The impact of demographic and medical trends on the health and social care systems of the UK.

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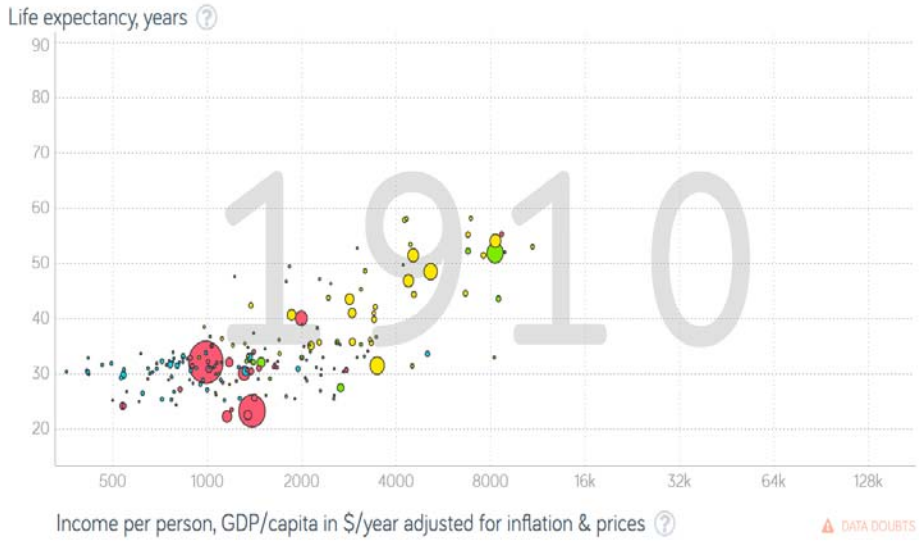
The UK is aging. As is almost everywhere else. ONS projected total numbers (millions).

ONS projections (2015 data)

Age	*2019*	*2039*
0-14	12.0	12.4
15-29	12.4	13.5
30-39	12.9	13.2
45-59	13.4	13.4
60-74	10.4	12.0
75-84	4.1	6.3
85+	1.7	3.7

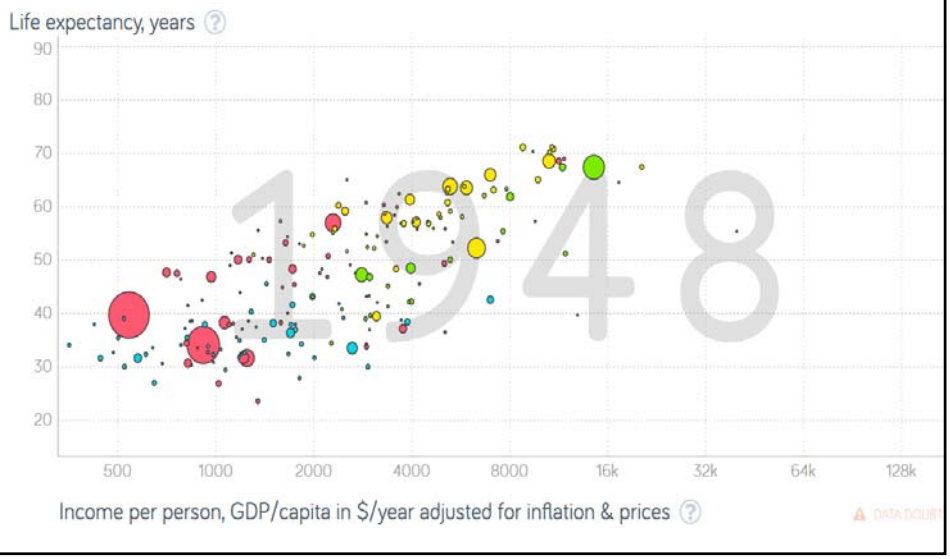
Life expectancy v GDP/capita, every country 1910.

(Gapminder: Rosling and Rosling)



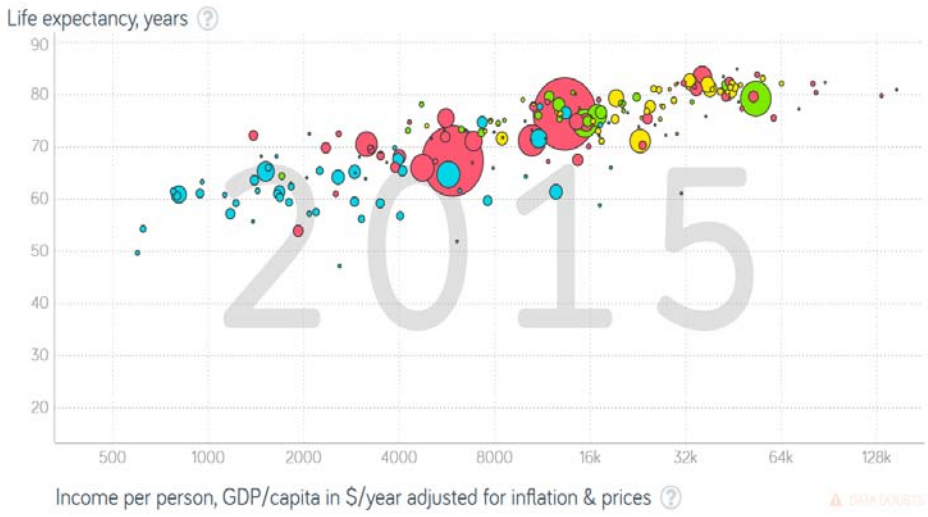
Life expectancy v GDP/capita, every country 1948.

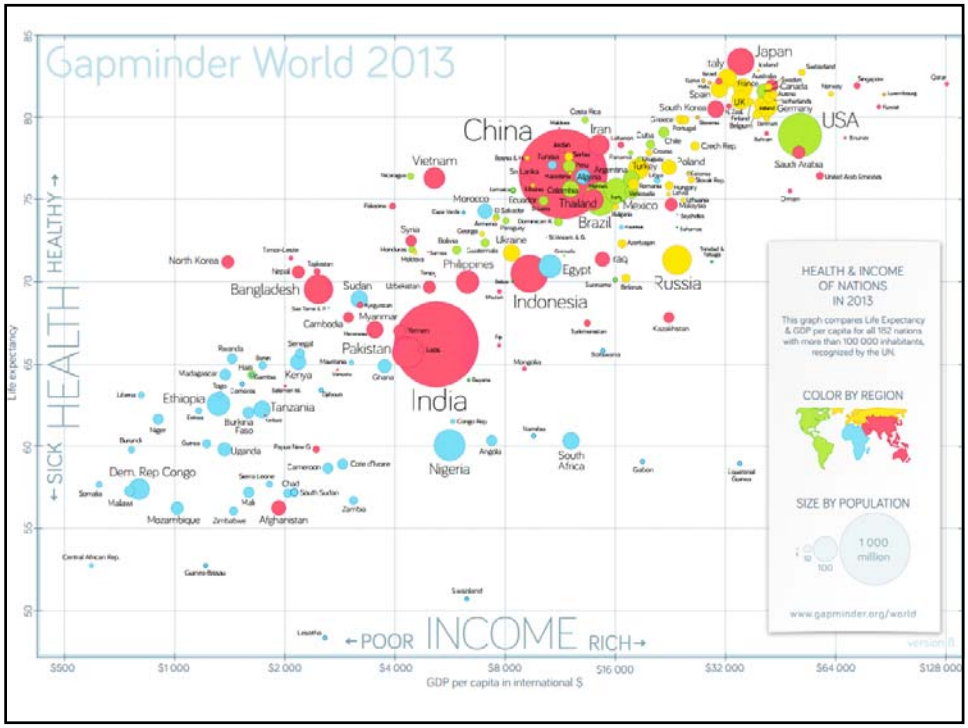
(Gapminder)



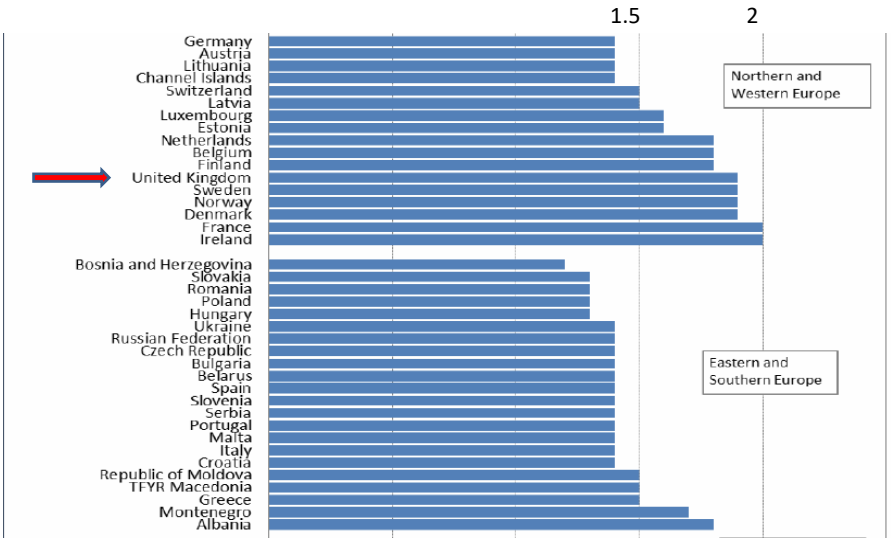
Life expectancy, every country 2015.

(Gapminder).



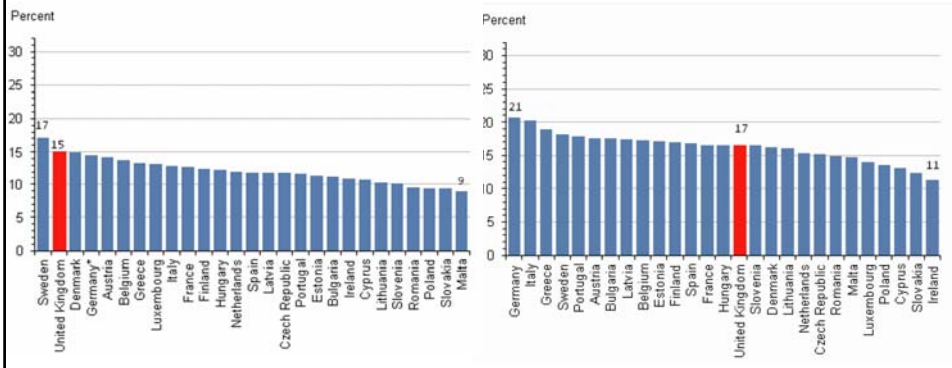


Most of Europe (and Asia and Latin America) now below replacement fertility *(UN 2014)*

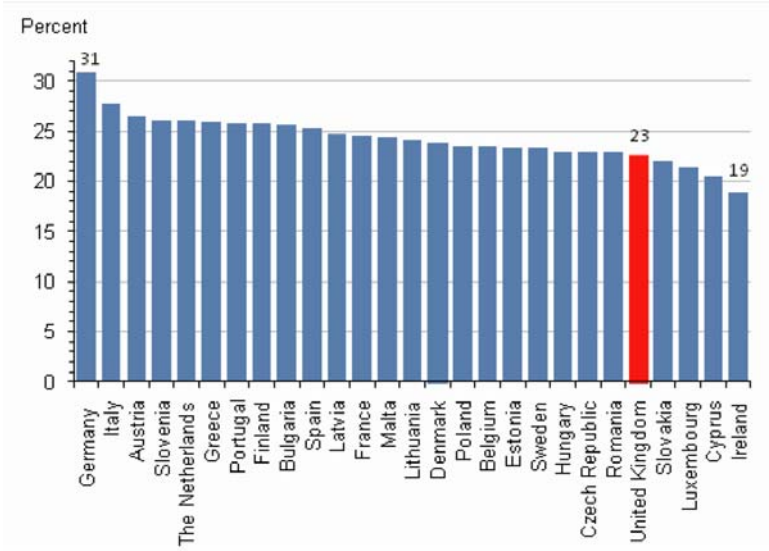


Percentage of population 65 and over 1985, now

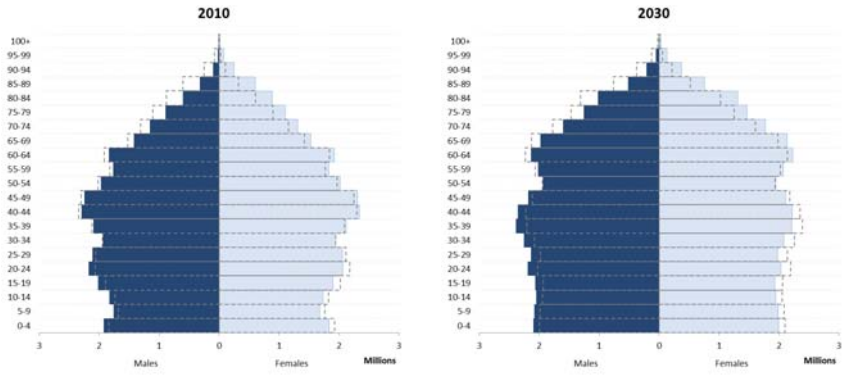
(ONS and Eurostat)



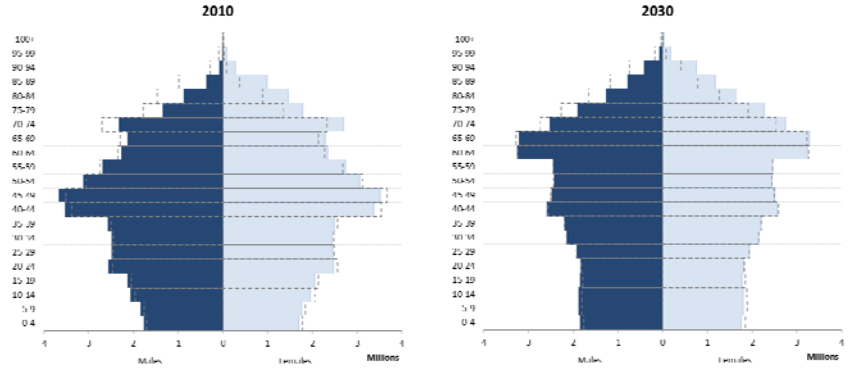
Percentage population over 65 in the EU: 2037



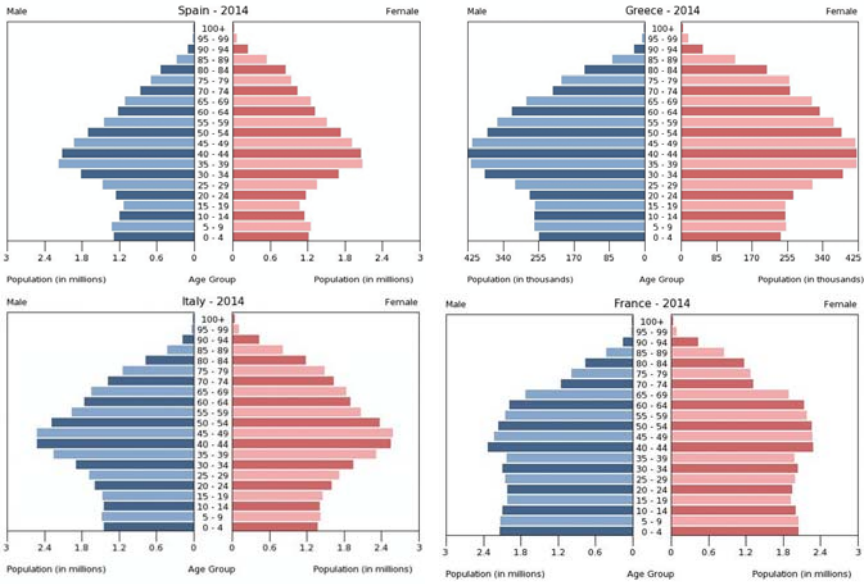
UK



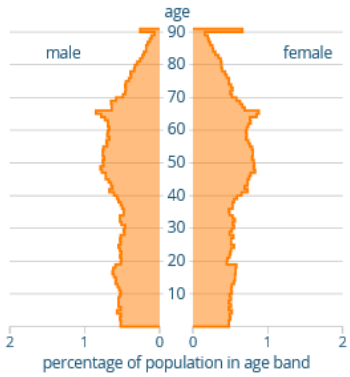
Germany

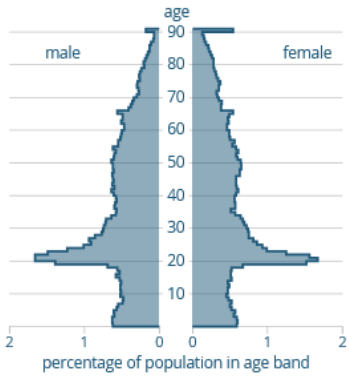


Clockwise, Spain (top L), Greece, France, Italy

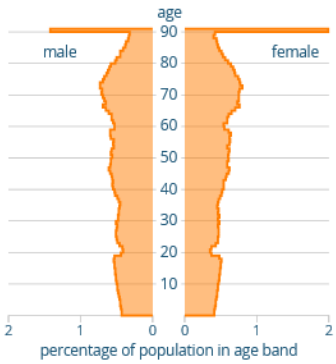


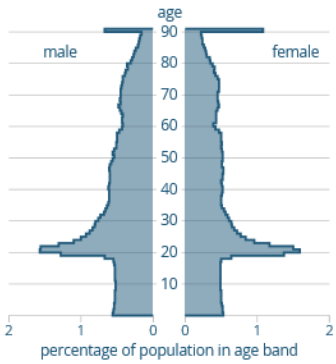
Northumberland (L) and Newcastle now *(ONS)*



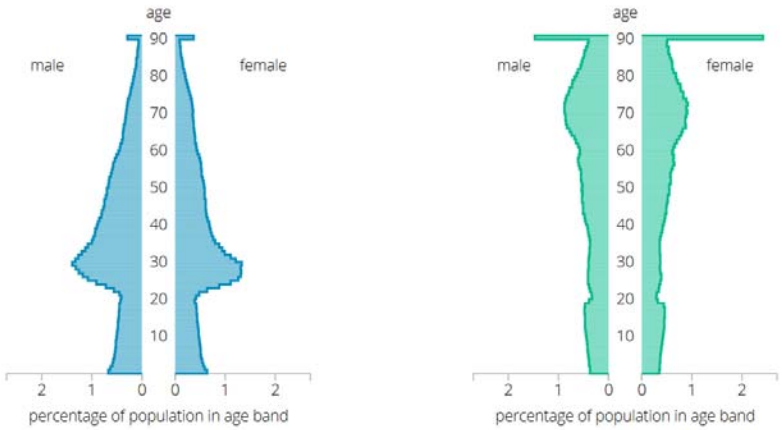


Northumberland (L) and Newcastle 2037

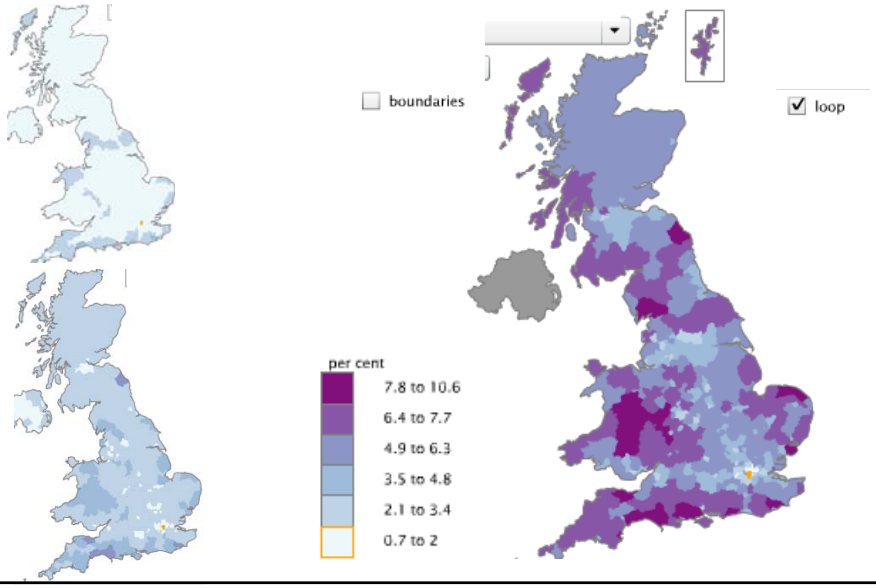




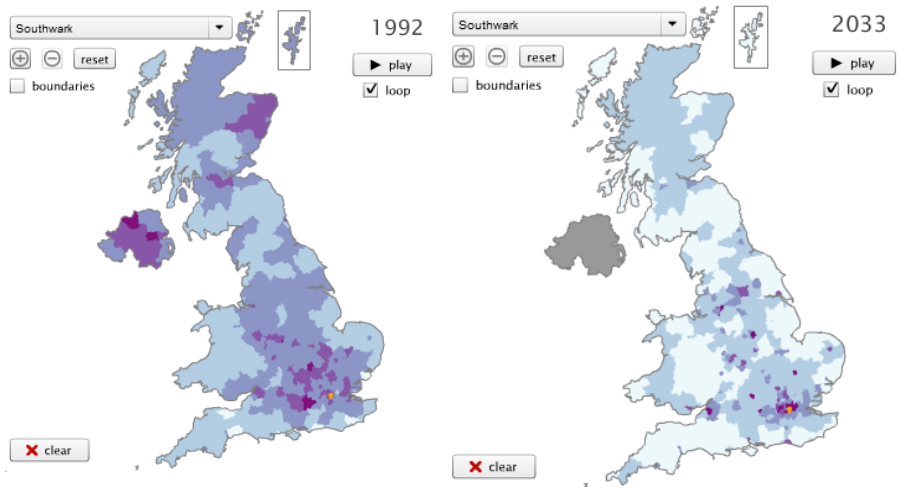
Lambeth (L) and North Norfolk, 2037 (ONS)



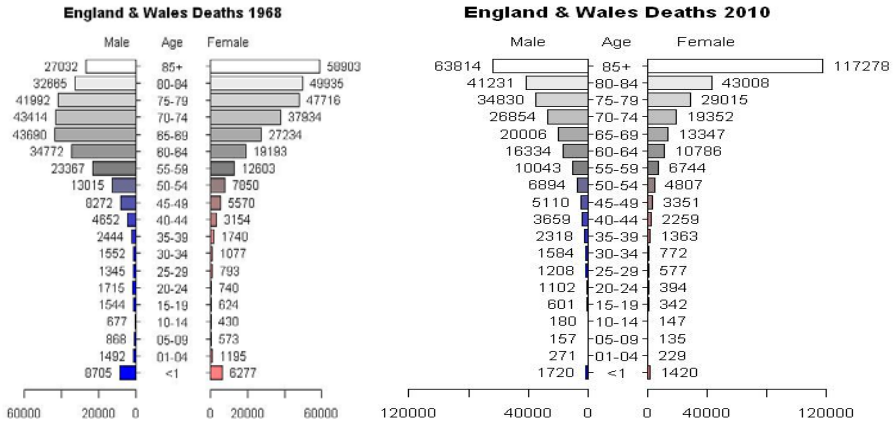
Population 85 and over: 1992, 2015, 2033 *(ONS).*



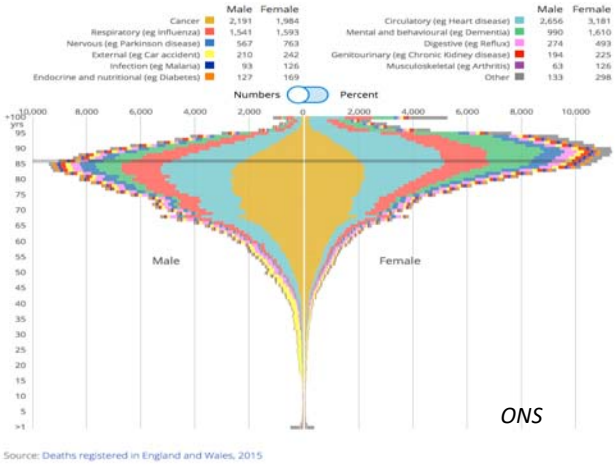
Age support ratio (working/pensioner), 1993-2033 (ONS)



Mortality by age, England and Wales 1968-10

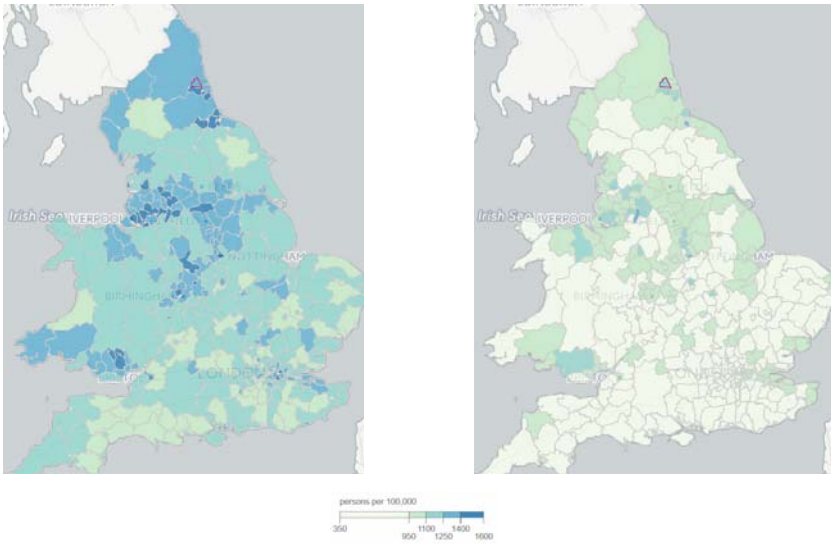


Age of mortality much more concentrated.

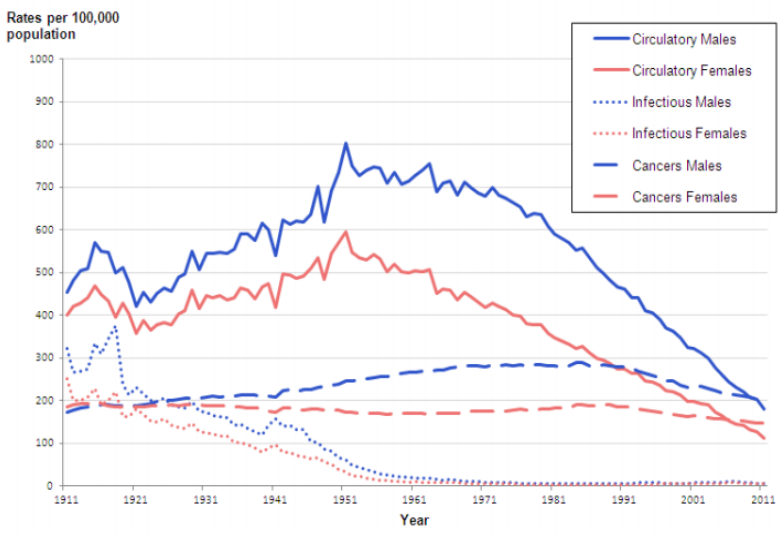


Source: Deaths registered in England and Wales, 2015

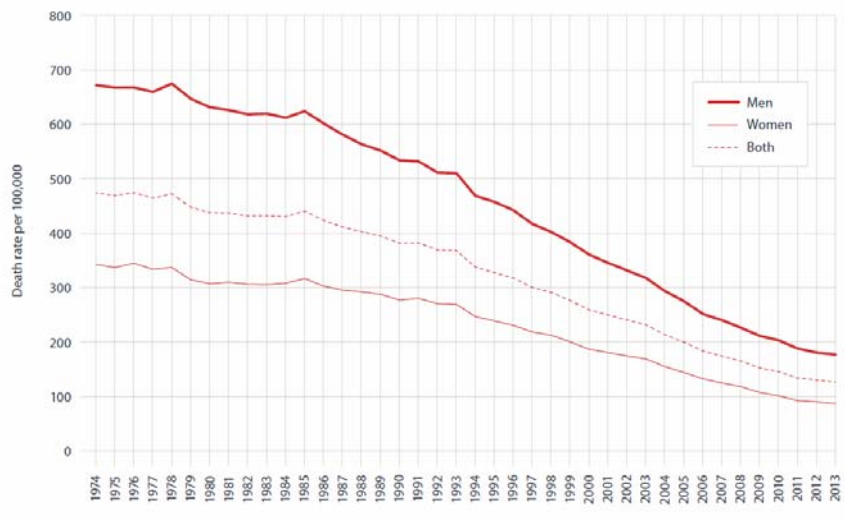
Mortality rates 2001-2014 *(ONS)*



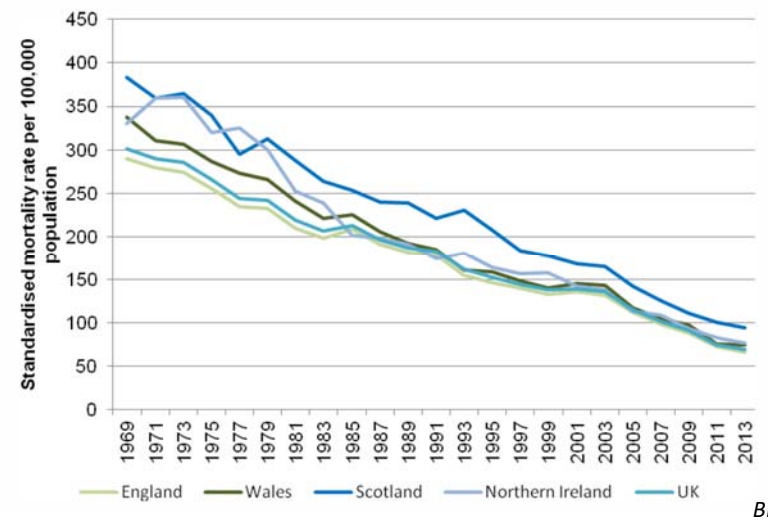
Age-standardised mortality rates England and Wales *(ONS)*



Age-standardised coronary heart disease mortality rates, UK 1974-2013. 73% reduction overall, 81% reduction on those under 75 years. *(BHF)*



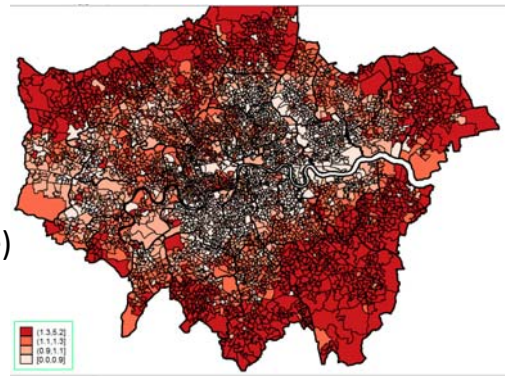
Stroke mortality in UK. Age-standardised mortality /100,000 population 1969-2013



BHF data

UK: New strokes down, deaths from stroke down, stroke survivors up.

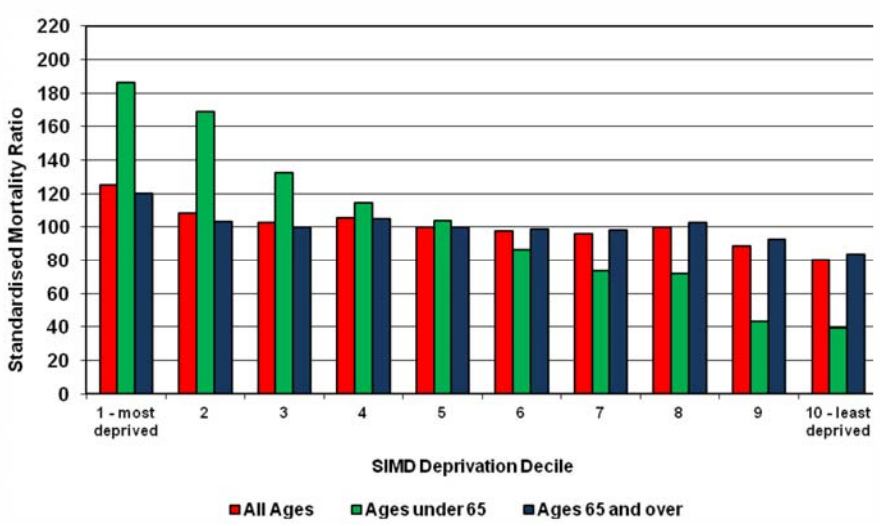
- Stroke incidence rates (new strokes) decreased by 19% from 1990 to 2010.
- Stroke mortality rates decreased by 46% from 1990 to 2010.
- Total stroke prevalence (people living with stroke) has increased by 28% from 2005 to 2015 in the UK.
- Not evenly distributed.



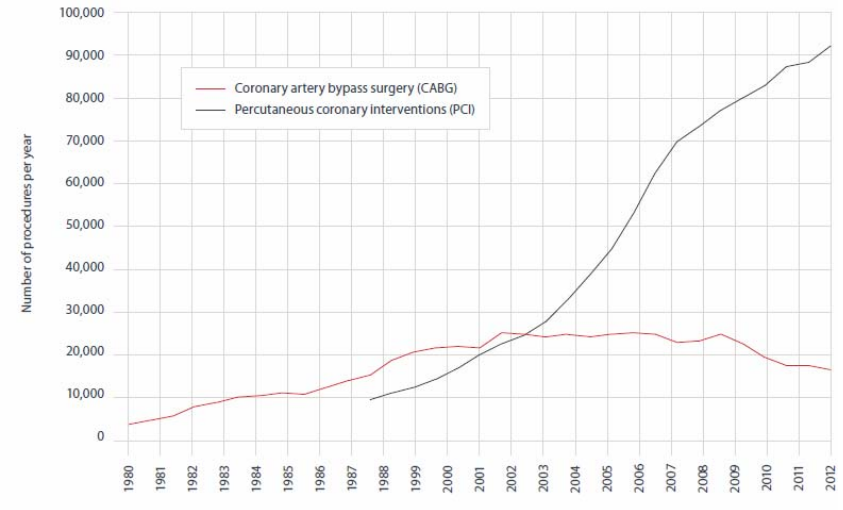
Stroke prevalence, London 2012/13, StatAnalysis data from QOF.

Social determinants important- but not everything. Stroke mortality and deprivation. Scotland.

National Records Scotland 2010-2014

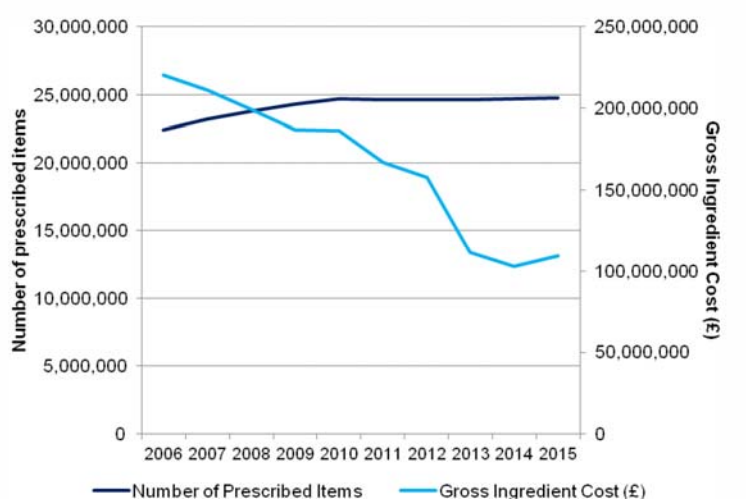


Coronary artery bypass operations v angioplasty, UK 1980-2012 *(data BHF).*

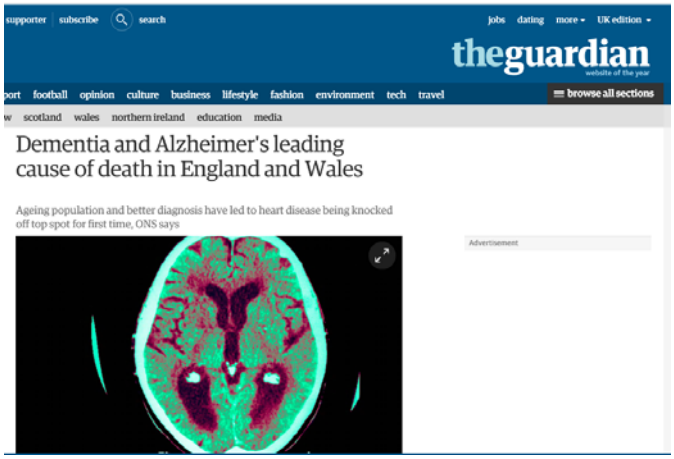


Costs for cardiovascular drugs.

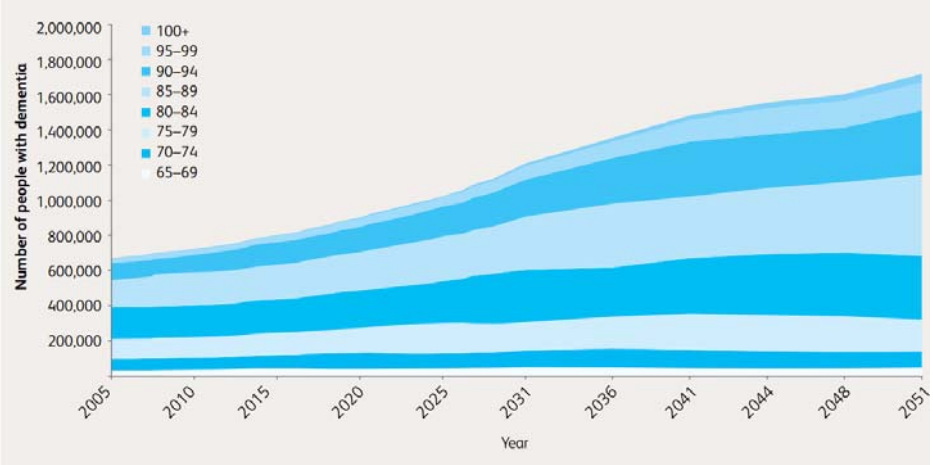
Volume and cost of cardiovascular prescribing, 2006-2015. Scotland.



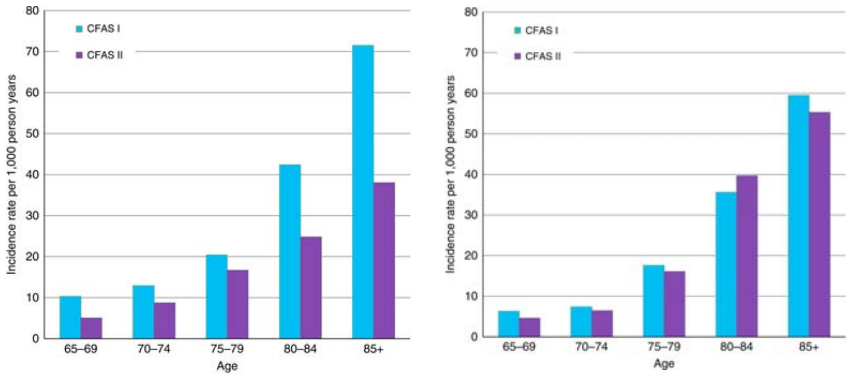
How the press reported arguably the best public health news story in the UK last year:



Around 820,000 UK people affected with dementia 2017. *(Prince et al 2015)*



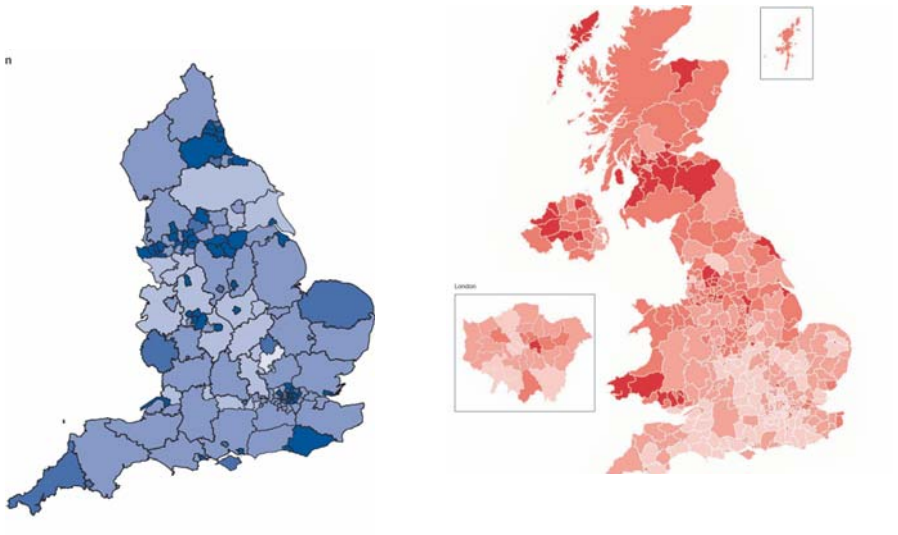
20% reduction over 20 years not equal between men and women. (Matthews et al Nature Com 2016)



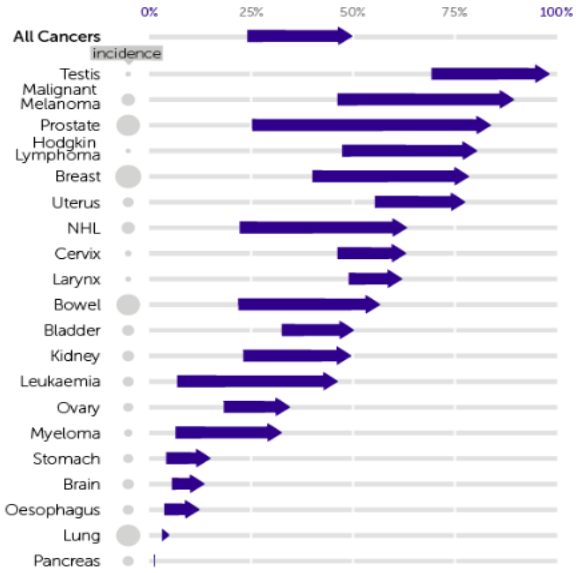
Male

Female

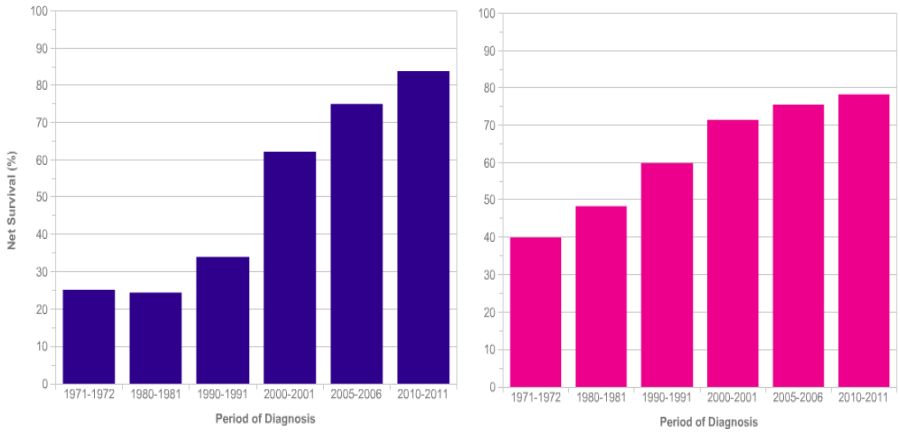
Dementia in women (L), heart disease (R)



Changes in 10 year survival 1971 to 2011 *(CRUK)*

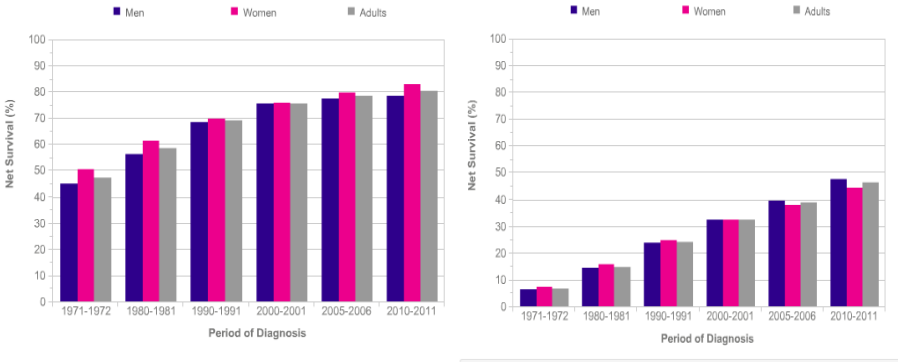


10 year cancer survival, prostate (L) breast (R)

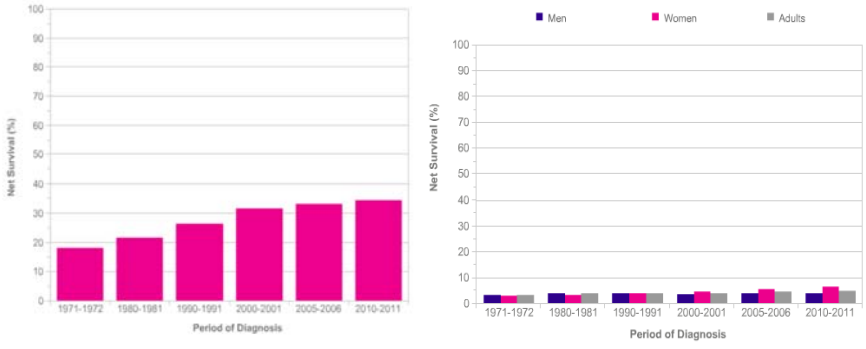


10 year survival: bowel cancer (L, 57%), melanoma (R, 90%) *(CRUK)*

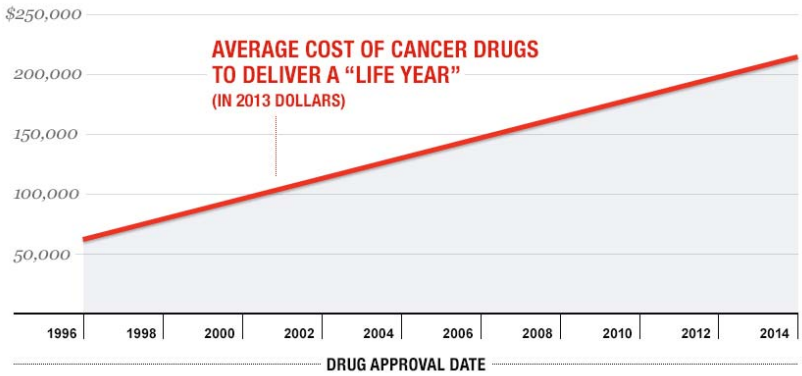
10 year survival: Hodgkin lymphoma (L 80%), leukaemia (R 46%). *(CRCUK)*



Ovarian (L 35%), lung cancer (R, 5%) 10 year survival. *CRUK*

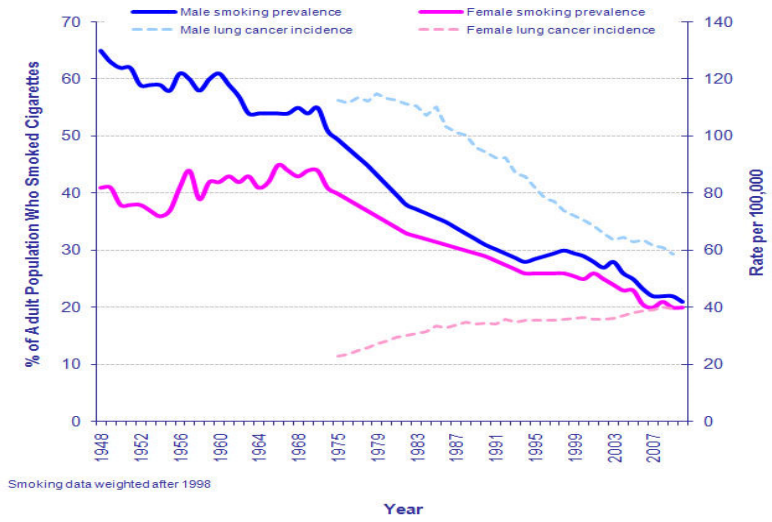


New cancer drugs- US cost.

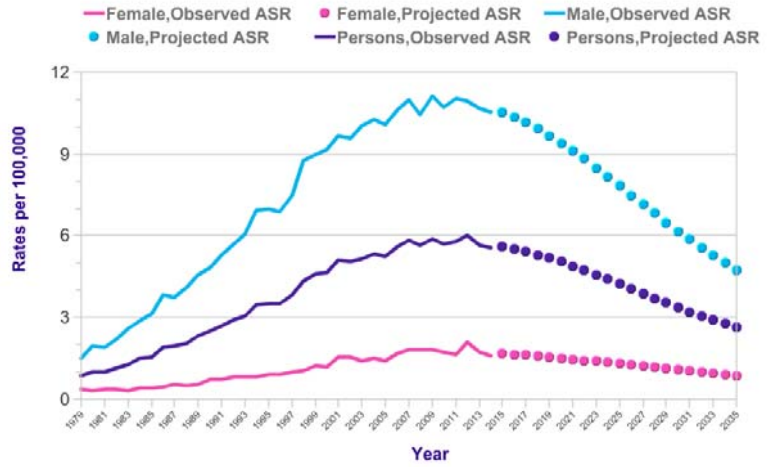


Howard et al. J. Econ. Persp. 2015, adapted by Fortune. US data.

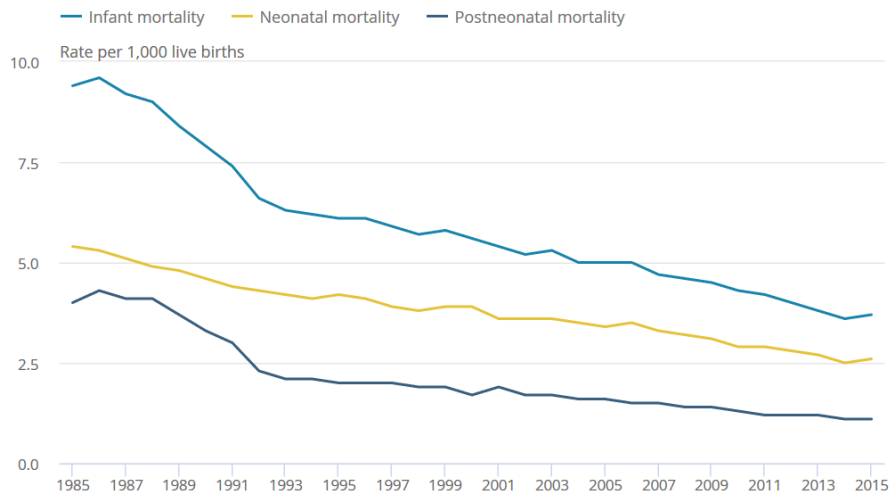
UK smoking and lung cancer rates. There will be a roughly 20 year lag.



Some cancers are largely preventable by public health interventions.
Projected mesothelioma incidence, UK.
Cervical cancer will also decrease. *(CRUK)*

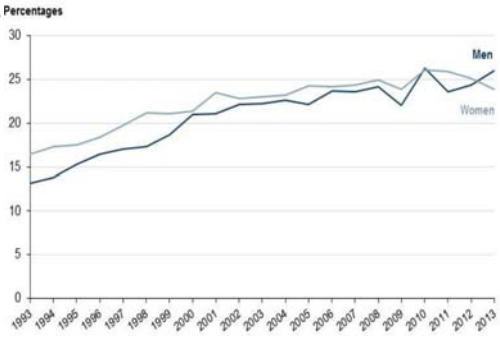


Infant mortality- England and Wales *(ONS 2017)*



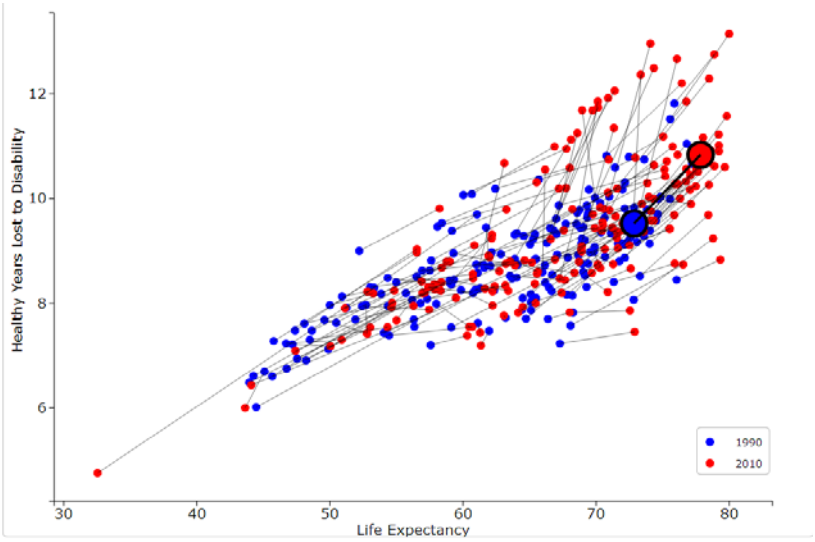
New challenges include antimicrobial resistance and obesity.

- UK is typical of industrialised countries
- Over 2 decades from: 13% to 26% in men
- 16% to 24% in women.

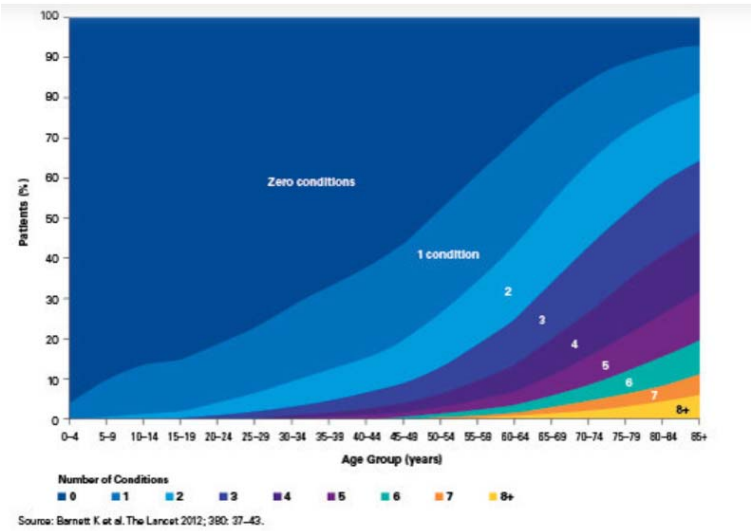


Percentage obese (BMI>30) by year.
Health Survey for England 2014.

As life expectancy increases disability increases: all countries, UK highlighted. ***(GBD 2013)***

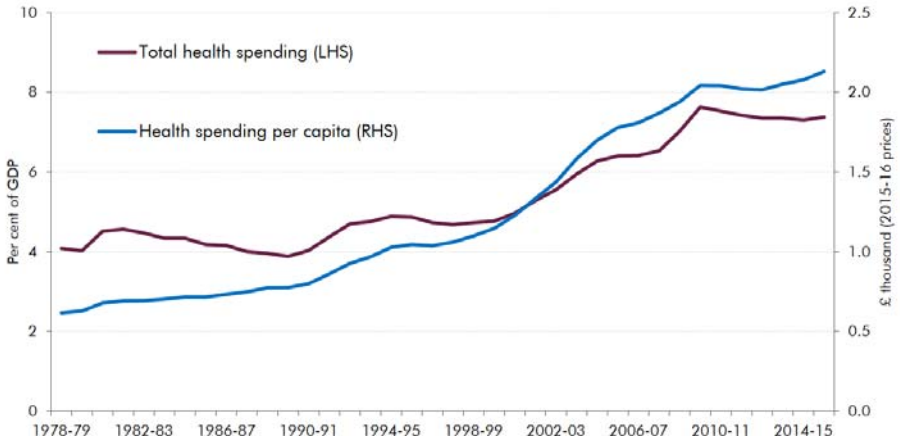


Age and multimorbidity. Compounded by deprivation.



Total and per capita health spending UK.

OBR 2016



Office for Budget Responsibility
Fiscal Sustainability Report 2017.

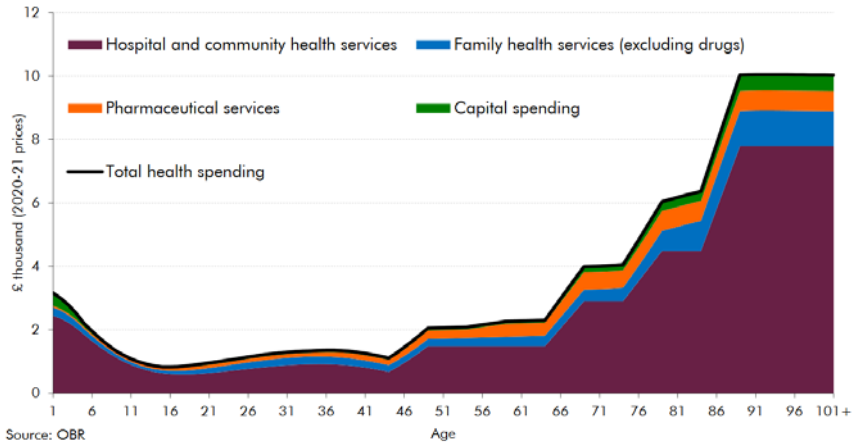
"In the UK public spending on health has increased by 3.8% a year on average in real terms since 1978-79.

The economy has grown by an average of just 2.2 % a year."

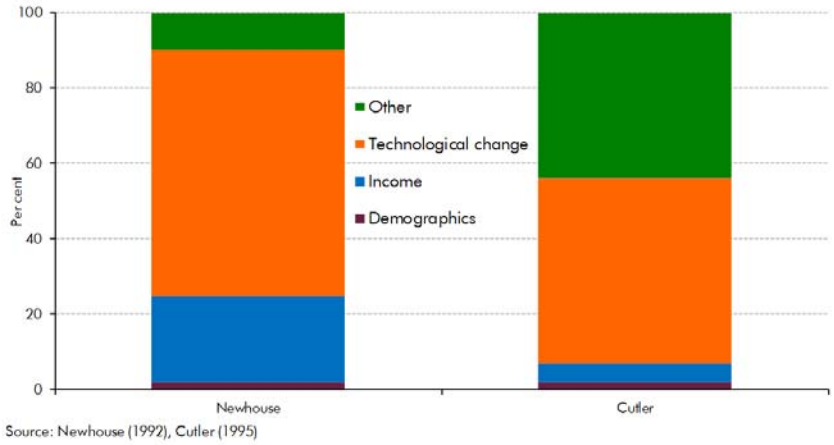
"Demographic effects

have explained only a small part of the increase".

Representative health costs by age *(OBR 2016)*

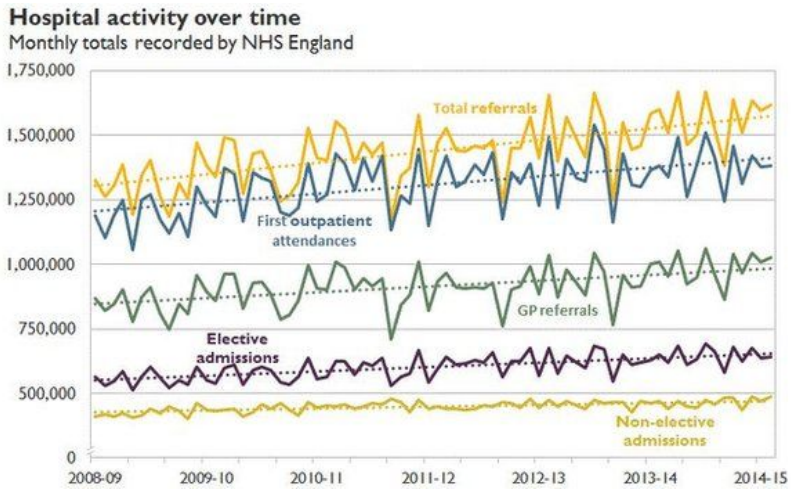


Technological change estimated to have driven 49%-65% of US healthcare cost growth historically.



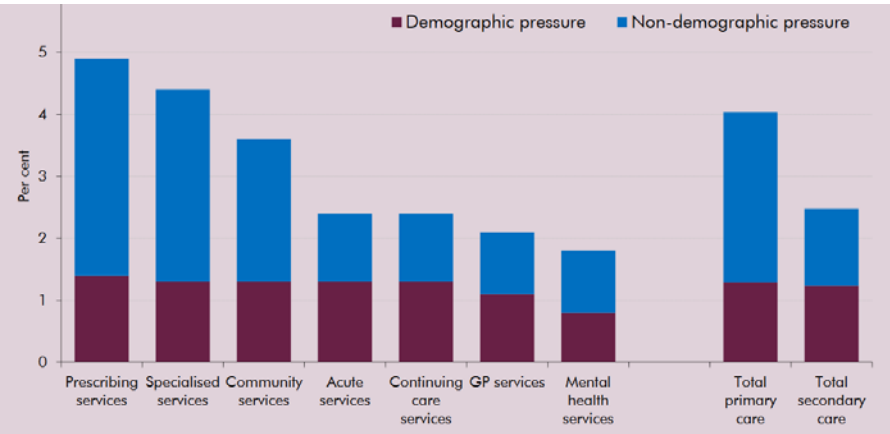
Source: Newhouse (1992), Cutler (1995)

Demand for services.



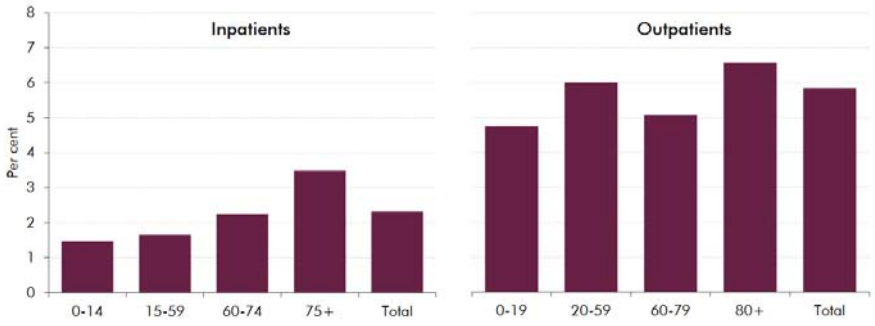
Data from Kings Fund, publicised BBC

Demographic and non-demographic cost pressures. 2015-16 data. *(NHSE, OBR 2017)*



Average UK annual growth in utilisation per person by age.
In those 75+ increased >50% 2000-14.

HES, ONS, OBR 2016.



A few conclusions.

- Global demographic shifts will have implications for healthcare workers, social care workers and industry.
- Internal migration very important.
- Major shifts in the relative importance and geography of disease due to medical advances.
- Scientific advance improves health, has a complex impact on health costs.
- The *relative* impact of demography on future health less than sometimes imagined.
- The combined ageing, internal migration and multimorbid/frailty changes pose a serious social care challenge.