



# Research in Underserved Populations

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# Research in Underserved Populations

- Missing data in IBD
- What is the bigger problem?
- Why is it a big problem?
- Examples of bias in research
- Reasons to be hopeful
- Simple steps

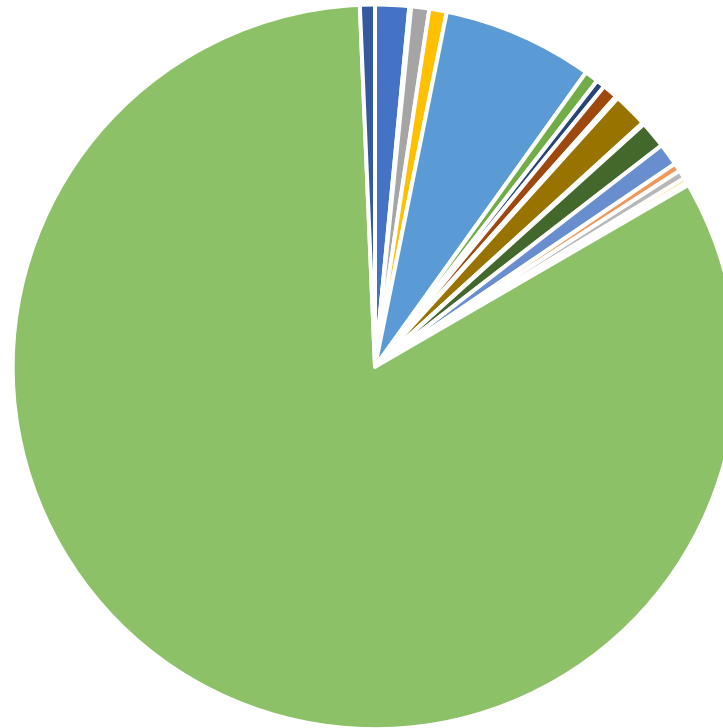
# Underserved Sub-Populations in IBD

- Small intestinal Crohn's
- Proctitis
- Perianal Crohn's
- Fistulizing Crohn's
- Pouchitis
- Enteropathic arthritis
- PSC
- Pain or Fatigue in IBD
- All of paediatric IBD
- Geriatric IBD
- Diet?
- Mental Health?
- .....the list goes on....

# AK

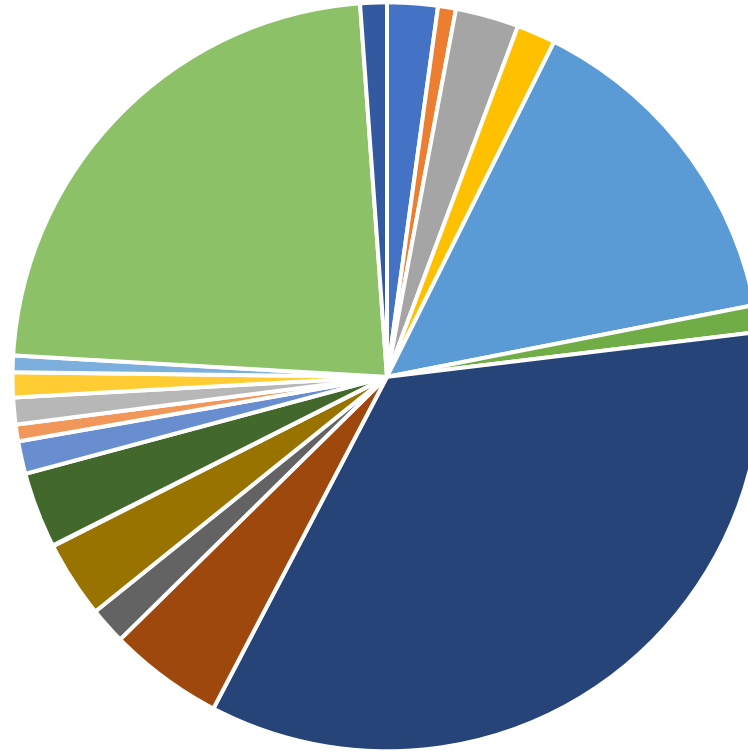
- 58-year-old female Ileal Crohn's disease diagnosed Sep 2022
  - SES-CD 7 Ileum only
  - IHD – stable
  - Initial treatment with Budesonide good response
  - Seen in clinic with pain, diarrhoea, anaemia
  - Previously given PIS Phase III Study of S1P modulator in Crohn's
  - Sat with family, understood risk of PBO, cardiac monitoring, time commitment etc...
  - Happy to go ahead with a screening visit.....
- 
- Although her children have all gone to University, AK never even went to school

### Exeter by Ethnicity 2021 Census



- |                         |                                 |                                   |
|-------------------------|---------------------------------|-----------------------------------|
| ■ AO Asian              | ■ AO Black                      | ■ AO Ethnic Background            |
| ■ AO Mixed              | ■ AO White                      | ■ Arab                            |
| ■ Bangladeshi           | ■ Black African                 | ■ Black Caribbean                 |
| ■ Chinese               | ■ Gypsy Or Irish Traveller      | ■ Indian                          |
| ■ Mixed White And Asian | ■ Mixed White And Black African | ■ Mixed White And Black Caribbean |
| ■ Pakistani             | ■ Roma                          | ■ White British                   |
| ■ White Irish           |                                 |                                   |

## Tower Hamlets by Ethnicity 2021 Census

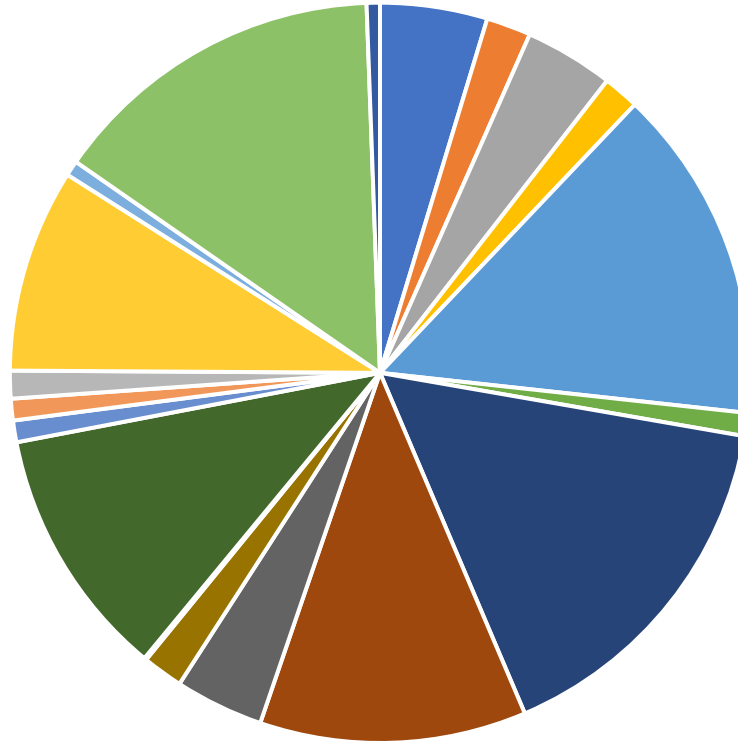


- AO Asian
- AO Mixed
- Bangladeshi
- Chinese
- Mixed White And Asian
- Pakistani
- White Irish

- AO Black
- AO White
- Black African
- Gypsy Or Irish Traveller
- Mixed White And Black African
- Roma

- AO Ethnic Background
- Arab
- Black Caribbean
- Indian
- Mixed White And Black Caribbean
- White British

# Newham by Ethnicity 2021 Census



- AO Asian
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- Pakistani
- Roma
- White British
- White Irish

# What is the Problem?

- Underserved populations – Term derived by the NIHR INCLUDE project with stakeholders including patients, public and research organisations.
- Definitions will vary but:
  1. Lower inclusion in research than one would expect from population estimates
  2. High healthcare burden that is not matched by the volume of research designed for the group
  3. Important differences in how a group responds to or engages with healthcare interventions compared to other groups, with research neglecting to address these factors



# Why is it a problem?

- Failing to include a broad range of participants means that results may not be generalisable
- Different groups may respond differently to an intervention due to differences in physiology or disease state.
- If clinicians lack evidence of an intervention for a particular group has potential to reduce use in that group
- Successful delivery of intervention to target populations is complex, with logistical, sociocultural, psychological and biological differences all having an impact



It is not just about language barriers.....



It is not just about language barriers.....

# Bias in Clinical Research



# eGFR

MDRD

$$\text{GFR} = 175 \times (\text{Scr})^{-1.154} \times (\text{Age})^{-0.203} \times (0.742 \text{ if female}) \times (1.212 \text{ if African American})$$

CKD-EPI

$$\text{GFR} = 141 \times \min(\text{Scr}/\kappa, 1)^\alpha \times \max(\text{Scr}/\kappa, 1)^{-1.209} \times 0.993^{\text{Age}} \times (1.018 \text{ if female}) \times (1.159 \text{ if African American})$$

\*S<sub>cr</sub> is serum creatinine in mg/dL  
 κ is 0.7 for females and 0.9 for males  
 α is -0.329 for females and -0.411 for males  
 min indicates the minimum of S<sub>cr</sub>/κ or 1  
 max indicates the maximum of S<sub>cr</sub>/κ or 1

# Medical Stereotypes

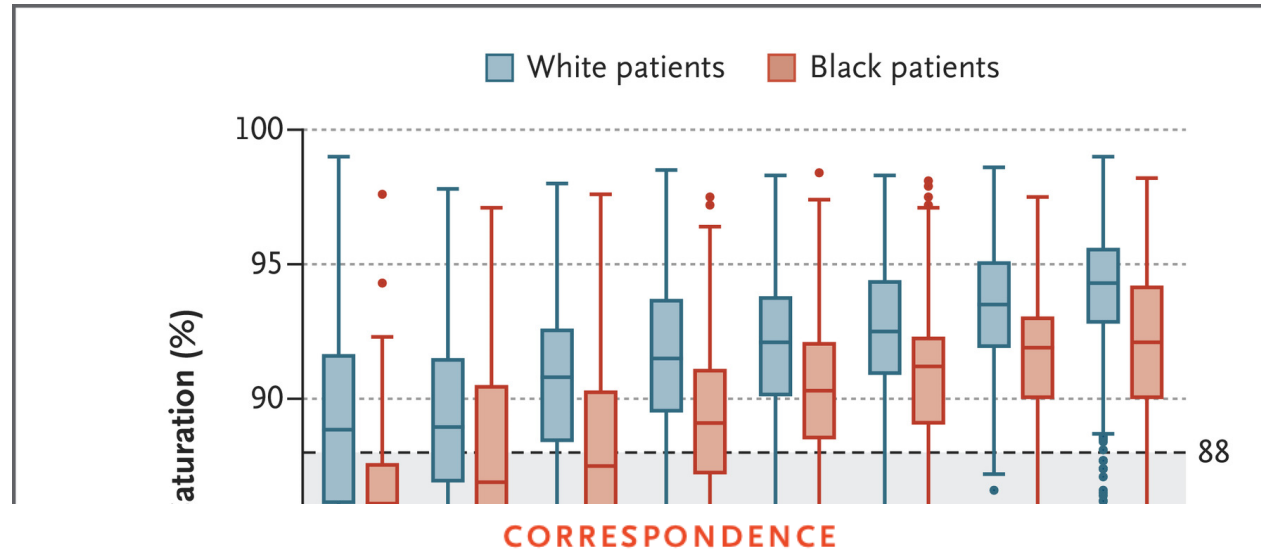
- ESRF was 2.9 times more common in African Americans yet.....
- Transplant rates amongst African Americans were the lowest amongst all ethnicities
- Key finding was that 'race' was a largely a social not a biological construct – especially true in an increasingly mixed race world
- Adjustment increases waiting time to transplant
- Can delay use of medications
- Adjustment scrapped in the UK Aug 2021 – latest NICE guidance

2016 University of Virginia Medical School – at least **50%** of students Years 1-5 believed 1 or more ‘racial myth’

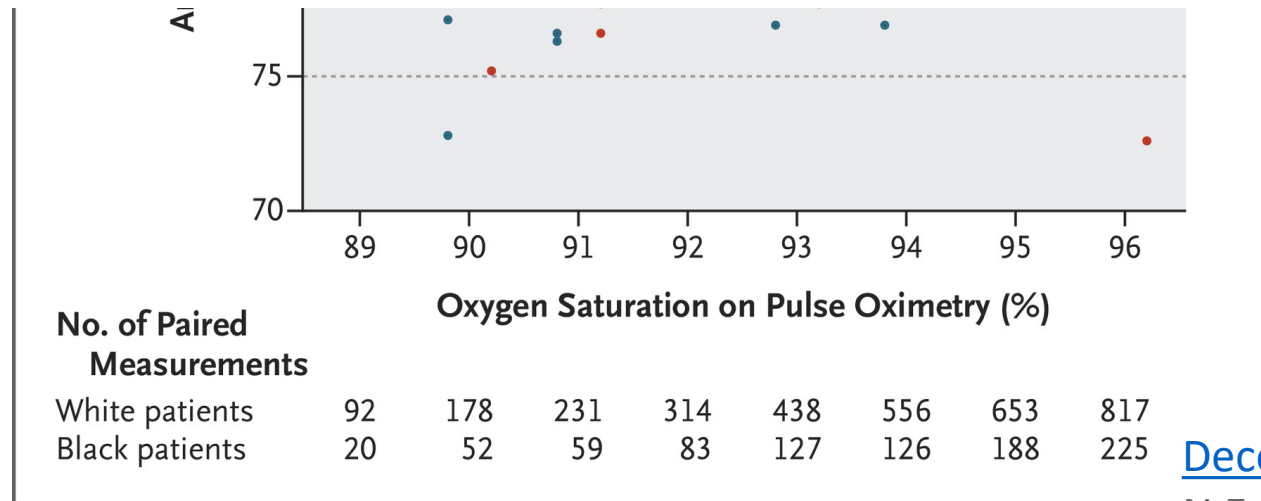
Table 1.

Percentage of white participants endorsing beliefs about biological differences between blacks and whites

Item	Study 1: Online sample (n = 92)	Study 2			
		First years (n = 63)	Second years (n = 72)	Third years (n = 59)	Residents (n = 28)
<b>Blacks age more slowly than whites</b>	23	21	28	12	14
<b>Blacks’ nerve endings are less sensitive than whites’</b>	20	8	14	0	4
<b>Black people’s blood coagulates more quickly than whites’</b>	39	29	17	3	4
<b>Whites have larger brains than blacks</b>	12	2	1	0	0
Whites are less susceptible to heart disease than blacks*	43	63	83	66	50
Blacks are less likely to contract spinal cord diseases*	42	46	67	56	57
<b>Whites have a better sense of hearing compared with blacks</b>	10	3	7	0	0
<b>Blacks’ skin is thicker than whites’</b>	58	40	42	22	25
Blacks have denser, stronger bones than whites*	39	25	78	41	29
<b>Blacks have a more sensitive sense of smell than whites</b>	20	10	18	3	7
<b>Whites have a more efficient respiratory system than blacks</b>	16	8	3	2	4



## Racial Bias in Pulse Oximetry Measurement



[December 17, 2020](#)

N Engl J Med 2020; 383:2477-2478



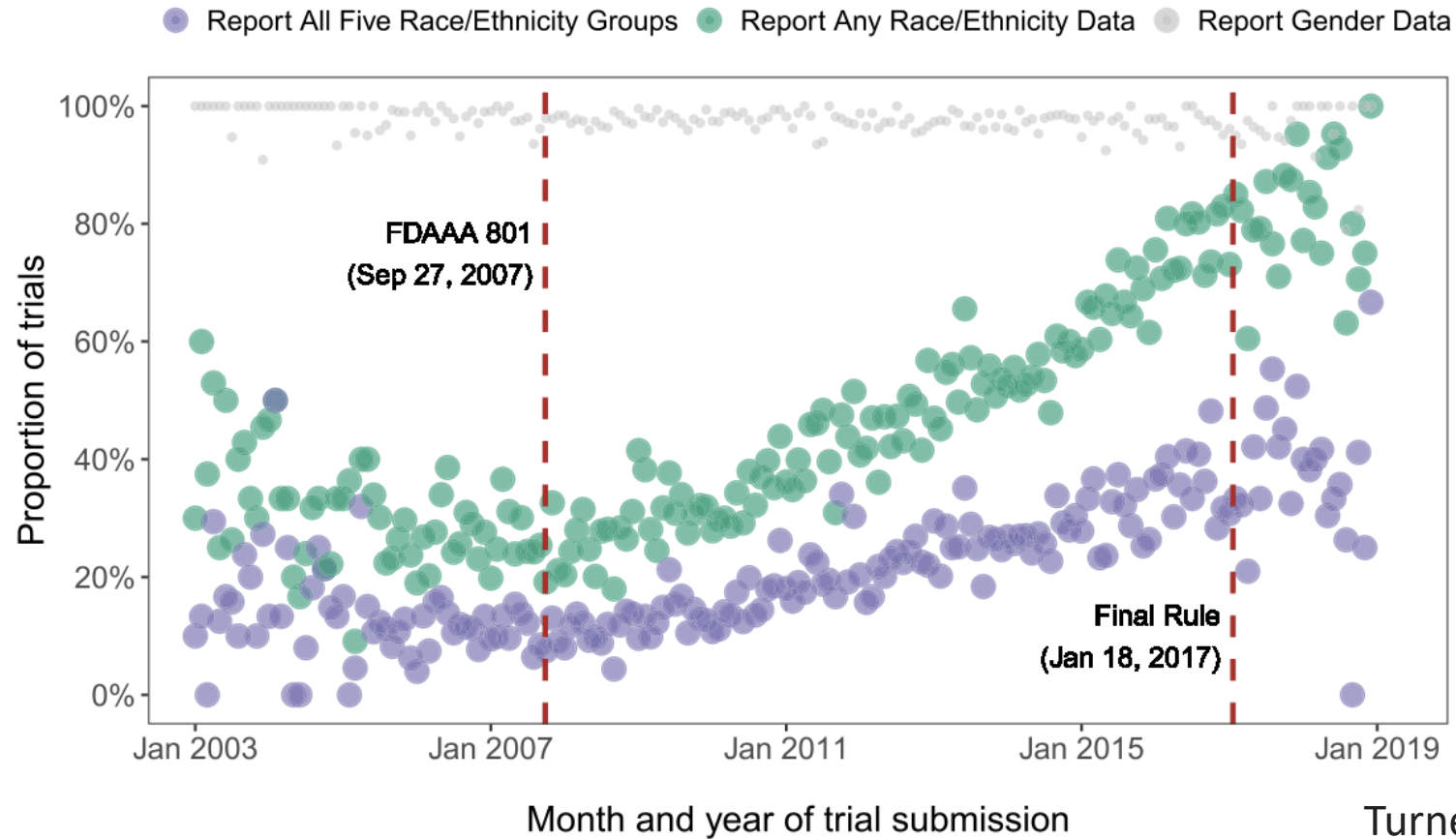
# Tuskergee Experiment 1932 - 1973



- Set up in 1932 Macon County Alabama
- 411 patients with latent TB, 201 controls
- Patients were told they had 'bad blood' and Rx PBO
- Continued past 1947 with the introduction of penicillin
- Enquiry held in the 1960's decided to continue with the project
- Patients were monitored into the 1970's with a goal to perform an autopsy at death
- 128 died, 40 spouses+ 19 children infected
- Many others became blind or insane
- Public apology Bill Clinton but has fostered reduced trust in Public Medicine in the African American pop.

# Reasons to Hope

A



Turner BE et al Race/ethnicity reporting and representation in US clinical trials: a cohort study. Lancet Reg Health Am. 2022 Jul;11:100252.

# Reasons to Hope



# Reasons to be Hopeful

- TW 61 male works as a Studio Manager for Radio 4
- UC for 10 years on mesalazine
- Worse in the last 6 months no response to topical Rx
- Adapted Mayo Score: SF 2 RB 1 ES 2
- We have a Phase IV study in UC of Vedolizumab in UC – no PBO arm
- But.....only other PMHx is that he HIV +ve on retrovirals for years
- Check exclusion criteria - "excluded for Italy"
- Checked with the CRA – he says..."sorry he can't join the study"
- Challenge this and as for MM review – "not excluded"
- Screening colonoscopy next Friday

# Small Steps - Researchers

1. What are the characteristics/demographics of the population which your research looks to serve?
2. How will your inclusion/exclusion criteria enable your trial population to match the population that you aim to serve?
3. Justify any difference between your projected trial population and the population you aim to serve
4. How will your recruitment and retention methods engage with under-served groups?
5. What evidence have you that your intervention is feasible and accessible to a broad range of patients in the populations that your research seeks to serve?
6. Are your outcomes validated and relevant to a broad range of patients in the populations that your research seeks to serve?

# Small Steps – Delivery Teams

1. Who are the under-served groups within our delivery area? (e.g. geographical or disease area that the delivery team operates in)
2. What are the barriers to including these groups in research in our area?
3. What actions can we take to overcome those local barriers?
4. What tools, training and resources do we need to implement these actions successfully?