



# Use of Simulation to Teach Obstetrics and Gynecology Residents How to Care for Transgender & Gender Diverse Patients

Olivia Neumann<sup>1</sup> · Erin Higgins<sup>1</sup>

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## Abstract

**Purpose of Review** Lesbian, gay, bisexual, transgender, queer, and other gender diverse (LGBTQ+) individuals face barriers in access to healthcare and face poorer healthcare outcomes than the cisgender population. Gynecologists provide routine health maintenance and primary care for LGBTQ+ patients. Lack of physician knowledge of the unique healthcare considerations of LGBTQ+ patients heightens barriers to care. Healthcare simulation can serve to provide Ob/Gyn residents with practice implementing and strengthening their communication skills and cultural competence with LGBTQ+ patients. There are various simulation modalities, including standardized patients, virtual reality, and high-fidelity manikins, which can be implemented for LGBTQ+ simulation. This article will review implementation of simulation-based training, creating a safe learning environment, and strategies for debriefing and feedback.

**Recent Findings** Various governing bodies of medical education list education on LGBTQ+ care within key learning objectives for medical students and obstetric and gynecologic (Ob/Gyn) residents. However, program directors and residents have identified LGBTQ+ healthcare as a gap in their education, often citing lack of curriculum as an educational barrier. Among Ob/Gyn residents who have participated in healthcare simulation on LGBTQ+ care, there has been a qualitative improvement in comfort with and knowledge of medical care (Ruud et al. in *J Midwifery Womens Health* 2021;66(6):778–86), (Kreines et al. in *J Assist Reprod Genet* 2022;39(12):2755–66).

**Summary** Healthcare simulation should be implemented within medical training to improve the care and medical outcomes of LGBTQ+ patients. While some qualitative studies have shown resident self-reported improvement after healthcare simulation with LGBTQ+ patients, longitudinal studies need to be done to assess long-term impact. Additionally, educational grants for simulation equipment and curricula can improve access to healthcare simulation.

**Keywords** Simulation · Transgender health · Gender identity · Sexual identity · Simulation-based education · Standardized patient · Virtual reality · Medical education

## Background

Lesbian, gay, bisexual, transgender, queer, and other gender diverse individuals (LGBTQ+) have distinct healthcare considerations, including high rates of substance use [3], human papillomavirus (HPV)-associated cancers [4], depression and suicide [5, 6], and intimate partner violence [7]. Furthermore, transgender patients have reported less access to insurance coverage and knowledgeable physicians [8]. Additional barriers to care include biases encountered within the

healthcare system and limited access to gender-affirming care. Adequate undergraduate and graduate medical training on the care of LGBTQ+ patients can help improve access to care and medical outcomes. Healthcare simulation can be utilized to enhance the typical pedagogical approach.

Gynecologists play an important role in providing routine health maintenance for transgender and gender diverse patients as many of these patients may seek out gynecologists for primary care. A retrospective study found that transgender men had significantly lower rates of cervical cancer screening compared to cisgender patients [9]. Therefore, obstetric and gynecologic (Ob/Gyn) physicians should have training on applications of evidence-based guidelines to this patient population, hormonal therapy, and fertility options [10]. Another important consideration is gender

✉ Olivia Neumann  
neumano@ccf.org

<sup>1</sup> Cleveland Clinic, Obstetrics & Gynecology Institute, Cleveland, OH, USA

dysphoria, which is the distress associated with the incongruence between gender identity and gender assigned at birth. Gender dysphoria is associated with higher levels of concomitant psychiatric disorders, and gender-affirming care has been shown to reduce the rates of psychiatric disorders in patients with gender dysphoria [11]. Transgender patients have cited the use of preferred pronouns, inclusive healthcare environments, and educated physicians as alleviating gender dysphoria [12•]. Therefore, having access to knowledgeable healthcare clinicians can reduce barriers to care and improve medical outcomes.

In 2007, the American Academy of Medical Colleges (AAMC) published recommendations for medical student education related to LGBTQ+ healthcare [13]. The American College of Obstetricians and Gynecologists (ACOG) released a Committee Opinion on LGBTQ+ healthcare in 2011, with updates in 2017 and 2021, which identified lack of physician knowledge as a barrier to care [14]. In 2013, the Council on Resident Education in Ob/Gyn (CREOG) included competencies in the care of transgender patients within core educational objectives [15]. A survey among Ob/Gyn physicians found that a majority reported not receiving training on LGBTQ+ care in residency [16]. In a survey among Ob/Gyn program directors in 2015, only 51% of programs endorsed providing education on transgender health [17]. A survey of Ob/Gyn residents across a majority of ACOG districts in 2019 showed that around half of residents reported formal training in transgender healthcare [18•]. Additionally, around half of Ob/Gyn residents reported barriers pertaining to transgender education, most notably due to absence of curriculum [18•].

The American College of Graduate Medical Education (ACGME) includes simulation as a resource that Ob/Gyn residency programs are required to facilitate for learners [19]. Simulation can serve as a means for trainees to both learn and practice cultural competence in LGBTQ+ care, including using organ inventories, applying evidence-based screening guidelines, and discussing sexual health. Residents have reported qualitative improvement in knowledge and comfort after completing simulation curricula on LGBTQ+ care [1, 2]. Therefore, implementing healthcare

simulation, alongside the typical pedagogical curriculum, can enhance training on the care of LGBTQ+ patients for Ob/Gyn residents. Improved and standardized education on LGBTQ+ healthcare may improve access to knowledgeable physicians and improve medical outcomes for this vulnerable population.

## Simulation for the Care of Transgender Patients

Integrating sexual orientation and gender identity education into training for healthcare clinicians can pose challenges as learners may lack familiarity with LGBTQ+ patients and their unique healthcare considerations. Healthcare simulation, most often used for teamwork and procedural training, can be a useful method for healthcare professionals to practice and improve communication skills [20, 21] (Table 1).

### Planning

Planning and development of such curricula should involve both content experts and simulation educators. With regards to planning LGBTQ+ education and other topics related to diversity, equity, and inclusion (DEI), it is important to collaborate with members of the underrepresented group [22]. Community partnerships can aid faculty in developing curricula that are respectful, while also identifying issues and topics of concern to group members [22]. These partnerships can also allow for concurrent involvement in community service and advocacy for learners, which can further enhance their learning experience. Department stakeholders are often key for the implementation and long-term sustainability of a simulation program and should be involved in the early stages of curriculum planning.

As with any simulation-based educational curriculum, instructors should start by defining learning objectives. Effective learning objectives should be specific and should align with Bloom’s taxonomy [23]. Most simulation-based experiences will have 2–5 learning objectives.

**Table 1** Elements of simulation-based education

Planning	Implementation	Follow-Up
<p>Team Members:</p> <ul style="list-style-type: none"> <li>• Content experts                             <ul style="list-style-type: none"> <li>◦ Community partnerships [22]</li> </ul> </li> <li>• Simulation experts</li> <li>• Department stakeholders</li> </ul> <p>Learning Objectives:</p> <ul style="list-style-type: none"> <li>• Bloom’s Taxonomy [23]</li> </ul> <p>Modality Selection: see Table 2</p>	<p>Simulation experiences should ensure confidentiality and a safe learning environment [31, 32]</p> <p>Simulation Structure:</p> <ul style="list-style-type: none"> <li>• Pre-brief: summary of patient presentation</li> <li>• Encounter</li> <li>• Debrief: should take place for both learners and facilitators, utilizing a formal debriefing model</li> </ul>	<ul style="list-style-type: none"> <li>• Research                             <ul style="list-style-type: none"> <li>◦ Pre-test and post-test surveys</li> <li>◦ Publish and disseminate curricula and course material</li> </ul> </li> <li>• Institutional structures for simulation longevity                             <ul style="list-style-type: none"> <li>◦ Simulation center</li> <li>◦ Scheduled simulation time</li> </ul> </li> <li>• Grants and funding</li> </ul>

Selecting a modality for the simulation-based experience is driven by the objectives of the course (Table 2). With regards to LGBTQ+ simulation, many objectives will relate to communication skills and cultural competence, and standardized patients (SPs) are a particularly fitting modality for these cases. As defined by the “Healthcare Simulation Dictionary, 2nd Ed.,” SPs are actors that are “trained to portray a real patient in order to simulate a set of symptoms or problems used for healthcare education, evaluation, and research” [24]. SPs can portray a wide variety of clinical scenarios, while providing timely feedback on learner communication [25]. Learners can repeat the encounter to try different approaches to therapeutic communication. Additionally, SPs can assume specific characteristics, such as angry or withdrawn, which can challenge more advanced learners. SPs as a simulation modality can pose challenges such as cost of hiring and training, along with the periodic unavailability of SPs. Among simulation programs that face these challenges, learners can participate in role-play scenarios, in which both patient and physician roles are portrayed by learners [20].

Other modalities can also be used for simulation-based education related to transgender health. Virtual reality (VR) is a newer technology that can be leveraged for LGBTQ+-related scenarios. Virtual patients and cases can be infinitely customized to portray an immense range of characteristics [26–28]. Similar to SP encounters, virtual patient encounters can emphasize communication and interpersonal skills. VR is particularly advantageous for programs that may not have reliable access to SPs or realistic simulation settings. VR may pose a challenge due to the upfront cost of purchasing headsets and related equipment. If SPs or VR trainers are not available, traditional full body, high-fidelity manikins or partial task trainers can be utilized with facilitators providing the voice for the patient.

Moulage is the application of makeup or prostheses to portray a specific clinical finding [24]. It can be utilized in combination with other modalities, including high-fidelity manikins and standardized patients, to portray injuries,

which could include old scars or other self-inflicted wounds. The inclusion of such details can heighten the realism for learners, leading to a more effective experience.

There are a number of published resources for transgender simulation in the literature. These resources include simulation curricula for various simulation modalities [29, 30]. Publishing and disseminating materials relating to LGBTQ+ healthcare simulation, such as national and international meetings and in peer-reviewed journals, can serve to further magnify the impact of simulation on improving access to care and healthcare outcomes.

## Implementation

The setting for a simulation-based learning experience is largely determined by the case’s learning objectives. For instance, LGBTQ+ healthcare simulation can take place in various settings, including an outpatient clinic, the emergency department, or an inpatient hospital unit. Many learning objectives for LGBTQ+ simulation will focus on communication skills that occur in outpatient settings, and as such, a classroom could be used for SP or role-play scenarios. However, realism is enhanced for learners when the simulation setting more closely matches the clinical environment [25].

The simulation-based learning experience is typically structured in 3 distinct parts: the pre-brief, the encounter, and the debrief. Before entering the simulation space, facilitators should allocate a small amount of time to prepare learners for the simulation experience. Creation of the safe container allows learners to feel safe to make mistakes and express discomfort, without fear of intimidation or humiliation [31]. Reviewing the Basic Assumption, which notes that those involved in simulation care and are present to learn, further enhances the psychological safety of learners [32]. Establishing this psychological safety can be achieved by mitigating a few common learner fears at the beginning of the simulation encounter. Facilitators should:

**Table 2** Advantages and disadvantages of simulation modalities

	Standardized Patient (SP)	Virtual Reality (VR)	High-Fidelity Manikin
Advantages	<ul style="list-style-type: none"> <li>• Allows for practice with communication skills and cultural competence</li> <li>• Real-time feedback [25]</li> </ul>	<ul style="list-style-type: none"> <li>• Allows for immersive experience to practice interpersonal skills</li> <li>• Can be utilized at any time by learner</li> </ul>	<ul style="list-style-type: none"> <li>• Allows for application of clinical knowledge</li> <li>• Use of moulage may enhance realism</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• Cost of hiring SPs</li> <li>• Time needed for SP training</li> <li>• Availability of SPs can vary</li> </ul>	<ul style="list-style-type: none"> <li>• May not be as realistic as SP</li> <li>• Newer technology</li> <li>• Upfront cost of purchase of VR</li> <li>• May require an experienced facilitator</li> </ul>	<ul style="list-style-type: none"> <li>• Cost of high-fidelity manikin</li> <li>• Less realistic method to practice interpersonal skills</li> </ul>

1. Introduce simulation team members.
2. Review learning objectives.
3. Ensure confidentiality.
4. Address evaluation tools (if present).
5. Review the Basic Assumption [32].
6. Acknowledge the limitations of simulation (fiction contract).

After the simulation encounter, learners will typically participate in a formal debriefing session with facilitators. A number of approaches to debriefing have been described in the literature. The PEARLS Healthcare Debriefing Tool is preferred by the authors for its ease in use, even for less experienced debriefers [33]. The debrief allows learners to discuss and reflect on their actions during the simulation experience [25]. In this reflective time, facilitators lead learners to identify performance gaps and reframe decision-making. This approach is supported by experiential learning theory [34].

A post-course debrief with facilitators and simulation staff can be an effective time for addressing strengths of the course and areas for improvement. Use of a reflexive tool, such as the SIM-EDI tool [35•], can be particularly helpful for educators to reflect on DEI elements related to the delivery of a simulation experience. This time can also be used to identify opportunities for improving the simulation program on a larger scale.

## Discussion

Simulation is a useful educational tool that can serve to address barriers to healthcare that LGBTQ+ patients face. In providing formal training to medical trainees on LGBTQ+ care, we endeavor to improve healthcare outcomes through the application of evidence-based screening guidelines and gender-affirming care [12•, 16].

Although governing bodies of obstetric and gynecologic healthcare indicate that education on LGBTQ+ is a core competency, many program directors and residents have identified a lack of formal training on this topic. Further defining learning objectives related to LGBTQ+ healthcare and providing support for the implementation of educational programming can serve to bolster healthcare clinician education.

Simulation serves as a valuable tool to enhance Ob/Gyn trainee education, particularly for topics related to LGBTQ+ healthcare. However, many graduate medical programs may face barriers in implementing a robust simulation curriculum. Access to equipment, financial considerations, and faculty time can all pose challenges for programs of varying sizes and affiliations. Grants for healthcare simulation and medical education can ease the financial burden of establishing and maintaining a simulation program. Additionally, publishing and disseminating simulation curricula and materials can help mitigate both the time and financial constraints that may be deterrents. Further, longitudinal

studies are needed to assess the long-term impact of healthcare simulation with LGBTQ+ patients on Ob/Gyn residents knowledge retention and practice patterns.

Addressing the barriers to healthcare that LGBTQ+ patients face is imperative as these barriers contribute to the poorer healthcare outcomes amongst this population. Utilization of healthcare simulation, including SPs, VR, and high-fidelity manikins, can enhance the traditional pedagogical teaching style utilized in graduate medical education. Longitudinal, prospective studies on LGBTQ+ simulation are needed to identify successes and areas of improvement, and to examine the potential impact on improving patient outcomes.

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**Data Availability** No datasets were generated or analysed during the current study.

## Compliance with Ethical Standards

**Human and Animal Rights and Informed Consent** This article does not contain any studies with human or animal subjects performed by any of the authors.

**Competing Interests** The authors declare no competing interests.

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## References

Papers of particular interest, published recently, have been highlighted as:

### • Of importance

1. Ruud MN, Demma JM, Woll A, Miller JM, Hoffman S, Avery MD. Health history skills for interprofessional learners in transgender and nonbinary populations. *J Midwifery Womens Health*. 2021;66(6):778–86.
2. Kreines FM, Quinn GP, Cardamone S, Pi GE, Cook T, Salas-Humara C, et al. Training clinicians in culturally relevant care: a curriculum to improve knowledge and comfort with the transgender and gender diverse population. *J Assist Reprod Genet*. 2022;39(12):2755–66.
3. Fahey KML, Kovacek K, Abramovich A, Dermody SS. Substance use prevalence, patterns, and correlates in transgender and gender diverse youth: a scoping review. *Drug Alcohol Depend*. 2023;250:110880.

4. Park IU, Palefsky JM. Evaluation and management of anal intraepithelial neoplasia in HIV-negative and HIV-positive men who have sex with men. *Curr Infect Dis Rep*. 2010;12(2):126–33.
5. Narang P, Sarai SK, Aldrin S, Lippmann S. Suicide among transgender and gender-nonconforming people. *Prim Care Companion CNS Disord*. 2018;20(3):18nr02273.
6. Tordoff DM, Wanta JW, Collin A, Stepney C, Inwards-Breland DJ, Ahrens K. Mental health outcomes in transgender and nonbinary youths receiving gender-affirming care. *JAMA Netw Open*. 2022;5(2):e220978.
7. Coston EB. Looking back: intimate partner violence in transgender populations. *Am J Public Health*. 2023;113(5):474–6.
8. Campbell T, Rodgers Y, van der M. Health insurance coverage and health outcomes among transgender adults in the United States. *Health Econ*. 2022;31(6):973–92.
9. Peitzmeier SM, Reisner SL, Harigopal P, Potter J. Female-to-male patients have high prevalence of unsatisfactory paps compared to non-transgender females: implications for cervical cancer screening. *J Gen Intern Med*. 2014;29(5):778–84.
10. Unger CA. Care of the transgender patient: the role of the gynecologist. *Am J Obstet Gynecol*. 2014;210(1):16–26.
11. Dhejne C, Vlerken RV, Heylens G, Arcelus J. Mental health and gender dysphoria: a review of the literature - PubMed [Internet]. [cited 2024 Mar 11]. Available from <https://pubmed.ncbi.nlm.nih.gov/26835611/>.
- 12.● Kerr L, Jones T, Fisher CM. Alleviating gender dysphoria: a qualitative study of perspectives of trans and gender diverse people. *J Health Serv Res Policy*. 2022;27(1):4–13. **Findings from this study identified the use of correct pronouns, healthcare clinician knowledge, and inclusive environments as factors that LGBTQ+ individuals have cited aid in alleviating gender dysphoria.**
13. Hollenbach AD, Eckstrand KL, Dreger A. Implementing curricular and institutional climate changes to improve health care for individuals who are LGBT, gender nonconforming, or born with dsd: a resource for medical educators [Internet]. [cited 2024 Mar 11]. Available from <https://store.aamc.org/implementing-curricular-and-institutional-climate-changes-to-improve-health-care-for-individuals-who-are-lgbt-gender-nonconforming-or-born-with-dsd-a-resource-for-medical-educators.html>.
14. Health Care for Transgender and Gender Diverse Individuals | ACOG [Internet]. [cited 2024 Mar 11]. Available from <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2021/03/health-care-for-transgender-and-gender-diverse-individuals>.
15. CREOG Educational Objectives [Internet]. [cited 2024 Mar 11]. Available from <https://www.acog.org/education-and-events/creog/curriculum-resources/creog-educational-objectives>.
16. Unger CA. Care of the transgender patient: a survey of gynecologists' current knowledge and practice. *J Womens Health* 2002. 2015;24(2):114–8.
17. Vinekar K, Rush SK, Chiang S, Schiff MA. Educating obstetrics and gynecology residents on transgender patients: a survey of program directors. *Obstet Gynecol*. 2019;133(4):691–9.
- 18.● Burgart JM, Walters RW, Shanahan M. Transgender education experiences among obstetrics and gynecology residents: a national survey. *Transgend Health*. 2022;7(1):30–5. **The findings of this survey identify gaps within Ob/Gyn resident training on LGBTQ+ care, with only half of residents surveyed reporting formal training on transgender care. However, most residents surveyed reported interest in education on this topic.**
19. ACGME Program Requirements for Graduate Medical Education in Obstetrics and Gynecology. Accreditation council for graduate medical education. 2022. [https://www.acgme.org/globalassets/pfassets/programrequirements/220\\_obstetricsandgynecology\\_9-17-2022\\_tcc.pdf](https://www.acgme.org/globalassets/pfassets/programrequirements/220_obstetricsandgynecology_9-17-2022_tcc.pdf).
20. Baile WF, Blatner A. Teaching communication skills: using action methods to enhance role-play in problem-based learning. *Simul Healthc J Soc Simul Healthc*. 2014;9(4):220–7.
21. Pittiglio L, Lidtke J. The use of simulation to enhance LGBTQ+ care competencies of nursing students. *Clin Simul Nurs*. 2021;56:133–6.
22. Buchanan DT, O'Connor MR. Integrating diversity, equity, and inclusion into a simulation program. *Clin Simul Nurs*. 2020;49:58–65.
23. Armstrong P. Bloom's taxonomy | center for teaching | Vanderbilt University [Internet]. [cited 2024 Mar 11]. Available from <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>.
24. Lioce L, editor. Healthcare simulation dictionary [Internet]. Second. Agency for healthcare research and quality. 2020 [cited 2024 Mar 14]. Available from <https://www.ahrq.gov/patient-safety/resources/simulation/terms.html>.
25. Deering S, Auguste TC, Goffman D. Comprehensive healthcare simulation: obstetrics and gynecology | SpringerLink [Internet]. [cited 2024 Mar 11]. Available from <https://link.springer.com/book/10.1007/978-3-319-98995-2>.
26. Conigliaro RL, Peterson KD, Stratton TD. Lack of diversity in simulation technology: an educational limitation? *Simul Healthc J Soc Simul Healthc*. 2020;15(2):112–4.
27. García-Acosta JM, Castro-Molina FJ, Delgado N, Díez-Fernández O, Rodríguez-Novo N, de Castro-Peraza ME, et al. Virtual reality and simulation videos as effective training tools for creating safe and inclusive environments for transgender people. *Nurs Rep Pavia Italy*. 2023;14(1):42–55.
28. Smallheer B, Chidume T, Spinks MKH, Dawkins D, Pestano-Harte M. A scoping review of the priority of diversity, inclusion, and equity in health care simulation. *Clin Simul Nurs*. 2022;71:41–64.
29. Underman K, Gifford D, Hyderi A, Hirshfield LE. Transgender health: a standardized patient case for advanced clerkship students. *MedEdPortal*. 12:10518.
30. Weingartner L, Noonan EJ, Bohnert C, Potter J, Shaw MA, Holthouser A. Gender-affirming care with transgender and genderqueer patients: a standardized patient case. *MedEdPortal*. 18:11249.
31. Rudolph JW, Raemer DB, Simon R. Establishing a safe container for learning in simulation: the role of the presimulation briefing. *Simul Healthc J Soc Simul Healthc*. 2014;9(6):339–49.
32. Center for Medical Simulation [Internet]. [cited 2024 Mar 11]. The Basic Assumption™. Available from <https://harvardmedsim.org/resources/the-basic-assumption/>.
33. Bajaj K, Meguerdichian M, Thoma B, Huang S, Eppich W, Cheng A. The pearls healthcare debriefing tool. *Acad Med J Assoc Am Med Coll*. 2018;93(2):336.
34. Kolb DA. *Experiential learning: experience as the source of learning and development*. Upper Saddle River, NJ: Pearson Education; 2015. p. 417.
- 35.● Purdy E, Symon B, Marks RE, Speirs C, Brazil V. Exploring equity, diversity, and inclusion in a simulation program using the SIM-EDI tool: the impact of a reflexive tool for simulation educators. *Adv Simul Lond Engl*. 2023;8(1):11. **This study highlights the use of SIM-EDI, a debrief tool for simulation focused on aspects of diversity, equity, and inclusion (DEI). Qualitative data found that SIM-EDI fostered participants' discussion of DEI and perceptions of participant growth.**

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