# Premature and preventable mortality

<u>Ref:</u> PH2

# Why is it important?

Premature mortality can be used as an important measure of the overall health of County Durham's population, and as an indicator of inequality between and within areas. Reductions in premature (and all age) mortality over time can demonstrate improvement in the health status of the population as a whole and result in increases in life expectancy. Reducing health inequalities and early death is part of the three strategic priorities of the County Durham Joint Health and Wellbeing Strategy.

Preventable mortality is defined in the Public Health Outcomes Framework as 'death that could potentially be avoided by public health interventions'. These include a wide variety of causes of death such as; suicide and self-inflicted injuries and homicide/assault; ischaemic heart disease (IHD), some cancers, HIV/AIDS; tuberculosis, Hepatitis C, diabetes, alcohol related diseases, illicit drug use disorders, deep vein thrombosis (DVT), aortic aneurysm, influenza, chronic obstructive pulmonary disorder (COPD), transport accidents, accidental injury. The inclusion of preventable mortality in the PHOF is a clear signal of the importance of prevention as well as treatment in reducing avoidable deaths.

People born in England today can expect to live longer than ever before. However, there are certain conditions that are having an increasing impact on people's lives. A child born in England today can expect to live a longer, healthier life than ever before, yet, they still have a one in three chance of dying before they reach 75 (Longer Lives, Public Health England, 2016). Many of our population suffer from avoidable ill-health or die prematurely from conditions which are entirely preventable. The Marmot Review identified a clear social gradient for mortality and morbidity where the poorer are sicker and die earlier. Mortality and morbidity, along with life expectancy and healthy life expectancy are influenced by the conditions in which one is born, lives and dies. The Review showed that people living in the most deprived areas will on average, die seven years earlier than people living in the least deprived areas. Key drivers that affect the chances of an individual dying prematurely from preventable conditions include behaviour, social, economic and environmental factors, and location, all of which have a direct impact on health status and exacerbate existing ill health. PHE's 'Evidence into action: Opportunities to protect and improve the nation's health' (2014) illustrated the size of these factors (figure 1). This showed the behavioural patterns are a leading cause but that confounding social circumstances are significant. Healthcare was identified as less significant, however it was noted that it is essential that healthcare is accessed when appropriate and necessary to do so (including access for immunisation and screening programmes).

**Figure 1:** Factors contributing to premature mortality in England. Source: 'Evidence into action: opportunities to protect and improve the nation's health', Public Health England. October 2014



# Durham data – the local picture and how we compare

Between 2016 and 2018 there were 16,975 deaths in County Durham, of which 5,718 (33.7%) were premature (aged less than 75 years). Proportionally this is larger than the national experience (31.8%). Nationally men are at more risk than women of dying prematurely; this is reflected in County Durham where 56.7% of premature deaths are male and 43.3% female. Of those 5,718 premature deaths in County Durham between 2016 and 2018, 62% (3,548) were considered preventable<sup>1</sup>. Proportionally this is similar to the national experience (59.9%)<sup>2</sup>.

In County Durham premature mortality rates for the 'biggest killers' (cancer, heart disease and respiratory disease) are higher than nationally but have been reducing over time. IN 2018 cancer accounted for around 46% of all premature deaths in County Durham (Figure 2), cardiovascular disease accounted for around 15% and chronic lower respiratory diseases 10%. Liver disease and stroke accounted for around 11% of premature deaths. These proportions are broadly comparable with England.

Circulatory disease (cardiovascular disease including stroke) is the single biggest contributor to the shorter life expectancy experienced locally. In 2018 cardiovascular disease (CVD) and cancer accounted for 61% of early or premature deaths in County Durham.

**Figure 2:** Cause of death as a proportion of all premature deaths\*, County Durham and England, 2018. Source: Mortality statistics - underlying cause, sex and age. Nomis – ONS.



\* Premature death refers to those aged less than 75 years

The Public Health Outcomes Framework (PHOF) shows premature mortality rates for all cause (preventable), cancer, cardio vascular disease and respiratory disease across the county are significantly worse than England (2016-18 pooled) but have been falling over time (Figure 3).

Between 2006-08 and 2016-18, the premature mortality rate in County Durham for:

- All causes (preventable) reduced by 14%, similar to the regional (14%) and national (16%) reduction (figure 3 and table 1).
- CVD reduced by 33%, more than the North East (28%) and England (28%).
- Cancer reduced by 17%, similar to the North East (17%) and England (15%).
- Liver disease increased by 48%, compared to a 13% increase in the North East and an 3% rise nationally.
- Respiratory disease has fallen 9%, more than the North East (5%) and England (5%).

 $<sup>^{1}</sup>$  Mortallity rate from causes considered preventable (2018) – Fingertips -

https://fingertips.phe.org.uk/search/preventable#page/3/gid/1/pat/6/par/E12000001/ati/102/are/E06000047/iid/92488/age/1/sex/4
<sup>2</sup> ONS Death 2018, Nomis - https://www.nomisweb.co.uk/guery/construct/summary.asp?mode=construct&version=0&dataset=161

**Figure 3:** Mortality rates per 100,000, for selected causes of death, persons, County Durham, North East and England, 2006-08 to 2016-18. Source: PHOF, PHE

#### All-cause preventable (ACP), under 75



Cancer (all types), under 75



**Respiratory disease, under 75**  County Durham England – – – North East 70 Mortality Rate / 100,000 60 50 40 30 20 10 0 , <sup>2010</sup>, 2001

- NB The y axes have different scales
  - Statistically significantly higher than England

O Not statistically significantly different to England

**Table 1:** Change in selected mortality rates (%) forselected causes of death, 2006-08 to 2016-18

	County Durham	North East	England
ACP	-14%	-14%	-16%
CVD	-33%	-28%	-28%
Cancer	-17%	-17%	-15%
Liver disease	+48%	+13%	+3%
Respiratory disease	-9%	-5%	-5%

#### CVD, under 75



#### Liver disease, under 75



**Table 2:** Selected premature mortality rates per 100,000 (2016-18 and 2006-08), and absolute and relative inequality
 gaps between County Durham and England. Source: PHOF, PHE

All cause preventable mortality (ACPM)		Male	Female
ACPM in County Durham	2016-18	440.1	319.6
ACPM in England	2016-18	401.6	262.8
Absolute gap in ACP mortality between		38.5*	56.8
County Durham and England			
Relative gap (%)		10%	22%
ACPM in County Durham	2006-08	527.4	359.7
ACPM in England	2006-08	481.8	306.3
Absolute gap in ACP mortality between		45.6	53.5
County Durham and England			
Relative gap (%)		9%	17%
Cancer mortality		Male	Female
Cancer mortality in County Durham	2016-18	154.4	141.2
Cancer mortality in England	2016-18	146.5	119
Absolute gap in cancer mortality between			
County Durham and England		7.9*	22.2
Relative gap (%)		5%**	19%
Cancer mortality in County Durham	2006-08	199.0	160.2
Cancer mortality in England	2006-08	174.9	138.2
Absolute gap in cancer mortality between		24.1	22.1
County Durham and England			
Relative gap (%)		14%	16%
CVD mortality		Male	Female
CVD in County Durham	2016-18	102.5	52
ACPM in England	2016-18	100.4	44.4
Absolute gap in ACPM between County Durham		2.1*	7.6*
and England (rate per 100,000)			
Relative gap (%)		2%**	17%**
CVD in County Durham	2006-08	156.6	75.4
ACPM in England	2006-08	139.3	61.2
Absolute gap in ACPM between County Durham		17.3	14.2
and England (rate per 100,000)			
Relative gap (%)		12%	23%

\* The absolute gap between County Durham and England has closed \*\* The relative gap between County Durham and England has closed

Between 2006-08 and 2016-18 the absolute and relative gap between County Durham and England closed for:

- Cancer mortality (men only
- CVD mortality (men and women)

**Figure 4:** Premature mortality rates per 100,000 for selected causes of death, men and women, County Durham, North East and England, 2001-03 to 2016-18. Source: PHOF, PHE



- Mortality rates (all cause preventable, CVD and cancer) for men and women in County Durham have been falling over time (figure 4).
- Since 2006-08 CVD mortality rates for men and women in County Durham have fallen by around 30% (table 2).
- Male CVD mortality is no longer statistically significantly higher than England.
- Reductions in cancer mortality for men in County Durham (-22%) were proportionally similar to the North East (-22%) but larger than England (-12%). Reductions for women were proportionally similar (-12%) than the North East (-12%) and England (-14%).

**Table 2:** Change in premature mortality rates (%) for selected causes of death, men and women, County Durham,

 North East and England, 2006-08 to 2016-18. Source: PHOF, PHE

	County Durham		North East		England	
	Men	Women	Men	Women	Men	Women
ACP	-17%	-11%	-16%	-12%	-17%	-14%
CVD	-35%	-31%	-27%	-31%	-28%	-27%
Cancer	-22%	-12%	-22%	-12%	-12%	-14%

The Chartered Institute of Public Finance and Accountancy (CIPFA) Nearest Neighbours model seeks to measure similarity between Local Authorities. CIPFA have updated their Nearest Neighbours Model in 2018, resulting in amended peer groups for local authorities. These new benchmarking groups have been implemented in Fingertips from April 2018.

The CIPFA groups used in Fingertips are those provided by CIPFA as their "default" groupings – these include in benchmarking groups the 15 nearest neighbours selected only from local authorities of the same type. Local Authorities in the same socio-economic bracket (identified as 'similar; to County Durham are: Barnsley, Calderdale, Doncaster, Dudley, Kirklees, North Tyneside, Northumberland, Redcar and Cleveland, Rotherham, Sefton, St. Helens, Tameside, Wakefield, Wigan and Wirral.



## Measuring the gap in premature mortality within County Durham

There is significant inequality in premature all-cause mortality within County Durham (Figure 6). The distribution of premature mortality across County Durham is unequal. It is greater in the more deprived areas. The Relative Index of Inequality gap (RII) describes the size of the gap between the least and most deprived MSOAs. Positive (RII) scores indicate higher mortality in the more deprived MSOAs of a given area. The RII (i.e. the gap between least and most deprived) in County Durham for the period 2016-18 was 76%. This is larger than the 72% gap calculated for the period 2015-17, meaning that the size of the gap in all-cause premature mortality between least and most deprived has decreased by 4 percentage points.

**Figure 6:** Measuring the gap in premature all-cause mortality within County Durham, MSOA level all-cause mortality rates per 100,000, 2016-18 pooled. Source: DCC Public Health Intelligence, Mortality data NHS Digital, ID2019.



There is variation across County Durham for all cause premature mortality.

- 4 Together Partnership AAP, Derwent Valley AAP, Stanley AAP and Bishop Auckland and Shildon AAP are all statistically significantly higher than the County Durham rate.
- East Durham AAP, Durham AAP, Weardale AAP, Chester-le-Street District AAP and Great Aycliffe & Middridge AAP are all statistically significantly lower than the County Durham rate.

**Figure 7**: All cause premature mortality by Area Action Partnership, 2016-18. Source: DCC Public Health Intelligence, Mortality data NHS Digital.



# Groups most at risk

A wide range of factors can lead to illness and premature death.

The Health Profile for England 2017 reported that behavioural risk factors such as poor diet, smoking and low physical activity, along with high blood pressure, high body mass index and high cholesterol are the main risk factors for cardiovascular disease. Therefore a large proportion of these premature deaths are preventable.

In 2017, approximately 23% of all deaths in the UK were considered avoidable (141,313 deaths out of 607,172). Neoplasms (cancers and other non-cancerous tissue growths) continue to be the leading cause of avoidable mortality in the UK in 2017, with mortality rates ranging from 73.4 deaths per 100,000 population in England to 92.7 deaths per 100,000 population in Scotland.

Avoidable mortality is defined as:

- those where it is reasonable to expect deaths to be avoided through good quality healthcare, even after the condition has developed (amenable mortality)
- those where it is possible to prevent the condition from occurring in the first place (incidence reduction) through wider public health interventions, such as those targeted at reducing the incidence of smoking (preventable mortality)

Lifestyle choices remain a key driver to reducing premature deaths but it is clear that social, economic and environmental factors also have a direct impact on health status and can exacerbate existing ill health. The Marmot Review (2010) identified a clear social gradient for mortality and morbidity where the poorer are sicker and die earlier. Mortality and morbidity, along with life expectancy and healthy life expectancy are influenced by the conditions in which one is born, lives and dies. These 'wider determinants' of health can adversely affect both physical and mental wellbeing and the health-related lifestyle choices people make (for example, whether to smoke or misuse alcohol) (Tackling the causes of premature mortality, NICE local government briefings, 2015).

Long term conditions, such as cardiovascular heart disease, respiratory disease and cancer, are among the leading causes of premature mortality in County Durham and make a major contribution to the life expectancy gap between County Durham and England as a whole (for further information on health inequalities see the 'Health inequalities and social determinants of health' factsheet). Groups most at risk from premature mortality could include:

### People living in poverty

People from lower socio-economic groups have increased risk of developing a long term illness and premature mortality is strongly associated with deprivation. Health inequalities are apparent for virtually all causes of death, with people living in poverty more likely to die younger.

### Smokers

Smoking is the behaviour with the strongest association with premature death, particular in relation to heart disease, lung cancer and respiratory conditions. Smoking is the biggest single contributor to the shorter life expectancy experienced locally and contributes substantially to the cancer burden. Smoking has been identified as the single biggest cause of inequality in death rates between rich and poor in the UK. Death rates from tobacco are two to three times higher among disadvantaged social groups than among the better off (ASH, 2012).

### People with poor access to health services

Timely and appropriate access to health services can be a major factor in premature death

# People living in poor quality housing

Housing conditions are associated with premature death and are a particular factor when it comes to respiratory conditions and accidents

### People with excess weight and low levels of physical activity

Obesity and Physical activity are risk factors for premature death, particularly in relation to heart disease and stroke

People with alcohol and/or substance misuse problems

Substance misuse increases the likelihood of premature death, both from health conditions, and due to accidents or suicide

#### **Risk taking behaviours**

Risky sexual behaviours, dangerous driving, and failing to protect yourself adequately in the sun, can increase the likelihood of premature death

#### Those who are reluctant to seek help

A reluctance to seek help from health professionals can lead to later detection of disease and a greater likelihood of ill health and death

#### How does this topic link to our strategies and plans?

Premature and preventable mortality can be used as an indicator of inequality between and within areas. Reductions in premature (and all age) mortality over time can demonstrate improvement in the health status of the population as a whole and result in increases in life expectancy.

Health inequalities are a cross cutting theme in the County Durham Plan, demonstrating it is a common theme throughout all plans and strategies in County Durham.

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Published:		
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Data sources:		
Public Health Outcomes Framework		
PHE Segment Tool		
Primary Care Mortality Database (DCC Public Health Intelligence)		
Compendium of Population Health Indicators		