'A picture of the public's health in England' – all cancers incidence and mortality in the Chief Medical Officer's report

G Price[1], L Irvine[2], M Roche[1], E Gordon[3], T Fowler[4] and O Murphy[4]

[1] Public Health England; [2] National Cancer Intelligence Network; [3] Office for National Statistics; [4] Department of Health

Public Health England

Chief Medical Officer's report – past and present

The role of the Chief Medical Officer (CMO) was first conceived in the mid 19th century. In 1855, Sir John Simon was appointed the first Medical Officer for the General Board of Health. His role transferred to the Privy Council in 1858 and this appointment made him the de facto Chief Medical Officer.

Sir John started the tradition of the CMO annual report. The purpose was to provide an independent assessment of the state of the public's health. Chief Medical Officers have produced their annual reports in different ways. Over time the content of these annual reports shifted from the greatest concerns of the mid 19th century – such as industrial health, sanitation and housing conditions – to more recent concerns around obesity, alcohol and tobacco.

In 2010, Professor Dame Sally Davies was appointed Chief Medical Officer for England. Professor Davies stated:

I strongly believe that data and scientific evidence should be at the heart of policy making and advice to Government and have reflected this in the Annual Report. Data should be used to inform our action on public health and to evaluate the effectiveness of that action.

As a consequence, for the first time the CMO annual report brought together a number of data sources in one place providing a comprehensive picture of England's health. The report looks at important areas of health including heart disease, obesity and cancer.

2011 Chief Medical Officer's report

Cancer is a major cause of death, accounting for around a quarter of deaths in England. More than one in three people will develop cancer at some point in their life.

The distribution of cancer incidence and mortality was examined in the 2011 CMO report, with a specific focus on spatial patterns (using upper tier local authority), trends and changes over time, and the relationship with age and sex. Geographical data was presented using cartograms and other information was plotted as charts.
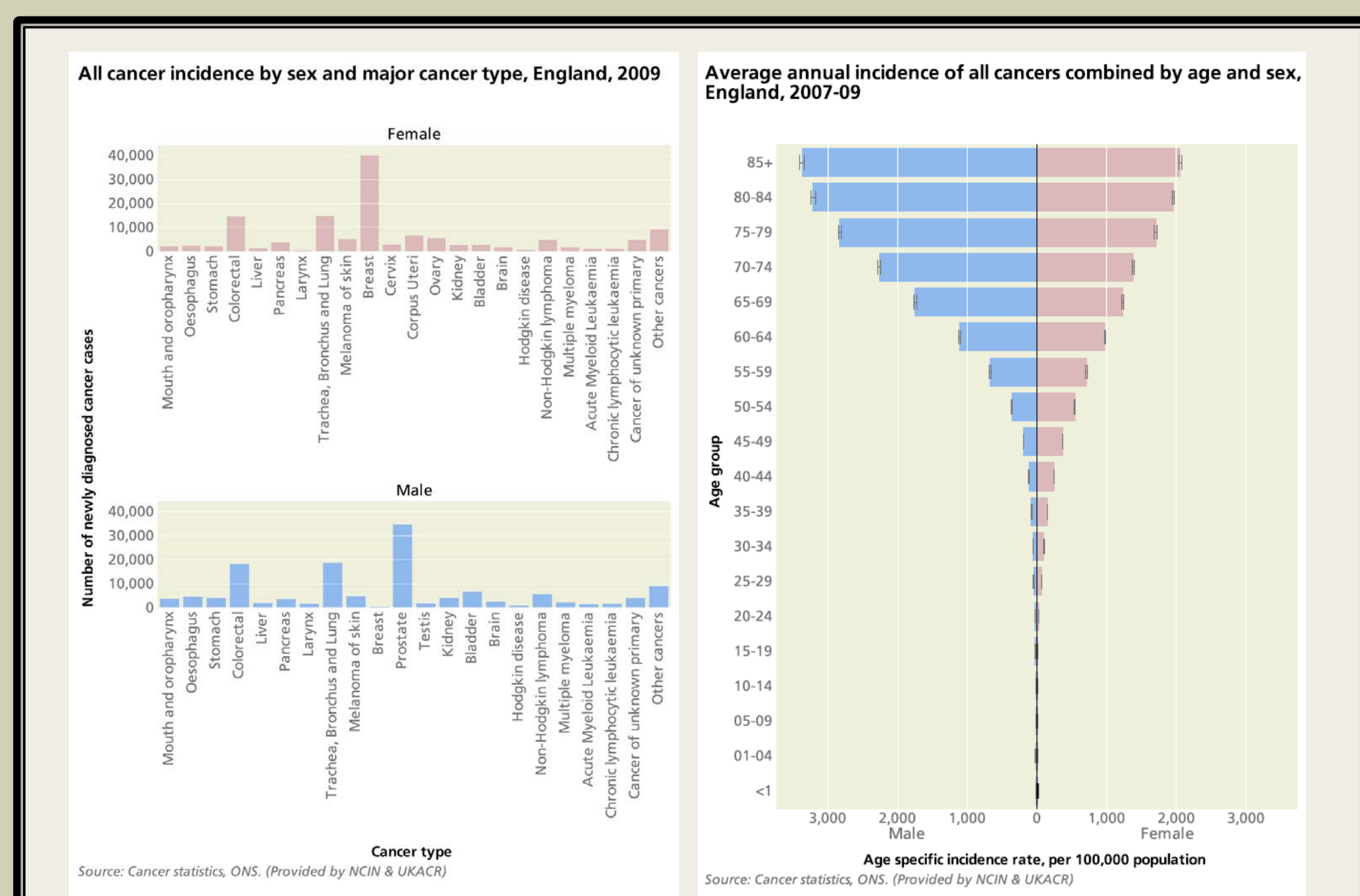
In 2009, around 265,000 cancers were diagnosed, with lung, bowel, breast and prostate cancer accounting for over half of all cancers. More than three in five cancers occurred in people aged 65 and over.
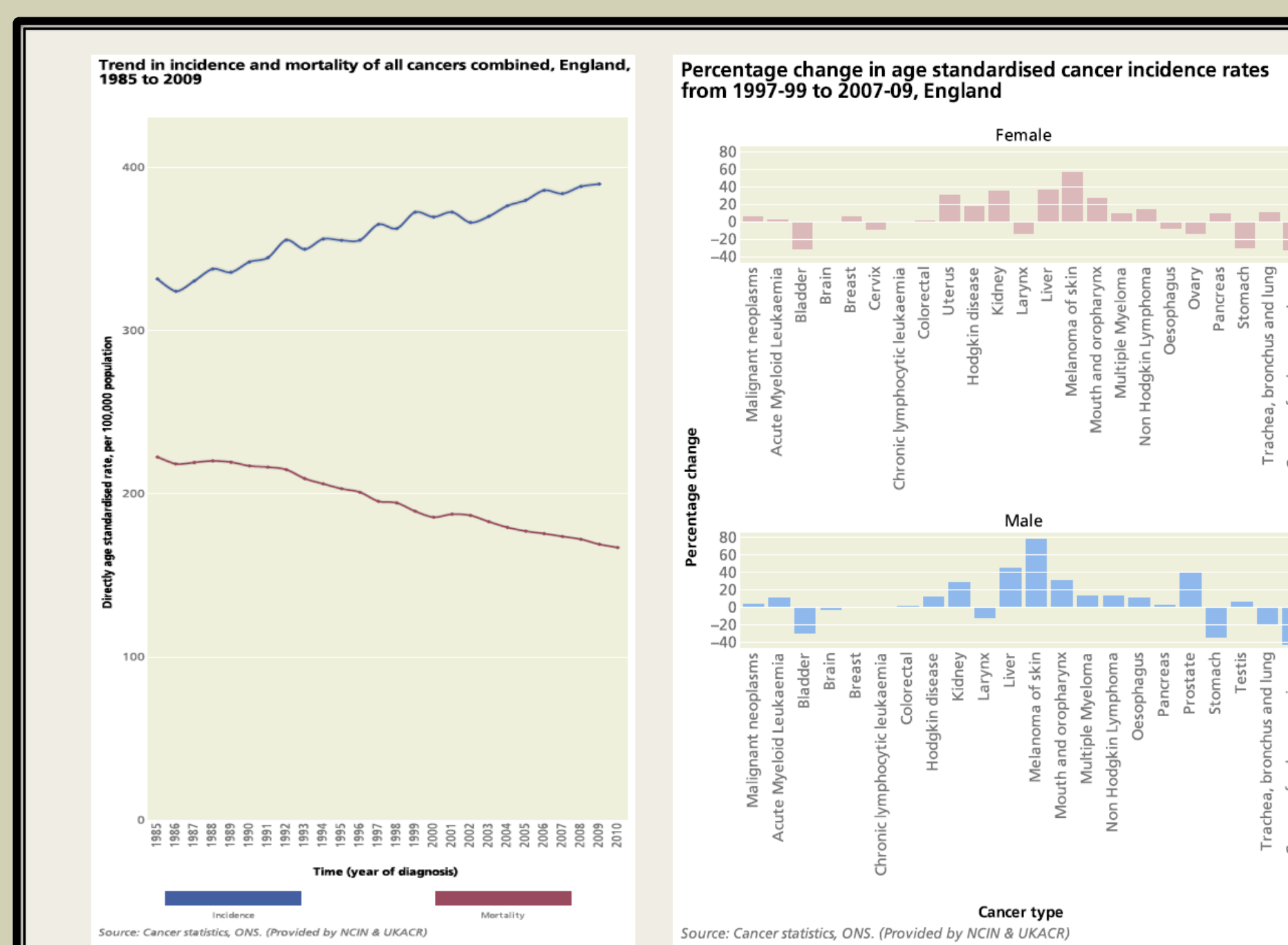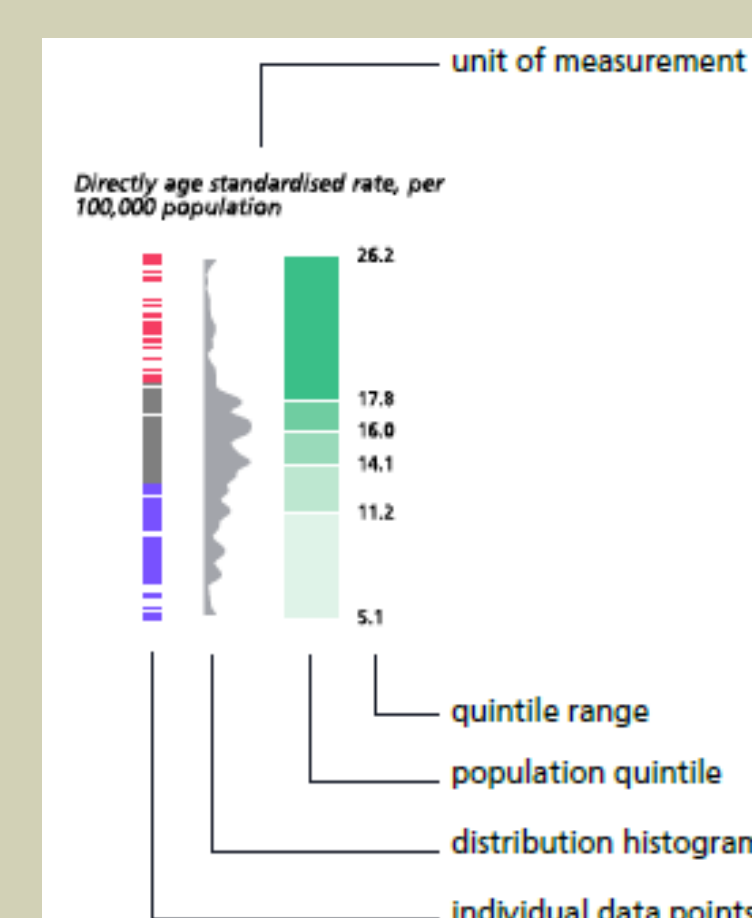
Between 1985 and 2010, the incidence of all cancers rose by 17%; over and above the increase caused by the ageing population alone. Mortality fell by 25%. This was partly due to a reduction in the number of cancers with a poor outcome (e.g. lung cancer in men), but improvements in treatment services have also contributed.

A significant rise in incidence was recorded for cancers of: lung and uterus in women; prostate in men; and skin (melanoma), liver, kidney, mouth and oropharynx in both sexes.

The incidence of stomach and bladder cancer in both sexes decreased by about a third and nearly 20% fall was recorded in lung cancer in men. The fall in bladder cancer rates was partly due to changes in coding, but a reduction in smoking and in exposure to chemicals in the workplace may also have contributed.

In 2010, mortality rates significantly higher than the England average were predominantly observed for upper tier local authorities in the North.

Rates ranged from 116 deaths per 100,000 population in Kensington and Chelsea to 243 in Liverpool.
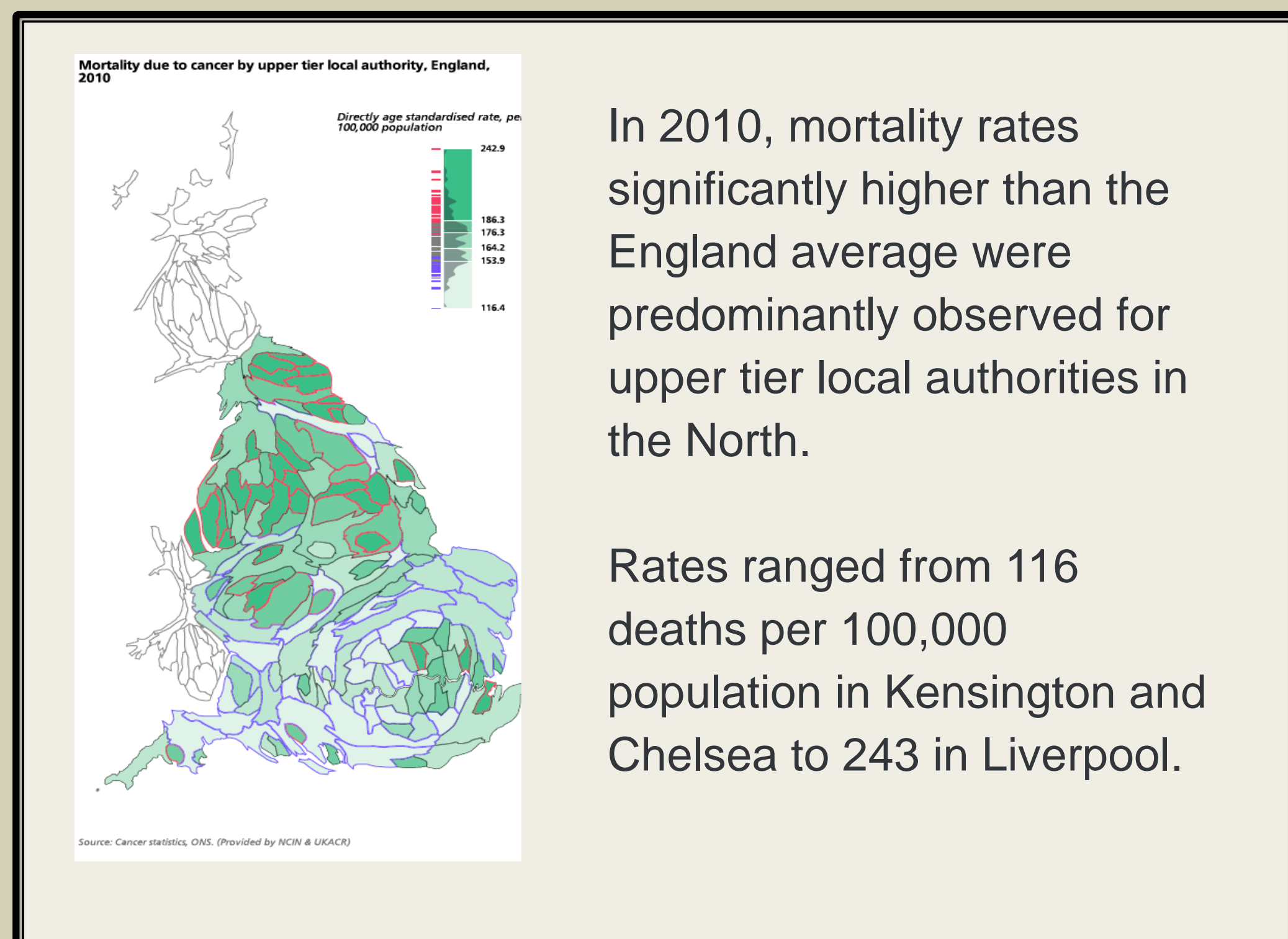
How to read cartograms

A major innovation in the way this CMO report has chosen to represent geographical data is the use of cartograms for mapping. Cartograms have been used where the size of each area mapped is approximately proportional to the area's population.

Unit of measurement – gives a definition of the indicator and unit of measurement.
Quintile Range – geographical units are ordered according to their indicator value and split into five groups of approximately equal numbers. The quintile range indicates the top and bottom value of each group.
Population Quintile - this is the key to the map. It identifies which quintile a geographical unit is part of and illustrates the range of each quintile.
Distribution Histogram – this is a smoothed histogram displaying the distribution of the underlying indicator values for the different geographical units.
Individual data points – a plot of the indicator value for each of the geographical units. Where analysis has been undertaken to determine which geographical units are significantly (p>0.05) greater or less than the national average, significantly different indicator values are identified by being coloured red or blue.

References

Davies, S.C. *Annual Report of the Chief Medical Officer, Volume One, 2011, On the State of the Public's Health.* London: Department of Health (2012)