BADENOCH AND STRATHSPEY

Partnership Profile
Adult Health & Wellbeing
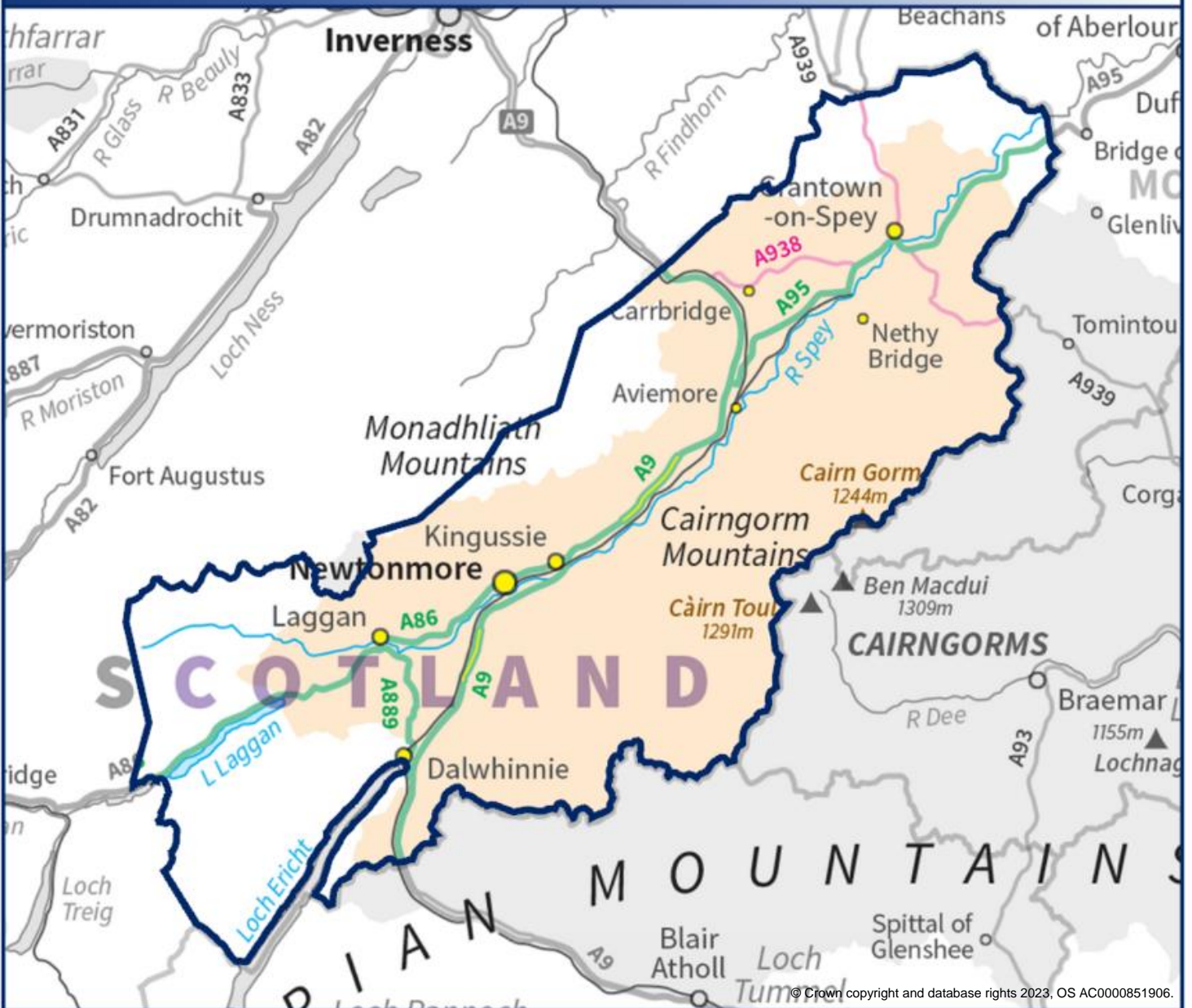
Public Health Intelligence
March 2023

PUBLIC HEALTH

NHS Highland

The Public Health Intelligence team are part of the Directorate of Public Health of NHS Highland and provide an expert resource on epidemiology, demography and population health evidence.

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Distribution	Method
Distributed to NHS Highland stakeholders, Public Health Directorate staff, community planning partners and Public Health Intelligence intranet page	Intranet with email link

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Introduction

This report provides an overview of adult population health and wellbeing in Badenoch and Strathspey. Evidence for the health of the population is drawn from multiple sources including deaths, disease registrations and hospitalisations. It is a companion volume to a profile of demography and deprivation published in November 2022.

All data are presented for Badenoch and Strathspey and, where available, intermediate zones or neighbourhoods within Badenoch and Strathspey. Comparisons are made to the Highland local authority and Scotland.

Further profile reports will present information covering a range of topics relating to the health of infants, children and young people and health inequalities. The reports do not cover information on the use or provision of health or social care services which other colleagues in NHS Highland may provide.

Geographies and populations

Profile reports are available for nine community partnerships in Highland local authority and four community planning groups in Argyll and Bute local authority. These partnership areas are the focus of action to improve the health of the people and communities in the area covered by NHS Highland Health Board.

This report uses four levels of geography: local authority, partnership area, intermediate zone and datazone. Local authorities, intermediate zones and datazones are nationally agreed geographical areas with defined boundaries. Partnership areas are locally defined geographies created without reference to national geographies. Therefore, partnership areas and national geographies may not neatly align.

The intermediate zone is the smallest spatial unit most commonly used for releasing and presenting potentially sensitive statistical data and reporting measures of population health. Most measures and figures presented in this report are aggregations from datazones to higher geographical levels. The number of events in the intermediate geographies that best align with a partnership area may not sum to the exact total.

Deprivation and Inequalities

This report presents some information on deprivation using the Scottish Index of Multiple Deprivation (SIMD)[1]. The SIMD is an area-based measure of relative deprivation rather than household or

individual deprivation. The SIMD can help to understand the life circumstances and health outcomes of people living in areas identified as experiencing high levels of deprivation.

Health inequalities have been defined as the "unjust and avoidable differences in people's health across the population and between specific population groups"[2]. Inequalities are not caused by a single issue, and can occur by gender, income, deprivation, ethnicity, disability, geography and other factors.

The SIMD is used to monitor health inequalities by dividing the population into five groups (quintiles) or ten groups (deciles) based on their area deprivation level.

The SIMD represents deprivation less accurately in rural areas[3]. The statistical indicators used in the index do not capture the nature of rural disadvantage, and poor households in rural areas are unlikely to be spatially concentrated. Rural areas tend to be less socially homogeneous than urban ones in terms of deprivation, and deprived households in rural areas are unlikely to make much statistical impact on a small area (datazone) basis. A consequence is that rural disadvantage is less visible and 'less easily tractable' than in urban areas.

Indicator Definitions

Many of the indicators presented in this report are published by the Scottish Public Health Observatory (ScotPHO). Full details of the indicator definitions used by ScotPHO are available within the ScotPHO online profiles tool[4].

Further information on the geographies, populations and other terms used within the report are available in the Glossary.

Badenoch and Strathspey Summary

Male and female life expectancy is higher in the partnership area than in Scotland. Long-term trends for increasing life expectancy have stalled in recent years. It is a significant concern that a sentinel measure of population health and social progress is not improving.

Social and economic inequalities in health and wellbeing are evident within the partnership area. Small areas with a higher proportion of people experiencing income deprivation generally rank more poorly according to the Scottish Index of Multiple Deprivation (SIMD) health domain.

By presenting data for small areas, the profile highlights that systematic differences in population health are associated with income deprivation across a range of measures, providing further evidence of current health inequalities within the partnership and across the local authority.

In common with other partnership areas, leading causes of death include dementia and Alzheimer's disease, ischaemic heart disease, cerebrovascular diseases (including stroke) and certain cancers. There have been decreases in early deaths from cancer and coronary heart disease, but improvements have stalled and slowed in recent years.

Common long-term conditions include cardiovascular diseases, cancers, neurological disorders, mental health disorders and musculoskeletal disorders[5]. The prevalence of many conditions and the number of people with frailty are likely to increase as the number of older people increases.

Rates of cancer registrations have remained relatively constant, indicating earlier diagnosis and treatment may have driven previous improvements in premature deaths from cancer.

Hospitalisations due to asthma, chronic obstructive pulmonary disease (COPD) and coronary heart disease (CHD) generally show decreases over time but remain significant causes of poor health.

Psychiatric patient hospitalisations have markedly decreased over time, reflecting a change in the provision of care towards supporting people in the community.

Prescriptions for anxiety, depression or psychosis have increased over time.

Problem alcohol and drug use can significantly impact physical and mental health and have long-term social impacts, including family break-ups, domestic abuse, unemployment, homelessness and financial problems. There are increased risks of accidents, injuries, violence and antisocial behaviour.

Standardised rates of alcohol and drug admission for the partnership area are relatively low, with variation in alcohol-related admissions by intermediate geography area.

As the number of older people in the population increases, the number of people requiring support at the end of life is likely to increase.

Trends have shown increases in deaths occurring in a homely setting. Increased primary, community and palliative care resources will be needed to support families and individuals at home if this pattern is sustained.

Life Expectancy

Life expectancy provides a high-level measurement of the health of a population. Life expectancy at birth measures the average number of years a newborn is expected to live if they experienced the period's age and sex-specific mortality rates.

Areas in which the population experience more significant ill health and where people die at a younger age have a lower life expectancy. Male life expectancy in the UK is generally lower than female life expectancy. Across the UK and Scotland, life expectancy has tended to increase over time, except for the World Wars and the Spanish flu pandemic of 1918-19. This improvement in life expectancy has stalled in recent years (since around 2012-2014), and some areas have seen a decrease in life expectancy predating the COVID-19 pandemic[6]. It is a significant concern that a sentinel measure of population health and social progress is not improving.

Table 1: Male life expectancy at birth by area

	Life Expectancy	Lower bound	Upper bound	Significance	
				Scotland	Council
Highland	77.6	77.1	78.1	+	
NHS Highland	77.7	77.2	78.1	+	
Scotland	76.6	76.5	76.7		-
Badenoch and Strathspey	81.1	79.8	82.3	+	+
Skye, Lochalsh and West Ross	81.1	80.1	82.0	+	+
Mid Ross	79.7	78.6	80.8	+	+
Sutherland	79.5	78.2	80.8	+	+
Nairn and Nairnshire	78.8	77.3	80.3	+	
Lochaber	77.8	76.6	79.1		
Inverness	77.3	76.6	77.9		
Caithness	77.0	75.8	78.1		
East Ross	76.4	75.1	77.6		

Source: ScotPHO Online Profiles
2019-2021 (3-year aggregate for Scotland, Council and Board); 2017-2021 (5-year aggregate for other areas)

Figure 1: Male life expectancy at birth over time
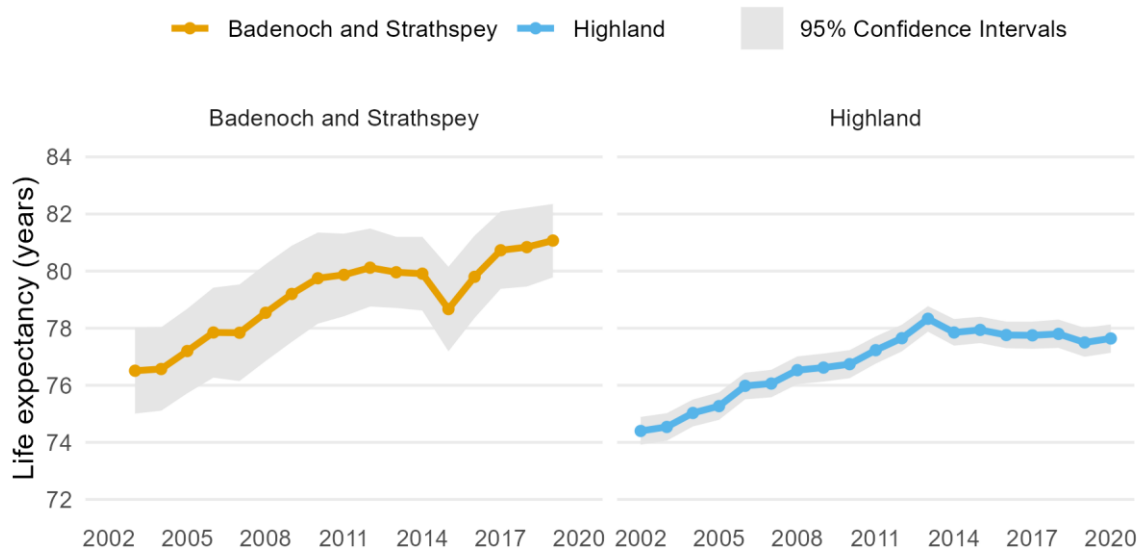
Source: ScotPHO Online Profiles
2001-2003 to 2019-2021 (3-year aggregate for Scotland, Council and Board)
2001-2005 to 2017-2021 (5-year aggregate for other areas)
The vertical-axis does not start at zero.

Table 2: Male life expectancy at birth by intermediate geography in the area

	Life Expectancy	Lower bound	Upper bound	Significance Scotland	Council
Badenoch and Strathspey Central	83.9	81.4	86.4	+	+
Badenoch and Strathspey South	80.9	78.9	82.9	+	+
Badenoch and Strathspey North	80.3	78.0	82.7	+	

Source: ScotPHO Online Profiles 2017-2021 (5-year aggregate)

Figure 2: Male life expectancy at birth by intermediate geography in the area
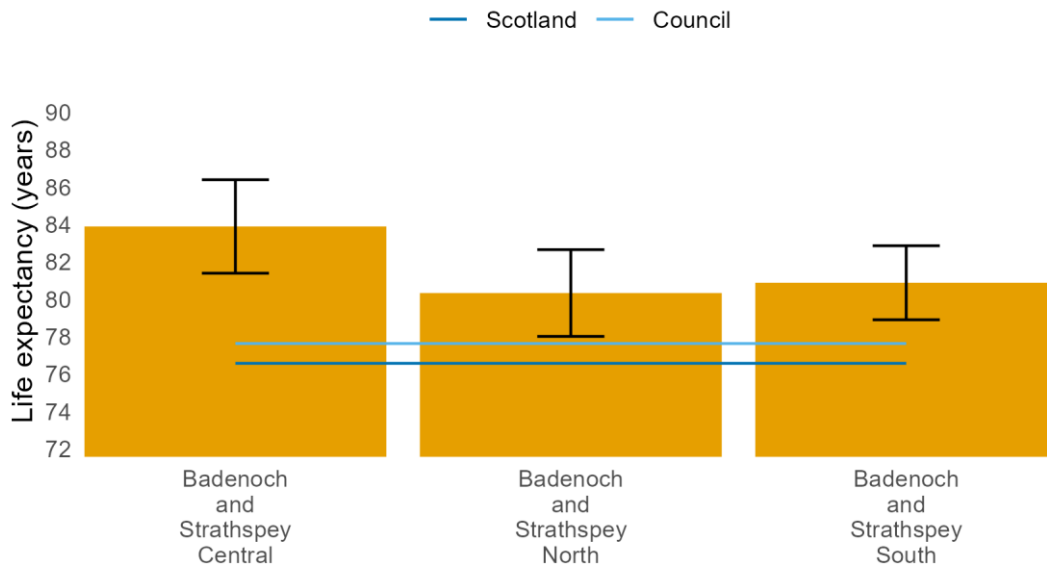
Source: ScotPHO Online Profiles 2017-2021 (5-year aggregate)
Error bars (vertical lines at column series ends) show a 95% confidence interval range.
The vertical-axis does not start at zero.

Figure 3: Variation in male life expectancy associated with income deprivation by intermediate geography
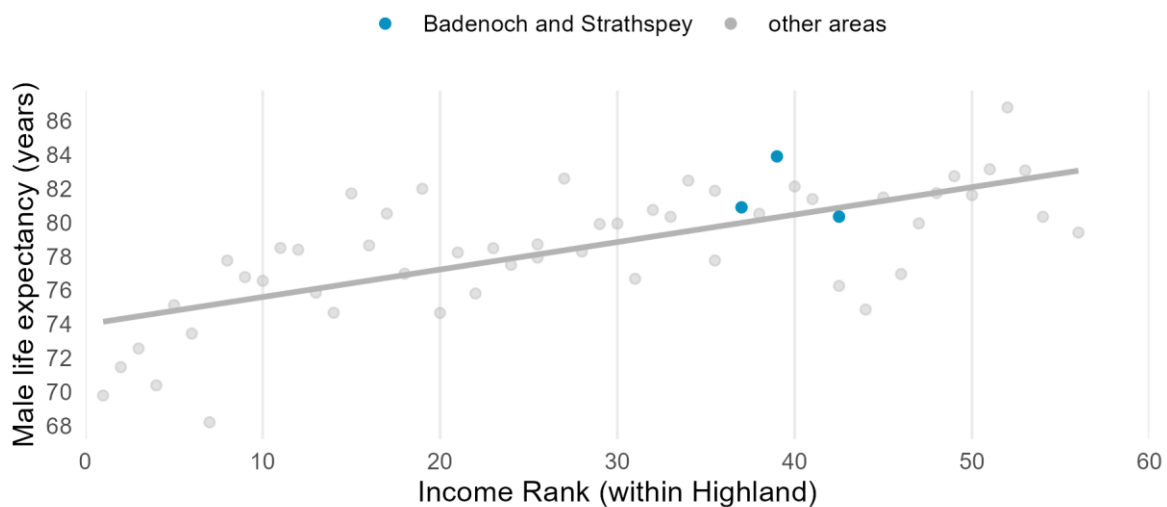
Source: ScotPHO Online Profiles Life Expectancy 2017-2021 (5-year aggregate)
Income rank based upon the SIMD 2020v2 income domain where the area ranked one is the population most income deprived.
The vertical-axis does not start at zero.
Each point represents an intermediate geography.
A line of best fit shows the correlation between income deprivation and the measure of health.

Table 3: Female life expectancy at birth by area

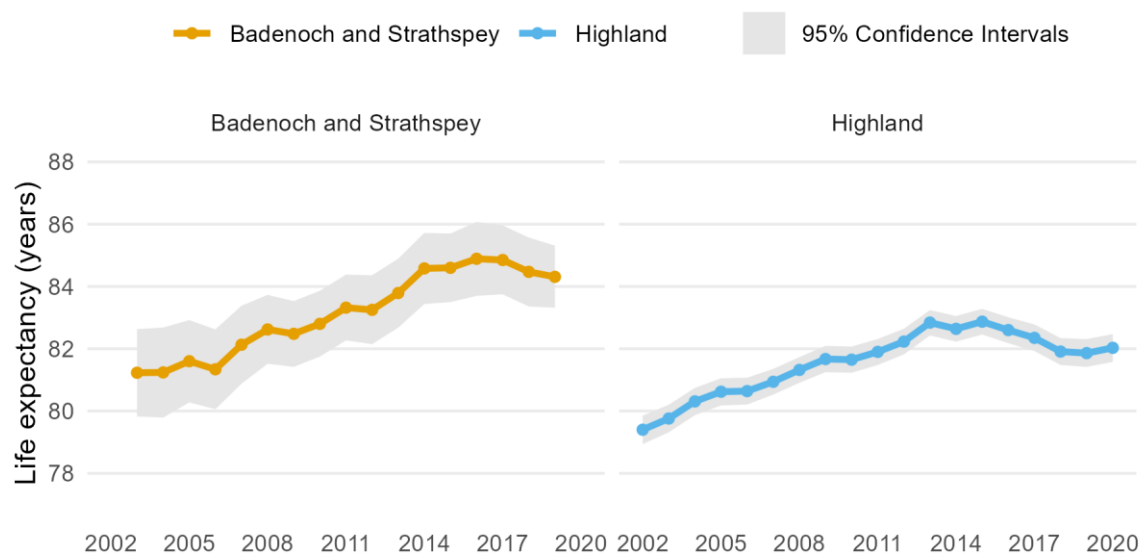|	Life Expectancy	Lower bound	Upper bound	Significance Scotland	Council
Highland	82.0	81.6	82.5	+	
NHS Highland	82.0	81.6	82.4	+	
Scotland	80.8	80.7	80.9		-
Badenoch and Strathspey	84.3	83.3	85.3	+	+
Skye, Lochalsh and West Ross	83.9	83.0	84.8	+	+
Mid Ross	83.4	82.6	84.3	+	+
Nairn and Nairnshire	82.8	81.7	84.0	+	
Sutherland	82.7	81.5	84.0	+	
Inverness	82.0	81.4	82.6	+	
Caithness	81.6	80.6	82.6		
Lochaber	81.0	79.8	82.3		
East Ross	80.3	79.2	81.4		-

Source: ScotPHO Online Profiles
2019-2021 (3-year aggregate for Scotland, Council and Board); 2017-2021 (5-year aggregate for other areas)

Figure 4: Female life expectancy at birth over time

Source: ScotPHO Online Profiles
2001-2003 to 2019-2021 (3-year aggregate for Scotland, Council and Board)
2001-2005 to 2017-2021 (5-year aggregate for other areas)
The vertical-axis does not start at zero.

Table 4: Female life expectancy at birth by intermediate geography in the area

	Life Expectancy	Lower bound	Upper bound	Significance Scotland	Council
Badenoch and Strathspey Central	85.3	83.2	87.4	+	+
Badenoch and Strathspey South	84.4	82.8	86.1	+	+
Badenoch and Strathspey North	84.1	82.6	85.7	+	+

Source: ScotPHO Online Profiles 2017-2021 (5-year aggregate)

Figure 5: Female life expectancy at birth by intermediate geography
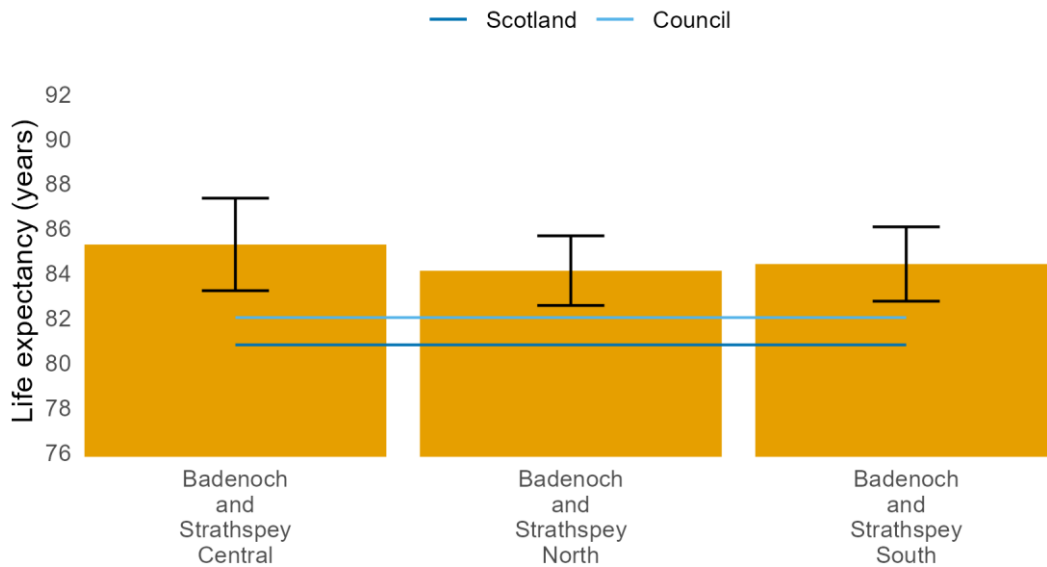
Source: ScotPHO Online Profiles 2017-2021 (5-year aggregate)
Error bars (vertical lines at column series ends) show a 95% confidence interval range.
The vertical-axis does not start at zero.

Figure 6: Variation in female life expectancy associated with income deprivation by intermediate geography

Source: ScotPHO Online Profiles Life Expectancy 2017-2021 (5-year aggregate)
Income rank based upon the SIMD 2020v2 income domain where the area ranked one is the population most income deprived.
The vertical-axis does not start at zero.
Each point represents an intermediate geography.
A line of best fit shows the correlation between income deprivation and the measure of health.

Health and income

The Scottish Index of Multiple Deprivation (SIMD) health domain combines multiple population health measures to create a summary statistic for every small area (datazone) in Scotland. Areas are ranked from 1 (most deprived) to 6976 (least deprived).

The SIMD income domain ranks datazones by estimating the proportion of the population who are income deprived.

We highlight the correlation between the ranking of areas on the health and income domains. Those most income-deprived areas are also more likely to be amongst the most overall health deprived.

Figure 7: Health domain rank by income domain rank for datazone geography
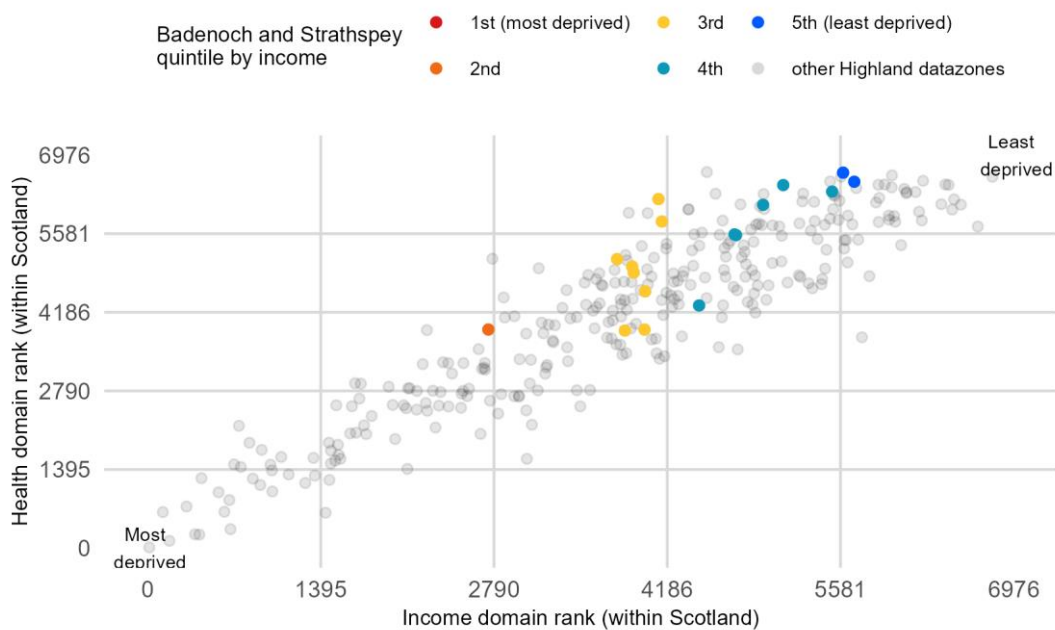
Source: SIMD 2020v2
Each point represents a datazone

Table 5: Datazones in the most health deprived 20 percent in Scotland by area

	Total number of data zones in the area	Areas in the 20% most deprived in Scotland	Local share of the 20% most deprived areas in Scotland
Highland	312	20	6.4%
Badenoch and Strathspey	17	0	0.0%
Caithness	38	3	7.9%
East Ross	29	3	10.3%
Inverness	103	11	10.7%
Lochaber	27	1	3.7%
Mid Ross	33	1	3.0%
Nairn and Nairnshire	18	1	5.6%
Skye, Lochalsh and West Ross	26	0	0.0%
Sutherland	21	0	0.0%

Source: SIMD 2020v2

Table 6: Badenoch and Strathspey datazones within the most health deprived 20 percent in Scotland

Data Zone	Intermediate Zone	Data Zone Name
Not applicable, as there are no data zones in Badenoch and Strathspey in the 20 percent most health deprived areas in Scotland		

Source: SIMD 2020v2

Mortality

Mortality data provides information on causes of death and provides valuable insights into the general health of an entire population. The primary source of death data in Scotland (death registrations) is the National Records of Scotland (NRS).

Table 7: Average annual deaths all ages by sex

	Number	Percent
Female	80	51.2
Male	76	48.8
Total	156	100.0

Source: National Records of Scotland; 2019-2021

Figure 8: Average annual deaths by age group and sex
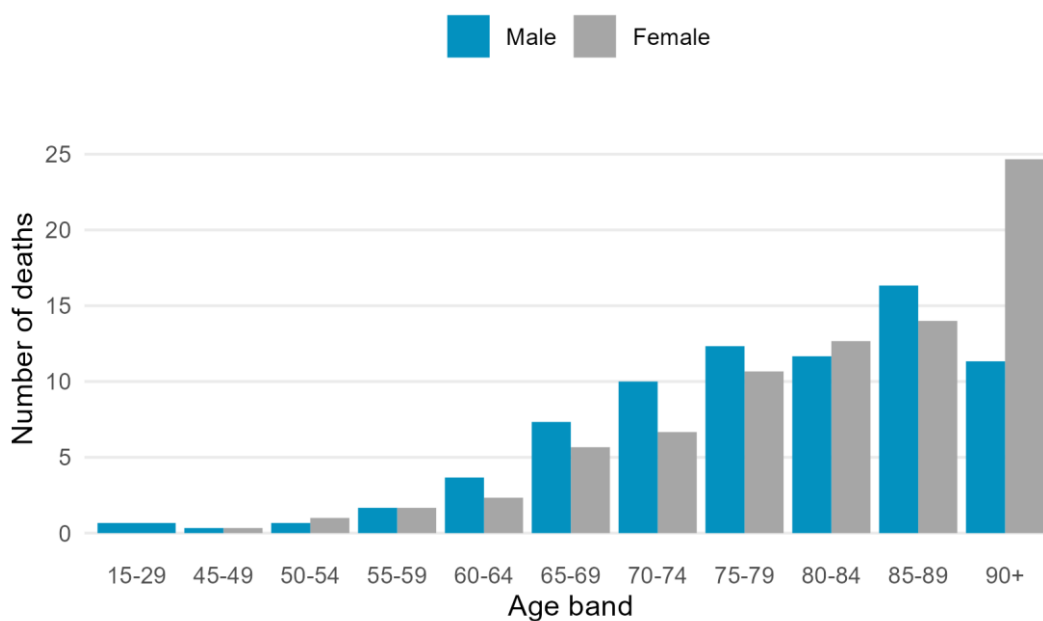
Source: National Records of Scotland; 2019-2021

Deaths by Age Group and Sex

The number of deaths in an area depends on the population's size, health, and external factors, e.g. traffic accidents and the environment. The number of deaths generally increases with age. We highlight all-cause mortality in those aged 15-44. Deaths in this age range typically result from external causes that are most likely preventable.

Table 8: Deaths aged 15-44 years by area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	92	120.1	96.7	147.5		
NHS Highland	117	115.5	95.4	138.4		
Scotland	2,300	117.1	112.4	122.1		
Caithness	16	201.2	113.9	328.9		
Lochaber	10	150.5	70.7	280.1		
East Ross	10	144.1	68.7	265.5		
Inverness	37	124.1	87.3	171.1		
Nairn and Nairnshire	5	116.0	35.1	278.9		
Mid Ross	9	108.4	48.2	208.8		
Sutherland	3	91.2	17.9	267.4		
Skye, Lochalsh and West Ross	2	36.7	4.0	132.6		
Badenoch and Strathspey	1	15.2	0.0	113.0		

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.

Table 9: Deaths aged 15-44 years by intermediate geography in the area

	Average number	Rate	Lower bound	Upper bound	Significance	
					Scotland	Council
Badenoch and Strathspey North	0.3	25.1	0.0	326.6		
Badenoch and Strathspey Central	0.3	21.3	0.0	277.3		
Badenoch and Strathspey South	0.0	0.0	0.0	0.0	-	-

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.

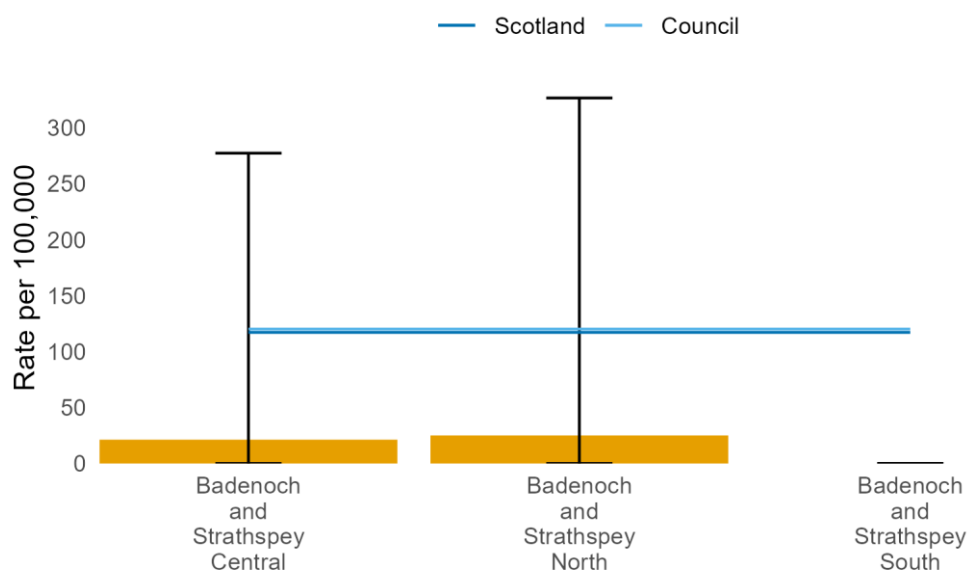**Figure 9:** Deaths aged 15-44 years by intermediate geography in the area

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

Figure 10: Deaths aged 15-44 years by income deprivation rank for intermediate geography

Source: ScotPHO Online Profiles; Deaths aged 15-44; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000
Income rank based upon the SIMD 2020v2 income domain where the area ranked one is the population most income deprived.
Each point represents an intermediate geography.
A line of best fit shows the correlation between income deprivation and the measure of health.

Leading causes of death

The leading cause of death analysis uses a World Health Organisation (WHO) categorisation. There are over 60 categories, and cancers are reported according to the site. Lung, breast and bowel cancers are therefore assigned and counted separately. If all cancers were grouped, cancer would account for the most significant cause of death. Ischaemic heart disease, chronic lower respiratory diseases (including chronic obstructive pulmonary disease, COPD) and cerebrovascular disease (including stroke) are among the leading causes of death. Over recent years, the number of deaths caused by dementia and Alzheimer's disease has increased.

Figure 11: Top ten causes of death in the area
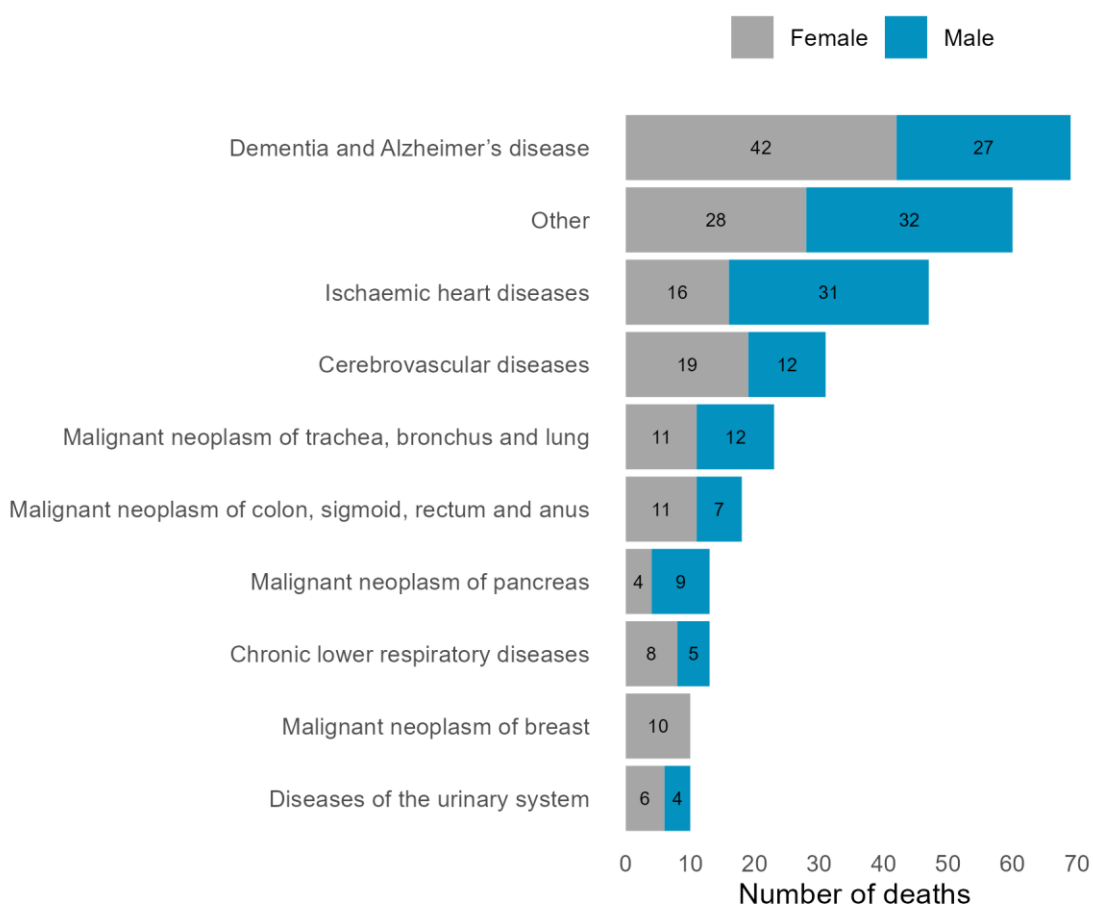
Source: National Records of Scotland; number of deaths over 3 year period, 2019-2021

Table 10: Top ten causes of death in the area in 2019-2021 compared to 2001-2003

|	2019-2021	2001-2003	Percent change
Dementia and Alzheimer's disease	69	15	360
Other	60	50	20
Ischaemic heart diseases	47	78	-40
Cerebrovascular diseases	31	51	-39
Malignant neoplasm of trachea, bronchus and lung	23	19	21
Malignant neoplasm of colon, sigmoid, rectum and anus	18	11	64
Chronic lower respiratory diseases	13	22	-41
Malignant neoplasm of pancreas	13		
Diseases of the urinary system	10		
Malignant neoplasm of breast	10		

Source: National Records of Scotland; number of deaths over 3-year period

Figure 12: Top ten causes of death in the area in 2019-2021 compared to 2001-2003
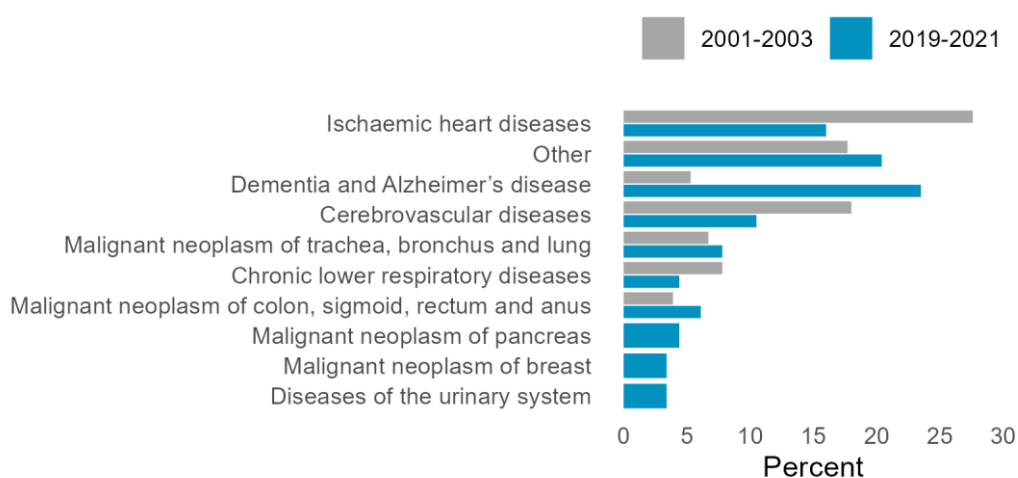
Source: National Records of Scotland
Deaths by cause as a percentage of total deaths calculated over each 3 year period

Cause specific early deaths

Early deaths from cancer, coronary heart disease (CHD) and deaths from suicide, although not all preventable, can be influenced by appropriate interventions, provision of services and changes in health-related behaviours.

Early deaths from cancer

Table 11: Early deaths from cancer by area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	356	140.4	126.1	155.8		
NHS Highland	501	141.3	129.1	154.3		
Scotland	7,677	149.6	146.2	153.0		
Mid Ross	47	155.7	113.8	207.8		
Sutherland	27	155.3	101.1	227.5		
East Ross	36	153.5	107.1	213.1		
Lochaber	31	145.2	98.0	207.2		
Skye, Lochalsh and West Ross	36	139.7	97.1	194.3		
Nairn and Nairnshire	21	133.7	82.4	204.8		
Inverness	103	133.3	108.7	161.8		
Caithness	38	132.7	93.3	183.1		
Badenoch and Strathspey	20	116.3	70.2	181.1		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.

Figure 13: Early deaths from cancer over time
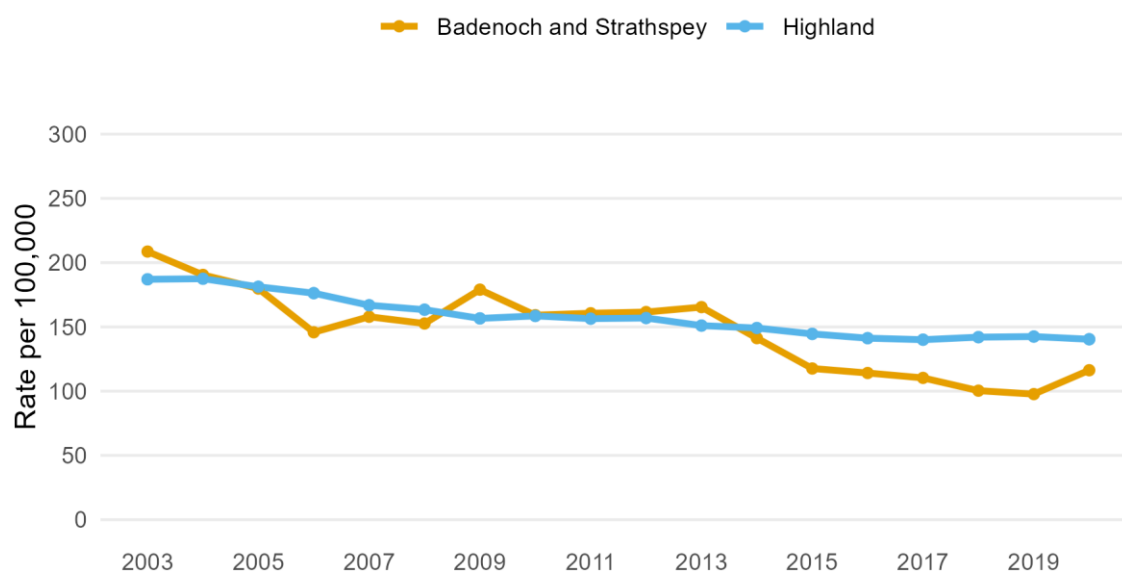
Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.

Table 12: Early deaths from cancer by intermediate geography in the area

					Significance	
	Average number	Rate	Lower bound	Upper bound	Scotland	Council
Badenoch and Strathspey Central	8.0	138.0	59.2	272.3		
Badenoch and Strathspey South	5.7	117.6	41.2	261.8		
Badenoch and Strathspey North	5.7	94.0	32.7	209.7		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.

Figure 14: Early deaths from cancer by intermediate geography in the area
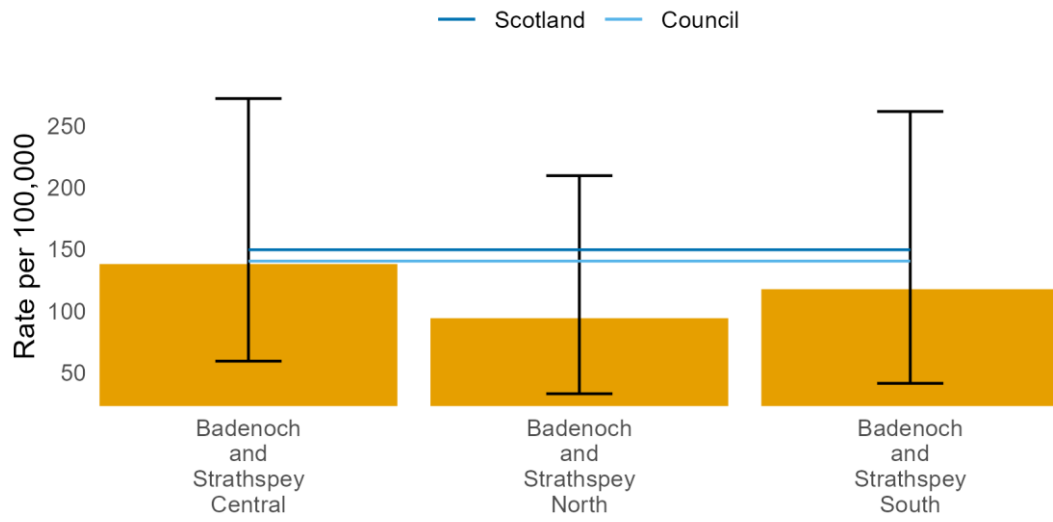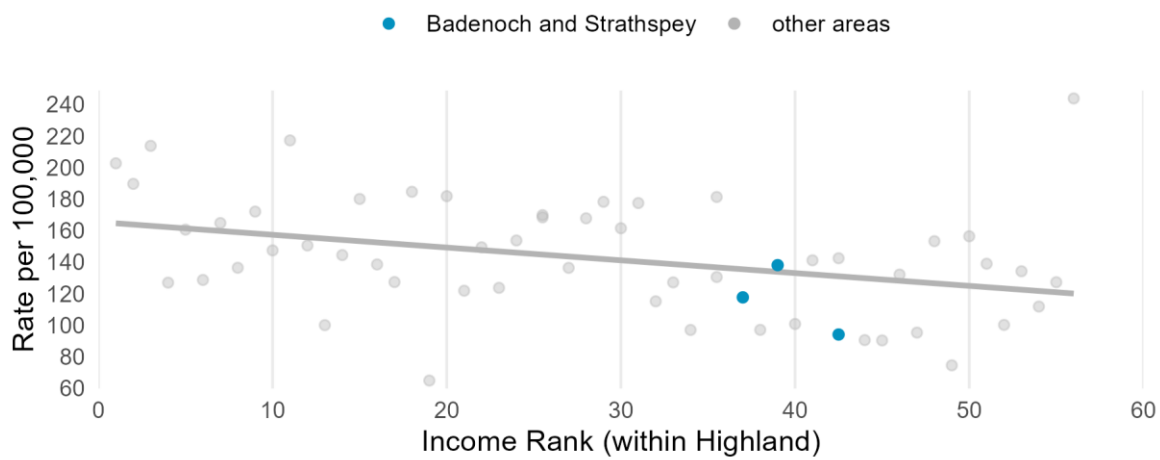

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.
The vertical-axis does not start at zero.

Figure 15: Early deaths from cancer by income deprivation rank for intermediate geography

Source: ScotPHO Online Profiles; Early deaths from cancer; annual data calculated over 3 year time period, 2019-2021
Age-sex standardised rate per 100,000
Income rank based upon the SIMD 2020v2 income domain where the area ranked one is the population most income deprived.
The vertical-axis does not start at zero.
Each point represents an intermediate geography.
A line of best fit shows the correlation between income deprivation and the measure of health.
Early deaths are defined as those occurring in people aged under 75 years.

Early deaths from coronary heart disease (CHD)

Table 13: Early deaths from coronary heart disease by area

	Average number	Rate	Lower bound	Upper bound	Significance	
					Scotland	Council
Highland	110	44.3	36.4	53.5		
NHS Highland	159	45.9	39.0	53.7		
Scotland	2,528	50.6	48.6	52.6		
East Ross	16	66.0	37.0	108.7		
Nairn and Nairnshire	8	54.4	23.0	107.9		
Caithness	15	53.3	29.5	88.7		
Sutherland	9	50.8	22.1	98.5		
Lochaber	10	47.5	22.7	87.4		
Inverness	33	44.0	30.2	61.9		
Skye, Lochalsh and West Ross	10	36.3	16.8	68.2		
Mid Ross	9	29.7	12.8	58.1		
Badenoch and Strathspey	3	14.8	2.0	49.6		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2018-2020
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.

Figure 16: Early deaths from coronary heart disease over time
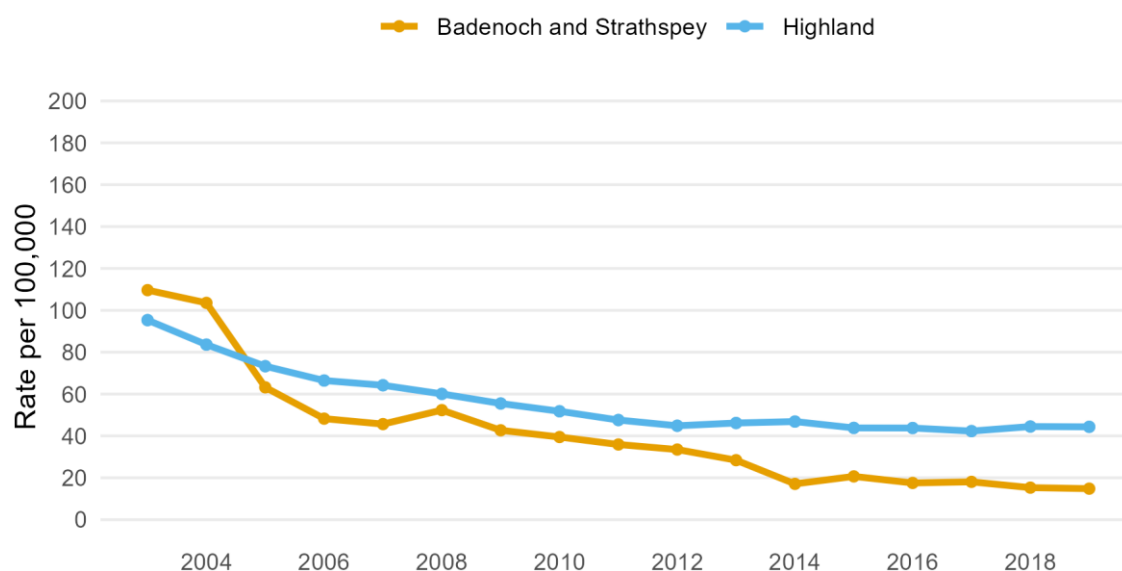
Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002-2004 to 2018-2020
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.

Table 14: Early deaths from coronary heart disease by intermediate geography in the area

					Significance	
	Average number	Rate	Lower bound	Upper bound	Scotland	Council
Badenoch and Strathspey South	1.7	39.4	1.8	162.2		
Badenoch and Strathspey Central	0.3	5.9	0.0	76.6		
Badenoch and Strathspey North	0.3	5.0	0.0	65.0		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2018-2020
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.

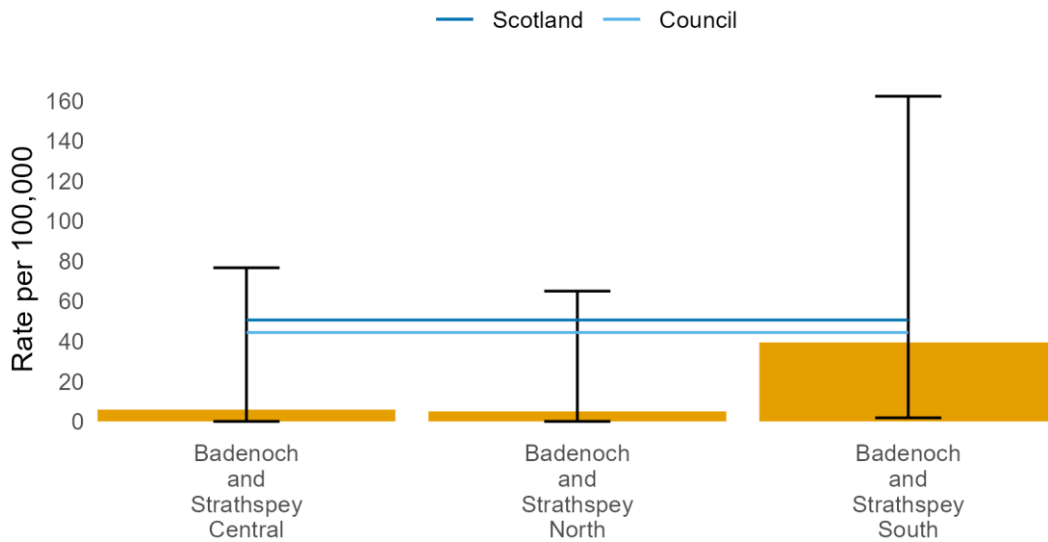**Figure 17:** Early deaths from coronary heart disease by intermediate geography in the area

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2018-2020
Age-sex standardised rate per 100,000 population
Early deaths are defined as those occurring in people aged under 75 years.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

Figure 18: Early deaths from coronary heart disease by income deprivation rank for intermediate geography
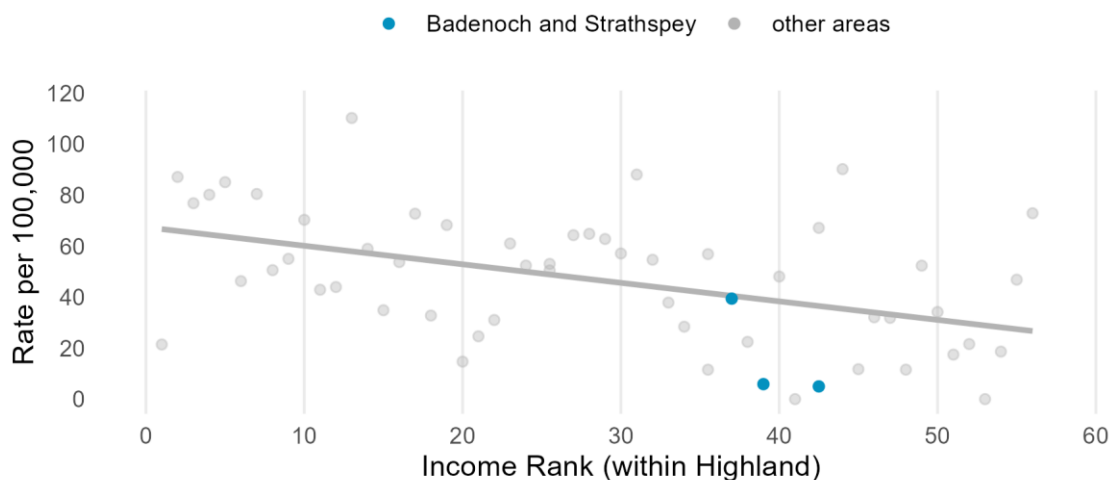
Source: ScotPHO Online Profiles; Early deaths CHD; annual data calculated over 3 year time period, 2018-2020
Age-sex standardised rate per 100,000
Income rank based upon the SIMD 2020v2 income domain where the area ranked one is the population most income deprived.
Each point represents an intermediate geography.
A line of best fit shows the correlation between income deprivation and the measure of health.
Early deaths are defined as those occurring in people aged under 75 years.

Deaths from suicide

Table 15: Deaths from suicide by area

|	Average number	Rate	Lower bound	Upper bound	Significance	
					Scotland	Council
Highland	49	21.3	15.6	28.3	+	
NHS Highland	62	19.8	15.1	25.5		
Scotland	759	14.1	13.1	15.2		-
East Ross	6	27.8	9.8	61.7		
Lochaber	5	26.2	8.3	61.4		
Inverness	20	24.1	14.6	37.4		
Caithness	6	23.7	8.0	53.5		
Mid Ross		18.4	5.2	45.7		
Nairn and Nairnshire		17.4	1.6	63.6		
Skye, Lochalsh and West Ross		13.1	1.7	42.4		
Sutherland		12.8	0.2	54.9		
Badenoch and Strathspey		11.5	0.7	47.5		

Source: ScotPHO Online Profiles; annual data calculated over 5 year time period, 2017-2021
Age-sex standardised rate per 100,000 population.
Some potentially disclosive values have been suppressed.

Figure 19: Deaths from suicide over time
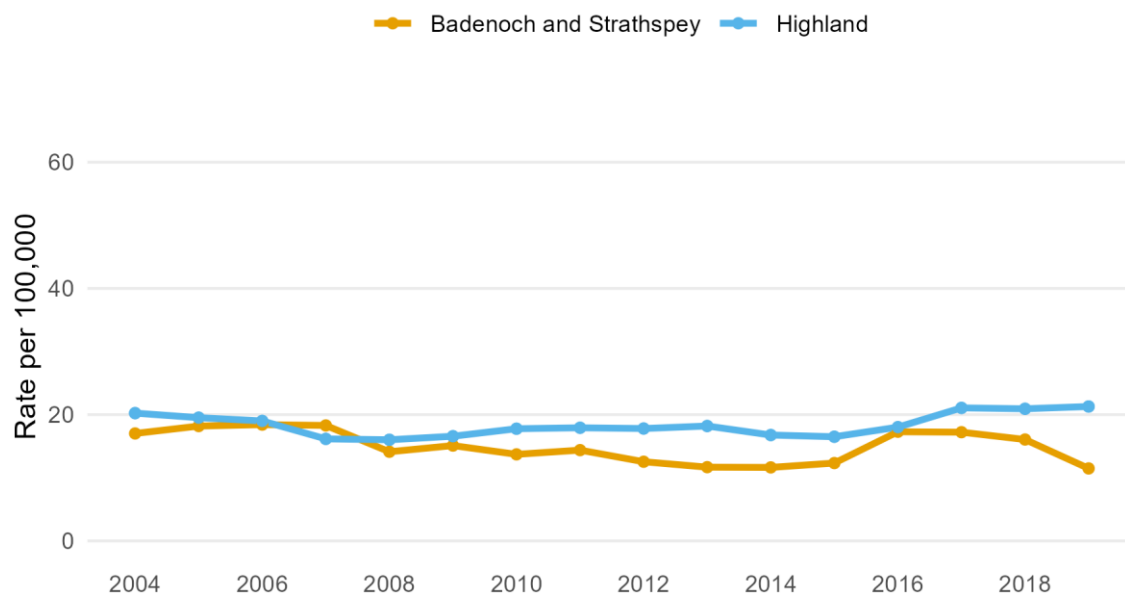
Source: ScotPHO Online Profiles; annual data calculated over 5 year time period, 2002-2006 to 2017-2021
Age-sex standardised rate per 100,000 population.

Chronic disease and long-term conditions

As life expectancy has improved, the number of people living to older ages with chronic diseases and long-term conditions has increased[7]. This section looks at the number of people recorded with or estimated to have selected common conditions and those hospitalised as a result.

Cancer registrations

Most cancer cases occur in older age groups. Therefore, we show age and sex-standardised rates to allow a fairer comparison of cancer registration across areas and between periods. The differences in rates between areas might still be due to other influencing factors rather than an actual difference in cancer incidence. Higher levels of deprivation are associated with some types of cancer[8]. Differences in smoking prevalence and other risk factors may also contribute.

Table 16: Cancer registrations by area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	1,592	604.6	574.9	635.5		
NHS Highland	2,217	601.0	575.8	626.9		
Scotland	33,473	625.2	618.4	632.0		
Sutherland	118	656.5	538.4	791.9		
East Ross	155	639.6	541.5	750.1		
Inverness	498	617.0	563.3	674.3		
Mid Ross	191	615.9	530.1	711.3		
Badenoch and Strathspey	99	608.3	492.1	743.2		
Skye, Lochalsh and West Ross	152	603.7	509.1	710.4		
Caithness	168	565.5	481.8	659.4		
Lochaber	123	565.1	468.1	676.0		
Nairn and Nairnshire	91	539.0	432.1	664.0		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2018-2020
Age-sex standardised rate per 100,000 population.

Figure 20: Cancer registrations over time
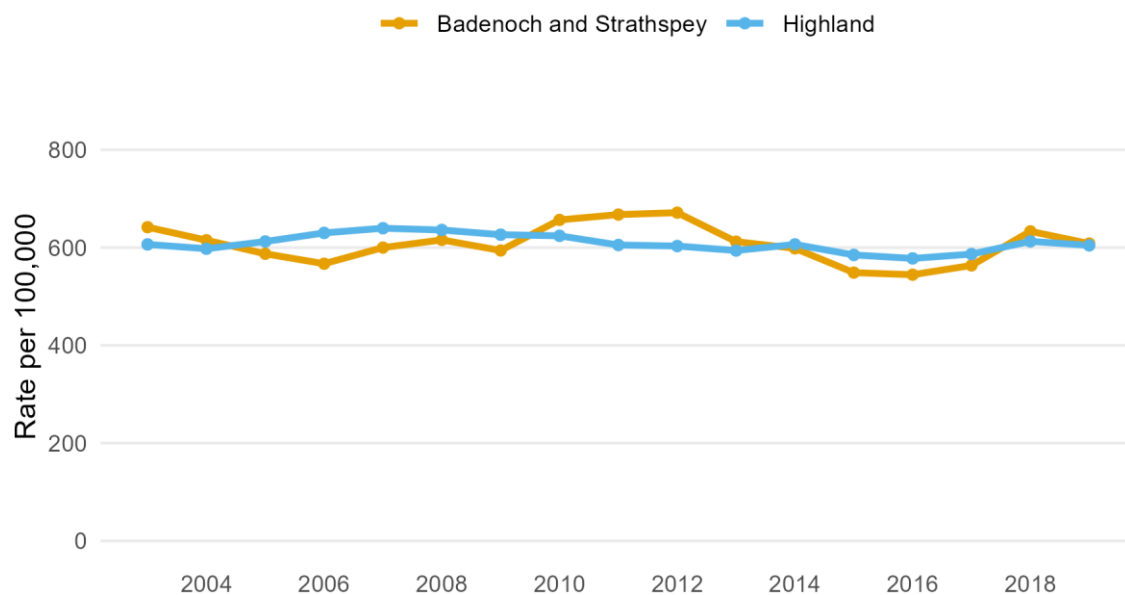
Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002-2004 to 2018-2020
Age-sex standardised rate per 100,000 population.

Type 2 diabetes prevalence

Type 2 diabetes is an important cause of morbidity. The condition is progressive and increases the risk of coronary heart disease and other health problems. Type 2 diabetes is more common at older ages and in deprived areas. Prevalence of type 2 diabetes is linked to continuing inequalities in diet, weight and physical activity that need to be addressed[9].

Table 17: Prevalence of type 2 diabetes by area

	Number on type 2 diabetes register	Crude prevalence (%)	Age-adjusted prevalence (%)	Lower bound	Upper bound	Significance Health board	Council
NHS Highland	17,719	5.46	4.59	4.51	4.66		
Highland	12,817	5.38	4.60	4.51	4.69		
Badenoch and Strathspey	575	4.10	3.37	3.09	3.65	-	-
Caithness	1,611	6.36	5.38	5.11	5.64	+	+
East Ross	1,304	6.03	5.50	5.20	5.80	+	+
Inverness	4,143	5.03	4.96	4.80	5.11	+	+
Lochaber	1,057	5.27	4.79	4.50	5.08		
Mid Ross	1,433	5.26	4.44	4.21	4.67		
Nairn and Nairnshire	757	5.54	4.49	4.17	4.82		
Skye, Lochalsh and West Ross	1,104	5.54	4.18	3.93	4.43	-	-
Sutherland	833	6.05	4.31	4.01	4.62		

Source: SCI-Diabetes as at January 2023.
Age-adjusted prevalence based on direct age-sex standardisation using NRS mid-2021 population estimate for Scotland as the reference population.

Figure 21: Prevalence of type 2 diabetes by intermediate geography in the area
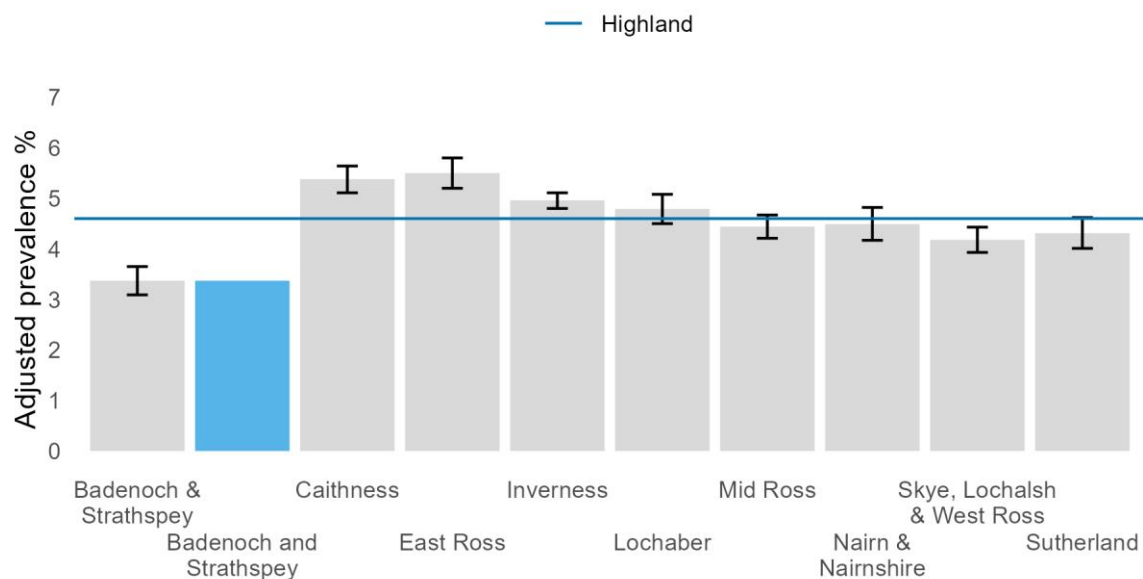
SCI-Diabetes as at January 2023.
Age-adjusted prevalence based on direct age-sex standardisation using NRS mid-2021 population estimate for Scotland as the reference population

Coronary Heart Disease (CHD) patient hospitalisation

Table 18: Coronary heart disease patient hospitalisations by area

					Significance	
	Average number	Rate	Lower bound	Upper bound	Scotland	Council
Highland	894	335.3	313.4	358.3		
NHS Highland	1,274	341.8	323.0	361.3		
Scotland	18,414	341.6	336.6	346.6		
Lochaber	107	494.6	403.1	600.2	+	+
Caithness	107	362.6	295.6	439.9		
Inverness	272	334.8	295.8	377.5		
Mid Ross	103	325.6	264.9	396.0		
Nairn and Nairnshire	51	317.7	235.3	419.4		
East Ross	76	313.1	245.6	393.1		
Badenoch and Strathspey	52	303.4	225.7	399.0		
Sutherland	57	295.7	222.3	385.3		
Skye, Lochalsh and West Ross	72	272.2	211.7	344.4		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Figure 22: Coronary heart disease patient hospitalisations over time
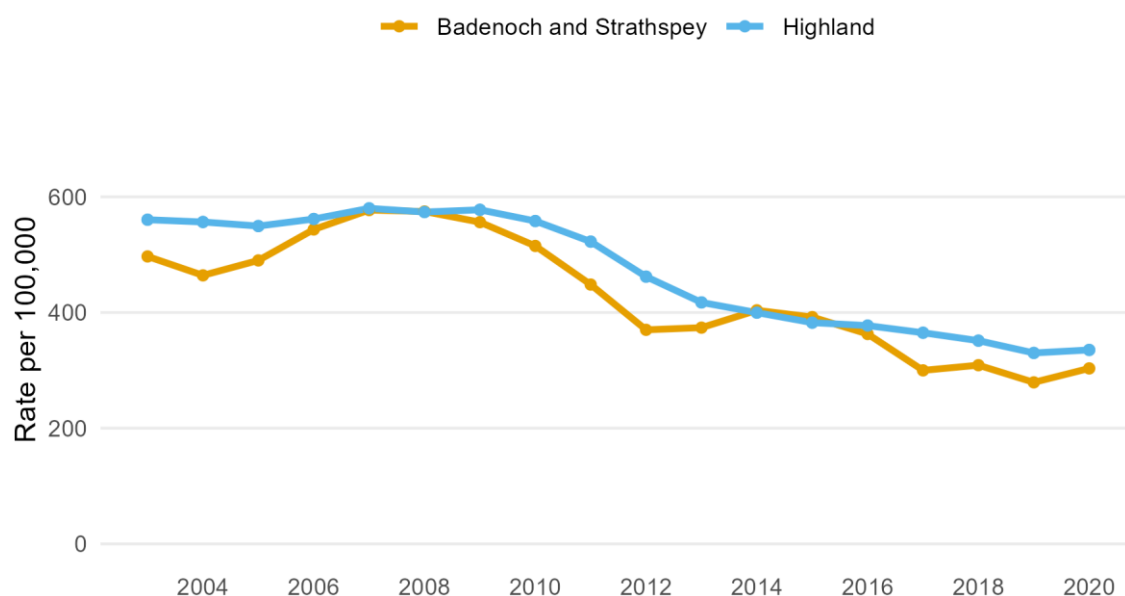
Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002/03-2004/05 to 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Table 19: Coronary heart disease patient hospitalisations by intermediate geography in the area

					Significance	
	Average number	Rate	Lower bound	Upper bound	Scotland	Council
Badenoch and Strathspey Central	18.7	338.7	200.6	534.0		
Badenoch and Strathspey North	19.3	310.2	186.5	484.1		
Badenoch and Strathspey South	13.7	274.6	146.0	467.7		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Figure 23: Coronary heart disease patient hospitalisations by intermediate geography in the area

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

Asthma patient hospitalisation

Asthma is a common chronic disease of the small airways in the lung. Public Health Scotland, experimental prevalence data suggests that in 2021/22, 6.3% of the Scottish population registered with a GP had a diagnosis of asthma. The disease can affect anyone but usually begins in childhood. Hospital admission represents a loss of control of a person's asthma and is a significant adverse outcome. Around three-quarters of emergency, admissions are estimated to be preventable. Higher rates of hospital admission are related to deprivation.

Table 20: Asthma patient hospitalisations by area

	Average number	Rate	Lower bound	Upper bound	Significance	
					Scotland	Council
Highland	163	71.0	60.4	83.0		
NHS Highland	212	67.9	58.9	77.9		
Scotland	3,753	68.4	66.3	70.7		
East Ross	18	83.2	48.6	132.5		
Inverness	66	81.3	62.7	103.5		
Skye, Lochalsh and West Ross	13	80.8	41.9	139.8		
Lochaber	15	79.8	43.7	133.2		
Badenoch and Strathspey	9	62.2	26.6	122.2		
Caithness	15	60.0	33.1	99.7		
Mid Ross	17	60.0	34.4	96.9		
Sutherland	8	53.8	19.8	113.1		
Nairn and Nairnshire	5	35.8	10.0	89.3		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

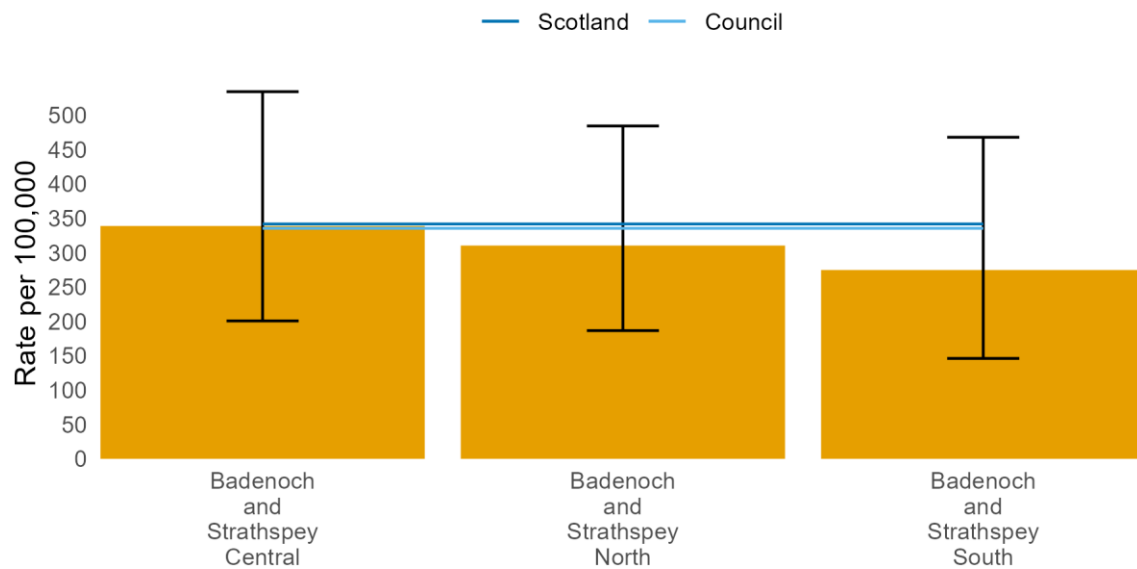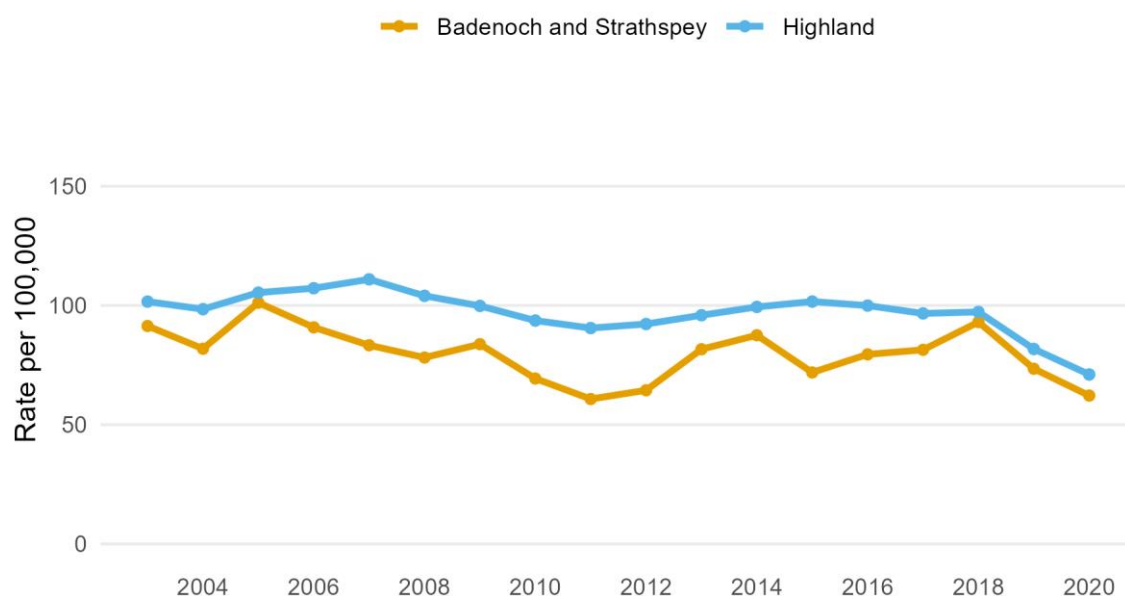**Figure 24:** Asthma patient hospitalisations over time

Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002/03-2004/05 to 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Table 21: Asthma patient hospitalisations by intermediate geography in the area

	Average number	Rate	Lower bound	Upper bound	Significance	
					Scotland	Council
Badenoch and Strathspey North	4.3	98.2	26.7	246.2		
Badenoch and Strathspey South	2.3	66.4	6.2	229.6		
Badenoch and Strathspey Central	1.7	33.1	2.4	133.1		

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Figure 25: Asthma patient hospitalisations by intermediate geography in the area

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

COPD patient hospitalisation

Chronic Obstructive Pulmonary Disease (COPD) is a smoking-related respiratory condition and a significant cause of hospital admission and mortality. The primary treatment is smoking cessation.

Table 22: COPD patient hospitalisations by area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Significance Council
Highland	290	128.4	113.9	144.2	-	
NHS Highland	428	134.6	122.0	148.1	-	
Scotland	9,463	207.4	203.2	211.7		+
East Ross	32	150.8	102.5	213.6		
Lochaber	27	146.3	94.5	215.7		
Caithness	37	144.4	101.2	199.6	-	
Inverness	95	139.1	112.1	170.4	-	
Skye, Lochalsh and West Ross	28	127.9	84.3	185.8	-	
Nairn and Nairnshire	16	106.7	60.0	175.0	-	
Mid Ross	29	105.0	69.6	151.8	-	
Badenoch and Strathspey	15	96.3	52.8	161.2	-	
Sutherland	14	88.1	47.4	149.0	-	

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

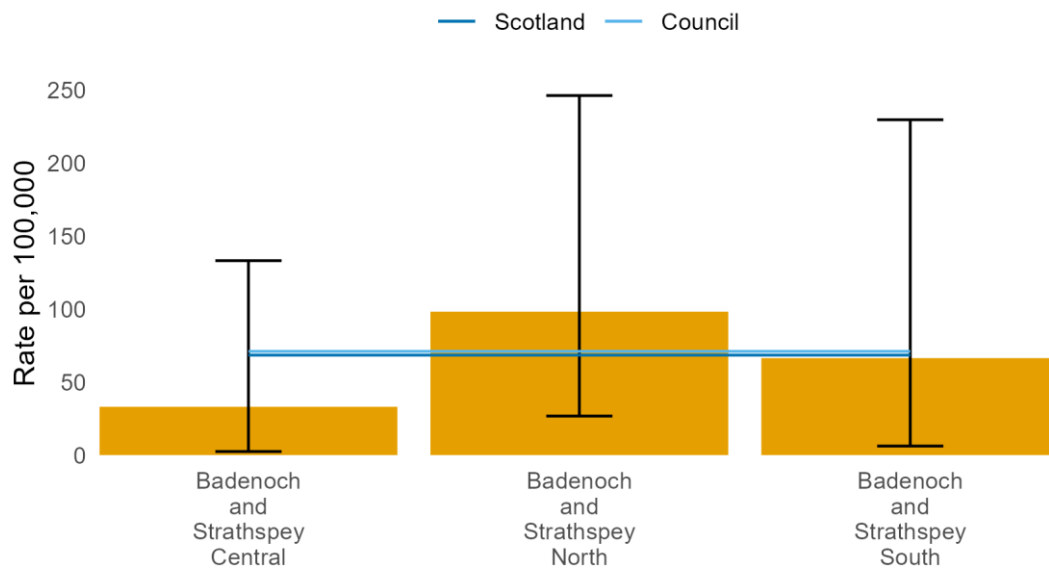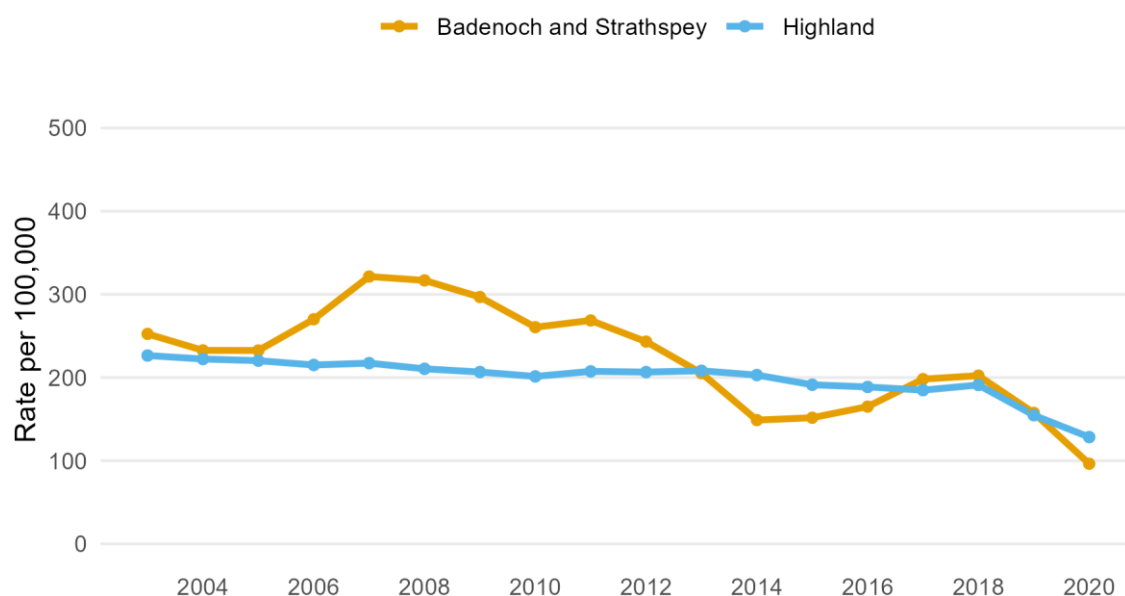**Figure 26:** COPD patient hospitalisations over time

Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002/03-2004/05 to 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Table 23: COPD patient hospitalisations by intermediate geography in the area

					Significance	
	Average number	Rate	Lower bound	Upper bound	Scotland	Council
Badenoch and Strathspey North	6.3	114.5	41.6	247.5		
Badenoch and Strathspey South	4.7	104.0	31.4	250.4		
Badenoch and Strathspey Central	3.3	66.1	14.6	184.3	-	

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Figure 27: COPD patient hospitalisation by intermediate geography in the area
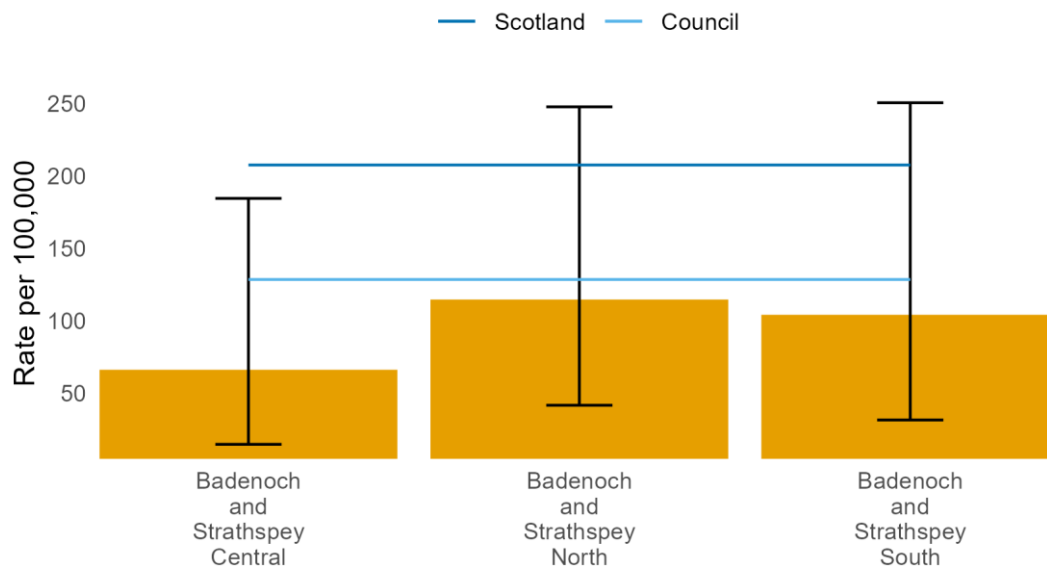

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.
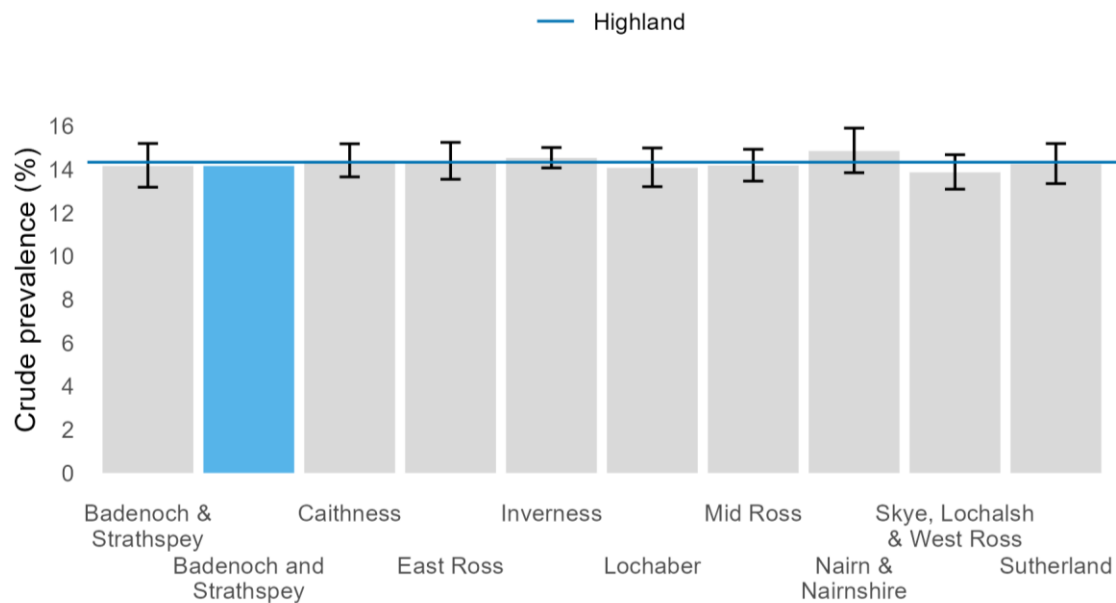
Dementia and frailty

Dementia and frailty are a major cause of disability and dependency among older people. Frailty is a state of health and is related to the ageing process. It refers to a person's mental and physical vulnerability and ability to recover from changes in health resulting from relatively minor injury and illness[10]. Prevalence estimates are based on recent population studies[11] [12]. Being able to identify and assess dementia and frailty allows early intervention to increase independence, slow progression and reduce the risk of adverse outcomes.

Table 24: Estimated prevalence of frailty in people aged 60 and over by area

	Estimated number	Crude prevalence (%)	Lower bound	Upper bound	Significance Health board	Council
NHS Highland	14,707	14.35	14.14	14.57		
Highland	10,433	14.33	14.07	14.58		
Badenoch and Strathspey	650	14.15	13.17	15.19		
Caithness	1,171	14.39	13.65	15.17		
East Ross	942	14.37	13.54	15.24		
Inverness	3,140	14.53	14.06	15.00		
Lochaber	823	14.07	13.20	14.98		
Mid Ross	1,234	14.17	13.46	14.92		
Nairn and Nairnshire	682	14.84	13.84	15.90		
Skye, Lochalsh and West Ross	1,008	13.86	13.08	14.67		
Sutherland	784	14.24	13.34	15.18		

Source: Gale C et al. Age-sex specific prevalence of frailty for people living in the community applied to NRS mid-2021 population estimates. Excludes residential care homes.

Figure 28: Estimated prevalence of frailty in people aged 60 and over by area

Source: Gale C et al. Age-sex specific prevalence of frailty for people living in the community applied to NRS mid-2021 population estimates. Excludes residential care homes.

Table 25: Estimated prevalence of dementia by area

	Estimated number	Crude prevalence (%)	Lower bound	Upper bound	Significance Health board	Council
NHS Highland	6,242	1.92	1.88	1.97		
Highland	4,432	1.86	1.81	1.92		
Badenoch and Strathspey	276	1.96	1.75	2.21		
Caithness	495	1.95	1.79	2.13		
East Ross	401	1.85	1.68	2.04		
Inverness	1,348	1.64	1.55	1.73	-	-
Lochaber	345	1.72	1.55	1.91		
Mid Ross	523	1.92	1.76	2.09		
Nairn and Nairnshire	296	2.16	1.93	2.42		+
Skye, Lochalsh and West Ross	419	2.10	1.91	2.31		
Sutherland	329	2.39	2.14	2.65	+	+

Source: Alzheimer Europe.
Age-sex specific prevalence of dementia applied to NRS mid-2021 population estimates.

Figure 29: Estimated prevalence of dementia by area
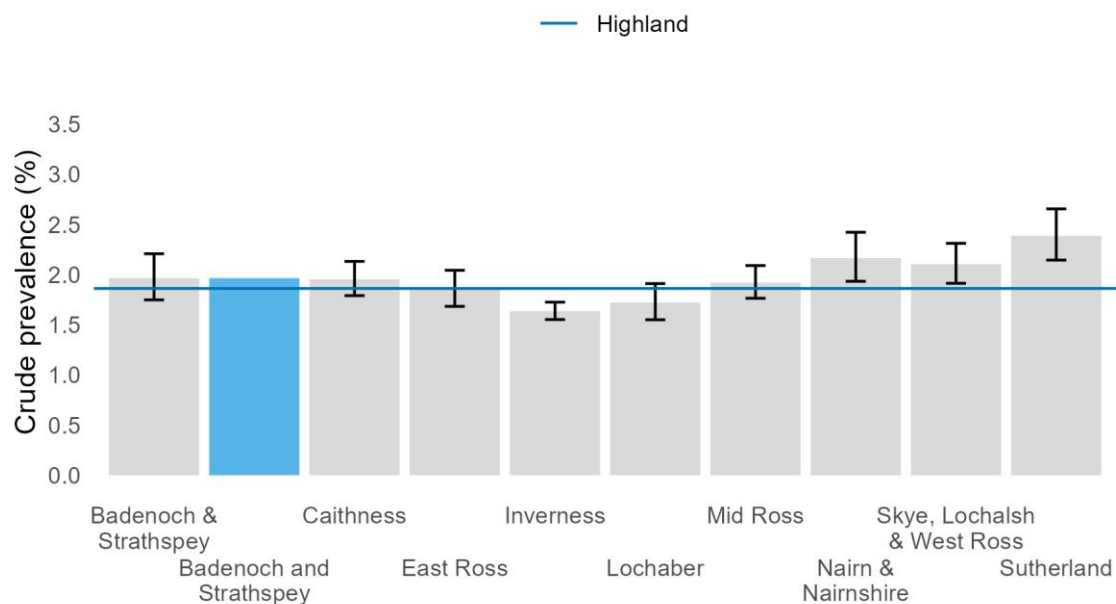
Source: Alzheimer Europe.
Age-sex specific prevalence of dementia applied to NRS mid-2021 population estimates.

Population prescribed drugs for anxiety, depression or psychosis

The data are derived from prescriptions dispensed in the community. The prescribing rate has increased over the period, with higher levels seen with increasing levels of deprivation.

Table 26: Population prescribed drugs for anxiety, depression or psychosis by area

	Number	Percent of population	Lower bound	Upper bound	Significance	
					Scotland	Council
Highland	41,044	17.4	17.3	17.6	-	
NHS Highland	57,125	17.8	17.7	17.9	-	+
Scotland	1,054,374	19.3	19.3	19.3		+
Caithness	5,025	19.9	19.5	20.4	+	+
Nairn and Nairnshire	2,464	18.3	17.7	19.0	-	+
East Ross	4,063	18.3	17.8	18.8	-	+
Inverness	14,423	17.6	17.4	17.9	-	
Sutherland	2,243	17.5	16.8	18.1	-	
Mid Ross	4,487	16.6	16.2	17.1	-	-
Lochaber	3,263	16.6	16.1	17.1	-	-
Skye, Lochalsh and West Ross	3,129	16.1	15.6	16.6	-	-
Badenoch and Strathspey	1,947	14.0	13.4	14.5	-	-

Source: ScotPHO Online Profiles; 2020/21

Figure 30: Population prescribed drugs for anxiety, depression or psychosis over time
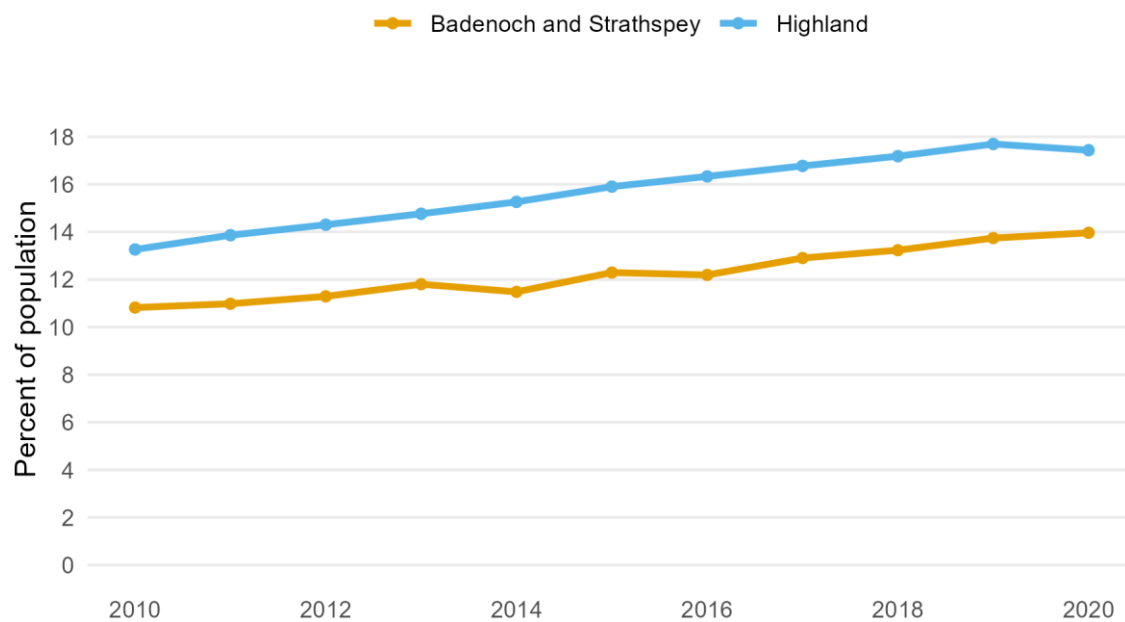
Source: ScotPHO Online Profiles; 2010/11 to 2020/21

Psychiatric patient hospitalisations

The indicator only includes patients treated in a psychiatric hospital or unit. There has been a long-term strategic shift in the care of people with mental health problems from inpatient treatment towards various forms of community care.

Patients discharged from psychiatric specialties will have a range of diagnoses recorded. More common diagnoses will include mood (affective) disorders, diagnosis of schizophrenia and delusional disorders, mental disorders due to substance misuse and organic mental disorders, including conditions like dementia and delirium which predominantly affect older people.

There is a profound socio-economic gradient with psychiatric admission rates known to increase with area deprivation.

Table 27: Psychiatric patient hospitalisations by area

	Number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	427	183.4	166.2	201.9	-	
NHS Highland	573	181.2	166.4	196.9	-	
Scotland	12,442	229.8	225.8	233.9		+
Inverness	203	249.7	216.4	286.8		+
Sutherland	22	166.4	99.2	259.3		
Skye, Lochalsh and West Ross	32	165.3	109.9	237.6		
East Ross	33	156.0	106.6	220.1	-	
Lochaber	31	155.4	104.5	222.2	-	
Mid Ross	38	152.8	107.1	211.0	-	
Caithness	35	138.3	95.2	193.7	-	
Nairn and Nairnshire	19	137.8	80.9	218.3	-	
Badenoch and Strathspey	16	116.4	65.5	190.5	-	

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Figure 31: Psychiatric patient hospitalisations over time
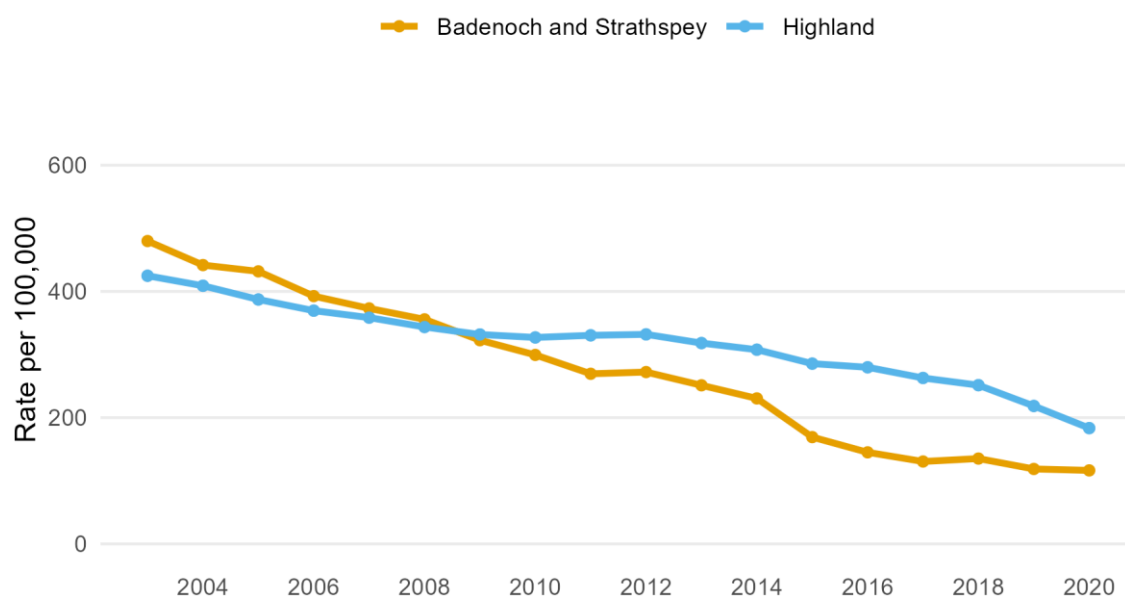
Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002/03-2004/05 to 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Harm to health from alcohol and drug use

Reducing the use of and harm from alcohol, drugs and other substances is a national public health priority[9]. There is no safe level of drinking alcohol and no completely safe level of drug use. People's use of alcohol and drugs may incur harm from many issues.

Alcohol and drug use can have a significant impact on physical and mental health, as well as long-term social impacts, including family break-ups, domestic abuse, unemployment, homelessness and financial problems. There are increased risks of accidents, injuries, violence and antisocial behaviour. Substance use by parents and carers can also have a huge adverse effect on children and young people's health and wellbeing.

There is a clear socio-economic gradient with alcohol and drug-related admission rates known to increase with area deprivation. For many people, multiple disadvantage contributes to substance use, which in turn contributes to further disadvantage.
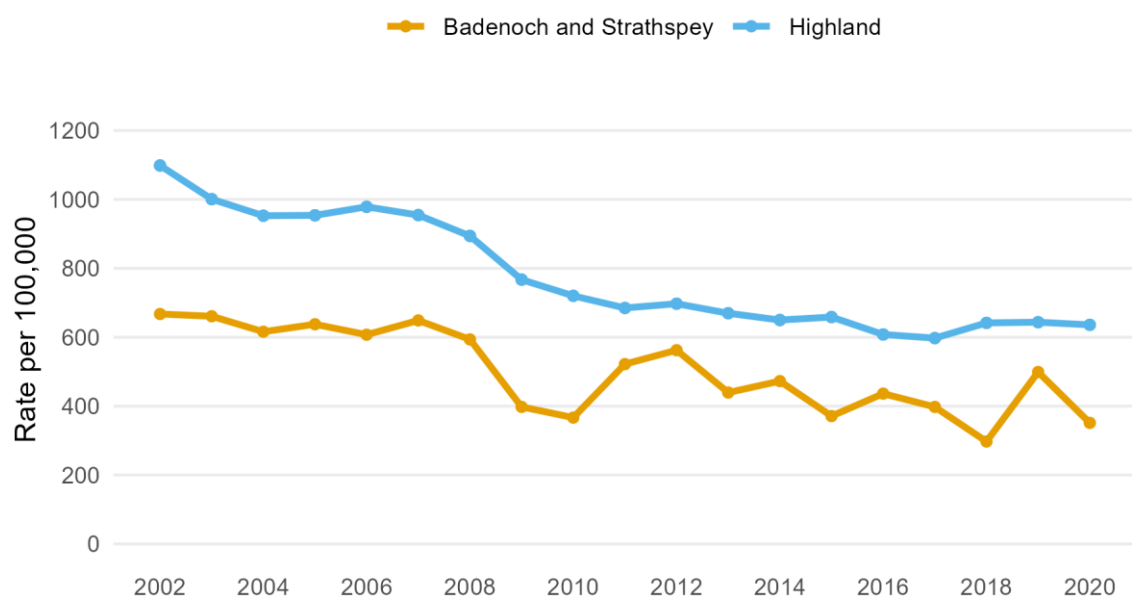
Alcohol-related hospital admissions

Table 28: Alcohol-related hospital admissions by area

	Number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	1,506	635.9	603.8	669.3		
NHS Highland	1,974	606.5	579.6	634.4		
Scotland	33,432	621.3	614.6	628.0		
Inverness	648	800.4	739.7	864.8	+	+
Lochaber	132	655.1	547.2	777.8		
Caithness	159	640.9	542.5	751.6		
East Ross	123	580.3	480.4	694.7		
Skye, Lochalsh and West Ross	117	551.0	450.1	666.8		
Mid Ross	156	542.7	458.8	637.2		
Nairn and Nairnshire	72	521.1	403.3	661.7		
Sutherland	54	367.6	268.2	489.6	-	-
Badenoch and Strathspey	48	351.3	257.9	467.0	-	-

Source: ScotPHO Online Profiles; 2020/21
Age-sex standardised rate per 100,000 population

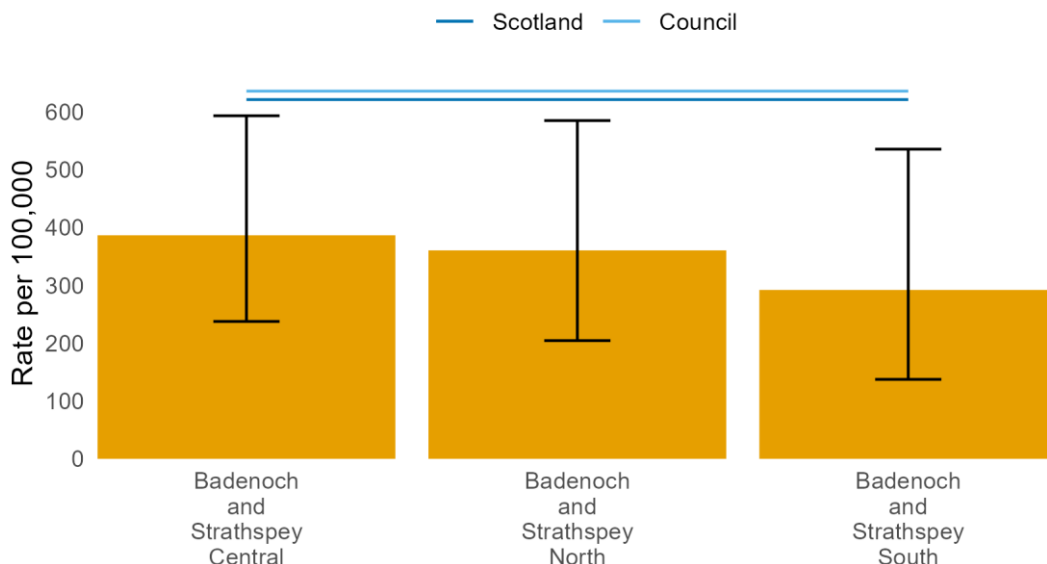**Figure 32:** Alcohol-related hospital admissions over time

Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002/03-2004/05 to 2019/20-2021/22
Age-sex standardised rate per 100,000 population

Table 29: Alcohol-related hospital admissions by intermediate geography in the area

|	Number	Rate	Lower bound	Upper bound	Significance	
					Scotland	Council
Badenoch and Strathspey Central	21	386.6	237.6	593.3	-	-
Badenoch and Strathspey North	18	360.5	204.4	585.0	-	-
Badenoch and Strathspey South	12	292.1	137.4	535.5	-	-

Source: ScotPHO Online Profiles; 2020/21
Age-sex standardised rate per 100,000 population

Figure 33: Alcohol-related hospital admissions by intermediate geography in the area

Source: ScotPHO Online Profiles; 2020/21
Age-sex standardised rate per 100,000 population
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

Figure 34: Alcohol-related hospital admissions by income deprivation rank for intermediate geography
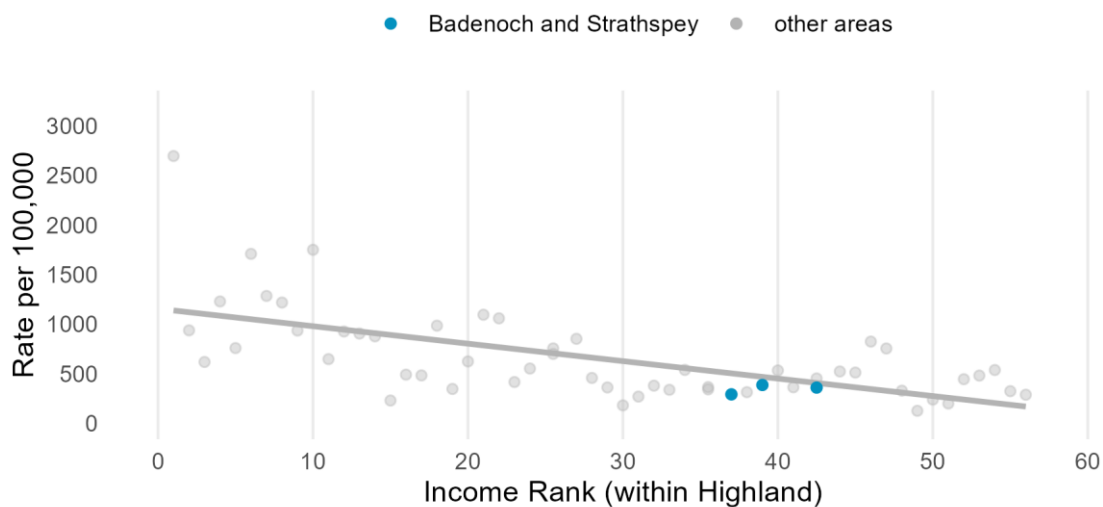
Source: ScotPHO Online Profiles; Alcohol-related hospital admissions; 2020/21
Age-sex standardised rate per 100,000
Income rank based upon the SIMD 2020v2 income domain where the area ranked one is the population most income deprived.
Each point represents an intermediate geography.
A line of best fit shows the correlation between income deprivation and the measure of health.

Alcohol-specific deaths

Table 30: Alcohol-specific deaths by area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	57.0	22.2	16.8	28.9		
NHS Highland	78.6	22.1	17.5	27.7		
Scotland	1,116.2	20.8	19.6	22.1		
Inverness	22.2	27.2	17.1	41.1		
East Ross	6.2	26.9	9.8	58.3		
Sutherland	4.0	25.7	5.3	69.0		
Lochaber	4.6	22.7	6.1	56.2		
Mid Ross	6.2	20.5	7.5	44.4		
Skye, Lochalsh and West Ross	5.0	18.7	5.9	43.9		
Nairn and Nairnshire	2.4	15.5	2.3	50.8		
Caithness	4.4	14.5	4.1	36.0		
Badenoch and Strathspey	2.0	12.8	1.4	46.3		

Source: ScotPHO Online Profiles; annual data calculated from 5 year time period, 2016-2020
Age-sex standardised rate per 100,000 population

Figure 35: Alcohol-specific deaths over time
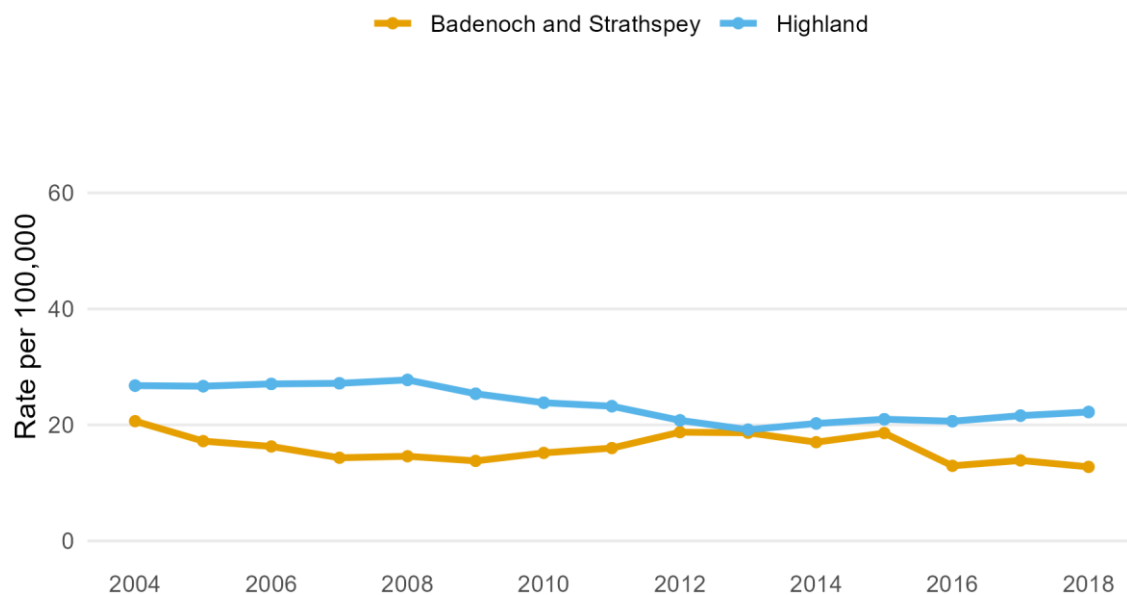
Source: ScotPHO Online Profiles; annual data calculated from 5 year time periods, 2002-2006 to 2016-2020
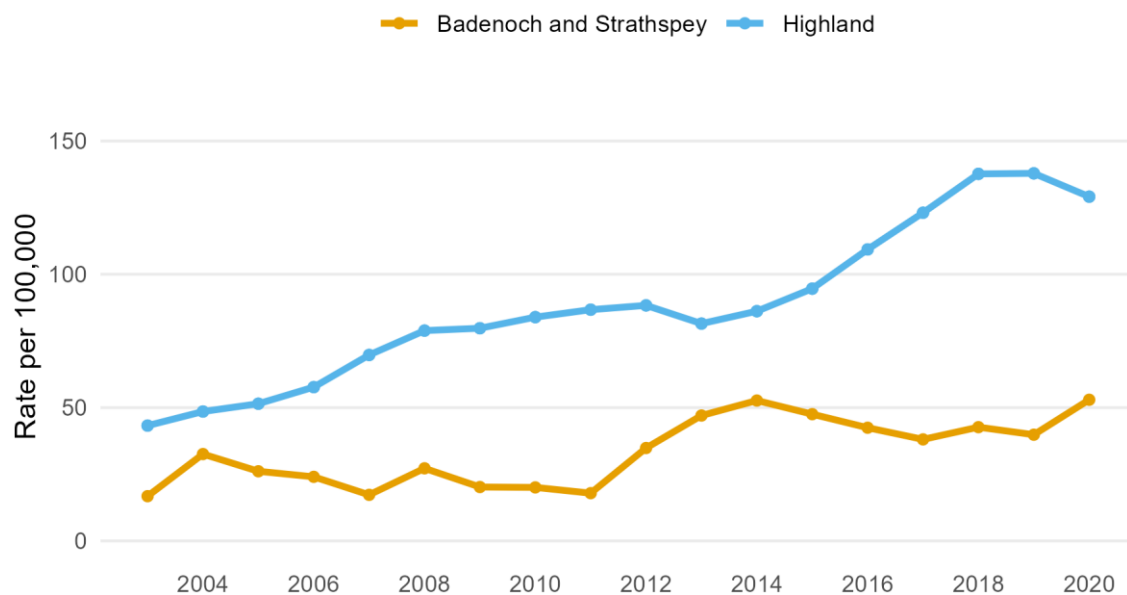Age-sex standardised rate per 100,000 population.

Drug-related hospital admissions

Table 31: Drug-related hospital admissions by area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	276	129.1	114.2	145.4	-	
NHS Highland	384	134.9	121.7	149.2	-	
Scotland	12,099	228.3	224.2	232.4		+
Caithness	51	226.3	167.1	299.4		+
Inverness	132	163.7	136.7	194.3	-	
East Ross	24	128.5	82.7	190.2	-	
Lochaber	21	111.3	67.8	172.0	-	
Mid Ross	21	87.7	53.3	135.6	-	
Nairn and Nairnshire	6	59.0	23.7	120.6	-	
Sutherland	6	53.8	18.0	120.0	-	
Skye, Lochalsh and West Ross	9	53.1	23.1	103.2	-	-
Badenoch and Strathspey	6	52.9	20.2	111.6	-	-

Source: ScotPHO Online Profiles; annual data calculated over 3 year time period, 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

Figure 36: Drug-related hospital admissions over time

Source: ScotPHO Online Profiles; annual data calculated over 3 year time periods, 2002/03-2004/05 to 2019/20-2021/22
Age-sex standardised rate per 100,000 population.

External causes of harm to health

External causes are a common cause of harm to health. They include accidents and unintentional injuries that occur in diverse settings, including the home, the workplace, leisure and sports activities and road transportation. The road traffic accident indicator only includes people admitted or who dies as a result of a road traffic accident. Road traffic accidents that result in slight injury, serious injury or death have been reducing over the last decade. Effective accident prevention requires multi-agency action within national and local policy and plans.
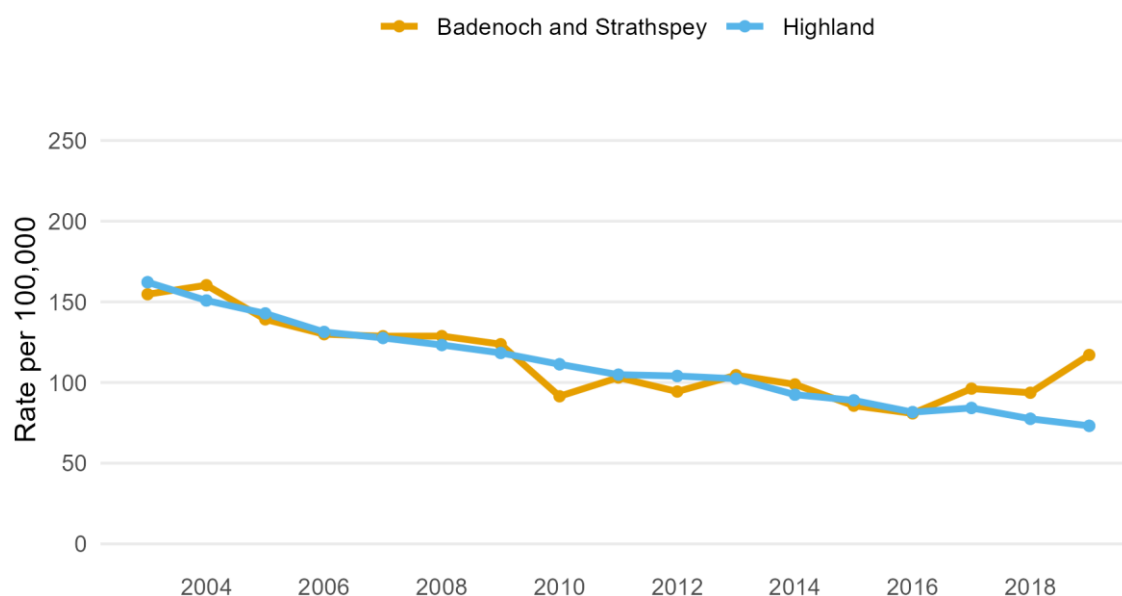
Road traffic accident patient hospitalisations

Table 32: Road traffic accident patient hospitalisations by area

					Significance	
	Average number	Rate	Lower bound	Upper bound	Scotland	Council
Highland	170	73.2	62.4	85.2	+	
NHS Highland	224	70.5	61.4	80.6	+	
Scotland	3,103	57.3	55.3	59.4		-
Badenoch and Strathspey	16	117.1	65.1	193.1	+	
Mid Ross	26	94.1	60.2	139.8	+	
Caithness	22	87.5	54.0	133.8		
Skye, Lochalsh and West Ross	15	82.2	44.5	137.8		
East Ross	17	76.9	44.1	124.3		
Lochaber	14	70.2	37.7	119.2		
Sutherland	9	68.8	28.7	134.9		
Inverness	48	58.4	42.9	77.7		
Nairn and Nairnshire	6	44.5	14.8	100.8		

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2018-2020
Age-sex standardised rate per 100,000 population.

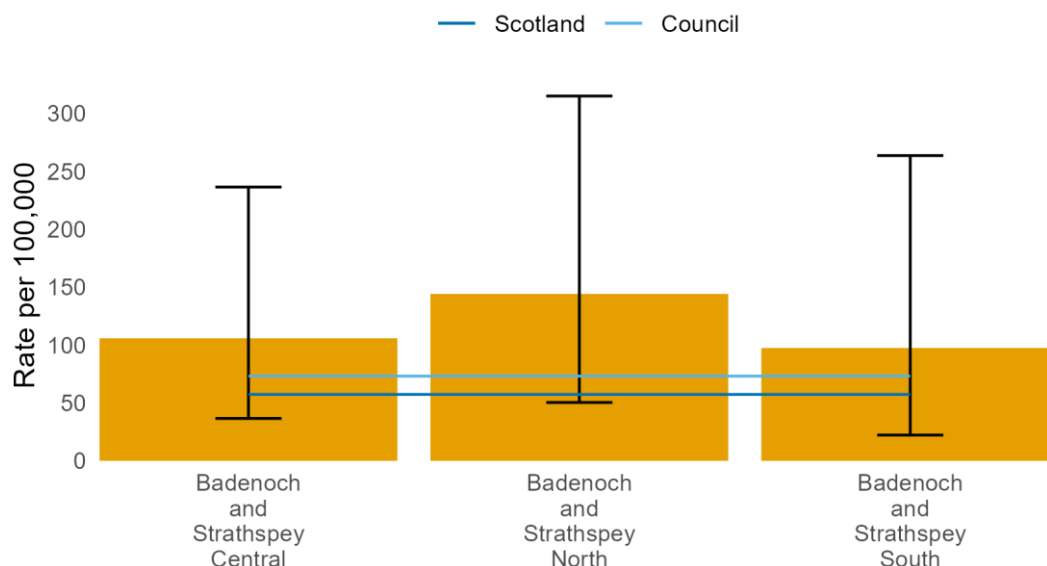**Figure 37:** Road traffic accident patient hospitalisations over time

Source: ScotPHO Online Profiles; calculated from 3 year time periods, 2002-2004 to 2018-2020
Age-sex standardised rate per 100,000 population.

Table 33: Road traffic accident patient hospitalisations by intermediate geography in the area

| | Average number | Rate | Lower bound | Upper bound | Significance | |
					Scotland	Council
Badenoch and Strathspey North	6.3	144.2	50.4	315.1		
Badenoch and Strathspey Central	5.7	105.8	36.6	236.4		
Badenoch and Strathspey South	3.7	97.5	22.2	263.6		

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2018-2020
Age-sex standardised rate per 100,000 population.

Figure 38: Road traffic accident patient hospitalisations by intermediate geography in the area

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2018-2020
Age-sex standardised rate per 100,000 population.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

Emergency care

Emergency patient hospitalisations

An emergency admission is when a person is admitted to a hospital urgently and unexpectedly. Emergency admissions often occur via Accident and Emergency departments but can result directly from a GP consultation or consultant clinic.

Emergency admission rates are highest in the very young and old. Generally, rates increase with patient age from young adulthood and are related to deprivation.

A proportion of emergency hospital admissions are likely to be preventable. High emergency or multiple admissions rates can also indicate that primary and community services may be stressed or not in place to prevent hospital admission.

Reducing emergency admission rates would indicate that people are being supported in managing their care appropriately at home with less reliance on hospital use. Work to achieve this includes health improvement and prevention, reducing accidents, improving home safety, and providing support to carers and social care.

Table 34: Emergency patient hospitalisations by area

	Average number	Rate	Lower bound	Upper bound	Significance	
					Scotland	Council
Highland	17,252	7,047.9	6,941.4	7,155.7	-	
NHS Highland	23,183	6,858.8	6,768.9	6,949.6	-	
Scotland	392,280	7,234.0	7,211.1	7,257.0		+
Inverness	6,247	7,686.8	7,495.6	7,881.6	+	+
East Ross	1,694	7,341.7	6,990.1	7,706.1		
Mid Ross	1,978	7,008.4	6,695.9	7,331.4		
Badenoch and Strathspey	985	6,708.1	6,284.2	7,152.4	-	
Lochaber	1,357	6,665.3	6,308.1	7,037.2	-	
Nairn and Nairnshire	979	6,663.2	6,239.4	7,107.4	-	
Skye, Lochalsh and West Ross	1,393	6,544.6	6,187.7	6,916.0	-	-
Sutherland	967	6,499.5	6,063.3	6,956.9	-	
Caithness	1,722	6,379.6	6,074.1	6,696.2	-	-

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.

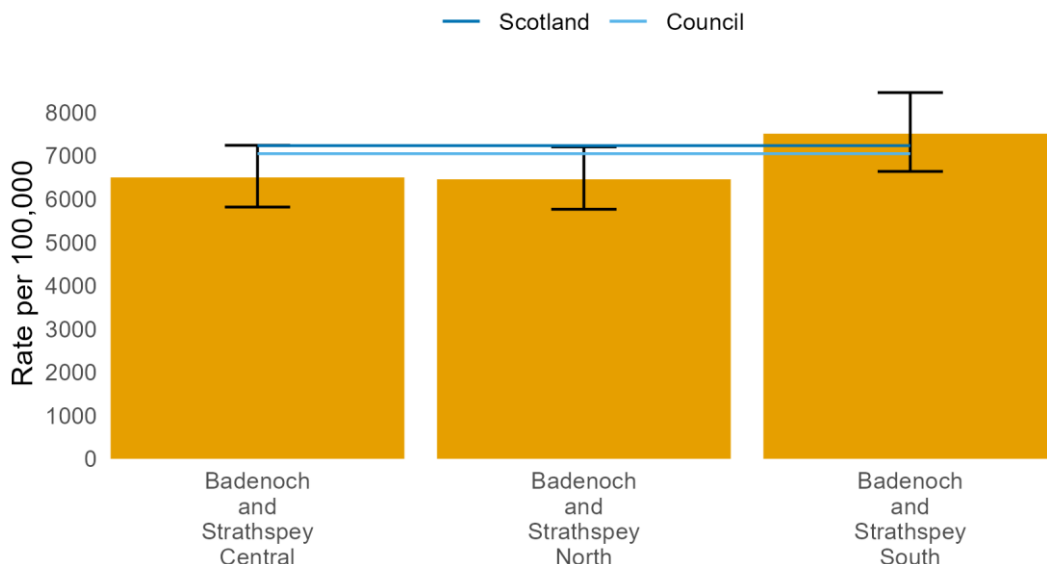**Figure 39:** Emergency patient hospitalisations over time
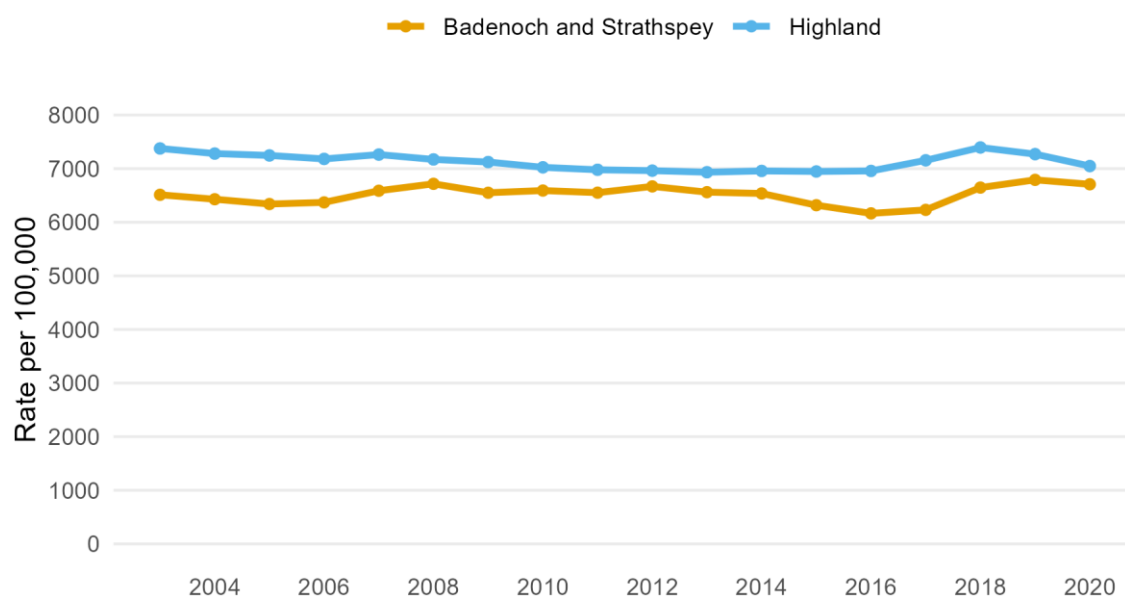
Source: ScotPHO Online Profiles; annual data calculated from 3 year time periods, 2002-2004 to 2019-2021
Age-sex standardised rate per 100,000 population.

Table 35: Emergency patient hospitalisations by intermediate geography in the area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Badenoch and Strathspey South	303	7,509.8	6,637.7	8,459.4		
Badenoch and Strathspey Central	338	6,499.2	5,815.1	7,240.8		
Badenoch and Strathspey North	347	6,456.1	5,764.1	7,205.4	-	

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.

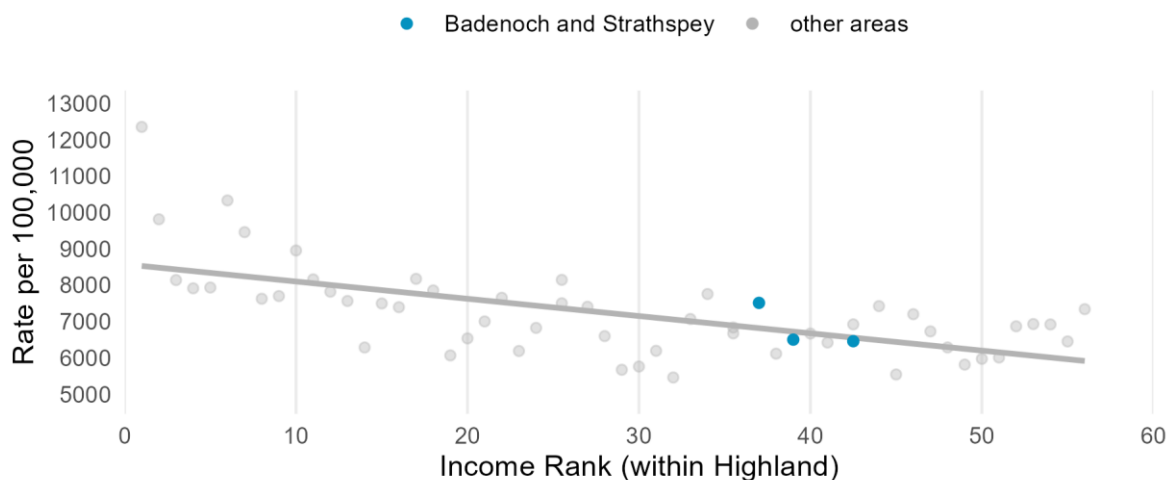**Figure 40:** Emergency patient hospitalisations by intermediate geography in the area

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

Figure 41: Emergency patient hospitalisations by income deprivation rank for intermediate geography

Source: ScotPHO Online Profiles; Emergency patient hospitalisations; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000
Income rank based upon the SIMD 2020v2 income domain where the area ranked one is the population most income deprived.
The vertical-axis does not start at zero.
Each point represents an intermediate geography.
A line of best fit shows the correlation between income deprivation and the measure of health.

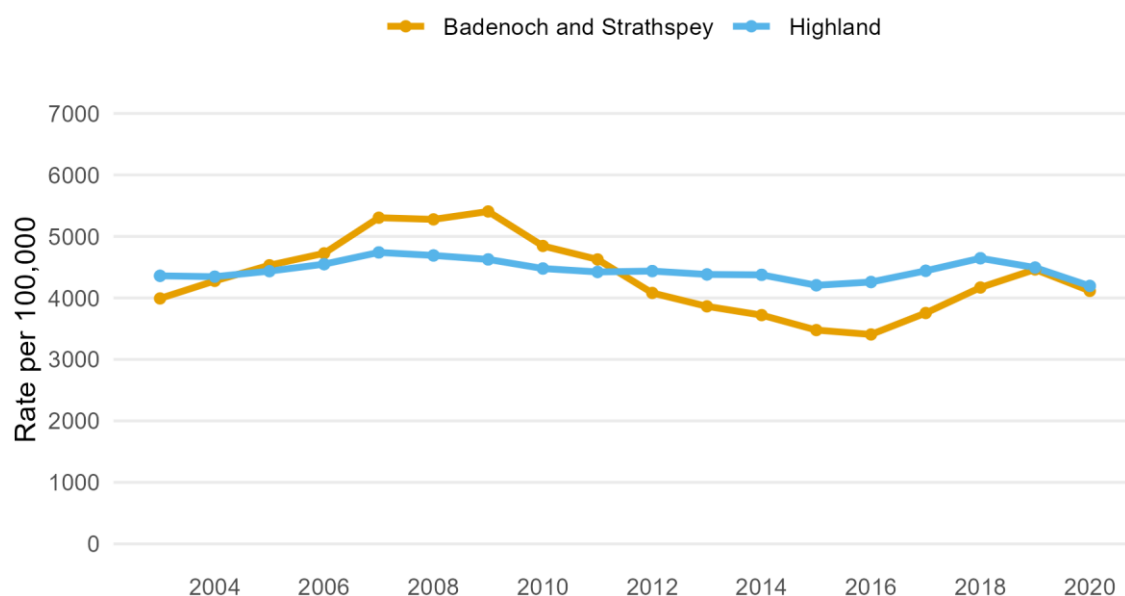**Patients 65 years and over with multiple emergency hospital admissions**

While adjusted for age and sex differences, rates of patients with multiple emergency admissions may vary because of deprivation, patient case mix, and the availability of health and social care.

Table 36: Patients 65 years and over with multiple emergency hospital admissions by area

	Average number	Rate	Lower bound	Upper bound	Significance Scotland	Council
Highland	2,215	4,194.7	4,019.0	4,376.1	-	
NHS Highland	3,168	4,251.3	4,101.7	4,404.9	-	
Scotland	51,625	4,997.9	4,953.9	5,042.3		+
Caithness	275	4,620.3	4,079.1	5,212.3		
Inverness	682	4,363.6	4,036.5	4,709.8	-	
Lochaber	181	4,335.6	3,705.1	5,039.8		
Nairn and Nairnshire	144	4,326.5	3,639.1	5,104.6		
Badenoch and Strathspey	137	4,114.5	3,441.4	4,878.7	-	
Mid Ross	258	4,107.2	3,613.9	4,648.2	-	
East Ross	192	3,807.6	3,279.6	4,395.4	-	
Sutherland	146	3,748.2	3,155.5	4,418.8	-	
Skye, Lochalsh and West Ross	189	3,722.6	3,202.5	4,302.0	-	

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.

Figure 42: Patients 65 years and over with multiple emergency hospital admissions over time
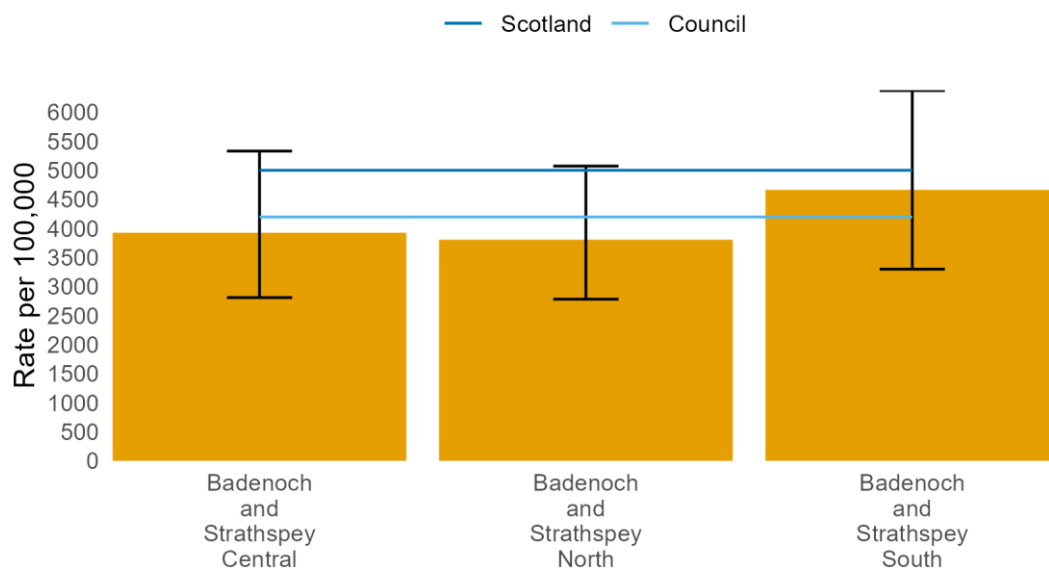

Source: ScotPHO Online Profiles; annual data calculated from 3 year time periods, 2002-2004 to 2019-2021
Age-sex standardised rate per 100,000 population.

Table 37: Patients 65 years and over with multiple emergency hospital admissions by intermediate geography in the area

	Average number	Rate per 100,000	Lower bound	Upper bound	Significance	
					Scotland	Council
Badenoch and Strathspey South	44	4,662.1	3,297.1	6,370.0		
Badenoch and Strathspey Central	42	3,923.8	2,808.3	5,328.4		
Badenoch and Strathspey North	49	3,803.6	2,780.7	5,070.5		

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.

Figure 43: Patients 65 years and over with multiple emergency hospital admissions by intermediate geography in the area

Source: ScotPHO Online Profiles; annual data calculated from 3 year time period, 2019-2021
Age-sex standardised rate per 100,000 population.
Error bars (vertical lines at column series ends) show a 95% confidence interval range.

End of life care

Place of death

Understanding mortality patterns and place of death is important to help provide appropriate care and resources. A 2012 report found that most people prefer not to die in a hospital but at home, in a care home or a hospice[13].

The proportion of deaths occurring outside of hospitals has increased in recent years. Patterns of the place of death changed further during the COVID-19 pandemic, with increased deaths at home during and between pandemic waves. If this pattern is sustained, primary, community and palliative care resources will be needed to support families and individuals at home.

Table 38: Deaths by place of death over time

	Percentage					
	Hospital	Care Home	Home / Non-institution	Hospice	Other places	Average annual number of deaths
2001-2003	52.2	20.6	25.9	1.2	0.0	134.0
2004-2006	55.9	13.7	27.4	2.7	0.2	133.7
2007-2009	65.2	15.5	18.0	1.2	0.0	133.3
2010-2012	53.7	24.3	20.9	1.0	0.0	129.0
2013-2015	48.8	24.3	25.5	1.5	0.0	136.0
2016-2018	45.5	23.7	29.7	1.1	0.0	126.7
2019-2021	42.0	27.8	28.3	1.9	0.0	155.7

Source: National Records of Scotland; 2019-2021

Table 39: Deaths by place of death

	Percentage					
	Hospital	Care Home	Home / Non-institution	Hospice	Other places	Average annual number of deaths
Badenoch and Strathspey	42.0	27.8	28.3	1.9	0.0	156
Highland	41.0	21.7	33.5	3.7	0.0	2,682

Source: National Records of Scotland; 2019-2021

Figure 44: Deaths by place of death
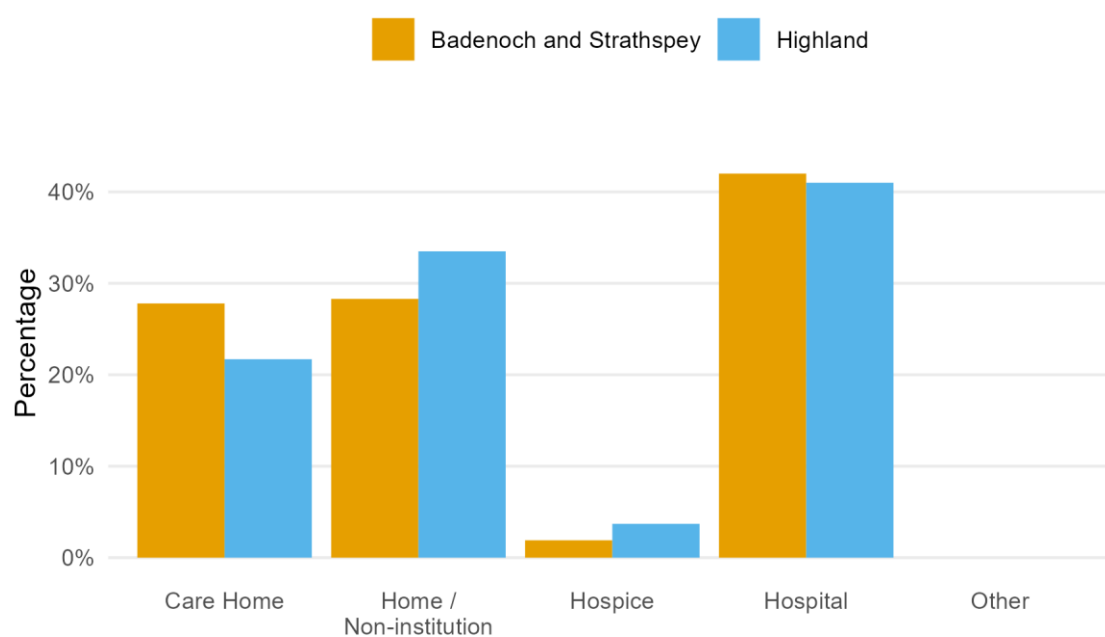
Source: National Records of Scotland; 2019-2021

Dementia and place of death

Patterns of the place of death vary by cause, sex, age and geographical location. The ageing of the population is projected to lead to an increase in dementia cases. Dementia is already a leading cause of death among all diseases and one of the most significant causes of disability and dependence among older people.

Understanding the place of death of people with dementia is essential for the organisation and provision of end-of-life care that could help patients with dementia avoid dying in a hospital and support carers and families.

Table 40: Dementia deaths in a homely setting as a percentage of all dementia deaths

					Significance
	Average annual number	Percentage	Lower bound	Upper bound	Council
Highland	248	83.3	80.7	85.6	
Badenoch and Strathspey	21	89.9	80.5	95.0	
Caithness	35	82.7	75.2	88.3	
East Ross	14	72.9	60.4	82.6	
Inverness	86	86.5	82.2	90.0	
Lochaber	17	86.7	75.8	93.1	
Mid Ross	24	81.6	72.2	88.4	
Nairn and Nairnshire	22	94.2	86.0	97.7	+
Skye, Lochalsh and West Ross	12	66.7	53.4	77.8	-
Sutherland	17	74.3	63.0	83.1	

Source: National Records of Scotland; 2019-2021
Deaths in a homely setting include deaths at home, in a care home or a hospice location.

Figure 45: Dementia deaths in a homely setting as a percentage of all dementia deaths
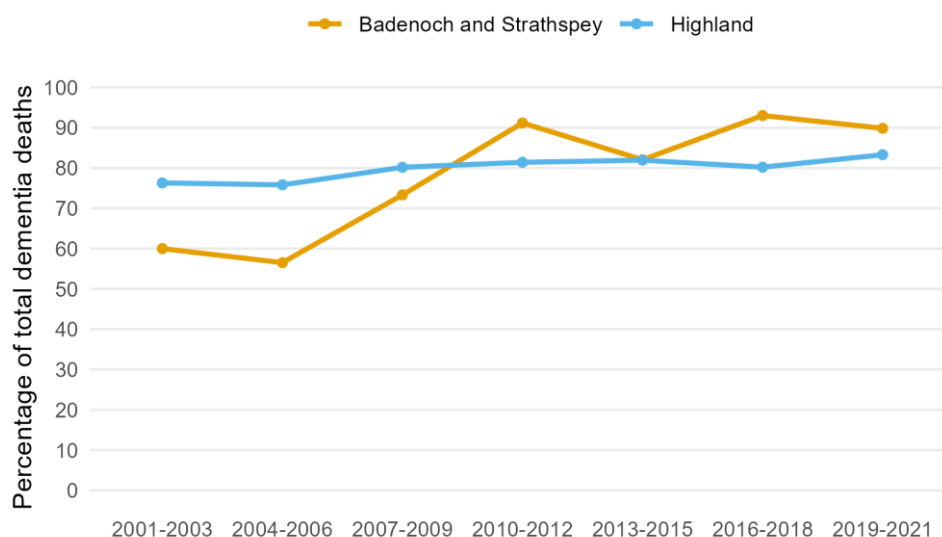
Source: National Records of Scotland; 2019-2021
Deaths in a homely setting include deaths at home, in a care home or a hospice location.

Table 41: Dementia deaths in a homely setting as a percentage of all deaths in a homely setting

|	Average annual number	Percentage	Lower bound	Upper bound	Significance Council
Highland	248	16.7	15.6	17.8	
Badenoch and Strathspey	21	23.7	18.9	29.2	+
Caithness	35	21.0	17.7	24.8	
East Ross	14	9.6	7.2	12.6	-
Inverness	86	18.7	16.8	20.9	
Lochaber	17	12.9	10.0	16.6	
Mid Ross	24	16.0	12.9	19.7	
Nairn and Nairnshire	22	20.6	16.5	25.4	
Skye, Lochalsh and West Ross	12	8.8	6.4	11.9	-
Sutherland	17	17.6	13.7	22.3	

Source: National Records of Scotland; 2019-2021
Deaths in a homely setting include deaths at home, in a care home or a hospice location.

Figure 46: Dementia deaths in a homely setting as a percentage of all deaths in a homely setting
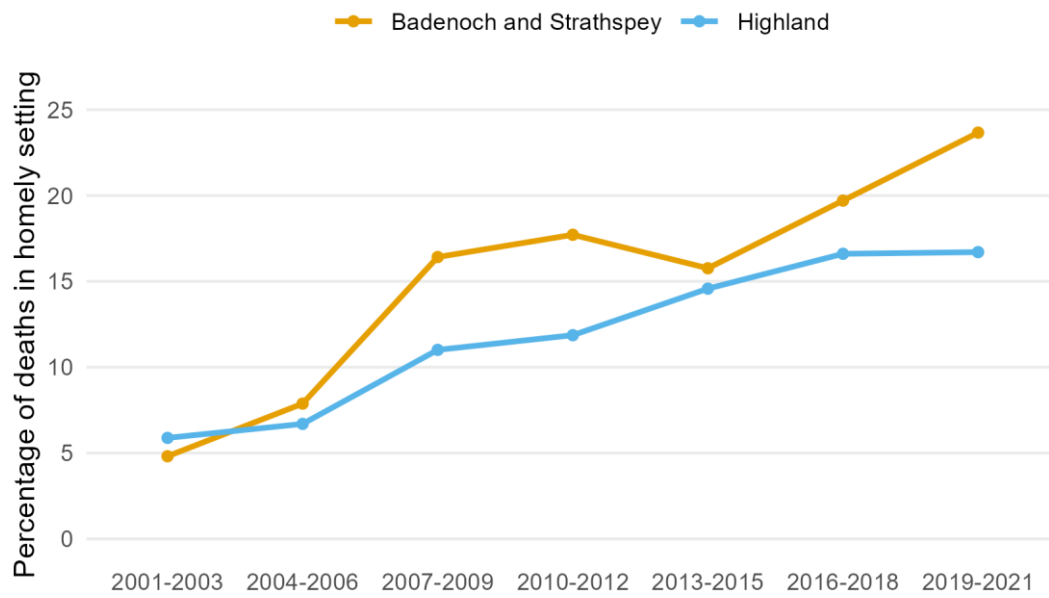
Source: National Records of Scotland; 2019-2021
Deaths in a homely setting include deaths at home, in a care home or a hospice location.

Glossary

Term	Description
Age-sex standardised rate	An age-sex standardised rate is a summary measure of the rate that a population would have if it had a standard age structure. Standardised rates are used to allow comparisons across geographical areas by controlling for differences in the age and sex structure of local populations. It is also used when comparing rates for one geography over time. All rates shown are standardised to the European standard population 2013.
Confidence Interval (CI)	A confidence interval (CI) is a range of values that describes the uncertainty around a point estimate of a quantity, for example a mortality rate, arising from either random or 'natural' variation. Confidence intervals quantify the uncertainty in point estimates: the wider the confidence interval the greater the uncertainty. The width of the confidence interval depends upon the size of the population from which an estimate is derived, the degree of variability in the indicator being measured, and the required level of confidence. In public health the conventional practice is to use 95% confidence intervals.
Deprivation deciles or quintiles	The SIMD deprivation analyses in this report rank datazones from 1 (most deprived) to 6,976 (least deprived). These are then split into five deprivation quintiles with 20% of the datazones in each quintile. Deprivation deciles have 10% of the datazones in each decile.
Datazone	The datazone is the standard national small area geography used in the production of statistics. There are 6,976 datazones in the 2011 release (125 in Argyll and Bute and 312 in Highland local authorities). Nationally datazones are used as the 'building bricks' for higher level geography such as intermediate zones and are the smallest spatial area that population estimates are published for in the inter-census period. Datazones are used routinely to provide 'best fit' populations for local geographies such as Community Partnerships. Details of the mapping are available in the Scottish Health and Social Care Open Data platform.
Early deaths	An early death is defined as a person dying whilst under the age of 75 years. Early deaths are also known as premature deaths.
Emergency patient hospitalisations	An emergency admission is one where a patient is admitted to hospital urgently and unexpectedly i.e. the admission is unplanned. Emergency admissions often occur via Accident and Emergency departments but can result directly from a GP consultation or consultant clinic.
European Standard population (ESP)	The European Standard Population (ESP) is an artificial population structure which is used in the weighting of mortality or incidence data to produce age standardised rates. The current version is the ESP2013, which is based on an average of states' population projections for 2011 - 2030.
Intermediate zone	Intermediate zones (also referred to as intermediate geographies or neighbourhoods) are constructed from aggregations of data zones and provide a small area geography

	that is more suitable for the release of potentially sensitive data and for reporting routine measures of population health. The intermediate zone is the standard spatial unit of analysis used in the Scottish Public Health Observatory online profiles tool.
Income deprivation	Income deprivation, as defined by the SIMD, is a measure of the percentage of the population (adults and their dependents) in receipt of Income Support, Employment and Support Allowance, Job Seekers Allowance, Guaranteed Pension Credits, and Child and Working Tax Credits.
Life expectancy	Life expectancy (at birth) is an estimate of the average length of time a newborn can expect to live if the age and sex specific mortality rates of the local population applied throughout their lifetime. It is a theoretical measure as death rates may increase or decrease during a person's lifetime, and people may move to areas with different mortality risks.
Long-term conditions	Long-term conditions or chronic diseases are conditions for which there is currently no cure, and which are managed with drugs and other treatment, for example: diabetes, chronic obstructive pulmonary disease, arthritis and hypertension.
Lower and Upper bounds	The lower and upper bounds are the lower and upper limits of a 95% confidence interval. They represent the range of values between which the true value of a point estimate is expected to fall within.
Morbidity	Morbidity refers to the extent of illness (disease, injury or disability) in a given population.
Palliative care	Palliative care is about improving the quality of life of anyone facing a life-threatening condition. It includes physical, emotional and spiritual care.
Population estimates	The size of the population estimated on an annual basis, using 30th June (mid-year) as a reference point. Scotland's Census is used as a base for the population estimates, with annual adjustments made for the number of births, deaths and estimates of migration. National Records of Scotland (NRS) are responsible for producing official population figures for Scotland.
Prevalence	Prevalence describes the proportion of a population with a particular disease or health condition at a given point in time or over a specified time period.
SCI-Diabetes	Scottish Care Information – Diabetes (SCI-Diabetes) is NHS Scotland's diabetes patient management system. It provides a fully integrated shared electronic patient record to support treatment of people with diabetes.
ScotPHO profiles tool	The Scottish Public Health Observatory (ScotPHO) collaboration is led by Public Health Scotland. ScotPHO's online profiles tool present a range of indicators intended to increase understanding of local health issues. The online profiles and indicator definitions are available at the following URL: https://scotland.shinyapps.io/ScotPHO_profiles_tool/
Scottish Index of Multiple Deprivation (SIMD)	The Scottish Index of Multiple Deprivation (SIMD) identifies small area concentrations of deprivation. The latest version is the SIMD 2020 and is based on small areas called datazones. The SIMD is a measure of relative deprivation and takes

	account of indicators across seven domains: income, employment, education, health, access to services, crime and housing. The seven domains are combined into a single index score and ranked.
Statistical significance of differences	Confidence intervals are used to interpret whether a measure is statistically higher or lower than another. If the confidence intervals of one particular area have no overlap with a comparison area confidence interval then it is statistically significantly higher/lower than the comparison. If there is overlap then there is no statistically significant difference between them. Statistical significance of differences are indicated by a + or - in the tables in this report.

References

[1] Scottish Government. Scottish Index of Multiple Deprivation 2020.
https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/

[2] NHS Health Scotland. Health Inequalities: what are they? How do we reduce them? Edinburgh: NHS Health Scotland; 2016. https://www.healthscotland.scot/media/1086/health-inequalities-what-are-they-how-do-we-reduce-them-mar16.pdf

[3] Thomson J. Rural Deprivation Evidence Summary. Scottish Government. 2016.
https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2017/02/scottish-index-of-multiple-deprivation-rural-deprivation-evidence-and-case-studies/documents/rural-deprivation-an-evidence-review/rural-deprivation-an-evidence-review/govscot%3Adocument/rural%2Bdeprivation%2Bevidence%2Breview.pdf

[4] Scottish Public Health Observatory. Online Profiles Tool.
https://scotland.shinyapps.io/ScotPHO_profiles_tool/

[5] Public Health Scotland. Scottish Burden of Disease Study [online].
https://www.scotpho.org.uk/comparative-health/burden-of-disease/overview/

[6] McCartney G, Walsh D, Fenton L, Devine R. Resetting the course for population health: evidence and recommendations to address stalled mortality improvements in Scotland and the rest of the UK. Glasgow; Glasgow Centre for Population Health/University of Glasgow: 2022. URL: https://www.gcph.co.uk/assets/0000/8723/Stalled_Mortality_report_FINAL_WEB.pdf

[7] Scottish Burden of Disease study. Forecasting the future burden of disease: Incorporating the impact of demographic transition over the next 20 years. PHS; 2022. URL: https://www.scotpho.org.uk/media/2178/sbod-forecasting-briefing-english-november2022.pdf

[8] Cancer Research UK. Cancer in the UK: Deprivation and cancer inequalities in Scotland. 2022. URL: https://www.cancerresearchuk.org/sites/default/files/cancer_in_the_uk_-_deprivation_and_cancer_inequalities_in_scotland.pdf

[9] Scottish Government. Public Health Priorities for Scotland. 2018. URL: https://www.gov.scot/publications/scotlands-public-health-priorities/

[10] British Medical Association (BMA). Identification and management of patients with frailty. URL: https://www.bma.org.uk/advice-and-support/gp-practices/gp-service-provision/identification-and-management-of-patients-with-frailty

[11] Alzheimer Europe. Dementia in Europe Yearbook 2019: Estimating the prevalence of dementia in Europe. 2019. URL: https://www.alzheimer-europe.org/sites/default/files/alzheimer_europe_dementia_in_europe_yearbook_2019.pdf

[12] Gale C, Cooper C, Sayer A. Prevalence of frailty and disability: findings from the English Longitudinal Study of Ageing. Age Ageing. 2015;44(1):162–165. https://doi.org/10.1093/ageing/afu148

[13] Georghiou T, Davies S, Davies A and Bardsley M. Understanding patterns of health and social care at the end of life. Research report. Nuffield Trust and National End of Life Care Intelligence Network; 2012. URL: https://www.nuffieldtrust.org.uk/research/understanding-patterns-of-health-and-social-care-at-the-end-of-life