The Science of Implicit Bias and the Implicit Revolution
Janice A. Sabin, PhD, MSW

Research Associate Professor
University of Washington, School of Medicine
Dept: Biomedical Informatics and Medical Education
Adjunct Faculty: UW School of Social Work
Affiliated Faculty: UWSOM Center for Health Equity, Diversity and Inclusion
Faculty: Pediatric Pulmonary Center Seattle Children’s Hospital

Implicit Bias: Academic Setting

- Medical (disparities, discrimination, treatment, policies)
- Hiring (diversity/inclusion)
- Admissions
- Research (impact on research topics?)
- Evaluation
- Promotion
- Curriculum design/content (what is left out?)
- Committee assignments (organizational/policy)
- Peer review decisions
## Self-Reflection

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Moderately Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Moderately Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>In most situations, I am objective in my decision-making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Biases do not usually influence my decision-making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
The Implicit Revolution
Greenwald, & Banaji, 2017

- Past 2 decades new understanding of relation between the conscious and unconscious

- Now know: Past learning/experiences influence judgment/perception beyond conscious level of awareness (unconscious)

- “We have discovered that most people find it unbelievable that their behavior can be guided by mental content of which they are unaware.”

Banaji & Greenwald, Blindspot, 2013
Overview

• Definition of terms
• Context
• How our minds work
• Implicit bias defined
• How implicit bias manifests
• What to do about it

Definition of Terms

• **Bias**: an attitude that projects favorable or unfavorable dispositions toward people

• **Stereotype**: shared set of beliefs, fixed impression of a group

• **Prejudice**: negative attitudes and beliefs about out-group vs. in-group

• **Discrimination**: behavioral manifestation of bias, stereotyping, and prejudice, they way others are treated
Definitions, cont.

**Structural racism:** The macrolevel systems, social forces, institutions, ideologies, and processes that interact with one another to generate and reinforce inequities among racial and ethnic groups. (Powell 2008)

**Stigma:** The process by which certain human characteristics are labeled as socially undesirable and linked with negative stereotypes about a class of individuals, resulting in social distance from or discrimination towards labeled individuals. (NIH)
Examples of Structures or Systems Impacted by Racism

- Education
- Neighborhoods
- Criminal Justice
- Government
- Healthcare
# Social Determinants of Health

<table>
<thead>
<tr>
<th>Economic Stability</th>
<th>Neighborhood and Physical Environment</th>
<th>Education</th>
<th>Food</th>
<th>Community and Social Context</th>
<th>Health Care System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>Housing</td>
<td>Literacy</td>
<td>Hunger</td>
<td>Social integration</td>
<td>Health coverage</td>
</tr>
<tr>
<td>Income</td>
<td>Transportation</td>
<td>Language</td>
<td>Access to healthy options</td>
<td>Support systems</td>
<td></td>
</tr>
<tr>
<td>Expenses</td>
<td>Safety</td>
<td>Early childhood education</td>
<td>Social integration</td>
<td>Community engagement</td>
<td></td>
</tr>
<tr>
<td>Debt</td>
<td>Parks</td>
<td>Vocational training</td>
<td>Support systems</td>
<td>Discrimination</td>
<td></td>
</tr>
<tr>
<td>Medical bills</td>
<td>Playgrounds</td>
<td>Higher education</td>
<td>Community engagement</td>
<td>Stress</td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td>Walkability</td>
<td></td>
<td></td>
<td></td>
<td>Provider availability</td>
</tr>
<tr>
<td></td>
<td>Zip code / geography</td>
<td></td>
<td></td>
<td></td>
<td>Provider linguistic and cultural competency</td>
</tr>
</tbody>
</table>

### Health Outcomes
- Mortality
- Morbidity
- Life Expectancy
- Health Care Expenditures
- Health Status
- Functional Limitations
DISPARITIES HEALTH AND HEALTHCARE
Health Status: Infant Mortality

US total

- 6.06/1000 live births

- **US # 46th in world**, (Angola # 224 to 1.78 Monaco #1)

Central Intelligence Agency (CIA)
US Infant Mortality (deaths/1000 births)

US by Race/Ethnicity
- White 5.06
- AI/AN Native 7.61
- A/PI US 4.07
- Mexican 4.90
- Cuban 3.02
- Puerto Rican 5.93
- Black 11.11

Center of Disease Control and Prevention, [www.cdc.gov](http://www.cdc.gov) National Center for Health Statistics
WA State (deaths/1000 births)

- Total: 5.0
- White: 4.7
- Black: 7.0
- Hispanic: 5.4

Kaiser Family Foundation, State Fact Sheet, 2008-2010
Healthcare Disparities: VA System

Disparities exist across a wide range of clinical areas and services in VA system (review 171 articles)

- Arthritis pain management, cancer treatment, diabetes heart and vascular disease, treatment mental health, substance abuse treatment, preventive care

- Reasons - provider communication behaviors, patient preference, patient trust, clinical judgment, facility characteristics

Saha, et al., 2008
Patient Reports of Discrimination

- American Indian vs. White parents worry doctors not trustworthy (24% vs. 13%)

- 53% of overweight/obese women report inappropriate comments from their doctor

- 25% of sexual minority patients in Veterans Health Care Administration avoid seeking care due to concern about stigma

Thiede-Call, et al., 2006, Puhl & Brownell, 2006, Simpson et al., 2013
Impact of Patient Perceptions of Discrimination

- Delay in seeking care
- Mistrust in provider/system
- Patient stress level
- Adherence to treatment
- Continuity of care
IMPLICIT BIAS:
Unintentional Bias, Good Intentions, Microaggressions

AKA: UNCONSCIOUS BIAS, HIDDEN BIAS
Implicit Bias: Definition

“attitudes or stereotypes that affect our understanding, decision making, and behavior, without our even realizing it”

How Our Minds Work: Schemas

- Huge amounts of information incoming
- Must find meaning based upon prior knowledge and experience
- Develop schemas
- Schemas are efficient, necessary, how people make sense of the social world
- May result in stereotypes

Fiske & Taylor, 2002
More on How our Minds Work

• First impressions are made quickly (snap judgments)

• In-group favoritism or “people like me”

• Automatic associations
  o implicit/explicit associations
  o absorb messages from our culture
Red Cross Water Safety Poster, 2016
Apology: Unintentional Bias

“We deeply apologize for any misunderstanding, as it was absolutely not our intent to offend anyone. As one of the nation’s oldest and largest humanitarian organizations, we are committed to diversity and inclusion in all that we do, every day. To this end, we have removed the poster from our website and Swim App and have discontinued production. We have notified all of our partner aquatic facilities requesting they take down the poster. Our organization has emphasized to our partners and on social media that it was absolutely not our intent to offend anyone and apologized for this inadvertent action. We are currently in the process of completing a formal agreement with a diversity advocacy organization for their guidance moving forward.”
First Impressions

• First impressions of a person as attractive, likeable, competent, trustworthy, and aggressive are made quickly

• Exposure to an unknown face for one-tenth of a second was enough to judge these traits (implicitly)

• Judgment did not change with increased of one second, but confidence in the judgment increased

Willis & Todorov, 2006
Carla the Quilter: Good Intentions
Carla, a woman in her late 20s, was rushed to the emergency room by her boyfriend.

She had cut her hand on a glass bowl as it slipped to the ground and shattered.
Her hand was cut from mid-palm to wrist and bleeding
BF told the ED resident that quilting was very important to Carla and worried about damage to her fine motor control.
The resident stated that he was confident the hand would heal well if he could “just stitch it up quickly”
As the doctor prepared Carla’s hand, a student volunteer walked by and recognized Carla, who in addition to being a quilter, was also an assistant professor at Yale.
The ED doctor stopped in his tracks and said, “You are a professor at Yale?”
Within seconds Carla was headed for the surgery department and the best hand surgeon in Connecticut was called in. After hours of surgery Carla’s hand was restored to pre-injury function.
Hidden Discrimination: In-group Favoritism

- Carla-the-quilter vs. Carla-the-professor is a case of in-group favoritism

- In-group favoritism can increase “the relative advantages of those who are already advantaged”

Hidden Discrimination: Inaction

• Manifestation of bias - less an act of overt hostility - can be an “absence of helping”

• More likely to occur when situation is not clearly right/wrong

AUTOMATIC ASSOCIATIONS

IMPLICIT BIAS: THE SCIENCE
Say the color of the ink for each of the items below as fast as you can:

- GREEN
- BLUE
- RED
- YELLOW
- BLUE
- YELLOW
- RED
- BLUE
- GREEN
- YELLOW
- GREEN
- RED
- BLUE
- GREEN
- RED
- BLUE
- GREEN

Stroop, 1935, Journal of Experimental Psychology
Implicit and Explicit Beliefs

Explicit Attitudes and Beliefs
- Can report
- Rational
- Higher level thinking

Implicit Attitudes and Beliefs
- Automatic
- Hidden
- Unaware
- Lower level thinking

Measuring Implicit Bias
The Implicit Association Test (IAT)

A widely used, indirect measure of implicit social cognition

Images courtesy Project Implicit

http://implicit.harvard.edu

Greenwald, et al., 1998
Implicit Bias: BW/Race IAT

If there is an association that is faster for

with the concept of “good”
than

with the concept of “good”

70% of IAT test takers show stronger association of White rather than Black face and concept of “good”

Nosek et al., 2007
Many Areas
Implicit Bias is Common

- Implicit bias is common and pervasive in the general population, in society
- Can be egalitarian and hold implicit biases
- Race, ethnicity, gender, weight, ability, age, sexual orientation, other areas
- MDs, other providers, show bias similar to others with doctoral degrees, others in society

Implicit Bias and Behavior

Despite egalitarian beliefs, individuals may show prejudiced behavior in certain situations:

- Clinical/other ambiguity
- Situational uncertainty
- Heavy workload
- Fatigue
- Pressure of time

Croskerry, 2001, 2010
Bias is Contagious

• Just observing a biased person express subtle negative bias toward a black person may shift observers racial bias

• Others’ biases may “creep into our minds and infect our behaviors”

• Flip side: observing and modeling positive behaviors can shape society to be more egalitarian

• Authors: “Authentic pro-Black regard among employees in an office, for example, is therefore more than simply a good thing to have or the right way to be.” “It is in fact a communicable attribute”

Willard, Isaac, Carney, 2015
Learning Environment: Impact Negative Biased Comments

3547 students from 49 U.S. medical schools report racial climate and role models, implicit bias over time IAT 1st year and 4th year

Results:

• 49% reported hearing negative comments about African American patients from attending physicians or residents

• Hearing negative comments predicted increased implicit race bias

van Ryn, et al., 2014
Bias Manifest as Microaggressions

“Microaggressions are the brief and commonplace daily verbal, behavioral, and environmental indignities (intentional, non-intentional) that communicate hostile, derogatory, or negative racial, gender, sexual orientation, religious, (other) slights and insults to a target person or group.”

Sue, Capodilupo, et al., 2008

Resource: Microaggressions in Everyday Life: Race, Gender, and Sexual Orientation
IMPACT OF IMPLICIT BIAS
Academic/Research/Healthcare Setting
Bias & Behavior: Homeless Shelter Staff

I mistook somebody who was coming in for a job interview for somebody who was applying for the program, and ... I acted completely differently when I realized she was the person applying for a job than I did when [I thought] she was a candidate for the program...

Hatton, et al., 2018
Bias in Academic Science

A nationwide sample of biology, chemistry, and physics professors (n=127) evaluated application materials of an undergraduate science student (female or male) for a lab manager position. Both male and female faculty rated the female student as:

- Less competent
- Less hireable
- Offered her lower salary ($3.7K)
- Offered less mentoring

Even though the female was rated more likeable!
Review A Decade of Study Patient Care

- 31/37 studies - evidence of bias favoring Whites vs. Blacks
- 14 studies IB and health care outcomes (8 = no association, 6 higher bias = disparities in treatment)
- 7 studies IB in real world care: stronger bias = poorer patient provider communication
- 2 studies of real world outcomes: 1 study (spinal cord injury) association of bias with patient satisfaction, depression, 1 found no association with medication intensification hypertension

Maina et al., Social Science & Medicine, 2018
Implicit Bias: Pediatricians

- Pediatricians show weak implicit race bias
- Pediatricians show moderate implicit association of black patients as less compliant
- Bias NOT associated treatment recommendations: ADHD, UTI, Asthma

Sabin, Rivara, Greenwald, *Medical Care*, 2008
Implicit Race Bias: Pain

As pediatricians’ implicit White preference increased, less likely to prescribe narcotic pain medication for Black patient but not White patient.

Sabin & Greenwald, 2012
Implicit Bias: Patient-Provider Interaction

Real-world clinic visits, primary care, 90% physician, 269 patients, Baltimore

Black patients, stronger clinician implicit bias favoring White versus Black Americans associated with:

- Lower patient positive affect
- Patients’ less liking of the clinician
- Less confidence in clinician
- Lower perceived respect from clinician
- More clinician verbal dominance

Cooper, et al....Sabin/Greenwald, AJPH, 2012
What to do about bias?
No easy answer
What Not To Do

DO NOT

- Focus on changing implicit attitudes
  - This is not effective
  - This may be counterproductive- can produce interracial anxiety

- Teaching cultural competence is not enough

Penner et al., 2014, Perry, Murphy, Dovidio, 2015, Zestcott, 2016
Managing Implicit Bias: Personal

- Become aware of own biases
- Slow down
- Decision support tools
- Feeling more comfortable with and confident in people who share one’s own culture
- Positive or negative stereotypes that influence perceptions of others
- Be careful about decisions by “intuition”
- Elicit diverse input into decisions
- Humility

Control Your Exposure

• Create positive experiences, (eg.) If you have a bias toward young people, become friends with older people

• Movies and situations that portray women and minorities in a counter stereotypical way
Managing Bias: Organizational

- Collect data, document inequity, strive for equity
- Examine policy, practice decisions in a systematic way
- Value diversity
- Use best practices to increase workforce diversity
- Reduce discretion in decision making
- Develop objective structured processes
- Accountability

Banaji, Brazerman, Chug, 2003, AAMC 2009
Why Increase Diversity?

- Individuals competed in groups to find accurate answers in predicting stock prices
- Answers were 58% more accurate in diverse groups than in homogeneous groups
- More time spent in interacting in diverse groups = more accurate answers
- Diversity > cognitive friction, disrupts conformity = better critical thinking for all, improved error detection, more accurate answers

NIH Scientific Workforce Diversity Toolkit

The U.S. scientific research enterprise - from basic laboratory research to clinical and translational research to policy - requires intellect, creativity, and diverse skill sets and viewpoints.

**Diversity**

... enhances excellence, creativity, and innovation  
... broadens the scope of biomedical inquiry  
... addresses health disparities  
... ensures fairness in our highly diverse nation

https://diversity.nih.gov/toolkit
“Blinding” for Equity

- Gender inequity in symphony orchestras (6% female in 1970)
- The “blind” audition: (audition behind a screen so gender completely unknown)
- Five highest-ranked orchestras: representation of women increased from 6% in 1970 to 21% in 1993
- Blind auditions significantly reduced gender-biased hiring and the gender gap in symphony orchestras
- **Action:** you can “blind” yourself from learning a person’s gender, race, etc. when you’re making a decision (e.g., having their name removed from the top of a resume).
Eliminate Expectations of Brilliance

Hypothesis: Fields that believe “giftedness” or innate intelligence is main requirement for success will have less women and African Americans

- Perceptions of “special aptitude that just cannot be taught” needed to be successful in the field, controlled for hours worked, GRE scores, selectivity, other

Results:

- The more a field valued giftedness, the fewer female PhDs
- Fields that emphasize raw talent, more likely to endorse idea women not suited for high-level scholarly work
- Field-specific ability beliefs were only predictor of women and African American representation in the field

- **Recommend**- emphasize sustained effort rather than “giftedness” for top level success

Leslie, et al., 2015
Practice Cultural Humility

• “Cultural humility is a lifelong process of self-reflection and self critique whereby the individual not only learns about another’s culture, but one starts with an examination of her/his own beliefs and cultural identities (Tervalon & Murray-Garcia, 1998)

• More than just self awareness, but requires one to step back to understand one’s own assumptions, biases and values” (Kumagai & Lypson, 2009)

In: Yeager & Bauer-Wu, 2013
# Self-Reflection

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Moderately Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Moderately Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>In most situations, I am objective in my decision-making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Biases do not usually influence my decision-making</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Thank You
sabinja@uw.edu

UWSOM Center for Health Equity, Diversity and Inclusion
University of Washington, School of Medicine