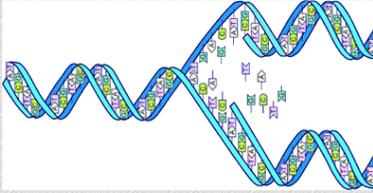


Race in Medicine

By: Steven Stanek and Cameron McKenzie

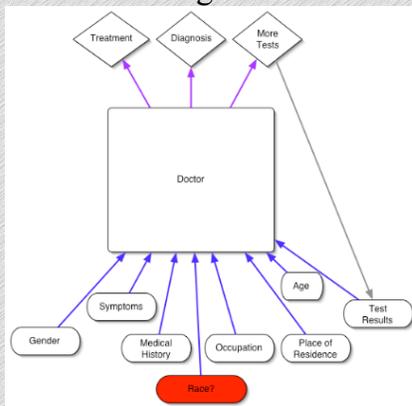


Clarification #1

Physical Properties of "Race" Must have Some Genetic Basis

- Across all fields of science, researchers agree that attributes such as skin color, eye color and bone structure are determined mostly genetically (as opposed to by life experiences).
- Thus, from the medical perspective, we are debating whether it contributes anything medically meaningful.
 - Are some races more susceptible to disease than others?
 - Do some races respond better to different treatments than others?
 - If so, should this be taken into medical decision making processes?

Diagram



The Existence Debate

Dr. Brace & Dr. Gill

- Question: How hard is it to put people in boxes of race?
- Blood Experts: It's very hard. Blood doesn't differ much by region.
- Skeletal Experts: Skeletal differences are due to evolutionary trends. Skeletons evolve to fit the local geography.
- Both Dr. Brace and Dr. Gill are skeletal anthropologists but disagree over the meaning of skeletal features.
- Brace: "Nose form, tooth size, relative arm and leg length, and a whole series of other traits are distributed **each** in accordance with its particular controlling selective force."
- Gill: "[O]ne can classify human skeletons within it just as well as one can living humans. The bony traits of the nose, mouth, femur, and cranium are just as revealing to a good osteologist as skin color, hair form, nose form, and lips to the perceptive observer of living humanity."

Existence Debate Translation

- Dr. Brace is saying that the traits which we associate with race are arbitrary and aren't closely bound to each other.
 - That is, he cannot come up with a definition of race, from the skeletal evidence.
- Dr. Gill is saying that given the traits which people do associate with race, he can determine race.
 - He does not however, attempt to define race from a scientific perspective.

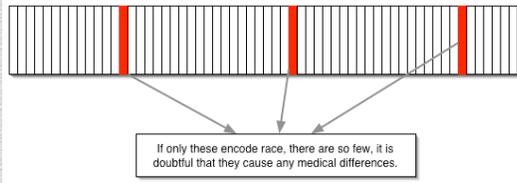
Arguments Against Using Race

Quotes (Risch, Burchard, Ziv & Tang Paper)

- "instruction in medical genetics should emphasize the fallacy of race as a scientific concept and the dangers inherent in practicing race-based medicine." (New England Journal of Medicine)
- "It is implausible that the few genes that account for such outward characteristics could be meaningfully linked to multigenic diseases such as diabetes mellitus or to the intricacies of the therapeutic effect of a drug." (NEJM)
- "commonly used ethnic labels are both insufficient and inaccurate representations of inferred genetic clusters." (Nature Genetics)

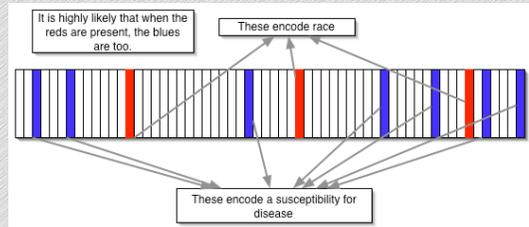
Arguments Against (Translated)

- The Human Genome contains around 3 billion DNA base pairs, a very small number of which determine race.
- Given that so little of the genome actually encodes the features we associate with race, it is doubtful that they could **cause** any medical differences.



Arguments for Using Race

- The problem doesn't lie in the casual relationship as discussed in the previous slides, but rather in **correlation**.
- There can be correlations between genes that cause the physical traits we perceive as race and ones which create medical differences.

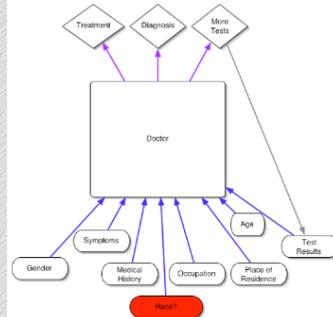


Arguments for Using Race

In addition to correlations with genetics, there may also be other correlations due to environmental factors.

- Where members of different races tend to live
- What they tend to eat
- Immunizations, etc

Do Researchers need to differentiate between genetic and environmental factors?



BiDil

Only approved for treating African Americans.

- “The previously-filed NDA received a non-approvable letter after it failed to satisfy statistical significance requirements in analyses of the effectiveness **in the general heart failure population.**”
- “we believed that BiDil could provide preferential survival advantages to African-American heart failure patients who we believe, on average, suffer from a greater deficiency of nitric oxide than non-African Americans.”
- “A retrospective analysis of the African American patients in the prior BiDil clinical studies suggested that BiDil had the potential to reduce mortality and hospitalization and improve quality of life in African Americans. We therefore obtained the rights to the previously submitted NDA and supplemented it with the results of these ethnicity-based analyses.”

BiDil

- What happened:
 - They tried it on everyone but it didn't work.
 - They looked back on the study on which it didn't work and realized it seemed to help African-Americans.
 - They came up for a plausible explanation of why it helped African-Americans but not non-African-Americans.
 - They applied for and received the right to an African-American only trial, which worked incredibly well.
- Note: They make no claim regarding whether they believe the cause of the nitric-oxide deficiency in African-Americans is environmental or genetic.