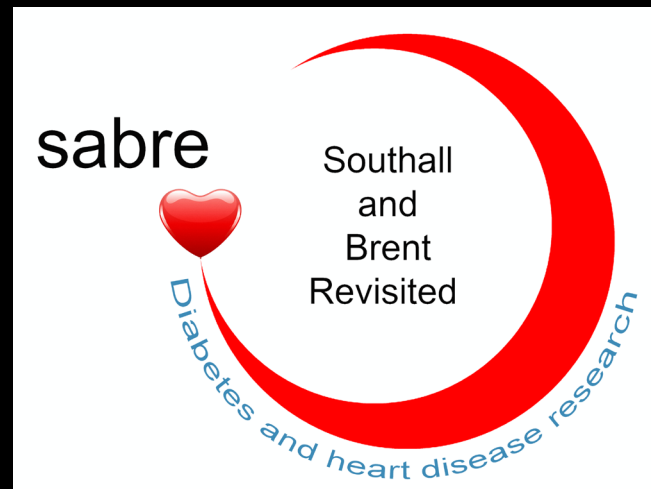


# Ethnic differences in risks and explanations for the cardiometabolic syndrome in the UK

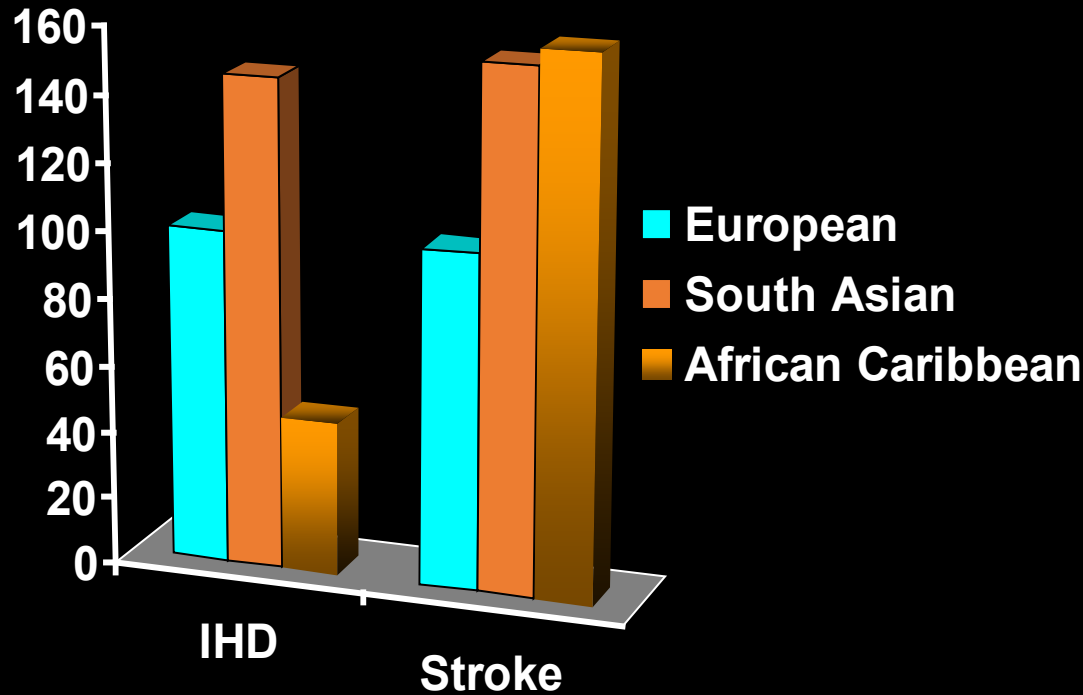


- Nish Chaturvedi
- Professor of Clinical Epidemiology
- Imperial College NHS HealthCare Trust

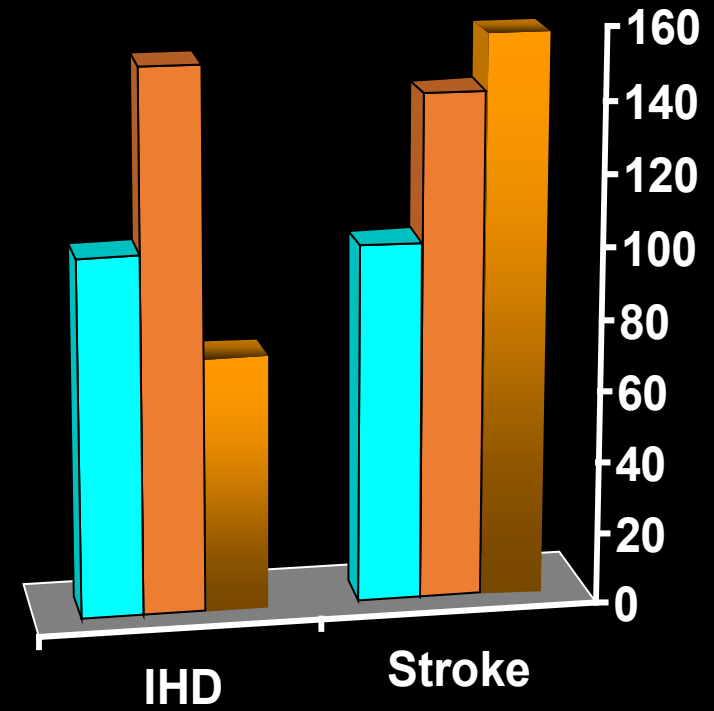
- **Highlights of what we found from the Southall and Brent studies performed 20 years ago**
- **Rationale for follow up of this cohort (SABRE)**
- **How we hope you can help us**

# Ethnic differences in SMRs for heart disease and stroke in the UK – age 20-69 for 1989-92 – general population

Men



Women

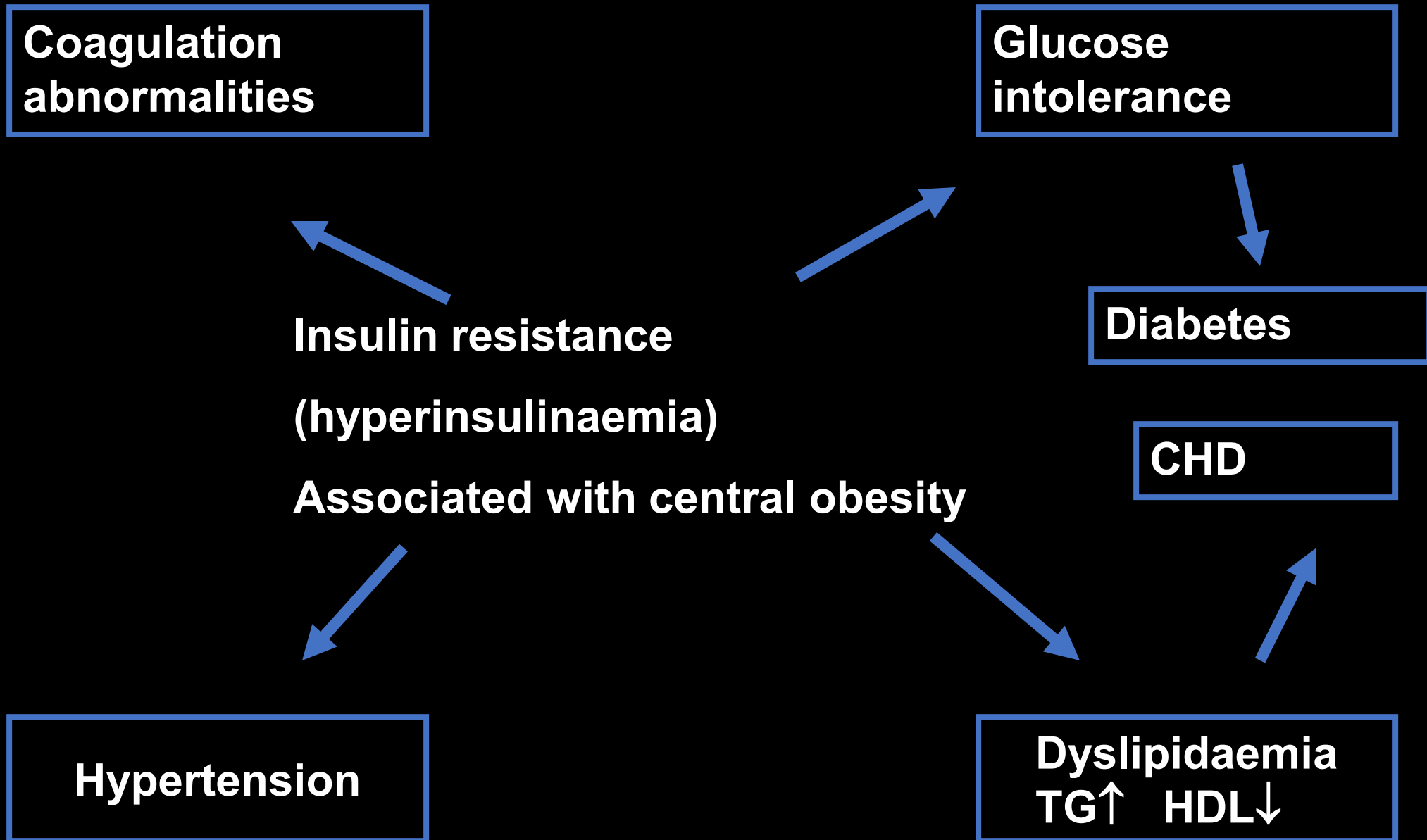


# CHD risk factors in South Asian men by subgroup, compared with native British men

	Native British	Sikh	Punjabi Hindu	Gujarati Hindu	Muslim	p <sup>†</sup>
Current smokers (%)	30	4	21	33	30	<0.001
Cholesterol	6.12	6.06	5.94	5.45	5.95	<0.001
Median BP (mmHg)	121	128	126	122	120	<0.001
Diabetes prevalence (%)	5	20	19	22	19	NS
2 h insulin (mU/l)‡	19	39	42	49	43	NS
WHR	0.93	0.97	0.98	0.97	0.97	NS
Fasting TG	1.48	1.73	1.74	1.49	1.85	0.02

†For differences among South Asian subgroups

McKeigue, PM; Lancet:1991



# CHD mortality in South Asian versus European men – Brent & Southall study (1988-2003)\*

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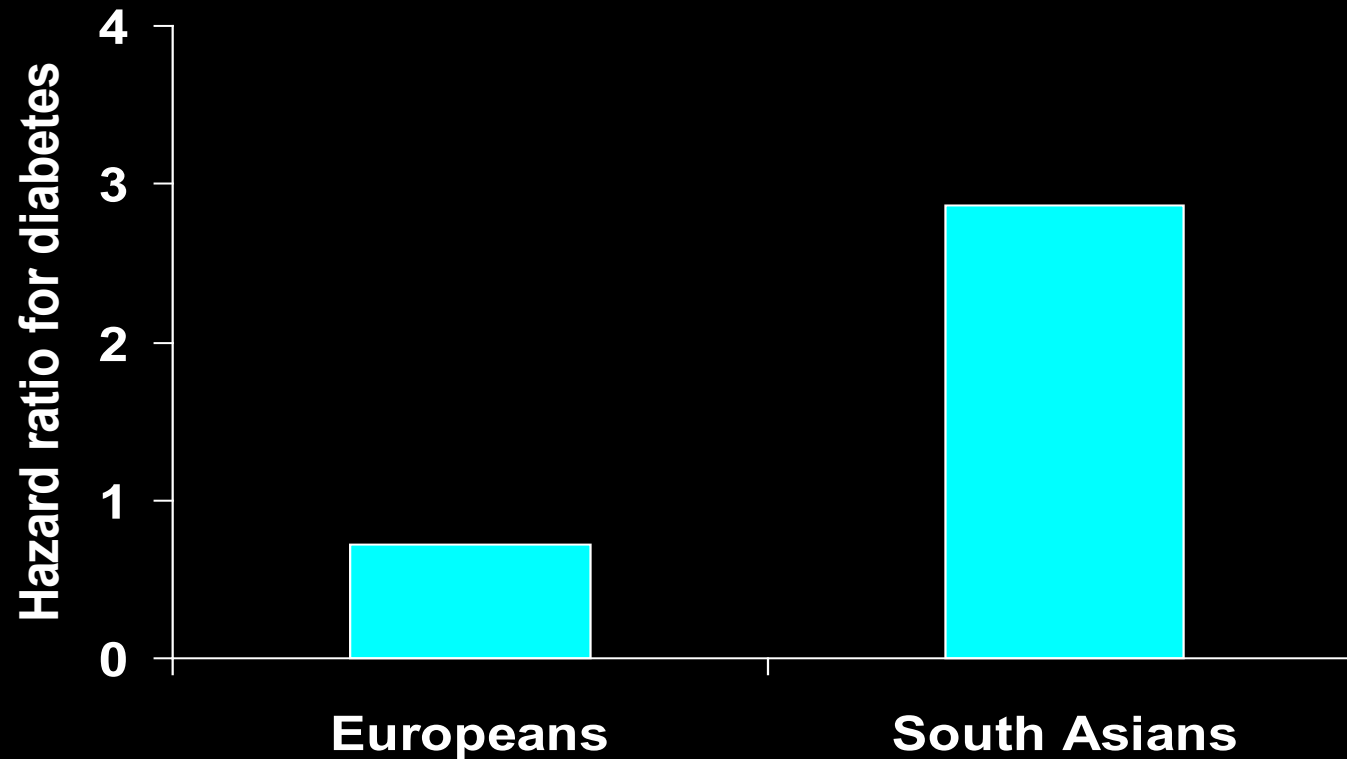
<b>ADJUSTED FOR</b>	<b>HR</b>	<b>95%</b>	<b>CI</b>	<b>P</b>
<b>Age</b>	<b>1.62</b>	<b>1.24,</b>	<b>2.11</b>	<b>&lt;0.001</b>
<b>Age &amp; diabetes</b>	<b>1.33</b>	<b>1.01</b>	<b>1.76</b>	<b>0.04</b>
<b>Age, smoking, cholesterol, metabolic syndrome</b>	<b>2.11</b>	<b>1.56</b>	<b>2.84</b>	<b>&lt;0.001</b>

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\*113+ in South Asian  
118+ in Europeans

*Adapted from Forouhi N, Diabetologia 2006*

# Risk of CHD Mortality associated with diabetes in Europeans and South Asians



Multivariate models adjusted for age, triglycerides, waist circumference, insulin, cholesterol, blood pressure and smoking

*Adapted from: Forouhi et al 2006*

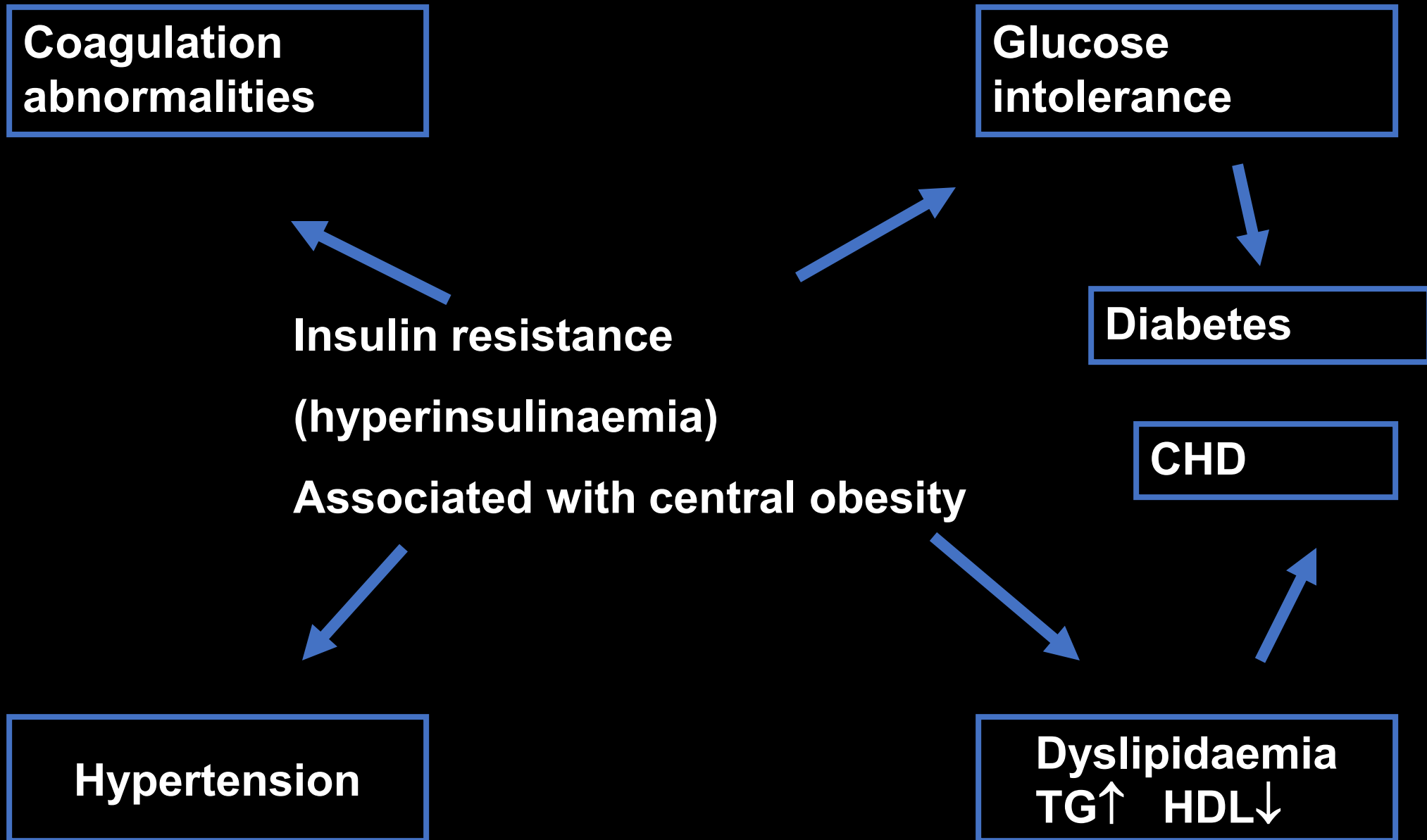
# Cardiovascular risk factors in Afro-Caribbean and European men in the UK

•Factor	European	African-Caribbean
•BMI (kg/m <sup>2</sup> )	26.4	26
•Diabetes (%)	6.5	12.9*
•Smokers (%)	37	30
•Alcohol (u/wk)	30	19
•Exercise (mj/wk)	5.3	4.9
•Insulin (MU/L)	6.6	8.3*
•Cholesterol (mmol/L)	5.9	5.4*
•Manual SES (%)	62	81*



# Age adjusted means of lipids and lipoproteins by ethnic group in men

	European	African-Caribbean	p
•Cholesterol (mmol/l)	5.85	5.35	0.0001
•Fasting triglyceride (mmol/l)	1.59	1.17	0.0001
•HDL cholesterol (mmol/l)	1.33	1.49	0.001



# CHD mortality in African Caribbean versus European men – Brent & Southall study (1988-2003)\*

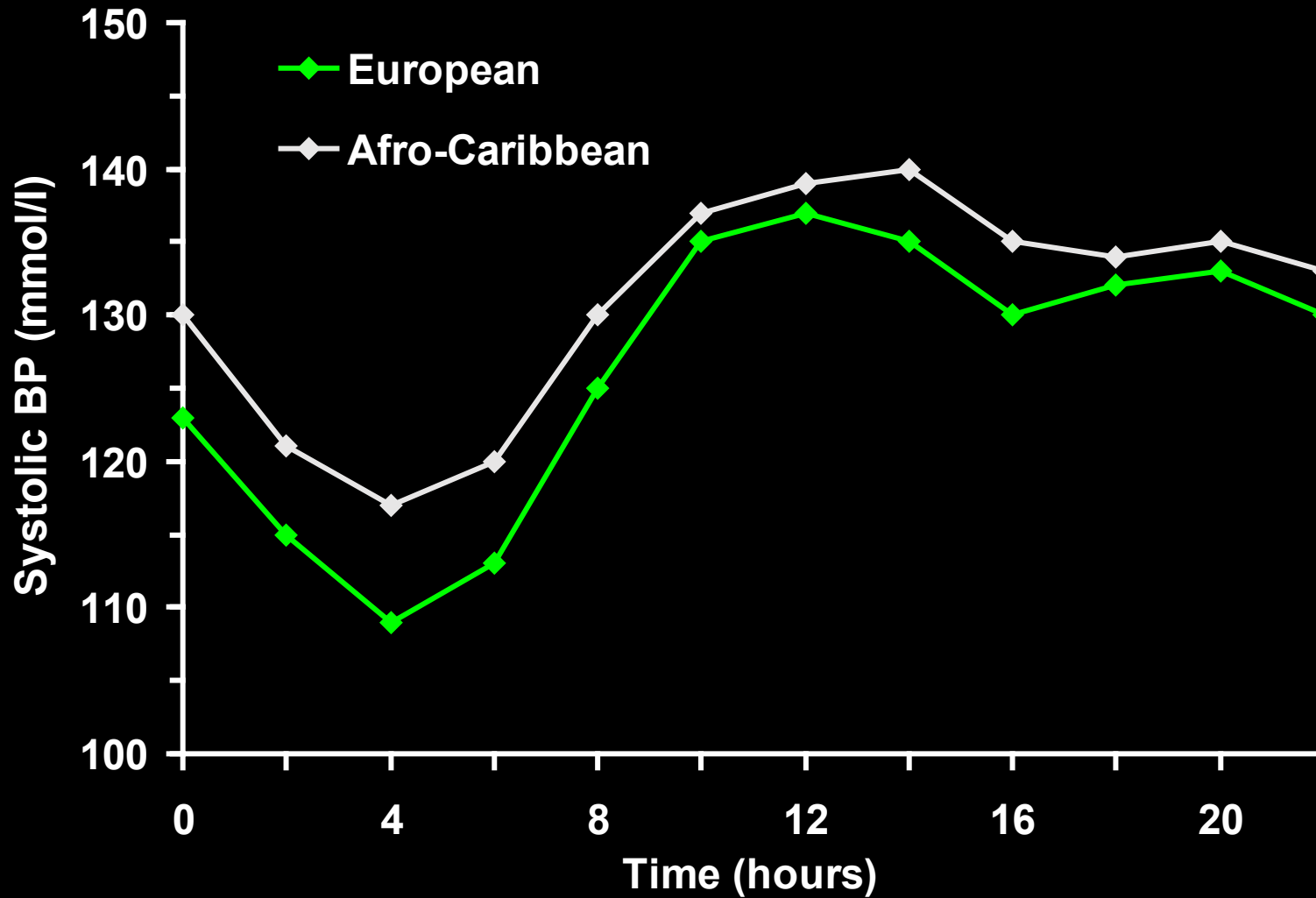
<b>ADJUSTED FOR</b>	<b>HR</b>	<b>95% CI</b>	<b>P</b>
<b>Age</b>	<b>0.33</b>	<b>0.15 0.71</b>	<b>0.005</b>
<b>Age &amp; smoking</b>	<b>0.36</b>	<b>0.17 0.78</b>	<b>0.01</b>
<b>Age &amp; MS (IDF)</b>	<b>0.29</b>	<b>0.11 0.42</b>	<b>&lt;0.001</b>
<b>Age, HOMA IR, TG, waist</b>	<b>0.35</b>	<b>0.15 0.80</b>	<b>0.013</b>
<b>Age, smoking, cholesterol, BP</b>	<b>0.33</b>	<b>0.15 0.71</b>	<b>0.005</b>

\*7+ in African Caribbeans  
118+ in Europeans

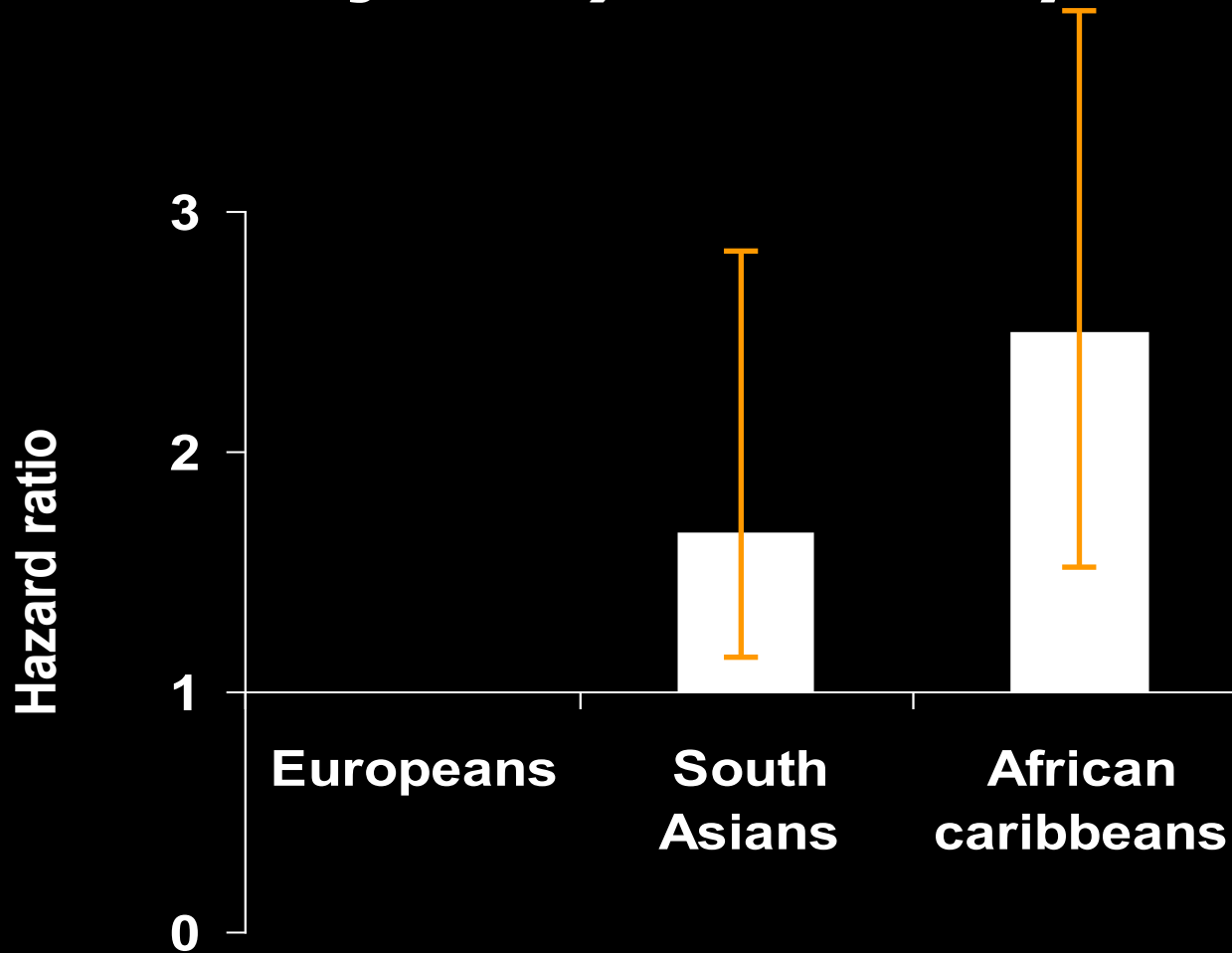
# Hypertension prevalence and mean blood pressure in African Caribbeans and Europeans (40-64)

	European	African Caribbean
<u>Men</u>		
Hypertension (%)	14	32
Systolic BP (mmHg)	122	128
<u>Women</u>		
Hypertension (%)	13	37
Systolic BP (mmHg)	118	135

# Mean 2 hour systolic ambulatory BP



# Stroke Mortality and ethnicity (age and sex adjusted) after 17.8 years f-up



*Brent and Southall Studies 1989-91*

# **Outstanding questions on ethnic differences in metabolic syndrome and CVD (3)**

- **Is diabetes really more ‘toxic’ in South Asians and African Caribbeans – and if so, why?**
- **What are the risks of heart failure and its antecedents in ethnic minority groups?**
- **Should we be treating CVD risk factors at different thresholds in ethnic minorities?**

# **Southall And Brent REvisited – SABRE**

## **2008-2011**

- **20 year follow-up, participants now aged 55-85, mean age 67**
- **Continue mortality flagging (ONS)**
- **Morbidity FU. CVD, diabetes and hypertension events/diagnoses since baseline by a) participant questionnaire, b) GP record review**
- **Clinical examination in survivors**



# Southall And Brent REvisited – SABRE

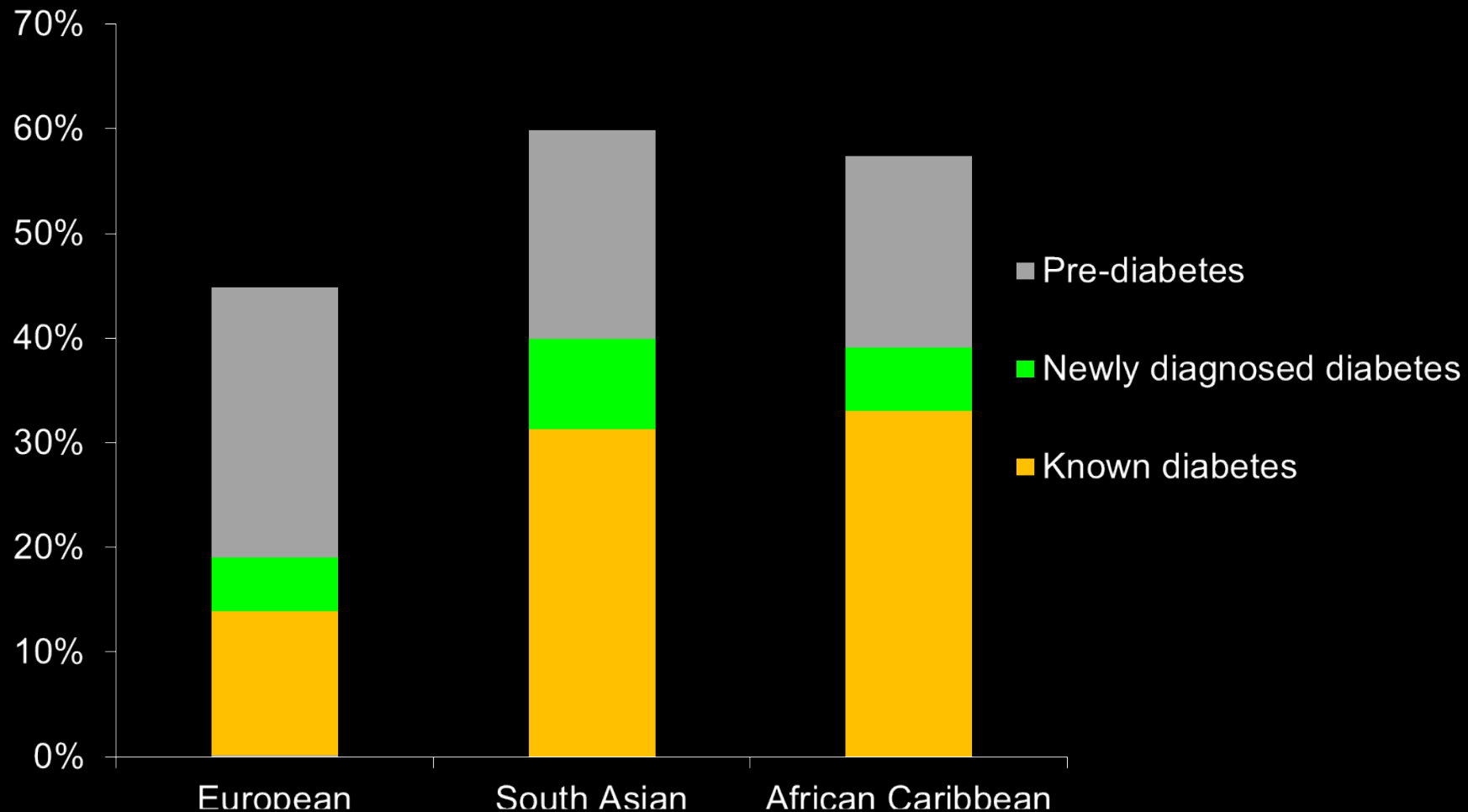
## Clinical follow up

- Questionnaire, demographic, lifestyle, medical history
- Height, weight, waist, bioimpedence (% body fat)
- Resting and ambulatory BP
- Coronary calcification on CT – coronary atherosclerosis
- Cerebral MRI for infarcts
- Echocardiography, carotid IMT
- Fasting bloods, glucose tolerance, lipids
- Retinal photographs – retinopathy, AMD – maybe cataract
- Cognitive function

## SABRE study participants 'status' in March 2011

<b>Status</b>	<b>European</b>	<b>South Asian</b>	<b>African Caribbean</b>	<b>Total</b>
Deceased	589 (25%)	356 (21%)	120 (15%)	1065 (22%)
<b>MR review in deceased</b>	<b>423 (71%)</b>	<b>296 (82%)</b>	<b>99 (82%)</b>	<b>818 (76%)</b>
Survivors	1758	1356	680	3794
Attended clinic	685 (39%)	522 (39%)	231 (34%)	1438 (38%)
Nurse home visit	9 (0.5%)	14 (1%)	6 (1%)	29 (0.8%)
MR review&/or questionnaire only	341 (19%)	238 ( 18%)	83 (12%)	662 (17%)
<b>ANY participation</b>	<b>1035 (59%)</b>	<b>775 (57%)</b>	<b>320 (47%)</b>	<b>2130 (56%)</b>
Refused	385 (22%)	381 (28%)	163 (24%)	929 (24%)
Untraced	118 (7%)	58 (4%)	103 (15%)	279 (7%)
No response	187 (11%)	103 (8%)	55 (8%)	345 (9%)
Away/unwell	33 (2%)	39 (3%)	39 (6%)	111 (3%)

# Pre-diabetes and diagnosed/undiagnosed diabetes (2010)



Unpublished data from 1290 people, age 59-86, ongoing follow-up of the Southall and Brent population-based cohort, (SABRE study, 2010)