Public Health England

National Cancer Registration and Analysis Service short report

Variation in cancer incidence by ethnicity across London in 2015

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Summary

Population based registration data was used to estimate variation in cancer incidence by ethnicity and Sustainability and Transformation Partnership (STP) in London in partnership with The Transforming Cancer Services Team for London, NHS (TCST). Understanding cancer inequalities at local level provides STPs with the practical insight necessary for developing tailored services to improve cancer prevention, early diagnosis, treatment, and continuing care.

Key messages

1. For the first time age-standardised cancer incidence rate estimates by ethnicity are available at STP level throughout London for 25 tumour groups.
2. There is considerable variation in cancer incidence by ethnicity, tumour group and STP.
3. For most cancers Asian, Black, Chinese and Mixed ethnic groups are significantly less likely or similarly likely to be diagnosed compared with the White population; but have an increased likelihood for certain cancers.

Methods

Public Health England's cancer registry data for diagnosis period 2012 to 2015 was used to calculate the age-standardised incidence rates for 25 tumour groups by ethnicity for STPs in London. The rates were based on the 2011 Census[1] population estimates and the 2013 European standard population. This report focusses on findings for 2015. Registry data was further used to help service providers and commissioners understand variation in cancer incidence by ethnicity, deprivation, age, and stage at diagnosis. The key output from this data is available as a workbook which includes all results for 2012 to 2015.

Interpreting ethnicity data

Ethnicity data captured in English national statistics is self-reported, and therefore the ethnicity declared for an individual may vary across different datasets. The granularity of ethnic categories used in NHS data collection has evolved over time and varies between Scotland, Northern Ireland and England and Wales. The NHS categories have not been updated to reflect the ethnic population categories collected in the England and Wales 2011 Census. This changes the way in which "Other" ethnic groups are defined, so standardised cancer incidence rates for "Other" ethnic groups are excluded from this analysis. The calculation of the rates assumed that the ethnic populations for 2012 to 2015 were the same as the 2011 census.

[1] Office for National Statistics

More up-to-date data on ethnic populations is not currently available. Given that ethnic population age structures are changing year on year, it is likely that this will impact the incidence rate figures.

In 2015 cancer registration data reached 95% completeness of ethnic coding. Of this 95%, 5% was coded as “not stated” and 1% was coded as “unknown”. More detailed ethnicity codes were not always available (for example to identify subsets of the “Other” ethnic groups). See Appendix II for ethnicity definitions used to group the London cancer population. It is important to interpret the results presented within the context of these factors.

Variation in cancer incidence by ethnicity across London

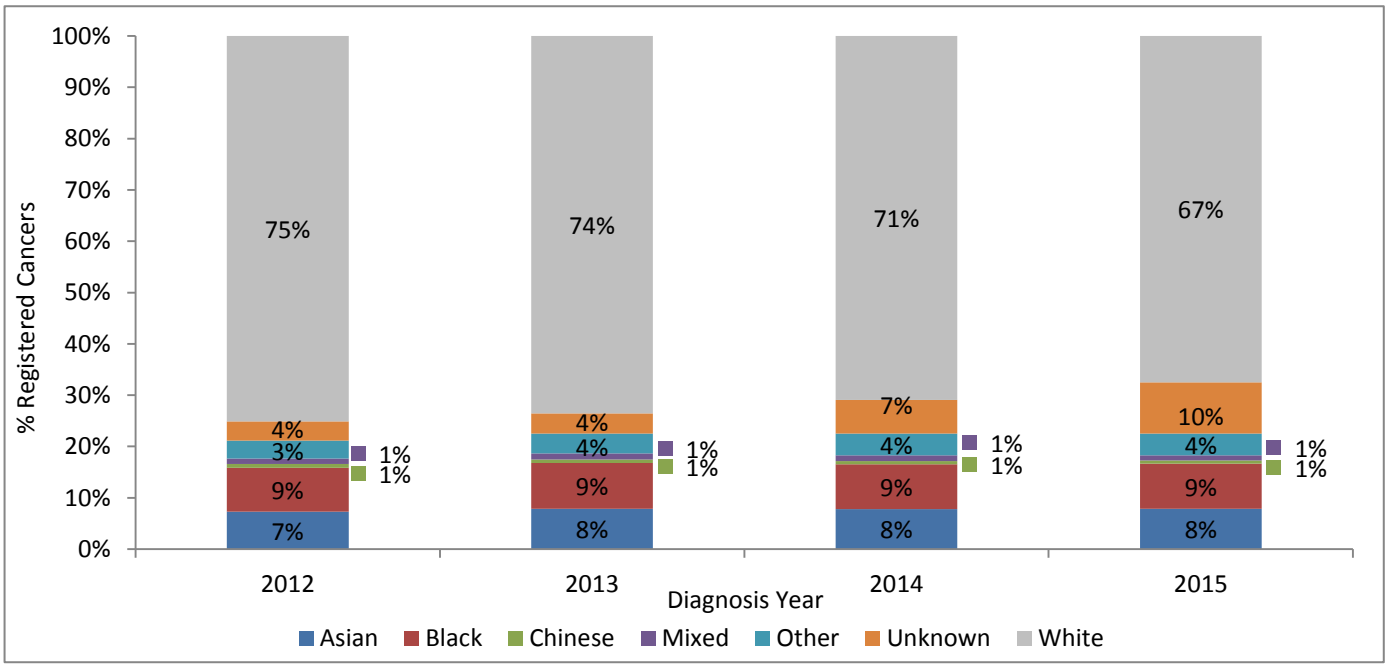

Figure 1: The percentage of registered cancer cases in London in each ethnic group (2012-2015)

Note: “Unknown” ethnicity is comprised of unknown ethnicity, not stated ethnicity, and missing data. “Other“ and “Unknown” ethnic groups are not included in further analysis as these observations are likely to be influenced by data recording issues.

Figure 1 shows that from 2013 to 2015, the proportion of cancer patients with recorded “White” ethnicity declined (-7 percentage points), while those with ‘not known’ (+1 percentage points) ‘not-stated’ (+4 percentage points) and missing (+2 percentage points) ethnicity increased. The proportions of the remaining known ethnic groups have remained similar in London from 2012 to 2015. These changes over time can reflect changing demographic structures of different ethnic groups, as well as varying incidence trends.

Variation in stage at diagnosis by ethnicity

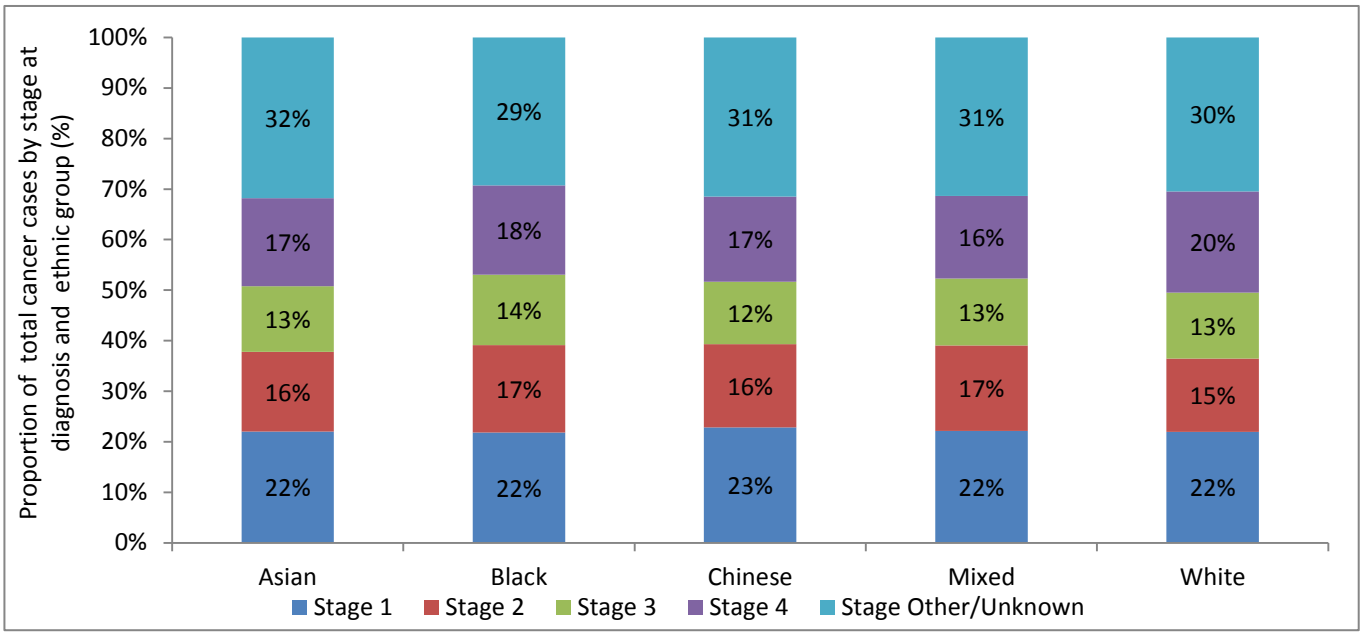

Figure 2: The proportion of total cancer cases by stage at diagnosis and ethnic group (%) in 2015

Figure 2 shows that there appears to be little differences in the proportion of cancer diagnoses made at each stage between ethnic groups, including diagnoses with an unknown stage.

Age-standardised cancer incidence in London 2015

Figure 3 shows age-standardised cancer incidence rates (per 100,000 people) for total (all) cancers by ethnic group in London STPs 2015. See Appendix I for cancer site definitions.

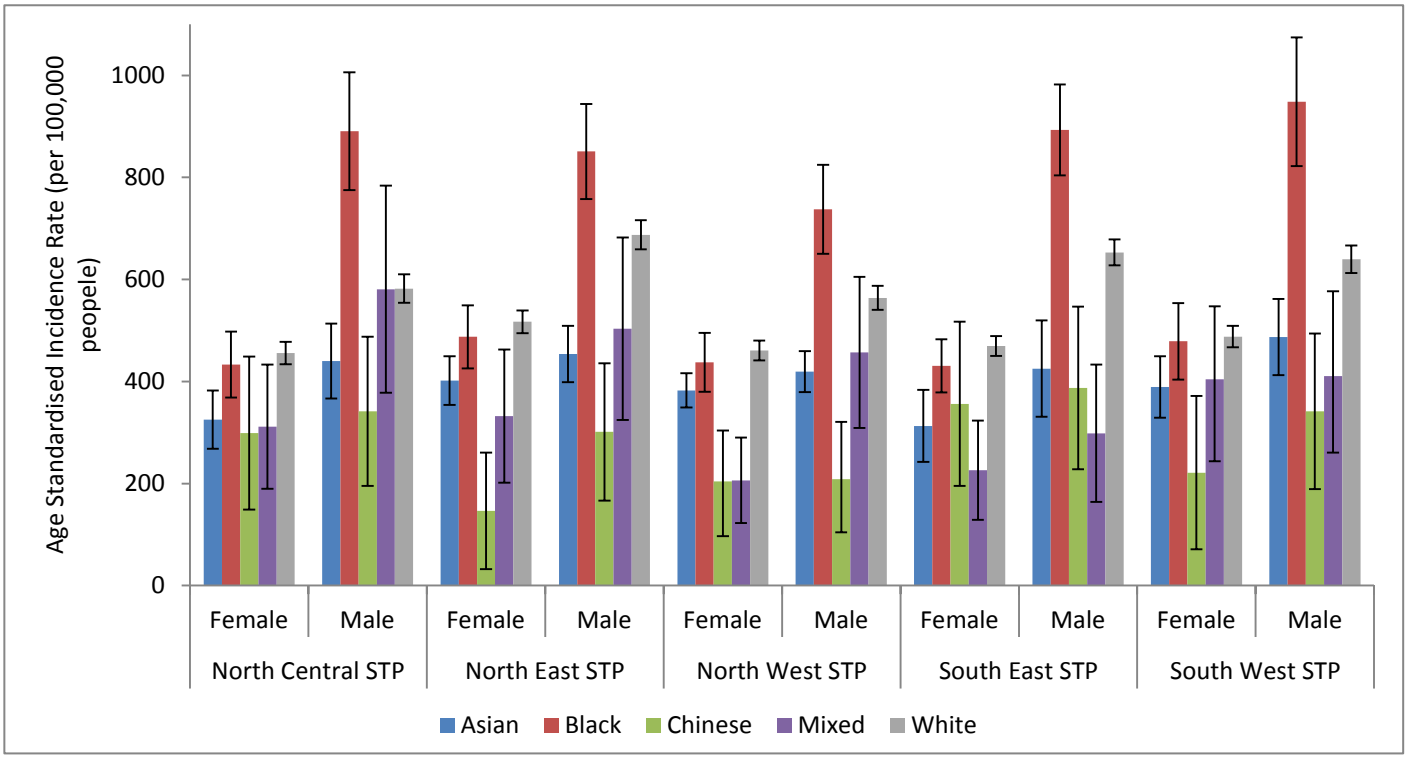

Figure 3: Sex-specific age-standardised incidence rates of Total (all) cancers in London, 2015

Figure 3 shows that overall cancer incidence was significantly lower than, or similar to, the White population in Asian, Chinese, Mixed men and women, and Black women across all London STPs, but significantly higher in Black men. High overall cancer incidence in Black men was driven by prostate cancer incidence, which was 2.6 times higher than White men in London (see “The likelihood of developing specific tumours in London 2015”).

The likelihood of developing cancer in London 2015

Sex-specific age-standardised incidence rates for total cancers by ethnic group in 2015 were compared against those of the White population. This enabled us to estimate whether different non-white ethnic groups in London had an increased or reduced likelihood of receiving a cancer diagnosis relative to the White population.

- Asian men were 1.4 times (40%) less likely than White men, and Asian women were 1.3 times (30%) less likely than White women, to be diagnosed with cancer.
- Black men were 1.4 times (40%) more likely than White men, but Black women were 1.1times (10%) less likely than White women to be diagnosed with cancer.

- Chinese men were 1.8 times (80%) less likely than White men, and Chinese women were 1.3 times (30%) less likely than White women, to be diagnosed with cancer
- Mixed men were 1.4 times(40%) less likely than White men, and Mixed women were 1.6 times (60%) less likely than White women, to be diagnosed with cancer

Variation by age at diagnosis

2011 Census population figures demonstrate younger age structures in non-white ethnic groups relative to the White population. Age specific rates were computed to allow comparison between different age and ethnic groups in the London cancer population (2015).

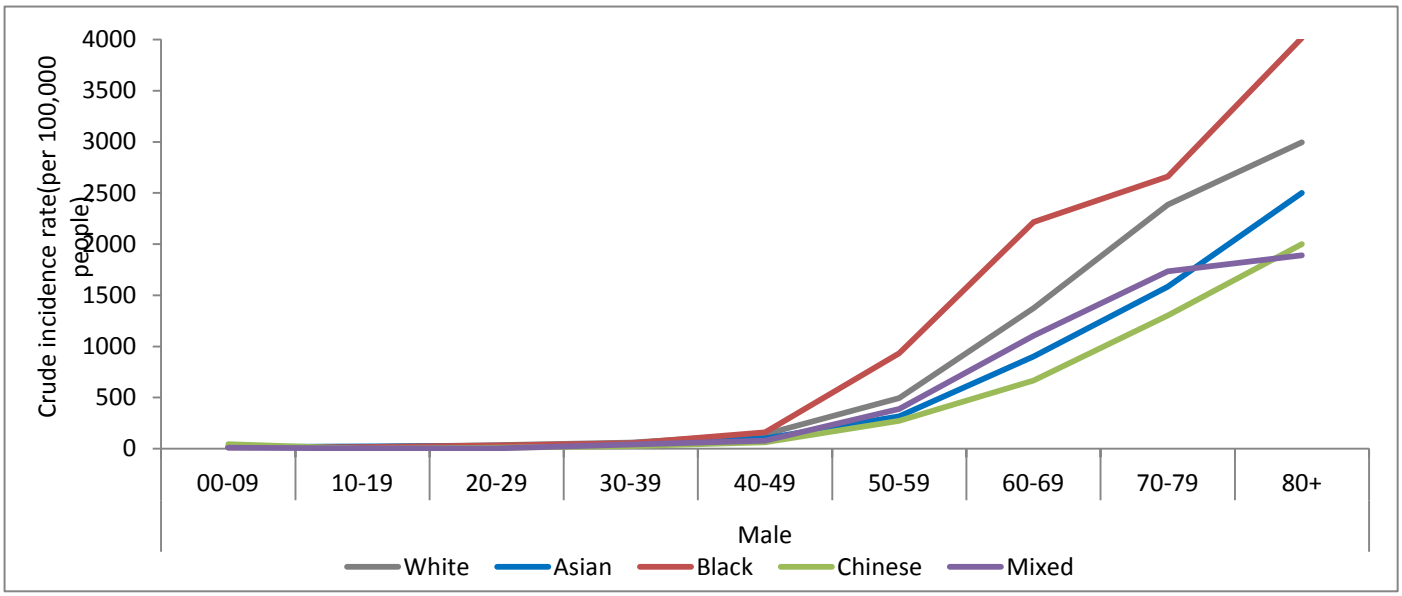

Figure 4a: Variation in the relationship between ethnicity, cancer incidence and age at diagnosis in men in London 2015

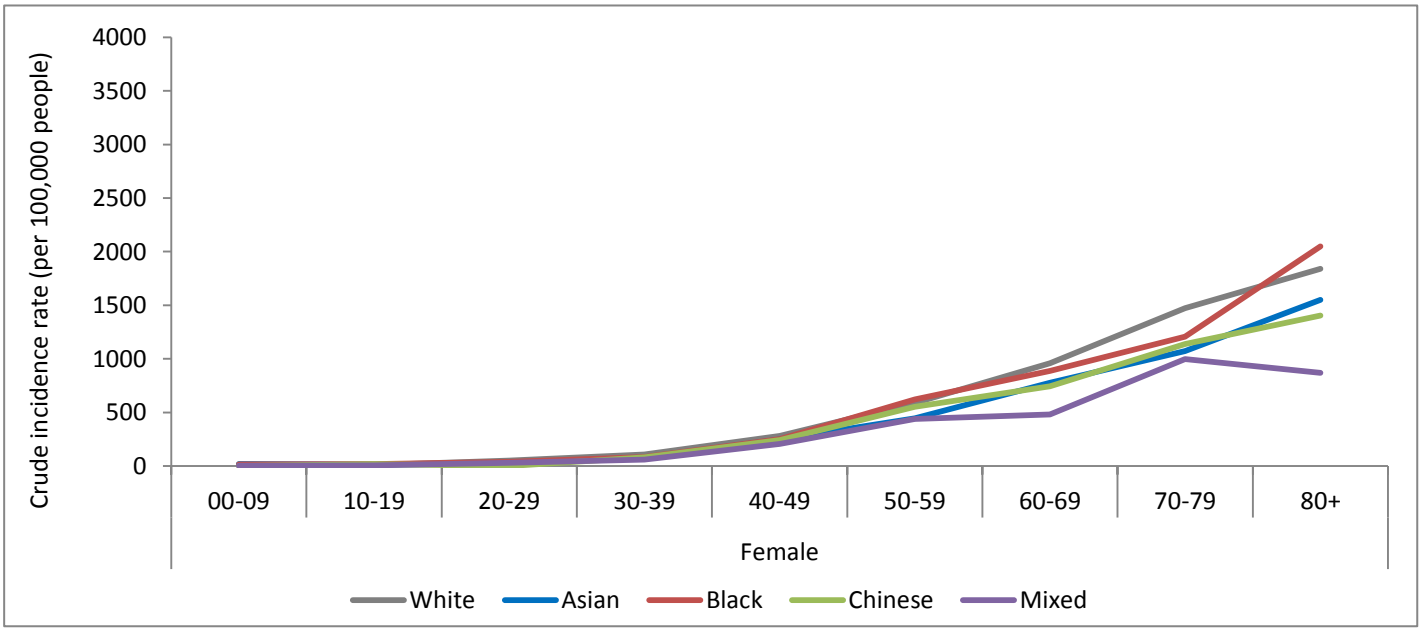

Figure 4b: Variation in the relationship between ethnicity, cancer incidence and age at diagnosis in women in London 2015

Figure 4b shows an upward trend in cancer incidence across all female ethnic groups from the age of 40-49. Figure 4a shows this trend more prominently in all male ethnic groups, but especially Black men, from the age of 50-59. Amongst all ethnic groups, cancer incidence was higher in men than women after the age of 70. The biggest sex differences were observed in the Black ethnic group between the ages of 60-80 where male cancer incidence reached over double that of female cancer incidence. In men, the Black ethnic group had the highest overall cancer incidence, but in women the White population had the highest overall cancer incidence.

The likelihood of developing specific tumours in London 2015

The same likelihood comparison carried out for total (all) cancers was completed for each of the 25 tumour groups investigated (see Appendix I for full list). Asian, Black, Chinese, and Mixed ethnic groups in London were estimated to be either significantly less likely or similarly likely to develop the majority of the 25 tumour groups investigated, compared with the White population. This is shown in Table 1, for full data tables see workbook. Despite differences in study period and geography, these findings are in broad agreement with earlier (2002-6) reports of variation in cancer incidence by ethnic group using national (England) data[2].

The estimated reduced likelihood of developing specific tumours for Black, Asian, Chinese and Mixed groups.

Table 1: Statistically significant instances where Black, Asian, Chinese and Mixed groups were estimated to have a reduced likelihood of developing specific tumours compared to the White population.

Note: some of the calculations below are based on small numbers of cancer cases and should be treated with caution

Cancer Type	Ethnic Group	Sex	Geographic Level	Times less likely than the White population to be diagnosed with cancer	Number of Cancer Cases
Bladder Cancer	Asian	Men	London	2.50	32
			North East STP	2.50	6
			North West STP	2.50	15
		Women	London	2.50	9
	Black	Men	London	1.43	34
		Women		2.00	9
	Mixed	Men	London	1.43	6

[2] Public Health England. Cancer Incidence and Survival by Major Ethnic Group, England, 2002-2006. 2009. Available from: vwww.ncin.org.uk/view?rid=75

Brain Cancer	Asian	Men	London	1.43	30
		Women	London	1.25	24
	Black	Men	London	3.33	13
			South East STP	3.33	6
Female Breast Cancer	Asian	Women	London	1.11	548
			North Central STP	1.43	52
			South East STP	1.43	32
	Mixed	Women	London	1.25	72
			North West STP	2.00	9
	Chinese	Women	London	1.25	45
			North West STP	3.33	7
Cervical Cancer	Black	Women	London	1.25	20
	Asian	Women	London	1.43	23
			North West STP	2.00	6
	Mixed	Women	London	2.00	8
Colorectal Cancer	Asian	Men	London	1.67	147
			North East STP	1.43	48
			North West STP	2.00	49
			South West STP	2.00	17
		Women	London	1.43	107
			North East STP	2.00	23
			North West STP	1.67	46
	Mixed	Men	London	1.67	17
		Women		2.50	9
Head and Neck Cancer	Asian	Men	London	1.11	81
Head and Neck Cancer	Black	Men	London	1.67	40
			South East STP	2.50	10
		Women	London	2.00	18
	Mixed	Men	London	2.00	6
Kidney, Renal, Pelvis and Urethra Cancer	Asian	Men	London	1.11	67
		Women	London	1.43	31
			North West STP	2.00	10
Leukaemia	Mixed	Men	London	1.67	10
Lung Cancer	Black	Men	London	1.25	139
			North East STP	1.43	29
		Women	London	2.50	65
			North Central STP	2.00	15
			North East STP	3.33	12
			North West STP	2.50	16
			South East STP	2.50	14
			South West STP	2.50	10
	Asian	Men	London	1.43	152
			North Central STP	1.67	17
			North East STP	1.43	49
			North West STP	1.67	52
		Women	London	3.33	62
			North Central STP	2.50	11
			North East STP	3.33	18

			North West STP	3.33	23
			South East STP	2.50	6
	Chinese	Women	London	2.00	9
	Mixed	Men	London	1.67	18
		Women		2.50	10
Melanoma	Black	Women	London	5.00	8
Mesothelial and Soft Tissue Cancer	Asian	Men	London	1.67	31
		Women		3.33	9
Multiple Myeloma	Asian	Women	London	1.25	21
Non Hodgkin Lymphoma	Asian	Men	London	1.11	87
			North East STP	2.00	20
		Women	London	1.11	63
	Black	Men	London	1.43	55
			South East STP	1.67	17
		Women	London	1.11	49
Oesophageal Cancer	Asian	Men	London	3.33	18
			North West STP	3.33	7
		Women	London	1.43	16
	Black	Men	London	1.43	29
		Women		1.43	13
Ovarian Cancer	Asian	Women	London	1.11	66
	Black	Women	London	1.25	45
	Mixed	Women	London	3.33	7
Pancreatic Cancer	Asian	Men	London	1.43	29
			North East STP	2.00	6
Pancreatic Cancer		Women	London	1.43	27
			North West STP	1.67	9
Prostate Cancer	Asian	Men	London	1.25	310
			North East STP	1.67	65
			South East STP	2.00	18
	Chinese	Men	London	2.50	16
Testicular Cancer	Asian	Men	London	2.50	24
			North East STP	3.33	6
	Black	Men	London	5.00	7
Thyroid and Endocrine Cancer	Black	Men	London	1.67	12
Uterus Cancer	Mixed	Women	London	1.43	8

However there were cases where some non-white ethnic groups were estimated to be significantly more likely than the White population to develop specific tumours. These are shown in Table 2.

The estimated increased likelihood of developing specific tumours for Black, Asian, Chinese and Mixed groups.

Table 2: Statistically significant instances where Black, Asian, Chinese and Mixed groups were estimated to have an increased likelihood of developing specific tumours compared to the White population.

Note: some of the calculations below are based on small numbers of cancer cases and should be treated with caution

Cancer Type	Ethnic Group	Sex	Geographic Level	Times more likely than the White population to be diagnosed with cancer	Number of Cancer Cases
Cervical Cancer	Chinese	Women	London	1.9	6
Colorectal Cancer	Black	Men	London	1.1	152
Head and Neck Cancer	Asian	Women	London	1.3	48
Hodgkin Lymphoma	Black	Men	London	1.8	21
Kidney, Renal, Pelvis, Urethra Cancers	Black	Women	London	1.4	54
Leukaemia	Asian	Women	London	1.2	47
Liver Cancer	Black	Men	London	1.8	41
			North Central STP	3.0	13
	Chinese	Men	London	2.6	9
Multiple Myeloma	Black	Men	London	3.3	72
			South West STP	6.6	19
			North Central London STP	3.8	10
			South East STP	3.2	17
			North West STP	2.5	12
		Women	London	3	52
			South West STP	4.5	11
			North West STP	4.2	15
	Mixed	Women	London	1.6	7
	Asian	Men	London	1.2	43
Pancreatic Cancer	Black	Men	London	1.4	49
		Women		1.4	42
Prostate Cancer	Black	Men	London	2.6	783
			North Central STP	3.1	134
			South East STP	2.7	233
			North East STP	2.4	178
			North West STP	2.4	122
			South West STP	2.4	116

Stomach Cancer	Black	Men	London	2.3	58
			South East STP	2.9	22
		Women	London	2.3	34
	Mixed	Men	London	1.6	7
Thyroid and endocrine cancer	Asian	Men	London	1.4	27
		Women	London	1.7	63
	Black	Women	London	1.2	39
	Chinese	Women	London	2.4	7
Uterus cancer	Black	Women	London	1.6	108
			South West STP	2.1	19
			North East STP	2.0	28
	Asian	Women	London	1.4	121
			South West STP	2.2	24
			North West STP	1.7	56

Study limitations

Limitations include the differences in ethnic groups between NHS health data and Census population data, and the way in which the classification system for ethnic identification has changed over time. Age-standardised incidence rates were computed against the most recent Census population (2011). The population data will not be completely representative of the cancer cohort years investigated (2012-2015), and is likely to affect different ethnic groups disproportionately; hence incidence rates should be treated as estimates. Incidence rates could not be standardised for deprivation as a standard ethnic population segmented by CCG and deprivation was not available. Cancer incidence was defined by tumour count so those with multiple tumours will be counted more than once in the cancer data, but once in the population data. Patients exclusively diagnosed and treated outside the NHS may not have been included in this dataset.

Appendix I

Table 3: Tumour groups included in analysis

Cancer Site	ICD-10 Code
Total (all) cancers	C00-C99 except C44
Other	All C00-C99 except C44 tumours not included in the following list:
Bladder	C67
Brain	C70-C72
Female Breast	C50
Cervix	C53
Colorectal	C18-20
Hodgkin lymphoma	C00-10,C12-14, C30-32
Kidney renal pelvis and ureter	C81
Leukaemia	C64-C66, C68
Liver	C91-C95
Lung	C22
Melanoma	C33-C34
Head & Neck	C43
Mesothelial & Soft tissue	C45-C49
Multiple Myeloma	C90
Non Hodgkin lymphoma	C82-C85
Oesophagus	C15
Ovary	C56
Pancreas	C25
Prostate	C61
Stomach	C16
Testis	C62
Thyroid & Endocrine	C73-C75
Unknown	C77-C80
Uterus	C54-C55

Appendix II

Table 4: Ethnicity definitions used to group the London cancer population (2012-2015)

Ethnicity	Ethnic sub groups
Asian	Indian or British Indian Pakistani or British Pakistani Bangladeshi or British Bangladeshi Any other Asian background
Black	Caribbean African Any other Black background
Chinese	Chinese
Mixed Mixed	White and Black Caribbean White and Black African White and Asian Any other mixed background Other Mixed, Mixed Unspecified
Other	Other Any other ethnic group
Unknown	Not known Not stated Null
White	White British, Mixed British Irish Any other White background

Additional insight into health inequalities related to ethnicity in England

In collaboration with the Institute of Health Equity (IHE) and University of Sheffield, PHE Health Equity has produced evidence on health patterns and determinants by ethnic group in England. This work aims to inform local action aimed at addressing health and healthcare inequalities related to ethnicity throughout England. Publication of an overview paper and case studies of local action is due in May 2018.