Innovation Project Summary Report:

Title: Health Inequity is a Patient Safety Emergency
Wave: 52
July 2019 to September 2019

Project Type:

90-day Innovation Project: **A full wave to scan, test, and document recommendations in a formal deliverable**	*30-day Innovation Project:* A short project to scan, provide research assistance, or design an expert meeting	*Content Development:* A full wave of research support with the potential for continued support

Team:

- Lead: Karthik Sivashanker
- RA: Dorian Burks and Tam Duong
- Helper: John Whittington, Tejal Gandhi

Intent & Aim:

A research team at IHI conducted a 90-day innovation wave with the aim of 1) developing an equity-informed high-reliability framework to support the systematic integration of equity into a health care organization's operational effort, starting with patient safety, and 2) drafting an evaluation tool to measure the impact of equity-informed high-reliability education.

During the 90 days, the team:

1. Conducted a scan of published academic literature and grey literature on existing frameworks in patient safety and equity, as well as a scan of current assessment methods for behavior change in implicit bias;
2. Conducted key informant interviews with leaders in the field;
3. Developed a draft theory of how health systems can integrate equity into safety efforts to eliminate disparities; and,
4. Drafted an evaluation tool to measure the impact of equity-informed high-reliability education on awareness of implicit bias.

Background:

The Institute of Medicine (IOM) defines healthcare quality as "safe, effective, patient-centered, timely, efficient, and equitable." The patient safety and academic health quality movements in the 1990s helped begin to address the problems related to poor health quality and outcomes.[1] Much progress has been made to improve the domains of quality as defined by the IOM; however, health equity remains largely marginalized and de-prioritized in the current schema of healthcare. Indeed, equity has often been referred to as the "forgotten aim."

> *According to the World Health Organization (WHO), health inequities are health differences that are not only unnecessary and avoidable but, in addition, are considered unfair and unjust.*

Many organizations and health systems have worked to reduce disparities and inequities for over a decade, including many safety net organizations. However, there are still persistent systematic and widespread differences in health outcomes by race, gender, language, and other factors. The Institute of Medicine Report "Unequal Treatment" and the Healthy People 2010 report both highlight these inequities and prioritize elimination of them as important health goals.

The origins of patient safety started very similarly. In 1999 when the Institute of Medicine Report *To Err is Human* was released, patient safety was not widely spoken about, the health care field was not capturing data, studying, or systematically thinking about how to prevent errors, and there was little leadership on creating zero harm. Now, the literature about effective solutions to patient harm and safety errors are widespread, reporting systems are in place, regulation/accreditation requires the collection and use of quality and safety measures, and federal and state agencies understand the importance of patient safety and link payment with measures.

Although there is still more work to be done, the field of patient safety has come a long way in understanding and preventing adverse events. However, there is a gap in the literature looking at patient safety outcomes of patients from non-dominant cultural and language backgrounds.[2] *To Err is Human* reported that there are as many as 98,000 preventable deaths per year that occurs in the U.S. hospital. Another study suggests that the number is much higher – closer to 210,000 deaths.[3] Regardless of the number, it is much too high. Further research shows that there are significant disparities in quality between whites and non-whites. Asian-Pacific Islanders face the worse rates of patient safety events compared to whites, and blacks had higher rates of hospital complications and adverse events.[4,5]

The demographic trends in the US show that the nation is continuing to be more racially and ethnically diverse, and the majority of the population will be nonwhite by 2050.[6] As such, it is imperative that the healthcare address equity within patient safety.

Opportunities

As the nation moves towards value-based payment models and health care is incentivized to focus on quality rather than quantity, there is a shift underway with others in the healthcare sector joining the equity movement. In 2016, Joe Betancourt argued that payment reform is ushering in a new era of health equity and is transforming the US health care system towards high-value health care.[7] Hospitals are now looking at ways to address both medical and non-medical, social factors that impact health outcomes. One way providers have started to address reducing disparities is to explore ways to address the social determinants of health, integrate health and social services, and partner with community based organizations to integrate medical and non-medical services into their payment and financial models. Although this is an important step, we need new strategies and ways of thinking that address issues, such as racism, poverty, and language barriers. We need to:

1) Surface the omnipresent and toxic effects of structural racism and other 'isms' on the health and well-being of patients, families, and healthcare workers;
2) Highlight the critical role of healthcare organizations in either addressing or perpetuating inequities;
3) Systematically incorporate equity into the operational DNA of healthcare delivery and innovation; and,
4) Provoke responsibility and accountability from healthcare organizations for inequities experienced by (or inflicted on) patients, families, and staff._

Description of the Work:

Developing an Equity-informed High-reliability Framework

There are several existing frameworks within the field of patient safety and health equity that inform our theory for how health care organizations can eliminate health inequities in patient safety. These include many of IHI's resources, such as IHI's White Paper Achieving Health Equity: A Guide for Health Care Organizations, as well as IHI's Framework for Safe, Reliable, and Effective Care and IHI's publication Leading a Culture of Safety: A Blueprint for Success. Additionally, through scans of current published literature and the field experience and expertise of our innovation lead, Dr. Karthik Sivashanker, we created an initial theory for eliminating health inequities through focusing on quality/safety/risk events (Figure 1).

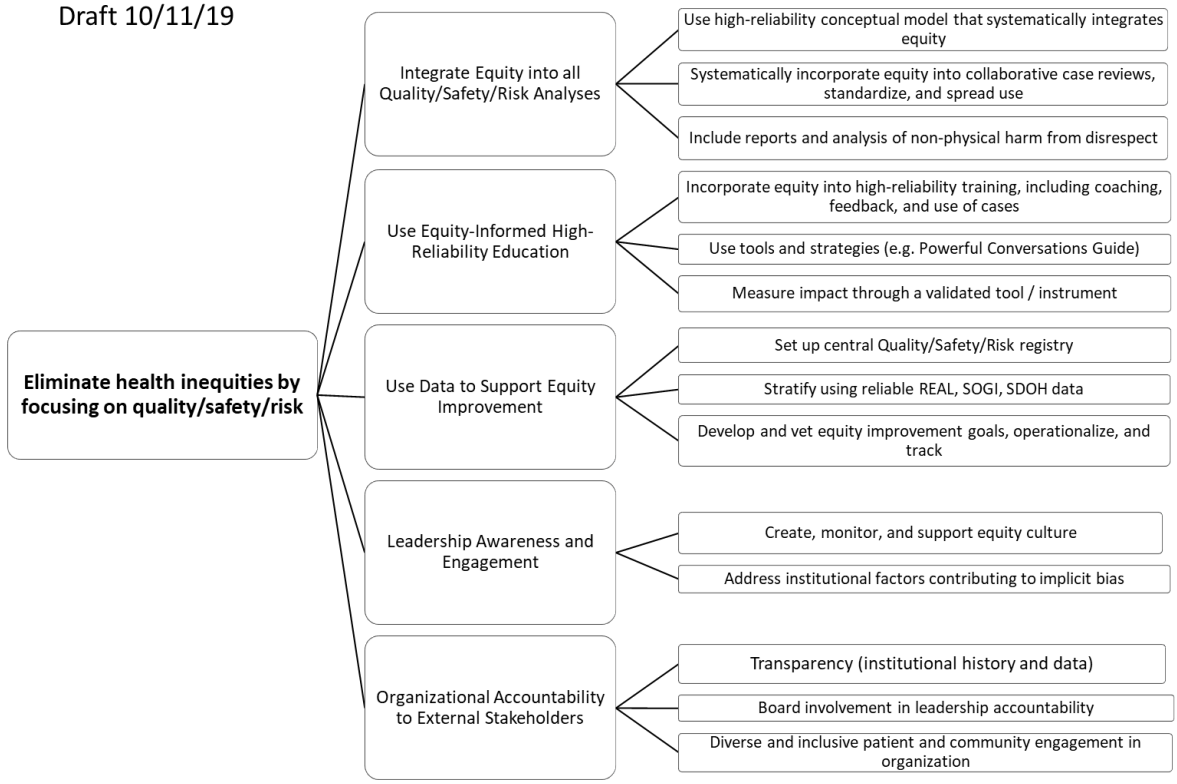

Figure 1. Draft Driver Diagram: Eliminating Health Inequities in Patient Safety

Driver 1: Integrate Equity into all Quality/Safety/Risk Analyses:

Patient safety infrastructure and processes make them ideal platforms for advancing equity, because: 1) high-reliability teams, like patient safety, are typically steeped in data—stratifying by race, ethnicity and language is a small ask; 2) the widespread use of standardized tools, like high-reliability algorithms, presents an opportunity to systematically embed equity concepts and prompts into risk analyses; 3) existing high-reliability infrastructure (e.g., case review meetings using root cause analysis) provide a stage for bringing attention to inequities using data and stories; and, 4) the emphasis on systems contributors leads to structural solutions to address inequities.

A simple first step is to apply an equity lens to existing safety data, such as safety reporting, root cause analysis, and harm event reduction. This requires stratifying data by race, ethnicity, and language (REAL), gender and gender identity, disability, and other key social determinants of health (SDOH). Doing so enables us to identify, study, and eventually address inequities that were previously hidden to us.

For example, a recent study of stratified safety reporting data found that race differences exist in voluntary occurrence adverse event systems, by type and by hospital setting.[8] Another recent study found that Asian and Hispanic patients may have higher rates of hospital-acquired infections than white non-Hispanic patients. The authors identified language barriers as a plausible cause.[9] By stratifying data in this way, we are able to detect inequities and gain new insights into reducing old problems, such as improving translation services to possibly decrease hospital-acquired infections.

Through our interviews, we also identified that non-physical harm, such as disrespect, is an important element to include in the approach.[10] Dr. Lauge Sokol-Hessner from Beth Israel Deaconess Medical Center (BIDMC) argues that preventable physical and preventable emotional harm should be treated the same way using existing quality and safety systems. BIDMC outlined a method to identify and address emotional harm.[11] However, this method does not yet systematically apply an equity lens. Patients from more affluent and educated backgrounds were more likely to report, and patients from less affluent and educated backgrounds did not report for fear of receiving worst treatment and, in some cases, retaliation. This happens with both physical and non-physical harms. To mitigate this affect, the BIDMC prioritizes addressing complaints and comments from those from less affluent backgrounds, but they have not yet systematically identified how to address this barrier.

We addressed this barrier in our fifth driver and identified some initial ways to mitigate this, including 1) there should be an acknowledgement of the history medical institutions play in discriminating against populations with less power, and 2) there should be better inclusion and shared power with patients, families, and community.

Driver 2: Use Equity-Informed High-Reliability Education

In order to drive action to recognize and address inequities in care, it is necessary for an appreciation of unconscious bias and structural racism to be built into training on high reliability, and to be shown as an inextricable part of patient safety. Currently offered unconscious bias trainings have rarely been specific to the healthcare setting, and there is a lack of knowledge of how to bring conversations about inequity and racism into high stress case review settings. Furthermore, the efficacy of such trainings has been rarely assessed apart from increasing knowledge and awareness of implicit bias, with little understanding of the translation to behavior change.[12]

In addition to building out the framework, we began literature scans and interviews (Appendix B) to expand work on creating equity and implicit bias measurement tools. Prior to the innovation wave, an initial questionnaire for assessing the efficacy of implicit bias training based on the Stages of Change (Transtheoretical) model[13] was created (Appendix C), and is being edited for reliability. In addition to this draft, initial scans led to several principles for further

consideration which will be explored in our second wave (outlined in the Conclusions and Recommendations section).

Driver 3: Use Data to Support Equity Improvement

Collecting reliable data about patients' race, ethnicity, and language preference, sexual orientation and gender identity (SOGI), as well as social determinants of health is an important step for health care organizations to address equity; however, few organizations are systematically collecting and using these data to assess gaps in care.

Some believe that focusing on safety means they are providing equal care to all patients, regardless of social identity or social needs, while in fact many studies show physicians' implicit biases affect treatment decisions, patient-provider interactions, and patient health outcomes.[14],[15] Additionally, a study showed that when the Implicit Association Test (IAT), a computerized task designed to measure implicit preferences, was given to physicians, physicians favored white Americans, thought of black Americans as less cooperative, and the more pro-white physicians were, the less likely they were to treat black patients.[16] Although the studies focused on individual implicit biases, it is important to balance this with a systems-focus, as inequities are largely perpetuated by systemic factors in the form of policies, practices, and laws.

Additionally, each organization is struggling independently to select the best equity measures leading to fragmentation and a general lack of momentum. To address this requires bringing organizations together to work through common challenges and to identify measures of equity that have universal applicability. To that end, we have created a multi-institutional collaborative consisting of five organizations (Brigham Health, Massachusetts General Hospital, University of Chicago, Henry Ford, and Rush) to begin working on this problem.

Driver 4: Leadership Awareness and Engagement

Leadership commitment is crucial in the adoption of new practices and behaviors. In all models for health equity improvement, leadership awareness and engagement came up as an important driver of change and sustainability. This was further emphasized during our expert interviews. Leaders committed to eliminating health inequities in patient safety should be prepared to address the challenges of creating, monitoring, and supporting a culture of equity and address institutional factors that may contribute to biases, including optimizing staff workload to support equitable high performance.

- Creating, monitoring, and supporting a culture of equity includes transforming formal and informal norms that support inequities. A leader's responsibility is to create and

communicate organizational priorities. Leadership commitment includes ensuring that equity is a strategic priority, aligning all equity work with the organization's priorities, and communicating the extent to which equity is a priority. Other norms could include presenting patient and staff cases that looks at stratified demographic data, doing an analysis of events with an equity lens, measuring and track action items to identify what is equity-related action items are being implemented, understanding staff's experiences, and setting an example of what inclusive leadership looks like.

- Many strategies looking to reduce implicit bias focus on awareness and individual actions to mitigate biases, such as stereotype replacement, individuation, perspective taking, and more contact with individuals from different groups. While studies have shown that physicians have implicit preferences for white patients,[17] research has also shown that when physicians suffer burnout from workload and pressure, physicians are more likely to fall back on explicit and implicit stereotypes and biased habits.[18] This is further exacerbated in higher stressed, high patient load settings, such as the emergency department.[19] As such, it is important for leaders to optimize clinician workloads to support equitable high performance.

Driver 5: Organizational Accountability to External Stakeholders

As mentioned previously, patients from less affluent and educated and non-dominant cultural and language backgrounds are less likely to report incidence of harm (physical and non-physical). This is not a surprising trend. The field of medicine and healthcare has a long history of discrimination, particularly racial discrimination. Theories of racial inferiority taught in medical schools up to the first half of the 20th centuries, unethical experiments such as the Tuskegee syphilis experiments in the 1930s, racial segregation in hospitals and clinics, professional societies like the American Medical Association excluding black doctors, among other laws and policies that discriminate against non-white patients and providers have led today's mistrust in health systems. Due to this history, if health systems only focus on the previous four drivers, even if the data is stratified by REAL/SOGI/SDOH, we still risk re-designing a system that works even better for the more affluent, educated, white, cisgender, English-speaking population.

Organization accountability to external stakeholders, such as patients, families, and the local community is an important element to mitigate this effect. Through conversations and interviews with experts in equity and safety, we have identified a few factors health systems should address.

- Part of a health system's journey towards equity in patient safety (and equity in general), is to address this long history of institutionalized discrimination that has affected patient safety. The Boston Globe reported that segregation patterns are entrenched in some of

Boston's top hospitals, despite increases in health insurance coverage due to the state's mandated health insurance law.[20] In fact, it created greater segregation because minorities went to medical institutions that have historically welcomed minorities. Understanding the history helps to identify the root causes and to address the institutional remnants from that history that resulted in present day mistrust of the system.

- Develop internal and external accountability. This is often tied to data collection. Without the ability to see data over time, it is difficult to determine what needs to be done and what impact interventions are having. After the collection and stratification of data, the next step is to make that data publicly available and transparent. For example, Massachusetts General Hospital in Boston, MA publishes an annual report on equity in health care quality. This type of transparency allows for staff, patients, and those in the surrounding communities to clearly identify what the health system is doing to address equity from year to year. It is especially important to understand the data related to preventable adverse events.
- Health systems can do a better job of engaging, including, and sharing leadership and power with diverse patients and citizens of the community across all areas of organizational strategy and improvement. Many health systems have patient advisory councils (PACs) that brings patients to the table, though efforts still need to be made to ensure councils look like and represent patients served by the system. A systematic review found that successful patient engagement requires a change in organizational culture, meaningful collaboration, mutual learning, and shared or neutralized power.[21]
- Board members have great authority and influence into the mission, priorities, and strategic and operational direction of the organization. Taking the lead of community health centers, health systems can start by ensuring that over 50% of board members are active patients of the health system. Further, they can ensure that the board members represent the make-up of the local community and are diverse in terms of expertise and lived experiences. This could help ensure that boards are involved and empowered to keep leadership accountable. If this is not yet possible, leaders can start by presenting stratified data to the board, educate them on the importance of the work, and help them set measures to ensure the organization is meeting its equity goals.

Stages of the Work

Our team is uniquely positioned to begin testing and refining ideas during the 90-day waves as our lead, Dr. Sivashanker, is responsible for the implementation of this work at Brigham Health. As such, the different drivers are at different stages of development (outlined below).

	Plan	Do	Study
Integrate equity into all quality/safety/risk analyses		Dr. Sivashanker and the BH team have begun testing ways to incorporate equity into collaborative case reviews, which included a presentation to leadership using stratified	
Use equity-informed high-reliability education	An assessment theory is being developed for measurement of awareness, knowledge and behavior change for implicit bias, equitable behaviors and structural	The BH team has created initial questionnaire for assessing the efficacy of implicit bias training, and conducted initial reliability testing.	The results from the first test of the questionnaire is being compiled.
Use data to support equity improvement	A multi-institutional collaborative consisting of five organizations began working on how to select the best equity measures.		
Leadership awareness and engagement	Theory still needs to be further developed in the second wave before testing can begin.		
Organizational accountability to external stakeholders	Theory still needs to be further developed in the second wave before testing can begin.		

Conclusions and Recommendations:

Developing an Equity-informed High-reliability Framework

After the draft theory was developed and tested with experts in the field (Appendix A), we identified a few additional themes to consider for the next wave:

- Possible sources of reporting bias that may favor more advantaged patients/providers (and need for mitigating strategies);
- The need to consider alignment and translation of equity work across departments and levels within the organization;[22]

- The need for better inclusion and shared power with patients, family, and community;
- A lack of reliable demographic data in EHR has been a huge barrier;
- In order to truly be accountable to patients and the community, disparities data needs to be transparent and publicly available;
- It is important to uncover and acknowledge the health system's past history of discrimination in order to build trust with patients;
- There is a need to address employee experience (i.e. being overburdened and overworked can lead to unconscious bias).

Recommendations:

A scoping review of fourteen inequity frameworks from 2000-2017 found that existing frameworks lack specific guidance for implementation, and that a pathway is needed that specifically addresses how to spread practices and programs across departments and levels, as well as how to sustain the interventions.[23]

We recommend the following steps for the next wave:

- Continue expert interviews and refined and simplify the driver diagram;
- Draft a pathway of how organizations might move towards eliminating inequities in patient safety through characterizing organizational stages/phases and tying actions to organizational continuum of progress; and
- Organize a theory for selecting process measures and outcomes.

Measuring Efficacy of Implicit Bias and Equity Training

An initial questionnaire for assessing the efficacy of implicit bias training based on the Stages of Change (Transtheoretical) model (Appendix C) has been drafted, and is being edited for reliability. In addition to this draft, initial scans led to the following principles which will be further explored in our second wave:

- Current assessments of implicit bias and equity trainings have been limited to measuring individual awareness and knowledge, however simply building awareness and knowledge of personal bias can result in avoidance of difference, normalization of bias and reinforcing of stereotypes instead of positive behavior change;[24]
- Vignette-based assessments have previously been used as a proxy of measuring behaviors, and can be affected by social desirability biases;[25]

- Beginning by identifying desired equitable behaviors and skills, including an analytical approach to recognizing structural racism,[26] can allow for more pragmatic assessment.

Recommendations:

- Continue expert interviews (Appendix B) and literature reviews to compile initial inventory of core evidence-based competencies for equitable behaviors
- Continue editing implicit bias questionnaire evaluation and expand to behavioral assessment based on competencies above
- Draft powerful conversations perspectives piece – description of intervention method for introducing structural racism lens into clinical case reviews

Open Questions:

- Can we use the journey of a patient through the system from first contact to post-hospitalization as an organizing principle for selecting measures? Possible benefits might include:
    - Ability to connect measures to each other to create a meaningful narrative of patient experience
    - Would highlight transitions of care which are often high-risk for inequity
    - Incorporate time as an important element
    - Provides a way to compare institutions around performance in a more holistic way
    - Provides opportunities to integrate patient and provider experience with clinical and operational outcomes

Appendix A: List of Experts Interviewed on Theory

Name	Title	Organization
Scott Cook	Co-Director Advancing Health Equity	University of Chicago
Frank Federico	Vice President	Institute for Healthcare Improvement
Cassy Horack	VP, Quality and Safety	OSF SFMC
Jennifer Lenoci-Edwards	Head of North America Region	Institute for Healthcare Improvement

Michelle Morse*	Founding Co-Director Assistant Professor	Equal Health Harvard Medical School
William R. Scharf	Director of Patient Safety	Advent Health
Tom Sequist*	Chief Quality and Safety Officer	Partners Healthcare
Lauge Sokol-Hessner	Associate Director of Inpatient Quality	Beth Israel Deaconess Medical Center
Aswita Tan-McGrory	Administrative Director, the Mongan Institute Director, The Disparities Solutions Center	Massachusetts General Hospital
Knitasha Washington	Founder and President	ATW Health Solutions
James William	Executive Director, Diversity, Inclusion and Equity	University of Chicago
Ron Wyatt	Chief Quality Officer	Cook County Health
* To be interviewed in the next wave		

Appendix B:

Name	**Title**	**Organization**
Reb Rebele	Senior Research Fellow	Wharton People Analytics, University of Pennsylvania
Candice Belanoff	Clinical Associate Professor, Community Health Sciences	Boston University School of Public Health
Dane Emmerling*	PhD Candidate, Health Behavior	Gillings School of Global Public Health, Duke University
Abigail Ortiz*	Director of Community Health Programs Co-Director of Racial Justice and Equity Initiatives	Southern Jamaica Plain Health Center
Jenna Gaarde*	Senior Health Program Planner	San Francisco Department of Health
* To be interviewed in the next wave		

Appendix C: Implicit Bias Questionnaire Draft

Name: _____ Department: _____

Institute *for* Healthcare Improvement

Date of Training: _____ Primary Instructor: _____

- Please read the sentences below carefully. Circle the answers that best describe how you feel.
- Your responses are combined with those of others and summarized to protect your anonymity.
- Definition of implicit (unconscious) bias—Positive or negative beliefs and attitudes about groups of people, that individuals form outside of conscious awareness, that may contribute to unfair and avoidable differences in social and health outcomes.

1. I don't think I have any implicit biases.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

2. I am trying to become more self-aware of my implicit biases.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

3. I acknowledge I have implicit biases and they sometimes hurt my interactions with others.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

4. Sometimes I think I need to do something to become more aware of my implicit biases.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

5. It's a waste of time thinking about my implicit biases.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

6. I have recently changed my behaviors around implicit bias.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

7. Anyone can talk about wanting to become aware of their implicit biases, but I'm actually doing something about it.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

8. I am at the stage where I should be more aware of my implicit biases.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

9. My implicit biases are a problem sometimes.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

10. There is no need for me to think about changing biased behaviors in me.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

11. I am actually changing my self-awareness of my implicit biases right now.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

12. Becoming self-aware of my implicit biases would be pointless right now.

Strongly Disagree *Disagree* *Unsure* *Agree* *Strongly Agree*

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