Implicit Bias Transgender Simulation Scenario

This scenario was developed as part of the Kaiser Permanente grant funded WSSA initiative to reduce implicit bias in healthcare education and practice through simulation-based learning. The project is part of the ongoing efforts to address unconscious biases that may impact clinical judgment, clinical reasoning, communication, and marginalized patient care, safety, policy, and environmental change.

The simulation is aligned with the **INACSL Healthcare Simulation Standards of Best Practice™** (https://www.inacsl.org/healthcare-simulation-standards) and incorporates specific learning objectives, evidence-based content, and structured reflective debriefing prompts. The **American Association of Colleges of Nursing Essentials** (https://www.aacnnursing.org/essentials) domains, competencies and sub-competencies have been mapped to the scenario. QSEN competencies (https://www.qsen.org/competencies) are noted and educators can add their State/Regional Core Tenet Learner Activities to meet learning objectives for their program.

References have been vetted to this specific scenario and are useful for learner prework and reflective debriefing. The references are intended to give **facilitators** a broader understanding of the topic and are extremely important in facilitating an active reflective debriefing. Please review.

All scenarios have been validated by subject matter experts, pilot tested and approved by the WSSA before being published. All scenarios are the property of the HealthImpact-WSSA.

The California Simulation Alliance (CSA) is now the **Western States Simulation Alliance (WSSA)** with eight regional collaboratives in California and gives opportunity for individuals, organizations, and associations from California, Oregon, Washington, Idaho, Alaska, and Hawai'i to collaborate, contribute, and take advantage of offerings, resources, and other benefits. The WSSA is a program under *HealthImpact*, a non-profit organization focused on workforce development in healthcare and provides leadership for the WSSA (CSA).

Notice: This scenario was written to focus on specific populations, groups of people, or clinical context. It may not capture the full range of experiences or needs across all populations or practice settings. If changing the scenario focus, consider that it may not be applicable for other populations, groups, or clinical context. Encourage learners to consider how the implicit bias constructs presented may (or may not) apply to their practice, including ways in which bias might present differently among diverse individuals and communities.

It is with sincere hope that the implicit bias scenarios will further the safety and quality of patient care and learners will experience the benefit of reflection following the simulation experience.

Contact information, membership, educational courses, and validated scenarios can be found at: **www.californiasimulationalliance.org.**

Please assist the WSSA with ongoing quality improvement and scenario effectiveness. Upon completing the simulation experience, please provide the links below to give feedback and capture learning outcomes. The evaluations are anonymous. *Thank you*

Facilitators, Educators, and Faculty give this link to **all learners** who participated in the experience:
Learner Evaluation https://qualtricsxm8m6jlzn6q.qualtrics.com/jfe/form/SV_bfqjiiTMAIFDpxY

Facilitators, Educators, and Faculty use this link to provide **your feedback**:
Faculty/Facilitator Evaluation https://qualtricsxm8m6jlzn6q.qualtrics.com/jfe/form/SV_5aUpWnqk53zftHg

Section I: Scenario Overview

Scenario Title:	Implicit Bias Transgender Person	
Original Scenario Developer(s):	Theo Retos MPA, Marie Gilbert DNP, RN, CHSE-A, Deborah Bennett PhD, RN, CHSE	
Date: May, 2021	Validation: Dec 2022	Pilot testing: June 2022
Scenario Review & Revision	Leslie Catron, DNP, M.A.ED, RN, CHSE	
Date: June 2025	Validation: June 2025	

Estimated Scenario Time: 60 minutes including prebrief	Debriefing time: 60 min	
Target group: Pre Licensure Senior Nursing Students		

Context: Studies support the notion that healthcare professionals are not exempt from bias. Education, introspection and dialogue surrounding one's own bias can create significant emotions. Readily admitting to personal biases and/or their potential influence on clinical practice are unlikely to occur in one simulation. Therefore, the aim of the scenario is not to identify individual biases in front of peers in a "Gotcha" style but rather provide a clinical experience that allows the learner to safely explore concepts of bias while having the opportunity to develop and practice specific interpersonal skills.

The simulation is structured around the RESPECT model (Rapport, Empathy, Support, Partnership, Explanation, Cultural competence, Trust), which provides a guiding framework for respectful, patient-centered, and equity-informed interactions.

Core case: The purpose of this scenario is to increase awareness of stereotypes, and conscious and unconscious bias. Using patient-centered care, therapeutic communication techniques, and promoting psychological safety principles, learners will be encouraged to practice individuation (the act of seeing each patient as a unique individual, rather than as a representative of a group) in nursing care that is sensitive, informed, affirming and empowering to a transgender patient during an emotionally distressing diagnosis and treatment plan.

The concept of implicit bias will be introduced in the pre-simulation preparation and further explored during the post-simulation debrief. The debrief will serve as a psychologically safe space for reflection and discussion and will include the introduction (or reinforcement) of a structured framework to guide learners in what to do if they become aware of a personal bias toward a specific patient characteristic or group. Utilizing the RESPECT model will give the learner the opportunity to develop the practical skills needed to actively build trust. The goal is not to eliminate bias in a single encounter, but to build awareness, self-reflection, and respectful clinical practice habits that contribute to more equitable, compassionate care and create a community value of allyship. And when applicable use of restorative justice to address past harms and any unintentional harms that occur in the visit.

Brief Summary of Case:

A 30-year-old transgender man, Mr. Douglas Fader, presents in the emergency room with abdominal cramps and vaginal bleeding. He has a past medical history of testosterone hormone replacement therapy, which was ceased in order to pursue pregnancy. He is 8 weeks pregnant. On admission, he is in distress due to pain and concern over status of the pregnancy. A miscarriage is diagnosed during the scenario.

The learner is required to provide care using the principles of patient centered care and therapeutic communication to guide the delivery of culturally informed care.

Patient characteristics/stereotypes associated with potential bias

Transgender

EVIDENCE BASE / REFERENCES (APA Format)

Besse, M., Lampe, N. M., & Mann, E. S. (2020). Experiences with Achieving Pregnancy and Giving Birth Among Transgender Men: A Narrative Literature Review. *The Yale Journal of Biology and Medicine*, *93*(4), 517–528. https://pubmed.ncbi.nlm.nih.gov/33005116/

Duff, J., Morse, K. J., Seelandt, J., Isabel, T., Kydston, M., Sargeant, J., Dieckmann, P., Allen, J. A., Rudolph, J. W., & Kolbe, M. (2024, January). Debriefing methods for simulation in healthcare. A systematic review. *Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare, 19*(1S), S112-S121. https://doi.org/10.1097/SIH.0000000000000765

Hoffkling, A., Obedin-Maliver, J., & Sevelius, J. (2017). From erasure to opportunity: a qualitative study of the experiences of transgender men around pregnancy and recommendations for providers. *BMC Pregnancy and Childbirth*, *17*(Suppl 2). https://doi.org/10.1186/s12884-017-1491-5

Riggs, D. W., Pearce, R., Pfeffer, C. A., Hines, S., White, F. R., & Ruspini, E. (2020). Men, trans/masculine, and non-binary people's experiences of pregnancy loss: An international qualitative study. *BMC Pregnancy and Childbirth*, *20*(1). https://doi.org/10.1186/s12884-020-03166-6

Van Amesfoort, J. E., van Rooij, F. B., Painter, R. C., Valkenburg-van den Berg, A. W., Kreukels, B. P. C., Steensma, T. D., Huirne, J. A. F.,, de Groot, C. J. M., & Van Mello, N. M. (2023, May). The barriers and needs of transgender men in pregnancy and childbirth: A qualitative interview study. *Midwifery, 120.* https://doi.org/10.1016/j.midw.2023.103620

Section II: Curriculum Integration

A. SCENARIO LEARNING OBJECTIVES

1. Demonstrate respect for a transgender or gender-nonconforming patient

2. Demonstrate ability to enable patient agency in self-identification

3. Demonstrate adapting language to patient's description

4. Provide care and/or referral that affirms patient's gender identities and reduces distress of gender dysphoria, if present

5. Partner with the patient in a respectful and compassionate manner.

6. Following the scenario, the learner feels empowered to explore any personal biases they may have identified during the scenario and uses evidence-based strategies

Review:

Edgoose, J., Quiogue, m., & Sidhar, K. (2019). How to identify understand and unlearn implicit bias in patient care. *Family Practice Management* 26(4), 29-33. https://www.aafp.org/pubs/fpm/issues/2019/0700/p29.html

Vela, M.B., Erondu, A. I., Smith, N. A., Peek, M. E., Woodruff, J. N., & Chin, M. H. (2022). Eliminated explicit and implicit biases in healthcare: Evidence and research needs. *Annual Review of Public Health, 43*, 477-501. https://doi.org/10.1146/annurev-publhealth-052620-103528

AACN Essential Learner Activities Based on Learning Objectives & Actions	
Domain	**Sub competencies**
1 Knowledge for Nursing Practice	1.1e; 1.1f; 1.2a-h; 1.3a-d
2 Person-Centered Care	2.1a-e; 2.2a-f; 2.2j; 2.3a; 2.3e-f; 2.4a-c; 2.5b-d; 2.5g; 2.5i-j; 2.6b; 2.6e; 2.8b; 2.8d-e; 2.9d
3 Population Health	3.1c; 3.1i; 3.2c; 3.2e
4 Scholarship for the Nursing Discipline	4.1c; 4.2c
5 Quality and Safety	5.1c; 5.1f; 5.2c; 5.2f; 5.3d
6 Interprofessional Partnerships	6.1b; 6.1d-e; 6.1i; 6.2f; 6.4a; 6.4c; 6.4e; 6.4g
9 Professionalism	9.1a-d; 9.1f-g
State or Regional Core Tenel Learner Activities – Complete as indicated for location	
QSEN Competencies	
☒ Patient Centered Care	☒ Teamwork & Collaboration
☒ Safety	☐ Informatics
☒ Evidence-Based Practice	☒ Quality Improvement

B. PRE-SCENARIO LEARNER ACTIVITIES

Prerequisite Competencies	
Knowledge	**Skills/ Attitudes**
1. Principles of patient centered care	1. Values active partnership with patient in planning, implementation, and evaluation of care

2. Principles of assessment, when caring for a transgender patient	2. Adapting language to patient's description
3. Patterns of mistreatment, discrimination, and disparities experienced by transgender people.	3. Ability to enable patient agency in self-identification
4. Principles of therapeutic communications	4. Use of therapeutic communication skills
5. Principles of the RESPECT Model – Respect, Empathy and Trust	5. Verbal and nonverbal responses that validate patients' emotions and cause them to feel understood.

Section III: Scenario Script

A. Case summary

A 30-year-old transgender man, Mr. Douglas Fader, presents in the emergency room with abdominal cramps and vaginal bleeding. He has a past medical history of testosterone hormone replacement therapy, which was ceased in order to pursue pregnancy. He is 8 weeks pregnant. The patient denies consuming alcohol or illicit drugs during pregnancy. There is no history or evidence of trauma.

On physical examination, his temperature was 37°C, had a heart rate of 85 beats/min, and a blood pressure of 138/80 mm Hg. On admission, he is in distress due to pain and concern over status of the pregnancy. During the scenario a miscarriage is diagnosed.

Patient information students will uncover:
Mr. Fader lives with his cisgender male partner. He has not undergone fertility treatments. He and his partner intentionally became pregnant. Patient has had issues with physicians dismissing his complaints of pain as related to prior hormone replacement therapy treatments, potentially causing pregnancy difficulties, although no clinical evidence supports these claims. Mr. Fader and his partner are intentionally becoming parents and have been trying for over a year. Mr. Fader is anxious about telling his partner he believes this is a miscarriage.

B. Key contextual details

Setting: Emergency Room

C. Scenario Cast

Patient	If a standardized patient were available, this would be the preference. However, a manikin can be used if the operator has the capability to communicate with the learner via the manikin.

Participants/Role	Brief Descriptor (Optional)	Imbedded Participant (IP) or Learner (L)
Patient	Script provided	Standardized Patient or IP – possible manikin
Primary Nurse	Assesses the psychosocial needs and patient's lifestyle	L
Secondary Nurse	Assists with assessment	L
Partner (Optional)	Support to patient	SP or IP (optional role)

D. Patient/Client Profile

Last name: Douglas	First name: Fader	Gender: Trans man	Age: 30 years	Ht: 5' 11''	Wt: 160lb
Spiritual Practice:	Ethnicity:	Language: English	Code Status: Full Code		

1. History, Chief Complaint, Assessment Data		
8 weeks pregnant, abdominal cramps and bleeding		
Assessment Data		
General: Pale, anxious appearance T – 37°C		
Neuro: Alert and orientated		
Skin: Pale, not rashes or blemishes noted		
Cardiovascular: HR - 85 ; normal sinus rhythm, BP 138/80 mmHg		
Respiratory: WNL		
GI & GU: WNL		
Extremities: WNL		
Pain: 6/10 – abdominal cramps		
Medication allergies:	None known	Reaction:
Food/other allergies:	None known	Reaction:
Primary Medical Diagnosis	R/O miscarriage	

2. Current Meds	**Drug**		**Dose**	**Route**	**Frequency**
	None				

3. Laboratory, Diagnostic Study Results (List significant labs,& diagnostic test results)
Positive pregnancy test Ultrasound ordered
The remainder of this page is intentionally blank

Section IV: Prework

This Sections provides recommendations for prework to be completed by the learner prior to attending the simulation

Review information regarding the lived experience of a transgender man.

Walker, T. (2017). *A trans man at the doctor's.* [Video]. TEDxCoventGardenWomen.
https://www.youtube.com/watch?v=j-h9WBtGHd4

Review information regarding patterns of mistreatment, discrimination, and disparities experienced by transgender people.

U.S. Trans Survey. (2022). https://ustranssurvey.org/

It is recommended that prework includes information on the RESPECT Model:

Mostow, C., Crosson, J., Gordon, S., Chapman, S., Gonzalez, P., Hardt, E., Delgado, L., James, T., & David, M. (2010). Treating and precepting with RESPECT: A relational model addressing race, ethnicity, and culture in medical training. Journal of General Internal Medicine, 25 (Suppl 2), S146-S154. https://doi.org/10.1007/s11606-010-1274-4

Mostow, C., Crosson, J., Gordon, S., Chapman, S., Gonzalez, P., Hardt, E., Delgado, L., James, T., & M. (2010). Erratum to: Treating and precepting with RESPECT: A relational model addressing race, ethnicity, and culture in medical training. Journal of General Internal Medicine, 25, 1257. https://doi.org/10.1007/s11606-010-1365-2

Section V: Prebrief

This Section provides recommendations for the prebrief

Facilitator

Refer to the standards for best practices in prebriefing:

INACSL Standards Committee, McDermott, D. S., Ludlow, J., Horsley, E., & Meakim, C (2021, September). Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing. *Clinical Simulation in Nursing, 58,* 9-13. https://doi.org/10.1016/j.ecns.2021.08.008

It is recommended that the learners have the opportunity to practice communication skills (open-ended questioning, affirmation, and reflective listening) to be able to respectfully deliver culturally informed care with a transgender patient. Ask learners to provide examples of therapeutic communication.

Learners

This video could be used as an introduction for learners to reflect and discuss 'before action'.

Montgomery College. (2016). *Care to the Trans* and Gender Non-Conforming Identified Patient.* [Video]. YouTube. https://www.youtube.com/watch?v=NEHxlmFBRrA

After viewing, guide learners to reflect on what they have learned from the video, and what behaviors they will use during the scenario.

Section VI: Scenario

Patient Information	Set-Up / Moulage	Medications/Equipment/Supplies
Mr. Douglas Fader is a 30-year-old transgender man who presents to the emergency room with abdominal cramps and vaginal bleeding. He has a past medical history of testosterone hormone replacement therapy, which was ceased in order to pursue pregnancy. He is 8 weeks pregnant. On admission, he is in distress due to pain and concern over status of the pregnancy.	Patient dressed in jeans and a shirt.	Standard Emergency Room bed space. Hospital gown available

CASE FLOW / TRIGGERS/ SCENARIO DEVELOPMENT STATES

Initiation of Scenario:
Patient has just arrived in the Emergency Room with complaints of abdominal pain and bleeding. He is anxious and identifies he is 8 weeks pregnant, which has been confirmed with a pregnancy test. The patient's partner is parking the car and is not by the bedside.

STATE / PATIENT STATUS	DESIRED LEARNER ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
Baseline	**Operator**	**Learner Actions**	**Debriefing Points:**
Patient is on a gurney, fully dressed. He is anxious and identifies he is 8 weeks pregnant, which has been confirmed with a pregnancy test. Patient's partner is parking the car and is not by the bedside. The learner enters the patient room and meets the patient for the first time.	T 37°C HR 85 R 14 BP 138/80 SpO2 98% in Room Air Pain 6/10 Information to guide patient responses: Prefers to be called Doug Pronouns: he/him/his Lives with his cisgender male partner States: "I'm trans"	• Wash hands • Introduce self & pronouns used • Ask patient what name and pronouns to use • Ask what word the patient uses to describe their gender • Begin focus nursing assessment • Partner with the patient to identify what words to use to describe body parts and what words to avoid.	**Reflect** on • Establishing trust • Importance of identifying pronouns • Cultural awareness and influences on health – potential distrust of healthcare providers due to stereotyping, potential distress of gender dysphoria, appropriate use of language to describe body, fear of discrimination • Did the learner avoid gendering patients (sir, ma'am, Mr., Ms.) unless the patient specified a title • Were questions clinically relevant and for the benefit of the patient?

	"I've been on hormones for about six years, and Stopped a year ago in order to pursue pregnancy."
	"I'm 8 weeks pregnant."
	"I don't really like woman types of words, but I get that this is a hospital. Can we just use 'parts' and call the other stuff the medical words like cervix or uterus?"
	Reason for visit:
	"I'm having some bleeding down below and I'm worried about what's going on."
		• Ask open ended questions
		• Listens to the patient's responses
		• Ask clarifying questions if Unclear
		• Build trust
		• Explain what an ultrasound is
		
		Examples of appropriate language:
		"Is there a name you use that is different from what is on your chart?"
		"How would you like me to address you?"
		"Is there a gender pronoun that you use that is different from what is on your chart?"
			• What happens if mistakes are made?
			  o Quickly apologize or say "thank you"
			  o Correct your mistake
			  o Move on
			  o Do not make the mistake again
			• Body Part Terminology
			  o Patient preferences will differ
			  o Might differ in exam room vs. in other parts of life
			  o Ask patients what terms they want you to use
			  o Use those terms
			  o Offer explanation if other terms are necessary
			  o Be aware of using slang terms

An ultrasound has been ordered.	**Triggers**		
	This frame will end when ultrasound calls for the patient.		
STATE / PATIENT STATUS	**DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE**		
Frame 2	**Operator**	**Learner Actions:**	**Debriefing Points:**
Patient returns from the ultrasound and has been told, by the provider, that the causes of pain and bleeding are signs and Symptoms of an early pregnancy loss.	Vital signs are unchanged. Patient's questions: "I don't understand. What is happening? Is the baby still alive? What do I do now?"	• Recognize patient anxiety • Continue assessment using respectful language • Ask open ended questions • Acknowledge and attempt to dispel guilt	• The use of empathy • Reflective listening • Cultural awareness and influences on health – potential distrust of healthcare providers due to stereotyping, potential

No further treatment is required at this time, and he is to make an appointment with his primary care provider in 2 weeks. Contact his primary care provider sooner if there is an increase in bleeding or any signs of infection.

The patient does not understand that this means he has miscarried the pregnancy.

He is confused and anxious. | "Where's my partner? He was parking the car; he should be here now. What am I supposed to tell him? Is it my fault? I just don't understand."
"Do you … do you know if ? When can we try again? We've been trying for a while."
Partner is very supportive and they have been in a committed relationship for over 3 years.

Triggers

When all learner actions are met. If learner actions are not met stop after 10 minutes in the frame.
If referred to a counselor, the councilor will call for a report/briefing about the patient | • Acknowledge and legitimize grief
• Explore support system
• Refer patient and partner to a counselor
• Provide report/briefing to counselor, to avoid the patient and his partner being misgendered / harmed by potential biases of the counselor. | Distress of gender dysphoria, appropriate use of language to describe body, fear of discrimination
• Collaboration with patient to plan follow up care |

Scenario End Point:
Referral to councilor and/or support groups. Learner will need to engage the referral system with a specific briefing about this patient to avoid the person being misgendered / harmed by the biases of the support person.

Suggestions to <u>decrease</u> complexity:
Suggestions to <u>increase</u> complexity: Partner is at the bedside with the patient and becomes distraught.

Section VII: Debrief

This Section provides recommendations to include in debriefing/guided reflection

Facilitator

Refer to the standards for best practices in debriefing:

INACSL Standards Committee, Decker, S., Alinier, G., Crawford, S. B., Gordon, R. M., & Wilson, C. (2021, September). Healthcare Simulation Standards of Best Practice™ . The Debriefing Process. *Clinical Simulation in Nursing*, *58*, 27-32. https://doi.org/10.1016/j.ecns.2021.08.011

In addition to a traditional post event facilitator-guided debriefing, it may be beneficial to also include facilitator-guided within-event debriefing [also known as ''in-simulation debriefing, 'concurrent debriefing,'' ''microdebriefing," "Start/stop debriefing"].
Debriefing in this paradigm focuses on coaching the participants to maximize performance in real time. The communication skills in this scenario may be new to many students, and coaching during the interaction with the patient may be beneficial for learning.
Schober, P., Kistemaker, K. R. J., Sijani, F., Schwarte, L. A., van Groeningen, D., & Krage, R. (2019). Effects of post-scenario debriefing versus stop-and-go debriefing in medical simulation training on skill acquisition and learning experience: A randomized controlled trial. *BMC Medical Education, 19*(1), 334*.* https://doi.org/10.1186/s12909-019-1772-y

Ask learners to **reflect** on:
- The effectiveness of communication in the scenario
- Was trust developed? If so how?
- Was a partnership with the patient developed?
- Was respect demonstrated?
- Was the patient's gender identity affirmed?
- In preparing for and participating in this simulation:
  - What have you learned about the transgender community?
  - What patterns of mistreatment, discrimination, and disparities experienced by transgender people?
  - What skills have you acquired to provide culturally informed care for a transgender patient?
- What can be done if we think we have a bias toward a patient characteristic?

Section VIII: Assessment/Evaluation Strategies

This Section provides recommendation for assessment/evaluation strategies to use.
Facilitator
Refer to the standards for best practices in participant evaluation:
INACSL Standards Committee, McMahon, E., Jimenez, F. A., Lawrence, K. & Victor, J. (2021, September). Healthcare Simulation Standards of Best Practice™ Evaluation of Learning and Performance. *Clinical Simulation in Nursing, 58,* 54-56. https://doi.org/10.1016/j.ecns.2021.08.016
Formative observational assessment of culturally informed care during the simulation. Reflective paper regarding skills to provide culturally informed care for a transgender patient.

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Section VIIII: Faculty/Facilitator Resources

This Section provides resources for faculty/facilitator development in the content area

The following link has a video and reports regarding transgender people
U.S. Trans Survey. (2022). https://www.ustranssurvey.org/

Risk Factors for Stereotypes of Transgender People
- Historical trauma
- Violence (including physical assault and sexual assault)
- Poverty
- High levels of unemployment
- Discrimination, especially medical
- Lack of health insurance

The following provides additional LGBTQ patient case scenarios:
National LGBTQIA+ Health Education Center. (2018). *Learning to address implicit bias towards LGBTQ patients: Case scenarios.*
        https://www.lgbtqiahealtheducation.org/publication/learning-to-address-implicit-bias-towards-lgbtq-patients-case-scenarios/

The following resources provide frameworks/strategies that can be used to guide this discussion.
These are in addition to the scenario references.

Edgoose, J.Y.C., Quiogue, M., Sidhar, K. (2019) How to identify, understand, and unlearn implicit bias in patient care. *Family Practice Management, 26*(4), 29-33. https://www.aafp.org/pubs/fpm/issues/2019/0700/p29.html

de Freitas, R. J. M., Pessoa, A. H. L., da Costa, L. F. B., de Souza, J. O., Bessa, M. M., Fernandes, S. F., Verola, C. F., & de Araújo, J. L. (2025, May). Reproductive health and pregnancy of transgender men: A scoping review. *Physis: Revista de Saúde Coletiva, 35*(2). https://doi.org/10.1590/S0103-73312025350212en

Marcelin, J. R., Siraj, D. S., Victor, R., Kotadia, S., & Maldonado, Y. A. (2019). The impact of unconscious bias in healthcare: how to recognize and mitigate it. *The Journal of Infectious Diseases, 220*(Supplement2), S62-S73. https://doi.org/10.1093/infdis/jiz214

Vela, M. B., Erondu, A. I., Smith, N. A., Peek, M. E., Woodruff, J. N., & Chin, M. H. (2022). Eliminating explicit and implicit biases in healthcare: Evidence and research needs. *Annual Review of Publick Health, 43,* 377-501. https://doi.org/10.1146/annurev-publhealth-052620-103528