INFORMATION ANALYSIS DIRECTORATE

Life Expectancy in Northern Ireland 2016-18

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

Department of Health
An Roinn Sláinte
Männystrie O Poustie
www.health-ni.gov.uk

December 2019

Life Expectancy in Northern Ireland 2016-18

Authors: Philip Carson, Hannah Blakley & Caolan Laverty

Public Health Information & Research Branch, Information Analysis Directorate

Department of Health
Castle Buildings, Belfast BT4 3SQ
☎ Tel: 028 905 22591
☎ Ext: 22591
✉ Email: healthinequalities@health-ni.gov.uk
http://www.health-ni.gov.uk/topics/dhssps-statistics-and-research/health-inequalities-statistics

For information on other Government statistics contact:
The Northern Ireland Statistics and Research Agency (NISRA)
Colby House, Stranmillis Court, Belfast, BT9 5RR
☎ Tel: 02890388400 ✉ Email: info@nisra.gov.uk
www.nisra.gov.uk

INFORMATION ANALYSIS DIRECTORATE

NISRA
Northern Ireland Statistics and Research Agency
Gníomhaireacht Thuaisceart Éireann um Staitisticí agus Taighde

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. In addition, PHIRB is responsible for the production of official life expectancy estimates for NI, and areas within the region.

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.

Contents

Introduction

The Official Life Expectancy Figures for Northern Ireland

The Department of Health are the official producers of life expectancy figures for Northern Ireland. This report presents the latest estimates of life expectancy, healthy life expectancy and disability-free life expectancy estimates for Northern Ireland. This is a new, annual publication that is replacing the 'Health Inequalities – Life Expectancy Decomposition' series. The report includes an analysis of change in life expectancy including the extent to which mortality within certain age groups and causes of death contributed to the change. In addition, life expectancy estimates are presented for Local Government Districts. The publication is one of a series of reports produced as part of the NI Health & Social Care Inequalities Monitoring System (HSCIMS)[1].

A guide on the terminology and how to interpret the charts used in this report, alongside technical notes, are set out in Appendix B.

Key Findings

Current Life Expectancy Estimates

- In 2016-18, life expectancy in Northern Ireland (NI) was 78.7 years for males and 82.4 years for females, similar to last year (2015-17).

Decomposition of Life Expectancy[2] Trend Over Last 5 Years

- Male life expectancy increased by 0.4 years from 2012-14 (78.3 years) while female life expectancy was similar to that in 2012-14 (82.3 years).
- Decreased mortality rates among 60-89 year olds contributed to the majority of the increase in male life expectancy over the period.
- Reduced mortality from circulatory disease and cancer, among other causes, increased male life expectancy by 0.8 years. However this increase was offset by 0.4 years due to a rise in mortality for a range of causes, including digestive diseases and nervous system disorders (mainly Alzheimer's and Parkinson's disease).
- Compared with the previous 5-year period (2008-10 to 2012-14), when male life expectancy increased by 1.3 years, improvements have slowed down. This can largely be attributed to the positive contribution of reduced mortality from circulatory disease being less than half that compared with the previous period.
- Despite no significant improvement in female life expectancy between 2012-14 and 2016-18, there was a reduction in mortality among those aged 50-59.

[1] https://www.health-ni.gov.uk/topics/dhssps-statistics-and-research/health-inequalities-statistics

[2] Life table decomposition is a statistical technique that allows changes in life expectancy to be broken down into positive and negative contributions by age and cause of death.

- An improvement of 0.6 years in female life expectancy, mainly due to reduced mortality from circulatory disease and cancer, was largely offset by increased mortality from mental and behavioural disorders (mainly dementia) and nervous system diseases.

- As with males, the positive contribution to female life expectancy since 2012-14 from reduced circulatory mortality was half that when compared with the previous period (2008-10 to 2012-14) when life expectancy increased by 0.9 years.

Gender Gap

- In 2016-18, females in NI could expect to live 3.7 years longer than males.
- Across all age groups, male mortality was higher than that of females, with the exception of those aged 0-9 where there was higher female mortality mainly from congenital causes.
- Higher male mortality from cancer and circulatory disease accounted for 1.2 and 0.8 years of the gap respectively. Mortality from suicide was also higher among males and accounted for a further 0.5 years of the gender gap.

Life Expectancy at 65

- Life expectancy at age 65 in 2016-18 was 18.4 years for males and 20.7 years for females.
- Over the last five years, there has been no significant change in life expectancy at 65 for females. Over the same period, male life expectancy at age 65 has increased by 0.3 years.

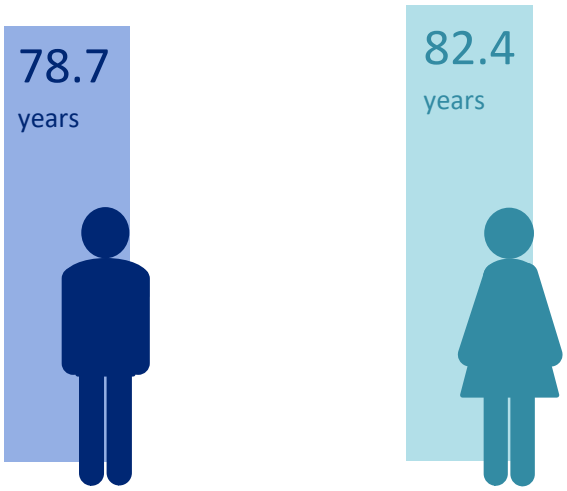
Healthy and Disability-Free Life Expectancy

- In 2016-18, male healthy life expectancy was 59.7 years, an increase of 1.0 years since 2012-14. Female healthy life expectancy was 60.8 years in 2016-18 and has not changed significantly from 61.7 years in 2012-14.
- Disability-free life expectancy was 57.3 years for males and 57.2 years for females in 2016-18. This represents a decline for both genders since 2012-14, with a fall of 3.0 years for males and 4.6 years for females.

Life expectancy at birth in 2016-18 was 78.7 years for males and 82.4 years for females.

Life expectancy refers to the number of years a person would expect to live if the current mortality patterns remain constant. In 2016-18, females in Northern Ireland could expect to live 3.7 years longer than males.

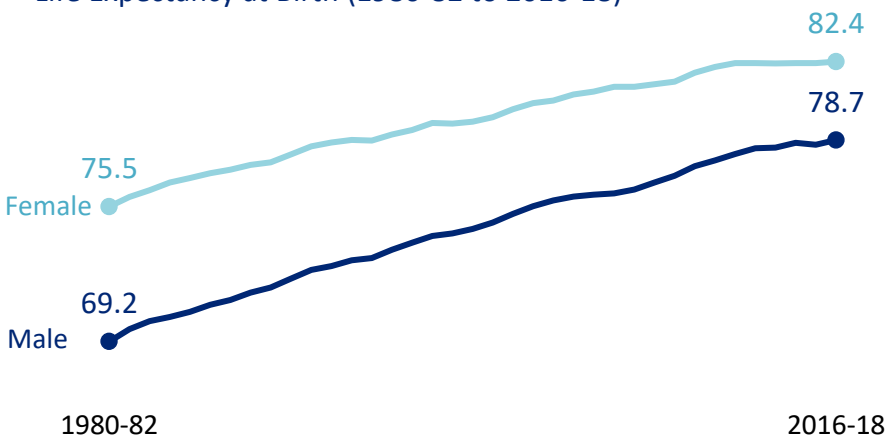
Male and Female Life Expectancy at Birth (2016-18)



Life expectancy for both males and females has grown steadily since 1980-82.

Since 1980-82, life expectancy has increased by 6.9 years for females and 9.5 years for males. As a result, the gender gap has narrowed from 6.4 years in 1980-82 to 3.7 years in 2016-18.

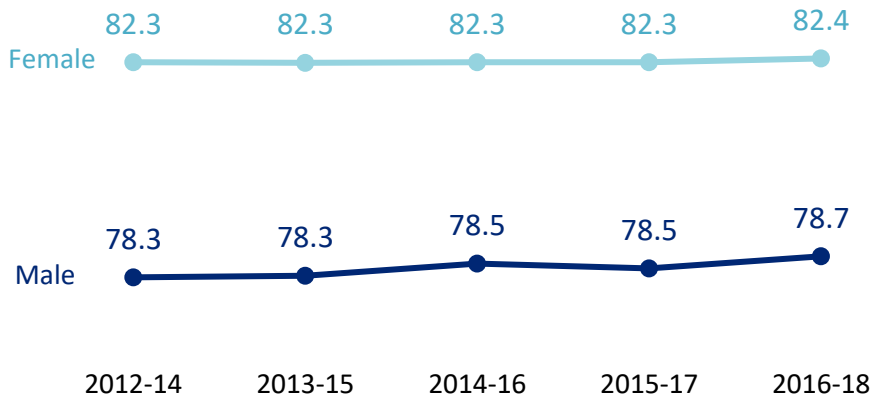
Life Expectancy at Birth (1980-82 to 2016-18)



The increase in life expectancy has slowed in recent years.

Since 2012-14, life expectancy has increased by **0.4 years for males** while there has been **no significant change** for females. This compares to an increase of 1.3 years for males and 0.9 years for females in the previous five-year period.

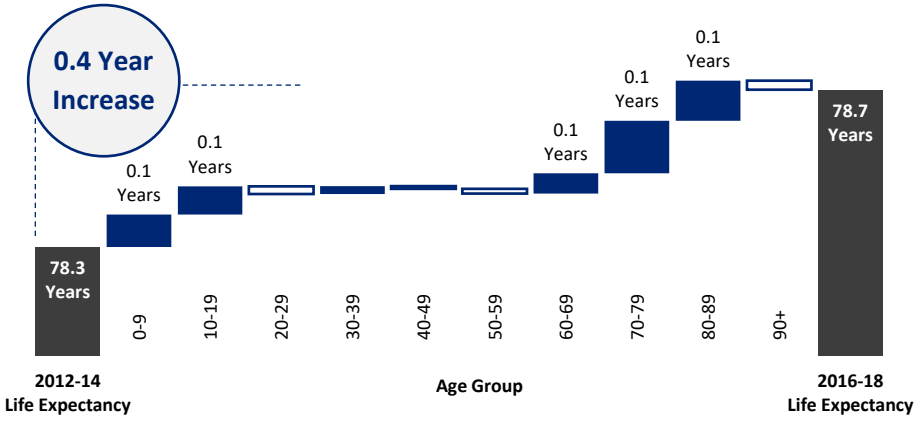
Life Expectancy at Birth (2012-14 to 2016-18)



Decreased mortality rates among 60-89 year olds contributed to the majority of the increase in male life expectancy over the last 5 years.

Reduced mortality among those aged 0-19 also made a contribution to the increase in life expectancy. Since 2012-14, mortality among several age groups showed no notable contribution to the change in life expectancy over time.

Decomposition of Change in Male Life Expectancy over Time by Age



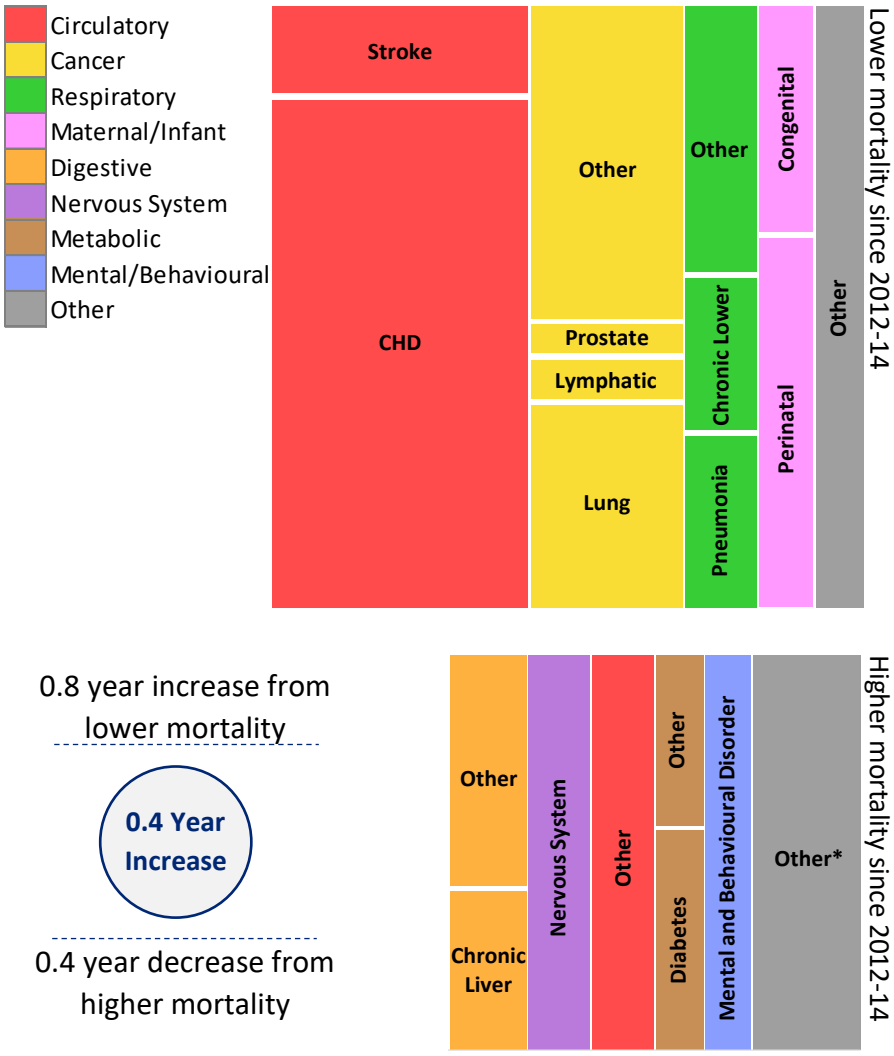
Reduced mortality from circulatory disease and cancer, among others causes, increased male life expectancy by 0.8 years. However, this increase was offset by 0.4 years.

Lower mortality from circulatory disease attributed to 0.3 years of the increase in life expectancy, the majority of which was attributable to Coronary Heart Disease (CHD). Reduced mortality from cancer contributed a further 0.2 years to the life expectancy increase; one-third of which was attributable to a reduction in lung cancer mortality.

However, the increase in male life expectancy was offset by 0.4 years due to increased mortality from digestive diseases and nervous system disorders, among others.

* A more detailed breakdown of the various contributions from different causes of death is available in Appendix A.

Decomposition of Change in Male Life Expectancy over Time by Cause of Death (2012-14 to 2016-18)

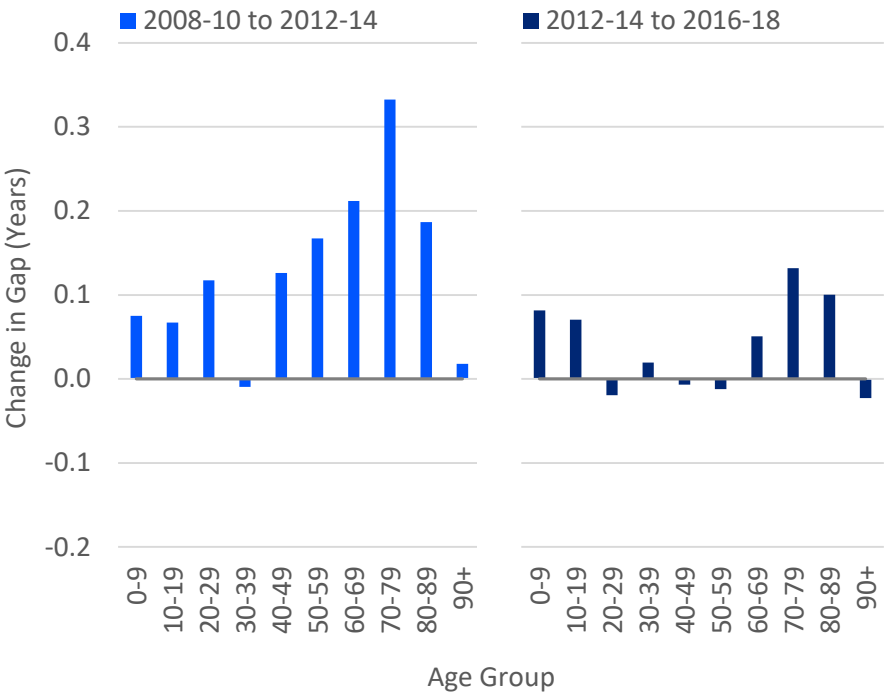


Compared with the previous 5-year period (2008-10 to 2012-14) mortality reductions slowed down across the majority of age groups during 2012-14 to 2016-18.

The recent slowdown in life expectancy improvement can be examined by comparing the changes observed from 2012-14 to 2016-18 with the previous 5-year period when male life expectancy increased by 1.3 years.

Between 2012-14 and 2016-18, improved mortality among older age groups (aged 60-89) contributed 0.3 years to the life expectancy increase. However, this rise was less than half that seen in the previous period. Many age groups seen little change in mortality over the last 5 years.

Decomposition of Change in Male Life Expectancy by Age

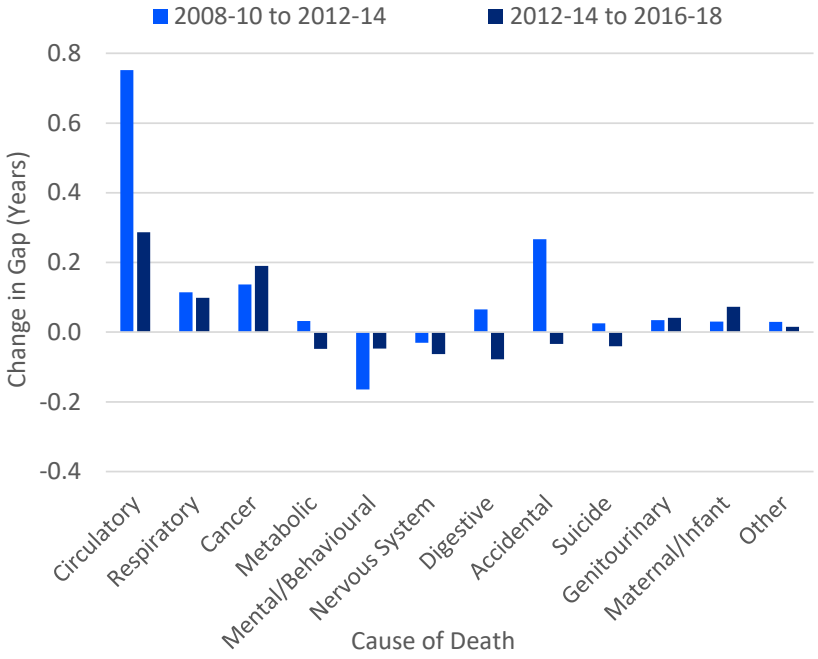


Between 2012-14 and 2016-18, the positive contribution to life expectancy of reduced mortality from circulatory diseases had almost halved compared with the previous period.

While several causes have continued to make a positive contribution to improvements in life expectancy, mortality due to accidents, metabolic and digestive diseases, and suicide, now provide a negative contribution to life expectancy changes when compared with the previous period.

* A more detailed breakdown of the various contributions from different causes of death is available in Appendix A.

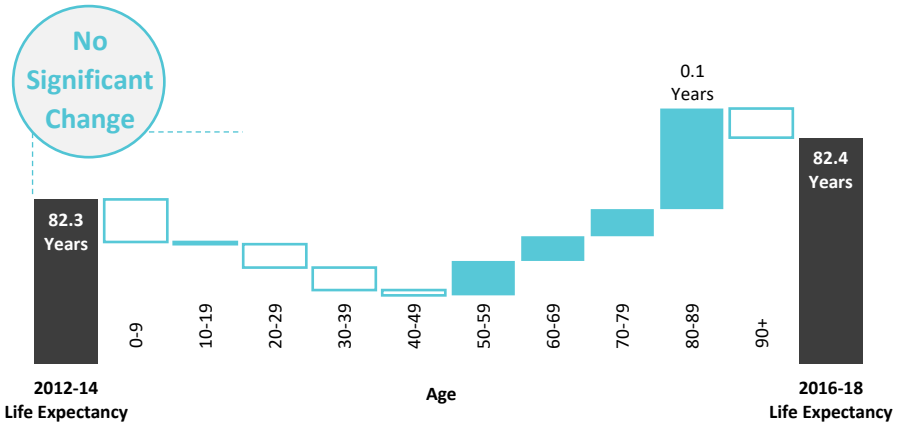
Decomposition of Change in Male Life Expectancy by Cause of Death



Despite no significant improvement in female life expectancy between 2012-14 and 2016-18, there was a reduction in mortality among those aged 50-59.

Life expectancy improvements as a result of reduced mortality among some older age groups (particularly those aged 80-89) were largely offset by increased mortality for those aged under 50 and those aged 90+.

Decomposition of Change in Female Life Expectancy over Time by Age



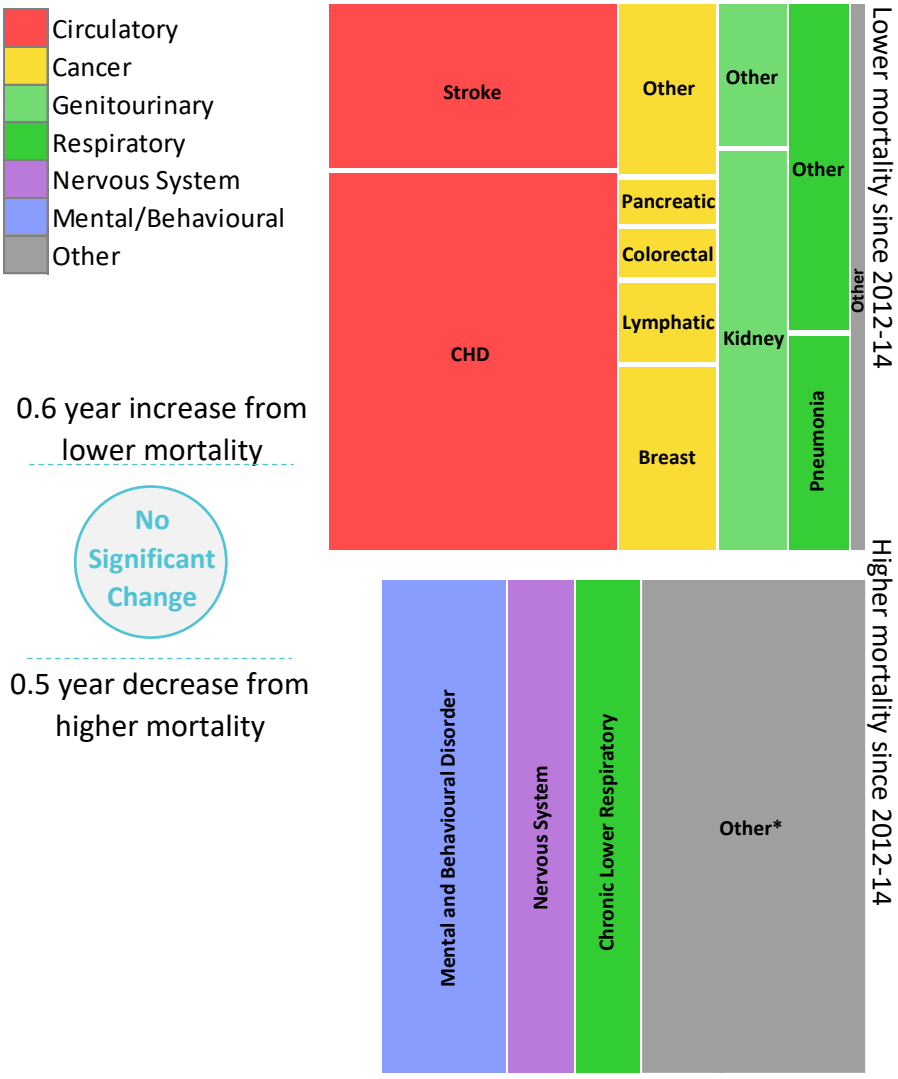
Improvements in female life expectancy, mainly due to reduced mortality from circulatory disease and cancer, were largely offset by increased mortality from several different causes.

Lower mortality from circulatory disease accounted for half (0.3 years) of the increase in female life expectancy, the majority of which was attributable to Coronary Heart Disease (CHD). Reduced mortality from cancer, genitourinary and some respiratory diseases also contributed to the increase.

However, this increase was largely offset by an increase in mortality from mental and behavioural disorders, mainly vascular dementia, as well as nervous system diseases and chronic lower respiratory causes.

* A more detailed breakdown of the various contributions from different causes of death is available in Appendix A.

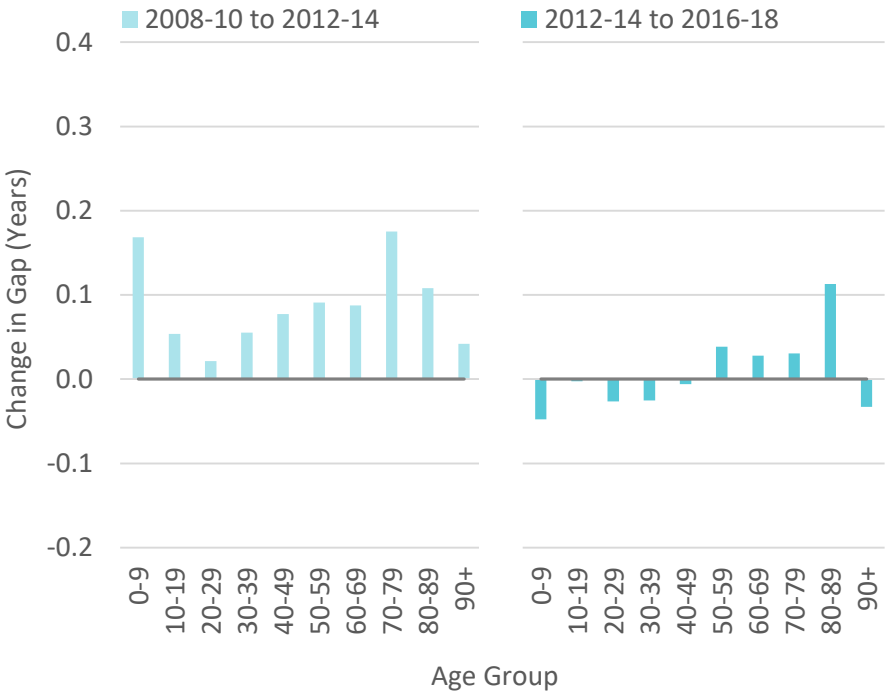
Decomposition of Change in Female Life Expectancy over Time by Cause of Death (2012-14 to 2016-18)



Increased mortality rates over the last 5 years within a number of age groups had a negative contribution to changes in life expectancy.

Improvements in female life expectancy have slowed down compared with the 0.9 year increase between 2008-10 and 2012-14. Between 2012-14 and 2016-18, a number of age groups contributed negatively to the change which was largely due to increased mortality from perinatal deaths, and from mental and behavioural disorders for those aged 90+. In the previous 5 year period (2008-10 to 2012-14), all age groups seen improvements in mortality.

Decomposition of Change in Female Life Expectancy by Age

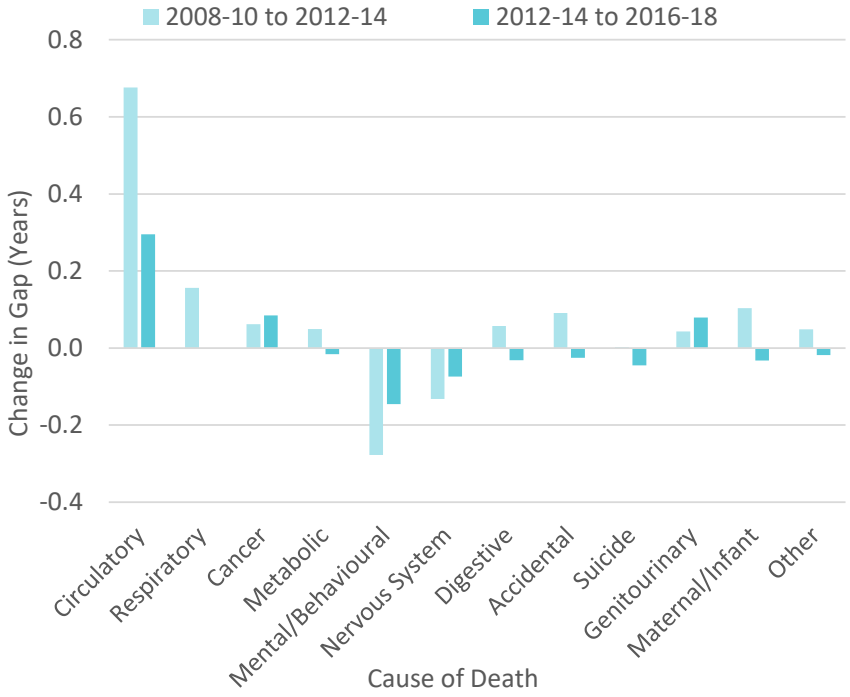


The positive contribution to female life expectancy from reduced circulatory mortality was half that seen in the previous 5 year period.

This slowdown in female circulatory mortality is the main reason as to why female life expectancy has remained broadly consistent since 2012-14.

However, it is worth noting that several causes made no positive contribution to changes in life expectancy which was not the case in the previous 5 year period. Mortality from digestive and maternal/infant causes made a negative contribution. However the negative impact from mortality due to mental and nervous system disorders did reduce in the most recent period.

Decomposition of Change in Female Life Expectancy by Cause of Death

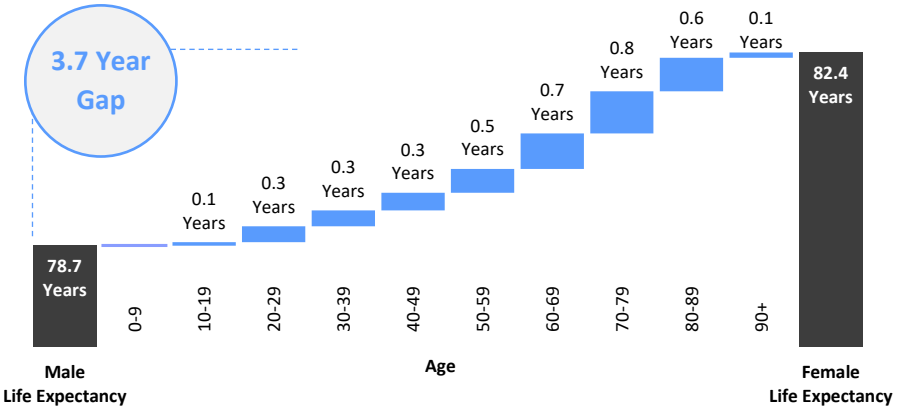


* A more detailed breakdown of the various contributions from different causes of death is available in Appendix A.

In 2016-18, females in NI could expect to live 3.7 years longer than males.

Across all age groups, male mortality was higher than that of females, with the exception of those aged 0-9 where there was higher female mortality from congenital causes. Contribution to the life expectancy gender gap is more pronounced at older ages, with over two-thirds attributable to lower mortality for females aged 50-89.

Decomposition of Life Expectancy Gender Gap by Age

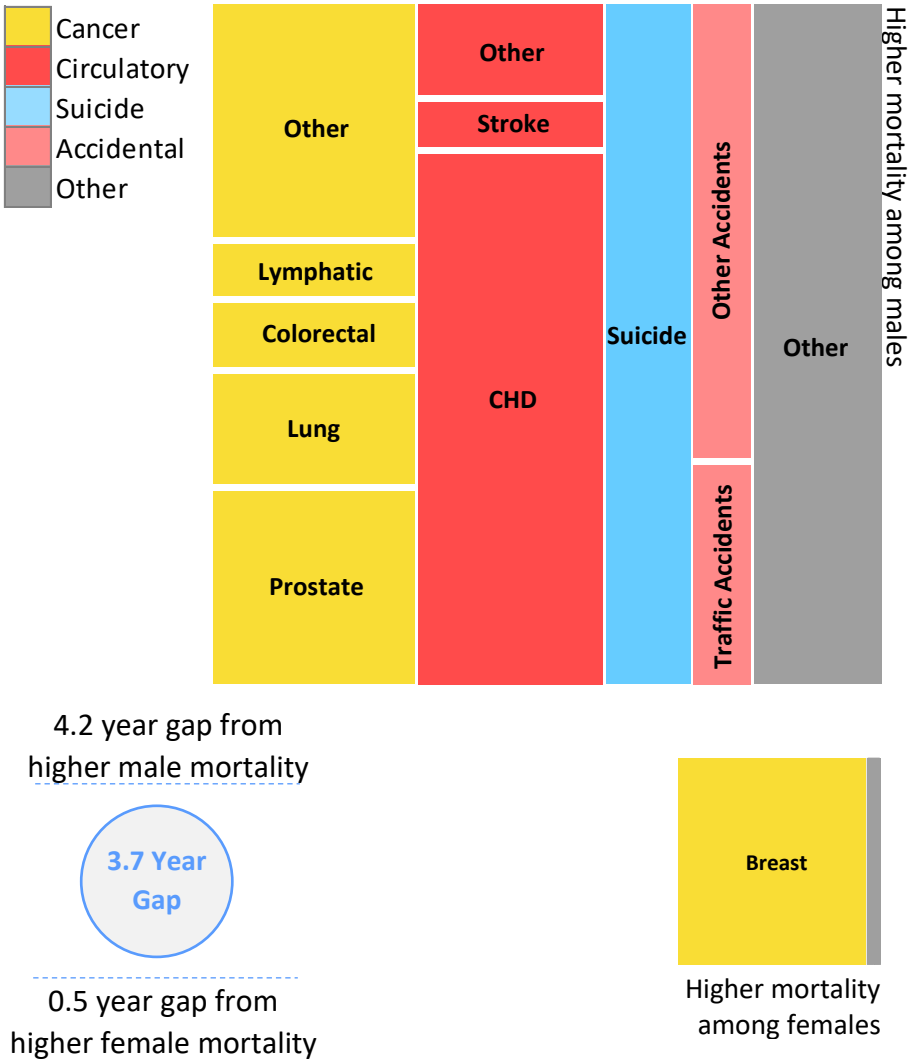


Higher mortality among males, particularly from cancer and circulatory disease, contributed 4.2 years to the gap in life expectancy. This was offset by 0.5 years mainly due to breast cancer mortality for females.

In 2016-18, higher mortality among males for a range of cancer and circulatory causes contributed 2.8 years to the life expectancy gender gap. A further 0.5 years of the gap was attributable to higher mortality among males due to suicide.

Female mortality from breast cancer and 'Other' causes offset the gap by 0.5 years. The 'Other' category was comprised of higher mortality among females for mental and behavioural disorders, mainly vascular dementia, and congenital disorders.

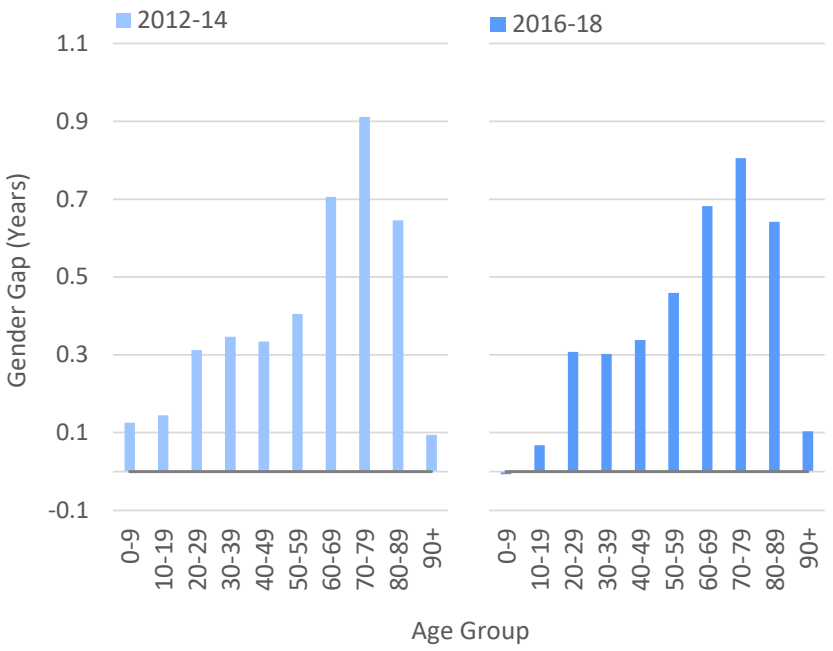
Decomposition of Life Expectancy Gender Gap by Cause of Death



The age contribution of the gender gap in 2016-18 remains similar to 2012-14, with higher mortality among males at older ages continuing to be the largest contributor to the life expectancy gender gap.

As previous analyses has shown, there have been many changes in the contribution of age groups for both male and female life expectancy since 2012-14. However, in terms of the gender gap, the most notable change since 2012-14 is that mortality rates for males and females aged 0-9 were broadly similar as a result of increased mortality for females from congenital causes.

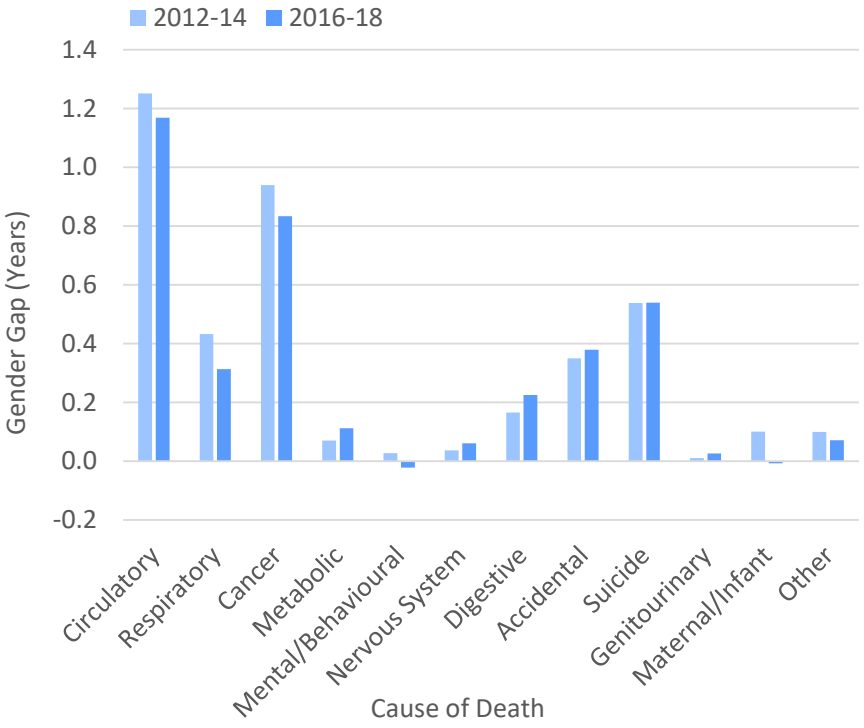
Contribution of Age Groups to Differences in the Life Expectancy Gender Gap



There has been little change in the contribution by different causes of death to the life expectancy gender gap since 2012-14.

Higher mortality from circulatory disease and cancer causes among males continue to be the largest contributors to the life expectancy gender gap. In 2012-14, mortality for each broad cause of death was greater for males. However in 2016-18, mortality from maternal or infant causes, albeit minor, reversed with females now experiencing marginally greater mortality. This was also the case for mental and behavioural disorders, particularly from vascular dementia, however this is likely due to more females than males living to older ages.

Contribution of Cause of Death to Differences in the Life Expectancy Gender Gap

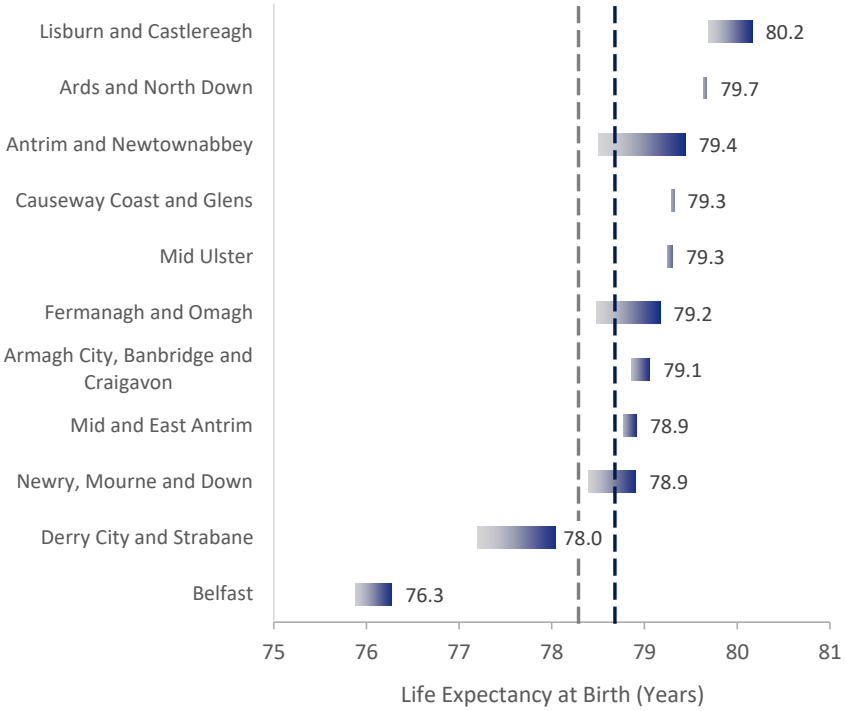


Values above 0 on the y-axis represent greater mortality among males, with values below 0 representing greater female mortality.

Across LGDs in 2016-18, male life expectancy at birth ranged from 76.3 years in Belfast to 80.2 years in Lisburn and Castlereagh.

Since 2012-14, male life expectancy has increased across the majority of LGDs. However, some LGDs have seen greater improvements than others, with life expectancy increasing by 0.9 and 0.8 years in Antrim & Newtownabbey and Derry City & Strabane respectively. Since 2012-14, there has been no increase in Ards & North Down or Causeway Coast & Glens.

Male Life Expectancy at Birth
by Local Government District (2012-14 to 2016-18)



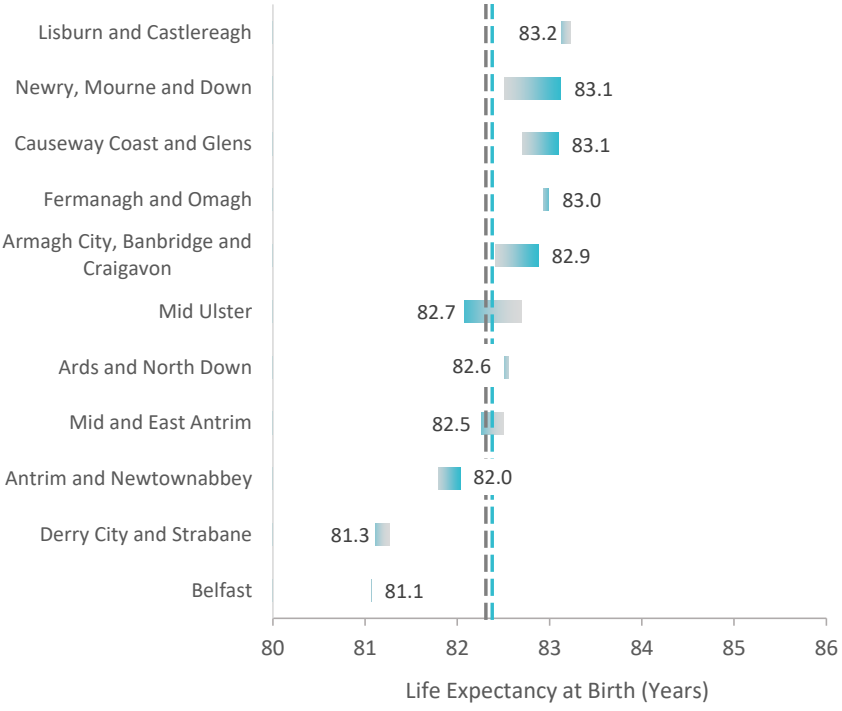
As with males, female life expectancy was highest in Lisburn and Castlereagh (83.2 years) and lowest in Belfast (81.1 years).

However, female life expectancy has experienced more variation across LGDs since 2012-14 when compared with male life expectancy. While life expectancy in Mid Ulster has declined by 0.6 years, Newry, Mourne & Down and Armagh City, Banbridge & Craigavon have increased by 0.6 and 0.5 years respectively.

There was little or no change to life expectancy in the Ards & North Down, Belfast or Fermanagh & Omagh LGDs.

A full assessment of change and differences in LGD figures, including confidence intervals, can be requested from PHIRB.

Female Life Expectancy at Birth
by Local Government District (2012-14 to 2016-18)



Key

Life Expectancy 2012-14

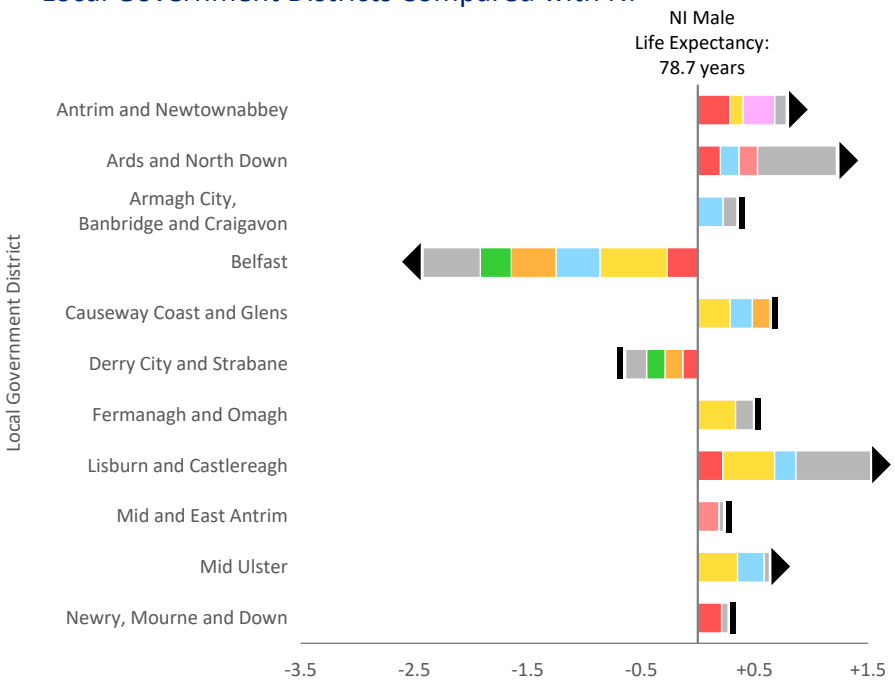
Life Expectancy 2016-18

Change in Life Expectancy 2012-14 to 2016-18

Deaths from circulatory diseases, cancer and suicide are the predominant contributors to the male life expectancy gap between LGDs and NI.

Male life expectancy was significantly lower than the NI average in the Belfast LGD as a result of higher cancer, digestive and suicide mortality. Life expectancies in the Antrim & Newtownabbey, Ards & North Down, Lisburn & Castlereagh and Mid Ulster LGDs were significantly higher than the NI average.

Decomposition of Male Life Expectancy (2016-18): Local Government Districts Compared with NI

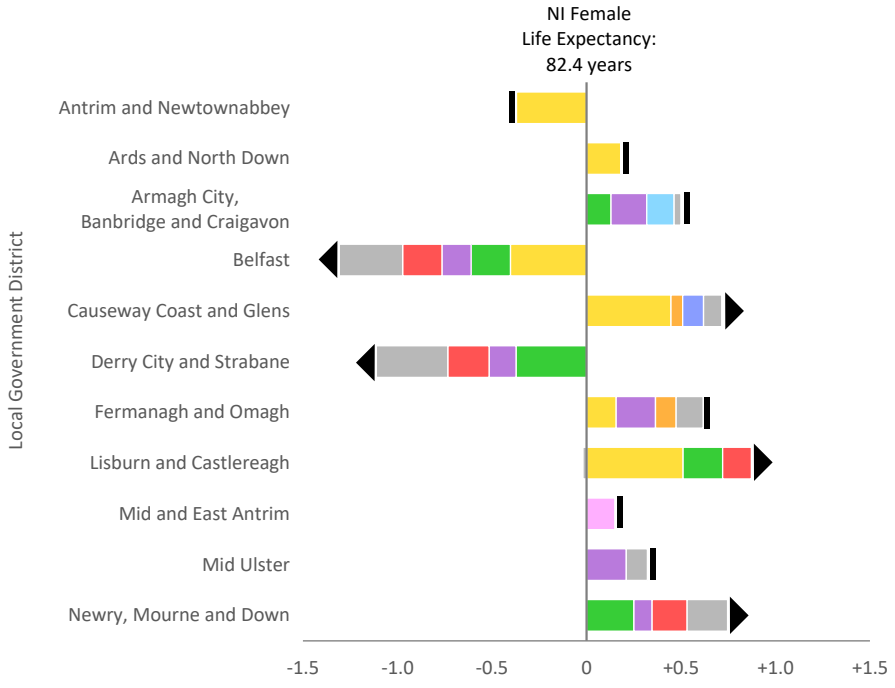


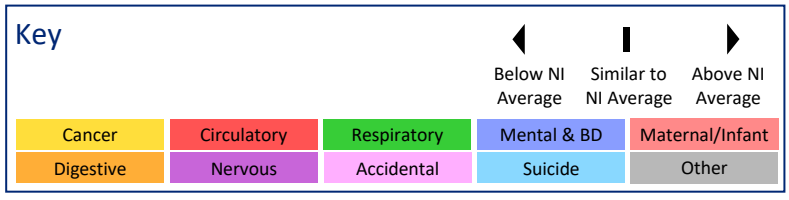
Deaths from cancer, respiratory disease and nervous system disorders are the predominant contributors to the female life expectancy gap between LGDs and NI.

Female life expectancy was significantly lower than the NI average in the Belfast and Derry City & Strabane LGDs. Life expectancy in the Causeway Coast & Glens and Lisburn & Castlereagh was higher than the NI average largely due to lower cancer mortality. Life expectancy was also significantly higher in the Newry, Mourne & Down LGD.

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. A more detailed breakdown is available in the accompanying tables available online.

Decomposition of Female Life Expectancy (2016-18): Local Government Districts Compared with NI

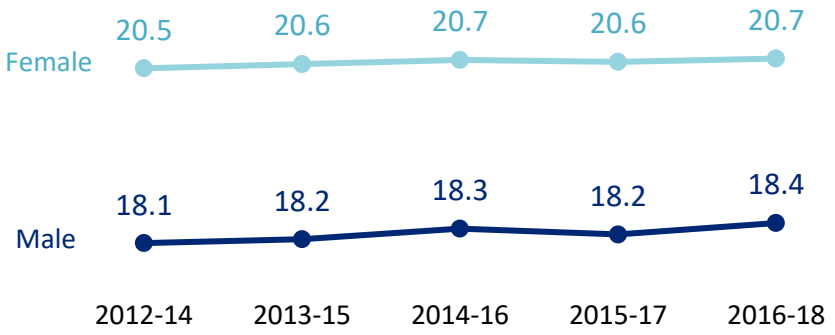




Life expectancy at age 65 in 2016-18 was 18.4 years for males and 20.7 years for females.

Over the last five years, there has been no significant change in life expectancy at age 65 for females. Over the same period, male life expectancy at age 65 has increased by 0.3 years.

Male and Female Life Expectancy at 65 (2012-14 to 2016-18)

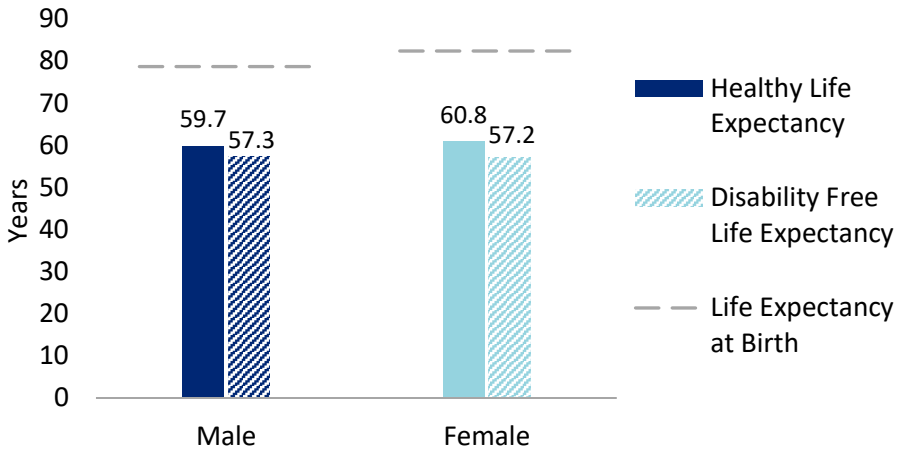


Poor health or disability resulted in a loss of approximately 20-25 years of disability-free or healthy life.

In 2016-18, healthy life expectancy (HLE) was 59.7 years for males and 60.8 years for females. Disability free life expectancy (DFLE) was 57.3 years for males and 57.2 years for females.

For both HLE and DFLE, the gender gap is not as wide as that for life expectancy at birth.

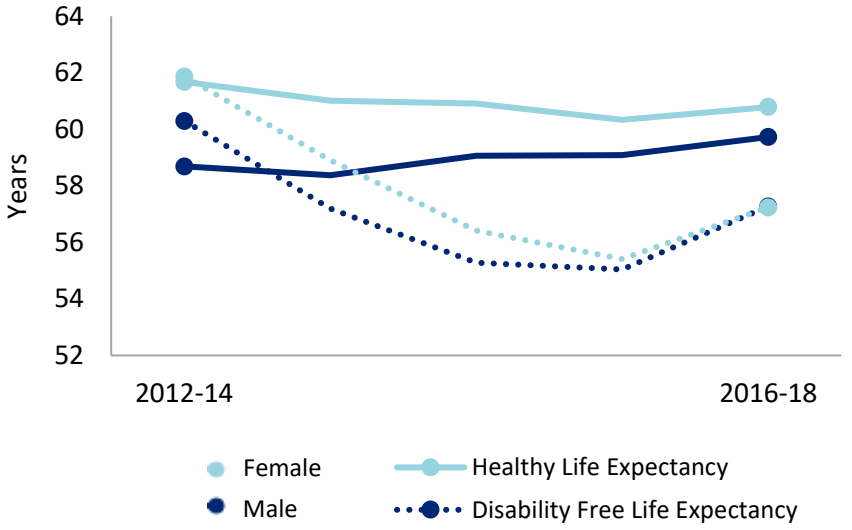
Healthy and Disability Free Life Expectancy (2016-18)



Healthy Life Expectancy has increased for males, while disability-free life expectancy has declined for both genders when compared with 2012-14.

Male HLE has increased by 1.0 years from 58.7 years in 2012-14, while female HLE is now 60.8 and has not significantly changed from 61.7 years in 2012-14. DFLE has decreased by 3.0 years for males and 4.6 years for females since 2012-14.

Healthy and Disability Free Life Expectancy (2012-14 to 2016-18)



NI Life Expectancies (All figures in Years)		2012-14	2013-15	2014-16	2015-17	2016-18
Male	**Life Expectancy at Birth**	78.3	78.3	78.5	78.5	78.7
	Life Expectancy at 65	18.1	18.2	18.3	18.2	18.4
	Healthy Life Expectancy	58.7	58.4	59.1	59.1	59.7
	Disability-Free Life Expectancy	60.3	57.2	55.3	55.0	57.3
Female	**Life Expectancy at Birth**	82.3	82.3	82.3	82.3	82.4
	Life Expectancy at 65	20.5	20.6	20.7	20.6	20.7
	Healthy Life Expectancy	61.7	61.0	60.9	60.3	60.8
	Disability-Free Life Expectancy	61.9	58.9	56.4	55.4	57.2

NI Life Expectancy Gaps (All figures in Years)		2012-14 to 2016-18		Gender Gap	
		Male	**Female**	**2012-14**	**2016-18**
Total Gap		0.4	0.1	4.0	3.7
Age Bands	0-9	0.1	0.0	0.1	0.0
	10-19	0.1	0.0	0.1	0.1
	20-29	0.0	0.0	0.3	0.3
	30-39	0.0	0.0	0.3	0.3
	40-49	0.0	0.0	0.3	0.3
	50-59	0.0	0.0	0.4	0.5
	60-69	0.1	0.0	0.7	0.7
	70-79	0.1	0.0	0.9	0.8
	80-89	0.1	0.1	0.6	0.6
	90+	0.0	0.0	0.1	0.1
Circulatory	CHD	0.3	0.2	1.0	0.9
	Stroke	0.1	0.1	0.1	0.1
	Other	-0.1	0.0	0.1	0.2
Respiratory	Pneumonia	0.0	0.0	0.1	0.1
	Chronic Lower	0.0	-0.1	0.2	0.1
	Other	0.0	0.0	0.2	0.1
Cancer	Lung	0.1	0.0	0.3	0.2
	Breast	0.0	0.0	-0.5	-0.5
	Prostate	0.0	0.0	0.4	0.4
	Colon	0.0	0.0	0.1	0.1
	Lymph	0.0	0.0	0.1	0.1
	Pancreas	0.0	0.0	0.0	0.1
	Other	0.1	0.0	0.5	0.4
Metabolic	Diabetes	0.0	0.0	0.1	0.1
	Other	0.0	0.0	0.0	0.0
Mental	Mental & BD	0.0	-0.1	0.0	0.0
Nervous	Nervous	-0.1	-0.1	0.0	0.1
Digestive	Chronic Liver	0.0	0.0	0.1	0.1
	Other	0.0	0.0	0.0	0.1
Accidental	Car Accidents	0.0	0.0	0.1	0.1
	Accidents	0.0	0.0	0.2	0.3
Suicide	Suicide	0.0	0.0	0.5	0.5
Genitourinary	Kidney	0.0	0.1	0.0	0.0
	Other	0.0	0.0	0.0	0.0
Maternal/Infant	Perinatal	0.0	0.0	0.1	0.0
	Congenital	0.0	0.0	0.0	0.0
Other	Other	0.0	0.0	0.1	0.1

Male Life Expectancy at Birth

(All figures in Years)

Local Government District	2012-14	2013-15	2014-16	2015-17	2016-18
Antrim and Newtownabbey	78.5	78.6	78.8	79.1	79.4
Ards and North Down	79.6	79.4	79.7	79.5	79.7
Armagh City, Banbridge and Craigavon	78.9	78.8	79.2	79.0	79.1
Belfast	75.9	75.9	76.0	75.8	76.3
Causeway Coast and Glens	79.3	79.5	79.8	79.6	79.3
Derry City and Strabane	77.2	77.3	77.6	77.7	78.0
Fermanagh and Omagh	78.5	78.4	78.6	78.7	79.2
Lisburn and Castlereagh	79.7	79.9	80.1	79.8	80.2
Mid and East Antrim	78.8	78.5	78.8	78.6	78.9
Mid Ulster	79.2	79.3	79.6	79.4	79.3
Newry, Mourne and Down	78.4	78.7	79.0	78.9	78.9

Female Life Expectancy at Birth

(All figures in Years)

Local Government District	2012-14	2013-15	2014-16	2015-17	2016-18
Antrim and Newtownabbey	81.8	82.0	82.1	82.0	82.0
Ards and North Down	82.6	82.7	82.9	82.6	82.6
Armagh City, Banbridge and Craigavon	82.4	82.4	82.5	82.7	82.9
Belfast	81.1	81.0	81.1	81.0	81.1
Causeway Coast and Glens	82.7	82.8	83.0	83.2	83.1
Derry City and Strabane	81.4	81.7	81.9	81.4	81.3
Fermanagh and Omagh	82.9	82.5	82.6	82.5	83.0
Lisburn and Castlereagh	83.3	83.3	83.5	83.4	83.2
Mid and East Antrim	82.7	82.7	82.8	82.7	82.5
Mid Ulster	83.3	83.2	83.4	82.7	82.7
Newry, Mourne and Down	82.5	82.4	82.6	82.6	83.1

Official Figures

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

Life Expectancy

The average number of years an individual born within a specified period can expect to live providing mortality patterns remain constant. Life expectancy figures are calculated using the Chiang II[3] abridged life table method. This method has been adapted to extend the open-ended final age group to those aged 90 and over. Figures are presented for the expected years of life at time of birth, or at age 65, for both males and females and are aggregated by three years.

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. Further life expectancy gaps between the most & least deprived areas and between rural & urban areas are routinely calculated for the Health Inequalities Annual Report[4].

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.

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 method[5] 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.

[3] http://apps.who.int/iris/bitstream/10665/62916/1/15736_eng.pdf
[4] https://www.health-ni.gov.uk/articles/health-inequalities-statistics
[5] Arriaga, Eduardo. 1984 “Measuring and Explaining the Changes in Life Expectancies”.

Healthy Life Expectancy and Disability-Free Life Expectancy

Healthy Life Expectancy is the average number of years a person can expect to live in good health. HLE provides an estimate of lifetime spent in 'Very Good' or 'Good' health, calculated using respondents' perception of their own health according to the Health Survey Northern Ireland (HSNI). Disability-Free Life Expectancy is the average number of years a person can expect to live disability free. DFLE provides an estimate of lifetime spent free from a limiting persistent (twelve months or more) illness or disability, based upon a self-rated functional assessment of health recorded in the HSNI. Each figure is calculated using the Sullivan[6] method excluding populations that reside in communal establishments.

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.

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.

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 20.

Other regular reports in this series include[7]:

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.

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.

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.

[6] https://webgate.ec.europa.eu/chafea_pdb/assets/files/pdb/2006109/2006109_d5sullivan_guide_final_jun2007.pdf
[7] https://www.health-ni.gov.uk/topics/dhssps-statistics-and-research/health-inequalities-statistics

Charts Presented in this Report

This report contains charts examining each of the observed life expectancy gaps. An explanation of how to interpret these charts is illustrated below.

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

Decomposition by Age

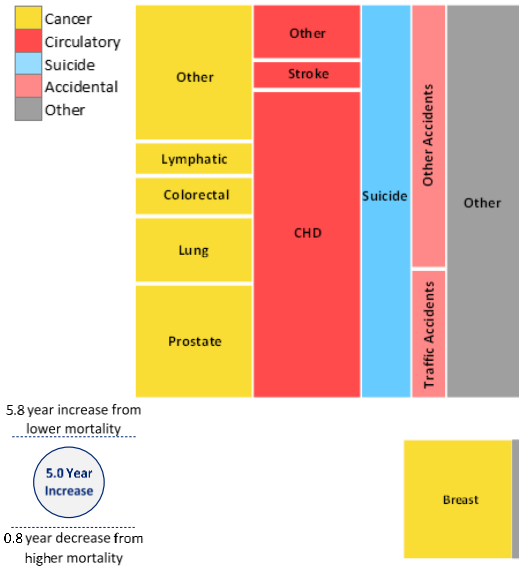
The chart to the right is used to illustrate the proportion of each life expectancy gap attributable to various age bands.

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 top represent causes of death which were more prevalent in Area A, while the square at the bottom 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.

Next to the grids (in the bottom left corner), the total positive and negative contributions are presented as well as the overall differential. A full breakdown of the contribution from individual causes can be found in tables in Appendix A. Causes labelled "Other" indicate the combined contribution of causes which were individually too small to present.

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)	

Authors: Philip Carson, Hannah Blakley & Caolan Laverty

Public Health Information & Research Branch, Information Analysis Directorate

Department of Health
Castle Buildings, Belfast BT4 3SQ
☎ Tel: 028 905 22591
☎ Ext: 22591
✉ Email: healthinequalities@health-ni.gov.uk
http://www.health-ni.gov.uk/topics/dhssps-statistics-and-research/health-inequalities-statistics