Baylor College of Medicine

Texas Children's Hospital®

Furthering Pregnancy-Related Health Goals with Severe Maternal Morbidity Case Reviews

Christina Davidson, MD

Associate Professor | Division of Maternal Fetal Medicine

Vice Chair of Quality & Patient Safety | Department of Obstetrics & Gynecology | Baylor College of Medicine

Chief Quality Officer for Obstetrics & Gynecology | Texas Children's Hospital

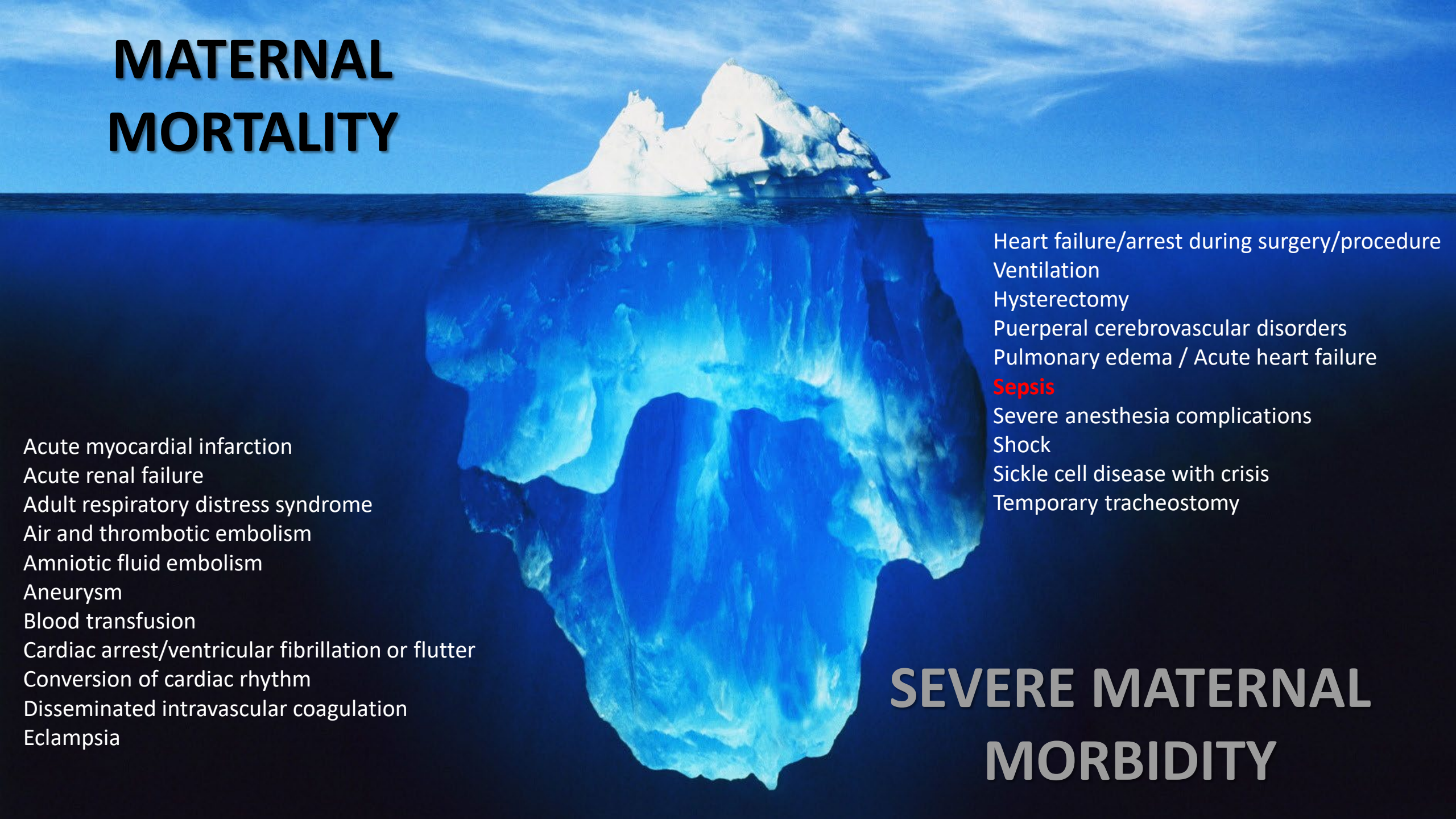
Objectives

Describe	Rationale for performing SMM chart review for quality improvement at the institutional level
Discuss	Importance of embedding a focus around fairness in healthcare in SMM case reviews and quality improvement efforts
Identify	Strategies to integrate considerations of social drivers of health and health disparities into the SMM chart review process
Outline	Outline a corrective action plan from SMM reviews to achieve optimal health outcomes for all pregnant women

What is Severe Maternal Morbidity (SMM)?

Unintended outcomes of the process of labor and delivery that result in significant short- or long-term consequences to a woman's health

MATERNAL MORTALITY



Acute myocardial infarction
Acute renal failure
Adult respiratory distress syndrome
Air and thrombotic embolism
Amniotic fluid embolism
Aneurysm
Blood transfusion
Cardiac arrest/ventricular fibrillation or flutter
Conversion of cardiac rhythm
Disseminated intravascular coagulation
Eclampsia

Heart failure/arrest during surgery/procedure
Ventilation
Hysterectomy
Puerperal cerebrovascular disorders
Pulmonary edema / Acute heart failure
Sepsis
Severe anesthesia complications
Shock
Sickle cell disease with crisis
Temporary tracheostomy

SEVERE MATERNAL MORBIDITY

Why Does SMM Matter?

- Increasing rates in US - 50,000 pregnancies each year
- 50-100X more frequent than death – near miss for maternal mortality
- High degree of preventability
- Lasting effects on physical and mental health of birthing people

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Society for Maternal·Fetal Medicine

ACOG/SMFM Consensus

smfm.org

ACOG/SMFM OBSTETRIC CARE CONSENSUS

Severe maternal morbidity: screening and review

CrossMark

This document was developed by the American College of Obstetricians and Gynecologists and the Society for Maternal–Fetal Medicine in collaboration with Sarah K. Kilpatrick, MD, PhD; Jeffrey L. Ecker, MD; and the Centers for Disease Control and Prevention's representative member William M. Callaghan, MD. The views do not necessarily represent those of the Centers for Disease Control and Prevention or the U.S. government

ACOG/SMFM OCC. Am J Obstet Gynecol. 2016 Sep;215(3):B17-22 and Obstet Gynecol. 2016 Sep;128(3):e54-e60.

Why Should We Review SMM Cases?

Identifies preventable causes of SMM

Reveals gaps in care

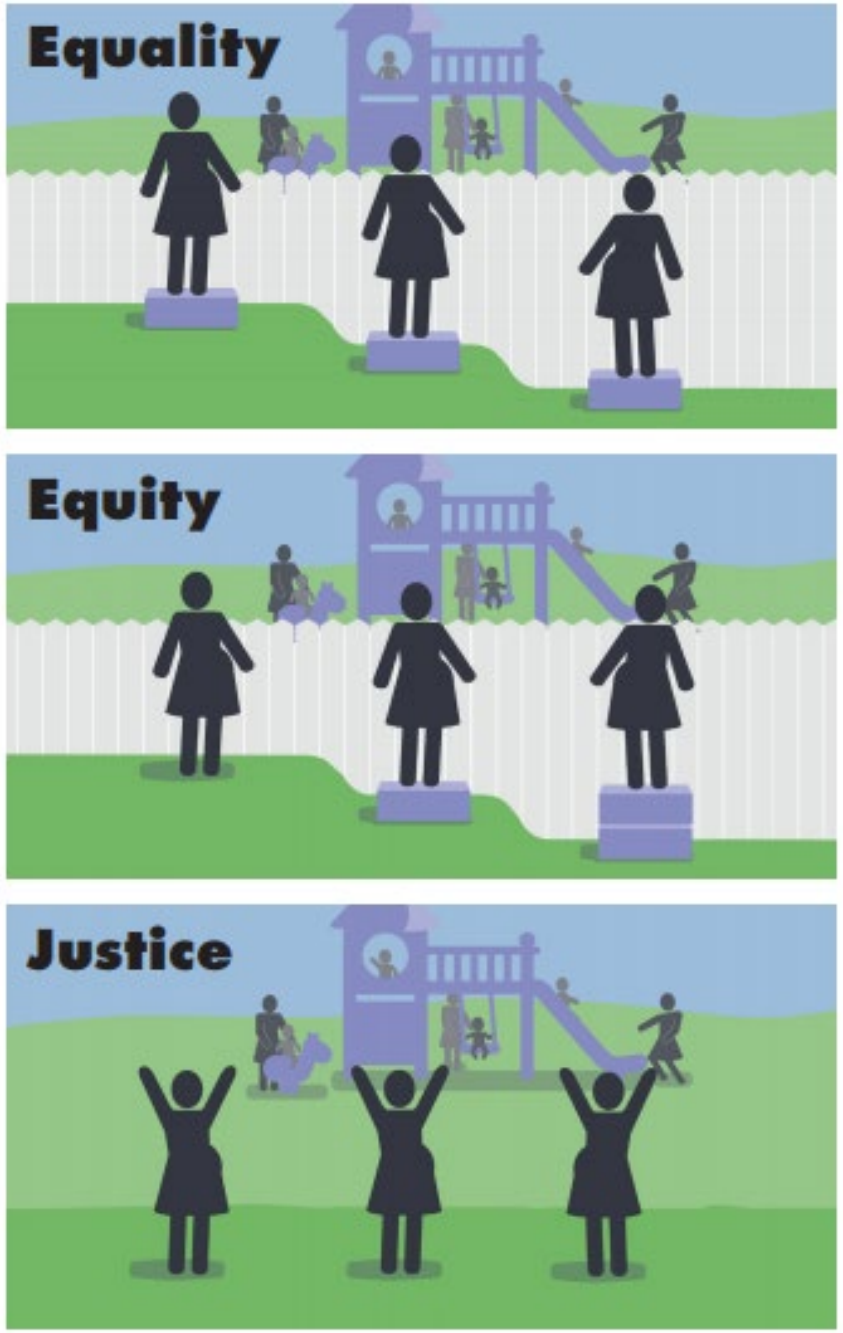
Allows for implementation of practice changes at the hospital level

Equality vs Equity

Health Equity:

-Opportunity for everyone to attain his/her full health potential

-Removing economic and social obstacles to health such as poverty and discrimination



Health Disparities vs Inequities

Health disparities

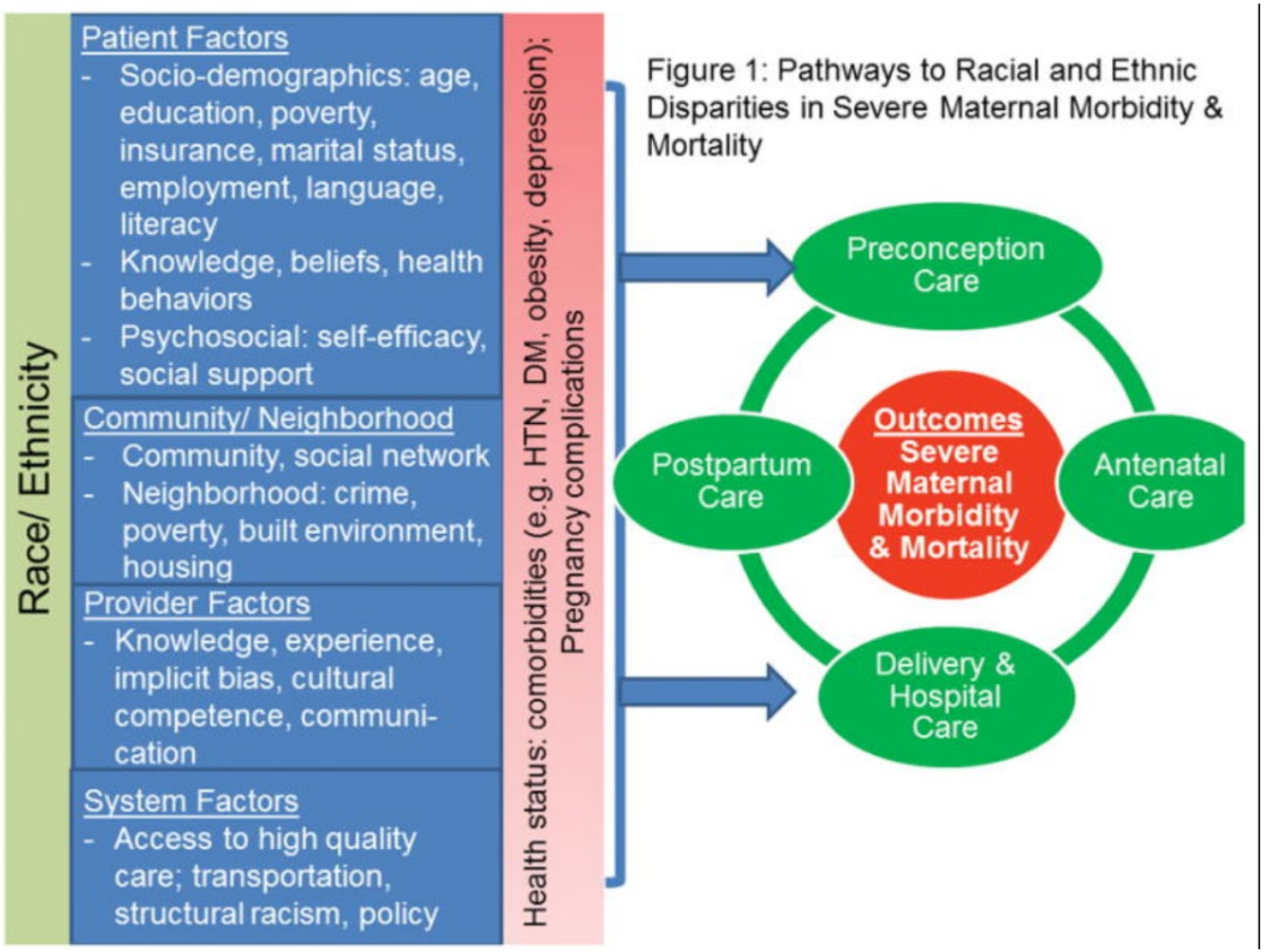
- Difference in health outcomes between groups within a population
- Related to social or demographic factors

Health inequities

- Differences in health outcomes that are systematic, avoidable, and unjust
- Created when barriers prevent individuals and communities from accessing conditions that allow them to reach their full potential

IHI Improving Health Equity: Make Health Equity a Strategic Priority; SMFM Special Report. Am J Obstet Gynecol. 2018 Feb;218(2):B9-B17; Greenwood B, et al. Proc Natl Acad Sci U S A. 2020 Sep 1;117(35):21194-21200; Pregnancy Mortality Surveillance System, 2011-2015. MMWR 2019;68:423-9; Howell, E et al. Clin Obstet Gynecol. 2018 Jun;61(2):387-399

Racial & Ethnic Disparities in Maternal Morbidity and Mortality: Root Causes



Howell, E et al. Clin Obstet Gynecol. 2018 Jun;61(2):387-399

Patient Factors

Conditions in the environment in which people are born, live, work, and age

Shaped by historical, social, political, economic forces

ACOG CO #729, January 2018

https://health.gov/healthypeople/objectives-and-data/social-determinants-health

Sepsis

Table 4. Logistic Regression Analysis of Variables Associated With Development of Pregnancy-Associated Severe Sepsis

Covariate	Adjusted odds ratio (95% CI)[a]	P value
Age ≥ 35 years[b]	1.194 (0.989 - 1.442)	0.0649
Black race[c]	1.354 (1.141 - 1.607)	0.0005
Poverty level > 20%[d]	1.308 (1.125 - 1.520)	0.0005
No health insurance[e]	1.255 (1.010 - 1.558)	0.0403
Smoking	1.050 (0.653 - 1.689)	0.8411
Alcohol	0.631 (0.193 - 2.068)	0.4475
Drug abuse	3.365 (2.462 - 4.600)	< 0.0001
Preeclampsia/eclampsia	1.329 (1.052 - 1.679)	0.0173
Gestational diabetes	0.542 (0.357 - 0.823)	0.0040
Obesity	1.421 (1.011 - 1.996)	0.0431
Iron-deficiency anemia	0.828 (0.578 - 1.187)	0.3036

Oud L, Watkins P. J Clin Med Res. 2015 Jun;7(6):400-16.

Readiness – Every Unit/Team

- Develop a process for review of severe maternal morbidity (SMM) outcomes including:
  - Establish a designated multidisciplinary standing committee at each birthing facility that reflects the professional makeup of clinicians and staff within the birthing facility.[1]
    - Example members may include but are not limited to:
      - Obstetric providers (i.e., obstetricians, certified nurse midwives, family physicians, or advanced practice nurses)
      - Anesthesia providers
      - Obstetric care nurses from clinical area (i.e., outpatient, intrapartum, and postpartum units)
      - Quality improvement (QI) team
      - Birthing facility leaders (i.e., department chair, medical director, nurse manager, or service line director)
      - Other members as determined by the facility, including community birth providers if home birth or community birth transfer
  - Ascertain peer review protections and considerations for the facility based on policy and facility legal counsel

Recognition and Prevention – Every Patient

- Review all pregnant, peripartum and postpartum patients receiving 4 or more units of packed red blood cells, admitted to an ICU as defined by the birthing facility, or other unexpected and severe medical event at the discretion of the birthing facility.[3]
  - Other conditions or events may include but are not limited to:

Respectful, Equitable, and Supportive Care – Every Unit/Provider/Team Member

- Engage in open, transparent, and empathetic communications during reviews.
- Assess all factors associated with SMM, including:
  - Contributing factors associated with social and structural determinants of health.
  - Appropriate referral and follow-up for identified unmet social needs.
  - An assessment of racism, discrimination, and implicit or explicit bias and how these may have impacted quality of care provided.

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- Perform multidisciplinary reviews as close as possible to the time of the event. The severity of the event should prompt timelier review.
- Monitor outcomes, process measures, and trends related to the birthing facility's SMM data, with disaggregation by race and ethnicity due to known racial and ethnic disparities.
  - De-identified aggregate data reviewed at regional and national levels via engagement in perinatal quality collaboratives (PQCs) and other state quality improvement teams could aid in the identification of trends and opportunities for improvement.
- Establish processes for data reporting and sharing of data with providers and care teams as appropriate to inform and support sustainable systems change as necessary.

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ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

SMM Review Form

Review of Chart Abstraction Data

Alterations in factors or other considerations that could have improved care or outcomes

When assessing considerations or factors contributing to outcomes and care, a Just Culture approach should be taken. Responsibility should not be attributed to individuals but consideration should be taken in how these individuals, including the patient, operate in systems that affect the quality of care given or received.

Note that some considerations and factors may be crosscutting. Appropriate clinical judgment should be taken to arrive at determinations.

Systems Factors ☐ Highly intervenable ☐ Somewhat intervenable ☐ Not intervenable at all ☐ Unclear

Opportunities to improve care or outcomes:

Provider Considerations ☐ Highly intervenable ☐ Somewhat intervenable ☐ Not intervenable at all ☐ Unclear

Opportunities to improve care or outcomes:

Patient Considerations ☐ Highly intervenable ☐ Somewhat intervenable ☐ Not intervenable at all ☐ Unclear

Opportunities to improve care or outcomes:

Social and Structural Determinants of Health Factors ☐ Highly intervenable ☐ Somewhat intervenable ☐ Not intervenable at all ☐ Unclear

Opportunities to improve care or outcomes:

Updated AIM SMM Forms: Opportunities to Alter Outcome

System Factors

Provider Considerations

Patient Considerations

Social and Structural Determinants of Health Factors

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This sheet is intended to accompany the Severe Maternal Morbidity (SMM) Review Form. This tool's intention is to guide SMM reviewers through key, condition-specific considerations for chart abstraction and review to ensure sufficient assessment to identify opportunities for quality improvement. This list of questions is not meant to be exhaustive but should serve as a starting point for assessing care based on expert, multidisciplinary review. Determining whether care was timely and appropriate should be based on reviewer judgment in relation to current evidence, policies, and knowledge of facility-specific considerations.

Respectful, Equitable, and Supportive Care

These questions should be considered in addition to condition-specific questions listed below.

- **Was documentation in the patient's chart non-stigmatizing and respectful?**[1]
- **Was there documentation of screening for social and structural determinants of health needs?**
- **Was there documentation of timely referral to identified needed resources and social supports?**
- **Was there documentation of a referral to social work and/or other support services after the event?**

Society for Maternal•Fetal Medicine

Society for Maternal-Fetal Medicine Special Statement: How to incorporate health equity into quality improvement and patient safety efforts. Supplement to SMFM Consult Series #62

Patient Safety and Quality Committee, Society for Maternal-Fetal Medicine

SMFM PSQC Special Statement: Hypothetical Case

You are reviewing Ms. Jane Doe's case in your hospital quality and patient safety committee: 21-year-old G1 non-Hispanic Black patient with no significant medical problems who presented at 38 3/7 weeks gestation with severe headache, abdominal pain, and vaginal bleeding. Her SVE was 4/80/-1 and she was admitted to L&D, where she progressed to 7/90/0. She underwent an emergent cesarean delivery for fetal bradycardia where placental abruption was identified. During the cesarean, she had an eclamptic seizure. She was discharged home on post-operative day #4 and then re-presented one week later with severe headache and slurred speech. She was ultimately diagnosed with a stroke and admitted to the ICU for a nicardipine drip and treatment of her stroke. Upon chart review, you note the following:

- She had mildly elevated blood pressures in the prenatal period beginning at 34 weeks that were not acknowledged and a preeclampsia workup was not performed.
- She had severe range blood pressures during her intrapartum course that were attributed to pain.
- She never had a workup for preeclampsia or received magnesium sulfate for seizure prophylaxis even though she met criteria for preeclampsia with severe features. Elevated blood pressures persisted postpartum and oral antihypertensive medication was prescribed.
- She had severe abdominal pain upon presentation and was described as "refusing" treatment and "uncooperative" during provider and nursing assessments in triage. The initial focus upon admission to labor and delivery was on epidural for pain management and there was a lack of recognition that her abdominal pain and hypertension were signs and symptoms of preeclampsia with severe features and placental abruption.
- She had postpartum follow up scheduled for 2 weeks after delivery. She did not receive a blood pressure cuff for home use. She was unable to fill her prescription for oral antihypertensives because the pharmacy did not have it in stock.
- There was a delay in care when she re-presented due to obtaining a psychiatry consult and a urine drug screen for slurred speech instead of immediately undergoing neuroimaging.
- Social work was consulted due to her "noncompliance."

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SMM Review Form

This section should be completed by the facility designee(s).

Review of Chart Abstraction Data

Sequence of SMM

Indicate the sequence resulting in the severe morbidity or most severe stage of SMM events. All parts of the sequence should be causal:

For example, 1. Preeclampsia; 2. Uncontrolled Hypertension; 3. Intracranial Bleed

1. Antenatal hypertension
2. Placental abruption and eclampsia
3. Cerebrovascular accident

Primary SMM Complication – Reviewer(s) Determination

- [ ] Hemorrhage Complications
- [ ] Respiratory Complications
- [ ] Cardiac Complications
- [ ] Renal Complications
- [ ] Other Obstetric Complications (Write-In)
- [x] Other Medical Complications (Write-In): Complications of hypertensive disorder of pregnancy
- [ ] Unable to specify

(If Physical Trauma Primary Cause of Morbidity) Select Type of Physical Trauma

- [ ] Attempted Suicide
- [ ] Motor Vehicle Accident
- [ ] Intimate Partner Violence
- [ ] Other Violence (Specify)
- [ ] Other Trauma (Specify)

Was there any intervenable opportunity to alter outcomes or improve care?

- [x] Yes - Highly intervenable opportunity
- [ ] Yes – Somewhat intervenable opportunity
- [ ] No, not intervenable at all
- [ ] Unclear

In a few sentences, provide context and rationale to the response to the the question directly above:

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SMM Review Form

Review of Chart Abstraction Data

Additional information or context could have informed the review or recommendations given:

Practices that were effective and should be acknowledged and reinforced:

Potential action steps based on opportunities found to improve care or outcomes:

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Hypertensive Disorders of Pregnancy

- **Were the following available in an appropriate and timely manner:**
  - Supplies and equipment
  - Medications
  - Personnel and staffing
  - Level of care
- **Were the following recognized in an appropriate and timely manner:**
  - Current or recent pregnancy within the past 12 months to contextualize the hypertensive emergency
  - The hypertensive emergency
- **Did the following occur in an appropriate and timely manner, if applicable or needed:**
  - Treatment of persistent severe hypertension (systolic or diastolic blood pressure greater than or equal to 160/110 persisting for 15 minutes or greater) within 60 minutes of the first severe range blood pressure reading
  - Administration of magnesium sulfate
  - Delivery at an appropriate gestational age in relation to the patient's hypertensive disease
  - Monitoring for and management of any complications related to the patient's hypertensive disease or treatment
- **If this was a postpartum hypertension readmission, did the patient receive appropriate delivery discharge medications and follow up based on their diagnosis and documented blood pressure prior to initial discharge?**

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This tool is intended to guide reviewers through specific factors that may have contributed to morbidity or care during a severe maternal morbidity (SMM) chart review. Use of this tool may support completion of the SMM Review Form, particularly in determining whether there was any chance to prevent or minimize morbidity and which factors may have contributed to morbidity. This tool can also be used to further identify opportunities for improvement if used as part of an SMM chart review.

System Factors

Factor	Guiding Questions	Case-Specific Rationale
System Culture Considerations		
Patient Care Team Hierarchy	Was patient management hierarchy a noted or reported contributor to the SMM outcome? (i.e. between care team members, RN to MD, resident physician to attending physician)	
Team-based Communication	Was communication of concerns, needs, and plans to optimally manage and support the patient's care limited by timeliness, thoroughness, and appropriateness of communication amongst the healthcare team? • Prior to birth • During birth • Following birth	
System Structure Considerations		
Documentation	Was patient care and plan documentation: • Timely • Thorough • Accurate • Consistent amongst providers • Reflective of care provided	
Infrastructure	Were all factors required to optimize patient care present and accessible? • Staffing • Supplies and Equipment • Bed Availability • Language translation or other augmented communication services for patient care as requested and indicated Did limitations in infrastructure directly or indirectly impact care?	

Example Case Condition-Specific Questions

AIM Question	Chart Review
Were the following recognized in an appropriate and timely manner: 1. Current or recent pregnancy within the past 12 months to contextualize the hypertensive emergency 2. The hypertensive emergency	1. Yes 2. No, the patient had several episodes of persistent severe hypertension intrapartum that were not treated and there was no laboratory evaluation for preeclampsia either intrapartum or antepartum when she had elevated blood pressures at prenatal visits. Her severe hypertension intrapartum was incorrectly attributed to pain and there was a focus on getting her an epidural rather than treating with anti-hypertensive medications and magnesium sulfate.

System Factors

Factor	Guiding Questions	Case-Specific Rationale
System Culture Considerations		
Patient Care Team Hierarchy	Was patient management hierarchy a noted or reported contributor to the SMM outcome? (i.e. between care team members, RN to MD, resident physician to attending physician)	
Team-based Communication	Was communication of concerns, needs, and plans to optimally manage and support the patient's care limited by timeliness, thoroughness, and appropriateness of communication amongst the healthcare team? • Prior to birth • During birth • Following birth	The patient had multiple severe-range blood pressures during labor that were not communicated to the physicians and were not visible in the electronic medical record because they had not been validated from the bedside vital sign monitor.

Example Case Condition-Specific Questions

AIM Question	Chart Review
Did the following occur in an appropriate and timely manner, if applicable or needed: 1. Treatment of persistent severe HTN within 60 minutes of first severe range BP reading 2. Administration of magnesium sulfate 3. Delivery at appropriate GA in relation to the HTN disease 4. Monitoring for and management of complications related to patient's HTN disease or treatment	1. No, the patient had persistent severe hypertension for several hours and never received short-acting anti-hypertensive treatment. 2. No, the patient satisfied criteria for preeclampsia with severe features based on her intrapartum persistent severe hypertension, however magnesium was not administered until after her eclamptic seizure. 3. No, the mild-range BPs at every prenatal visit beginning at 34 weeks satisfied diagnostic criteria for gestational hypertension. She may have had preeclampsia with or without severe features, however a laboratory workup for preeclampsia was never performed. She should have been delivered at least by 37 weeks of gestation for gestational hypertension, if not earlier. Earlier delivery likely would have avoided the presentation at 38 weeks with placental abruption. 4. No, her lack of diagnosis and appropriate and timely treatment resulted in eclamptic seizure.

System Process Considerations		
Transfer of Care Processes	If need for transfer was identified, did barriers exist leading to delays in care or in a way that contributed to the SMM outcome?	
Delivery Planning	If conditions or concerns were identified prior to the birth hospitalization, was delivery planning undertaken and documented?	Delivery should have been planned for no later than 37 weeks based on satisfying diagnostic criteria for a hypertensive disorder of pregnancy at prenatal visits.

Example Case Condition-Specific Questions

AIM Question	Chart Review
If this was a postpartum HTN readmission, did the patient receive appropriate delivery discharge medications and follow up based on their diagnosis and documented blood pressure prior to initial discharge?	1. Discharge medications were appropriate, however pharmacy did not have the medication and when the patient called office to notify, did not receive response 2. The follow up appointment was not scheduled appropriately based on severity of condition – if scheduled within 3 days, there would have been an opportunity to assist with BP cuff and Rx, possibly preventing readmission

System Process Considerations		
Discharge Planning and Process	If conditions or concerns were identified during the birth hospitalization, was discharge planning with appropriate follow-up, support, and education undertaken and documented?	Innappropriate follow up at two weeks in a patient with severe hypertension and eclampsia was documented.
Follow-up Process	Was the patient provided with clear education on warning signs to report if applicable, as well as a plan for who to contact based on level of severity of any noted urgent signs and symptoms? Was a plan for follow-up based on known clinical risk clearly documented and communicated to the patient and care team? Did inability to follow-up contribute to the SMM outcome?	If appropriate follow up was scheduled within 3 days, it would have been discovered that the patient never received oral anti-hypertensive medication, which may have prevented the stroke.

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SMM Review Form

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Opportunities to Alter Outcome

System Factors

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Health Team Member Considerations

Consideration	Guiding Questions	Case-Specific Rationale
Care Team Biases or Racism	Was evidence of provider bias and/or racism present in documentation?[1] Were there words identified within the medical record that indicate value judgement or conflict? (e.g. adamant, apparently, claims, or insists) Was stigmatizing language identified within the medical record? (e.g. non-compliant, refused, difficult or challenging, non-cooperative, substance abuser, addict, alcoholic)	There were many instances in the chart in which the patient was described as non-compliant, refusing care and uncooperative. Availability bias - hypertension was falsely attributed to pain, with a focus on epidural placement rather than evaluation and management for preeclampsia Evidence of racism was found due to the assumption of substance use when the patient presented with signs and symptoms of a stroke.

Identifying Bias as a Potential Contributing Factor in Adverse Outcomes

Cognitive Biases in Healthcare

- Flaws/distortions in judgement and decision making
- Implicit systematic error in thinking → can lead clinician to make erroneous judgment about a case
- Contributors to patient safety events
- 28% of diagnostic errors attributed to cognitive error

Factors that can predispose or increase likelihood of cognitive biases:[3-6]

Person factors:

- Cognitive loading
- Fatigue
- Affective considerations (feelings)

Patient factors:

- Complex patient presentation, number of co-morbidities
- Lack of complete history

System factors:

- Workflow design (e.g., task complexity, reliance on memory, numerous handoffs)
- Insufficient time to gather, integrate, interpret information
- Inadequate processes to acquire information (e.g., transfer from facility, care transitions)
- Poorly designed/integrated or inaccessible health IT
- Poorly designed environment (e.g., distractions, interruptions, noise, poor lighting)
- Poor teamwork, collaboration and communication
- Inadequate culture to support decision-making (e.g., lack of resources, time, rigid hierarchical structure)

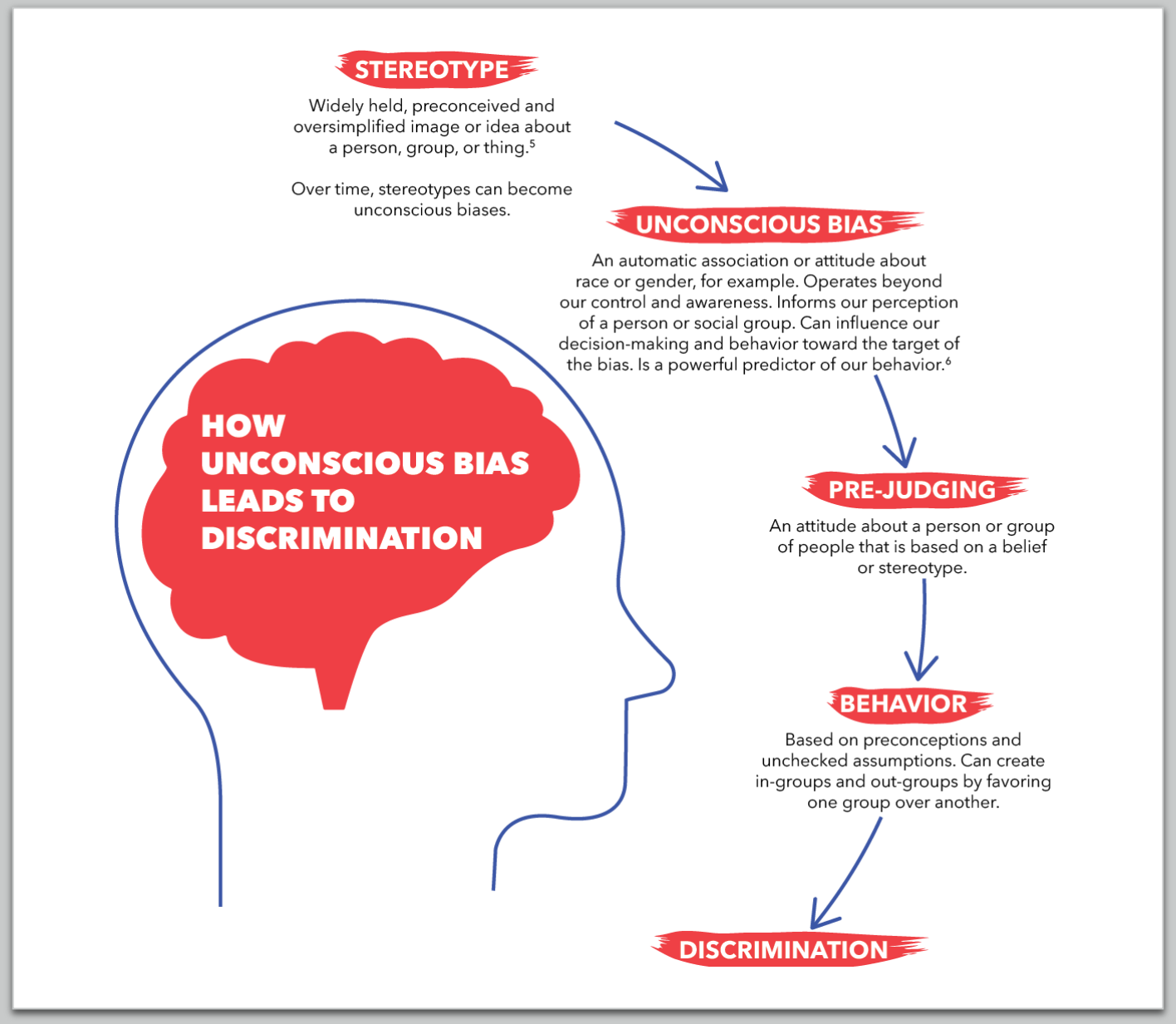
[Quick Safety 28: Cognitive biases in health care | The Joint Commission]

Example cognitive biases
More than 100 cognitive biases have been identified. Examples are provided in the sidebar, with a case example below illustrating several biases, noted in parentheses.

A patient with co-morbidities of renal failure, diabetes, obesity and hypertension arrived to the ED via EMS. Though the patient's chief complaint was chest pain, it was reported to triage as back pain, a secondary complaint (*framing effect*). The patient was "known to the organization," having been to the ED several times previously for back pain, and had been seen earlier that day for a cortisone shot (*ascertainment bias*). Triage assessment focused on back pain rather than chest pain (*anchoring, confirmation bias, diagnostic momentum*). The primary nurse began to prepare the evaluation using information from the triage indicating "back pain" (*framing, diagnostic momentum*) and did not independently evaluate the patient. The patient was found deceased a short time after arrival.

Examples of Cognitive Bias
Anchoring bias Giving weight and reliance on initial information/impressions, and not adjusting from this (anchor) despite availability of new information. "Jumping to conclusions" can lead to missed/delayed diagnoses.
Ascertainment bias Shaping decision-making based on prior expectations (e.g., stereotyping, gender bias). "Frequent flyers" with recurrent complaints can affect decision-making or, in the case of falls, a patient who "always uses the call bell" may predispose staff to expect that behavior.
Availability bias Judging likelihood of a diagnosis based on the ease with which examples can be retrieved (more familiar, common, recent, memorable) (e.g., diagnosing a patient based on frequently seen conditions such as the flu, or not considering less common diagnoses).
Confirmation bias Selectively noticing/seeking information that confirms opinion/impression versus seeking information that disconfirms. Evidence in support of beliefs is given more weight; evidence that refutes may not be noticed (e.g., not noticing a warning label on medication or performing procedure on incorrect site).
Diagnostic momentum (bandwagon effect) Once a label (diagnosis) has been assigned, momentum takes hold and reduces ability to consider other alternatives. Can affect future work-up of patient and how handoffs are "framed."
Framing effect How information is presented, and how a question is framed can impact future decisions (e.g., framing in probabilities as to whether patient might "die" or "live"). Source of information (e.g., superior, trusted source); and context can influence framing.
Search satisficing/premature closure Cease looking for findings/signals (e.g., disease processes, fracture, retained object) once something has been identified. Accepting a diagnosis before considering all information and verifying diagnosis.

Quick Safety 28: Cognitive biases in health care | The Joint Commission



Provider Factors: Implicit/Unconscious Bias

Implicit/Unconscious Bias: attitudes and stereotypes that affect our understanding, actions, and decisions in an unconscious manner (unconscious discrimination)

Stereotyping and implicit bias of health care providers may contribute to racial & ethnic disparities in health

Greatest effects in situations marked by ambiguity, stress, time constraints

2015 SMFM survey: 83% of respondents agreed that disparities have an impact on their practice; only 29% believed that personal biases affect how they care for patients

Am J Obstet Gynecol. 2018 Feb;218(2):B2-B8.

Testimonial Injustice: Linguistic Bias in the Medical Records of Black Patients and Women

Mary Catherine Beach, MD, MPH[1,2,3,4], Somnath Saha, MD, MPH[2,5,6], Jenny Park[2,7], Janiece Taylor, RN, PhD, FAAN[8], Paul Drew, PhD[9], Eve Plank[10], Lisa A. Cooper, MD, MPH[2,3,4], and Brant Chee, PhD[11]

Beach M, et al. J Gen Intern Med. 2021 Jun;36(6):1708-1714.

INTRODUCTION

Prior studies indicate that clinicians may be more likely to dismiss, ignore, or downplay the concerns of Black and female patients, compared to White and male patients. For example, focus groups of African Americans overwhelmingly identified the importance of being taken seriously and believed by clinicians as a core component of respect, whereas this theme never arose in focus groups with White participants.[1] In a newspaper article on bias in healthcare, a Black man summarized his experiences as follows, "If there was ever a book on medical racism, it should probably just be called, 'They Don't Believe Us.'"[2] Similarly, studies that have examined the experiences of people with sickle cell disease, which disproportionately affects persons of African descent, have found that patients frequently report their pain being treated with suspicion and distrust, and they experience extreme frustration in attempting to convince health professionals of their distress.[3] In terms of gender, there are multiple accounts of women's symptoms being first misunderstood as psychosomatic before they get needed treatment.[4] Black women, in particular, may be at higher risk of being disbelieved, which is thought to potentially contribute to racial disparities in maternal and infant mortality.[5]

The phenomenon of clinicians disbelieving certain patients may be a manifestation of unconscious biases and stereotypes of women and minorities as lacking credibility.[6] Studies have shown that race and gender biases are as prevalent in healthcare as in other settings.[7, 8] Because these biases are typically unconscious and subtle, their potential impact on clinical care can be difficult to detect. One place where biases may be detectable is in the medical record. Literature from the field of social psychology finds that attitudes can be reflected through people's language.[9–12] Thus, unconscious biases and stereotypes may reveal themselves in the language used to describe patients, including women and minorities, in clinical notes.

Implicit Bias: Linguistic Bias in Medical Records

Quotes: may be indication that the words are to be doubted

"The patient had a 'reaction' to the medication."

Judgement words: convey a sense of doubt or negative judgement on the part of the physician

"adamant"
"claims"
"states"
"apparently"
"insists"

Evidentials: sentence construction in which patients' symptoms or experience is reported as hearsay

"The patient *reports* that the headache started yesterday."

Beach M, et al. J Gen Intern Med. 2021 Jun;36(6):1708-1714.

Linguistic Bias in Medical Records

9251 notes written by 165 physicians

~3374 unique patients

- 74% identified as Black, 58% as female

Linguistic differences by race

- All 3 linguistic features appeared more often in the medical records of Black compared to White patients

Linguistic differences by gender

- No differences in use of evidentials or judgment words in male vs. female
- Quotes more likely in women compared to men

Beach M, et al. J Gen Intern Med. 2021 Jun;36(6):1708-1714.

Do Words Matter? Stigmatizing Language and the Transmission of Bias in the Medical Record

Study design: Randomized vignette study of 2 chart notes employing stigmatizing vs neutral language to describe same hypothetical patient, a 28-year-old man with sickle cell disease

Participants: 413 physicians-in-training: medical students and residents in internal and emergency medicine programs at urban academic medical center (54% response rate)

Results: Exposure to stigmatizing language note associated with more negative attitudes towards patient ($p < 0.001$); reading the stigmatizing language note associated with less aggressive management of patient's pain ($p = 0.003$)

Goddu A, et al. J Gen Intern Med 2018 May;33(5):685-691

Table 1 Text Employed in the Vignettes

Neutral language chart note	Stigmatizing language chart note
Section 1 Mr. R is a 28-year old man with sickle cell disease and chronic left hip osteomyelitis who comes to the ED with 10/10 pain in his arms and legs. He has about 8–10 pain crises per year, for which he typically requires opioid pain medication in the ED. At home, he takes 100 mg OxyContin BID and oxycodone 5 mg for breakthrough pain. Over the past few days, he has taken 2 tabs every 4–6 hours. About 3 months ago, he moved to a new apartment and now has to wheel himself in a manual wheelchair up 3 blocks from the bus stop.	Mr. R is a 28-year old sickle cell patient with chronic left hip osteomyelitis who comes to the ED stating he has 10/10 pain "all up in my arms and legs." He is narcotic dependent and in our ED frequently. At home he reportedly takes 100 mg OxyContin BID and oxycodone 5 mg for breakthrough pain. Over the past few days, he says that he has taken 2 tabs every 4–6 hours. About 3 months ago, patient states that the housing authority moved him to a new neighborhood and he now has to wheel himself in a manual wheelchair up 3 blocks from the bus stop.
He spent yesterday afternoon with friends and wheeled himself around more than usual, which caused dehydration due to the heat. He believes that this, along with recent stress, precipitated his current crisis. The pain is aching in quality, severe (10/10), and not alleviated by his home pain medication regimen.	Yesterday afternoon, he was hanging out with friends outside McDonald's where he wheeled himself around more than usual and got dehydrated due to the heat. He believes that this, along with some "stressful situations," has precipitated his current crisis. Pain is aching in quality, severe (10/10), and has not been helped by any of the narcotic medications he says he has already taken.
On physical exam, he is in obvious distress. He has no fever and his pulse ox is 96% on RA. The rest of the physical exam is normal other than tenderness to palpation on the left hip.	On physical exam, he appears to be in distress. He has no fever and his pulse ox is 96% on RA. The rest of the physical exam is normal although he reports tenderness to palpation on the left hip.

JAMA Network Open

Original Investigation | Health Policy

Examination of Stigmatizing Language in the Electronic Health Record

Gracie Himmelstein, MD; David Bates, MD, MS; Li Zhou, MD, PhD

Table 2. Examples of Stigmatizing Language in Context, by Condition

Condition	Examples
Diabetes	Patient failed to show up to endocrine follow up
	Noncompliant with insulin regimen
	Patient refused diabetic diet
Substance use disorder	Started on opioids for pain control and admits to becoming addicted to them
	Avoid narcotics given history of abuse
	He is a habitual cocaine user
Chronic pain	Questionable if hyperalgesia or drug seeking behavior
	Patient has numerous psychiatric diagnoses including malingering
	Concern for secondary gain given narcotic seeking behavior

RESULTS The sample included notes on 29 783 patients with a mean (SD) age of 46.9 (27.6) years. Of these patients, 1033 (3.5%) were non-Hispanic Asian, 2498 (8.4%) were non-Hispanic Black, 18 956 (63.6%) were non-Hispanic White, 17 334 (58.2%) were female, and 2939 (9.9%) preferred a language other than English. Of all admission notes, 1197 (2.5%) contained stigmatizing language. The diagnosis-specific stigmatizing language was present in 599 notes (6.9%) for patients with diabetes, 209 (3.4%) for patients with substance use disorders, and 37 (0.7%) for patients with chronic pain. In the whole sample, notes about non-Hispanic Black patients vs non-Hispanic White patients had a 0.67 (95% CI, 0.15 to 1.18) percentage points greater probability of containing stigmatizing language, with similar disparities in all 3 diagnosis-specific subgroups. Greater diabetes severity and the physician-author being less advanced in their training was associated with more stigmatizing language. A 1 point increase in the diabetes severity index was associated with a 1.23 (95% CI, .23 to 2.23) percentage point greater probability of a note containing stigmatizing language. In the sample restricted to physicians, a higher PGY was associated with less use of stigmatizing language overall (−0.05 percentage points/PGY [95% CI, −0.09 to −0.01]).

CONCLUSIONS AND RELEVANCE In this cross-sectional study, stigmatizing language in hospital notes varied by medical condition and was more often used to describe non-Hispanic Black patients. Training clinicians to minimize stigmatizing language in the EHR might improve patient-clinician relationships and reduce the transmission of bias between clinicians.

JAMA Network Open. 2022;5(1):e2144967. doi:10.1001/jamanetworkopen.2021.44967

JAMA Netw Open. 2022 Jan 4;5(1):e2144967.

Stigmatizing Language

Abuse[a]
Abuser
Abuses
Abusing
Addict
Addicted
Adherence
Adherent
Alcohol abuse
Argumentative
Been clean
Belligerent
Cheat
Cheating
Cheats
Combative
Compliance
Compliant
Control
Controlled
Controls
Degenerate
Depraved
Difficult patient

Drug problem
Drug seeking
Fail
Failed
Fails
Failure
Fake
Faking
Habit
In denial
Junkie
Lifestyle disease
Malinger
Malingerer
Malingering
Malingers
Narcotic
Narcotics
Nonadherence
Nonadherent
Noncompliance
Noncompliant
Pill problem

Pill seeking
Pot head
Refuse
Refused
Refuses
Secondary gain
Speedball
Strung out
Substance abuse
Uncontrolled
Unmotivated
Unwilling
User

Clinical Expert Series CME

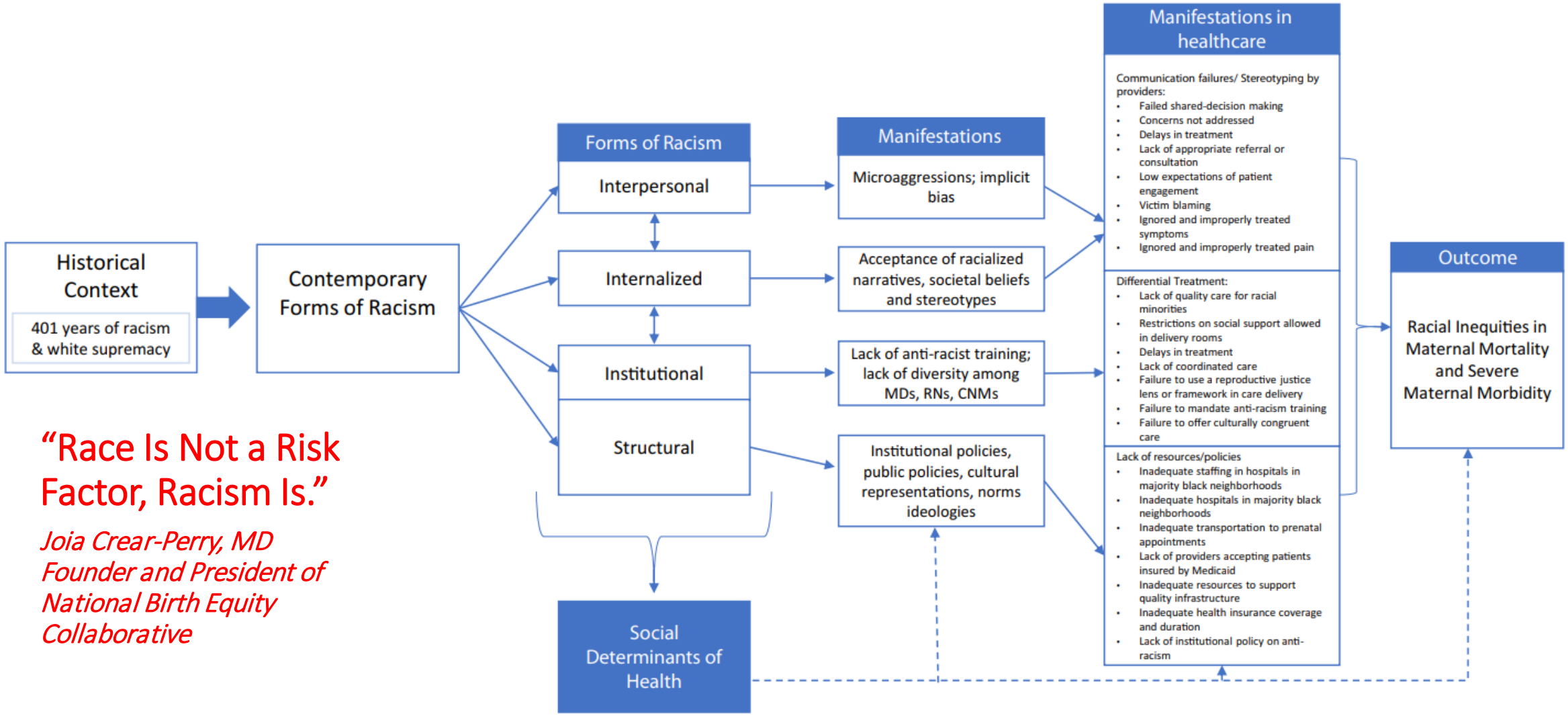
What Obstetrician–Gynecologists Should Know About Substance Use Disorders in the Perinatal Period

Marcela C. Smid, MD, MS, and Mishka Terplan, MD, MPH

Table 2. Stigmatizing and Preferred Language

Stigmatizing Language	Preferred Language
Substance abuse	Substance use or misuse, substance use disorder
Abuser, addict, alcoholic	Person with a substance use disorder
Smoker	Person with cannabis or tobacco or nicotine use disorder
Addicted baby	Neonate with neonatal abstinence syndrome or with in utero exposure to [named substance]
Clean or sober	Abstinent, in remission, toxicology "negative" for [substance]
Dirty	Using [substance], toxicology "positive" for [substance]
Drug of choice, habit	Substance of use
Getting or being high	Intoxicated, under the influence of [substance]
Shooting up	Intravenous drug use, injection drug use
Replacement or substitution treatment for opioid use disorder, opioid replacement, medication-assisted treatment	Medications for opioid use disorder, medications for addiction treatment
Relapse	Return to use, symptom recurrence

Obstet Gynecol 2022;139:317–37



"Race Is Not a Risk Factor, Racism Is."

Joia Crear-Perry, MD
Founder and President of National Birth Equity Collaborative

Fig. 1 A Conceptual Model of how Racism Operates and Results in Inequities in Maternal Morbidity and Severe Maternal Mortality

Hardeman R, et al. Developing Tools to Report Racism in Maternal Health for the CDC Maternal Mortality Review Information Application (MMRIA). Child Health J . 2022 Apr;26(4):661-669.

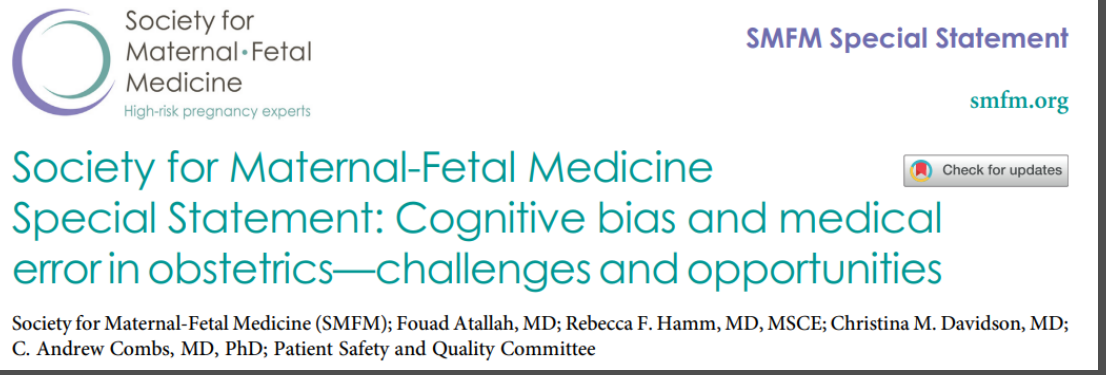


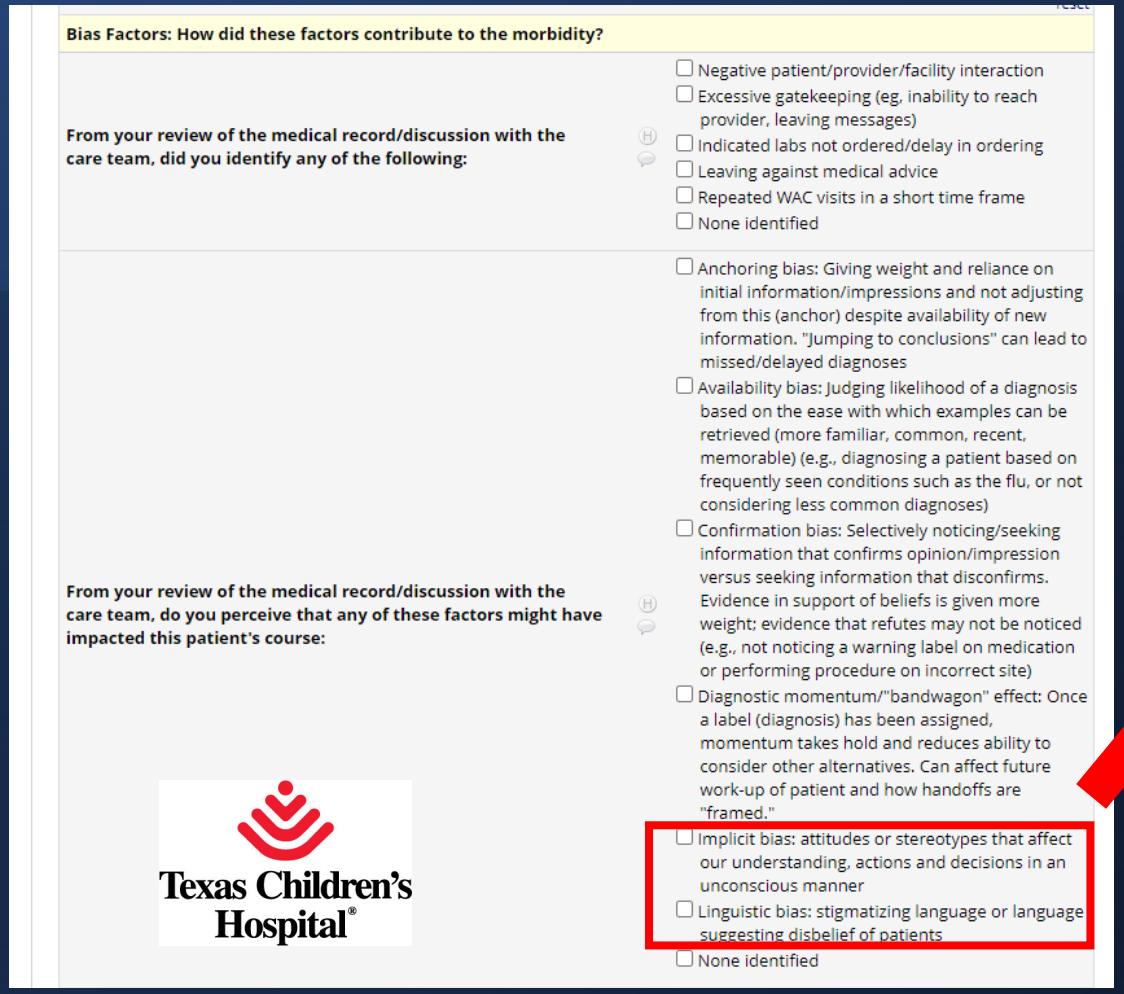
TABLE 2
Individual exercises to combat implicit bias and stereotypes

Strategy	Description
Stereotype replacement	Become aware of the stereotypes you hold, and create nonstereotypic alternatives to them.
Counterstereotypic imaging	Remember or imagine someone from a stereotyped group who does not fit the stereotype.
Individuating	See each person as an individual, not as a group member; pay attention to things about them besides the stereotypes of their group.
Perspective-taking	Imagine the perspective of someone from a group different than your own ("put yourself in the other person's shoes").
Contact	Seek ways to get to know people from different social groups. Build your confidence in interacting with people who are different from you. Seek opportunities to engage in discussions in safe environments, spend time with people outside your usual social groups, or volunteer in a community different than your own.
Emotional regulation	Reflect on your "gut feelings" and negative reactions to people from different social groups. Be aware that positive emotions during a clinical encounter make stereotyping less likely.
Mindfulness	Keep your attention on the present moment so you can recognize a stereotypic thought before you act on it.

Reprinted from the US Department of Health and Human Services.[66]

Patient Safety and Quality Committee, Society for Maternal-Fetal Medicine. Cognitive bias in obstetrics. Am J Obstet Gynecol 2022.

Cognitive and Linguistic Bias in Case Reviews



Bias Factors: How did these factors contribute to the morbidity?

From your review of the medical record/discussion with the care team, did you identify any of the following:

- ☐ Negative patient/provider/facility interaction
- ☐ Excessive gatekeeping (eg, inability to reach provider, leaving messages)
- ☐ Indicated labs not ordered/delay in ordering
- ☐ Leaving against medical advice
- ☐ Repeated WAC visits in a short time frame
- ☐ None identified

From your review of the medical record/discussion with the care team, do you perceive that any of these factors might have impacted this patient's course:

- ☐ Anchoring bias: Giving weight and reliance on initial information/impressions and not adjusting from this (anchor) despite availability of new information. "Jumping to conclusions" can lead to missed/delayed diagnoses
- ☐ Availability bias: Judging likelihood of a diagnosis based on the ease with which examples can be retrieved (more familiar, common, recent, memorable) (e.g., diagnosing a patient based on frequently seen conditions such as the flu, or not considering less common diagnoses)
- ☐ Confirmation bias: Selectively noticing/seeking information that confirms opinion/impression versus seeking information that disconfirms. Evidence in support of beliefs is given more weight; evidence that refutes may not be noticed (e.g., not noticing a warning label on medication or performing procedure on incorrect site)
- ☐ Diagnostic momentum/"bandwagon" effect: Once a label (diagnosis) has been assigned, momentum takes hold and reduces ability to consider other alternatives. Can affect future work-up of patient and how handoffs are "framed."
- ☐ Implicit bias: attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner
- ☐ Linguistic bias: stigmatizing language or language suggesting disbelief of patients
- ☐ None identified

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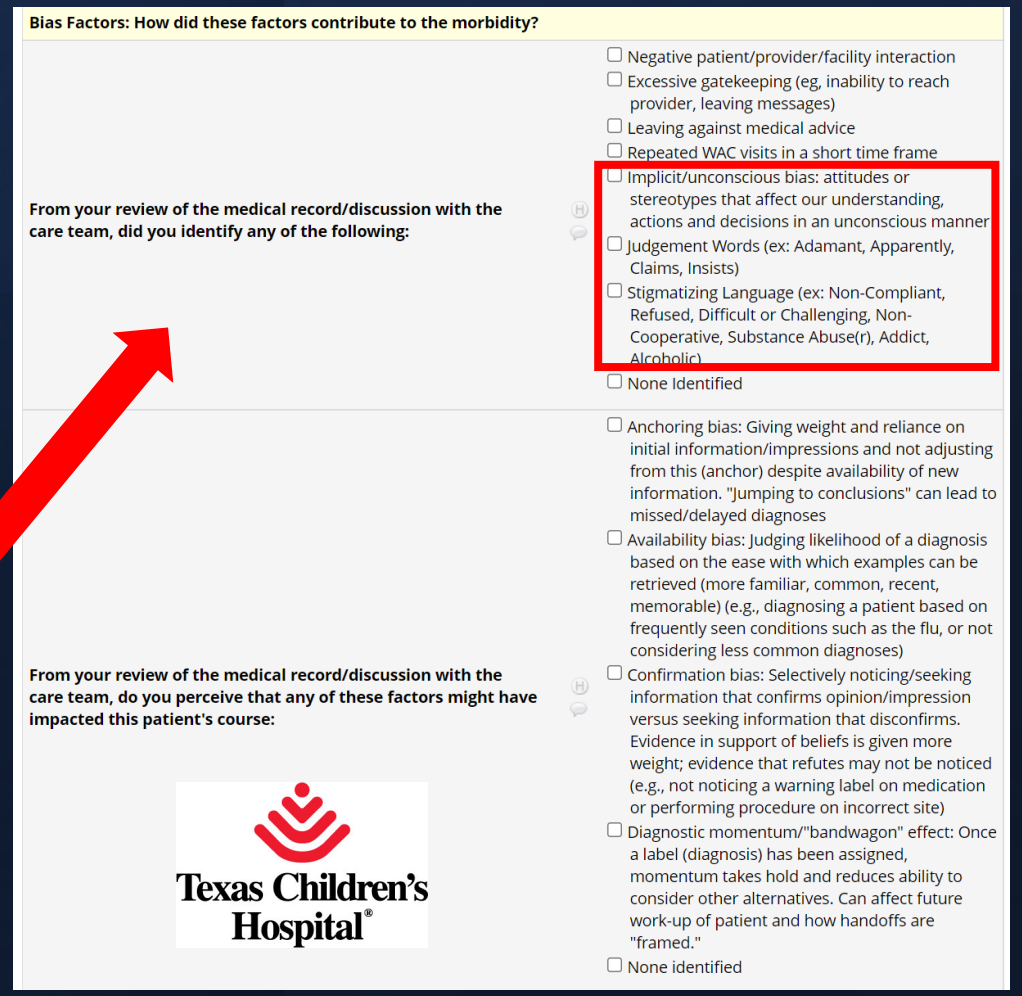

Bias Factors: How did these factors contribute to the morbidity?

From your review of the medical record/discussion with the care team, did you identify any of the following:

- ☐ Negative patient/provider/facility interaction
- ☐ Excessive gatekeeping (eg, inability to reach provider, leaving messages)
- ☐ Leaving against medical advice
- ☐ Repeated WAC visits in a short time frame
- ☐ Implicit/unconscious bias: attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner
- ☐ Judgement Words (ex: Adamant, Apparently, Claims, Insists)
- ☐ Stigmatizing Language (ex: Non-Compliant, Refused, Difficult or Challenging, Non-Cooperative, Substance Abuse(r), Addict, Alcoholic)
- ☐ None Identified

From your review of the medical record/discussion with the care team, do you perceive that any of these factors might have impacted this patient's course:

- ☐ Anchoring bias: Giving weight and reliance on initial information/impressions and not adjusting from this (anchor) despite availability of new information. "Jumping to conclusions" can lead to missed/delayed diagnoses
- ☐ Availability bias: Judging likelihood of a diagnosis based on the ease with which examples can be retrieved (more familiar, common, recent, memorable) (e.g., diagnosing a patient based on frequently seen conditions such as the flu, or not considering less common diagnoses)
- ☐ Confirmation bias: Selectively noticing/seeking information that confirms opinion/impression versus seeking information that disconfirms. Evidence in support of beliefs is given more weight; evidence that refutes may not be noticed (e.g., not noticing a warning label on medication or performing procedure on incorrect site)
- ☐ Diagnostic momentum/"bandwagon" effect: Once a label (diagnosis) has been assigned, momentum takes hold and reduces ability to consider other alternatives. Can affect future work-up of patient and how handoffs are "framed."
- ☐ None identified

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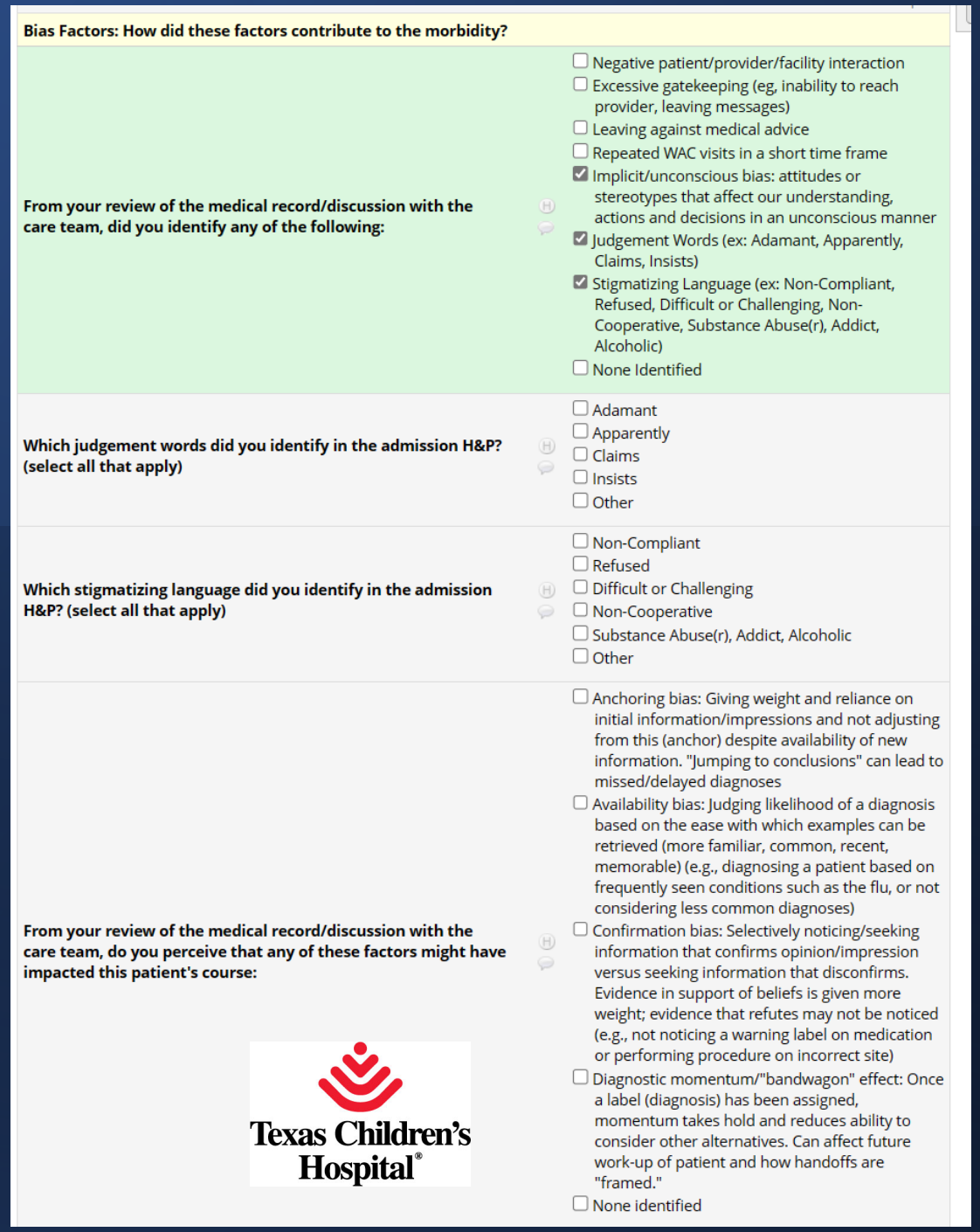


Bias Factors: How did these factors contribute to the morbidity?

From your review of the medical record/discussion with the care team, did you identify any of the following:

- [ ] Negative patient/provider/facility interaction
- [ ] Excessive gatekeeping (eg, inability to reach provider, leaving messages)
- [ ] Leaving against medical advice
- [ ] Repeated WAC visits in a short time frame
- [x] Implicit/unconscious bias: attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner
- [x] Judgement Words (ex: Adamant, Apparently, Claims, Insists)
- [x] Stigmatizing Language (ex: Non-Compliant, Refused, Difficult or Challenging, Non-Cooperative, Substance Abuse(r), Addict, Alcoholic)
- [ ] None Identified

Which judgement words did you identify in the admission H&P? (select all that apply)

- [ ] Adamant
- [ ] Apparently
- [ ] Claims
- [ ] Insists
- [ ] Other

Which stigmatizing language did you identify in the admission H&P? (select all that apply)

- [ ] Non-Compliant
- [ ] Refused
- [ ] Difficult or Challenging
- [ ] Non-Cooperative
- [ ] Substance Abuse(r), Addict, Alcoholic
- [ ] Other

From your review of the medical record/discussion with the care team, do you perceive that any of these factors might have impacted this patient's course:

- [ ] Anchoring bias: Giving weight and reliance on initial information/impressions and not adjusting from this (anchor) despite availability of new information. "Jumping to conclusions" can lead to missed/delayed diagnoses
- [ ] Availability bias: Judging likelihood of a diagnosis based on the ease with which examples can be retrieved (more familiar, common, recent, memorable) (e.g., diagnosing a patient based on frequently seen conditions such as the flu, or not considering less common diagnoses)
- [ ] Confirmation bias: Selectively noticing/seeking information that confirms opinion/impression versus seeking information that disconfirms. Evidence in support of beliefs is given more weight; evidence that refutes may not be noticed (e.g., not noticing a warning label on medication or performing procedure on incorrect site)
- [ ] Diagnostic momentum/"bandwagon" effect: Once a label (diagnosis) has been assigned, momentum takes hold and reduces ability to consider other alternatives. Can affect future work-up of patient and how handoffs are "framed."
- [ ] None identified

Texas Children's Hospital®

Cognitive and Linguistic Bias in Case Reviews

References

- Quick Safety 28: Cognitive biases in health care, The Joint Commission: https://www.jointcommission.org/resources/news-and-multimedia/newsletters/newsletters/quick-safety/quick-safety-28/cognitive-biases-in-health-care/#.Y9FnacnMLtU (accessed 1/25/23)
- Beach MC, et al. Testimonial Injustice: Linguistic Bias in the Medical Records of Black Patients and Women. J Gen Intern Med. 2021 Jun;36(6):1708-1714.
- P Goddu A, et al. Do Words Matter? Stigmatizing Language and the Transmission of Bias in the Medical Record. J Gen Intern Med. 2018 May;33(5):685-691.
- Himmelstein G, et al. Examination of Stigmatizing Language in the Electronic Health Record. JAMA Netw Open. 2022 Jan 4;5(1):e2144967.
- Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM): https://www.cdc.gov/reproductivehealth/maternal-mortality/erase-mm/index.html (accessed 1/25/23)

Provider Review

Primary Cause Of Morbidity:	
Was there a deviation in care that led to the morbidity?	
Sequence Of Morbidity:	
Interventions To Alter Outcome:	
Practices Done Well:	
Recommendations For Improvement:	
Reviewer spoke to provider	
Factors that Contributed to Morbidity	
System and Provider	
Patient	
Bias	
QAPI Resolution:	

What word should I use instead?

- A patient with substance use and mental health disorders was presented at L&D board sign-out and was described as “uncooperative” with vaginal exams.
    - Presenting resident: patient presented with leakage of fluid and resident unable to perform adequate SSE because patient would move away from speculum upon insertion
    - Another resident: provided additional history that patient has history of sexual abuse
    - Team:
        - Agreed it would be better to describe patient as having poor tolerance to vaginal exams, possibly secondary to her history of sexual abuse, as opposed to labeling her uncooperative
        - Acknowledged that describing patient as “uncooperative” could lead to bias in how we interact with her and the care we provide vs. seeking to understand the clinically relevant history that may have led to the behavior, which could result in more compassionate and trauma-informed care

Case Review

- Ms. D is a 28 y/o G4 P4004 s/p term SVD with history of chronic sacroiliac joint pain → discharged home on PPD#2 → readmitted on PPD#4 with abdominal pain

- Presented to triage with abdominal pain again on PPD#7 → patient felt pain was being dismissed because of the color of her skin → requested discharge and signed out AMA

How to Ask About Bias & Discrimination When Conducting Case Reviews

When discussing the case with those involved, consider the following questions:	Did you feel there was any discrimination in the case? How do you assess yourself for bias or discrimination?
How providers assessed themselves for racial bias or changed practices:	Repeats what the patient stated as a concern back to them, trying to use the patient's words to confirm validation of their thoughts and feelings and concerns. Also quoted studies supporting the patient's concern regarding racial disparities in women's health to further validate the patient's concerns and build rapport. Does not review charts prior to initial patient assessment in an effort to avoid bias about presenting concern. Standardizes approach to every patient encounter, including the "chit chat" and terminology for addressing the patient. Gives themself a pep talk - remind themself of the common ways racial bias is perceived, and when in room, they try to focus mostly on exam findings.

Bias Factors: How did these factors contribute to the morbidity?

From your review of the medical record/discussion with the care team, did you identify any of the following:

- [x] Negative patient/provider/facility interaction
- [ ] Excessive gatekeeping (eg, inability to reach provider, leaving messages)
- [x] Leaving against medical advice
- [x] Repeated WAC visits in a short time frame
- [ ] Implicit/unconscious bias: attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner
- [ ] Judgement Words (ex: Adamant, Apparently, Claims, Insists)
- [ ] Stigmatizing Language (ex: Non-Compliant, Refused, Difficult or Challenging, Non-Cooperative, Substance Abuse(r), Addict, Alcoholic)
- [ ] None Identified

QAPI Resolution

Provider reviewer recommendation:

- [ ] Education to service
- [ ] Referral to CSC
- [ ] Referral to nursing leadership
- [x] Guideline/policy development/review
- [x] Systems/process improvement
- [ ] Track and trend
- [ ] Close case
- [ ] Informational feedback given by the Reviewer
- [ ] Other

What system or process needs to be fixed and why?

develop an algorithm to escalate uncontrolled pain in a way that limits bias against the patient affecting care.

Expand

Society for Maternal-Fetal Medicine

DOI: 10.1002/pmf2.70013

PREGNANCY

Society for Maternal-Fetal Medicine

SMFM SPECIAL STATEMENT

Society for Maternal-Fetal Medicine Special Statement: Tools for patient safety and quality case review and response: Obstetric sepsis

Society for Maternal-Fetal Medicine (SMFM) | Rebecca F. Hamm | Niraj R. Chavan | Nicolina Smith | Jessica Ehrig | SMFM Patient Safety and Quality Committee

The Society for Maternal-Fetal Medicine, Washington, District of Columbia, USA

Correspondence
The Society for Maternal-Fetal Medicine: Patient Safety and Quality Committee, PO Box 420016, Washington, DC 20042, USA.
Email: pubs@smfm.org

Abstract

Sepsis-related obstetric morbidity has significant consequences and can be a precursor to maternal mortality. Diagnosing and managing obstetric sepsis is uniquely challenging but a critical target for improving maternal outcomes. This document provides considerations and tools for breaking down a case of obstetric sepsis at the clinical unit level. In addition, this document outlines special issues with performing quality improvement projects as they relate to obstetric sepsis: (1) encouraging frontline implementers to consider the wide array of stakeholders involved in sepsis cases, (2) how to harness the electronic health record for enhancing care delivery, (3) challenges around common sepsis-related metrics, (4) considerations around locations and transitions in obstetric sepsis care, and (5) considerations for ensuring equity in sepsis-related projects.

https://publications.smfm.org/publications/604-society-for-maternal-fetal-medicine-special-statement-tools/

SMFM PSQC Special Statement: Hypothetical Case

SE is a 35-year-old G2P2002 Hispanic Black woman who underwent an uncomplicated LTCD for arrest of descent. There were no intrapartum or postpartum complications. She was discharged on POD#3 in good condition. On POD#5, she calls with worsening abdominal pain despite the use of acetaminophen and NSAIDs.

- Clinician covering phone triage instructs patient to try opioid pain medication at home, attributing her pain to normal recovery after cesarean.
- SE calls back the next day (POD#6) with fever of 101.7◦F, continued abdominal pain despite opioids, and she now also reports bilateral breast engorgement and tenderness → different responding triage clinician orders antibiotics to treat mastitis and informs SE she can stay home.
- Night of POD#6: presents to EC with hypotension, tachycardia, and fever of 103.8◦F
    - On ED exam, clinician notes “abdominal tenderness appropriate for the postoperative state” → consults OB/GYN → OB/GYN delayed due to labor floor acuity
    - 3 hours after presentation, OBGYN comes to evaluate SE, noting worsening VS and significant fundal tenderness → diagnosis endometritis and orders imaging, labs, fluid resuscitation, and targeted antibiotics → patient is transferred to postpartum floor
- She arrives on postpartum floor after a lapse of an additional 2 h due to staffing and coverage issues with postpartum nursing
    - Upon evaluation by clinical team on postpartum floor, hypotension and tachycardia have worsened despite initial fluid resuscitation and antibiotic treatment → ID is consulted and she is transferred to ICU → arrives to ICU in septic shock after an additional 2 h
- In the ICU, ID recommends broadening antibiotic coverage given signs of end-organ damage in lab work → this note remains unread by primary ICU team
    - By the next morning, the patient has increasing pressor requirements and acidosis → taken to OR where a hysterectomy is required for source control
    - Antibiotics are broadened, and after several days in the ICU, she recovers and is discharged home

AIM
ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

SMM Review Form

This section should be completed by the facility designee(s).

Review of Chart Abstraction Data

Sequence of SMM

Indicate the sequence resulting in the severe morbidity or most severe stage of SMM events. All parts of the sequence should be causal:

For example, 1. Preeclampsia; 2. Uncontrolled Hypertension; 3. Intracranial Bleed

1. intrapartum cesarean
2. postpartum endometritis
3. septic shock

Primary SMM Complication – Reviewer(s) Determination

- [ ] Hemorrhage Complications
- [ ] Respiratory Complications
- [ ] Cardiac Complications
- [ ] Renal Complications
- [ ] Other Obstetric Complications (Write-In)
- [x] Other Medical Complications (Write-In): infection
- [ ] Unable to specify

(If Physical Trauma Primary Cause of Morbidity) Select Type of Physical Trauma

- [ ] Attempted Suicide
- [ ] Motor Vehicle Accident
- [ ] Intimate Partner Violence
- [ ] Other Violence (Specify)
- [ ] Other Trauma (Specify)

Was there any intervenable opportunity to alter outcomes or improve care?

- [x] Yes - Highly intervenable opportunity
- [ ] Yes – Somewhat intervenable opportunity
- [ ] No, not intervenable at all
- [ ] Unclear

In a few sentences, provide context and rationale to the response to the the question directly above:

AIM
ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

SMM Review Form

Review of Chart Abstraction Data

Additional information or context could have informed the review or recommendations given:

Practices that were effective and should be acknowledged and reinforced:

Potential action steps based on opportunities found to improve care or outcomes:

Case Review #1

Ms. A is a 20 y/o G2 P0010 at 37w4d who presented for fever.

- Patient triggered MEWS for maternal tachycardia (125-150) and temperature of 101.1 F.
- Per provider note, “Tachycardia appears secondary to anxiety or just is reflective of her baseline.”
- Urine culture positive for E. Coli
- Patient was admitted for suspected pyelonephritis and started on antibiotics → required transfer to ICU with severe sepsis with metabolic acidosis

Psychiatric/Behavioral health comment:	Anxiety unlikely to explain severe persistent tachycardia as also confirmed by psychiatry consultant involved in the case
List interventions that could be done to alter outcome:	From provider suspecting severe sepsis earlier patient was already tachycardic and it was a possible episode of anchoring since husband reported tachycardia in the past was associated with history of anxiety started on metoprolol may be downplaying or masking ongoing sepsis.

Bias Factors: How did these factors contribute to the morbidity?

From your review of the medical record/discussion with the care team, did you identify any of the following:	☐ Implicit/unconscious bias: attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner ☑ Judgement Words (ex: Adamant, Apparently, Claims, Insists)
From your review of the medical record/discussion with the care team, do you perceive that any of these factors might have impacted this patient's course:	☑ Anchoring bias: Giving weight and reliance on initial information/impressions and not adjusting from this (anchor) despite availability of new information. "Jumping to conclusions" can lead to missed/delayed diagnoses
If you perceive bias, please explain:	tachycardia explanation was attributed to anxiety rather than sepsis

Bias identified: Tachycardia explanation was attributed to anxiety rather than sepsis

Case Review #2

Ms. D is a 41 y/o G5 P3114 at 34w0d with CHTN who presented with worsening dyspnea and chest pain and BPs 200s/100s.

- Work-up significant for elevated troponin and BNP, echocardiogram with pericardial effusion and concern for cardiomyopathy
- Diagnosed with superimposed pre-E with severe features → underwent uncomplicated SVD at 34w2d and was transferred to ICU postpartum
- Postpartum course complicated by pulmonary edema and severe HTN requiring escalating doses of Lasix and antihypertensive medication
- On PPD5, patient had signs and symptoms concerning for stroke and was transferred to OSH after stabilization by Neurology and Critical Care Medicine

Patient Factors: Did any of these complications or conditions contribute to the patient's outcome?	
Which patient factors contributed to this case (check all that apply)?	☐ Pre-pregnancy - underlying significant medical or physical conditions ☐ Previous significant obstetric conditions ☐ Non-obstetric medical complications that occurred during pregnancy ☑ Complications due to conditions of pregnancy ☐ Psychiatric/behavioral health ☑ Significant stressors ☐ Barriers to seeking healthcare or healthcare access ☐ Language barrier ☐ Compliance
Complications due to conditions of pregnancy comment:	superimposed preeclampsia with severe features, acute kidney injury Expand
Did any of these factors contribute to the significant stressors:	☐ Domestic violence ☐ Lack of access to food ☑ Lack of housing ☐ Other
Significant stressors comment:	pt was seen by social work for concerns about housing after she was to be discharged from the hospital- during pregnancy, pt was staying with friends or in hotels. pt also did not have any infant care items for when baby would be discharged.

Bias Factors: How did these factors contribute to the morbidity?

From your review of the medical record/discussion with the care team, did you identify any of the following:	☑ Implicit/unconscious bias: attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner ☐ Judgement Words (ex: Adamant, Apparently, Claims, Insists) ☑ Stigmatizing Language (ex: Non-Compliant, Refused, Difficult or Challenging, Non-Cooperative, Substance Abuse(r), Addict, Alcoholic)
Which stigmatizing language did you identify in the admission H&P? (select all that apply)	☑ Non-compliant ☑ Refused ☐ Difficult or challenging ☐ Non-cooperative ☐ Substance abuse(r), addict, alcoholic ☐ other

Stigmatizing language noted throughout chart (Non-complaint, Refused)

“Refusing blood work”
“Refusing weights”
“Refusing medications”
“Refusing BIPAP”

“Non-compliance with lactation plan”
“Non-compliance with medications”

Reason for Review: Sepsis	**Day of admission:**	**Day of discharge:**	**Reviewers:**

Case synopsis: 29 y/o G4 P2012 was admitted at 17w0d with suspected viral syndrome and dehydration.

- She presented with body aches, congestion, fever and chills
  - She was found to be positive for Influenza A, COVID and Group A Strep.
- While in triage, she developed fever to 102 and tachycardia to 130s.
  - CXR showed concern for possible LLL pneumonia.
  - She was started on oseltamivir, remdesivir, and ceftriaxone.
  - Labs overall remained reassuring, including normal lactates.
  - She did briefly develop an O2 requirement overnight and was started on dexamethasone.
- It was recommended she stay in house for continued treatment until at least >24 hours without O2 need.
  - However, the patient left AMA on HD1.
- **Time "0" - When patient met criteria for suspected sepsis: 01-15-2025 19:00**
  - Elevated maternal HR (>110) and temp 102.1
  - Met criteria for sepsis evaluation.

SEPSIS TIME TABLE

Time "0" - When patient met criteria for suspected sepsis: 01-15-2025 19:00 Elevated maternal HR (>110) and temp >100.4 (102.1). Met criteria for sepsis evaluation.	**Time IVF Bolus Ordered:** D5-LR: 1/15/25 @ 1531 **IVF Volume given (cc/ml):** 500 **Time IVF Administered:** 1/15/25 @ 1531
Time Blood Culture Ordered: **Time Blood Culture Collected**:	**Time Sputum Culture Ordered:** **Time Sputum Culture Collected**:
Time Wound & Tissue Culture Ordered: **Time Wound & Tissue Culture Collected:**	**Time Urine Culture Ordered:** **Time Urine Culture Collected:**
Time ABX #1 Ordered: Ceftriaxone 1g: 1/15/25 @ 2116 **Time ABX #2 Ordered:** **Time ABX #3 Ordered:** **Time ABX #3 Administered:**	**Time ABX #1 Administered: Ceftriaxone 1g: 1/15/25 @ 2317** **Time ABX #12 Administered:** **Time ABX #3 Administered:**
Time Lactate Ordered: 1/15/25 @ 2102 **Time Lactate Collected:** 1/15/25 @ 2128 **Time Lactate resulted:** 1/15/25 @ 2157 **Initial Lactate result:** 0.9	**Consults:** ☒ ICU ☐ MFM ☐ Other Services

What was the source of infection (select all that apply)?	☐ Chorioamnionitis ☐ Endometritis ☐ Wound infection ☐ Septic Abortion ☐ UTI/pyelonephritis ☑ Pneumonia ☑ Influenza ☑ Covid ☐ Appendicitis ☑ Other (please specify other source) Strep throat Expand
Did the patient meet suspected sepsis criteria?	◉ Yes ○ No reset
What confirmed sepsis criteria did the patient meet? Sepsis is confirmed if 1 or more criteria met. Select all that apply.	☐ Respiratory: need for mechanical ventilation or PaO2/FiO2 < 300 ☐ Coagulation: Plt < 100x109 or INR >1.5 or PTT >60 sec ☐ Liver: T bilirubin >2mg/dL ☐ Cardiovascular: SBP < 85mmHg or MAP < 65mmHg or >40mmHg decrease in SBP (after fluids) ☐ Renal: Cr >1.2mg.dL or doubling of Cr or UOP < 0.5mL/kg/hr x 2 hours ☐ Mental status: agitated, confused, or unresponsive ☐ Lactic Acid: >2mmol/L in absence of labor, >4mmol/L during labor ☑ None of the above
Was the diagnosis of sepsis or infection made in a timely fashion?	Diagnosis of suspected sepsis was made in a timely fashion. Expand

Were appropriate antibiotics selected (based on suspected source of infection) after diagnosis?	She got appropriate antivirals. She got ceftriaxone for strep throat/pnemonia - I think a PNC would have been adequate for step throat, and plus azithro for possible pneumonia. Expand
Were the antibiotics ordered within 1 hour of time 0?	○ Yes ◉ No reset
Which labs were ordered? Select all that apply.	☑ CBC ☑ CMP ☑ lactic acid ☐ PT ☐ PTT ☐ INR ☐ fibrinogen ☐ blood culture ☐ urine culture
What diagnostic test or imaging was ordered?	☐ CT ☐ MRI ☐ Ultrasound ☑ X-Ray
Was IV fluid resuscitation (ie: 30 ml/kg) ordered within 1 hour of time 0?	○ Yes ◉ No reset
Did the patient require vasopressors?	○ Yes ◉ No reset
Were significant modifiable risk factors for infectious complications identified?	The patient did not receive seasonal flu or covid vaccinations. Expand

Provider Review

Primary Cause Of Morbidity:	Infection
Was there a deviation in care that led to the morbidity?	No
Sequence Of Morbidity:	Flu, COVID, Strep throat → Possible pneumonia, fever, tachycardia
Interventions To Alter Outcome:	Vaccination
Practices Done Well:	Good multidisciplinary communication/care
Recommendations For Improvement:	None
Reviewer spoke to provider	Unknown
Factors that Contributed to Morbidity	
System and Provider	None
Patient	None
Bias	**Leaving against medical advice**
QAPI Resolution:	**CLOSE CASE**

Was MEWS/SEWS activated?	MEWS was appropriately activated for maternal tachycardia upon admission; however, it was not reactivated at 1900 for persistent tachycardia, nor was it activated for new-onset fever of 102.1°F. Additionally, the patient experienced multiple episodes of oxygen saturation <95% overnight, yet MEWS was not activated, and the provider was not notified until 0430, at which point supplemental oxygen was ordered.
Were antibiotics administered within 1 hour of time 0?	At 1900, the patient had a documented temperature of 102.1°F, which met criteria for sepsis screening; however, there is no documentation indicating the provider was notified of this finding at that time. Additionally, a pulse was not recorded until 2033, making it difficult to assess the full clinical picture at the time of initial fever. Antibiotics were not ordered at time zero, and this delay may have impacted timely initiation of treatment
Were appropriate labs and cultures collected within 1 hour of time 0?	While a lactate was appropriately ordered, cultures were not ordered or obtained.
Were the cultures drawn prior to antibiotics being administered?	○ Yes ○ No (if not, please comment) reset

Was there initiation of adequate IV fluid resuscitation (ie: 30 ml/kg) within 1 hour of time 0?	Upon admission, the patient received a 500 mL IV fluid bolus. Critical care subsequently recommended a 1000 mL bolus; however, documentation reflects that only an additional 500 mL was administered. Per the physician's note the following day, the patient did not have maintenance IV fluids running and reported drinking only two bottles of water over 24 hours. An additional 500 mL bolus was then ordered. In total, the patient received 1159 mL of fluids during hospitalization, which is below sepsis protocol recommendations for fluid resuscitation. Given the patient's limited oral intake and clinical signs of dehydration, earlier and more aggressive fluid management may have been beneficial. Recommend reinforcing adherence to sepsis fluid resuscitation guidelines and ensuring maintenance fluids or adequate oral hydration are addressed in care plans.
Was there recognition of hypotension (MAP < 65 and/or systolic < 90)?	n/a pt MAP remained above 65 and/or systolic above 90 Expand
If hypotension was recognized, were interventions executed promptly (i.e. fluid bolus, medications)?	n/a pt did not become hypotensive. Expand

Nurse Review

Was there a deviation in nursing care that led to the morbidity?	No
Interventions To Alter Outcome:	None
Practices Done Well And Should Be Reinforced:	1. Critical Care and MFM quickly consulted recommendations given, MEWS reactivated appropriately for elevated heart rate. 2. MD responded quickly and nurse did a great job of writing a non-bias note when patient decided to leave AMA that explained the situation without bias
Recommendations For Improvement:	Recommend reinforcing documentation of timely vital signs and prompt provider notification when abnormal findings are noted. • Patient received two 500 mL fluid boluses (on 1/15 and 1/16), but did not receive continuous IV fluids despite clinical signs of dehydration and suspected sepsis. • While 125 mL/hr maintenance fluids appear to have been started in the MAR, they were not linked in Epic, and per both the physician's note and patient report, the fluids were not actually administered. • Patient reported only drinking two bottles of water overnight.

Nurse Review

Factors that Contributed to Morbidity	
System and Provider	**Policies and procedures**
Patient	**Non-obstetric medical complication/condition that occurred during pregnancy:** Influenza A+, Covid+, Strep A
Bias Factors	**Leaving against medical advice**
Reviewer Spoke To Nurse:	
QAPI Resolution:	**EDUCATION TO NURSING:** Recommend reviewing with nursing staff the protocol for activating and reactivating MEWS, with emphasis on recognizing signs of worsening sepsis. Also recommend exploring workflow improvements to expedite sepsis protocol initiation-such as timely nurse-provider communication, drawing appropriate labs, and promptly starting IV fluids when sepsis is suspected.

Ambulatory QAPI Case

- Patient underwent scheduled repeat CD at 37w2d for CHTN, on medication. She had uncomplicated post-operative course and was discharged home on POD #3. She presented to triage on POD #24 with elevated BP at home and with headache and dizziness, despite taking her Labetalol and Nifedipine XL as prescribed. She was diagnosed with superimposed preeclampsia and readmitted for Mg sulfate and BP optimization with up-titration of antihypertensive medications.

- QAPI committee identified the following factors that may have contributed to readmission: patient may have benefited from an increase in her antihypertensive regimen during her outpatient visit on POD #7 and #15 (BPs mostly 150s/90s with 2 severe range SBPs; antihypertensive regimen not changed at that time).

- QAPI Committee referred case to Ambulatory QAPI for review of postpartum ambulatory care.

Ambulatory QAPI Physician and Nurse Case Review

Patient Factors Contributing

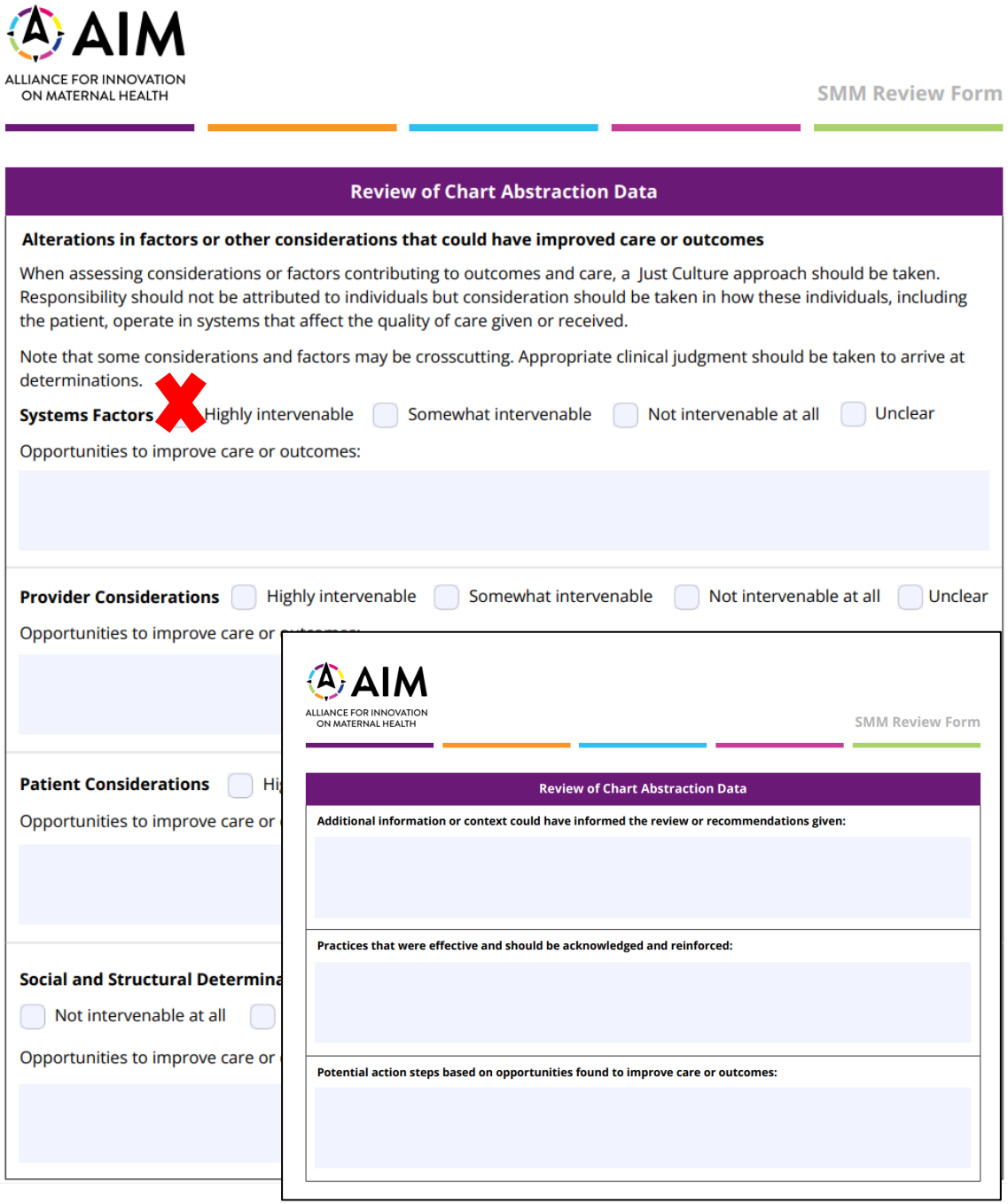
- Pre-pregnancy: underlying significant medical or physical conditions (cHTN)
- Patient's ability to attend appointments - Pt was scheduled to have f/u visit with NP telemedicine and logged on at a different time. Patient was not able to check BP's as instructed because she couldn't find her BP machine.
- Ambulatory office communication - She did call the office the following day about FMLA paperwork and spoke with nursing.

System Factors – Yes - MyChart communication not addressed in timely fashion lacking direct escalation

Bias Factors – No

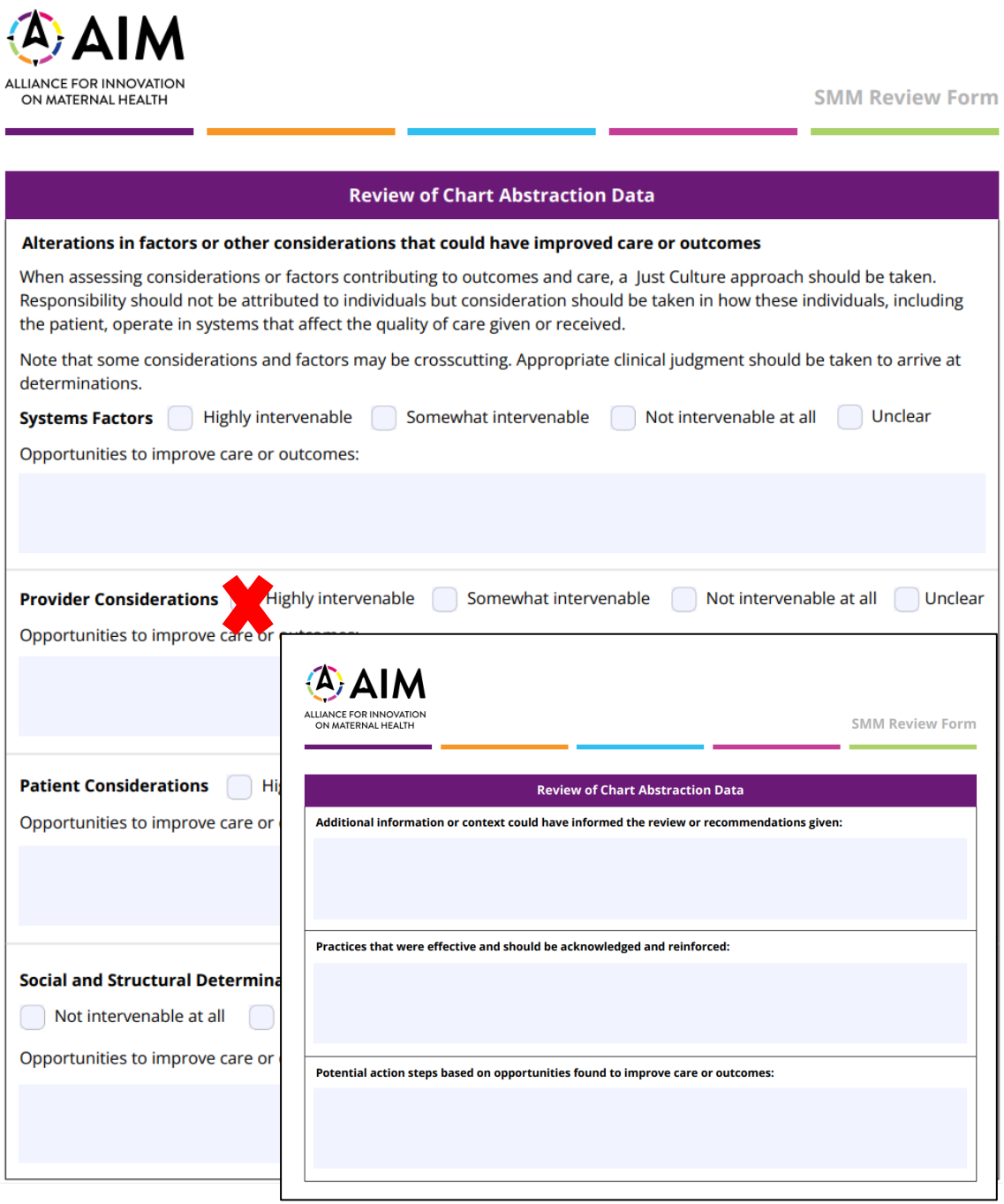
Opportunities & Contributing factors:

- If patient makes a nursing call after a missed follow up appointment (especially for BP), assess availability for add on follow up telemedicine call/or provider call
- In agreement with QAPI recommendations to adjust or start antihypertensive medications if BP persistently >150/100s postpartum



Opportunities to Alter Outcome – System Factors

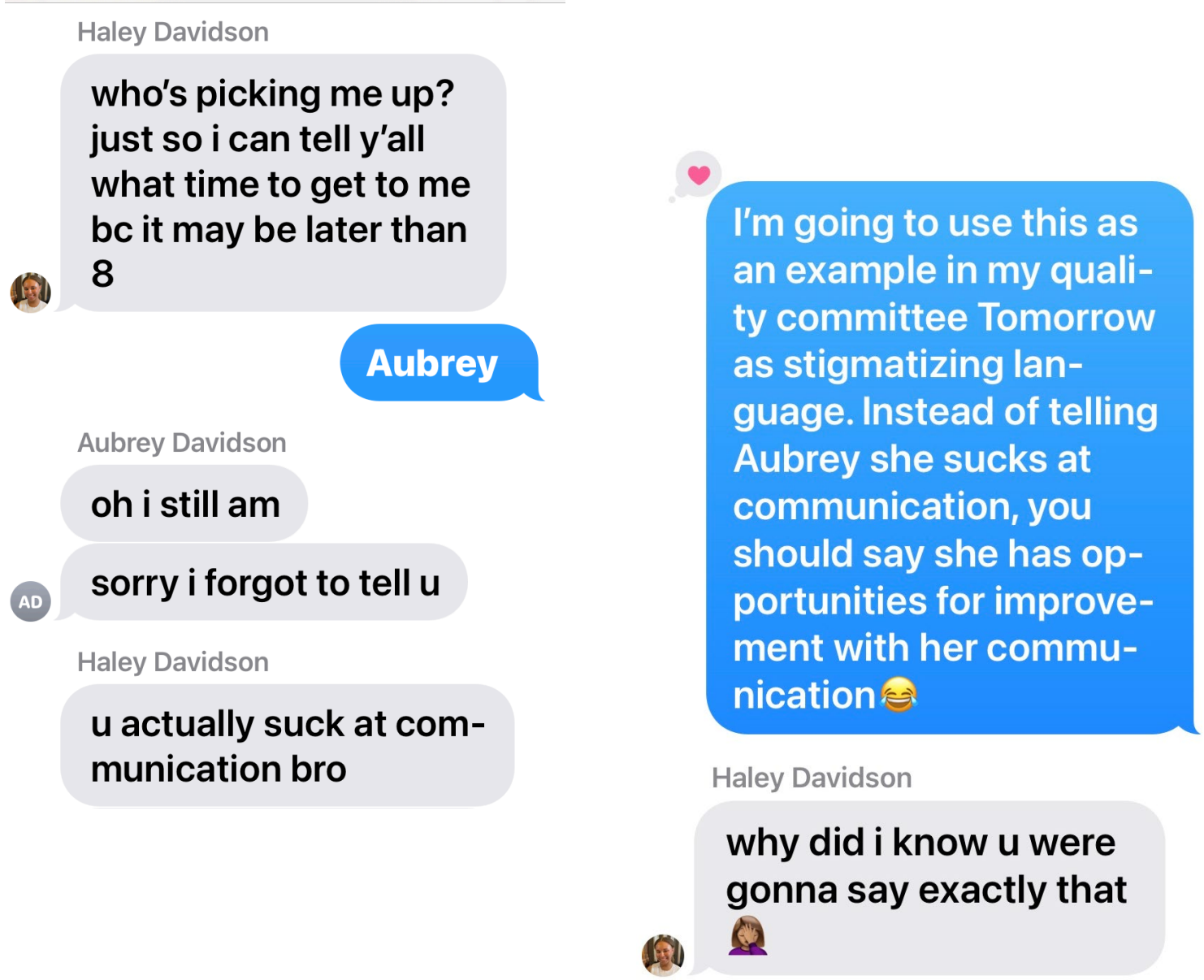
1. Implicit bias training for all nurses and providers, repeated annually
2. Development and implementation of a maternal early warning system (MEWS) to standardize recognition and response to abnormal vital signs and symptoms
3. Development and implementation of a guideline regarding diagnosis and management of hypertensive disorders of pregnancy and their associated complications, including timing of post-partum, post-discharge follow-up based on severity of condition.
4. Annual required simulations on recognition and response to hypertensive emergencies and their complications, such as stroke.
5. Implementation of a “meds-to-beds" to program or a similar equivalent to remove barriers to obtaining necessary medications after discharge.



Opportunities to Alter Outcome – Provider Considerations

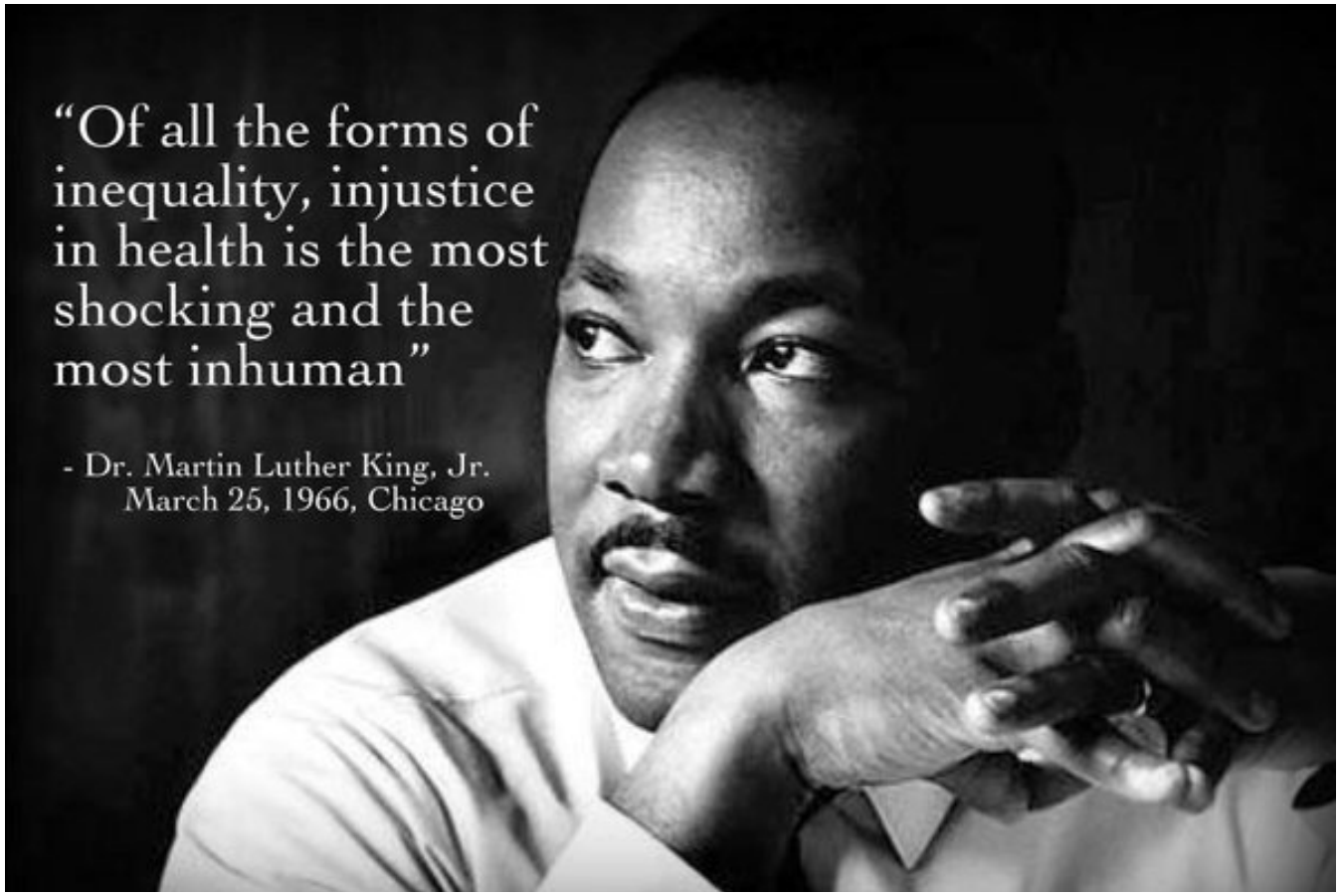
1. Timely diagnosis and treatment of hypertensive disorder of pregnancy, both antenatally and intrapartum.
2. Timely scheduling of follow up visit based on eclampsia.
3. Timely recognition of signs and symptoms of stroke and more timely treatment.

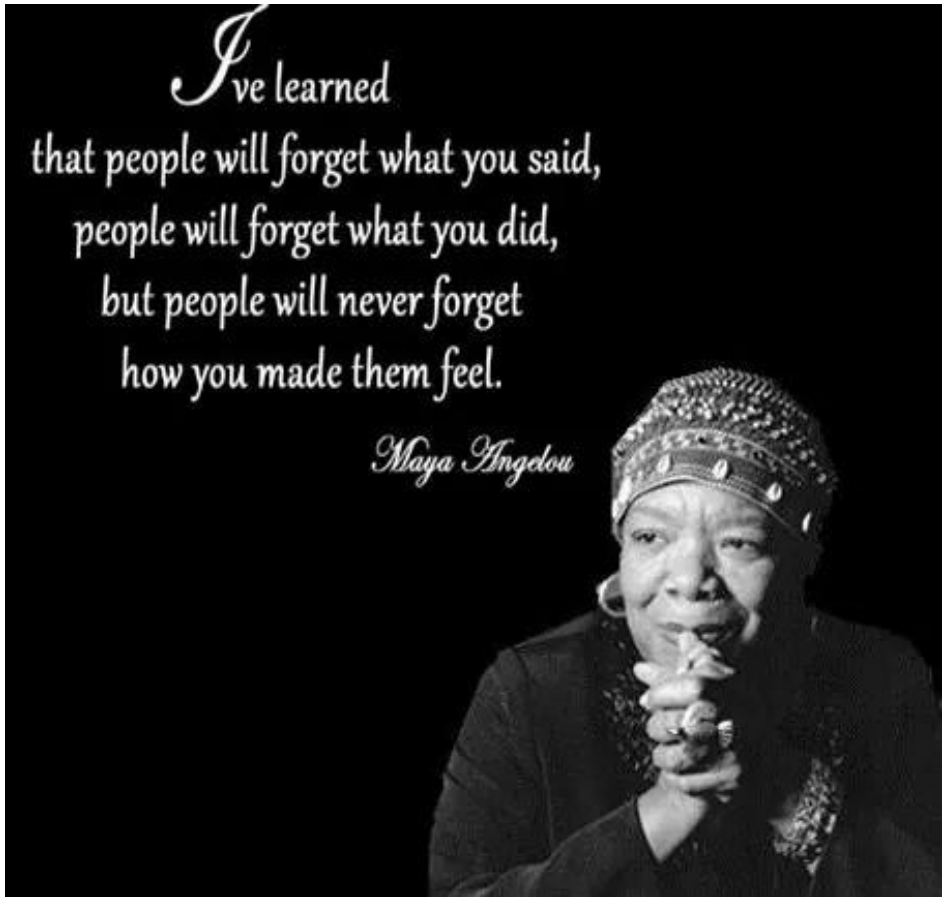
Practice What You Preach & Lead by Example



Key Points

- Educate health care teams on role of cognitive, implicit and linguistic bias in patient care
- Incorporate a bias factor grid into quality and patient safety case reviews
- Be open to changing the process
- Use the information to educate and inform, recognize bias as it’s happening, and practice bias mitigation strategies





THANK YOU

cmdavids@bcm.edu