



Invited Review

# Health inequalities are worsening in the North East of England

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## Abstract

**Background:** The North of England, particularly the North East (NE), has worse health (e.g. 2 years lower life expectancy) and higher health inequalities compared to the rest of England.

**Sources of data:** We explore this over time drawing on publicly available data.

**Areas of agreement and controversy:** Whilst overall health is improving, within-regional health inequalities are getting worse and the gap between the NE and other regions (particularly the South of England) is worsening. The gap in life expectancy is widening with substantial variation between deprived and affluent areas within the NE. Those living in the NE are more likely to have a shorter lifespan and to spend a larger proportion of their

shorter lives in poor health, as well as being more likely to die prematurely from preventable diseases.

**Growing points:** We highlight wide, and in some cases increasing, inequalities in health outcomes between the NE and the rest of England. This health disadvantage and the north-south health divide are recognized; despite this, the situation appears to be worsening over the time.

**Areas timely for developing research:** Research to understand and reduce health inequalities is needed particularly in the NE of England where reductions could have enhanced the impact.

**Key words:** health inequalities, North of England, life expectancy

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## Introduction

The North of England—and particularly the North East (NE)—has worse health (e.g. 2 years lower life expectancy than the rest of England) and higher health inequalities than the rest of England.<sup>1–4</sup> Drawing on the most recent publically available data from the Public Health Outcomes Framework Data tool (<http://www.phoutcomes.info>), National Health Service (NHS) Digital (<https://digital.nhs.uk/>) and the Office for National Statistics (ONS) (<https://www.nomisweb.co.uk/>), this commentary piece provides an up-to-date overview of the state of health and health inequalities in the NE of England. We have considered data from local authority areas in the NE of England over time (excluding local authorities in North Cumbria (Allerdale, Carlisle, Copeland and Eden), Hambleton and Richmondshire). We find that whilst overall health is improving, our within regional health inequalities are getting worse and the gap between the NE and other regions (particularly in the South of England) is worsening too. Furthermore, the gap in life expectancy between the region and the rest of England is widening and there is substantial variation between the most deprived and the most affluent areas within the NE. Those living in the NE of England are more likely to have a shorter lifespan and to spend a larger proportion of their shorter lives in poor health, as well as being more likely to die prematurely from preventable diseases. In a context of growing concerns about stalling life

expectancy and rising mortality rates in countries like the UK and the USA,<sup>4–6</sup> we outline these disturbing trends and discuss possible explanations—reflecting particularly on the role that the NHS can play in helping to reduce health inequalities.

## Life expectancy

Life expectancy at birth is a measure of the average number of years a person would expect to live based on contemporary mortality rates. For a particular area and time period, it is an estimate of the average number of years a newborn baby would survive if he or she experienced the age-specific mortality rates for that area and time period throughout his or her life.<sup>7</sup>

The most recent data show that average life expectancy at birth for both men and women in NE region in 2015–17 was the lowest amongst all the regions in England, (males 77.9 years, compared to the national average of 79.6 years, a difference of 1.6 years; females 81.6 years, compared to the national average of 83.1 years, a difference of 1.5 years) (Fig. 1, Table 1).

Furthermore, trend data show that whilst life expectancy had been slowly increasing, both regionally and nationally, the rate of improvement nationally has slowed, and regionally in the NE, a plateau, is observed for the most recent time periods (Fig. 1). The trend data for men also show that the absolute gap between the NE and England has widened from 1.5 years in 2000–02 to 1.62 in 2015–17 due to

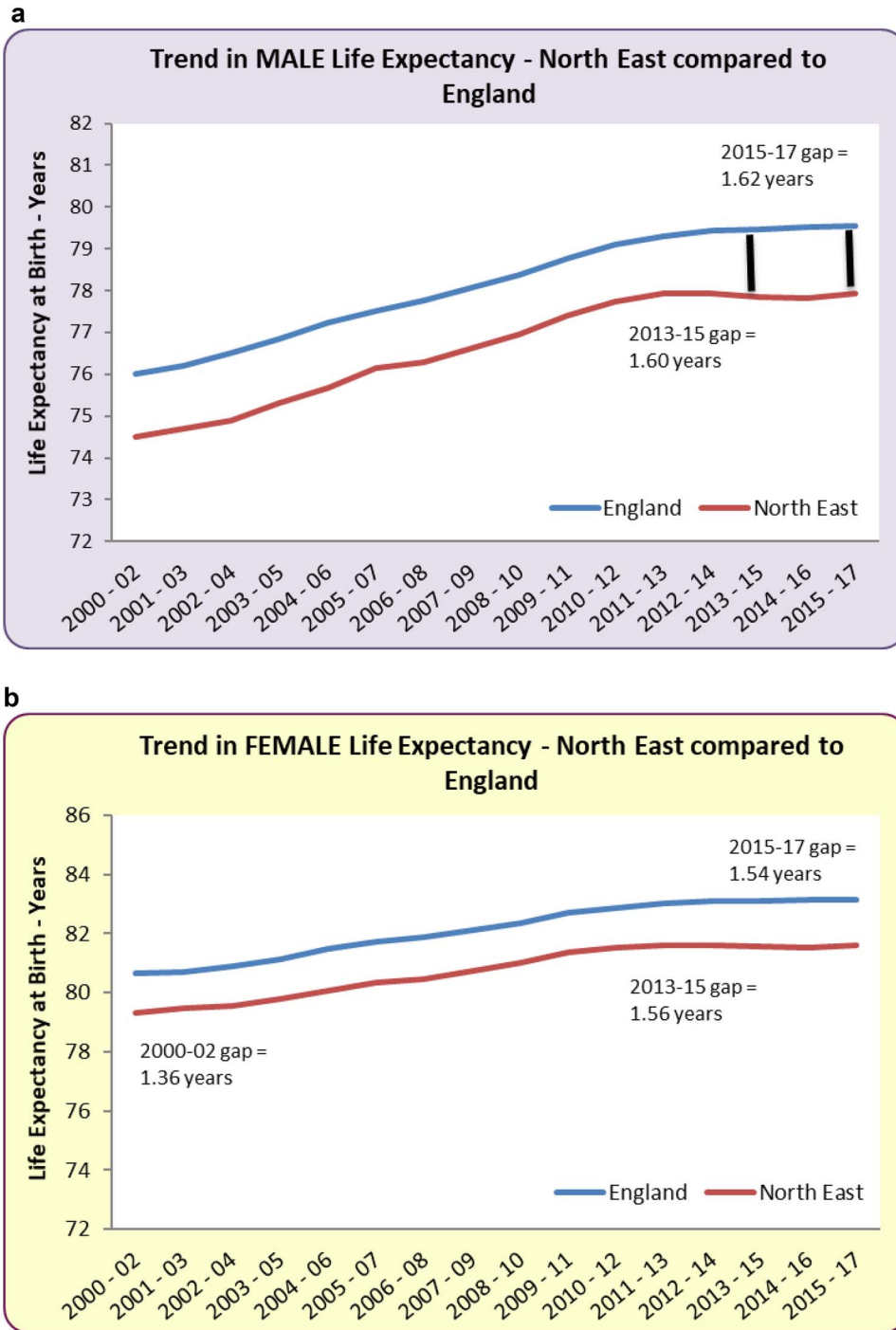


Fig. 1 Life expectancy for (a) males and (b) females.

**Table 1** Life expectancy and preventable premature deaths; North East England compared to other regions, national data and trend over time.

Compared with England ■ Significantly Better ■ Significantly Worse

North East Rank amongst the 9 Regions 1 - Best 9 - Worst

Indicator		North East Value	North East Rank	National Average	Direction of Travel
Life Expectancy	Life Expectancy at Birth (years)				
	Males	77.9	9	79.6	
	Females	81.6	9	83.1	
	Healthy Life Expectancy at Birth (years)				
Preventable Premature Death	Males	59.5	9	63.4	
	Females	60.4	9	63.8	
	Infant Mortality (deaths per 1,000 live births)	3.3	3	3.9	
	Mortality rate from causes considered preventable (per 100,000)	223.4	9	181.5	
	Suicide rate (per 100,000)	10.8	9	9.6	
	Deaths from Drug Misuse	7.6	9	4.3	
	Under 75 Mortality Rate from all Cardiovascular	82.9	8	72.5	
	Under 75 Mortality Rate from Cancer considered	92.8	9	78.0	
Under 75 mortality rate from liver disease considered	22.2	8	16.3		
Under 75 mortality rate from respiratory disease	26.8	9	18.9		

quicker and more favourable longevity gains in other parts of the country. Improvements in women's life expectancy also appear to have stalled, both regionally and nationally with the absolute gap between the NE and England also widening slightly from 1.36 years in 2000–02 to 1.54 years in 2015–17.

### Healthy life expectancy

Since 2009–11, there has been no major changes in healthy life expectancy, either nationally or in the NE for both men and women. Since 2009–11, male life expectancy at birth in the region has increased by 6 months, whereas healthy life expectancy has fallen by just over 2 months over the same period, and therefore, the number of years lived in 'not good' health has increased from 17.7 to 18.4 years. Today (2015–17), male average healthy life expectancy in the NE is only 59.5 years, compared to a national average of 63.4 years (Fig. 2). Men in the NE spend almost a quarter (23.6%) of their lives in 'not

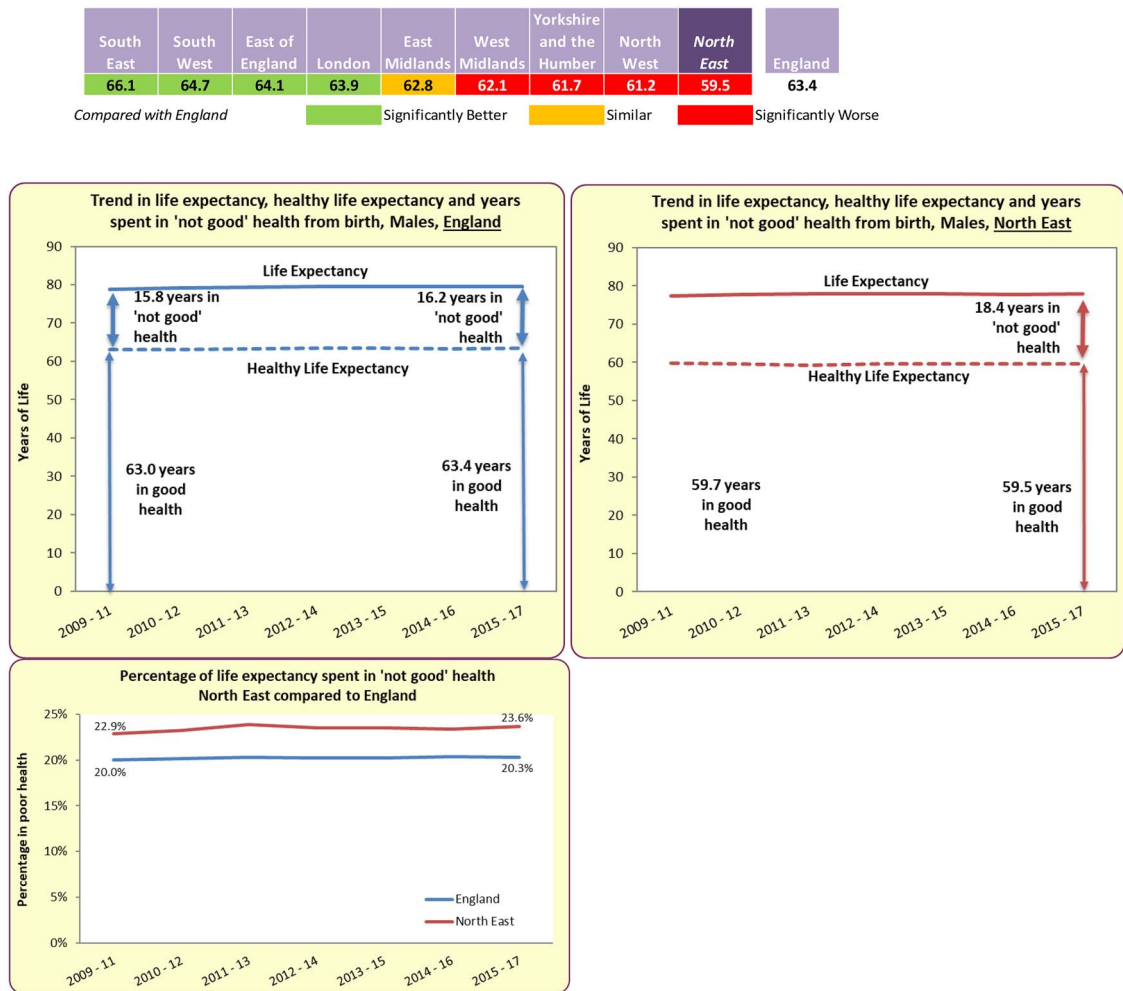
good/poor' health compared to 20.3% of those in the country as a whole, and the trend shows a deteriorating picture.

Similarly, although a woman in the NE could expect to live 81.6 years in 2015–17, her average healthy life expectancy was only 60.4 years, compared to a national average of 63.8 years. Women in NE spend over a quarter (26.0%) of their lives in 'not good/poor' health compared to 23.3% of those in the country as a whole. Although women in the NE lives an average of 3.7 years longer than men, much of that time is spent in 'not good/poor' health—they experience only 0.9 more years of good health than men.

### Preventable premature deaths

#### Infant mortality

Trends show that, in general, infant mortality rates (IMRs) are improving over time and those in the



**Fig. 2 (a and b)** Healthy life expectancy at birth in (a) males and (b) females. The average number of years a person would expect to live in good health based on contemporary mortality rates and prevalence of self-reported good health.

NE region are lower than those seen nationally. In 2015–17, the IMR in the NE was 3.3 per 1000 live births, while the national average was 3.9. Three local authority areas in the region had rates that were significantly better than the national average (Fig. 3A). However, there are increasing inequalities in IMR within the region—with the most deprived local authorities experiencing slower declines.<sup>3,4</sup>

**Mortality rate from causes considered preventable**

The 2015–17 data indicate considerable scope for improvement. For the period 2015–17, NE had the

highest preventable mortality rate nationally (223 per 100 000), 23% higher than the national average (182 per 100 000) (Fig. 3B). During the first decade of this century, preventable death rates fell consistently year-on-year, but in recent years, the rate of improvement has largely stalled both regionally and nationally, and the relative gap between the NE region and England has not reduced.

**Under 75s mortality rate from cardiovascular diseases**

Cardiovascular disease (CVD) is one of the major causes of premature death (i.e. under the age of

South East	South West	East of England	London	West Midlands	North West	East Midlands	Yorkshire and the Humber	North East	England
66.2	65.1	64.6	64.6	62.9	62.3	62.1	61.5	60.4	63.8

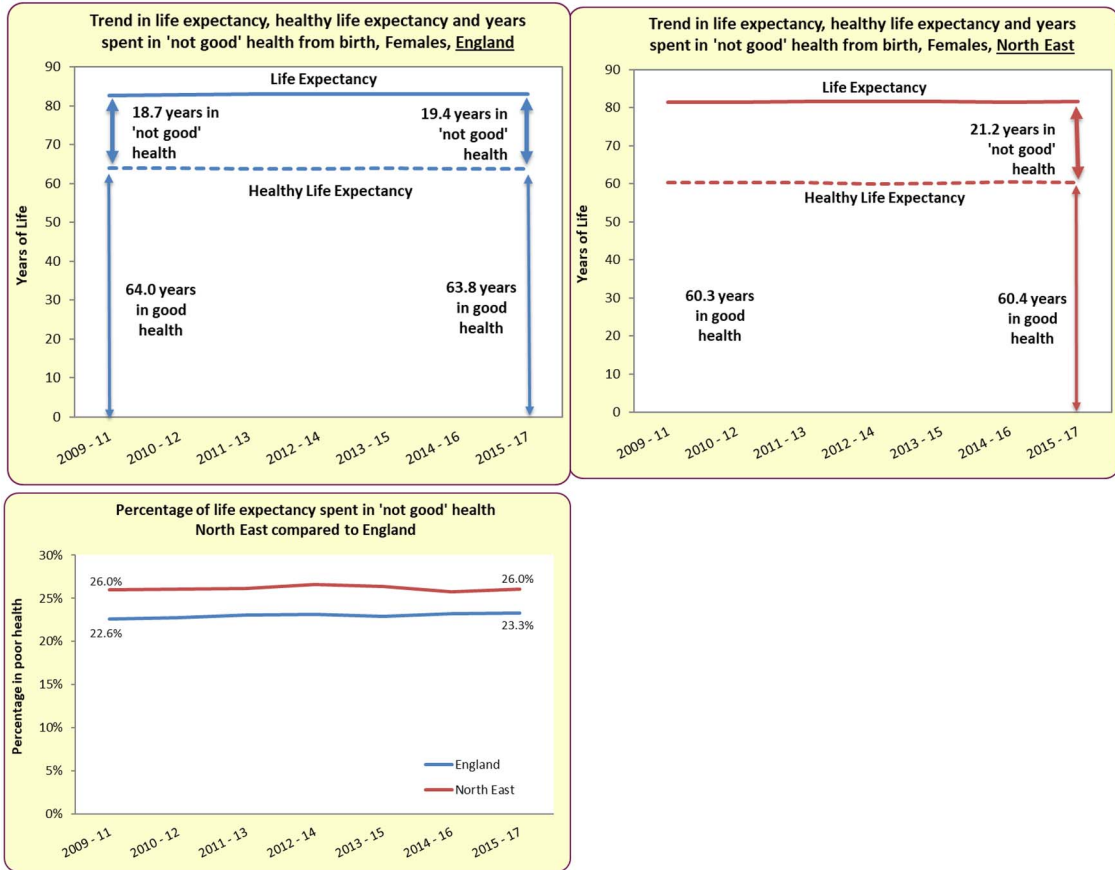


Fig. 2b

75 years) in England. In 2015–17, the rate of premature CVD mortality in NE was the second highest of all the English regions and significantly higher than the national rate. However, the gap between the region and England has narrowed as the NE rate has fallen at a faster pace than in the country overall. Trend data for the region indicate that the CVD mortality rate halved, from 166 per 100 000 in 2001–03 to 83 per 100 000 in 2015–17. However, the rate of decrease has now slowed both regionally and nationally, and underpins the slowdown in improvements in life expectancy (Fig. 3C).

*Under 75s mortality rate from cancer*

During the period of 2015–17, the population in NE suffered premature mortality rates from cancer, which were much higher than any other region and significantly higher than the national rate, 92.8 per 100 000 compared to 78.0 per 100 000 (Fig. 3D). However, trend data show that premature mortality from cancer is continuing to fall in the region and that NE is slowly closing the gap with England. In 2001–03, the NE rate was 25% higher than the national rate and this difference has narrowed to 19% in 2015–17.



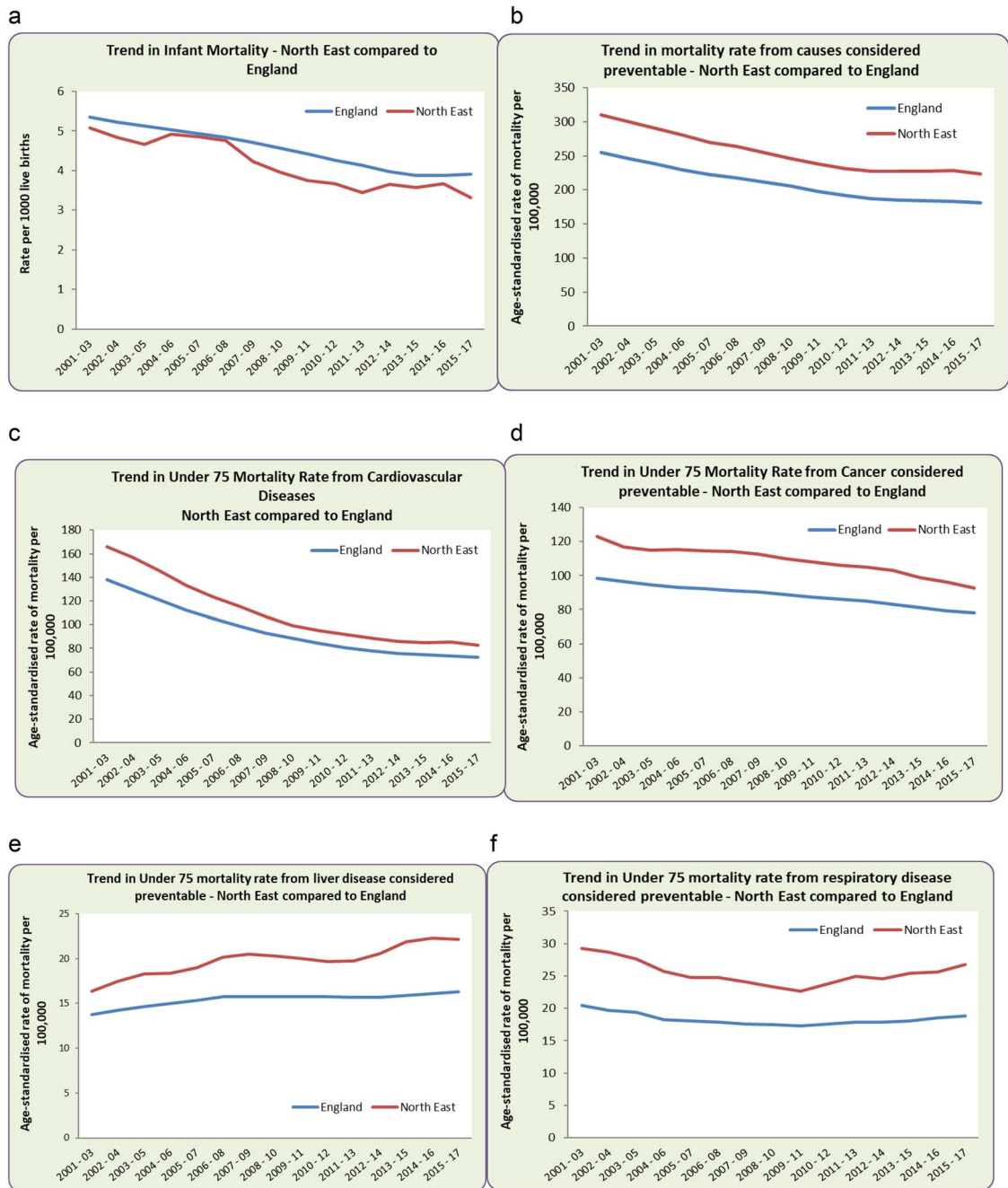


Fig. 3 (a-f) Trends in the NE of England compared to England.

### *Under 75s mortality rate from liver disease considered preventable*

Liver disease is one of the top causes of death in England.<sup>8</sup> During the period of 2015–17, the NE region experienced the second highest premature mortality rates from liver disease—22.2 per 100 000, which is significantly higher than the national rate of 16.3 per 100 000 (Fig. 3E). Further, trends show that premature mortality from liver disease is increasing regionally and nationally, and the increase is at a higher rate in the NE region than nationally. In 2010–12, the regional value was 15.8 per 100 000, which was 25% higher than the national value. By 2015–17, the regional figure had increased to the extent that it was 36% higher than that observed nationally.

### *Under 75s mortality rate from respiratory disease*

Premature mortality from respiratory disease has been a long-term problem in the NE region and is widely considered to reflect its industrial legacy (e.g. mining, steel and ship building) as well as historically higher smoking rates. The data indicate a worsening picture for the region, which, for 2015–17, had the highest premature mortality rates from respiratory disease of any of the English regions (Fig. 3F). For the first 10 years of this century, the gap between the NE region and the average of England had been reducing, as the rate in the region fell at a faster rate than that observed nationally. However, for about the past 6 years, the gap has been widening. In 2009–11, the NE rate was 31% higher than the national rate, but by 2015–17, the gap had increased again to 42%.

## **Conclusion**

In summary, the most recent data show that the NE region has the lowest life expectancy at birth in England, and improvements have stalled in recent years. The region also has the lowest healthy life expectancy of any region in England, and the data demonstrate that not only do men and women in

the NE have lower life expectancy than the national average, but also they spend a larger proportion of their shorter lives in ‘not good/poor’ health. The <75 mortality rate from liver disease and respiratory disease considered preventable is significantly higher than the national rate and increasing, and the gap between the region’s rate and the England rate is widening. However, our <75 mortality rates for cancer and CVD, and the IMR are improving and the gap with the average of England is beginning to close.

A 2014 Public Health England commissioned independent inquiry<sup>1</sup> set out to develop recommendations for policies that could address the social inequalities in health within the North and between the North and the rest of England. A further commissioned report<sup>2</sup> aimed at understanding the impact of regional health inequalities on productivity and exploring the opportunities for improving the UK’s productivity by unlocking the regional growth through health improvement. We suggest that the challenge faced by the NE region is even greater than the North as a whole and greater than first envisaged with worsening health inequalities and increased health care utilization set on a background of considerable, and persistent poor health-related behaviours—shaped, in turn, by a context of austerity, rising child poverty and increased income inequality.<sup>4–6</sup>

The data outlined in this article highlight wide—and in some cases increasing—inequalities in health outcomes between the NE region and the rest of England. This health disadvantage and the north–south health divide have long been recognized, but these new data show that they are also now worsening over time.

There is an apparent circle of increasing inequality between the region and the rest of England, which made more significant because of lasting and worsening issues that impact upon health. Whilst it is accepted that multiple factors impact upon health inequalities—e.g. socioeconomic and environmental<sup>9,10</sup>—the quality of availability and access to health care services in a local geography also play their part. There is a clear role for the NHS and



health care professionals in the NE to help tackle our health inequalities. In the NE, the health services are highly rated by the Care Quality Commission, but there is a need for the NHS in the region to ensure that all groups get good access to such services. Our hospitals and the wider primary care health system are arguably amongst the best in England with a significant number rated ‘good’ and ‘outstanding’. So, there is a clear role for the NHS to play (as well as public health and the wider system)—from promoting screening uptake in more deprived communities,<sup>11–13</sup> to reducing mortality amenable to health care, to supporting lifestyle changes, and helping to address the social determinants of health through social prescribing and link workers. The NE and North Cumbria Applied Health Research Collaboration will be working on this agenda over the next 5 years.<sup>14</sup>

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