
# The Scope and Likely Clinical Impact of Race-correction in Algorithms

Who Gets Health Care and Why:
AI, Race and Health Equity

NIHCM Foundation

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Should we provide different medical care to people of different races and ethnicities…

… because of their races and ethnicities?

Race (and racism) is pervasive in medical practice:

- Race adjustment
- Race correction
- Race norming
- Risk calculators
- Treatment guidelines

… though much of this is unique to medicine in the United States

NEJM Journal Watch



SUMMARY AND COMMENT | EMERGENCY MEDICINE, HOSPITAL MEDICINE

INFORMING PRACTICE

April 17, 2014

# Does Everyone with Renal Colic Need a CT Scan?

*Kristi L. Koenig, MD, FACEP, FIFEM, reviewing Moore CL et al. BMJ 2014 Mar 26*

*A new clinical rule predicts the presence of uncomplicated kidney stones.*

There is concern about excessive radiation related to routine computed tomography scanning for patients with suspected ureteral colic. Researchers retrospectively derived and prospectively validated a clinical prediction rule for uncomplicated ureteral stones in adults with flank pain. Patients with infection, trauma, known malignancy, renal disease, or prior urologic procedures were excluded.

| Factor | Points |
|---|---|
| **Sex:** | |
| Female | 0 |
| Male | 2 |
| **Duration of pain:** | |
| >24 hours | 0 |
| 6–24 hours | 1 |
| <6 hours | 3 |

STONE score

The derivation cohort comprised 1040 adult patients with flank pain undergoing CT without contrast in the emergency department; the validation cohort comprised 491 such patients. Using multivariate logistic regression, the top five factors associated with ureteral stones — male sex, short pain duration, non-black race, nausea or vomiting, and microscopic hematuria — were each assigned 0–3 points, which were summed to create a 0–13-point STONE score (see **table**). For patients in the validation cohort with low (0–5 points), moderate, (6–9 points), and high (10–13 points) scores, the probability of stones was 9%, 51%, and 89%, respectively. Findings were similar in the derivation cohort. Clinically relevant alternative diagnoses (e.g., diverticulitis, appendicitis, malignancy, cholecystitis, aortic aneurysm) were present in 2% of the validation cohort with high scores.

| Factor | Points |
|---|---|
| **Sex:** | |
| Female | 0 |
| Male | 2 |
| **Duration of pain:** | |
| >24 hours | 0 |
| 6–24 hours | 1 |
| <6 hours | 3 |
| **Race:** | |
| Black | 0 |
| Non-black | 3 |
| **Nausea and vomiting:** | |
| None | 0 |
| Nausea alone | 1 |
| Vomiting alone | 2 |
| **Hematuria:** | |
| Absent | 0 |
| Present | 3 |

A 13 point scale
High score = High risk

# Development of a Nomogram for Prediction of Vaginal Birth After Cesarean Delivery

*William A. Grobman, MD, MBA, Yinglei Lai, PhD, Mark B. Landon, MD, Catherine Y. Spong, MD, Kenneth J. Leveno, MD, Dwight J. Rouse, MD, MSPH, Michael W. Varner, MD, Atef H. Moawad, MD, Steve N. Caritis, MD, Margaret Harper, MD, Ronald J. Wapner, MD, Yoram Sorokin, MD, Menachem Miodovnik, MD, Marshall Carpenter, MD, Mary J. O'Sullivan, MD, Baha M. Sibai, MD, Oded Langer, MD, John M. Thorp, MD, Susan M. Ramin, MD, and Brian M. Mercer, MD, for the National Institute of Child Health and Human Development (NICHD) Maternal–Fetal Medicine Units Network (MFMU)**

**OBJECTIVE:** To develop a model based on factors available at the first prenatal visit that predicts chance of successful vaginal birth after cesarean delivery (VBAC) for individual patients who undergo a trial of labor.

**METHODS:** All women with one prior low transverse cesarean who underwent a trial of labor at term with a vertex singleton gestation were identified from a concurrently collected database of deliveries at 19 academic centers during a 4-year period. Using factors identifiable at the first prenatal visit, we analyzed different classification techniques in an effort to develop a meaningful prediction model for VBAC success. After development and cross-validation, this model was represented by a graphic nomogram.

**RESULTS:** Seven-thousand six hundred sixty women were available for analysis. The prediction model is based on a multivariable logistic regression, including the variables of maternal age, body mass index, ethnicity, prior vaginal delivery, the occurrence of a VBAC, and a potentially recurrent indication for the cesarean delivery. After analyzing the model with cross-validation techniques, it was found to be both accurate and discriminating.

**CONCLUSION:** A predictive nomogram, which incorporates six variables easily ascertainable at the first prenatal visit, has been developed that allows the determination of a patient-specific chance for successful VBAC for those women who undertake trial of labor.

*(Obstet Gynecol 2007;109:806–12)*

**LEVEL OF EVIDENCE:** II

See related editorial on page 796.

* *For members of the NICHD MFMU, see the Appendix.*

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*The authors thank the following core committee members: Francee Johnson, BSN, and Julia McCampbell, RN (protocol development and coordination between clinical research centers); Elizabeth Thom, PhD (protocol/data management and statistical analysis); and Alan M. Peaceman, MD (protocol development and oversight).*

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Pregnant women who have had a prior cesarean delivery often are confronted with the decision of whether to attempt a trial of labor. One important component in this decision-making process is the likelihood that a trial of labor will result in a vaginal delivery. Correspondingly, investigators have attempted to elucidate the factors that are associated with successful vaginal birth after cesarean delivery (VBAC). Some of the factors that have been repeat-

## Logistic Regression Equation for Prediction of Achieving VBAC After a Trial of Labor

Predicted probability of successful VBAC=exp(w)/[1+exp(w)], where w=3.766−0.039(age)−0.060 (prepregnancy body mass index)−0.671 (African-American race)−0.680 (Hispanic race)+0.888 (any prior vaginal delivery)+1.003 (vaginal delivery after prior cesarean)−0.632 (recurring indication for cesarean)

Debra Malina, Ph.D., *Editor*

# Hidden in Plain Sight — Reconsidering the Use of Race Correction in Clinical Algorithms

Darshali A. Vyas, M.D., Leo G. Eisenstein, M.D., and David S. Jones, M.D., Ph.D.

Physicians still lack consensus on the meaning of race. When the *Journal* took up the topic in 2003 with a debate about the role of race in medicine, one side argued that racial and ethnic categories reflected underlying population genetics and could be clinically useful.[1] Others held that any small benefit was outweighed by potential harms that arose from the long, rotten history of racism in medicine.[2] Weighing the two sides, the accompanying Perspective article concluded that though the concept of race was "fraught with sensitivities and fueled by past abuses and the potential for future abuses," race-based medicine still had potential: "it seems unwise to abandon the practice of recording race when we have barely begun to understand the architecture of the human genome."[3]

The next year, a randomized trial showed that a combination of hydralazine and isosorbide dinitrate reduced mortality due to heart failure among patients who identified themselves as black. The Food and Drug Administration granted a race-specific indication for that product, BiDil, in 2005.[4] Even though BiDil's ultimate commercial failure cast doubt on race-based medicine, it did not lay the approach to rest. Prominent geneticists have repeatedly called on physicians to take race seriously,[5,6] while distinguished social scientists vehemently contest these calls.[7,8]

Our understanding of race and human genetics has advanced considerably since 2003, yet these insights have not led to clear guidelines on the use of race in medicine. The result is ongoing conflict between the latest insights from population genetics and the clinical implementation of race. For example, despite mounting evidence that race is not a reliable proxy for genetic difference, the belief that it is has become embedded, sometimes insidiously, within medical practice. One subtle insertion of race into medicine involves diagnostic algorithms and practice guidelines that adjust or "correct" their outputs on the basis of a patient's race or ethnicity. Physicians use these algorithms to individualize risk assessment and guide clinical decisions. By embedding race into the basic data and decisions of health care, these algorithms propagate race-based medicine. Many of these race-adjusted algorithms guide decisions in ways that may direct more attention or resources to white patients than to members of racial and ethnic minorities.

To illustrate the potential dangers of such practices, we have compiled a partial list of race-adjusted algorithms (Table 1). We explore several of them in detail here. Given their potential to perpetuate or even amplify race-based health inequities, they merit thorough scrutiny.

## CARDIOLOGY

The American Heart Association (AHA) Get with the Guidelines–Heart Failure Risk Score predicts the risk of death in patients admitted to the hospital.[9] It assigns three additional points to any patient identified as "nonblack," thereby categorizing all black patients as being at lower risk. The AHA does not provide a rationale for this adjustment. Clinicians are advised to use this risk score to guide decisions about referral to cardiology and allocation of health care resources. Since "black" is equated with lower risk, following the guidelines could direct care away from black patients. A 2019 study found that race may influence decisions in heart-failure management, with measurable consequences: black and Latinx patients who presented to a Boston emergency department with heart failure were less likely than white patients to be admitted to the cardiology service.[24]

Cardiac surgeons also consider race. The So-

**Table 1. Examples of Race Correction in Clinical Medicine.***

| Tool and Clinical Utility | Input Variables | Use of Race | Equity Concern |
|---|---|---|---|
| **Cardiology** | | | |
| The American Heart Association's Get with the Guidelines–Heart Failure[9] (https://www.mdcalc.com/gwtg-heart-failure-risk-score)<br>*Predicts in-hospital mortality in patients with acute heart failure. Clinicians are advised to use this risk stratification to guide decisions regarding initiating medical therapy.* | Systolic blood pressure<br>Blood urea nitrogen<br>Sodium<br>Age<br>Heart rate<br>History of COPD<br>Race: black or nonblack | Adds 3 points to the risk score if the patient is identified as nonblack. This addition increases the estimated probability of death (higher scores predict higher mortality). | The original study envisioned using this score to "increase the use of recommended medical therapy in high-risk patients and reduce resource utilization in those at low risk."[9] The race correction regards black patients as lower risk and may raise the threshold for using clinical resources for black patients. |
| **Cardiac surgery** | | | |
| The Society of Thoracic Surgeons Short Term Risk Calculator[10] (http://riskcalc.sts.org/stswebriskcalc/calculate)<br>*Calculates a patient's risks of complications and death with the most common cardiac surgeries. Considers >60 variables, some of which are listed here.* | Operation type<br>Age and sex<br>Race: black/African American, Asian, American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, or "Hispanic, Latino or Spanish ethnicity"; white race is the default setting.<br>BMI | The risk score for operative mortality and major complications increases (in some cases, by 20%) if a patient is identified as black. Identification as another nonwhite race or ethnicity does not increase the risk score for death, but it does change the risk score for major complications such as renal failure, stroke, and prolonged ventilation. | When used preoperatively to assess a patient's risk, these calculations could steer minority patients, deemed higher risk, away from these procedures. |
| **Nephrology** | | | |
| Estimated glomerular filtration rate (eGFR) MDRD and CKD-EPI equations[11] (https://ukidney.com/nephrology-resources/egfr-calculator)<br>*Estimates glomerular filtration rate on the basis of a measurement of serum creatinine.* | Serum creatinine<br>Age and sex<br>Race: black vs. white or other | The MDRD equation reports a higher eGFR (by a factor of 1.210) if the patient is identified as black. This adjustment is similar in magnitude to the correction for sex (0.742 if female).<br>The CKD-EPI equation (which included a larger number of black patients in the study population), proposes a more modest race correction (by a factor of 1.159) if the patient is identified as black. This correction is larger than the correction for sex (1.018 if female). | Both equations report higher eGFR values (given the same creatinine measurement) for patients identified as black, suggesting better kidney function. These higher eGFR values may delay referral to specialist care or listing for kidney transplantation. |
| Organ Procurement and Transplantation Network: Kidney Donor Risk Index (KDRI)[12] (https://optn.transplant.hrsa.gov/resources/allocation-calculators/kdpi-calculator/)<br>*Estimates predicted risk of donor kidney graft failure, which is used to predict viability of potential kidney donor.†* | Age<br>Hypertension, diabetes<br>Serum creatinine level<br>Cause of death (e.g., cerebrovascular accident)<br>Donation after cardiac death<br>Hepatitis C<br>Height and weight<br>HLA matching<br>Cold ischemia<br>En bloc transplantation<br>Double kidney transplantation<br>Race: African American | Increases the predicted risk of kidney graft failure if the potential donor is identified as African American (coefficient, 0.179), a risk adjustment intermediate between those for hypertension (0.126) and diabetes (0.130) and that for elevated creatinine (0.209–0.220). | Use of this tool may reduce the pool of African-American kidney donors in the United States. Since African-American patients are more likely to receive kidneys from African-American donors, by reducing the pool of available kidneys, the KDRI could exacerbate this racial inequity in access to kidneys for transplantation. |

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# IN A SERIES OF LETTERS, NEAL CALLS ON PROFESSIONAL MEDICAL SOCIETIES TO PUSH RACIAL HEALTH EQUITY AGENDA FORWARD

Sep 3, 2020 | Press Release

**SPRINGFIELD, MA**—Today, House Ways and Means Committee Chairman Richard E. Neal (D-MA) called on the leaders of the Accreditation Council for Graduate Medical Education, the American College of Cardiology, the American College of Obstetricians and Gynecologists, the American Heart Association, the American Medical Association, the American Society of Nephrology, and the American Thoracic Society to partner with the Ways and Means Committee in addressing the longstanding racial inequities in our society. The letters to the professional societies describe how racism has influenced the use of race in medicine, science, and research, and call for a new path forward where medicine considers race as a tool to measure racism, not biological differences. Neal detailed the relevant work of each professional society and asked for their perspectives on a series of questions related to their unique medical expertise.

"COVID-19 has illuminated and exacerbated longstanding racial inequities in our health care system that we must correct," **Chairman Neal said.** "As clinicians, health equity scholars, and medical professional societies continue to work toward eliminating racial health inequities, the consequences to health and the perpetuation of unequal outcomes make this work more urgent than ever. We must redouble our efforts. I look forward to the leadership of professional societies, who have been strong partners of government, to push this racial health equity agenda forward."

**In the letters, Neal wrote**: "The United States (U.S.) has some of the most dramatic racial health inequities in the world despite its overall wealth and modern health care and research systems. I am deeply concerned about the research findings published in *The New England Journal of Medicine* (NEJM) on June 17, 2020 that demonstrated racial bias in tools used by physicians and other providers to make clinical decisions…Medical professional societies should take a clear stand against the misuse of race and ethnicity in clinical algorithms and issue new guidance to correct this practice."


Michelle Morse
RWJF Health Policy Fellow
House Ways and Means





# FEEDBACK FROM PROFESSIONAL SOCIETIES AND RFI RESPONDENTS ON THE MISUSE OF RACE WITHIN CLINICAL CARE

Jan 12, 2021 | Press Release

**WASHINGTON, DC-**-On September 17, 2020, Ways and Means Committee Chairman Richard E. Neal (D-MA) announced a Request for Information (RFI) soliciting input from stakeholders in the medical community on the misuse of race within clinical care.

Responses to the Chairman's letters are included here:

- Accreditation Council for Graduate Medical Education (ACGME)
- American College of Cardiology (ACC)
- American Heart Association (AHA)
- American College of Obstetricians and Gynecologists (ACOG)
- American Medical Association (AMA)
- American Society of Nephrology (ASN)
- American Thoracic Society (ATS)
- The Endocrine Society (ES)
- Society of Thoracic Surgeons (STS)
- United Network for Organ Sharing (UNOS)
- American College of Emergency Physicians (ACEP)
- American Society of Clinical Oncology (ASCO)
- American Society of Transplant Surgeons (ASTS)

HEALTH

# Changing the equation: Researchers remove race from a calculator for childbirth

By Katie Palmer June 3, 2021

Reprints

Doctors deliver a baby girl by C-section on board the USNS Comfort, a U.S. naval hospital ship, in Port-au-Prince, Haiti. A simple calculator designed to determine the likelihood of having a successful vaginal birth after cesarean, or VBAC, has now been updated to remove race and ethnicity as a risk factor.

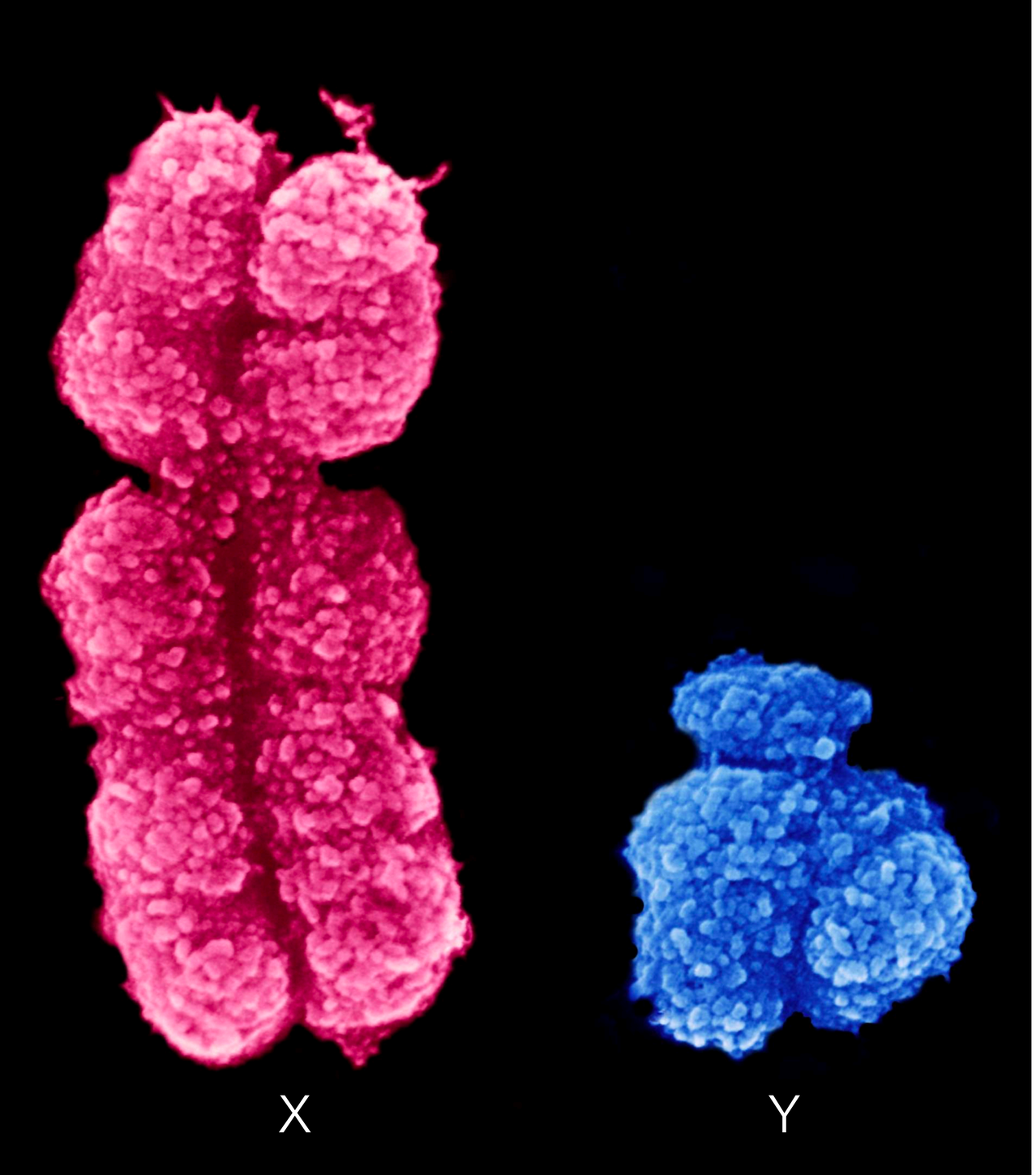
BRENDAN HOFFMAN/GETTY IMAGES

Since 2007, obstetricians have counseled patients planning to give birth after a previous C-section with help from a simple calculator designed to determine the likelihood of having a successful vaginal birth after cesarean, or VBAC.

The tool takes into account a patient's age, height, weight, and their history of vaginal and cesarean delivery. It also asks two yes-or-no questions: "African-American?" "Hispanic?" The answers can predict a drastically lower chance of success for patients of color. But now, after years of work by researchers, advocates, and clinicians, that racialized calculator has been replaced by a newly validated version that is the same in almost every way — except for eliminating race and ethnicity as a risk factor.

This is not a call for race-blind medicine.

We need to be race-conscious without making things worse.

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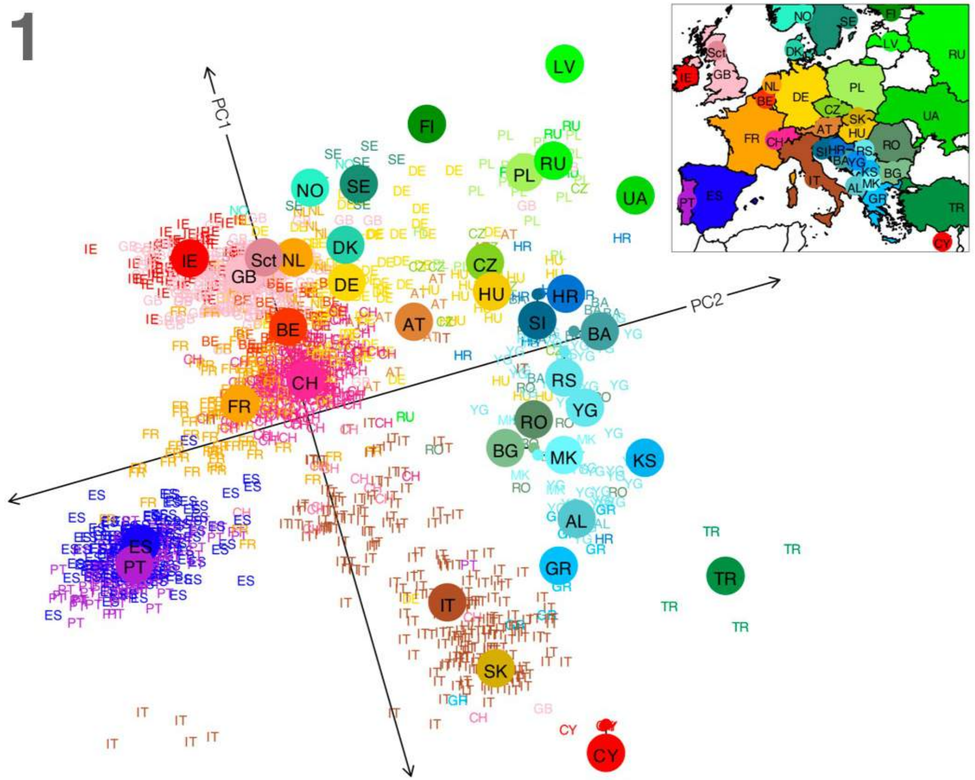


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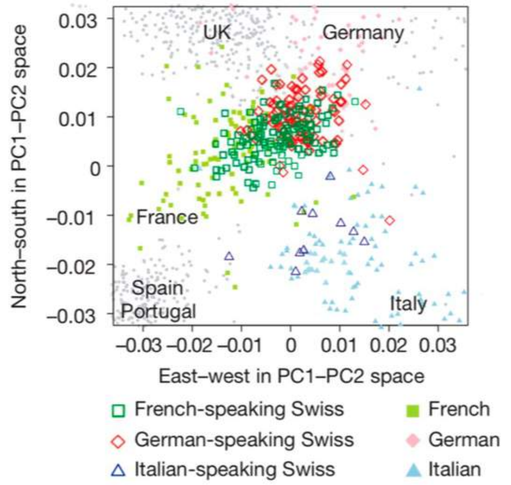



# Genes mirror geography within Europe

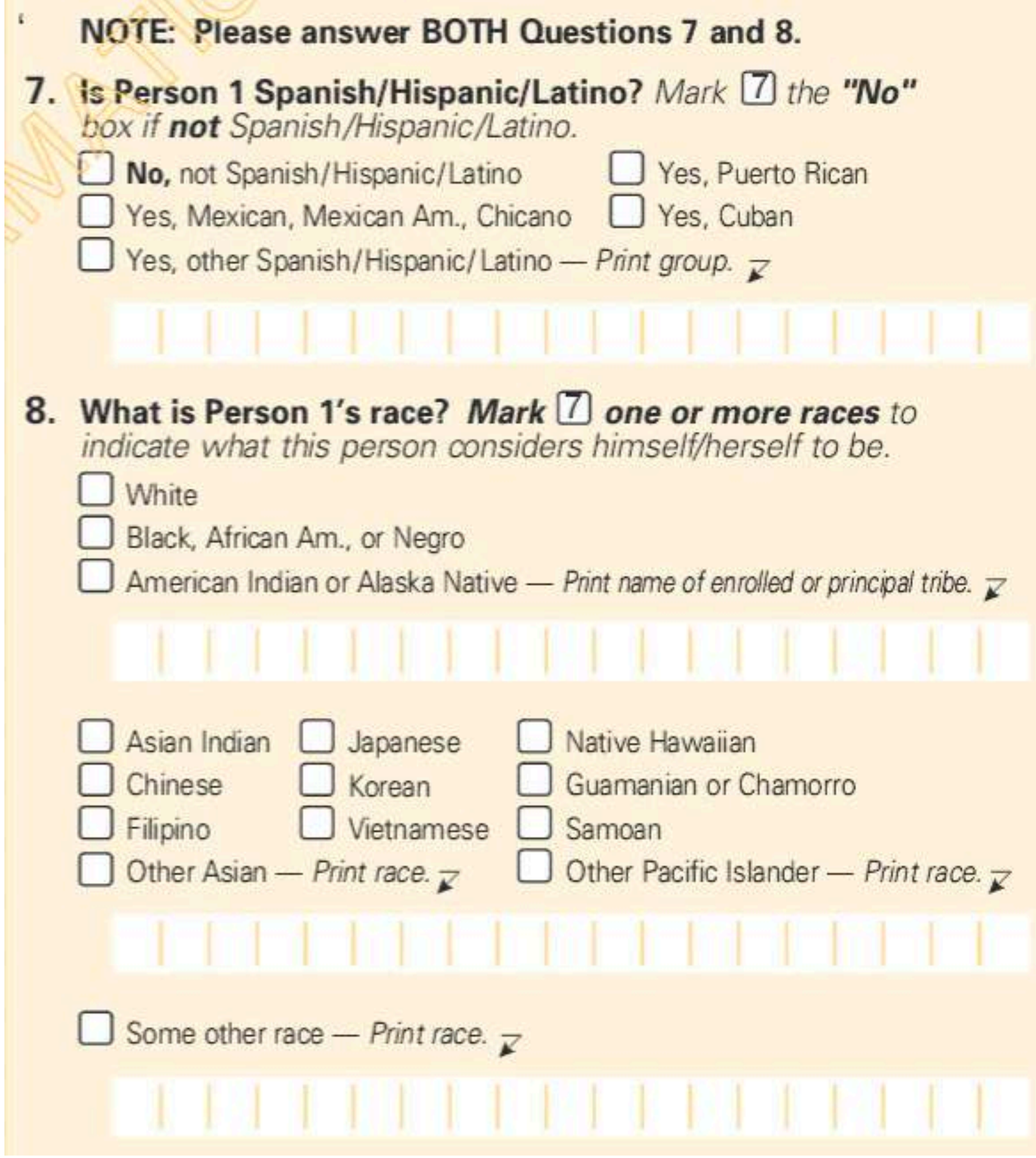
John Novembre[1,2], Toby Johnson[4,5,6], Katarzyna Bryc[7], Zoltán Kutalik[4,6], Adam R. Boyko[7], Adam Auton[7], Amit Indap[7], Karen S. King[8], Sven Bergmann[4,6], Matthew R. Nelson[8], Matthew Stephens[2,3] & Carlos D. Bustamante[7]

For the common causes of death, illness, ED visits, etc.,
how much do genetic variants matter,
especially those with a known “racial” distribution?

The risks: miscategorization, reification, and distraction.

# Harm #1: Miscategorization

What do the US race/ethnicity categories really mean?



**NOTE: Please answer BOTH Questions 7 and 8.**

**7. Is Person 1 Spanish/Hispanic/Latino?** *Mark ☒ the* ***"No"*** *box if* ***not*** *Spanish/Hispanic/Latino.*

- ☐ **No,** not Spanish/Hispanic/Latino
- ☐ Yes, Puerto Rican
- ☐ Yes, Mexican, Mexican Am., Chicano
- ☐ Yes, Cuban
- ☐ Yes, other Spanish/Hispanic/Latino — *Print group.*

**8. What is Person 1's race?** ***Mark ☒ one or more races*** *to indicate what this person considers himself/herself to be.*

- ☐ White
- ☐ Black, African Am., or Negro
- ☐ American Indian or Alaska Native — *Print name of enrolled or principal tribe.*
- ☐ Asian Indian
- ☐ Japanese
- ☐ Native Hawaiian
- ☐ Chinese
- ☐ Korean
- ☐ Guamanian or Chamorro
- ☐ Filipino
- ☐ Vietnamese
- ☐ Samoan
- ☐ Other Asian — *Print race.*
- ☐ Other Pacific Islander — *Print race.*
- ☐ Some other race — *Print race.*

# Proposal:

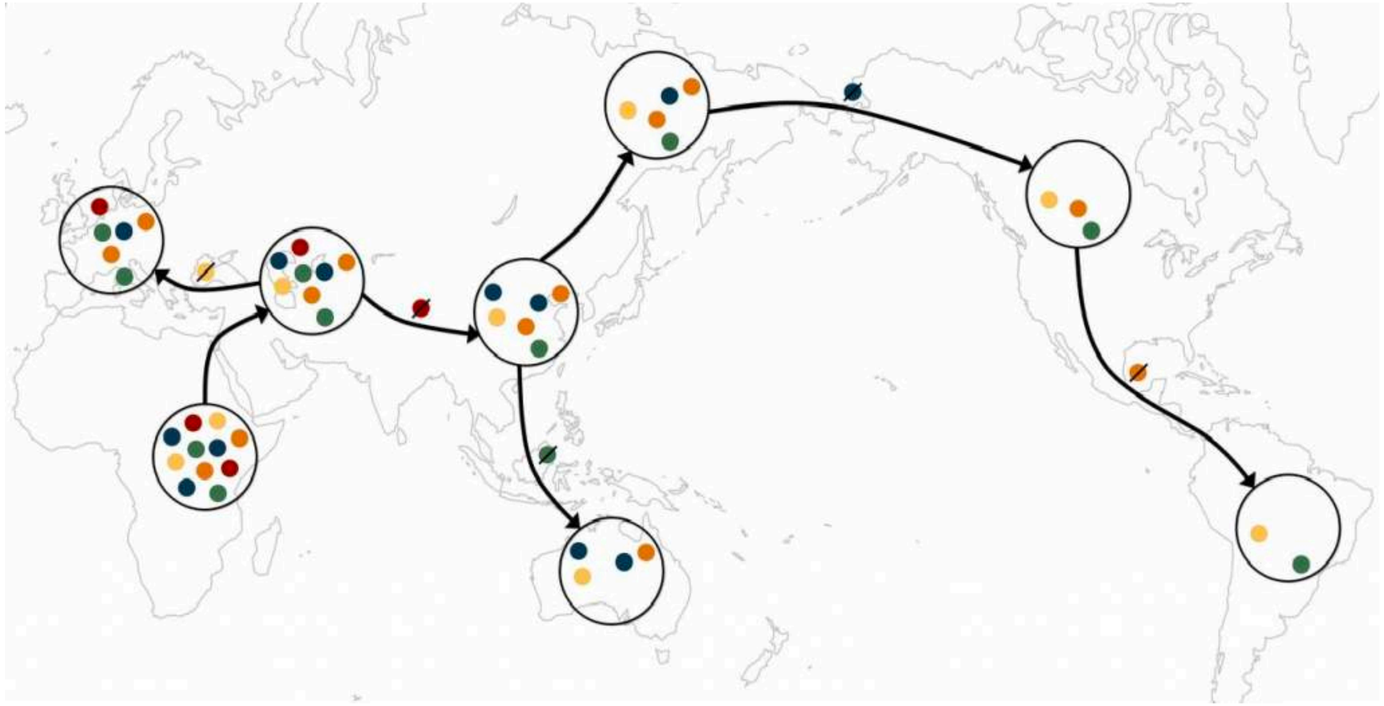
# Race is a useful proxy for racism in medical data

# Is it?

09-Jul-2020

To the Editor:

While many agree that there is very little evidence to support a biologic explanation for race based differences in health outcomes, racism has proven indisputable negative impacts on health. Currently, race is the only available placeholder for racism, which needs to be accounted for. The absence of 'proof' for some of the observed differences in outcomes by race is tied to the absence of science which has not yet developed any consistent measurement for racism – an important mechanism via which race generates poor outcomes. When race is included in models that predict higher risk, and that higher risk is then used to design and deliver interventions, including race ensures that treatment is appropriately matched to outcomes. Underprediction of risk in these instances has been associated with harm and has disproportionately impacted socially vulnerable populations, who due to structural racism are disproportionately black.1-3 Hopefully one day the beta for race will be zero. Until then, there are instances in which including race is crucial to ensure equitable care delivery.

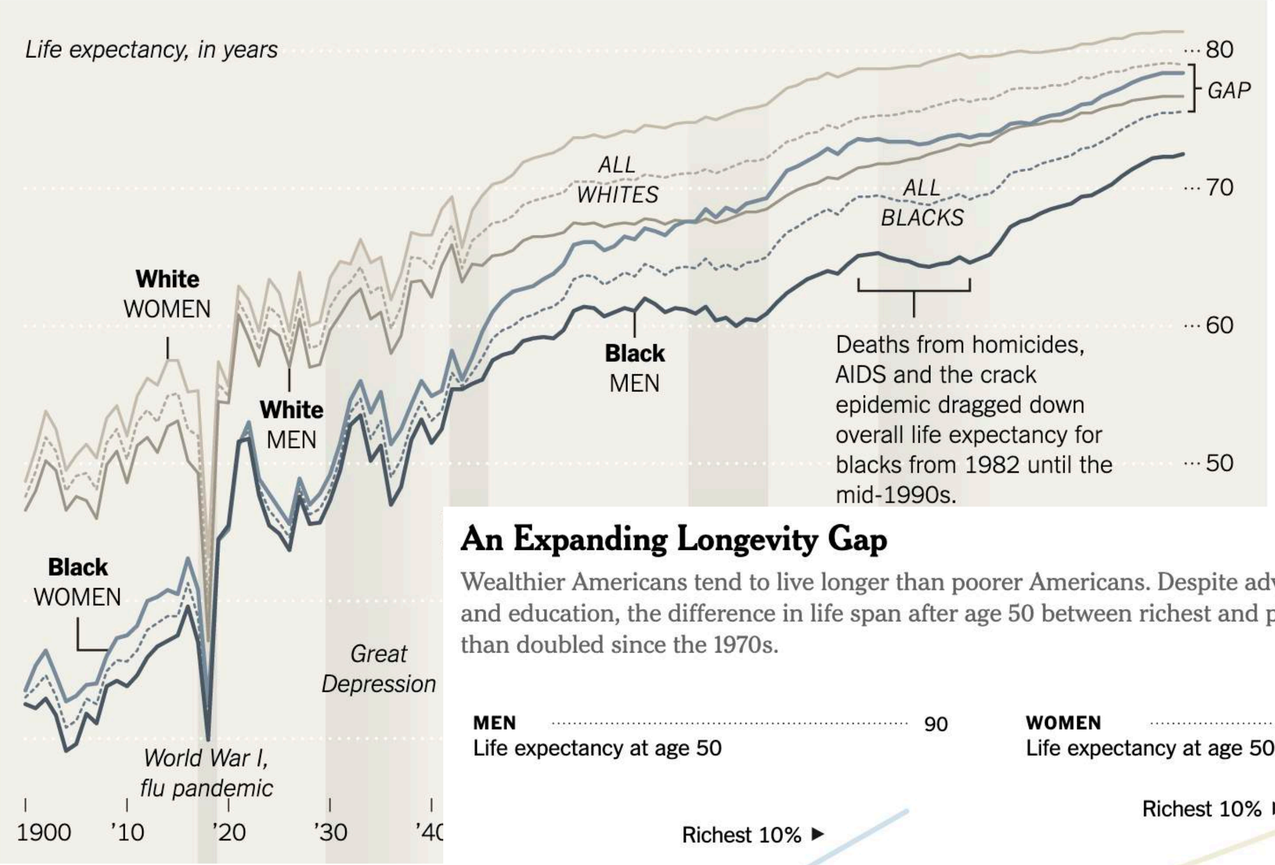



## Harm #2: Reification

What is race?

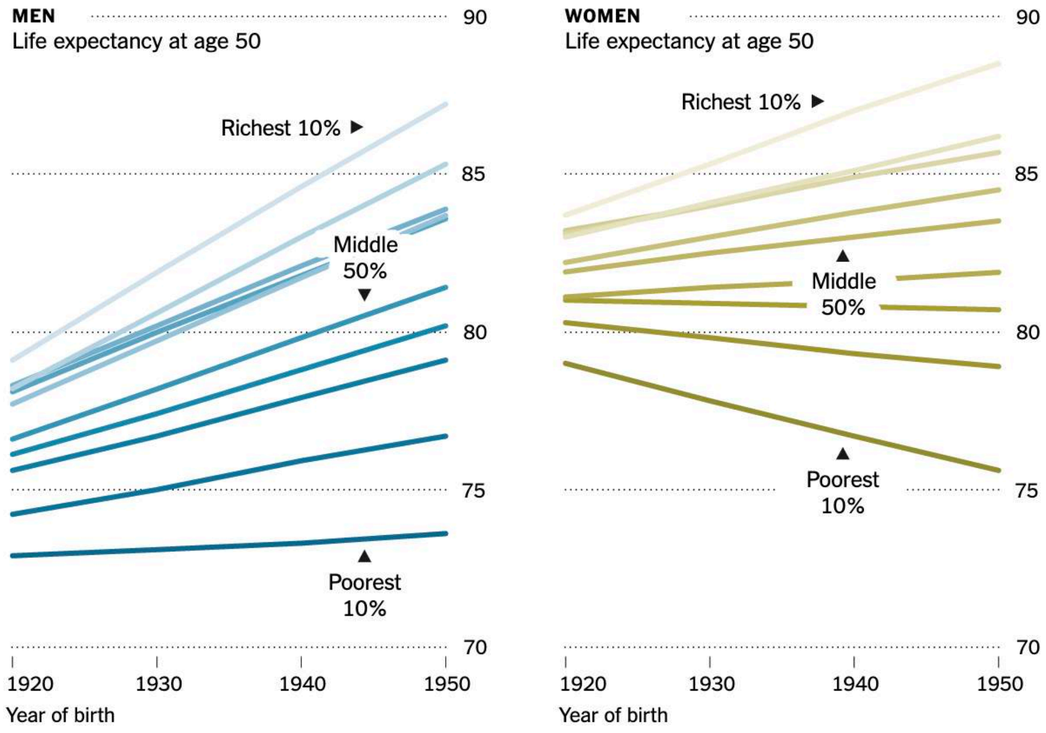
Is race a natural kind?

What are the risks of saying that it is?




## An Expanding Longevity Gap

Wealthier Americans tend to live longer than poorer Americans. Despite advances in medicine and education, the difference in life span after age 50 between richest and poorest has more than doubled since the 1970s.




# Harm #3: Distraction

Does our preoccupation with race distract us from other, more important, factors?

## We need to consider race (and racism) – but how?

- Continue to map the genetic structure of human variations.
- Develop better categories of human difference (or adequate ancestry informative markers), though this might be an intractable problem.
- Be wary of the use of race in predictive tools.

## We need to do a much better job with SES – but how?

- Markers that describe multiple aspects of lived experience.
- Longitudinal datasets that allow the integration of exposures over a lifetime.
- Sophisticated analyses that can discern cause and effect in complex, multi-dimensional datasets.

AI algorithms must be designed deliberately to avoid recapitulating the problems of race and racism

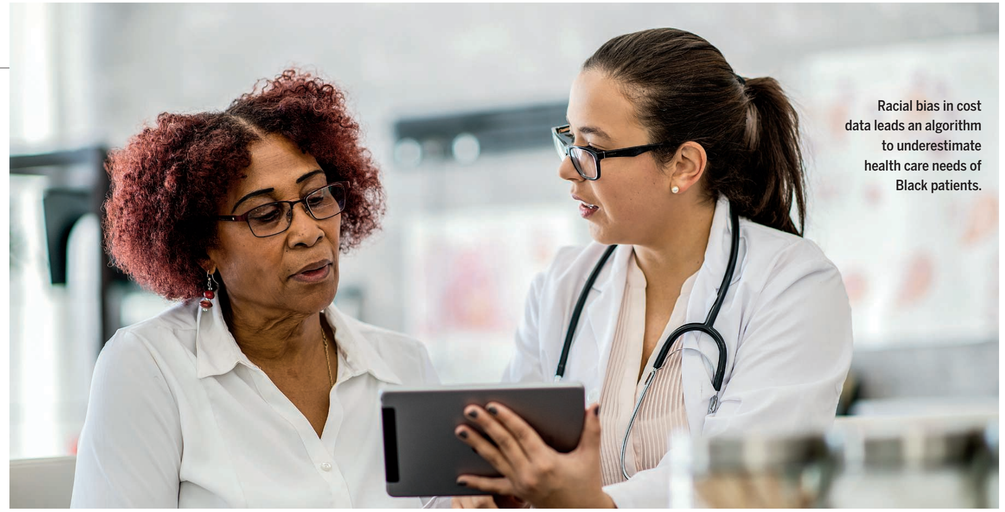
RESEARCH ARTICLE

ECONOMICS

# Dissecting racial bias in an algorithm used to manage the health of populations

Ziad Obermeyer[1,2]*, Brian Powers[3], Christine Vogeli[4], Sendhil Mullainathan[5]*†

Health systems rely on commercial prediction algorithms to identify and help patients with complex health needs. We show that a widely used algorithm, typical of this industry-wide approach and affecting millions of patients, exhibits significant racial bias: At a given risk score, Black patients are considerably sicker than White patients, as evidenced by signs of uncontrolled illnesses. Remedying this disparity would increase the percentage of Black patients receiving additional help from 17.7 to 46.5%. The bias arises because the algorithm predicts health care costs rather than illness, but unequal access to care means that we spend less money caring for Black patients than for White patients. Thus, despite health care cost appearing to be an effective proxy for health by some measures of predictive accuracy, large racial biases arise. We suggest that the choice of convenient, seemingly effective proxies for ground truth can be an important source of algorithmic bias in many contexts.



Racial bias in cost data leads an algorithm to underestimate health care needs of Black patients.

PHOTO: FATCAMERA/GETTY IMAGES

SOCIAL SCIENCE

# Assessing risk, automating racism

## A health care algorithm reflects underlying racial bias in society

By **Ruha Benjamin**

As more organizations and industries adopt digital tools to identify risk and allocate resources, the automation of racial discrimination is a growing concern. Social scientists have been at the forefront of studying the historical, political, economic, and ethical dimensions of such tools (*1*–*3*). But most analysts do not have access to widely used proprietary algorithms and so cannot typically identify the precise mechanisms that produce disparate outcomes. On page 447 of this issue, Obermeyer *et al.* (*4*) report one of the first studies to examine the outputs and inputs of an algorithm that predicts health risk, and influences treatment, of millions of people. They found that because the tool was designed to predict the cost of care as a proxy for health needs, Black patients with the same risk score as White patients tend to be much sicker, because providers spend much less on their care overall. This study contributes greatly to a more socially conscious approach to technology development, demonstrating how a seemingly benign choice of label (that is, health cost) initiates a process with potentially life-threatening results. Whereas in a previous era, the intention to deepen racial inequities was more explicit, today coded inequity is perpetuated precisely because those who design and adopt such tools are not thinking carefully about systemic racism.

Obermeyer *et al.* gained access to the training data, algorithm, and contextual data for one of the largest commercial tools used by health insurers to assess the health profiles for millions of patients. The purpose of the tool is to identify a subset of patients who require additional attention for complex health needs before the situation becomes too dire and costly. Given increased pressure by the Affordable Care Act to minimize spending, most hospital systems now utilize predictive tools to decide how to invest resources. In addition to identifying the precise mechanism that produces biased predictions, Obermeyer *et al.* were able to quantify the racial disparity and create alternative algorithmic predictors.

Practically speaking, their finding means that if two people have the same risk score that indicates they do not need to be enrolled in a "high-risk management program," the health of the Black patient is likely much worse than that of their White counterpart. According to Obermeyer *et al.*, if the predictive tool were recalibrated to actual needs on the basis of the number and severity of active chronic illnesses, then twice as many Black patients would be identified for intervention. Notably, the researchers went well beyond the algorithm developers by constructing a more fine-grained measure of health outcomes, by extracting and cleaning data from electronic health records to determine the severity, not just the number, of conditions. Crucially, they found that so long as the tool remains effective at predicting costs, the outputs will continue to be racially biased by design, even as they may not explicitly attempt to take race into account. For this reason, Obermeyer *et al.* engage the literature on "problem formulation," which illustrates that depending on how one defines the problem to be solved—whether to lower health care costs or to increase access to care—the outcomes will vary considerably.

To grasp the broader implications of the study, consider this hypothetical: The year is 1951 and an African American mother of five, Henrietta Lacks, goes to Johns Hopkins Hospital with pain, bleeding, and a knot in her stomach. After Lacks is tested and treated with radium tubes, she is "digitally triaged" (*2*) using a new state-of-the-art risk assessment tool that suggests to hospital staff the next course of action. Because the tool assesses risk using the predicted cost of care, and because far less has commonly been spent on Black patients despite their actual needs, the automated system underestimates the level of attention Lacks needs. On the basis of the results, she is discharged, her health rapidly deteriorates,

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Published by AAAS

Yes, this will be difficult, but:

- Science and technology have accomplished an enormous amount
- We have a resourceful and well-resourced scientific establishment
- If we want to do this, we can
- Our patients deserve better