed Tasks for Categories in Patient Care (Physical Examination and Laboratory Orders)

	Number Completed Correctly ^a
Physical Examination	
Examines breasts	2/6
Examines genitalia	1/6
Laboratory	
Testosterone	6/6
Complete blood count	6/6
Comprehensive metabolic panel	6/6
Estradiol	5/6
Prolactin	2/6

^aA score of completed correctly was awarded only if both faculty members assessed the task to be done correctly.

Table 3. Number of Fellows Who Correctly Completed Tasks for Categories in Patient Care (Hormone Therapy and Treatment Discussion)

	Number Completed Correctly ^a
Hormone Therapy	
Estrogen formulations, antiandrogen use	5/6
Time course of changes on hormones	4/6
Treatment	
Sperm banking	4/6
Effect of treatment on fertility	3/6
Surgical options	1/6

^aA score of completed correctly was awarded only if both faculty members assessed the task to be done correctly.

Table 4. Number of Fellows Who Correctly Completed Tasks for Categories in Medical Knowledge, Professionalism, and Interpersonal Communication Skills

	Number Completed Correctly ^a
Medical Knowledge	
Risks/benefits of hormone therapy	5/6
Readiness/eligibility for hormone therapy	3/6
Professionalism	
Use of preferred name and pronouns	2/6
Interpersonal Communication Skills	
Introduced self by name	6/6
Elicited an open-ended chief complaint	6/6

^aA score of completed correctly was awarded only if both faculty members assessed the task to be done correctly.

with transgender patients decreased from pre- to postskills assessment surveys [Fig. 8, question 3).

3. Discussion

Through the use of a standardized transgender female patient case, we found that clinical endocrinology fellows within our institution during the 2016–2017 academic year demonstrated strong interpersonal communication skills and good proficiency in collecting

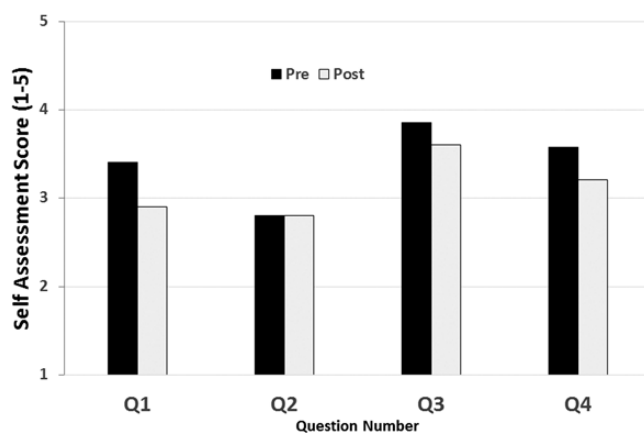


Figure 8. Endocrinology Fellow's Self-Assessment Score before and after completing an Objective Clinical Structured Examination on the topic of transgender medicine. Fellows were asked to rate their comfort level on a Likert scale (1–5) (1 = poor, 5 = outstanding) on 4 different questions. Q1: Ability to provide compassionate, appropriate, and effective treatment and management of transgender patients; Q2: Medical knowledge regarding the endocrine treatment of transgender patients; Q3: Communication skills with transgender patients in a medical/clinical situation; and Q4: Understanding and sensitivity to the needs of transgender patients.

a medical history and counseling on hormone therapy use. Areas of deficiencies included aspects of professionalism (asking about preferred pronouns), in discussing fertility interest and preservation options, and discussing sexual history/HIV risk factors. As demonstrated in the decline between our pre- and post-OSCE survey, endocrinology fellows (or endocrinologists in general) may not be aware of their knowledge and skills deficits regarding providing competent transgender care.

In regards to physical examination components, the Endocrine Society does not include baseline breast and genitalia examinations in their guidelines [16]. Because many transgender patients find parts of the physical examination uncomfortable or even traumatic, sensitive elements (including breast and genitalia examinations) may be deferred to a later date unless there is a medical need that requires immediate attention [19]. Findings suggestive of an intersex condition should be investigated [19]. Organ-specific screening examinations, such as prostate or cervix, should be addressed in the care of transgender patients [16, 19]; however, this does not need to be done at the initial visit or even by an endocrinologist. We suggest the use of these physical examination maneuvers within the OSCE case to serve as a discussion point for the faculty and trainees.

Briefly, regarding laboratory evaluation, a CMP provides important information about electrolyte function, specifically potassium level, which is necessary for patients starting or continuing on spironolactone therapy [16]. Liver function tests are also included in a CMP; however, severe liver dysfunction was removed from the “moderate to high risk of adverse outcomes” associated with sex hormone therapy for transgender females from the 2009 to the 2017 Endocrine Society Practice guidelines [16]. Finally, a complete blood count is not required for transgender female hormone monitoring [16].

For practicing endocrinologists, there are data that demonstrate a lack of training in transgender care. In a 2015 paper survey distributed at an endocrinology-oriented professional conference, two-thirds of respondents had received no training on transgender care during their fellowship (of 80 respondents, 61 were adult endocrinologists, 13 endocrinology fellows, 2 pediatric endocrinologists, and 4 nurse practitioners/physician assistants). In a larger 2017 web-based survey of approximately 400 Endocrine Society clinician members, 80.6% had never received training in the care of transgender patients [1]. Of the approximately 20% who had received training, 58% reported obtaining it during endocrinology fellowship [1].

Although the OSCE presents one tool that endocrinology fellowship programs may use to assess a trainee's various skills in eliciting a history, physical examination, interpreting the results of simulated laboratory or radiology results, medical knowledge, and overall patient interaction [8], we demonstrate that it can also be a powerful tool for teaching cultural competency in the context of transgender care. Cultural competency, broadly speaking, is the recognition and inclusion of cultural variation as it pertains to patient interactions and decision making, which leads to effective cross-cultural care [20, 21]. Health care for minority populations, including gender minorities, should incorporate sensitivity to historical stigmatization, awareness of barriers to care, and the prevalence of risk factors and medical conditions in that particular population [22]. The Maimonides Medical Center pediatric residency program has published on the use of OSCE to aid in assessment and feedback of communication and culturally specific skills, such as eliciting patient agenda, acknowledging patients' perspective on dealing with a given situation, and providing rationale for recommendations through challenging cultural scenarios [21]. These culturally specific skills would be a useful aspect to incorporate in the instruction of care for transgender patients.

There has been one published case demonstrating the use of OSCE as a tool for training internal medicine/primary care residents in transgender health care [14]. Twenty-three residents at New York University (NYU) School of Medicine participated in an OSCE case that involved a transgender woman on spironolactone and estradiol who presented with hypertension and hyperkalemia [14]. The residents at NYU were surveyed on preparedness, perceived performance, and challenges, and were given feedback from a faculty member and the SP in areas such as inquiring about gender identity, pronoun use, name, sexuality and sexual activity, medically relevant transition information, and patient comfort [14]. Less than two-thirds of these residents asked directly about gender identity (61%), made the patient feel comfortable (61%), or effectively asked about medically relevant transition information (58%) [14]. Similar to our OSCE case, overall communication scores were high at 89% [14]. Important areas of feedback to the NYU residents included use of appropriate terminology, how to ask directly about transition, and how to admit to a lack of knowledge to a patient [14]. Of note, the standardized patient used for the NYU OSCE was a transgender actress. The authors advocate for the use of transgender actors to play SP roles whenever possible, and appropriate, to improve insights about patient experience [14].

The decline in the fellows' self-assessment of their ability to provide "compassionate, appropriate, and effective" treatment, their communication skills with transgender patients, and their understanding and sensitivity to the needs of transgender patients from the pre- to postskills assessment survey is a notable finding in our study. This may suggest that endocrinology fellows were not aware of their knowledge and skills deficits in providing competent transgender care and offers a valuable tool for introspection. Previous studies have found that improving the skills of participants in social and intellectual domains paradoxically helps them recognize the limitations of their abilities [23]. The OSCE provides both a tool for self-assessment, helping medical trainees recognize the deficits that exist, as well as the opportunity to rectify this deficit through immediate feedback and discussion [24].

Finally, using OSCE alone would likely be inadequate in covering the breadth of knowledge and skills necessary for competent transgender care. As previously described, endocrinology fellowship programs are already using direct patient care, lectures, small group discussions, online modules/webinars, and elective rotations as teaching modalities [1]. Potential additional instructional activities could include attendance at regional/national/international conferences, case studies, and multiple-choice questions about transgender care.

4. Conclusion

Using a standardized patient exercise at a single academic training institution uncovered both strengths and deficits within transgender health care knowledge and

competency for endocrinology fellows. Furthermore, endocrinology fellows may not be aware of their specific knowledge gaps (although nationally, medical trainees identify an overall lack of structured content in this field). OSCE may be a valuable tool that fellowship programs can use to help elicit knowledge gaps, provide feedback, and increase provider comfort as a means of training trans-competent endocrinologists and other learners such as medical students, residents, advanced practice practitioners, and nurses. Further research is needed to help determine ways of improving transgender health care education within endocrinology fellowship programs in the United States and globally.

Acknowledgments

Financial Support: This work was supported in part by a grant from the National Institutes of Health/National Center for Advancing Translational Sciences Award #UL1TR002378.

Additional Information

Correspondence: Mary Stevenson, MD, Division of Endocrinology, Metabolism and Lipids, Emory University School of Medicine, 101 Woodruff Circle NE-WMRB 1028, Atlanta, GA 30322; E-mail: mosteve@emory.edu.

Disclosure Summary: The authors have nothing to disclose.

References and Notes

1. Davidge-Pitts C, Nippoldt TB, Danoff A, Radziejewski L, Natt N. Transgender health in endocrinology: current status of endocrinology fellowship programs and practicing clinicians. *J Clin Endocrinol Metab.* 2017;**102**(4):1286–1290.
2. Safer JD, Coleman E, Feldman J, Garofalo R, Hembree W, Radix A, Sevelius J. Barriers to healthcare for transgender individuals. *Curr Opin Endocrinol Diabetes Obes.* 2016;**23**(2):168–171.
3. Thomas DD, Safer JD. A simple intervention raised resident-physician willingness to assist transgender patients seeking hormone therapy. *Endocr Pract.* 2015;**21**(10):1134–1142.
4. Obedin-Maliver J, Goldsmith ES, Stewart L, White W, Tran E, Brenman S, Wells M, Fetterman DM, Garcia G, Lunn MR. Lesbian, gay, bisexual, and transgender-related content in undergraduate medical education. *Jama.* 2011;**306**(9):971–977.
5. Dubin SN, Nolan IT, Streed CG, Greene RE, Radix AE, Morrison SD. Transgender health care: improving medical students' and residents' training and awareness. *Adv Med Educ Pract.* 2018;**9**:377–391.
6. Moll J, Krieger P, Moreno-Walton L, et al. The prevalence of lesbian, gay, bisexual, and transgender health education and training in emergency medicine residency programs: what do we know? *Acad Emerg Med Off J Soc Acad Emerg Med.* 2014;**21**(5):608–611.
7. Davidge-Pitts CJ, Nippoldt TB, Natt N. Endocrinology fellows' perception of their confidence and skill level in providing transgender healthcare. *Endocr Pract.* 2018;**24**(12):1038–1042.
8. Harden RM, Stevenson M, Downie WW, Wilson GM. Assessment of clinical competence using objective structured examination. *Br Med J.* 1975;**1**(5955):447–451.
9. Patrício MF, Julião M, Fareira F, Carneiro AV. Is the OSCE a feasible tool to assess competencies in undergraduate medical education? *Med Teach.* 2013;**35**(6):503–514.
10. Sloan DA, Donnelly MB, Schwartz RW, Felts JL, Blue AV, Strodel WE. The use of objective structured clinical examination (OSCE) for evaluation and instruction in graduate medical education. *J Surg Res.* 1996;**63**(1):225–230.
11. Tudiver F, Rose D, Banks B, Pfortmiller D. Reliability and validity testing of an evidence-based medicine OSCE station. *Fam Med* 2009;**41**(2):89–91.
12. Brown G, Manogue M, Martin M. The validity and reliability of an OSCE in dentistry. *Eur J Dent Educ.* 1999;**3**(3):117–125.
13. Selim AA, Ramadan FH, El-Gueneidy MM, Gaafer MM. Using Objective Structured Clinical Examination (OSCE) in undergraduate psychiatric nursing education: is it reliable and valid? *Nurse Educ Today.* 2012;**32**(3):283–288.

14. Greene RE, Hanley K, Cook TE, Gillespie C, Zabar S. Meeting the primary care needs of transgender patients through simulation. *J Grad Med Educ*. 2017;**9**(3):380–381.
15. ACGME Program Requirements for Graduate Medical Education in Endocrinology, Diabetes, and Metabolism (Subspecialty of Internal Medicine. https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/143_EndocrinologyDiabetesMetabolism_2019.pdf?ver=2019-06-21-003433-157. Accessed October 1, 2019.
16. Hembree WC, Cohen-Kettenis PT, Gooren L, Hannema SE, Meyer WJ, Murad MH, Rosenthal SM, Safer JD, Tangpricha V, T'Sjoen GG. Endocrine treatment of gender-dysphoric/gender-incongruent persons: an endocrine society clinical practice guideline. *Endocr Pract*. 2017;**23**(12):1437.
17. 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 Transgenderism*. 2012;**13**(4):165–232.
18. The Center of Excellence for Transgender Health. <http://www.transhealth.ucsf.edu/>. Accessed July 6, 2019.
19. Feldman JL, Goldberg JM. Transgender primary medical care. *Int J Transgenderism*. 2006;**9**(3–4):3–34.
20. Kodjo C. Cultural competence in clinician communication. *Pediatr Rev*. 2009;**30**(2):57–63; quiz 64.
21. Aeder L, Altshuler L, Kachur E, Barrett S, Hilfer A, Koepfer S, Schaeffer H, Shelov SP. The “Culture OSCE”—introducing a formative assessment into a postgraduate program. *Educ Health (Abingdon)*. 2007;**20**(1):11.
22. Mayer KH, Bradford JB, Makadon HJ, Stall R, Goldhammer H, Landers S. Sexual and gender minority health: what we know and what needs to be done. *Am J Public Health*. 2008;**98**(6):989–995.
23. Kruger J, Dunning D. Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. *J Pers Soc Psychol*. 1999;**77**(6):1121–1134.
24. Eva KW, Cunnington JP, Reiter HI, Keane DR, Norman GR. How can I know what I don't know? Poor self assessment in a well-defined domain. *Adv Health Sci Educ Theory Pract*. 2004;**9**(3):211–224.