

# Social Determinants of Health and Implicit Bias

Heather Chambers, DNP, FNP-BC  
Divisional APP Director for CHI  
Director of APP Student Placement  
Infectious Disease Nurse Practitioner

I have no relevant financial  
relationships to disclose

# Objectives

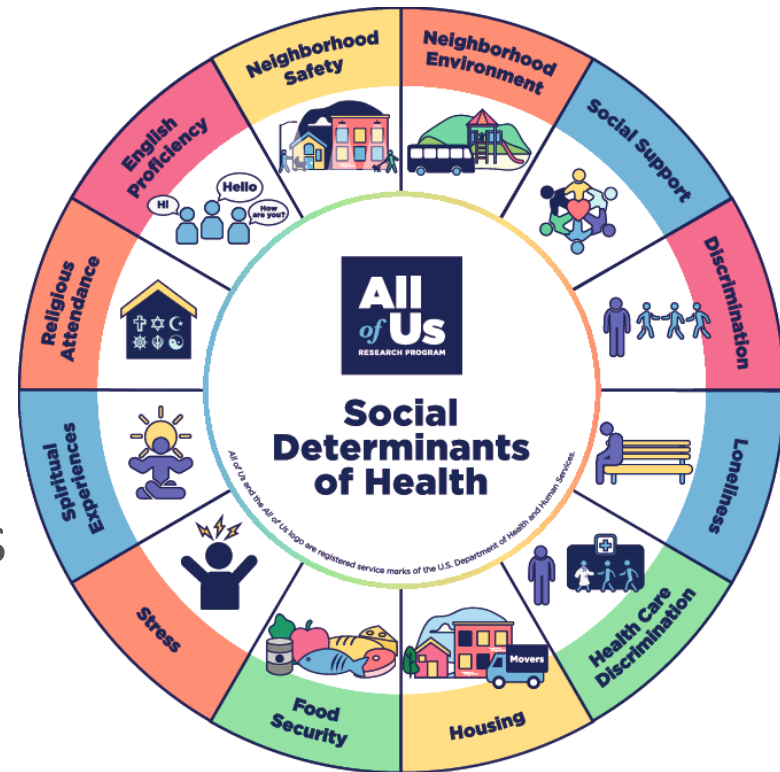
- Explain the importance of addressing social determinants of health (SDOH) in transplantation
- Describe how they can influence transplant candidacy and outcomes
- Define implicit bias
- Identify ways to combat implicit bias

U.S. Department of HHS defines SDOH:

“conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.”

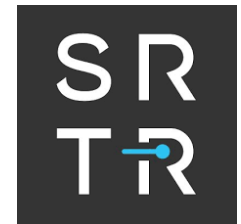
# Key social determinants

- Impact on overall health and well-being
- Socioeconomic status (SES)
- Education
- Housing and environment
- Access to healthcare
- Employment
- Racial and ethnic disparities
- Gender and age
- Cultural competence



# Introduction

- Transplant is complex with high acuity patients where demand exceeds supply
- Transplant specific registries (UNOS, SRTR, USRDS) have moderate inclusion (~45%)
  - <20% included variables of access to health services, discrimination, disparate health care quality, gender identity, and health literacy
- Lack of expanded availability of data is a barrier to access and success following transplant
  - Root causes of inequities are obscured

 UNOS<sup>SM</sup> SRTR USRDS

# Health inequities

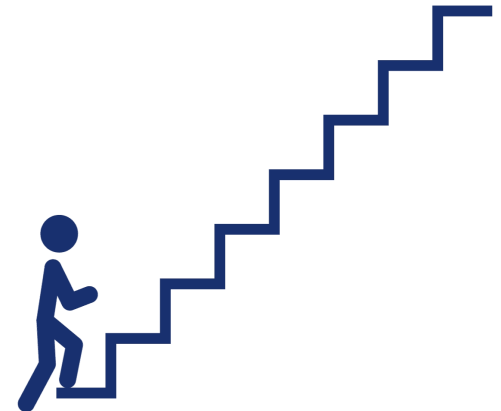
- Ongoing health inequities among vulnerable populations
  - Racial and ethnic minority groups
  - Low socioeconomic status (SES)
  - Gender, geography, and educational groups
- Marginalized groups experience inequities along the entire transplant care continuum
  - Access to care
  - Utilization of care
  - Quality of care





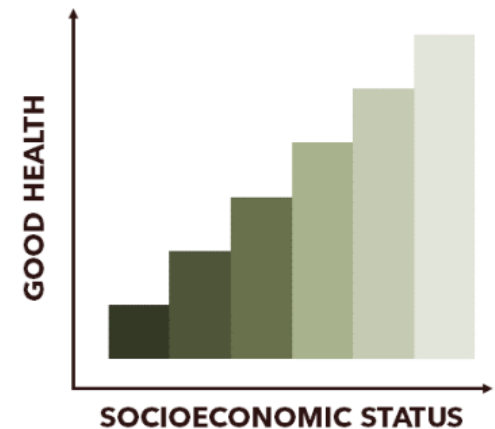
# Relevance to transplantation

- Evaluation for transplant involves a multistep, highly selective process
  - Referrals to appropriate subspecialists and transplant center
  - Evaluation and formal assessment of adequate social support, psychological health, health insurance, adherence, and understanding of treatments
- Each step is an opportunity for inequity to insert itself
  - Poor health literacy
  - Lack of insurance or high copay
  - Poor social support
  - Geographical location
- Additional barriers
  - Culture incapacity of health providers
  - Implicit bias at the provider and/or health care system level



- Influences transplant candidacy and outcomes
  - Affects both waitlist mortality and post transplant survival
- Black and Latinx have lower SES than White
  - Lower SES correlates with higher prevalence and incidence of CKD even when controlling for social factors
  - High rate of food insecurity in CKD patients
- Increase in income was associated with an increase in Liver transplant rates
- Private insurance > Medicare > no insurance

**THE HEALTH-WEALTH GRADIENT**

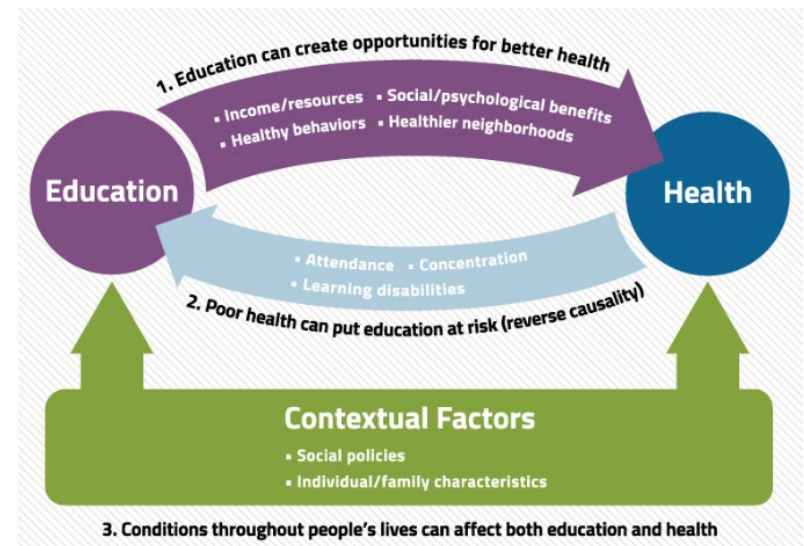


\*Global burden of hypertension: analysis of worldwide data. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. *Lancet*. 2005;365:217–223.

\*Quiñones J, Hammad Z. Social Determinants of Health and Chronic Kidney Disease. *Cureus*. 2020 Sep 5;12(9):e10266. doi: 10.7759/cureus.10266. PMID: 33042704; PMCID: PMC7537483.

\*Chronic kidney disease in disadvantaged populations. Martins D, Agodoa L, Norris K. <https://www.hindawi.com/journals/ijn/2012/469265/> *Int J Nephrol*. 2012:469265

- Disparities in education and their effects
  - Education influences accurate health beliefs and knowledge
  - Americans with <12 years of education have greater prevalence of lower kidney function
- Lack of formal education decreased referrals
- Low health literacy was independently associated with not being waitlisted
- Limited reading or math ability were less likely to be listed for transplant and more likely to be removed from listing or miss prelisting appointments



\*Socioeconomic disparities in chronic kidney disease. Nicholas SB, Kalantar-Zadeh K, Norris KC. *Adv Chronic Kidney Dis.* 2015;22:6–9.

\*Soucie JM, Neylan JF, McClellan W. Race and sex differences in the identification of candidates for renal transplantation. *Am J Kidney Dis.* 1992;19(5):414–15.

\*Miller-Matero LR, Bryce K, Hyde-Nolan ME, Dykhuis KE, Eshelman A, Abouljoud M. Health literacy status affects outcomes for patients referred for transplant. *Psychosomatics.* 2016;57(5):522–8.

\*Bittermann T, Dwinnells K, Chadha S, Wolf MS, Olthoff KM, Serper M. Low health literacy is associated with frailty and reduced likelihood of liver transplant listing: a prospective cohort study. *Liver Transpl.* 2020;26(11):1409–21.

# Housing and Environment

- Impact of stable housing and a healthy environment on transplant patient
- Higher neighborhood deprivation associated with lower rates of preemptive waitlisting for a kidney transplant or LR kidney transplant
  - Outcomes are superior for preemptive waitlisting and LR kidney transplants compared to deceased donor kidney transplants
  - Disparities lead to a longer wait time for kidney tx for disadvantaged groups



\*United States Renal Data System. 2022 *USRDS Annual Data Report: Epidemiology of kidney disease in the United States*. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2022.

\*"Housing And Health: An Overview Of The Literature," Health Affairs Health Policy Brief, June 7, 2018.DOI: 10.1377/hpb20180313.396577

- Employment
  - 1/3 unemployed reported needing to see a provider but unable due to cost
  - Decreased referrals if patient is unemployed
  - Low median household income was associated with increased risk of readmission and time to first event after LVAD implantation
- Access to Healthcare
  - Longer distance to transplant center
    - Increased waitlist mortality
    - Decreased likelihood of receiving a transplant
    - Weakly associated higher risk of graft failure
  - Transportation difficulties
  - Limited/lack of social support



\*McCauley J, Irish W, Thompson L, Stevenson J, Lockett R, Bussard R, et al. Factors determining the rate of referral, transplantation, and survival on dialysis in women with ESRD. Am J Kidney Dis. 1997;30(6):739–48.

\*Schold JD, Augustine JJ, Huml AM, O'Toole J, Sedor JR, Poggio ED. Modest rates and wide variation in timely access to repeat kidney transplantation in the United States. Am J Transplant. 2020;20(3):769–78.

\*Smith SA, Hasan AK, Binkley PF, Foraker RE. The impact of insurance and socioeconomic status on outcomes for patients with left ventricular assist devices. J Surg Res. 2014;191(2):302–8.

\*Whelan AM, Johansen KL, Brar S, McCulloch CE, Adey DB, Roll GR, et al. Association between longer travel distance for transplant care and access to kidney transplantation and graft survival in the United States. J Am Soc Nephrol. 2021;32(5):1151–61.

# Racial and Ethnic disparities

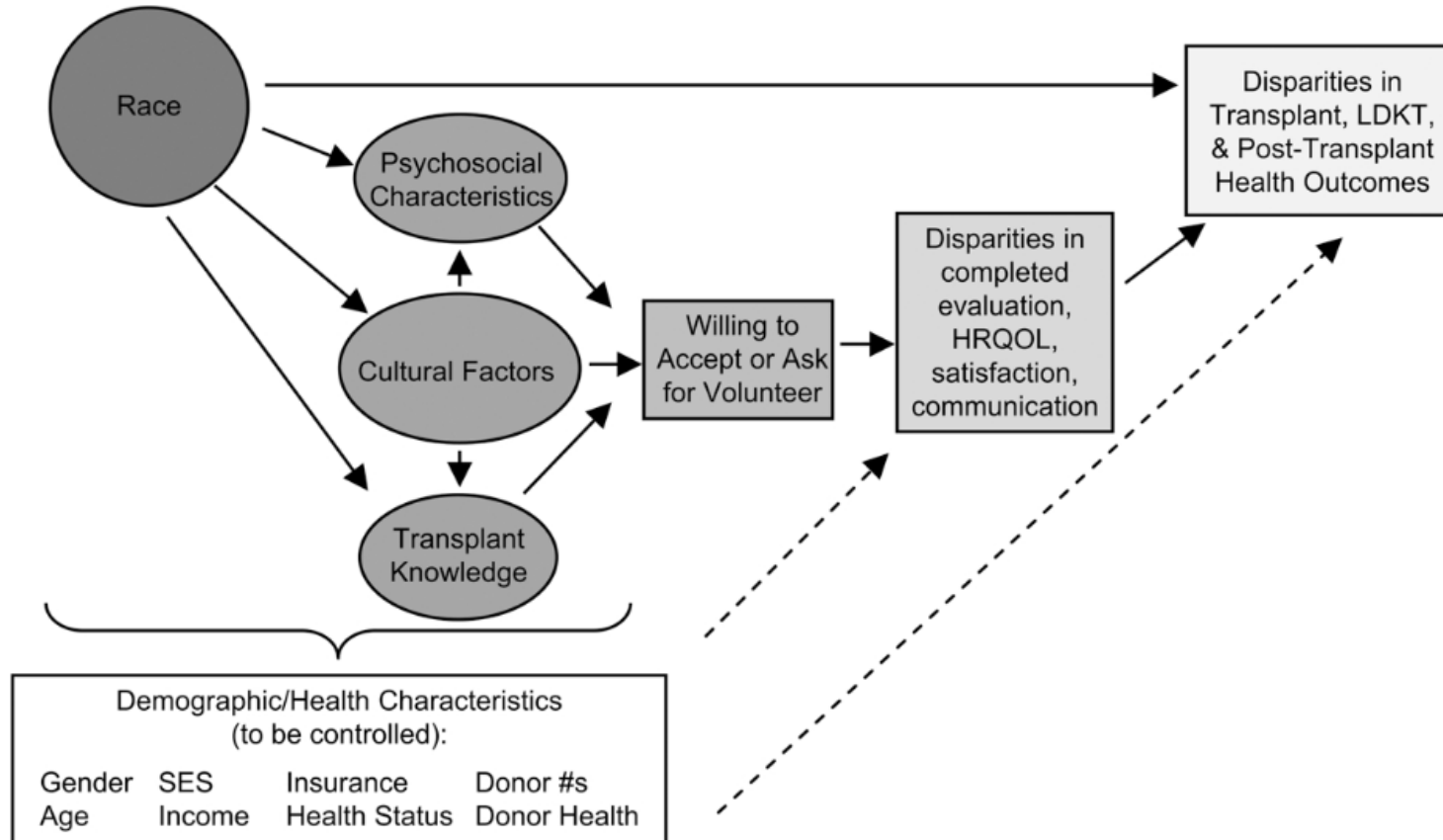
- Lower referral rate for liver transplant
- Inferior outcomes among Black and Latinx compared to White patients
- Black patients were 25% less likely to be waitlisted than White patients even after adjusting for medical factors and SDOH



\*Wahid N, Rosenblatt R, Brown RSJ. A review of the current state of liver transplantation disparities. *Liver Transplant* 2021; **27**: 434-443.

\*Ng YH, Pankratz VS, Leyva Y, Ford CG, Pleis JR, Kendall K, et al. Does racial disparity in kidney transplant waitlisting persist after accounting for social determinants of health? *Transplantation*. 2020;104(7):1445–55.

# Racial disparity and transplant outcomes

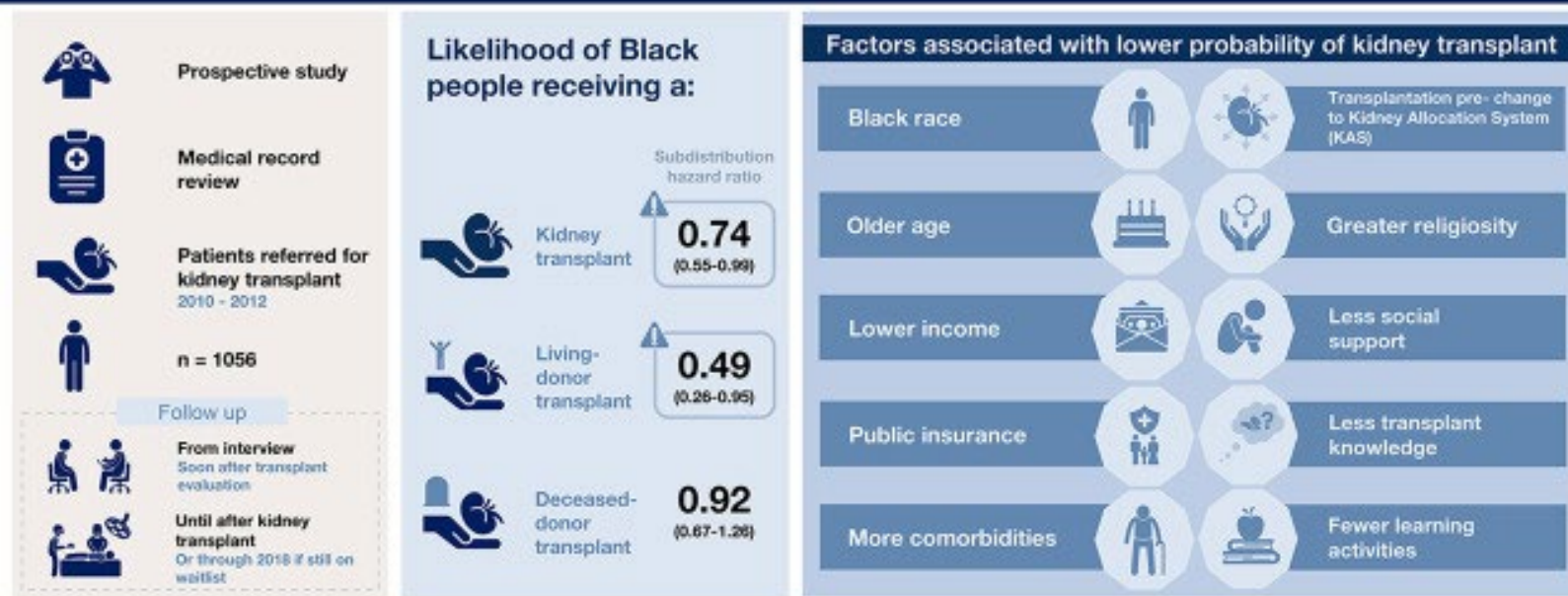


Conceptual model of the relationship between non-medical factors and transplant outcomes

# Race disparities

- Black patients have a higher incidence of kidney failure but lower rate of kidney transplant compared with White patients
  - Overall transplant
  - Living-donor transplant
- Lower probability of deceased donor transplant
  - Older age
  - Public insurance
  - Great religiosity
  - Higher BMI
  - Transplanted prior to changes in Kidney allocation system
  - Lower income
  - More comorbidities
  - Less social support
  - Less transplant knowledge

## Which demographic and social factors predict the likelihood of receiving a kidney transplant?



**Conclusions** Race and social determinants of health are associated with the likelihood of undergoing kidney transplant.

Hannah Wesselman, C. Graham Ford, Yuridia Leyva, et al. **Social Determinants of Health and Race Disparities in Kidney Transplant**. CJASN doi: 10.2215/CJN.04860420. Visual Abstract by Michelle Lim, MBChB, MRCP

# GFR calculation change

- GFR initiated to increase awareness of worsening renal function
  - No real change in outcomes but increased nephrology referrals
  - African-American vs non-AA calculations
- Underestimation of kidney disease severity
- Not using race coefficient
  - Increase rate (30-35%) to achieving GFR <20
  - Shorter time to transplant by 1.9 years
- Restorative justice

*The Washington Post*  
*Democracy Dies in Darkness*  
**Black man awaiting kidney transplant**  
**alleges racial bias**  
Los Angeles barber says in a lawsuit that African Americans rank lower on

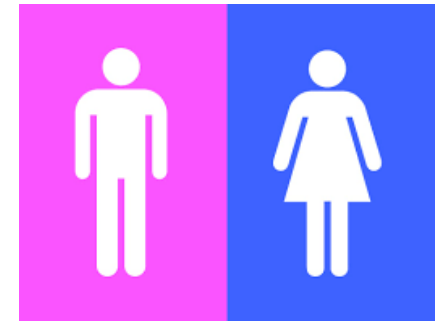
**Richmond Times-Dispatch**  
**Richmond's organ transplantation**  
**network sued over racial equity issue**  
of a fl-

**USA TODAY**  
**Widely used test kept Black people from**  
**getting kidney transplants sooner. Now that's**  
**changing.**

**NEWS**  
**Black patients face historically**  
**longer waiting times for kidney**  
**transplants due to outdated test**

# Gender and age

- Women less likely to receive a liver transplant than men (after adjusting for other variables)
  - Seen in pre-MELD as well as post-MELD era
- Heart transplant: women perceived to have decreased social support and children were considered to be liability
- Older patients less likely to receive a liver tx (50% less chance in patients >60 yrs of age)



\*Mansour MM, Fard D, et al ., Disparities in social determinants of health amonth patients receiving liver transplant: analysis of the National Inpatient Sample from 2016 to 2019, Cureus 14(7): e26567. DOI 10.7759/cureus.26567

\*A.K Mathur, V.B. Ashby, R.L. Sands, R.A. Wolfe, Geographic Variation in End-Stage Renal Disease Incidence and Access to Deceased Donor Kidney Transplantation, American Journal of Transplantation, Volume 10, Issue 4, Part 2, 2010, Pages 1069-1080, ISSN 1600-6135, <https://doi.org/10.1111/j.1600-6143.2010.03043.x>.

\*Breathett K, Yee E, Pool N, Hebdon M, Crist JD, Yee RH, et al. Association of gender and race with allocation of advanced heart failure therapies. JAMA Netw Open. 2020;3(7):e2011044.

- Recognize individual and cultural differences
- Seek advice from diverse groups
- Assess needs of organization and individuals
  - Muslims
    - Family members cannot override patient decision
    - “Brain death” controversial
  - Hispanic Kidney Transplant Program (HKTP)
    - Donor fears alleviated



Transplant Education	Hispanic Preferences	Transplant Center Trends in United States
Format	Language: Spanish	Language: English
	Face-to-face interaction	Written material
	Group discussion	One-on-one discussion
Educator	Physician	Nonphysician (e.g., nurse)
	Bilingual and bicultural educators	Rely on interpreters
	No interpreters	

Sources: Gordon et al<sup>14</sup> and Gordon et al.<sup>31</sup>

\*Gordon EJ, Lee J, Kang R, Ladner DP, Skaro AI, Holl JL, French DD, Abecassis MM, Caicedo JC. Hispanic/Latino Disparities in Living Donor Kidney Transplantation: Role of a Culturally Competent Transplant Program. Transplant Direct. 2015 Sep 22;1(8):e29. doi: 10.1097/TXD.0000000000000540. PMID: 27500229; PMCID: PMC4946478.

\*Padela AI, Auda J. The Moral Status of Organ Donation and Transplantation Within Islamic Law: The *Fiqh* Council of North America's Position. Transplant Direct. 2020 Feb 18;6(3):e536. doi: 10.1097/TXD.0000000000000980. PMID: 32195327; PMCID: PMC7056282.

# Barriers to transplantation

- Scheduling difficulties
- Late or delayed referrals for transplant
- Poor patient-staff communication
- Limited access to transplant coordinators
- Educational barriers
  - Difficult accessing information about transplant
  - Limited knowledge of transplant
  - Lack of formal education with associated literacy and/or reading comprehension challenges



# Patient advocacy

- Create a diversity committee who sponsors workshops to reduce the impact of SDOH
- Engagement and outreach in local communities and organizations to strengthen relationships with patient and patient advocates
- Simplify the process of gaining access to the waitlist
  - Early diagnosis of end-stage organ disease
  - Prompt referral for transplant evaluation

# Policy and advocacy

- Need public policy advocacy with national government organizations to support equitable access for disease treatment and financial coverage for transplant
- Transplant community needs an infrastructure with accountability to address SDOH and structural racism
- Self-assessment and training on how provider behaviors and institutional racism directly contribute to inequity in transplantation
- Implicit bias training

## **Implicit Biases**

The *automatic* reactions we have toward other people based on our **past learning and expectations**

# Implicit bias in AI

- AI learns bias from the data it's trained on
- Amazon's algorithm discriminated against women
  - Women account for <25% of technical roles in 2020
  - AI thought male applicants were consciously preferred
- Facial recognition
  - Black and Asian faces are 100x more likely to be misidentified than white faces
  - Result of misidentification of darker skin tones
  - Least accurate on women of color
  - Increased racial profiling



Denison, G. (2023, August 25). *4 shocking AI bias examples*. Prolific. <https://www.prolific.com/blog/shocking-ai-bias>

Najibi, A. (2020, October 24). *Racial discrimination in face recognition technology*. SITN: Harvard University. <https://sitn.hms.harvard.edu/flash/2020/racial-discrimination-in-face-recognition-technology/>

Racial bias in facial recognition algorithms (2023, March 21). Amnesty International. <https://www.amnesty.ca/surveillance/racial-bias-in-facial-recognition-algorithms/>

# Implicit Bias

- Data suggests most healthcare providers have implicit bias in positive attitudes toward Whites and negative attitudes toward racial/ethnic minorities
- Correlation between implicit bias and lower quality of care



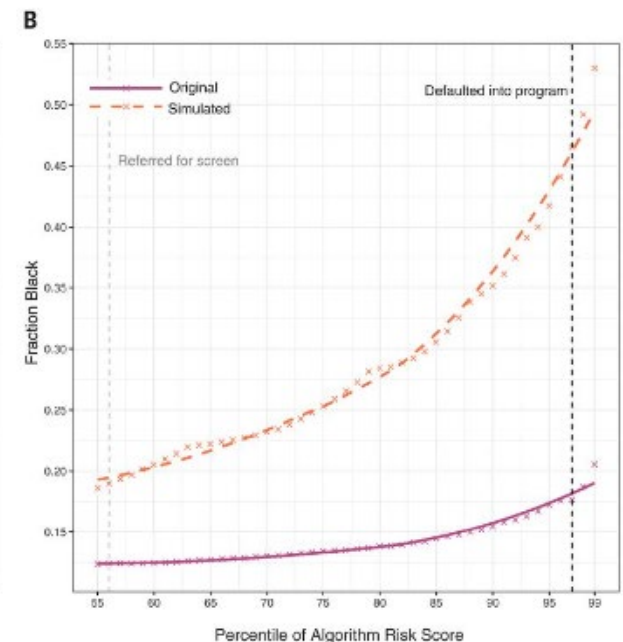
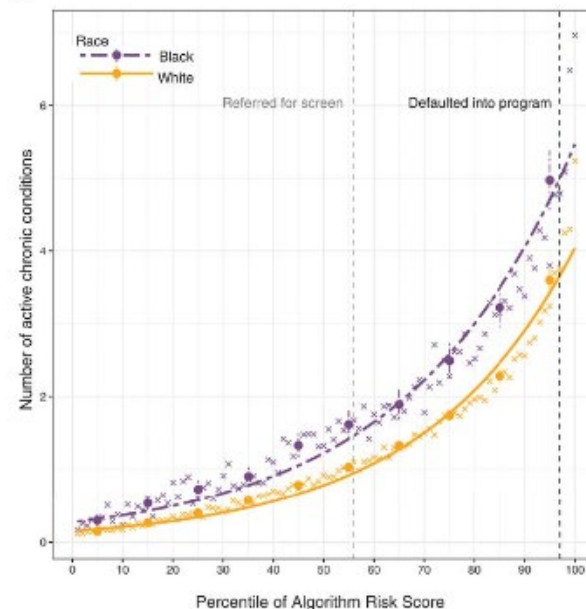
- Organizational awareness of implicit bias and impact on referral patterns and decision making with allow transplant centers to mitigate its contribution to disparities

\*Fitzgerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. *BMC Med Ethics* 2017; **18**: 19.

\*Rosenblatt, R., Lee, H., Liapakis, A., Lunsford, K.E., Scott, A., Sharma, P. and Wilder, J. (2021), Equitable Access to Liver Transplant: Bridging the Gaps in the Social Determinants of Health. *Hepatology*, 74: 2808-2812. <https://doi.org/10.1002/hep.31986>

## US healthcare algorithm underestimated Black patients' needs

- Assumed cost indicated a person's healthcare needs
- Received lower risk scores than White patients
- Did not qualify for extra care as much as Whites with the same needs (remedy disparity increases help from 17.7 to 46.5%) **A**



# 4 Diversity Dimensions



\*Gardenswartz & Rowe, Diverse Teams at Work (2nd Edition, SHRM, 2003)

\*Internal Dimensions and External Dimensions are adapted from Marilyn Loden and Judy Rosener, Workforce America! (Business One Irwin, 1991)



# Equality vs Equity

## Equality



## Equity



# Stereotype

**Stereotype** - An oversimplified image or statement applied to a whole group of people, without regard for the individual.



# U.S. Stereotypes



# Bias vs Implicit Bias

- **Bias** – prejudice in favor of or against one thing, person, or group compared with another, usually in a way to considered to be unfair.
- **Unconscious/Implicit Bias** - the underlying stereotypes that people unconsciously attribute to another person or group which effects how they understand and engage with a person or group.

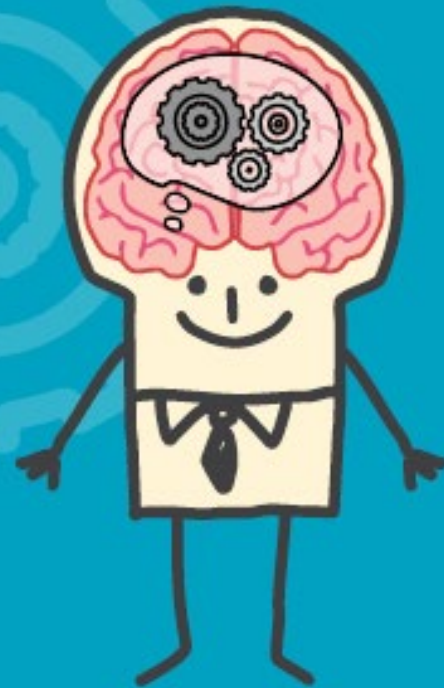




# Implicit Bias



# Harvard Implicit Bias Test



Are YOU  
conscious of your  
unconscious bias?

---

# Harvard Gender Implicit Test

- If I have children and a successful career, few people will ask me how I balance my professional and private life.
- I do not have to consider my physical safety when I accept a date.
- I can complain about something without being told you are too emotional or asked if it's that time of month.
- My elected representatives are mostly people of my own sex.
- Major religions in the world are led mainly by people of my sex.
- I do not have to think about the message my wardrobe sends about my sexual availability.
- I will never be/was never expected to change my name upon marriage or questioned if I do not change my name.
- In general, I am not under much pressure to be thin or worry about how people will respond to me if I am overweight.



# DON'T PUT PEOPLE IN BOXES





# Combat Implicit Bias

- Reflective practice
  - How do I impact others in what I do and what I say?
  - Are there ways in which I can be more mindful of others?
- Be aware of your assumptions
- Identify cultural frame of reference
- Widen cultural reference points
- Empathy intervention



