



Health Inequalities

Life Expectancy Decomposition 2019

A product of the NI Health and Social Care Inequalities Monitoring System



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Health

An Roinn Sláinte
Mánnystrie O Poustie
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Health Inequalities

Life Expectancy Decomposition 2019

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Information Analysis Directorate (IAD) sits within the **Department of Health (DoH)** and carries out various statistical work and research on behalf of the department. It comprises four statistical areas: Hospital Information, Community Information, Public Health Information & Research and Project Support Analysis.

IAD is responsible for compiling, processing, analysing, interpreting and disseminating a wide range of statistics covering health and social care.

The statisticians within IAD are out-posted from the Northern Ireland Statistics & Research Agency (NISRA) and our statistics are produced in accordance with the principles and protocols set out in the UK Code of Practice for Official Statistics.

About Public Health Information and Research Branch

The role of Public Health Information and Research Branch (PHIRB) is to support public health policy development through managing the public health survey function while also providing analysis and monitoring data. The head of the branch is the Principal Statistician, Mr. Bill Stewart.

In support of the public health survey function, PHIRB is involved in the commissioning, managing and publishing of results from departmental funded surveys, such as the Health Survey Northern Ireland, All Ireland Drug Prevalence Survey, Young Persons Behaviour & Attitudes Survey, Patient Experience Surveys and the Adult Drinking Patterns Survey.

The branch also houses the NI Health and Social Care Inequalities Monitoring System which covers a range of different health inequality/equality based projects conducted for both the region as well as for more localised area levels.

PHIRB provides support to a range of key DoH NI strategies including Making Life Better, a 10 year cross-departmental public health strategic framework as well as a range of other departmental strategies such as those dealing with suicide, sexual health, breastfeeding, tobacco control and obesity prevention. It also has a key role in supporting the Departmental Alcohol and Drug Strategy, by maintaining and developing key departmental databases such as, the Substance Misuse Database, Impact Measurement Tool and the Census of Drug & Alcohol Treatment Services, which are all used to monitor drug misuse and treatments across Northern Ireland. In addition to Departmental functions, PHIRB also support the executive level Programme for Government and its strategic outcomes through a series of performance indicators.

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Introduction

This publication is one of a series of reports produced as part of the NI Health & Social Care Inequalities Monitoring System (HSCIMS). While the life expectancy figures presented were previously published in the Public Health NI Fact Sheet¹ and Health Inequalities Annual Reports², this report explores the extent to which mortality within certain age groups and causes of death contribute to the observed variations in life expectancy between time periods, genders, deprivation levels and between urban and rural areas.

This report also compares life expectancy in NI with that in England, Scotland, Wales and the Republic of Ireland (RoI).

Summary of Findings

In 2015-17, male life expectancy in Northern Ireland (NI) stood at 78.5 years, an increase from 78.0 years in 2011-13. Female life expectancy did not increase over the period and remained at 82.3 years in 2015-17. There has been no change in life expectancy for both males and females from 2014-16. The main reasons for change from 2011-13, in terms of contribution from age and cause of death, included:

- Reduced mortality for a number of causes added 0.8 years (half of which can be attributed to circulatory disease) to male life expectancy. This was offset by 0.3 years due to a rise in mortality for a range of causes.
- Decreased mortality rates among 50-89 year olds contributed to the majority of the increase in male life expectancy.
- Any increase in female life expectancy over the period was negated by increased mortality for a range of causes, a third of which was attributable to mental and behavioural disorders; mainly vascular dementia or Alzheimer's disease.
- Increases in mortality for females aged under 40 was largely offset by a reduction in deaths among older age groups, with the exclusion of those aged 60-69 and 90 and over.

Inequality Gaps within NI

Despite the observed improvements in life expectancy in NI, notable variations in the age people can expect to live to remain across the NI population. For those living in the most and least deprived areas, between genders, and between urban and rural areas, large inequality gaps in life expectancy continue to exist.

Gender Gap

- Males born in 2015-17 could expect to live 3.9 years fewer than their female counterparts.
- Higher male mortality from cancers and circulatory disease accounted for 1.4 years and 1.2 years of the gap respectively.
- Suicide was also much higher among males and contributed a further 0.6 years towards the gender gap.

Deprivation Gap

- Male life expectancy for those living in the most deprived areas was 74.2 years, 7.1 years less than that in the least deprived areas (81.3 years).
- Cancer (1.6 years) and circulatory diseases (1.4 years) each contributed almost a quarter of the deprivation gap respectively.

¹ <https://www.health-ni.gov.uk/articles/public-health-statistics>

² <https://www.health-ni.gov.uk/articles/health-inequalities-statistics>

- Suicide was the third highest contributor representing 1.2 years of the deprivation gap. Of this, two-thirds (0.8 years) was attributable to males between the ages of 20 and 39 years.
- Females in the most deprived areas had a life expectancy of 79.6 years, 4.5 years lower than that in the least deprived areas (84.1 years).
- Cancer related mortality accounted for almost a third (1.4 years) of the female deprivation gap. Of this, over half (0.8 years) was attributable to lung cancer.

Rurality Gap

- Life expectancy for males living in urban areas was 77.2 years, 3.1 years less than males living in rural areas (80.3 years).
- Female life expectancy in urban areas was 81.6 years, 2.1 years less than those living in rural areas (83.7 years).
- Cancer related mortality contributed a quarter of both the male and female rurality gaps.

Comparison with other UK countries and RoI

Since 1980-82, male life expectancy in NI has risen faster than in any other UK country (9.3 years), with the difference in male life expectancy between NI and England decreasing by almost a half. However, male life expectancy in Republic of Ireland (RoI) increased by more than any UK country (9.8 years). Similarly in females, with the exception of RoI, Northern Ireland showed the largest increase (6.8 years) in life expectancy over this period, resulting in the gap between NI and England reducing from 1.5 to 0.8 years, and eliminating the gap with Wales.

Format of this Report

This report is split into separate sections, the first of which presents the latest life expectancy figures and trends for NI by gender, deprivation and rurality. This is followed by chapters examining each of the observed life expectancy gaps, illustrated using charts as explained below.

The sample charts below analyse two fictional areas, “A” and “B”, in which area “A” has a life expectancy 5 years lower than that in area “B”.

Decomposition by Age

An example of the charts used throughout this report to illustrate the proportion of each life expectancy gap attributable to various age bands is provided below.

The lower life expectancy (Area A) is presented on the left, while the higher life expectancy (Area B) is presented to the right.

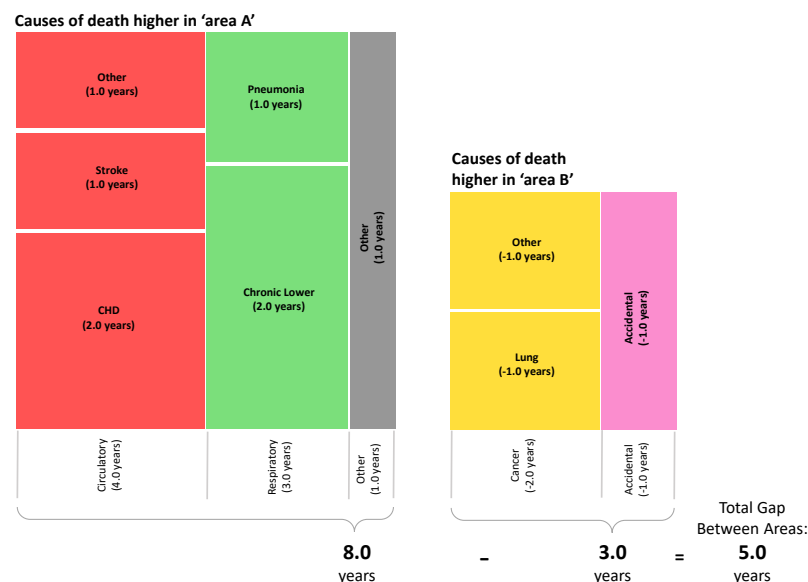


Between these columns, the contribution of mortality within each age band is represented by the height of the floating column. Age bands which offset the gap are presented as hollow squares.

Decomposition by Cause of Death

Throughout this report, grid charts (as below) set out the contribution of various causes of death to the difference in life expectancy between two areas or time periods. Those causes depicted in the square to the left represent causes of death which were more prevalent in Area A,

while the square on the right presents the causes that had higher mortality in Area B, which offset the inequality gap.



The greater the area allocated to a cause, the greater the contribution of that cause to the difference in life expectancy.

Beneath the grids, the total positive and negative contributions are presented, which equate to the total difference. Causes labelled “Other” indicate the combined contribution of causes which were individually too small to present³.

³ A more detailed breakdown of the various contributions from different causes of death is available in Appendix A and can be viewed or downloaded at: <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

Life Expectancy: 2015-17

Male and Female Life Expectancy

Male life expectancy at birth in Northern Ireland has improved by 0.5 years since 2011-13 (78.0 years). However, there has been no change in female life expectancy at birth across the same period.

2015-17:

Female life expectancy at birth in Northern Ireland is 82.3 years.

Compared with 2011-13:

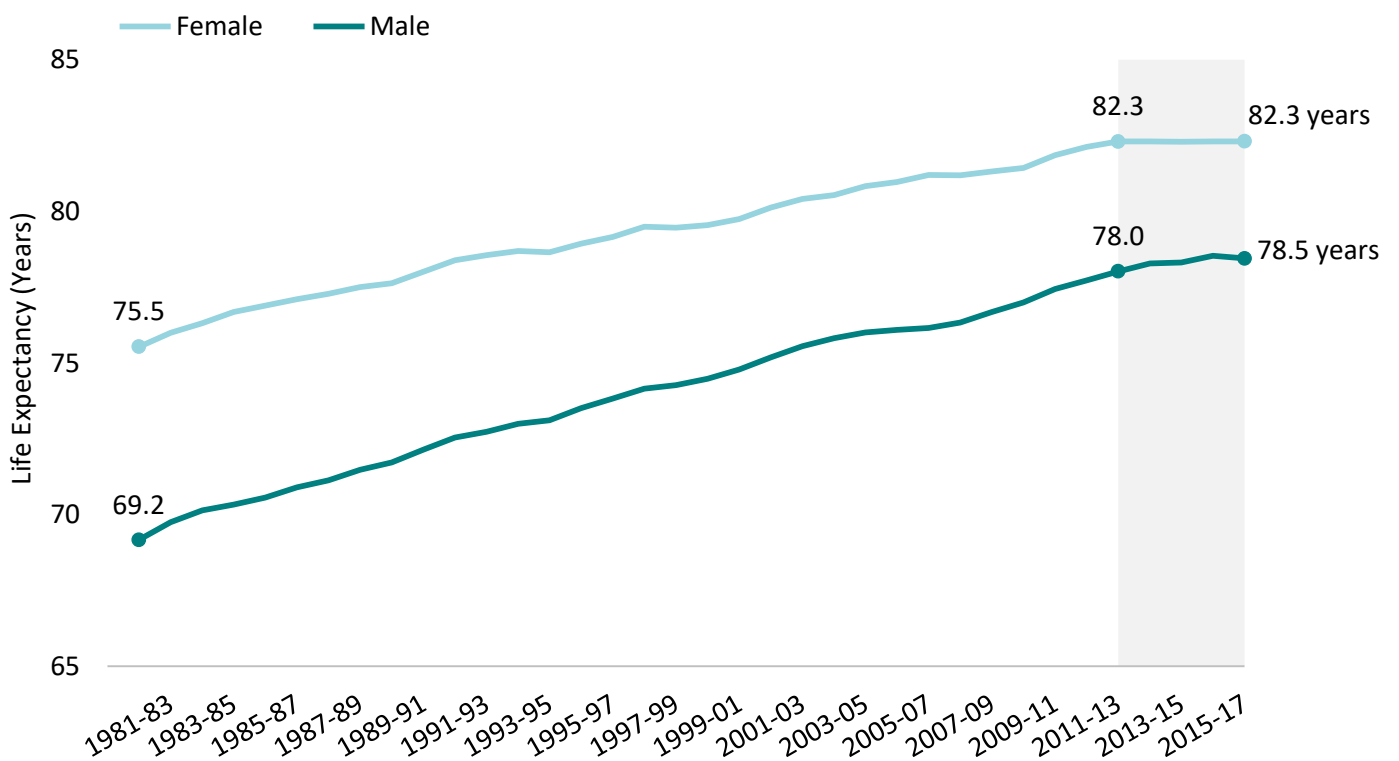
No Change

Male life expectancy at birth in Northern Ireland is 78.5 years.

Positive Change

This is reflective of recent trends across other UK countries and in the Republic of Ireland (RoI) where the steady increases previously seen have begun to slow down. The chart below looks at how life expectancy at birth has changed in Northern Ireland since 1980-82.

Annual change in male and female life expectancy at birth (1980-82 to 2015-17)

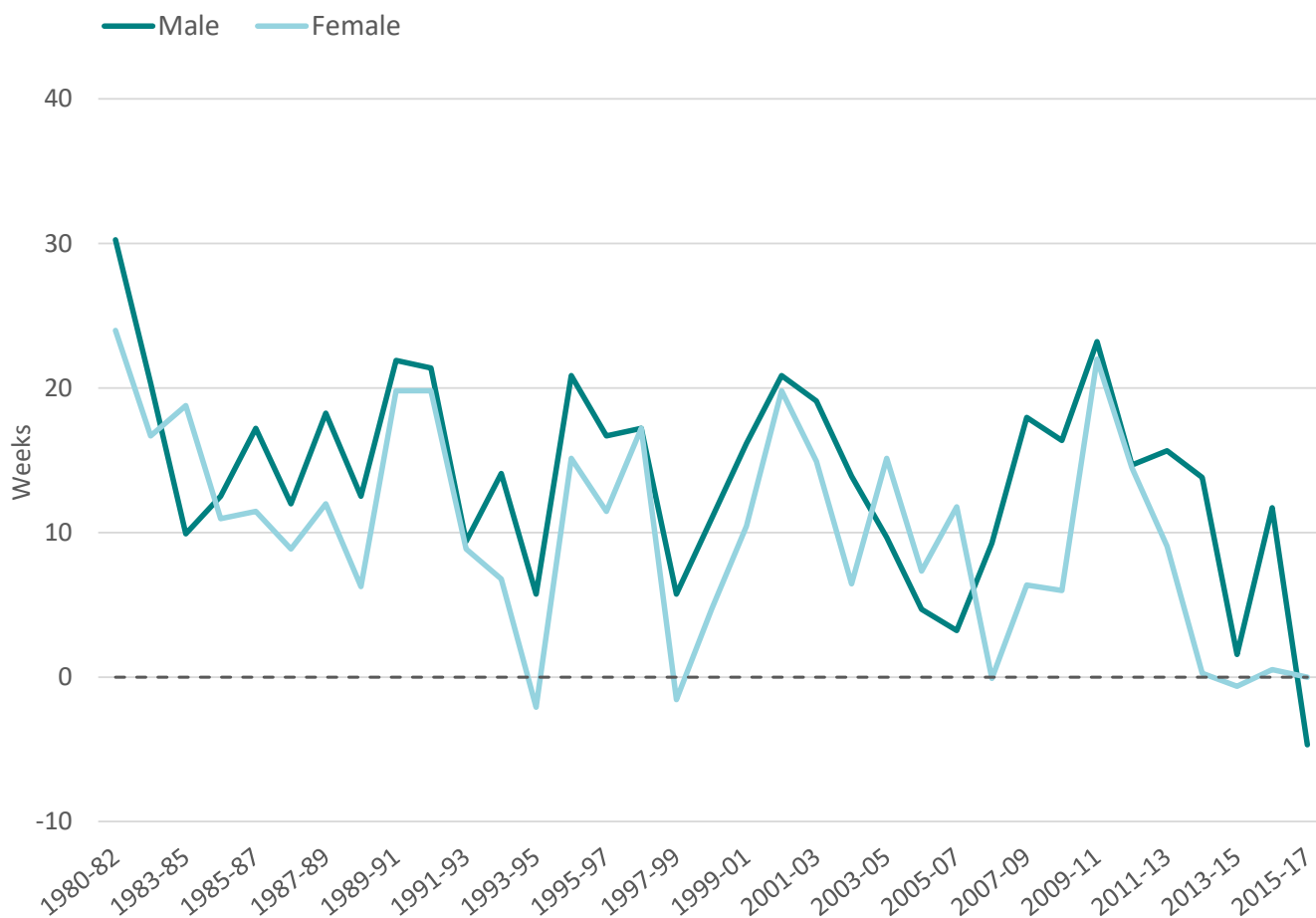


Life expectancy has grown steadily since 1980-82, increasing by 6.8 years for females and 9.3 years for males. The chart above illustrates in recent years the rate of improvement has slowed, particularly since 2011-13. This slowdown has resulted in a narrowing of the gender gap from 4.3 to 3.8 years.

Life Expectancy in Weeks

As seen in the chart below, improvements in life expectancy at birth prior to 1987-89 were typically between 10 and 20 weeks per year, this equates to between 0.2 and 0.4 years. Improvements in the 1990s and 2000s showed wider fluctuations of between 0 and 20 weeks. After 2009-11, there was no annual change in female life expectancy while in 2015-17, male life expectancy actually declined.

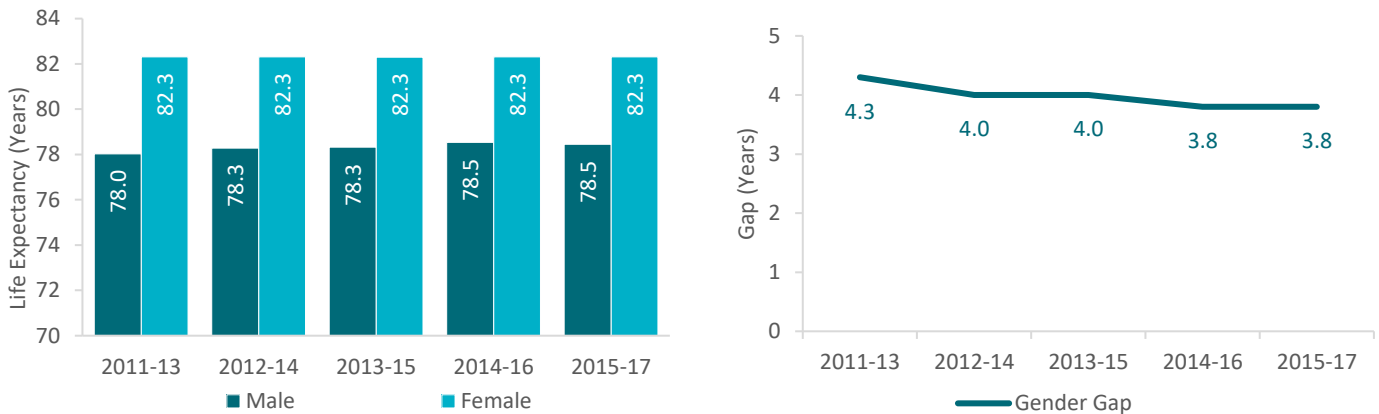
Annual change in male and female life expectancy at birth, in weeks (1980-82 to 2015-17)



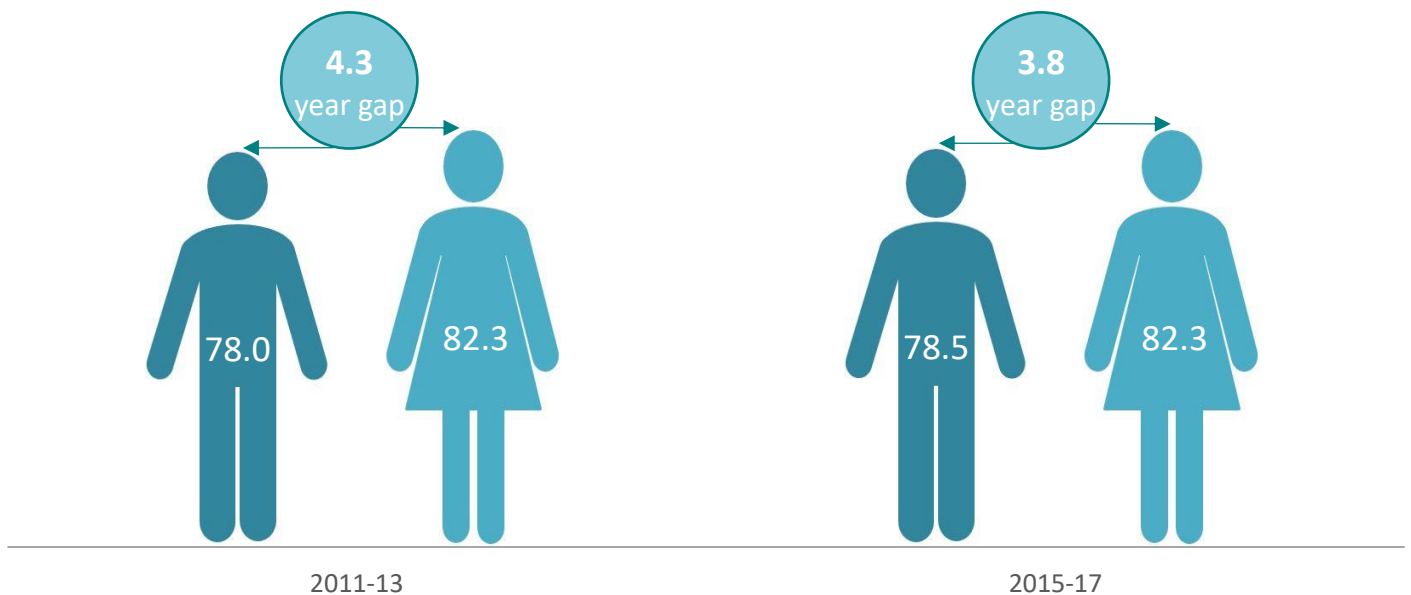
Life Expectancy – Gender Gap

The life expectancy gender gap between males and females in Northern Ireland was 3.8 years. The gender gap has narrowed from 4.3 years in 2011-13 as a result of male life expectancy increasing by 0.5 years and female life expectancy remaining constant.

Male and female life expectancy at birth, including the gender gap (2011-13 to 2015-17)



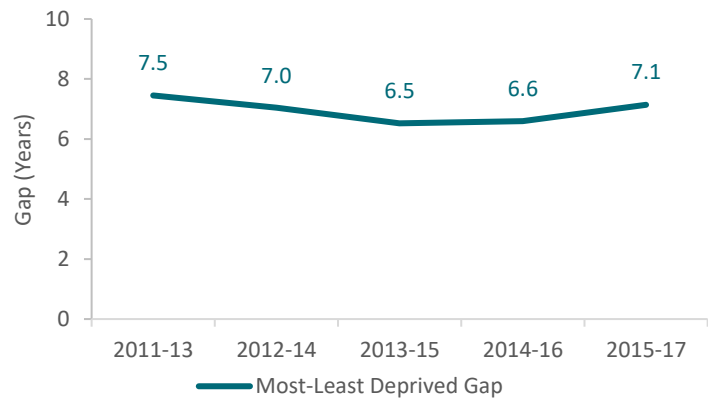
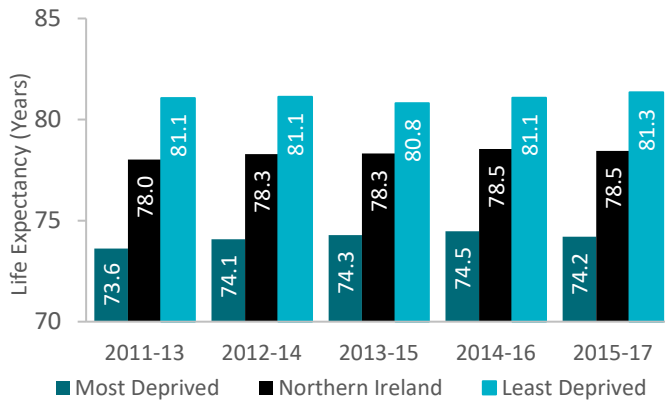
The male-female life expectancy gap has continued to narrow from 5.3 years in 1980-82. However, the recent narrowing is the result of no improvement in female life expectancy whereas previously both genders were improving.



Male Life Expectancy

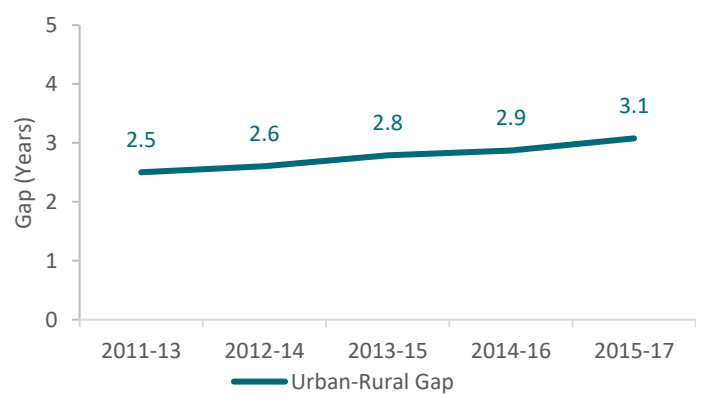
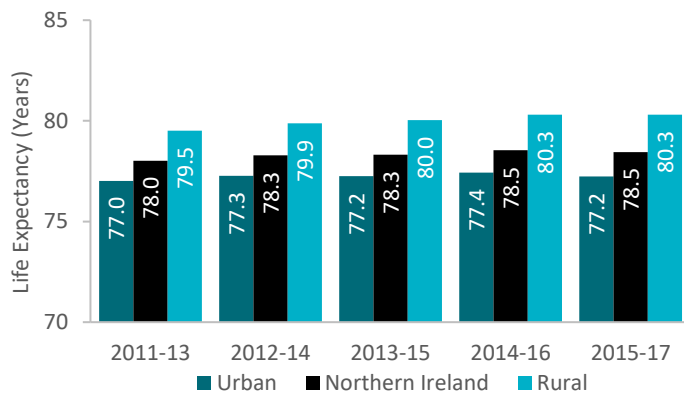
Deprivation Gap

The gap has narrowed as a result of improvements in the most deprived areas.



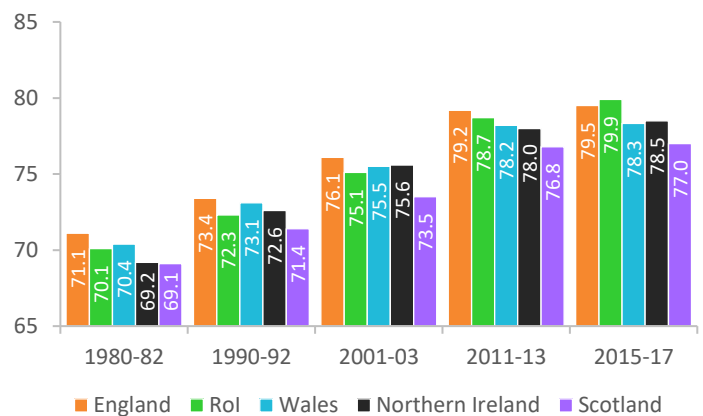
Rurality Gap

The gap has widened as a result of improvements in rural areas.



Comparison with UK countries and RoI⁴

Male life expectancy has improved across all UK countries and the Republic of Ireland (RoI) since 1980-82. Historically, England has consistently had the highest life expectancy. However, in recent years this difference has been less pronounced and the difference in male life expectancy between NI and England decreased by almost half. The RoI has seen a large increase in male life expectancy across the period.

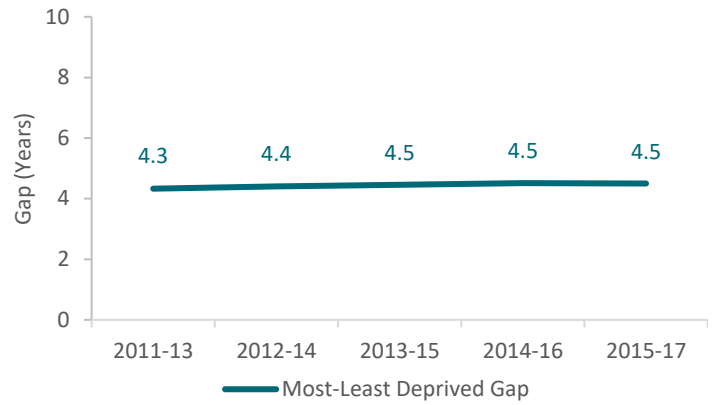
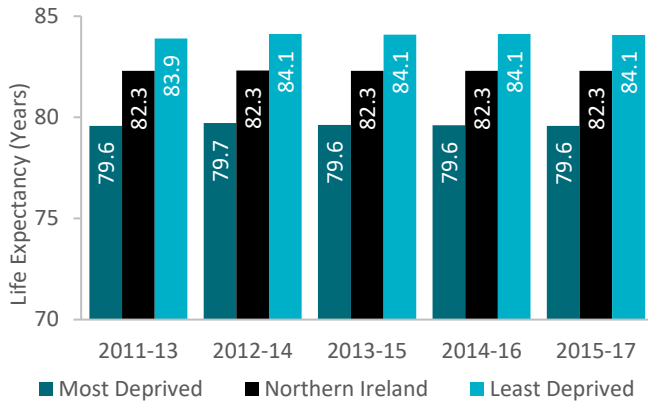


⁴ The 2015-17 life expectancy figures have not yet been published by RoI. The figures presented for RoI were sourced from Eurostat.

Female Life Expectancy

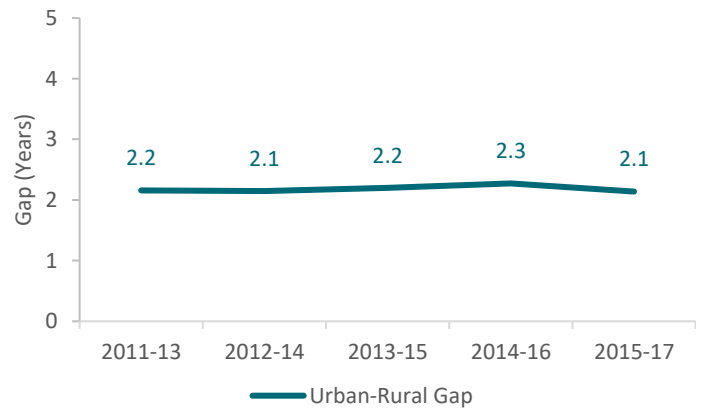
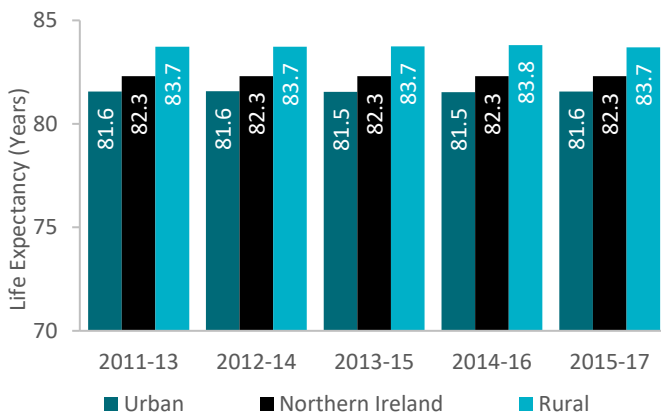
Deprivation Gap

The gap has remained largely constant across all areas.



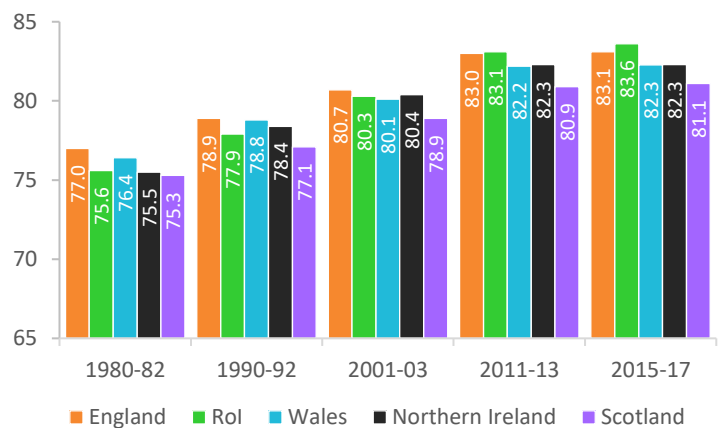
Rurality Gap

The gap has remained largely constant across all areas.



Comparison with UK countries and RoI⁵

Northern Ireland showed the largest increase (6.8 years) in female life expectancy since 1980-82 out of all the UK countries. Female life expectancy has improved across all UK countries and the Republic of Ireland (RoI) since 1980-82. However, there has been very little change in female life expectancy for each country since 2011-13.



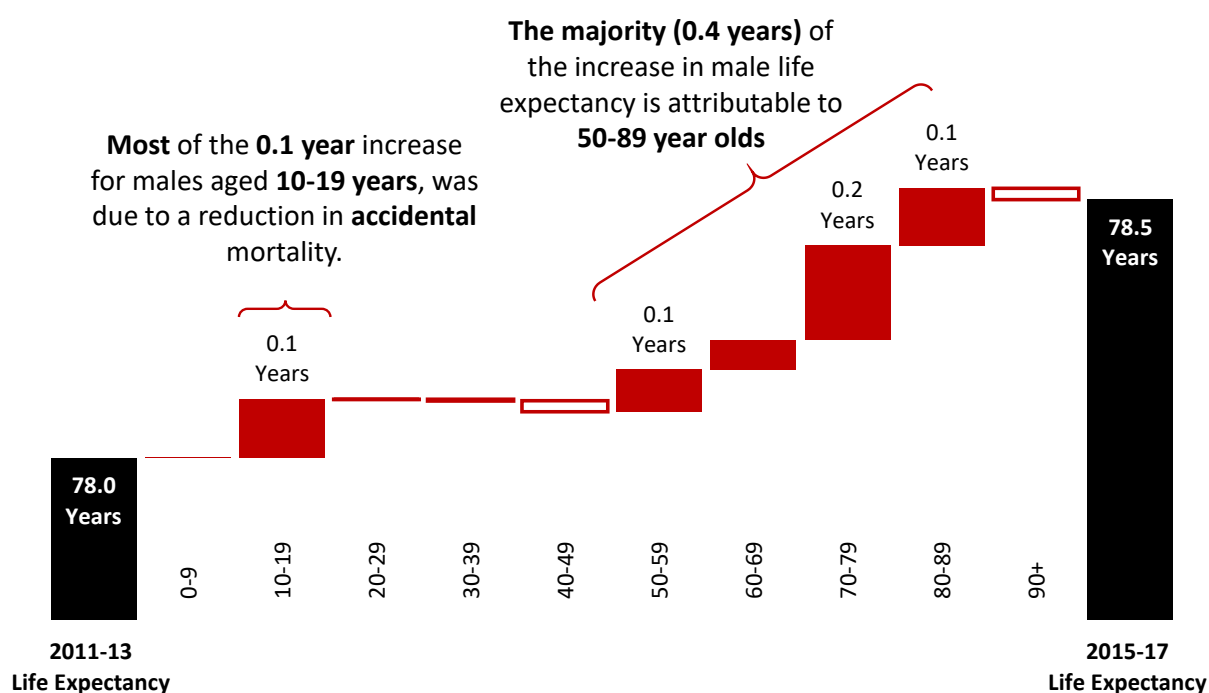
⁵ The 2015-17 life expectancy figures have not yet been published by RoI. The figures presented for RoI were sourced from Eurostat.

Male Life Expectancy: Change Over Time



In 2015-17, male life expectancy in Northern Ireland was 78.5 years compared with 78.0 years in 2011-13. The contributions to this increase of 0.4 years⁶ by age and cause of death are examined below.

Decomposition of Change in Male Life Expectancy over Time by Age



Decreased mortality rates among 50-89 year olds contributed to the majority of the increase in male life expectancy. Of this, 0.3 years can be attributed to the reduction in deaths caused by CHD.

A further 0.1 years increase was attributed to males aged 10-19. This was largely due to a reduction in accidental deaths within this age band.

Several age groups showed no notable contribution to the change in life expectancy over time. A slight decrease in life expectancy was observed among those aged 90 years and older which was largely attributable to increased mortality from mental and behavioural disorders, mainly vascular dementia or Alzheimer’s disease.

⁶ Values presented are rounded to one decimal place independently. As a result, the sum of component items may not therefore always add to the totals shown.

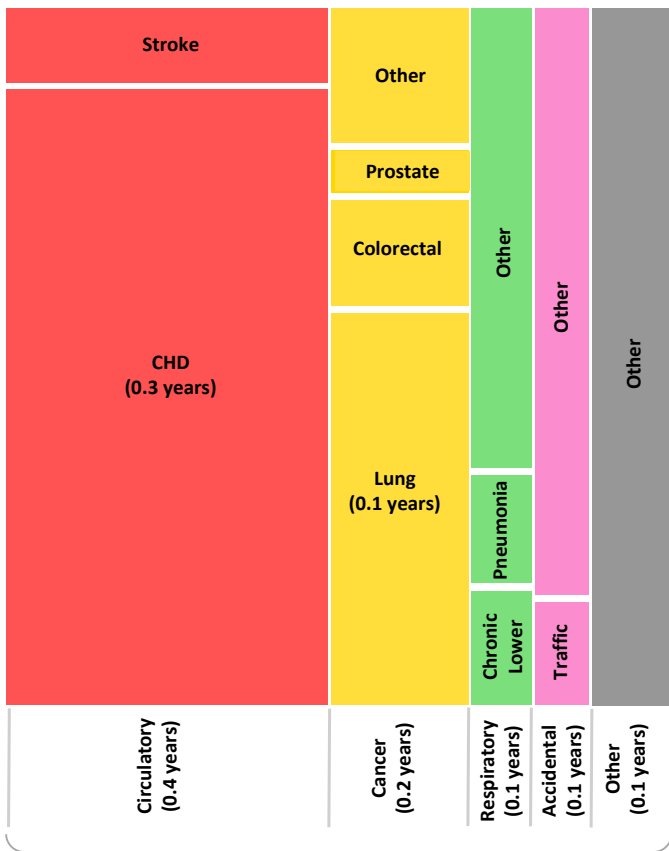
Decomposition of Change in Male Life Expectancy Over Time by Cause of Death

Between 2011-13 and 2015-17, a reduction in mortality from a range of causes led to a 0.8 year increase in male life expectancy. Half of this increase was due to reduced mortality from circulatory diseases, the majority of which was attributable to Coronary Heart Disease (CHD).

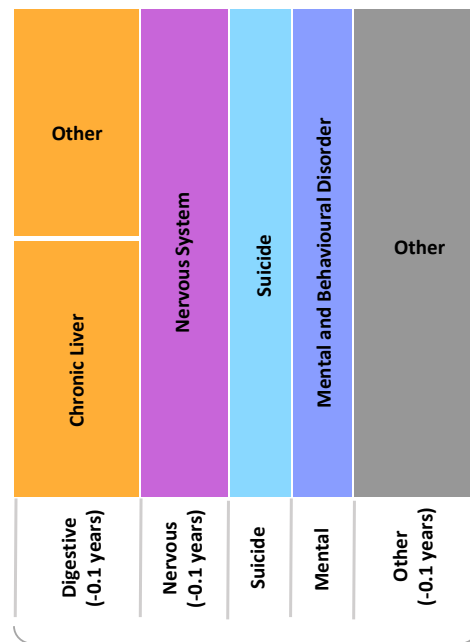
Reduced mortality from cancer contributed an additional 0.2 years to the life expectancy increase. Half of which were attributable to lung cancer.

The increase in male life expectancy was offset by 0.3 years due to a rise in mortality for a range of causes. The largest of these were; digestive diseases (0.1 years) and nervous system disorders (0.1 years). The 'Other' category was largely comprised of mortality due to genitourinary diseases and congenital conditions.⁷

Lower mortality since 2011-13



Higher mortality since 2011-13

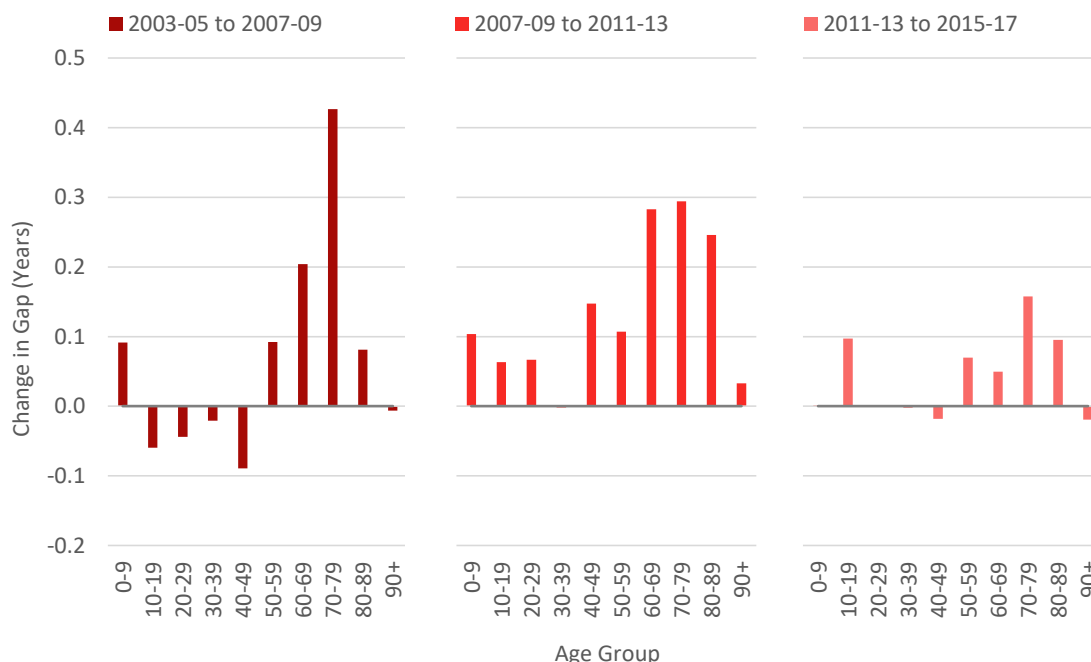


0.8 years - 0.3 years = 0.4 years change over time

⁷ A more detailed breakdown of the various contributions from different causes of death is available in accompanying tables which can be downloaded at: <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

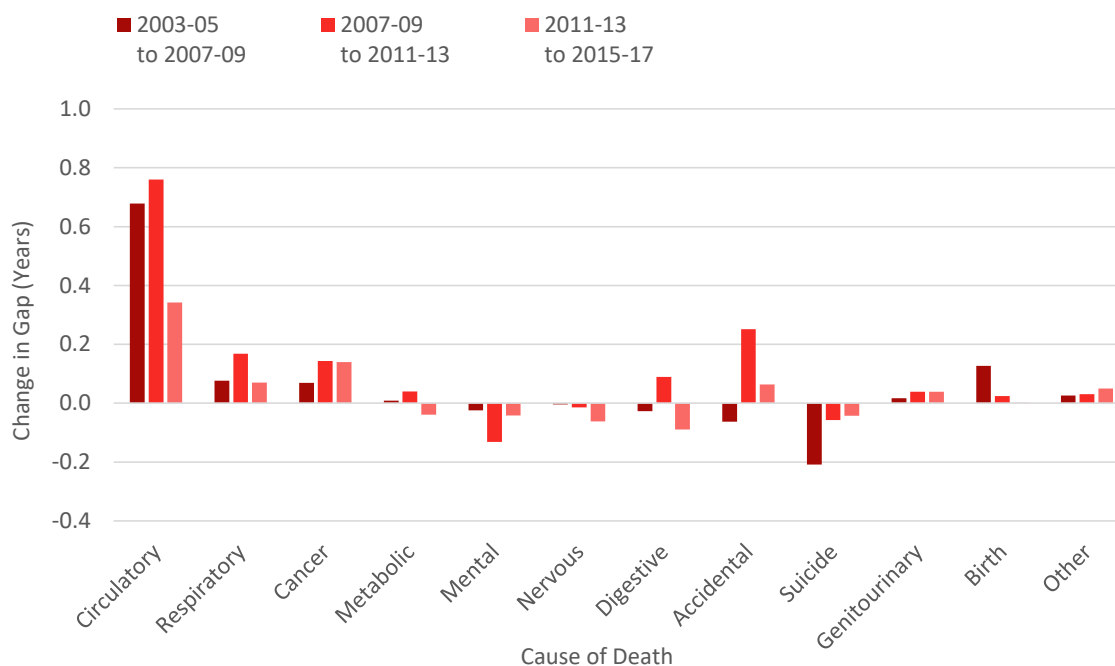
Comparison with Previous Time Periods

Decomposition of Change in Male Life Expectancy by Age



Compared with previous decompositions, the improvements in male life expectancy previously seen among older age groups have slowed down. Most notably those aged 70-79 years where an increase of over 0.4 years in 2003-05 to 2007-09 fell to under 0.2 years in 2011-13 to 2015-17. This is mainly attributable to slowing improvements in mortality from circulatory diseases. Decreases in life expectancy previously seen among younger age groups have been reduced, mainly due to a reduction in mortality due to accidental deaths.

Decomposition of Change in Male Life Expectancy by Cause of Death



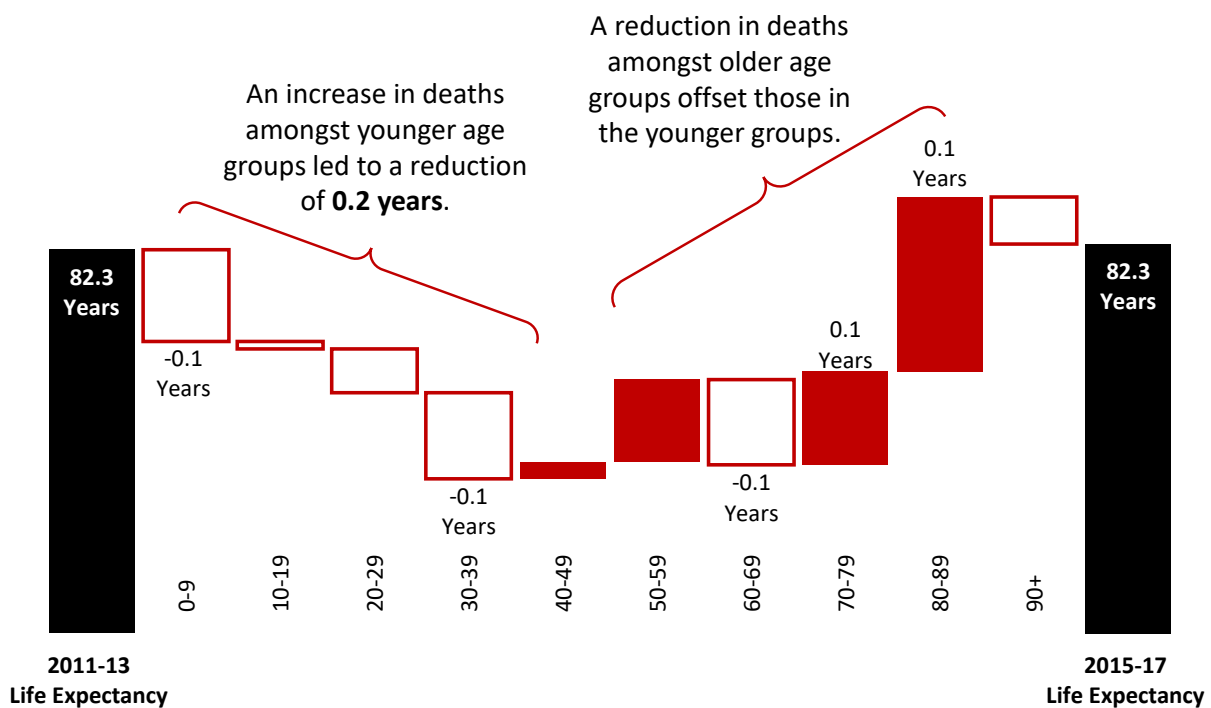
Between 2003-05 and 2007-09 decreases in circulatory improvements led to an increase of 0.7 years in life expectancy. By 2011-13 to 2015-17, this improvement had slowed to 0.3 years. Although still contributing to a reduction in life expectancy between 2011-13 and 2015-17, the change in gap as a result of suicide has reduced when compared to the change between 2003-05 and 2007-09.

Female Life Expectancy: Change Over Time



There has been no change in female life expectancy when compared with 2011-13. However, there have been changes in age and cause of death mortality patterns as examined below.

Decomposition of Change in Female Life Expectancy over Time by Age



Increases in mortality for those aged under 40 was largely offset by a reduction in deaths among older age groups, with the exclusion of those aged 60-69 and 90 and over.

Over half of the contribution to the increase in female life expectancy for those aged 70-89 years was due to a reduction in mortality from CHD. Likewise, reduced mortality from cancer led to improvements in life expectancy for 70-89 year olds. Increased mortality among those aged 30-39 years can be largely attributed to cancer.

The decrease in life expectancy for those aged 0-9 was largely due to increased mortality rates caused by perinatal and congenital illnesses. For those aged 90 years and older a slight decrease was largely attributable to increased mortality from mental and behavioural disorders, mainly vascular dementia or Alzheimer's disease.

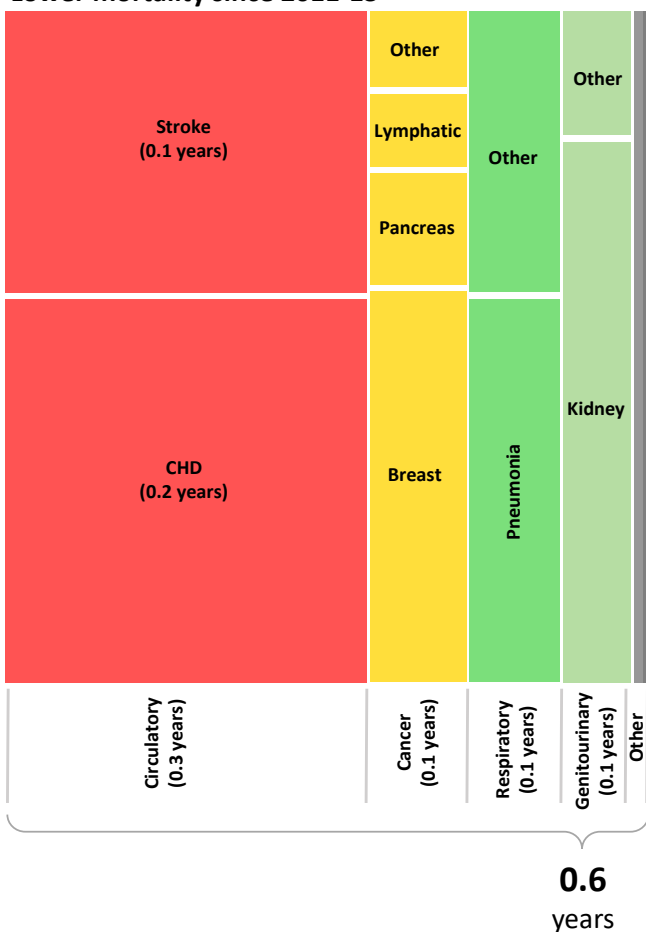
Decomposition of Change in Female Life Expectancy Over Time by Cause of Death

Circulatory diseases made the largest contribution to the increase in life expectancy for females, contributing half (0.3 years) of the increase, the majority of which was attributable to those over 70 years of age. Reduced mortality from cancer⁸, respiratory and genitourinary contributed a further 0.1 years each.

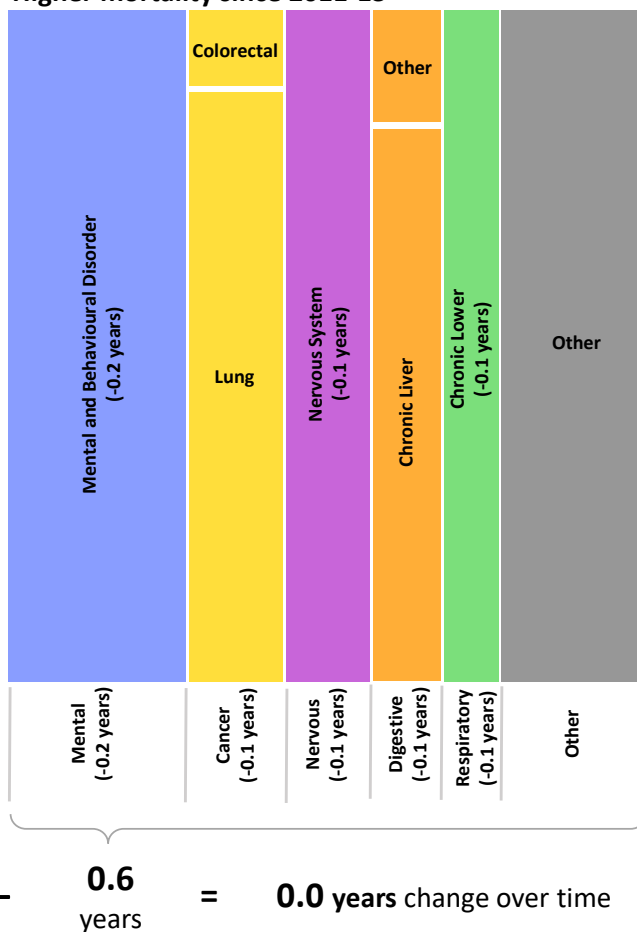
However, this was negated by increased mortality from other conditions which meant that female life expectancy did not change over the period. An increase in deaths caused by mental and behavioural disorders, mainly vascular dementia or Alzheimer’s disease, contributed 0.2 years towards this offset. Increased mortality due to cancer⁸, disorders of the nervous system, digestive and respiratory disorders all negatively impacted on female life expectancy (0.1 years each).

The ‘Other’ causes of death which also reduced life expectancy by 0.1 years includes; metabolic diseases, perinatal conditions and congenital conditions.

Lower mortality since 2011-13



Higher mortality since 2011-13

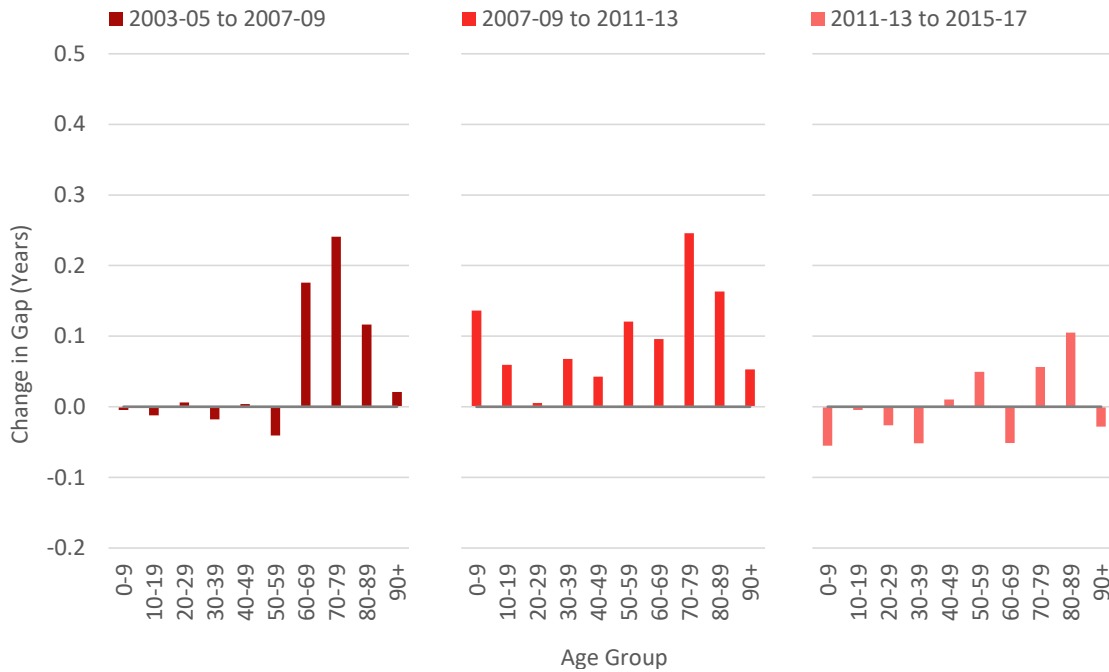


= **0.0 years** change over time

⁸ See chart for specific causes.

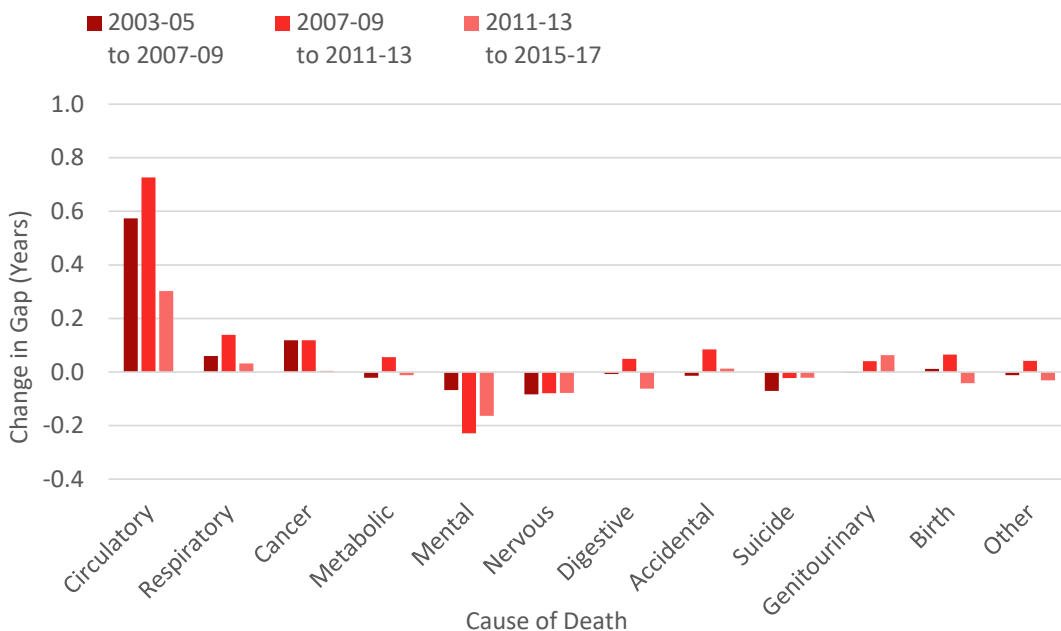
Comparison with Previous Time Periods

Decomposition of Change in Female Life Expectancy by Age



Older age groups, which have previously shown the largest improvements in life expectancy, have reduced or reversed in the latest decomposition. As with males, the most notable is the 70-79 age group where previous improvements of over 0.2 years have declined by 80%. This is mainly due to reduced improvements in mortality from circulatory diseases and increased mortality from mental and behavioural disorders such as dementia or Alzheimer’s disease.

Decomposition of Change in Female Life Expectancy by Cause of Death



Similar to males, increases in female life expectancy due to improved mortality from circulatory disease have declined. By 2011-13 to 2015-17, the improvement had halved to 0.3 years when compared with the previous periods. Increased mortality from mental disorders, such as dementia or Alzheimer’s disease, has meant a larger, negative impact on female life expectancy in the subsequent periods to 2003-05 to 2007-09.

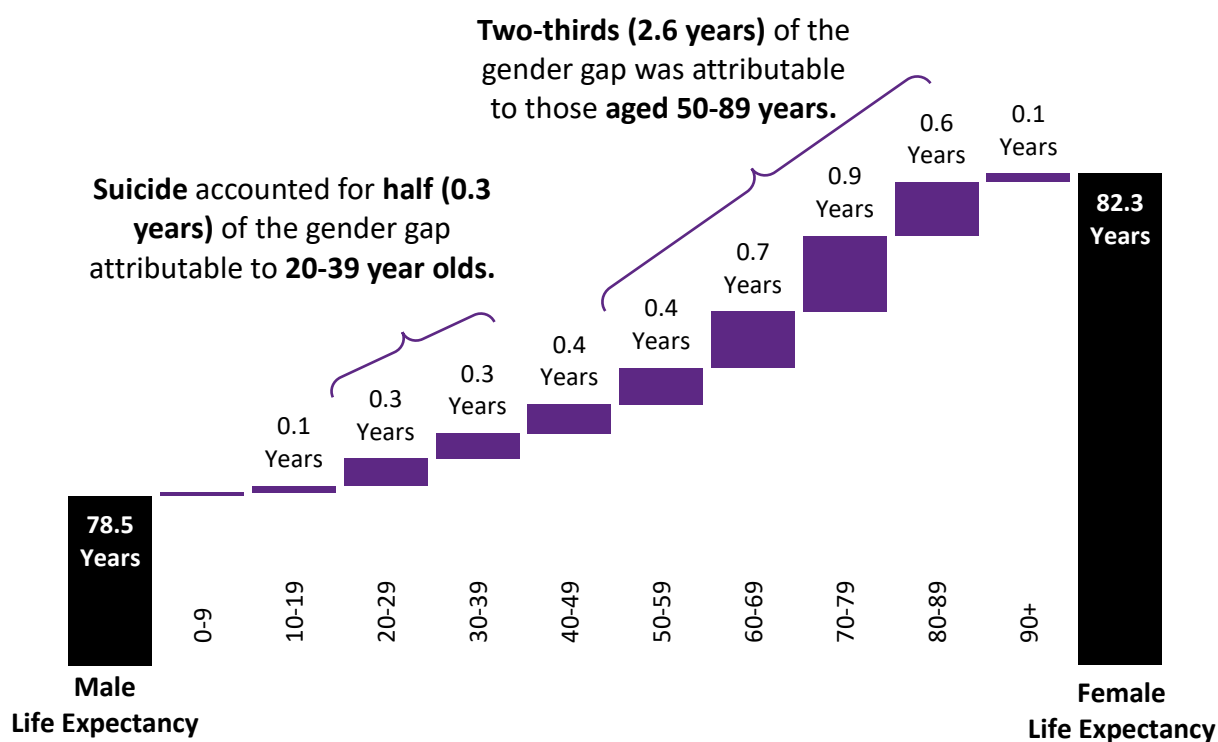
Life Expectancy Gender Gap: 2015-17



In 2015-17, life expectancy in Northern Ireland was 78.5 years for males and 82.3 years for females. The life expectancy gap was 3.9 years⁹ with females living longer than their male counterparts.

The contribution to this gender inequality gap from age and cause of death are examined below.

Decomposition of Life Expectancy Gender Gap by Age



Male mortality was higher across all age groups compared with females. Over two-thirds (2.6 years) of the total gender gap was attributable to males aged 50-89 years, mainly due to higher male mortality due to cancer (0.9 years) and circulatory disease (1.0 years).

Higher mortality among males aged 20-39 years accounted for 0.6 years of the gender gap. Half (0.3 years) of which, was due to higher suicide rates among males.

⁹ Values presented are rounded to one decimal place independently. As a result, the sum of component items may not therefore always add to the totals shown.

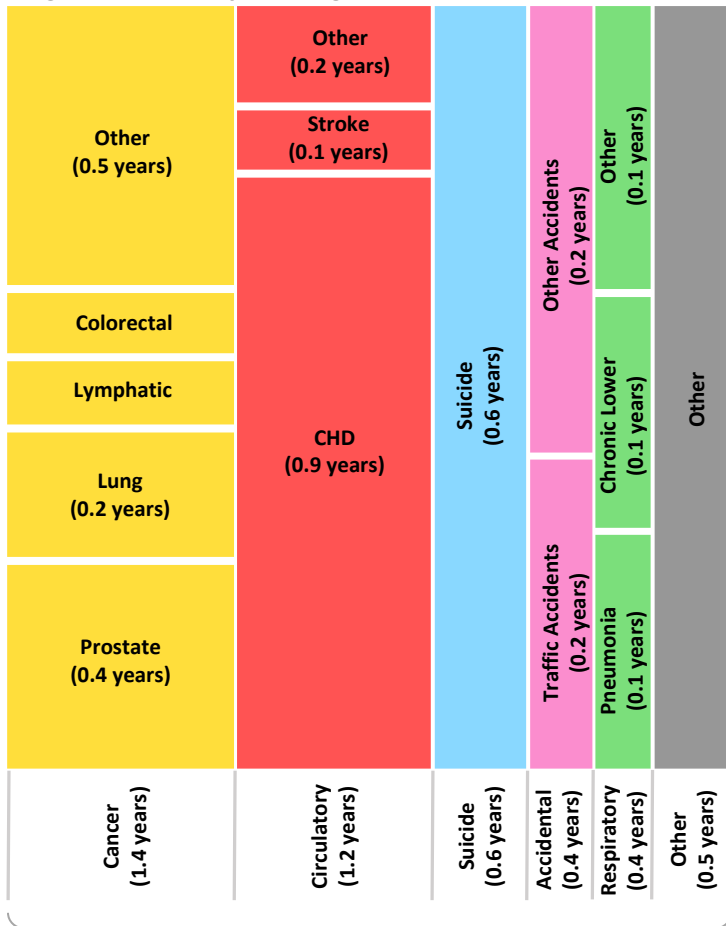
Decomposition of Life Expectancy Gender Gap by Cause of Death

Causes of death more prevalent among males contributed 4.3 years to the life expectancy gender gap. Female mortality from breast cancer and 'other' causes offset this by 0.5 years.

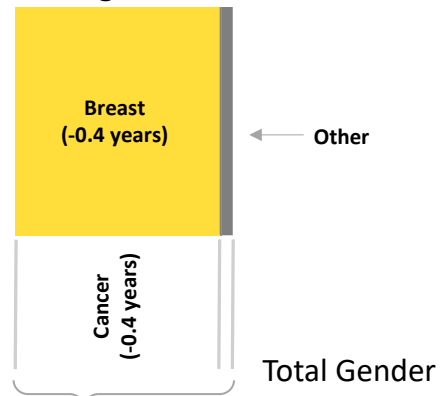
High mortality for males due to cancer¹⁰ contributed to a third (1.4 years) of the gender gap. Circulatory disease accounted for a further 1.2 years of the gender gap almost all of which were attributable to males aged 50-89 years.

The 'Other' category (0.1 years) mainly comprised of mental and behavioural illness and congenital disorders.¹¹

Higher mortality among males



Higher mortality among females



$$4.3 \text{ years} - 0.5 \text{ years} = 3.9 \text{ years}$$

Total Gender Gap: 3.9 years

¹⁰ See chart for specific causes.

¹¹ A more detailed breakdown of the various contributions from different causes of death is available in accompanying tables which can be downloaded at: <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

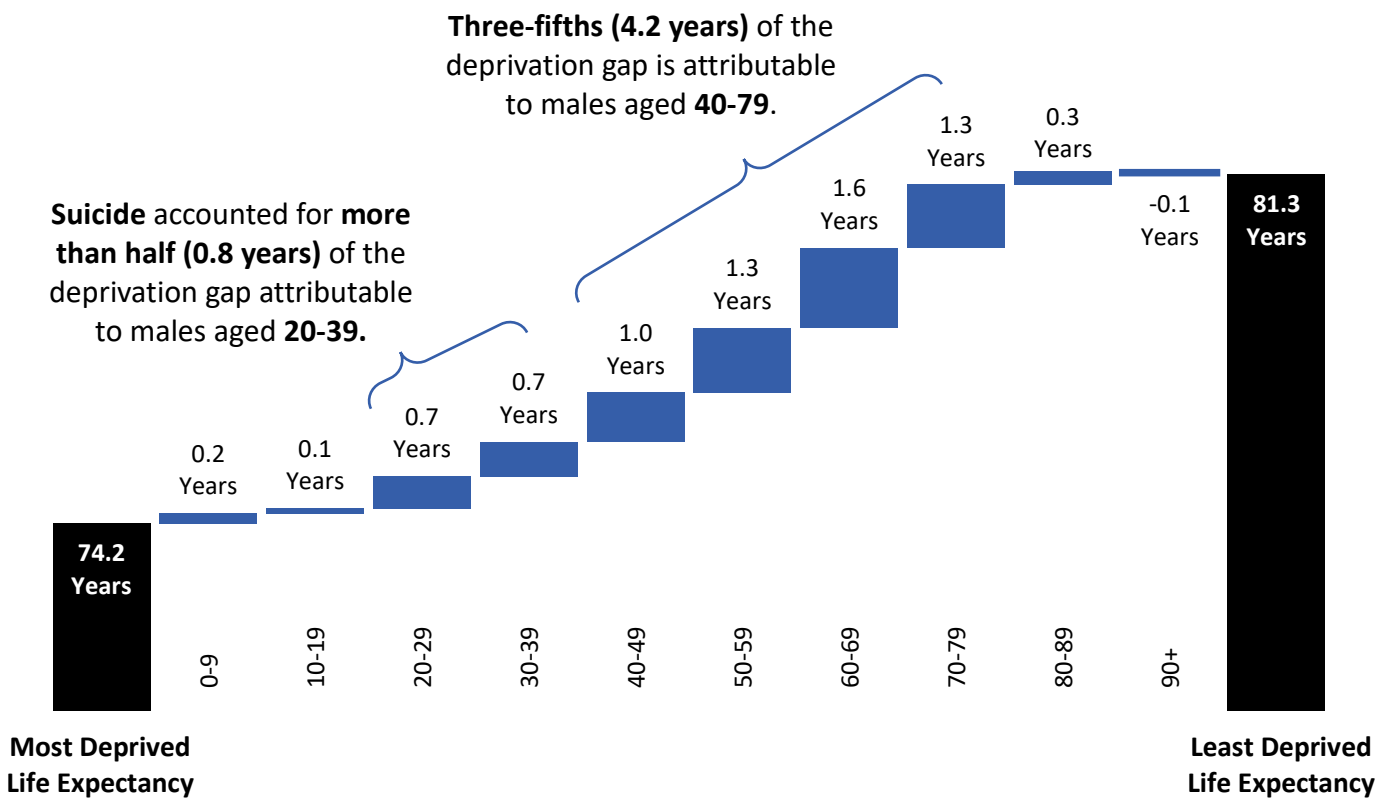
Male Life Expectancy: Deprivation Gap 2015-17



In 2015-17, life expectancy for males living in the 20% most deprived areas in Northern Ireland was 74.2 years, 7.1 years less than those in the 20% least deprived areas (81.3 years).

The contributions to this deprivation gap from age and cause of death are examined below.

Decomposition of Male Life Expectancy Deprivation Gap by Age



Almost all age groups contributed towards the life expectancy deprivation gap, with higher mortality in the most deprived areas compared with the least deprived areas. Two-thirds of the deprivation gap was attributable to males aged between 40 and 79, mainly due to CHD.

However, mortality rates for males aged 90 and over in the least deprived areas were higher than those in the most deprived areas and led to a reduction of 0.1 years in the deprivation gap. This is likely due to a larger proportion of the population in the least deprived areas surviving into the 90+ age group.

Decomposition of Male Life Expectancy Deprivation Gap by Cause of Death

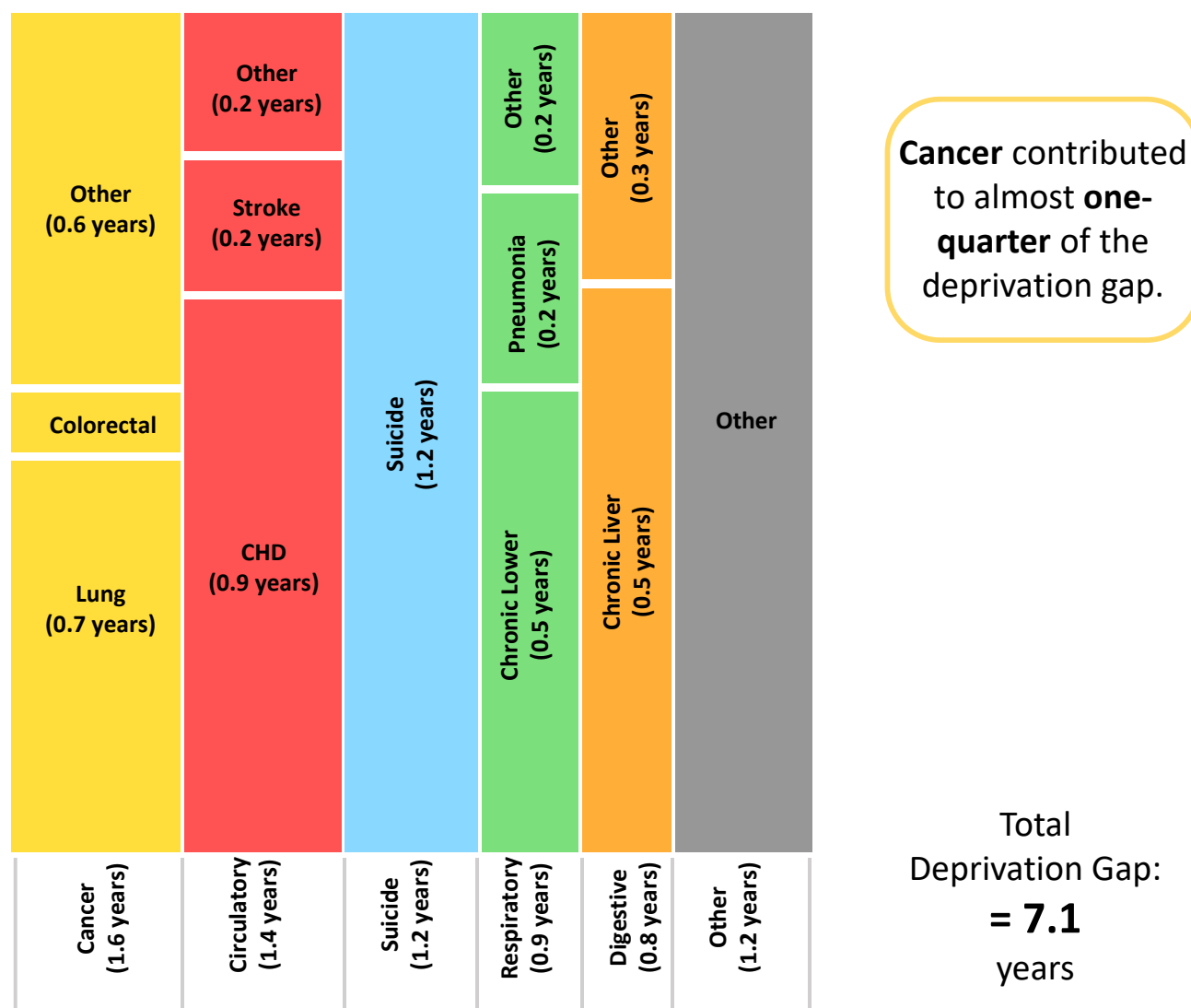
In 2015-17, almost a quarter (1.6 years) of the life expectancy deprivation gap was due to cancer related mortality with almost half (0.7 years) being attributable to lung cancer.

Of the 1.4 years that circulatory disease contributed to the life expectancy deprivation gap, more than two-thirds (1.0 years) were attributable to CHD.

Suicide was the third highest contributor to the deprivation gap, after cancer and circulatory diseases, contributing 1.2 years of the total. Of this, three-quarters (0.8 years) was attributable to males between the ages of 20 and 39 years.

The 'Other' category (1.2 years) largely consisted of genitourinary diseases, perinatal conditions and congenital conditions.¹²

Higher mortality in most deprived areas



¹² A more detailed breakdown of the various contributions from different causes of death is available in accompanying tables which can be downloaded at: <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

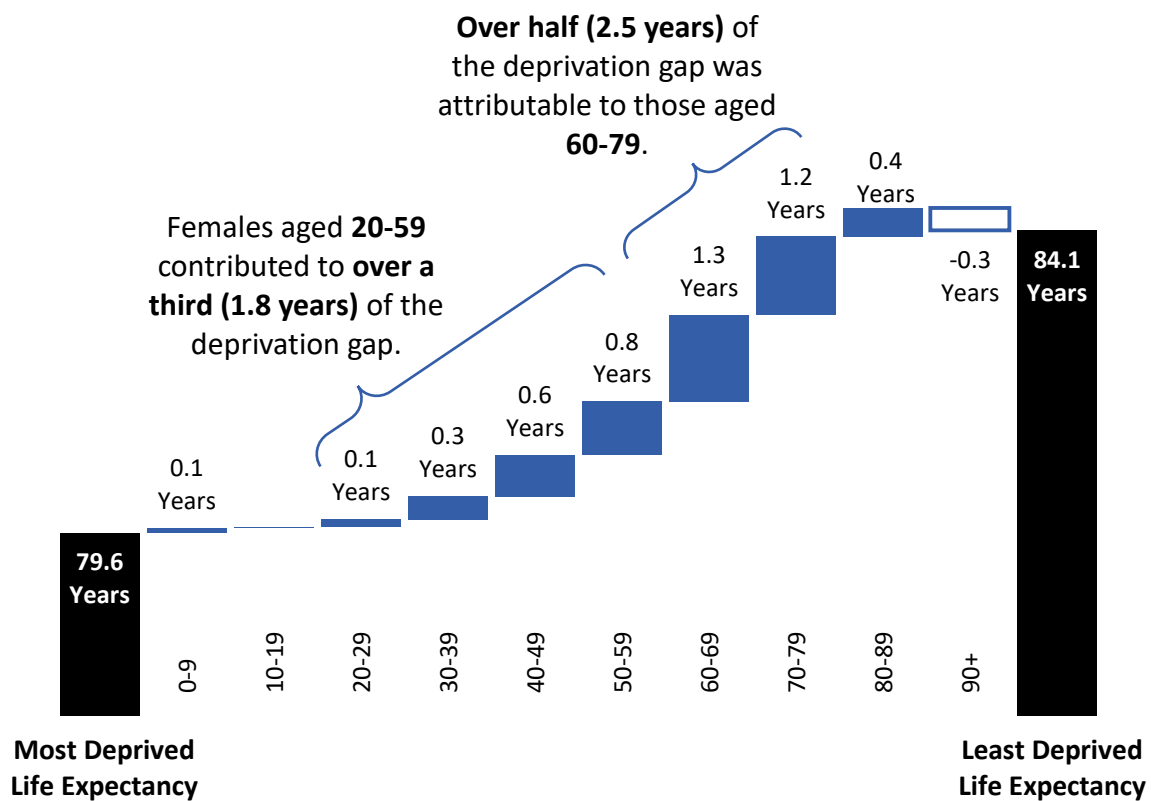
Female Life Expectancy: Deprivation Gap 2015-17



In 2015-17, life expectancy for females living in the 20% most deprived areas in Northern Ireland was 79.6 years, 4.5 years lower than that in the 20% least deprived areas (84.1 years).

The contribution to this deprivation gap from age and cause of death are examined below.

Decomposition of Female Life Expectancy Deprivation Gap by Age



Across the majority of age groups, females living in the most deprived areas experienced higher mortality rates compared with those living in the least deprived areas. Females aged between 60 and 79 years contributed over half of the total life expectancy deprivation gap. Over a third of the gap was attributable to those aged 20-59 years with suicide being the highest contributing cause in females aged 20-59 years.

However, the mortality rate for females aged 90 and over in the least deprived areas was higher than in the most deprived areas leading to a reduction of 0.3 years in the deprivation gap. As with males, this is likely due in some part to a larger proportion of females from the least deprived areas surviving into their nineties.

Decomposition of Female Life Expectancy Deprivation Gap by Cause of Death

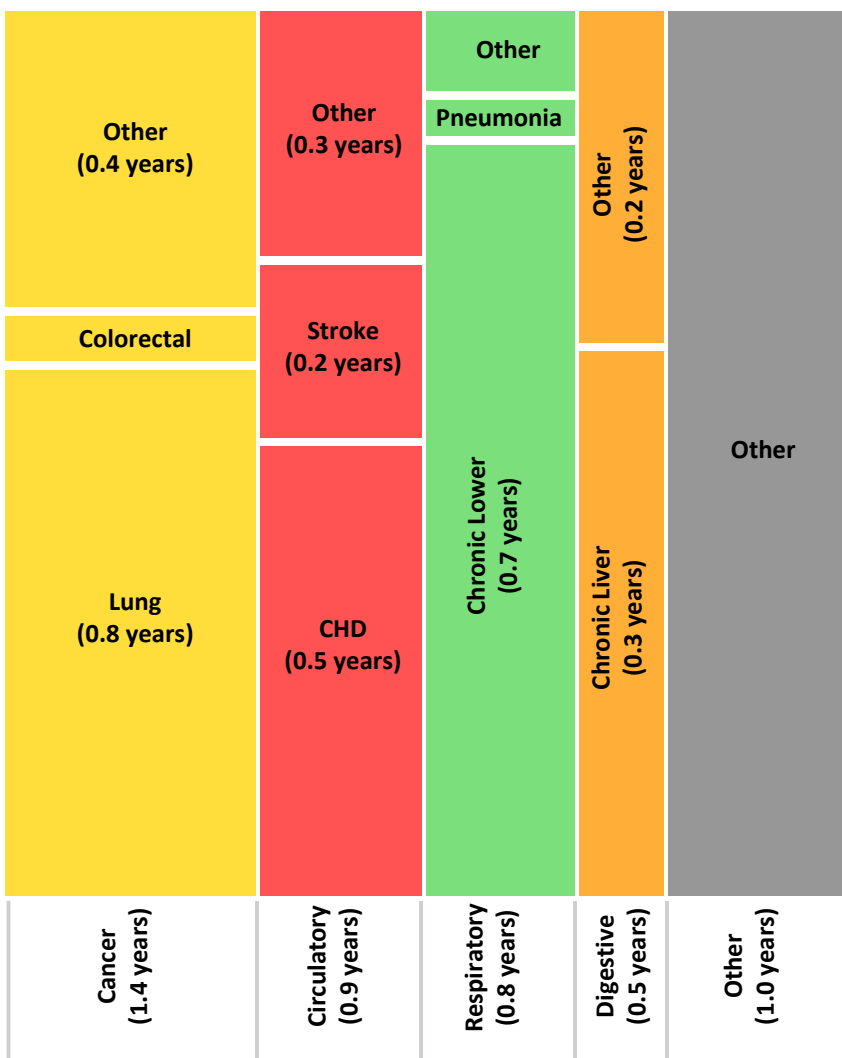
In 2015-17, greater mortality in the most deprived areas resulted in a 4.5 year deprivation gap for females. The difference in cancer mortality, mainly due to lung cancer, was the largest cause of the female life expectancy deprivation gap.

Additionally, 0.9 years and 0.8 years were attributable to mortality from circulatory and respiratory diseases respectively. Of all respiratory diseases, chronic lower respiratory diseases were the largest contributor to the gap, mainly due to mortality among females aged 50-79 years.

The 'Other' category (1.0 years) encompasses mortality from suicide, accidental deaths and perinatal conditions.¹³

The gap was offset by 0.1 years due to a higher mortality rate in the least deprived areas from disorders of the nervous system.

Higher mortality in most deprived areas



Cancer alone contributed to almost a third of the deprivation gap

Higher mortality rates from **nervous system disorders** in the least deprived areas offset the gap by **0.1 years**.

Total Deprivation Gap:
= **4.5** years

¹³ A more detailed breakdown of the various contributions from different causes of death is available in accompanying tables which can be downloaded at: <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

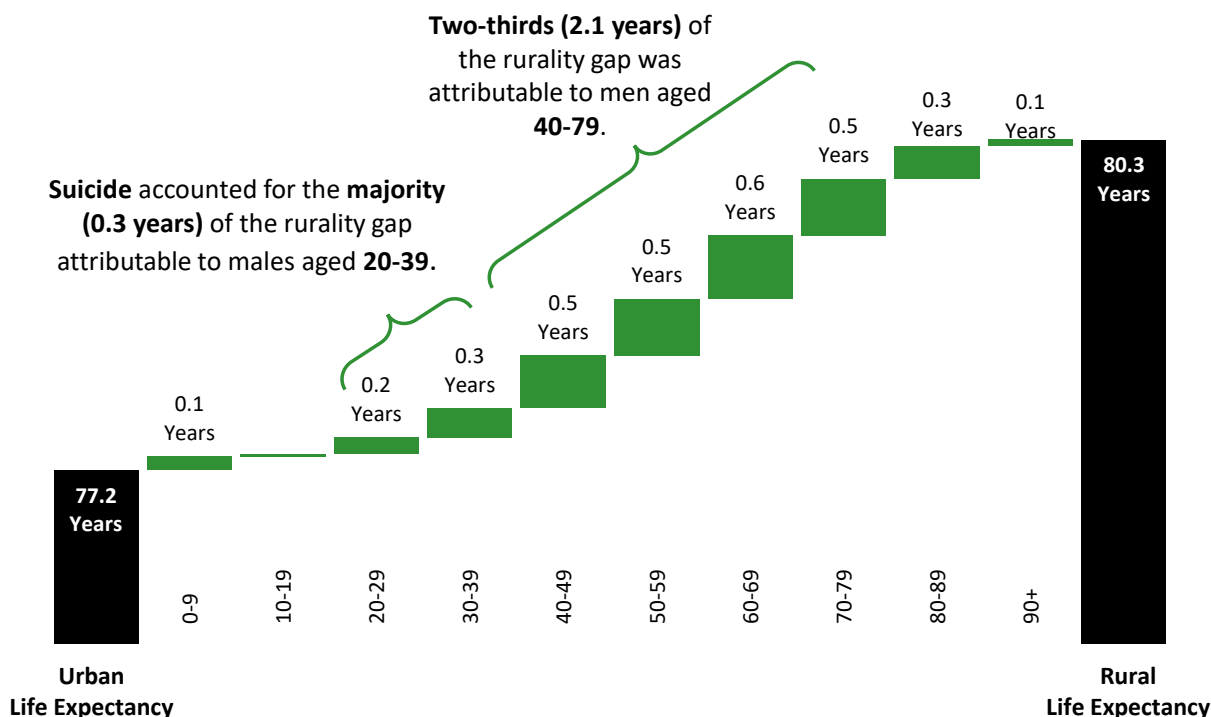
Male Life Expectancy: Rurality Gap 2015-17



In 2015-17, males living in urban areas of Northern Ireland could expect to live to 77.2 years, 3.1 years less than those living in rural areas (80.3 years).

The contribution from age and cause of death to this rurality inequality gap are examined below.

Decomposition of Male Life Expectancy Rurality Gap by Age



All age groups showed higher mortality in urban areas compared with rural areas. Men aged between 40 and 79 years contributed more than two-thirds (2.1 years) to the rurality gap. Of which, 0.7 years were attributable to cancer.

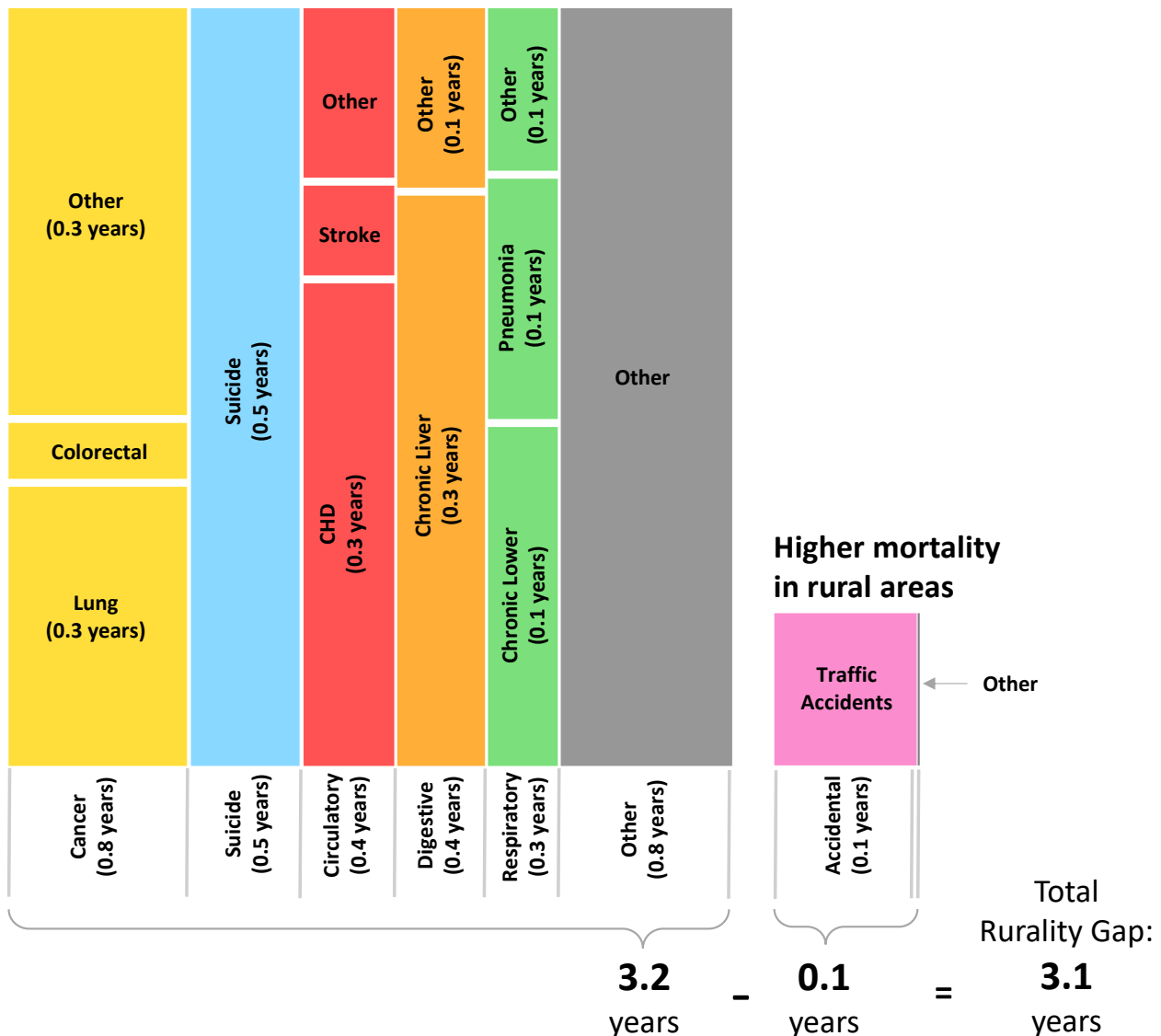
Decomposition of Male Life Expectancy Rurality Gap by Cause of Death

Causes of death with higher mortality in urban areas contributed 3.2 years to the life expectancy rurality gap for males, the largest of which was cancer, including 0.3 years due to lung cancer. Deaths as the result of suicide contributed 0.5 years to the gap, of which three-fifths (0.3 years) were attributable to 20-39 year olds.

Causes of death that mostly made up the 'Other' category (0.8 years) include; mental and behavioural disorders, perinatal conditions and disorders of the nervous system.¹⁴

The gap was offset by 0.1 years because of higher mortality rates in rural areas due to traffic accidents.

Higher mortality in urban areas



¹⁴ A more detailed breakdown of the various contributions from different causes of death is available in Appendix B, and can be viewed or downloaded at: <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

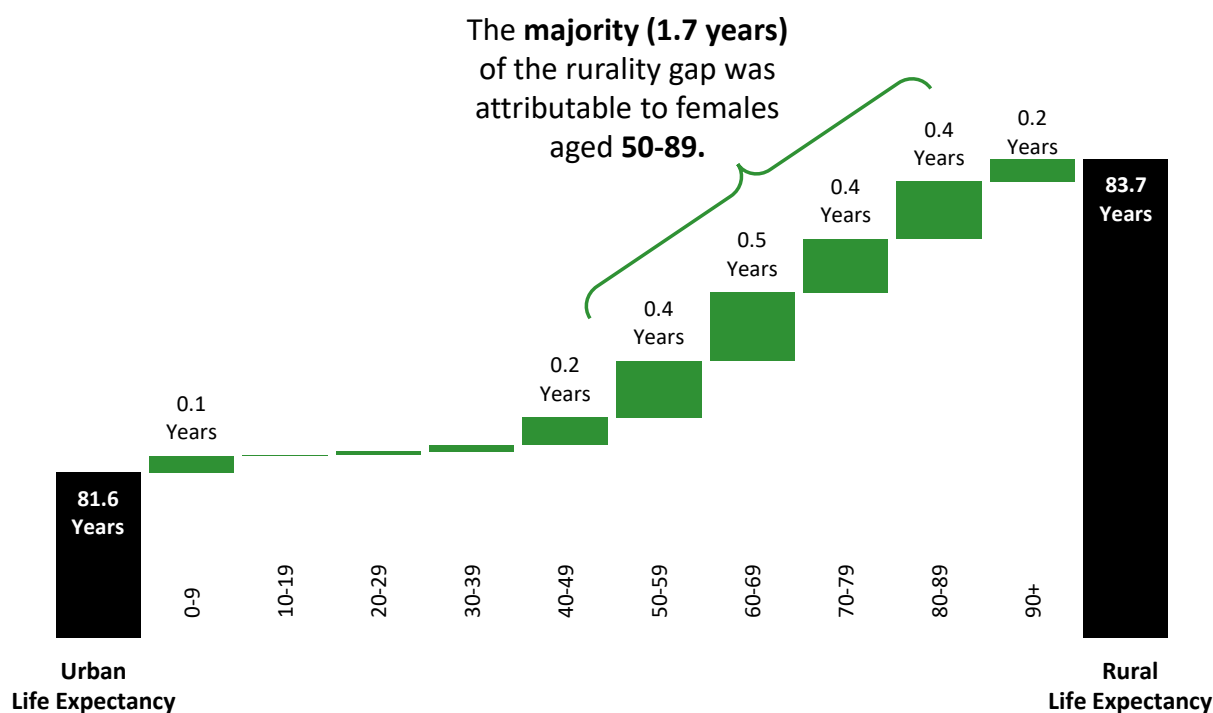
Female Life Expectancy: Rurality Gap 2015-17



In 2015-17, females living in urban areas of Northern Ireland could expect to live 81.6 years, 2.1 years less than females living in rural areas (83.7 years).

The contribution to this rurality inequality gap from age and cause of death are examined below.

Decomposition of Female Life Expectancy Rurality Gap by Age



For all age groups, as with males, female mortality was higher in urban areas compared with females living in rural areas.

Over four-fifths (1.7 years) of the life expectancy rurality gap was attributable to females aged 50-89 years. Of this, almost a third (0.5 years) was attributable to cancer.

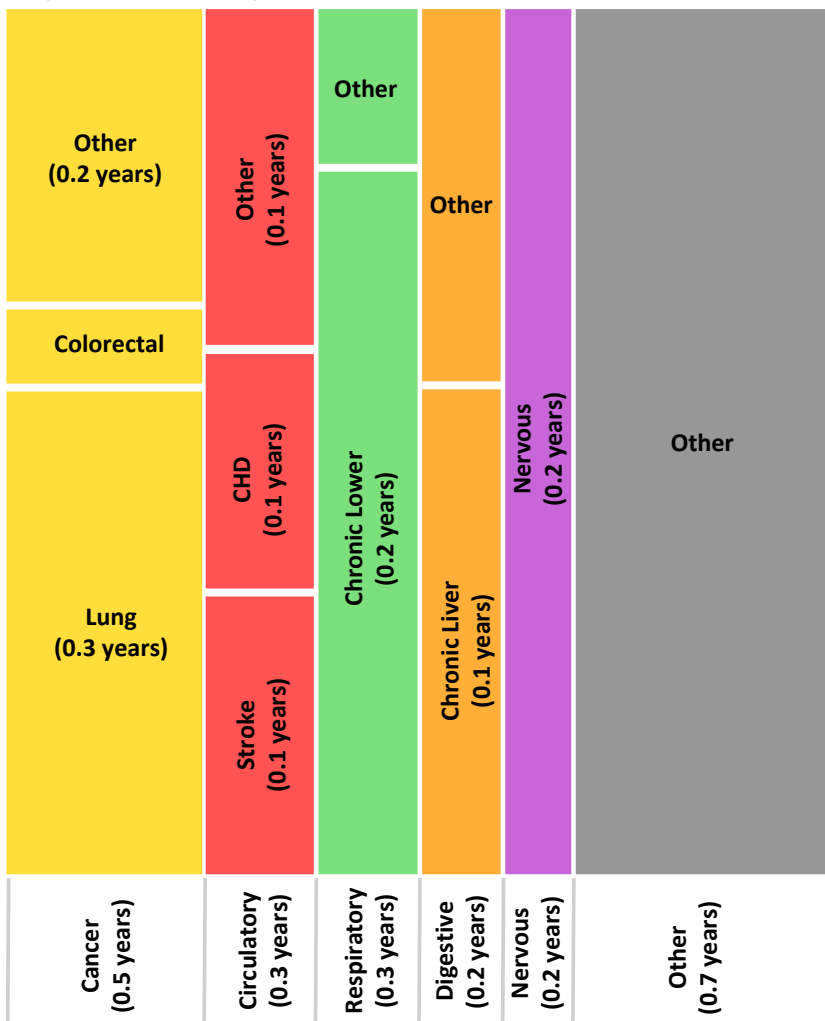
Decomposition of Female Life Expectancy Rurality Gap by Cause of Death

In 2015-17, most causes of death were higher among females living in urban areas compared with those living in rural areas, contributing 2.2 years to the life expectancy rurality gap.

Cancer was the largest contributor to the gap with 0.5 years, over half of which was attributable to lung cancer. Circulatory and respiratory diseases further contributed another 0.3 years each to the total gap. The 'Other' category (0.7 years) was mainly comprised of mortality from suicide, mental and behavioural disorders and other accidental deaths.¹⁵

Due to higher mortality rates in rural areas as a result of traffic accidents, the rurality gap was offset by 0.1 years.

Higher mortality in urban areas



Higher mortality in rural areas



$$2.2 \text{ years} - 0.1 \text{ years} = 2.1 \text{ years}$$

Total Rurality Gap:

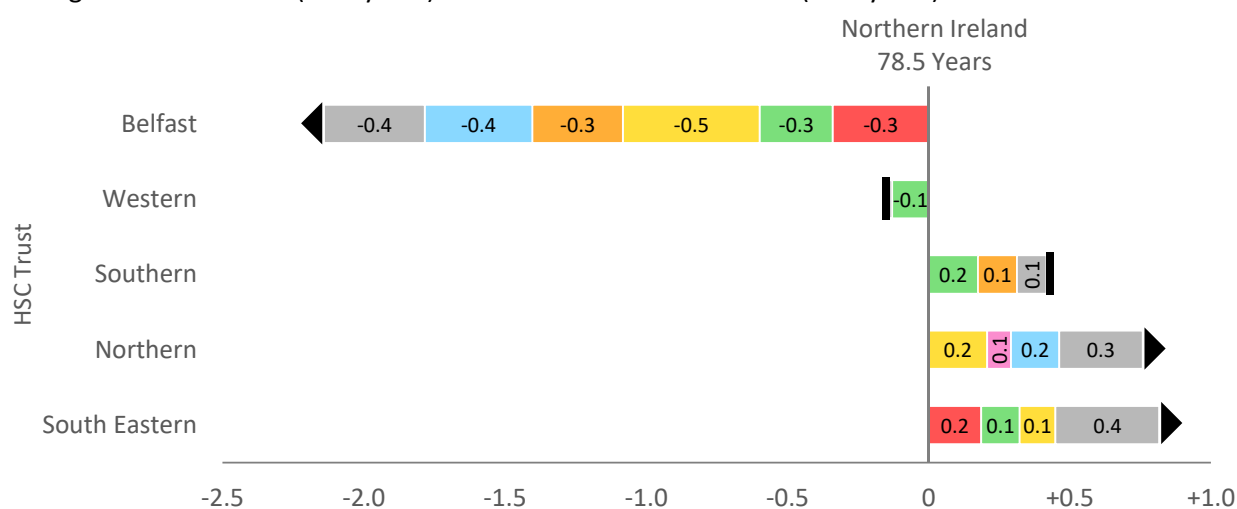
¹⁵ A more detailed breakdown of the various contributions from different causes of death is available in Appendix B, and can be viewed or downloaded at: <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

Sub-Regional Life Expectancy

The charts below present life expectancy at birth in 2015-17 for each of the five Health & Social Care (HSC) Trusts. For each area, the life expectancy gap with Northern Ireland has been broken down into its largest contributory causes of death. The contribution from other causes, including those that offset the gap, are combined into the 'Other' category. Life expectancy in some areas did not significantly differ from that in Northern Ireland.

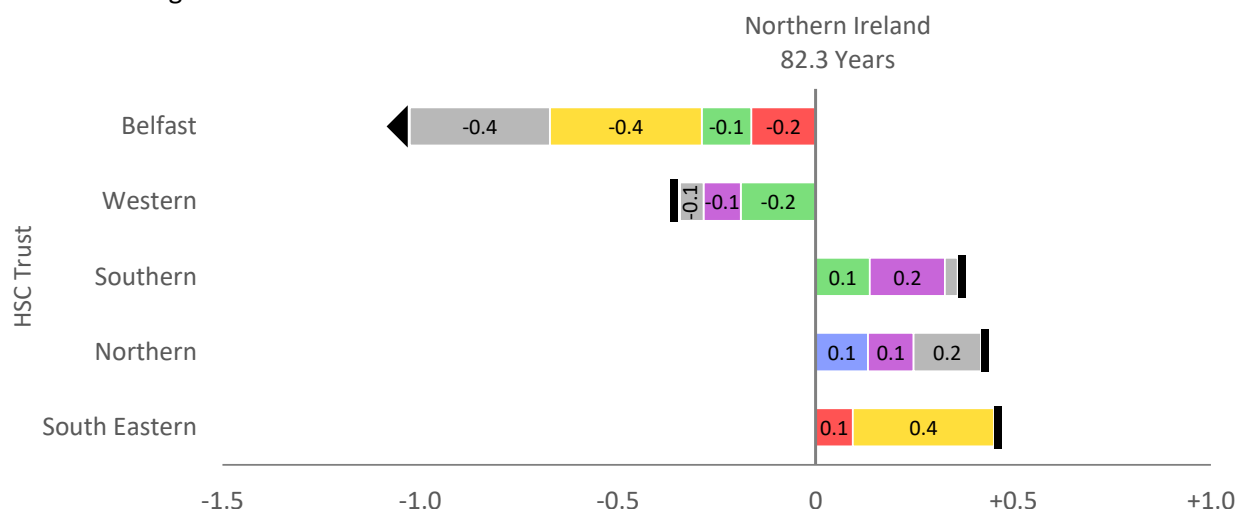
Male Life Expectancy Gap between HSC Trusts and NI: 2015-17

Life expectancy for males was lower than the NI average in the Belfast HSC Trust (76.3 years) and higher than the NI average in the Northern (79.2 years) and South Eastern HSC Trusts (79.3 years).

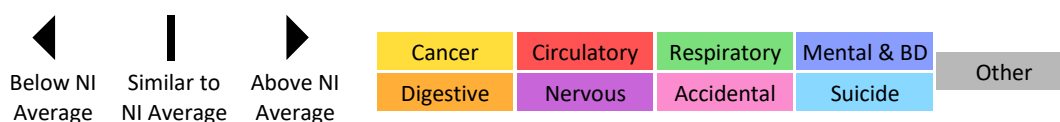


Female Life Expectancy Gap between HSC Trusts and NI: 2015-17

Female life expectancy in the Belfast HSC Trust (81.3 years) was lower than the NI average. This was the only HSC Trust with a significant difference.



Key



APPENDIX A: TECHNICAL NOTES & DEFINITIONS

Notes for User

Life Expectancy: The average number of years an individual born within a specified period can expect to live providing mortality patterns remain constant.

Official Figures: Information Analysis Directorate (IAD) publish the official life expectancy estimates at NI, Health and Social Care (HSC) Trust and Local Government District (LGD) level in the annual Public Health NI Fact Sheet.¹⁶ Further life expectancy figures for NI have been calculated by IAD to allow for assessment of inequality gaps between different areas/population groups.

Life Expectancy Gap: This is defined as the difference between life expectancy estimates, either between two populations at a given point in time, or within a single population between two points of time. Life expectancy gaps between the most & least deprived areas and between rural & urban areas are routinely calculated for the Health Inequalities Annual Report.

Contributions to Life Expectancy Gap: Life expectancy gaps exist due to differences in mortality patterns between areas, which can be assessed by the contribution of differences in death rates within age bands and across different causes of death. Contributions to gaps presented within this report represent the amount that life expectancy would improve in the area with lower life expectancy if its mortality rate was reduced to that in the area it is being compared with, assuming all other rates remained constant. Within this report, contributions that widen the inequality gap (i.e. where mortality rate is higher in the area with lower life expectancy) are represented with a positive value, while contributions that offset the gap (i.e. where mortality rate is higher in the area with higher life expectancy) are represented with a negative value.

Rounded Figures: Values presented are rounded to one decimal place independently. As a result, the sum of component items may not therefore always add to the totals shown.

Further detailed results: The charts and commentary presented in this report are designed to highlight key results. A full breakdown of all results is available to download in table format.¹⁷

Republic of Ireland Life Expectancy: Official 2015-17 life expectancy figures for the Republic of Ireland are not yet published. Figures presented have been produced by Eurostat, and may differ from official figures produced by the Central Statistics Office (CSO), due to methodological differences.

Other regular reports in this series include:

Health Inequalities Annual Report – This annual publication analyses health inequality gaps within NI and presents a comprehensive analysis of health inequality gaps between the most and least deprived areas of NI, and within HSC Trust and LGD areas across a range of indicators.¹⁸

Public Health NI Fact Sheet – Presents the latest health outcome statistics at Northern Ireland, HSC Trust and LGD levels, and includes information on general health, mortality, health expectancies and more.¹⁴ Error! Bookmark not defined.

Making Life Better: Key Indicators – Monitoring report for the key indicators of the wider social determinants of health & wellbeing, contained in the Making Life Better, the public health strategic framework for NI.¹⁹

¹⁶ <https://www.health-ni.gov.uk/articles/public-health-statistics>

¹⁷ All data is available to view or download at <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

¹⁸ <https://www.health-ni.gov.uk/articles/health-inequalities-statistics>

¹⁹ <https://www.health-ni.gov.uk/articles/social-determinants-health-statistics>

Sources of Information

All NI analyses and calculations are based on official deaths data sourced from the General Register Office and population data published by NISRA. Analysis of other countries in the UK and the RoI are based on official deaths and population data sourced from the Office for National Statistics (ONS), Central Statistics Office (CSO) and Eurostat.

Life Expectancy Decomposition Methodology

To measure the contribution of age-specific mortality changes to the change in the life expectancy gap over time, a life table decomposition method²⁰ for both age and cause of death is used. It assumes that the distribution of deaths by cause is constant within five year age bands in each population. The difference in all-cause mortality between populations can then be distributed into contributions from each cause of death within each age group, proportionate to the difference in mortality from each cause of death within each age group.

Deprivation Classification

The deprivation classification used in this report is based on the 2017 Northern Ireland Multiple Deprivation Measure (NIMDM)²¹ produced by NISRA. The NIMDM provides a relative ranking of the SOAs across NI, allowing the 20% most and least deprived Super Output Areas (SOAs) to be identified. It is worth noting that the NIMDM includes indicators such as suicide rates and potential years of life lost, which means that, by definition there will be some correlation between deprivation rank and life expectancy.

Urban-Rural Classification

This report uses the 2015 NISRA Urban-Rural Classification²², grouping areas into three classifications; urban, rural and mixed urban/rural. The rurality analysis presented in this report compares those living in urban and rural areas.

Year of Death

All death figures used in this report are based on the year in which the death was registered, and therefore not necessarily the year in which the death occurred. While the majority of deaths are registered shortly after death, there may be some delay in registering others, particularly involving events such as infant death or suicide.

Cause of Death Classification

Analyses contained within this report are based on the single main underlying cause of death classification, which simplifies the fact that a death can be the result of a variety of different causes. Causes of death have been disaggregated into 11 broad causes, which are further broken down into 26 specific sub-causes, defined according to the International Classification of Diseases, Tenth Revision (ICD-10). A full breakdown of ICD-10 codes grouped into each cause of death can be found on page 33.

The number of deaths registered between 2015 and 2017 are contained in the accompanying tables²³, broken down by cause of death.

²⁰ Arriaga, Eduardo. 1984 "Measuring and Explaining the Changes in Life Expectancies".

²¹ Further information on the 2017 NIMDM can be found at: <https://www.nisra.gov.uk/statistics/deprivation/northern-ireland-multiple-deprivation-measure-2017-nimdm2017>

²² Further information on the urban-rural definition 2015 can be found at: <https://www.nisra.gov.uk/support/geography/urban-rural-classification>

²³ <https://www.health-ni.gov.uk/articles/life-expectancy-decomposition-statistics>

Life Expectancy from Birth (All figures in Years)		Change Over Time		Gender	Deprivation		Rurality	
		2011-13	2015-17	-	Most Deprived	Least Deprived	Urban	Rural
Male Life Expectancy		78.0	78.5	78.5	74.2	81.3	77.2	80.3
Female Life Expectancy		82.3	82.3	82.3	79.6	84.1	81.6	83.7
		Male	Female	N/A	Male	Female	Male	Female
Total Gap		0.4	0.0	3.9	7.1	4.5	3.1	2.1
Age Group	0-9	0.0	-0.1	0.0	0.2	0.1	0.1	0.1
	10-19	0.1	0.0	0.1	0.1	0.0	0.0	0.0
	20-29	0.0	0.0	0.3	0.7	0.1	0.2	0.0
	30-39	0.0	-0.1	0.3	0.7	0.3	0.3	0.0
	40-49	0.0	0.0	0.4	1.0	0.6	0.5	0.2
	50-59	0.1	0.0	0.4	1.3	0.8	0.5	0.4
	60-69	0.0	-0.1	0.7	1.6	1.3	0.6	0.5
	70-79	0.2	0.1	0.9	1.3	1.2	0.5	0.4
	80-89	0.1	0.1	0.6	0.3	0.4	0.3	0.4
90+	0.0	0.0	0.1	-0.1	-0.3	0.1	0.2	
Circulatory	CHD	0.3	0.2	0.9	0.9	0.5	0.3	0.1
	Stroke	0.0	0.1	0.1	0.2	0.2	0.1	0.1
	Other Circulatory	0.0	0.0	0.2	0.2	0.3	0.1	0.1
Respiratory	Pneumonia	0.0	0.0	0.1	0.2	0.0	0.1	0.0
	Chronic Lower	0.0	-0.1	0.1	0.5	0.7	0.1	0.2
	Other Respiratory	0.0	0.0	0.1	0.2	0.1	0.1	0.0
Cancer	Lung	0.1	-0.1	0.2	0.7	0.8	0.3	0.3
	Breast	0.0	0.1	-0.4	0.0	0.0	0.0	0.0
	Prostate	0.0	0.0	0.4	0.0	0.0	0.0	0.0
	Colorectal	0.0	0.0	0.1	0.1	0.1	0.1	0.1
	Lymphatic	0.0	0.0	0.1	0.1	0.0	0.0	0.0
	Pancreatic	0.0	0.0	0.1	0.1	0.0	0.0	0.0
	Other	0.0	0.0	0.5	0.6	0.4	0.3	0.2
Metabolic	Diabetes Mellitus	0.0	0.0	0.1	0.1	0.1	0.0	0.0
	Other Metabolic	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Mental	Mental & Behavioural	0.0	-0.2	0.0	0.2	0.0	0.1	0.1
Nervous	Nervous System	-0.1	-0.1	0.1	0.1	-0.1	0.2	0.2
Digestive	Chronic Liver Disease	0.0	-0.1	0.2	0.5	0.3	0.3	0.1
	Other Digestive	0.0	0.0	0.1	0.3	0.2	0.1	0.1
Accidental	Traffic Accidents	0.0	0.0	0.2	0.1	0.0	-0.1	-0.1
	Non-Traffic Accidents	0.1	0.0	0.2	0.3	0.1	0.1	0.1
Suicide	Suicide	0.0	0.0	0.6	1.2	0.3	0.5	0.2
Genitourinary	Kidney Disease	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	Other Genitourinary	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maternal & Infant	Perinatal	0.0	0.0	0.0	0.0	0.1	0.1	0.1
	Congenital	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Other	Other Causes of Death	0.0	0.0	0.0	0.3	0.3	0.2	0.2

Causes of Death ICD-10 Definitions

Cause of death	ICD-10 code
Diseases of the circulatory system (Circulatory)	I00-I99
Ischaemic heart disease (CHD)	I20-I25
Cerebrovascular disease (stroke)	I60-I69
All other diseases of the circulatory system	
Diseases of the respiratory system (Respiratory)	J00-J99
Pneumonia	J12-J18
Chronic lower respiratory diseases	J40-J47
All other diseases of the respiratory system	
Malignant neoplasms (Cancer)	C00-C99
Malignant neoplasm of trachea, bronchus or lung	C33-C34
Malignant neoplasm of breast	C50
Malignant neoplasm of prostate	C61
Malignant neoplasm of colon, rectum and anus	C18-C21
Malignant neoplasm of lymphatic, haematopoietic tissue	C81-C96
Malignant neoplasm of pancreas	C25
All other malignant neoplasms	
Endocrine, nutritional and metabolic diseases (Metabolic)	E00-E90
Diabetes mellitus	E10-E14
All other endocrine, nutritional and metabolic diseases	
Mental and behavioural diseases (Mental)	F00-F99
Diseases of the nervous system and the sense organs (Nervous)	G00-H95
Diseases of the digestive system (Digestive)	K00-K93
Chronic liver disease	K70, K73-K74
All other diseases of the digestive system	
Accidents	V01-X59, Y85, Y86
Transport accidents	V01-V99
All other accidents	
Intentional self-harm and event of undetermined intent (Suicide)	X60-X84, Y10-Y34, Y87.0, Y87.2
Diseases of the genitourinary system (Genitourinary)	N00-N99
Diseases of the kidney and ureter	N00-N29
All other diseases of the genitourinary system	
Maternal/Infant	
Certain conditions originating in the perinatal period	P00-P96
Congenital malformations, deformations and chromosomal abnormalities	Q00-Q99
Other causes (all causes not covered by the above categories)	

Also available for the Health & Social Care Inequalities Monitoring System (HSCIMS)

Public Health Statistics Fact Sheet

Presents the latest position in NI for a range of public health indicators such as life expectancies, standardised death and admission rates, smoking prevalence and obesity rates.

<https://www.health-ni.gov.uk/articles/public-health-statistics>

Health Inequalities Annual Report

Analysis of health inequality gaps between the most and least deprived areas of NI, and within Health and Social Care (HSC) Trust and Local Government District (LGD) areas across a range of indicators.

<https://www.health-ni.gov.uk/articles/health-inequalities-statistics>

Making Life Better Monitoring the Wider Social Determinants of Health & Wellbeing Key Indicators

Monitoring of the key indicators of the wider social determinant of health & wellbeing set out against each of the themes contained in the making life better strategic framework (Annual).

<https://www.health-ni.gov.uk/articles/social-determinants-health-statistics>

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