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DISCREPANCIES IN ETHNIC DIVERSITY OF PATIENTS ENROLLED INTO UK MULTIPLE MYELOMA CLINICAL TRIALS

INCIDENCE STATISTICS

- CRUK –higher rates in Black males and females compared to White and Asian MM pts in UK (2002-2006)¹
 - White male 6.1-6.5/100,000: Black male 10.9-18.2/100,000
 - White female 3.9-4.2 per 100,000: Black female 6.6-11.5/100,000
- 2-5x more common in Black African and Black Caribbean compared to White patients (Shirley *et al.*)²
- Most common haematological cancer in black patients in the US³
- Younger onset in black patients (mean age 65.8 vs 69.8)
- Higher incidence of MGUS in black patients⁴

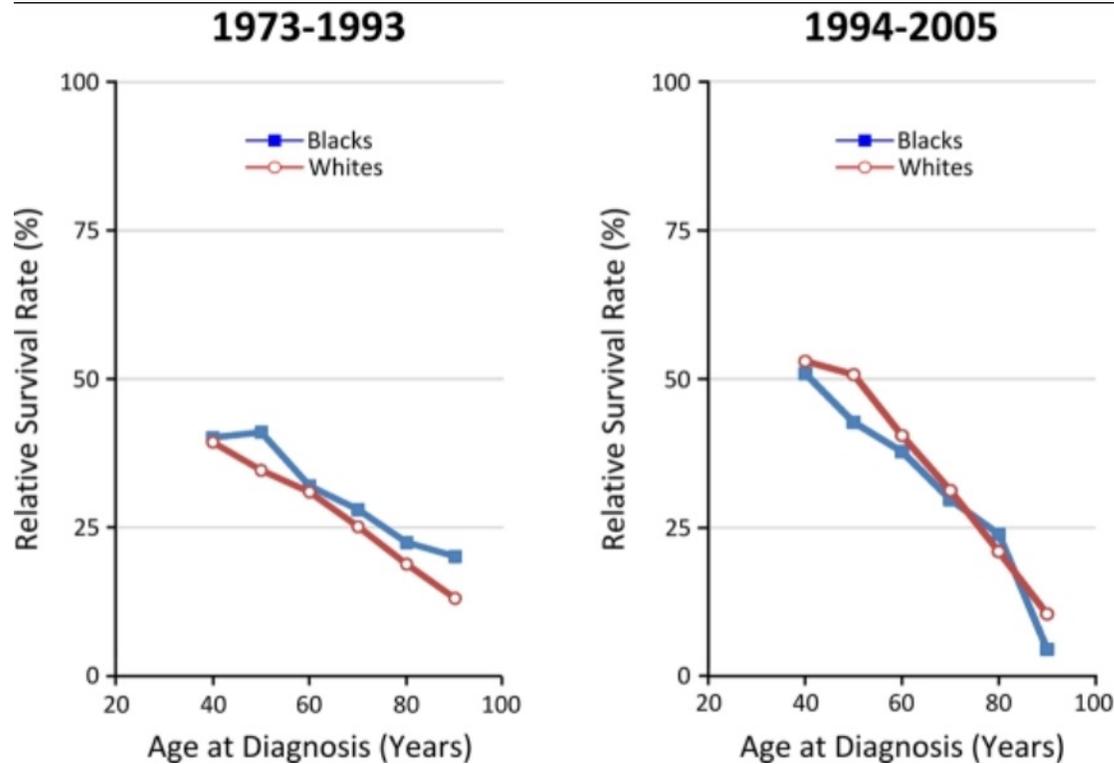
1. National Cancer Intelligence Network and Cancer Research UK. [Cancer Incidence and Survival by Major Ethnic Group, England, 2002-2006](#). 2009

2. Shirley, M.H *et al.* 2013. Incidence of haematological malignancies by ethnic group in England, 2001-7. *British Journal of Haematology* 163, 465-477.. doi:10.1111/bjh.12562

3. Waxman AJ, Mink PJ, Devesa SS, *et al.* [Racial disparities in incidence and outcome in multiple myeloma: a population-based study\(link is external\)](#). *Blood* 2010;116(25):5501-6.

4. Greenberg AJ, Vachon CM, Rajkumar SV. [Disparities in the prevalence, pathogenesis and progression of monoclonal gammopathy of undetermined significance and multiple myeloma between blacks and whites\(link is external\)](#). *Leukemia* 2011.

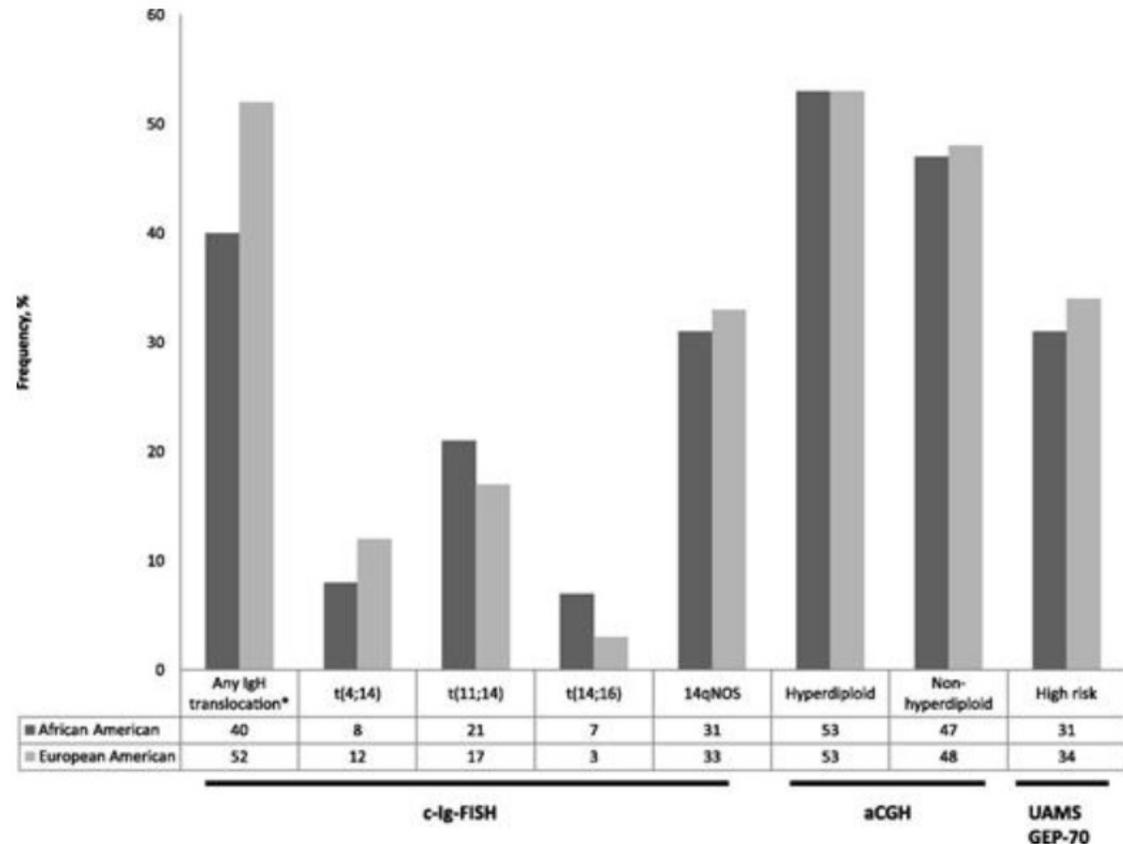
OVERALL SURVIVAL RATES



- White 5yr OS 1973-1993 to 1994-1998 (26.3% to 30.8%; $P < .001$) and 1994-1998 to 1999-2005 (30.8% to 35.0%; $P = .004$)
- Black 5yr OS (1973-1993 to 1999-2005: 31.0% to 34.1%; $P = .07$)
- unequal access to ASCT and novel therapies OR more indolent disease with poorer response to therapy

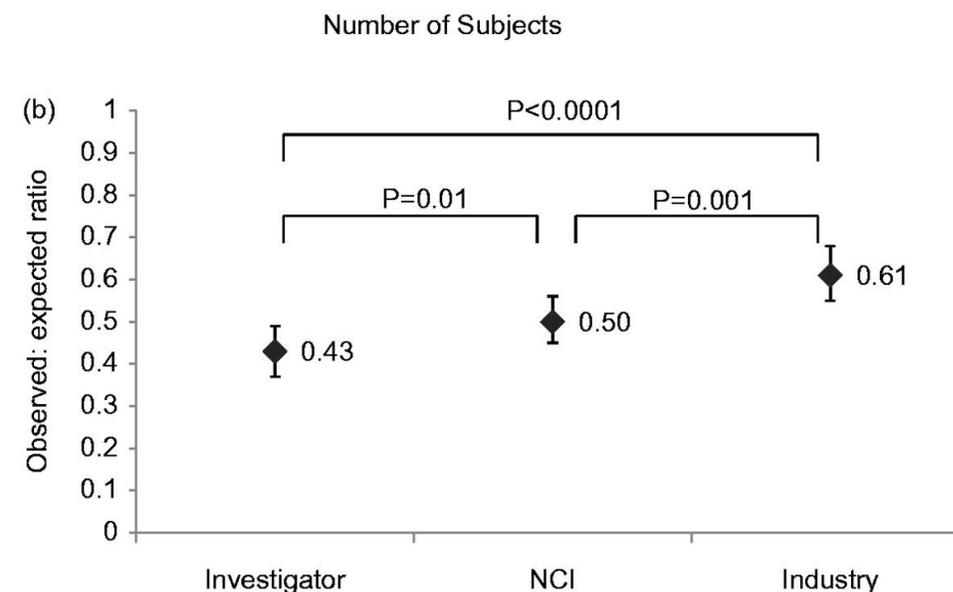
GENOMIC DIFFERENCES

- The frequency of IgH translocations was 40% in AA compared with 52% in EA ($P = .032$)
- $t(4;14)$, $t(11;14)$, and $t(14;16)$ —was not significantly different
- This study did not demonstrate a lower frequency of unfavourable genomic features in AA.



CLINICAL TRIALS

- 128 manuscripts (8,869 subjects); 2007-2014 US MM trials (minorities = Hispanic, non-White and White)
- Proportion of minority individuals was half the expected and was particularly low in investigator-sponsored trials vs pharmacy-sponsored (participation not reported in majority)
- 15.9% investigator sponsored; 18.7% NCI-sponsored; 22.0% industry-sponsored
- Disparities in access to care, regional differences in clinical trial availability, mistrust, higher burden of comorbidities among minorities preventing clinical trial eligibility



RATIONALE OF STUDY

- Increased incidence of Black MM patients
- Lower proportion of Black pts reported to be enrolled into clinical trials
- In some countries survival may be inferior and appears to be linked to access to treatments with other socio-economic factors.
- However, it is unknown if these discrepancies exist in a state-funded health care system with intended equitable access to treatments.

OBJECTIVES

- Primary:
 - Assess the proportions of ethnic groups enrolled into MM clinical trials in a UK National Health System (NHS) haematology specialist centre.
- Secondary
 - Determine the difference in pts enrolled into early vs late phase trials by ethnicity
 - To assess the ethnic diversity of MM pts attending MM outpatient clinics and compare if similar diversity was observed in clinical trial enrolment.
 - To assess the overall survival (OS) of pts enrolled into clinical trials by ethnic group.

METHODS

- Patient data was collected from a London-based, tertiary-referral, specialist MM centre (UCLH) receiving referrals from across England and Wales.
- Cross-sectional population-based analysis was assessed in pts enrolled into MM clinical trials from 2014 to 2021 at UCLH.
- Early phase trials were defined as phase I and phase I/II. Late phase trials were defined as phase II and phase III.
- Clinical trial data was compared to the National Cancer Registration and Analysis Service (NCRAS) 2015 figures for myeloma patients in England and London over 10 years.

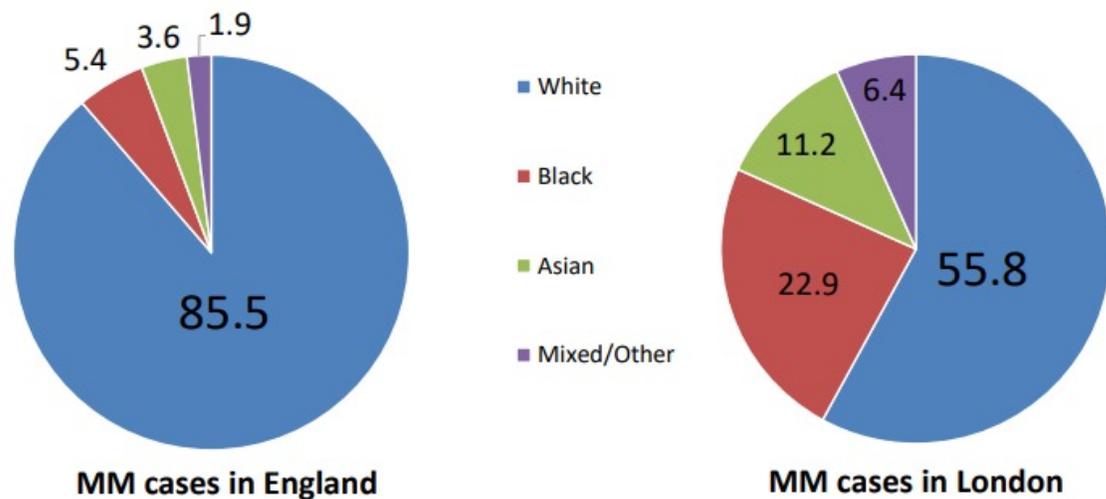
METHODS

- Data from MM outpatient clinics were collected across an 8 weeks period between May to August 2019.
- Age, sex and ethnicity were determined by electronic health records.
- Ethnicity was divided by White, Black, Asian and Mixed/Other in line with Office for National Statistics (ONS) categories.
- Statistical analysis was performed by one-way ANOVA, Fisher's exact test and Chi-squared methods (GraphPad Prism version 9)

RESULTS – MYELOMA BY ETHNICITY IN UK/LONDON

- Population of England and Wales by ethnicity (ONS Census 2011): White 86.0%, Black 3.3%, Asian 7.5%, Mixed/Other 3.2%. **Black:White ratio 0.04**
- Population of London by ethnicity (ONS Census 2011): White 59.8%, Black 13.3%, Asian 18.5%, Mixed/Other 8.4%. **Black:White ratio 0.22**

Figure 1A: Proportions (%) of MM cases by ethnicity in England and London (NCRAS data)



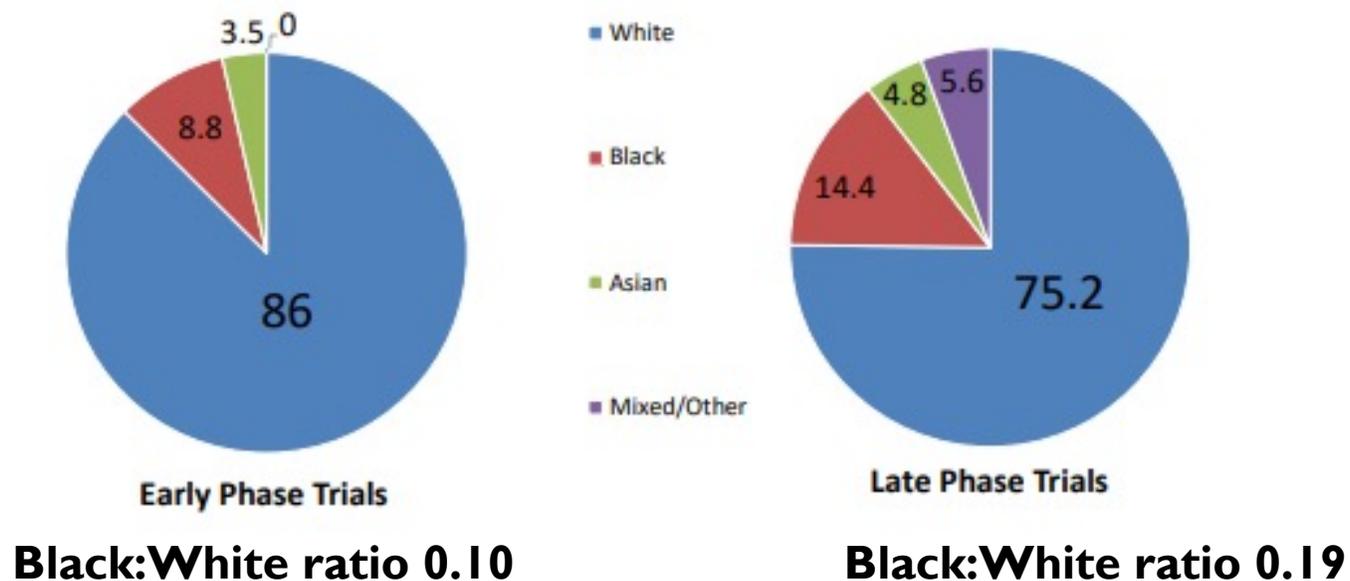
MM cases in England
Black:White ratio 0.06

MM cases in London
Black:White ratio 0.41

RESULTS – ETHNIC DIVERSITY IN MM TRIALS

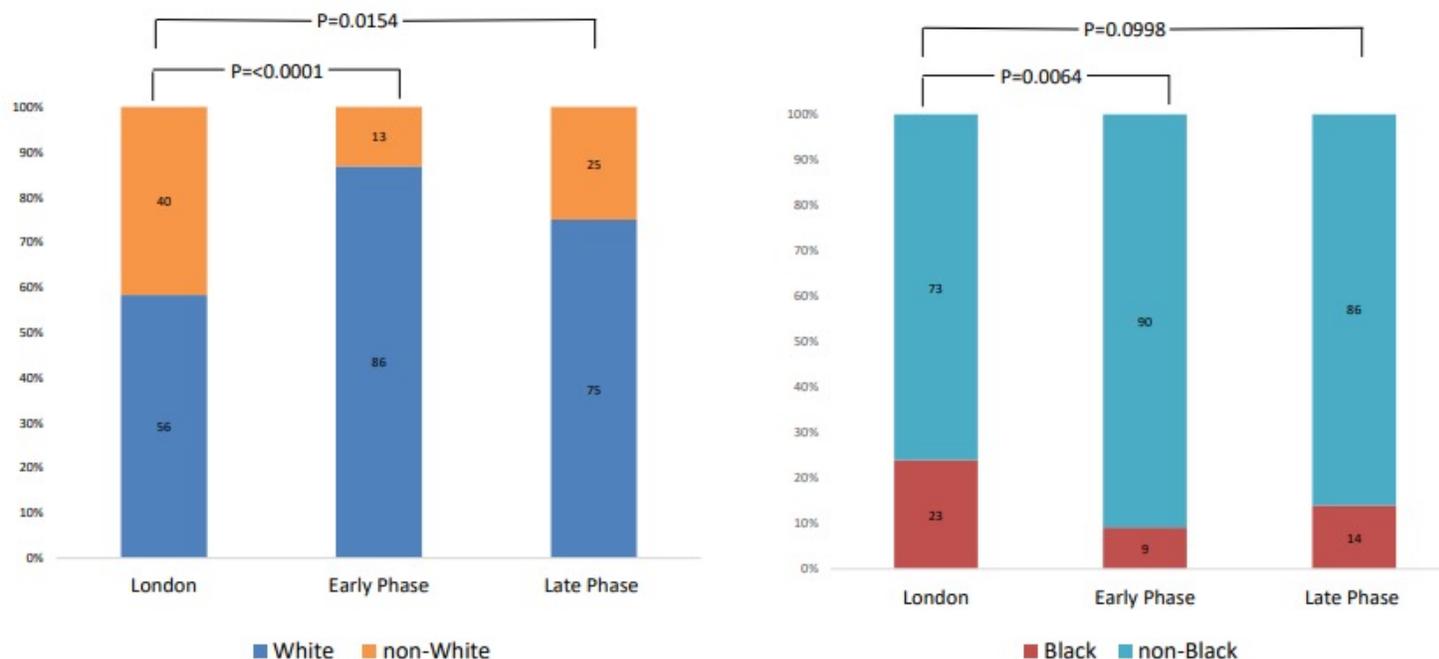
- 182 pts (Phase I/II: 57; Phase II/III: 125) from 25 clinical trials
- Academic 39% vs 61% Commercially sponsored
- Ethnicity across all MM trials: White 143 (79%), Black 23 (13%), Asian 8 (4%), Mixed/other 7 (4%) with a **Black:White ratio of 0.16** (incidence of Black MM in London 22%, Asian 11.2%, Black:White ratio 0.41)

Figure 1B: Proportions (%) of MM cases enrolled into early and late phase trials



RESULTS – LONDON VS MM TRIALS

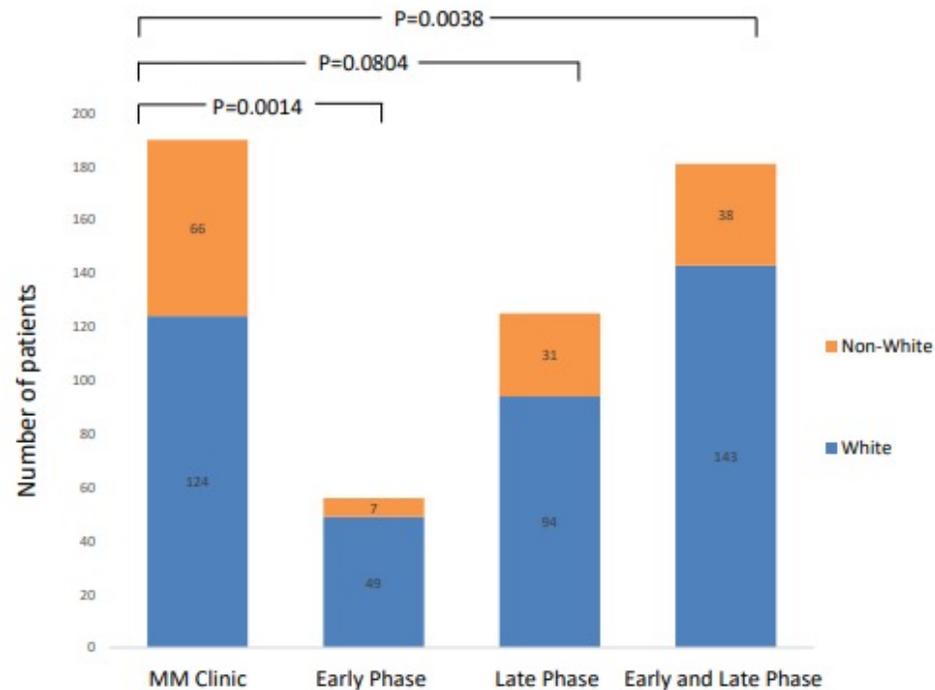
Figure 2: Lower proportions of non-White pts enrolled into clinical trials compared to MM cases in London



- The proportion of ethnic minorities enrolled into MM clinical trials particularly Phase I/II was lower than expected compared to the incidence of MM in London.
- Lower proportion of Black pts enrolled into early phase trials compared to the proportion of Black MM pts in London

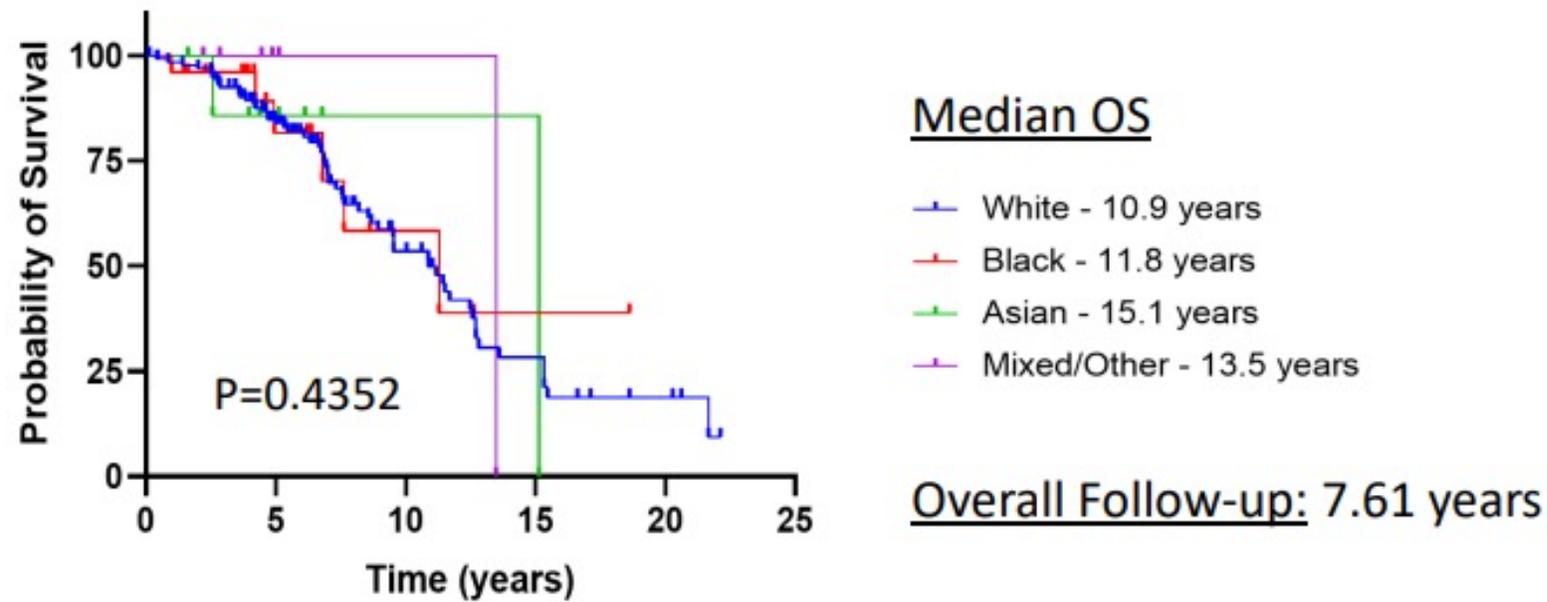
RESULTS – ROUTINE CLINIC VS TRIAL ENTRY

- Within MM clinics (n=197 over 8-week period): White 135 (79%), Black 23 (13%), Asian 17 (9%), Mixed 12 (6%) with a Black:White ratio 0.19 (0.41 in London, 0.16 in clinical trials)



- Lower proportions of non-white patients enrolled into early phase trials compared to MM outpatient clinics
- There was no significant difference in White: Non-White pts between clinic and Phase II/III trial enrolment.

RESULTS – OVERALL SURVIVAL BY ETHNIC GROUP



- No significant difference in overall survival by ethnic group across clinical trials

DISCUSSION

- The proportion of ethnic minorities enrolled into MM clinical trials particularly Phase I/II was lower than expected compared to the incidence of MM in London (NCRAS 2015)
- Lower proportion of Black pts enrolled into early phase trials compared to the proportion of Black MM pts in London
- No difference between ethnicities for academic vs commercial trials or NDMM vs RRMM
- There was lower proportion of Non-White patients to White patients enrolled into clinical trials compared to the outpatient clinic group which was more marked in early phase trials.
- No significant difference in overall survival by ethnic group.

DISCUSSION

- Whilst the UK has a state funded health care system, inequalities in access to clinical trial exists, particularly Phase I/II trials.
- Contributing factors?
 - Eligibility criteria
 - Cultural/Religious
 - Understanding
- Further research is required to better understand this; prospective qualitative data, trial redesign for multi-ethnic recruitment targets, adoption of diversity officers in trials

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