Alcohol Related Deaths in Highland

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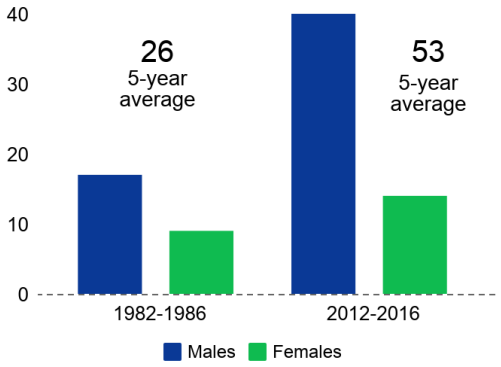

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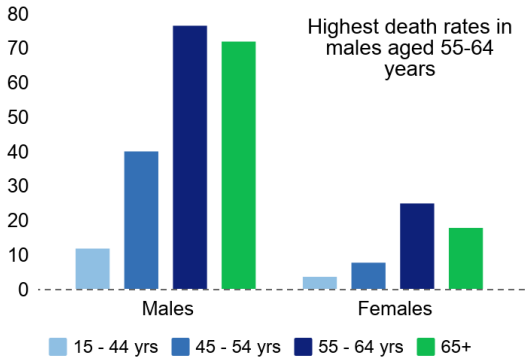

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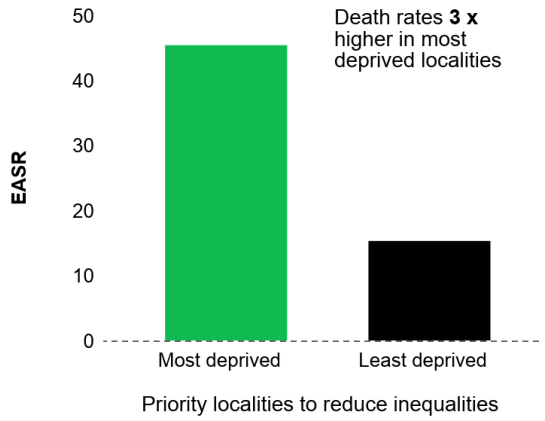

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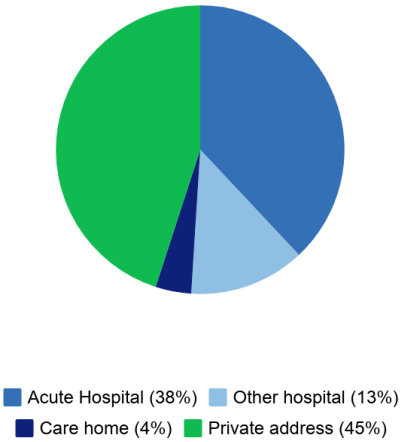


Healthcare contacts at the end of life

Percentage of people in contact with healthcare in the last 3 years of life

Outpatients **62%**

A&E Attendance **81%**

Hospital admission **88%**

Cohort of **149** people who died with alcohol as an underlying cause between 2013 and 2015.

70% were admitted to hospital in the 3 months prior to death

Source(s): NRS mortality extract, ISD Scotland Patient Level Information Costing System (PLICS) linked dataset
Prepared by Highland Alcohol and Drugs Partnership

1. Introduction

The harmful use of alcohol results in a significant health, social and economic cost to society, with alcohol-related harms in Scotland among the highest in Western and Central Europe.[1] Recent evidence shows that alcohol dependence and chronic liver disease contributes to a substantial burden of disease in the Scottish population, and that problem alcohol use disproportionately affects people who live in areas of greater socioeconomic deprivation.[2,3]

Since 2012, the downward trend in number of alcohol-related deaths in Scotland has stalled and seen increases in three of the last four years.[4] Similarly, in Highland, there were 70 alcohol-related deaths in 2016, which was the second highest annual incidence since 1982. Whilst the total number of alcohol related deaths fluctuate from year to year, these recent increases may indicate a change in the direction of the trend.

Within this context, Highland Alcohol and Drug Partnership (HADP) have a strategic requirement to improve knowledge and understanding of alcohol related deaths. This is one of a number of priority areas identified by the Scottish Government for continued improvement in the delivery of the national Alcohol Framework: *Changing Scotland's Relationship with Alcohol.*[5]

The aim of this report is to provide an up to date epidemiological summary of alcohol-related deaths in Highland by investigating trends over time and variations by gender, age, deprivation and geographical area. It presents analyses of overall, age- and gender-specific alcohol-related mortality trends over a 25-year period, and provides some comparisons with alcohol-related mortality trends in the rest of Scotland.

The report also aims to identify service pathways for alcohol-related deaths in the year(s) prior to death utilising record linkage undertaken at a national level by ISD Scotland. Understanding of any temporal relationship between healthcare contact and alcohol-related deaths provides particularly relevant information for identifying opportunities for intervention and end of life care.

It is anticipated that this work will help identify identifying areas for priority action, strengthen multi-agency awareness of alcohol related deaths and improve population level outcomes for people living in Highland.

2. Methodology

2.1. Alcohol-related deaths data

This report is based on analyses of mortality records from 1982 to 2016, using routinely available sources and data extracted from a mortality dataset provided by the National Records of Scotland (NRS) and ISD Scotland.

Within the scope of this work are deaths in Highland Council residents which are classified as 'alcohol-related' on the basis of the old National Statistics definition agreed with the Office for National Statistics in 2006.[4] Cases are selected where the 'underlying' cause of death is most directly attributable to alcohol consumption. This means the "*the disease or injury which initiated the chain of morbid events leading directly to death, or the accident/act which produced the fatal injury*".[6] The full list of codes included in the definition is shown in Appendix 1.

The definition allows for consistent comparisons over time for those deaths most directly associated with alcohol consumption, such as alcohol dependency, chronic liver disease and alcohol poisoning. The definition does not include causes of death considered partly attributable to alcohol, for example, long term conditions such as various cancers, strokes, and heart disease, or external causes whilst under the influence of alcohol, such as road accidents, fires or falls. Additionally, deaths that may have been caused by alcohol but were not identified as such by the coding on the death certificate will also be excluded.

In line with convention, the underlying (primary) cause of death is mainly used for reporting. A wider definition of an alcohol-related death includes those cases where alcohol is reported as a secondary or 'contributory' cause on the death record. This report provides limited data relating to this wider definition.

Unless otherwise stated, the number of deaths are analysed and presented as a directly European age-sex standardised rate (EASR) per 100,000 population. These take account of changes in the size and age structure of the underlying populations and thus allow for relative comparisons of mortality between areas (i.e. between Highland and the rest of Scotland) and over time. NRS mid-year population estimates, grouped by gender and five-year age band, and 2013 European Standard Population (ESP2013) were used in the calculation of these rates. In some analyses rates were calculated as five-year rolling averages to account for small numbers of deaths in single years and to provide smoother trends.

Analyses of inequalities in alcohol-related deaths presented in this report are based upon communities identified by Highland Community Planning Partnership (CPP) in 2016 to be the focus of specific actions to reduce inequalities. These are primarily

identified through the Socio Economic Performance (SEP) Index developed by the James Hutton Institute to identify poverty and deprivation in rural areas.[7]

2.2. Retrospective cohort review

A retrospective cohort review of service pathways was also undertaken for alcohol-related deaths in Highland Council residents registered in the three-year period, 2013 to 2015.

The review utilised record linkage undertaken for the Patient Level Information Costing System (PLICS) dataset developed by Information Services Division (ISD) Scotland. The PLICS dataset links together patient level information collected from the following national data schemes:

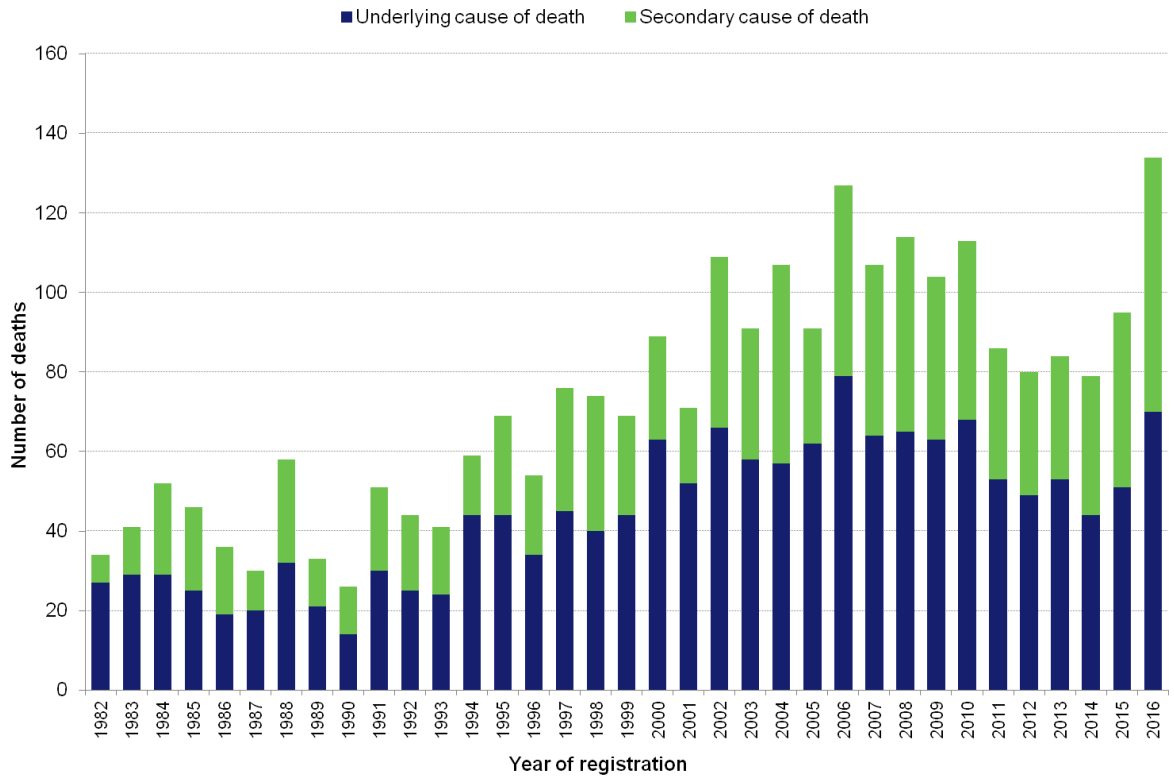
Healthcare event(s)	Source
General acute inpatient and daycase hospital admissions	Scottish Morbidity Record (SMR) 01
Mental health inpatient and daycase hospital admissions	SMR04
Outpatient clinic appointments	SMR00
Emergency department attendances	A&E2 datamart
Community pharmacy prescribing	Prescribing Information system (PIS)

The PLICS methodology also assigns unit costs of healthcare interactions. This provides information on how people approaching the end of their lives are making use of healthcare services and the financial implications of that service usage. Further details of how costs are determined are available in the ISD Scotland technical report.[8]

3. Number of alcohol-related deaths

The annual number of deaths where alcohol was recorded as either the primary or secondary cause, for the years 1982 to 2016 are shown in Figure 1. As seen, there have been increasing trends in both primary and secondary causes. The most recent year for which data was available (2016) reports 134 alcohol-related deaths in Highland. Of these, 70 (52%) had a primary cause of death alcohol-related and 64 (48%) a secondary cause of death alcohol-related. The number of deaths where an alcohol-related condition is cited as a secondary cause has averaged 39% (range 21% to 48%) during this time.

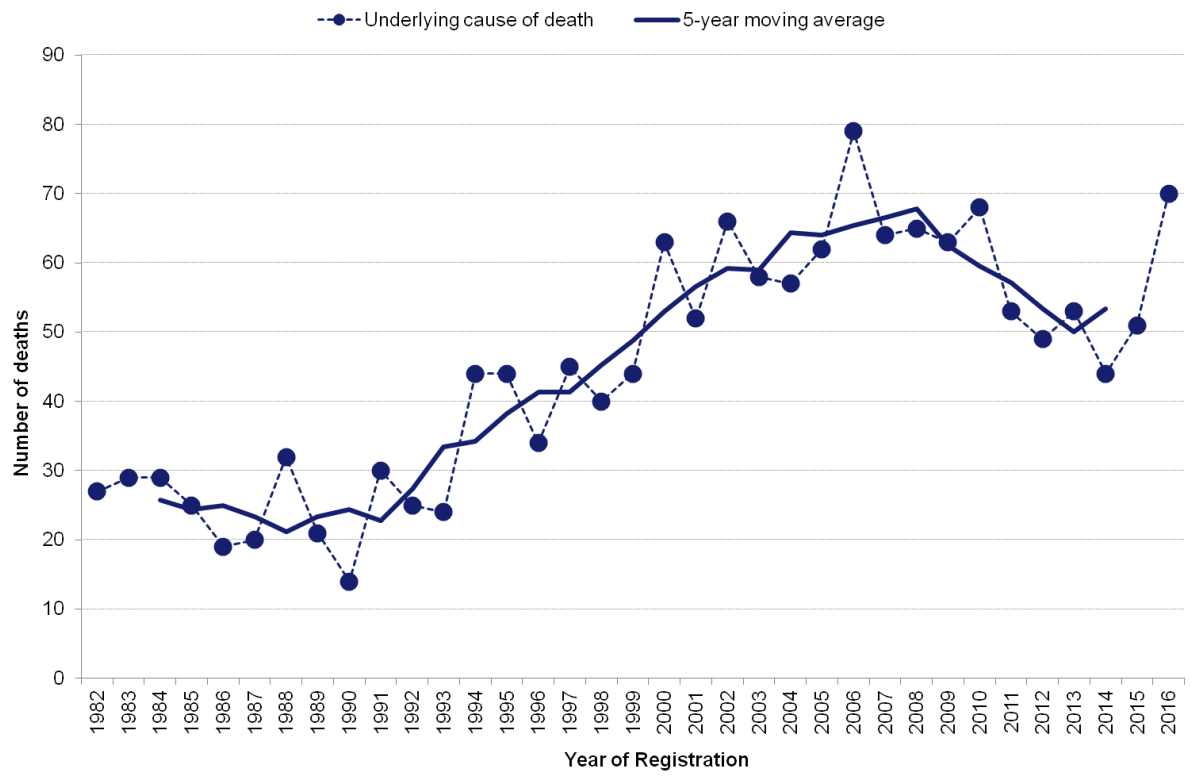
Figure 1: Number of alcohol-related deaths recorded as primary (underlying) or secondary (contributory) cause of death, Highland, 1982 to 2016



Source(s): National Records of Scotland, ISD Scotland

The numbers of deaths each year are subject to quite large annual fluctuations so five-year annual averages provide a more stable guide to the underlying mortality level and long-term trend (Figure 2). In the five-year period 1982–1986 there were on average 26 deaths per year where an alcohol-related condition was recorded as the underlying cause. This compares to 53 deaths on average during the last five-year period 2012-2016, a 104% increase.

Figure 2: Trend in number of alcohol-related deaths recorded as primary (underlying) cause of death, Highland, with 5-year moving averages, 1982 to 2016



Source(s): National Records of Scotland

4. Trends in alcohol-related mortality rates

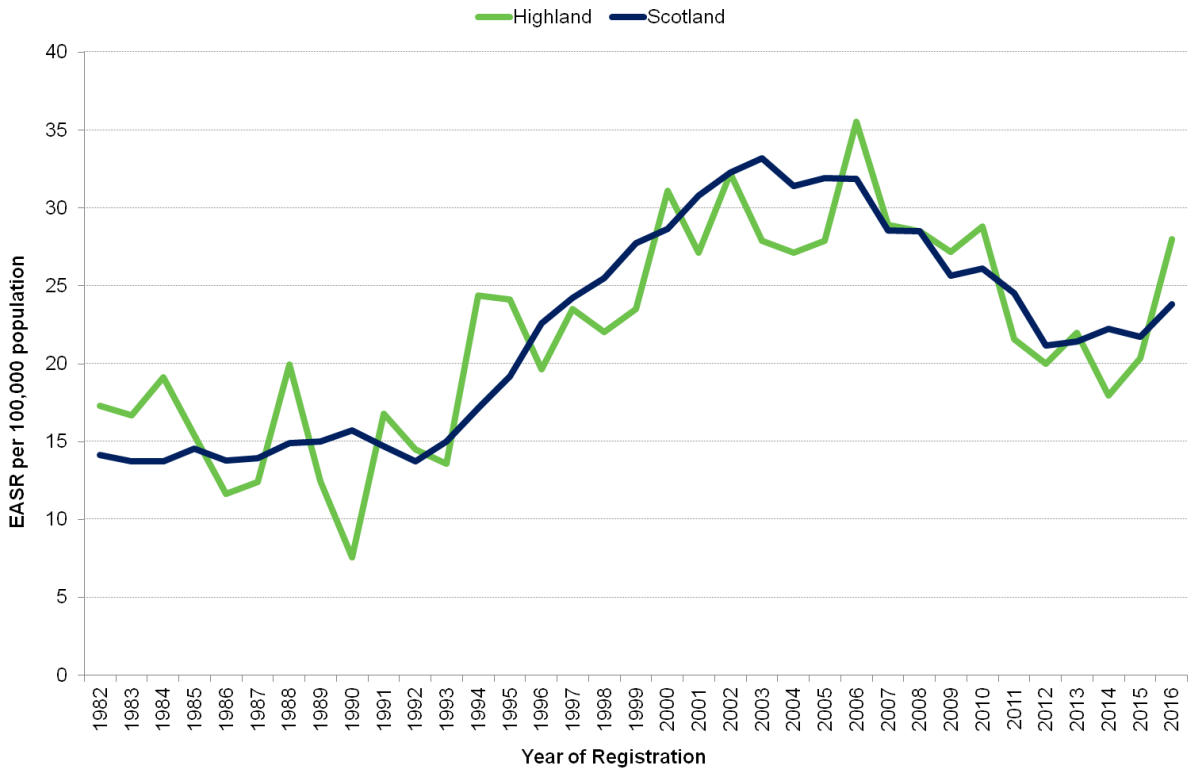
4.1. Overall alcohol-related mortality

The trend in mortality rates where alcohol was recorded as the underlying cause of death in Highland and Scotland between 1982 and 2016 is shown in Figure 3. Both areas show a period of steady growth in alcohol-related mortality rates since the early 1990's. The smaller number of annual events means that the Highland rate is subject to greater variation than the pattern observed for Scotland as a whole.

The alcohol-related mortality rate in Highland has fallen from 35.6 deaths per 100,000 people in 2006, when the rate peaked, to 28.0 per 100,000 people in 2016. This is a 27% reduction in the rate over the last ten years, though still higher than the rates typically observed during the 1980s.

Since 2012, the downward trends in alcohol-related death rates in both Scotland and Highland have flattened and show some sign of a recent increase. Further monitoring is required to determine whether this indicates a change in the overall trend.

Figure 3: Alcohol-related mortality rates (underlying cause), directly age-sex standardised rates per 100,000 population, Highland and Scotland, 1982 to 2016



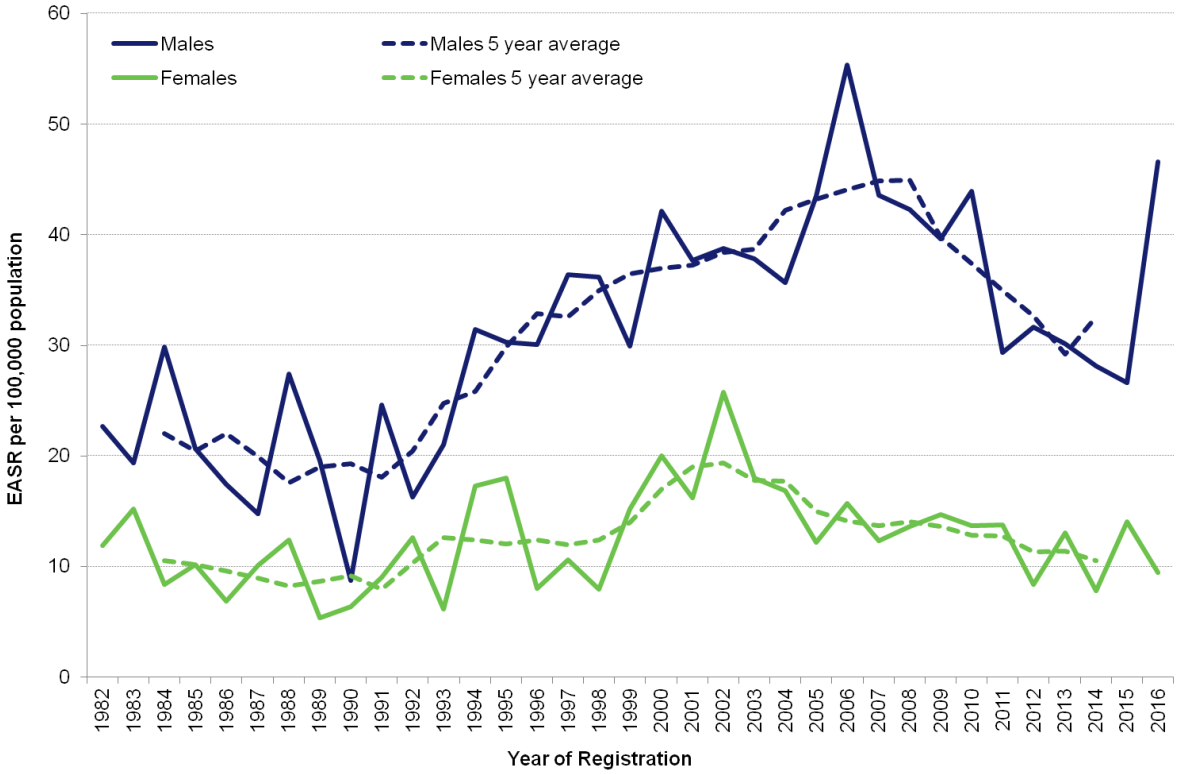
Source(s): National Records of Scotland, ISD Scotland
Rates are directly age-sex standardised to the 2013 European Standard Population.

4.2. Alcohol-related mortality by gender

The trend in alcohol-related mortality rates by gender (Figure 4) shows gender inequalities, with rates for men typically two or three times higher than that for women. In the latest 5 year period 2012-2016, the alcohol-related death rate was more than three times as high in men as in women (32.6 deaths per 100,000 population in men compared with 10.6 deaths per 100,000 population in women).

There has been a reduction in mortality rates for both genders over the last ten years, 40% for females compared with 22% for males. A sharp increase in male death rates observed in 2016 has resulted in a small increase in the 5-year rolling average.

Figure 4: Alcohol-related mortality rates (underlying cause) by gender, directly age-sex standardised rates per 100,000 population with five-year average, Highland, 1982 to 2016



Source(s): Calculated by HADP from NRS mortality file and mid-year population estimate series. Rates are directly age-sex standardised to the 2013 European Standard Population

4.3. Alcohol-related mortality by age

There are also important differences in alcohol-related death rates observed by age. For men, age-specific mortality rates increased in the majority of age groups between 1990 and the late 2000s. Rates in men aged 55 to 64 years at their peak were triple those observed two decades earlier. Rates in men aged 45 to 54 years have since fallen to a level comparable to the 1980s whereas rates in older men aged 55 to 64 years and 65 years and over have remained notably higher.

A similar pattern is observed in women, with age-specific death rates in women aged 45 to 54 years and 55 to 64 years at their peak double those observed in the 1980s. Female deaths rates peaked earlier in the decade and rates in women aged 55 to 64 years have since decreased significantly. Overall, despite recent improvements, age-specific alcohol-related death rates for men in Highland remain higher than those for women in all age groups, and significantly so for older men.

Figure 5: Trend in male alcohol-related death rates (underlying cause) by age group, Highland, 5 year averages 1982 to 2016

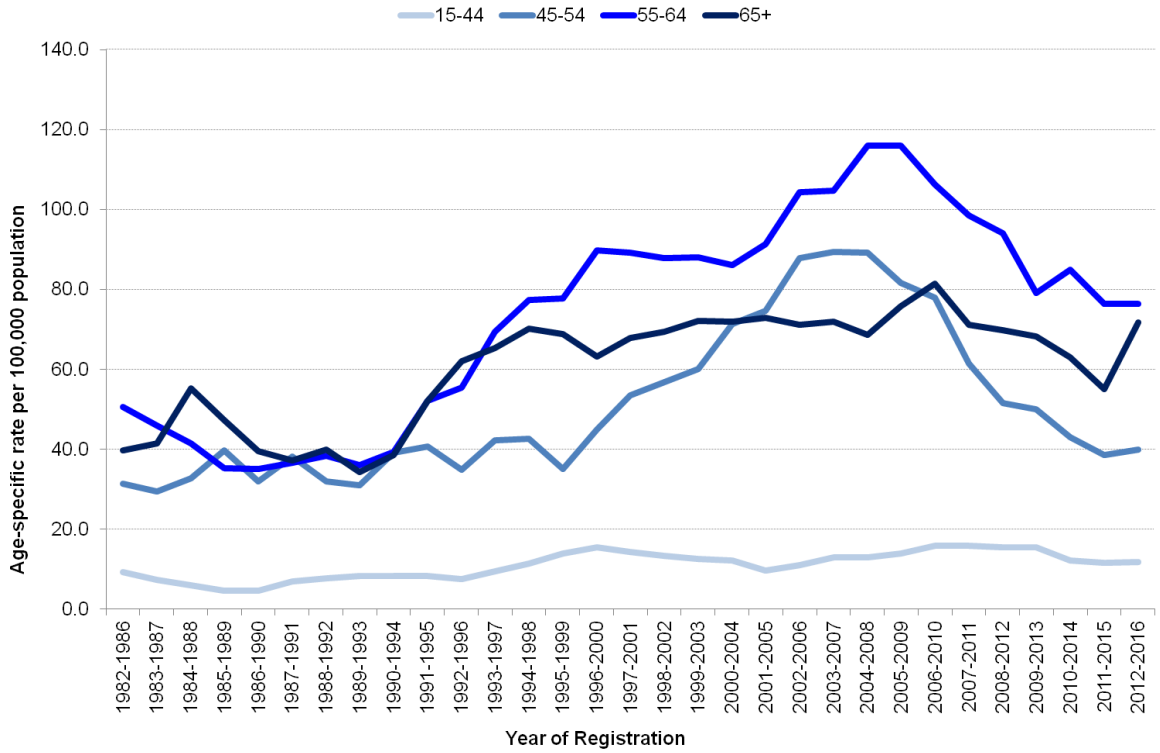
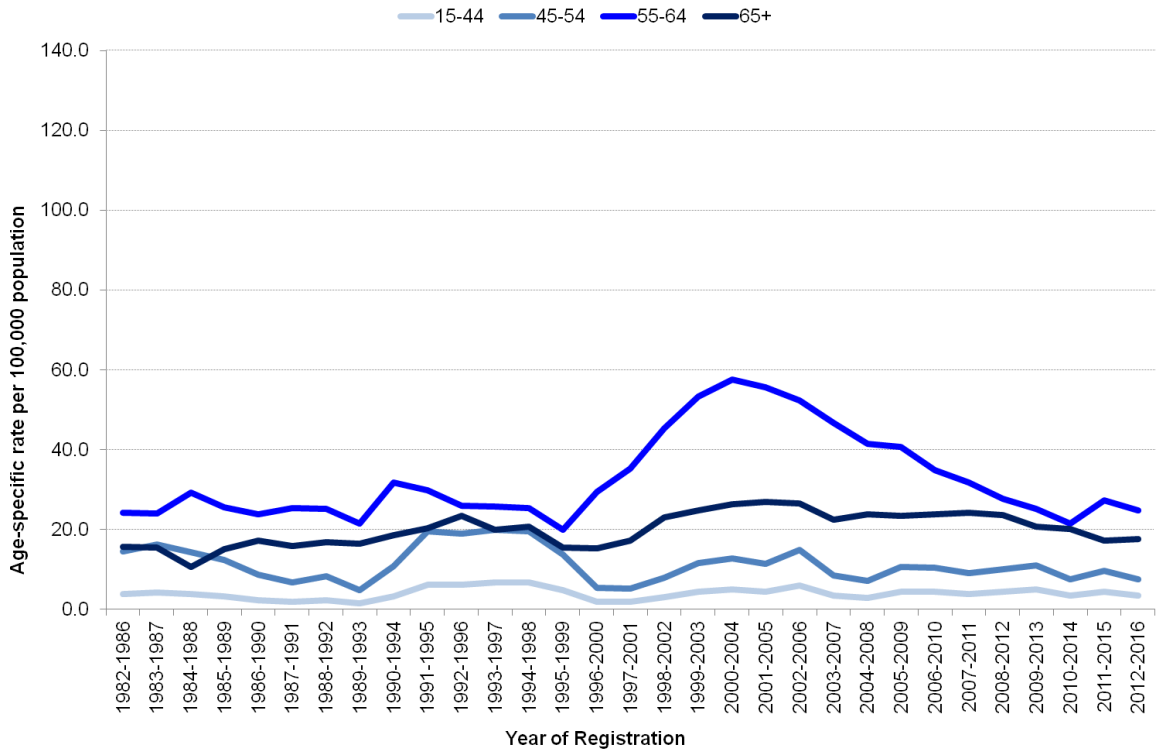


Figure 6: Trend in female alcohol-related death rates (underlying cause) by age group, Highland, 5 year averages 1982 to 2016



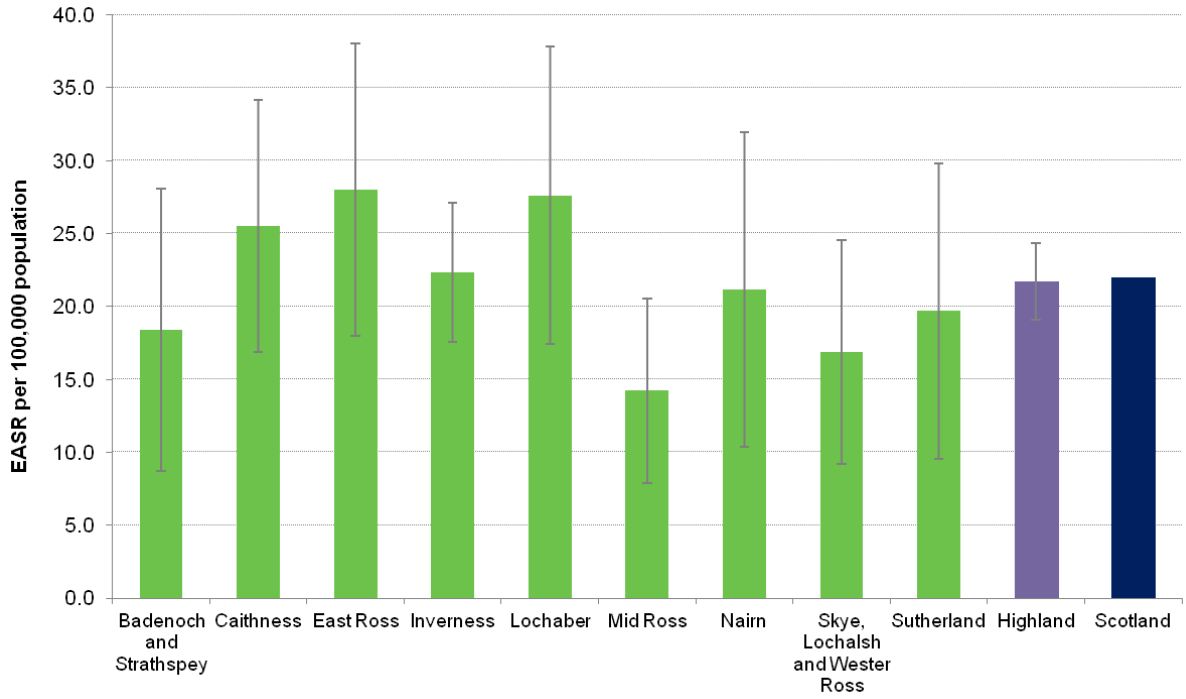
Source(s): Calculated by HADP from NRS mortality file
Rates are age-specific to National Records of Scotland mid-year population estimates series

4.4. Alcohol-related mortality by Community Partnership

Geographical analysis of alcohol-related deaths in Highland is derived from the postcode of normal place of residence recorded on mortality data and mapped to the nine community partnership areas established by Highland Community Planning Partnership (CPP) to support local planning. Figure 7 illustrates the variation in alcohol-related death rates in these areas for the five-year period 2012 to 2016.

The community partnership areas with the highest rates of alcohol-related deaths over this period were East Ross (28 deaths per 100,000 population) and Lochaber (27.6 deaths per 100,000 population. The lowest rates were recorded by Mid Ross (14.2 deaths per 100,000 population) and Skye, Lochalsh and Wester Ross (16.9 deaths per 100,000 population).

Figure 7: Alcohol-related death rates (underlying cause) by Community Partnership, Highland, 5 year aggregate 2012 to 2016



Source(s): Calculated from NRS mortality file and NRS Small Area Population Estimate series. Rates are directly age-sex standardised to the 2013 European Standard Population.
Scotland figure ScotPHO Health and Wellbeing Profiles 2012-2016.
Analysis based on 2001 data zones aligned to CP boundaries.
Error bars represent 95% confidence intervals

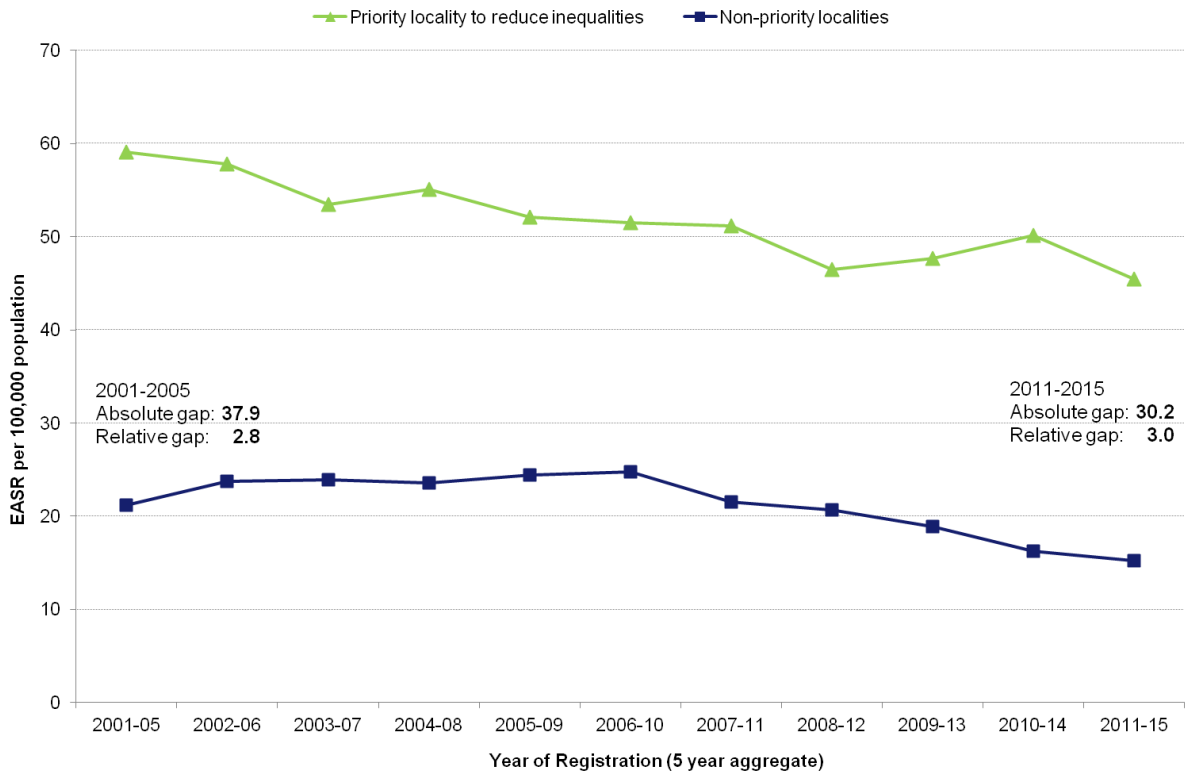
4.5. Inequalities in alcohol-related deaths

Although the Scottish Index of Multiple Deprivation (SIMD) is most widely used to identify area-based deprivation in Scotland, the SIMD has some limitations in identifying poverty and deprivation in more spatially dispersed rural communities.

The approach used in this report to identify areas of greatest inequality adopts that used by Highland CPP, who have agreed upon a number of localities where work to reduce inequalities should be targeted (Appendix 2). There are 24 priority localities: 21 remote and/or rural areas identified by the SEP Index and 3 urban areas identified by the SIMD 2012. All other areas are categorised as 'non-priority localities'.

Rates of alcohol-related death in Highland have consistently been higher in areas of greater deprivation. In the period 2011-2015, the mortality rate in the most deprived communities was three times higher than that observed in the least deprived (45.4 per 100,000 population compared to 15.3 per 100,000 population). The absolute gap in mortality rates between the areas has narrowed over the last ten years though the relative gap remains.

Figure 8: Inequalities in alcohol-related death rates (underlying cause) in Highland, 5 year aggregates 2001 to 2015



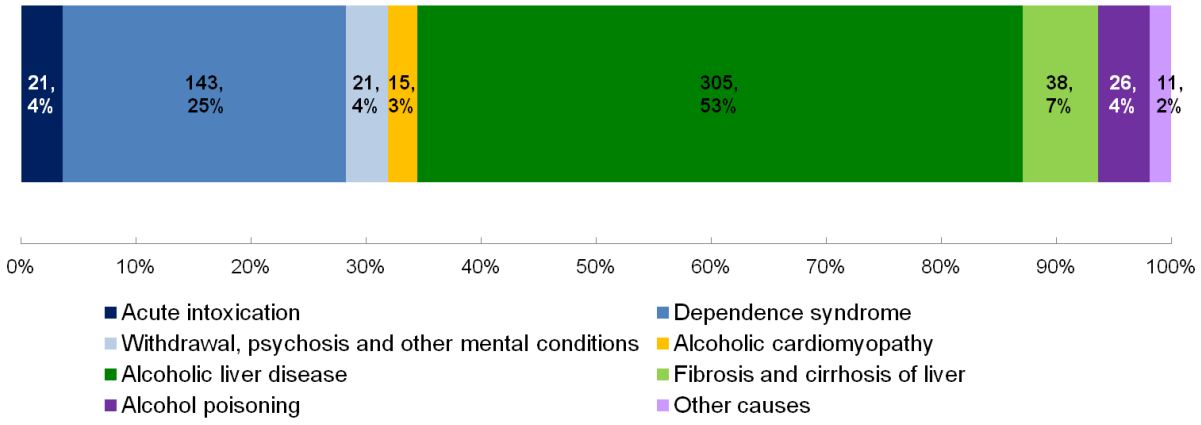
The difference alcohol-related death rates between areas of greatest and least inequality in Highland are less than the six-fold difference observed nationally. This is because mortality rates in the least deprived (non-priority) areas of Highland are higher than those in the least deprived areas of Scotland identified through the SIMD (quintiles 9 and 10). Death rates in the most deprived areas of Highland and Scotland are comparable.

5. End of Life

5.1. Underlying cause of death

The majority of alcohol-related deaths in Highland are due to alcoholic liver disease, which accounted for 305 deaths (53%) during the ten year period 2007 to 2016. Deaths coded as alcohol dependence syndrome were the second most frequently recorded underlying cause during the time period (143 deaths, 25%). Deaths with an underlying cause coded to fibrosis and cirrhosis of the liver, acute intoxication, alcohol poisoning, withdrawal syndrome and alcoholic cardiomyopathy each contributed 3% to 7% of deaths, as shown in Figure 9.

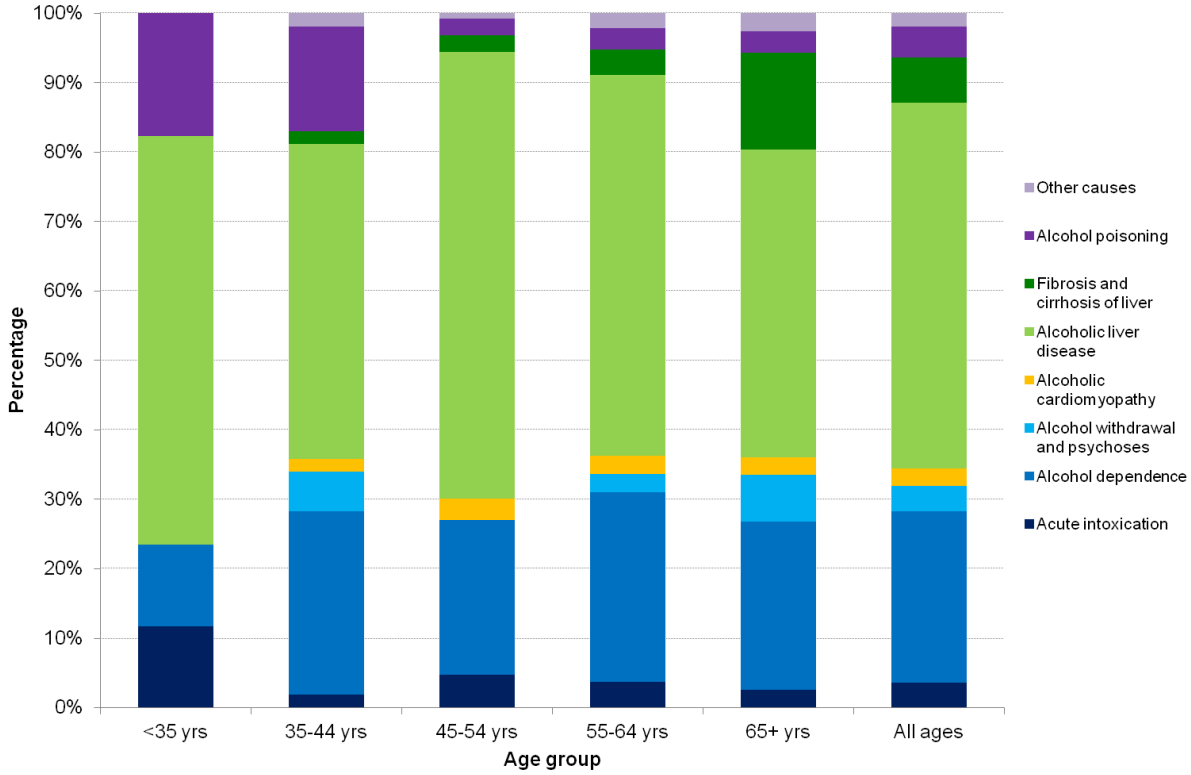
Figure 9: Leading causes of alcohol-related deaths (underlying cause), number and percentage of total, Highland, 10 year total 2007 to 2016



Source(s): NRS mortality file
ICD10 code groupings: Acute intoxication F100, Alcohol dependence F102, Alcohol withdrawal and psychoses F103-F109, Alcoholic cardiomyopathy I426, Alcoholic liver disease K70, Fibrosis and cirrhosis of liver K746, Alcohol poisoning X45, Other causes G312,K292,K860.

Figure 10 shows that the proportion of deaths due to the alcoholic liver disease and alcohol dependence were comparable between the ages. A higher proportion of people aged 65 and over died from fibrosis and cirrhosis of the liver compared to younger people, whereas deaths due to acute intoxication and alcohol poisoning were more common in people aged 44 years and under. There were no notable differences in the underlying cause of death between males and females.

Figure 10: Leading causes of alcohol-related deaths (underlying cause) by age group, Highland, 10 year total 2006 to 2015



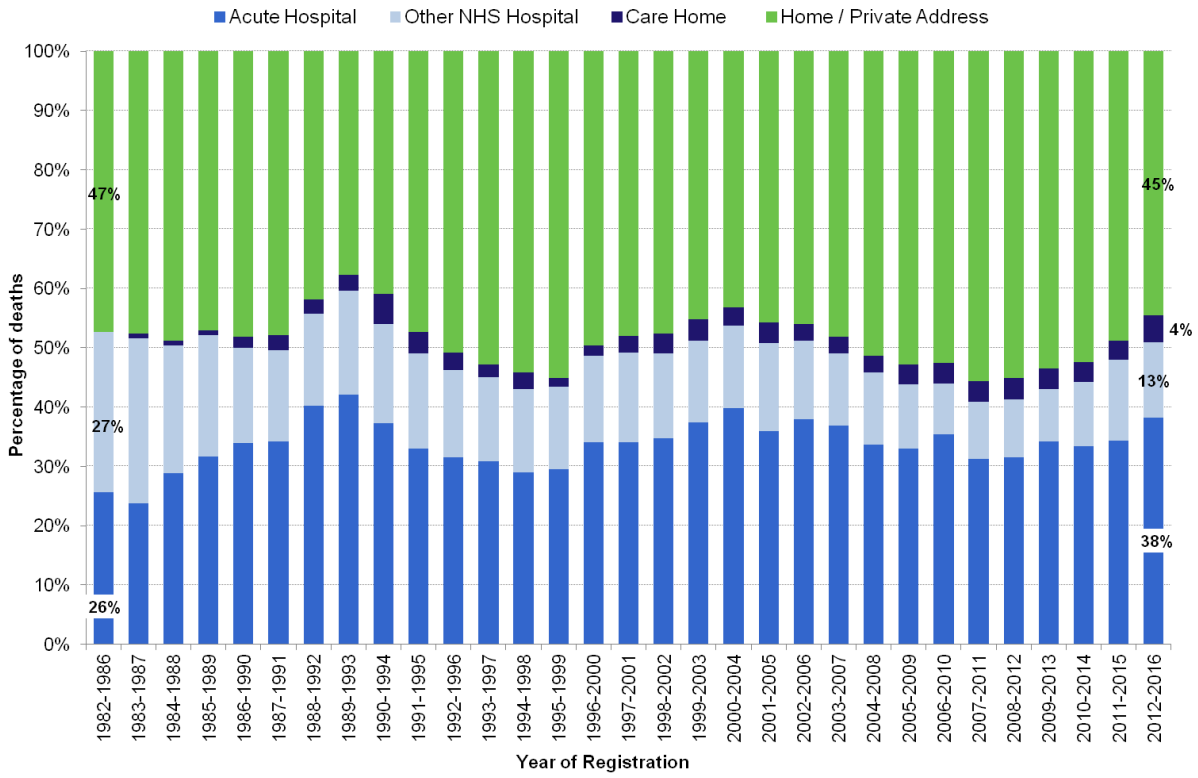
Source(s): NRS mortality file
ICD10 code groupings: Acute intoxication F100, Alcohol dependence F102, Alcohol withdrawal and psychoses F103-F109, Alcoholic cardiomyopathy I426, Alcoholic liver disease K70, Fibrosis and cirrhosis of liver K746, Alcohol poisoning X45, Other causes G312,K292,K860.

5.2. Place of Death

Information on place of death is an important consideration in looking at alcohol-related deaths and the provision of appropriate and high quality end of life care. Although research suggests that the majority of people (56-74%) express home as their preferred place of death, it is recognised that preferences may change during the course of illness.[9] People with substance use problems may have particular difficulties in accessing palliative care and have unmet end of life needs.[10]

Analysis of place of death for alcohol-related deaths is shown in Figure 11. There is an increase in deaths occurring in acute hospitals from 26% to 38% and a decrease in deaths occurring in community (non-acute) hospitals from 27% to 13%. Very few deaths (1-4%) occur in care home settings. Deaths occurring in private addresses include people dying in their own homes as well as homeless people in insecure or temporary accommodation such as bed and breakfasts and hostels.

Figure 11: Place of death for cohort of alcohol-related deaths (underlying cause), Highland, 5 year periods 1982-1986 to 2012-2016



Source(s): NRS mortality file

6. Healthcare contacts at end of life

6.1. Cohort Demographics

Analysis of service contacts was undertaken for 147 people who died an alcohol-related death during the three-year period 2013 to 2015. Two records could not be matched due to an invalid or incomplete CHI number.

The demographic characteristics of the cohort are shown in Table 1. These data show that the majority of people who died were male (70.1%) and aged over 50 years (79.6%). The mean age of death was 58.7 years (standard deviation 11.8). Only one third of people (36.7%) lived in priority areas to target inequalities. Alcoholic liver disease (58.5%) was the most common cause of death.

Table 1: Characteristics of cohort of alcohol-related deaths identified for linked analysis

	All years N (%)	2013 N (%)	2014 N (%)	2015 N (%)
Gender				
Males	103 (70.1%)	37 (69.8%)	34 (77.3%)	32 (64.0%)
Females	44 (29.9%)	16 (30.2%)	10 (22.7%)	18 (36.0%)
Age Group				
<40 years	10 (6.8%)	5 (9.4%)	1 (2.3%)	4 (8.0%)
40-49 years	20 (13.6%)	9 (17.0%)	3 (6.8%)	8 (16.0%)
50-59 years	40 (27.2%)	15 (28.3%)	10 (22.7%)	15 (30.0%)
60-69 years	53 (36.1%)	17 (32.1%)	20 (45.5%)	16 (32.0%)
≥70 years	24 (16.3%)	7 (13.2%)	10 (22.7%)	7 (14.0%)
Deprivation				
Area of inequality	54 (36.7%)	23 (43.4%)	18 (40.9%)	13 (26.0%)
Other area	93 (63.3%)	30 (56.6%)	26 (59.1%)	37 (74.0%)
Cause of Death				
F10 mental and behavioural disorders	37 (25.2%)	8 (15.1%)	15 (34.1%)	14 (28.0%)
K70 Alcoholic liver disease	86 (58.5%)	37 (69.8%)	18 (40.9%)	31 (62.0%)
K746 Unspecified cirrhosis of liver	12 (8.2%)	2 (3.8%)	7 (15.9%)	3 (6.0%)
X45 Alcohol poisoning	7 (4.8%)	4 (7.5%)	2 (4.5%)	1 (2.0%)
Other causes	5 (3.4%)	2 (3.8%)	2 (4.5%)	1 (2.0%)
Total Cases	**147**	**53**	**44**	**50**

6.2. Service Contacts

Analysis of the temporal relationship between healthcare contact and alcohol-related deaths provides particularly relevant information for identifying opportunities for intervention and end of life care.

Analyses of the number of outpatient attendances, emergency department attendances and hospital admissions occurring in the three year (36 month) period prior to death are shown in Table 2 and Figure 12.

In the three month period prior to death 21 people (14.3%) had attended an outpatient clinic appointment, 77 people (52.4%) had attended an emergency department and 103 people (70.1%) had experienced a hospital admission. In the 12 months prior to death the numbers of people in contact with services increased, with four fifths of people (118, 80.3%) having a hospital admission over this time. The five specialties with the highest number of service contacts are general medicine, general surgery, gastroenterology, orthopaedics and respiratory medicine. Seven people (4.8%) had no recorded service contacts in the three years prior to their death.

Table 2: Time to healthcare contact for cohort of people dying an alcohol-related death, 2013 – 2015

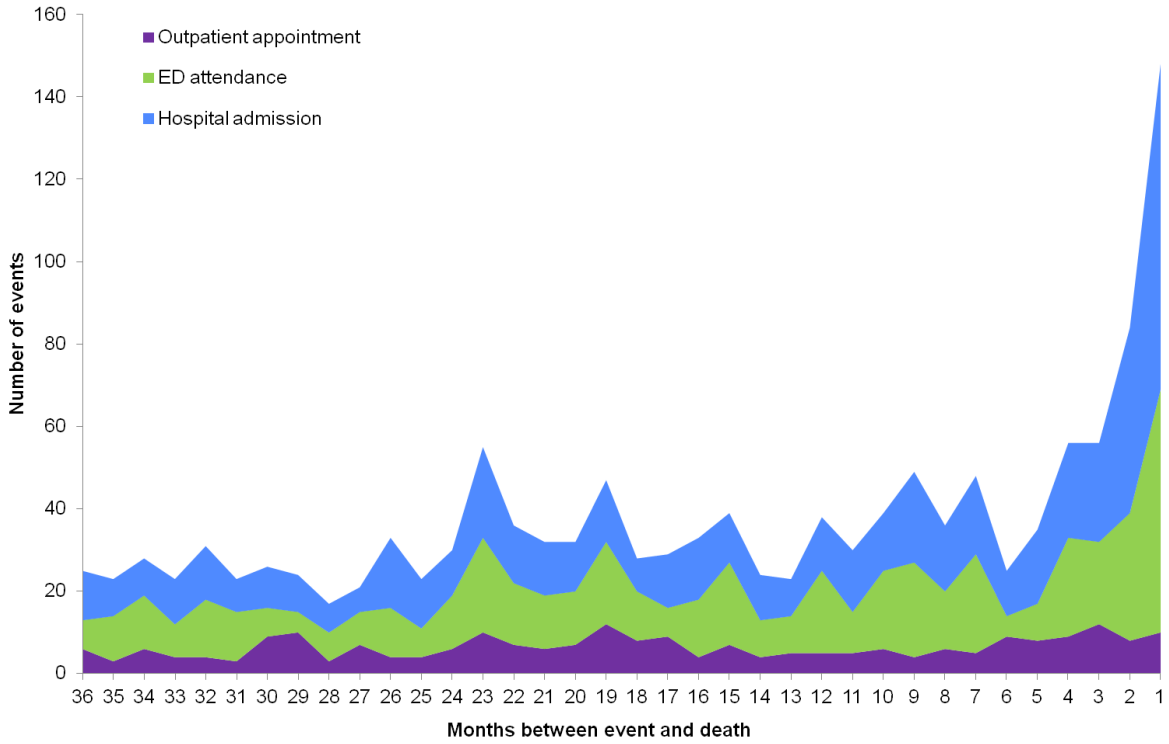
Service	3 months before death	One year before death	Three years before death
Outpatient attendance	21(14.3%)	53 (36.1%)	91 (61.9%)
A&E attendance	77 (52.4%)	97 (66.0%)	119 (81.0%)
Hospital admission	103 (70.1%)	118 (80.3%)	130 (88.4%)

Source(s): PLICS linked dataset

Further analyses of the temporal relationship between hospital admission and time to death are shown in Figure 13. Of the cohort of alcohol-related deaths, the majority of people (n=130, 88.4%) were recorded as being admitted to hospital in the last three years of life. The total number of admissions was 577, a mean of 3.9 admissions per person. Thirteen people had 10 or more admissions in this time period.

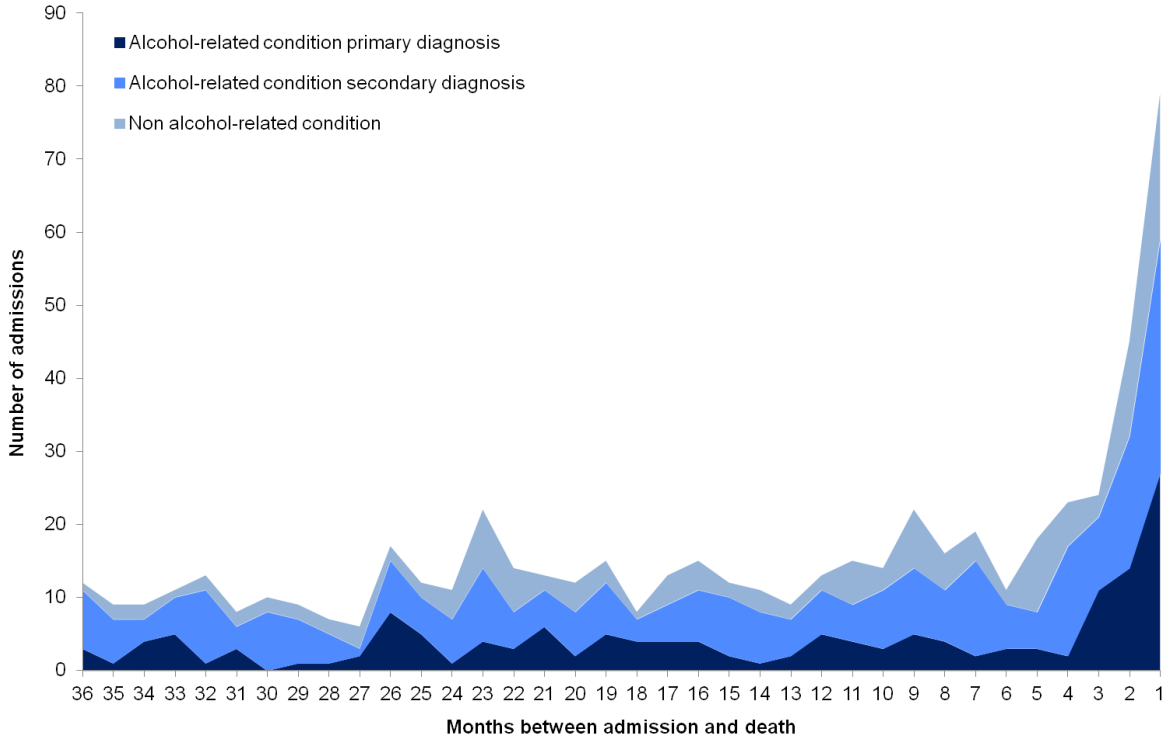
The pattern of admissions shows a range of physical and mental health co-morbidities. Of the 577 admissions, 155 (27%) were for an alcohol-related primary cause. Alcohol was recorded as a secondary diagnosis in a further 274 (47%) cases. A quarter of all admissions (n=148, 26%) did not record an alcohol-related condition, including the 3 month period prior to death.

Figure 12: Healthcare events of cohort of alcohol-related deaths in the last 3 years of life



Source(s): PLICS linked dataset

Figure 13: Hospital admissions of cohort of alcohol-related deaths in the last 3 years of life



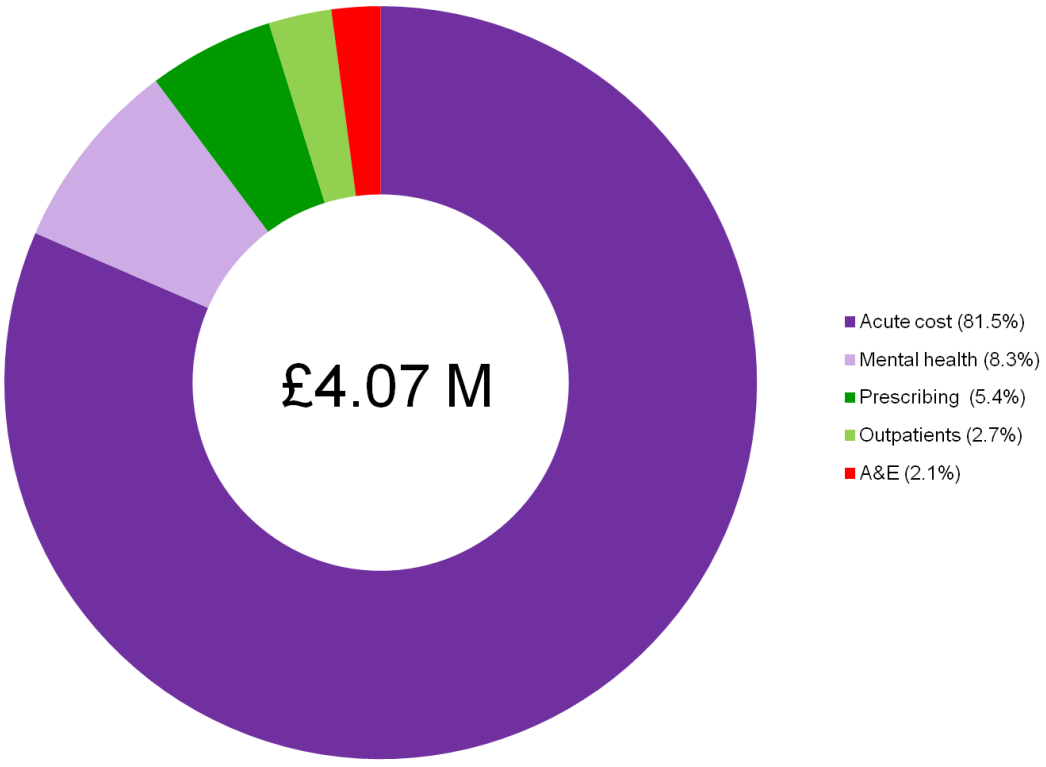
Source(s): PLICS linked dataset
ISD Scotland ICD-10 code list for alcohol-related hospital admissions

6.3. Healthcare costs

The costs associated with the use of healthcare resources between 2010/11 and 2015/16 for the cohort of alcohol-related deaths was estimated at £4.07 million. The majority of these costs (81.5%) are attributable to the provision of acute hospital care. Mental health hospital care (8.3%) and community prescribing costs (5.4%) accounted for the second and third highest resource categories.

It is important to note that although these costs are not solely attributable to alcohol consumption, they do indicate where opportunities for intervention care might be prioritised. The costs identified are also likely to be an underestimate; information from specialist alcohol services and adult social care were not available for data linkage and inclusion for this report.

Figure 14: Estimated healthcare costs of cohort of alcohol-related deaths, 2010/11 to 2015/16



Source(s): ISD Scotland, PLICs dataset, National Records of Scotland
Provisional healthcare costs attributed to cohort of alcohol-related deaths 2013-2015 (n=147), excludes Specialist Treatment Services and Adult Social Care

7. Conclusions

This report has presented an overview of current trends in alcohol-related deaths in the Highland area. The latest figures published by the National Records of Scotland show that the numbers in our population dying from alcohol-related causes has more than doubled since the 1980's. There were 70 alcohol-related deaths in 2016, which was the second highest annual incidence since 1982.

As the figures tend to fluctuate on an annual basis a more reliable indication of the long term trend is obtained using 5-year annual moving averages. In the five-year period 1982–1986 there were on average 26 deaths per year where an alcohol-related condition was recorded as the underlying cause. This compares to 53 deaths on average during the last five-year period 2012-2016, a 104% increase.

Standardised mortality rates, which take account of changes in the size and age structure of the underlying population, have fallen from a peak of 35.6 deaths per 100,000 people in 2006 to 28.0 per 100,000 people in 2016. The more recent downward trends in alcohol-related death rates have flattened since 2012 and show some sign of a recent increase. Further monitoring is required to determine whether this is annual variation or indicates a change in the overall trend.

There are inequalities in alcohol-related deaths in Highland. Men are two or three times more likely to die an alcohol-related death than women, with death rates highest in men aged 55 to 64 years. Variations in alcohol-related deaths are found across the nine community planning partnerships, with rates consistently higher in areas of greatest deprivation. In the period 2011-2015, the mortality rate in communities identified to be the focus of actions to reduce inequalities were three times higher than the rest of Highland combined.

The majority of people dying an alcohol-related death will have a history of frequent contact with heath services in the period leading up to their death. Hospital admissions show an increase in the last six months of life, and half of deaths occur in an acute or community hospital setting. An increasing proportion of deaths are occurring in acute hospitals, which is an important consideration when looking at end of life care needs for this population group.

This report has also demonstrated the potential for using linked data to explore costs and local service pathways. These findings should be used to explore opportunities for effective intervention and inform prevention, treatment and support options for the client group. Linking data from a wider range of sources including specialist alcohol services, social work and criminal justice would also provide a more complete picture of contact with services and associated costs.

Appendix 1: Codes used to determine alcohol-related deaths

International Classification of Diseases Ninth Revision (ICD-9) and Tenth Revision (ICD-10) codes used to determine alcohol-related deaths

Causes of death related to alcohol consumption, 2000 onwards

ICD-10 Code	Description
F10	Mental and behavioural disorders due to use of alcohol
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
I42.6	Alcoholic cardiomyopathy
K29.2	Alcoholic gastritis
K70	Alcoholic liver disease
K73	Chronic hepatitis, not elsewhere classified
K74.0	Hepatic fibrosis
K74.1	Hepatic sclerosis
K74.2	Hepatic fibrosis with hepatitic sclerosis
K74.6	Other and unspecified cirrhosis of liver
K86.0	Alcohol induced chronic pancreatitis
X45	Accidental poisoning by and exposure to alcohol
X65	Intentional self-poisoning by and exposure to alcohol
Y15	Poisoning by and exposure to alcohol, undetermined intent

Causes of death related to alcohol consumption, 1979-1999

ICD-9 Code	Description
291	Alcoholic psychoses
303	Alcohol dependence syndrome
305.0	Non-dependent abuse of alcohol
425.5	Alcoholic cardiomyopathy
571.0	Alcoholic fatty liver
571.1	Acute alcoholic hepatitis
571.2	Alcoholic cirrhosis of liver
571.3	Alcoholic liver damage, unspecified
571.4	Chronic hepatitis
571.5	Cirrhosis of liver without mention of alcohol
571.8	Other chronic nonalcoholic liver disease
571.9	Unspecified chronic liver disease without mention of alcohol
E860	Accidental poisoning by alcohol

Appendix 2: Communities to Target for Partnership Action to Reduce Inequalities

Community	Identified through SEP	Identified through SIMD
Alness	Yes	Yes
Ardersier	Yes	
Brora	Yes	
Caol	Yes	
Castletown	Yes	
Conon Bridge	Yes	
Dingwall	Yes	Yes
Fort William	Yes	
Golspie	Yes	
Helmsdale & Kinbrace	Yes	
Invergordon	Yes	Yes
Inverness Hilton		Yes
Inverness Merkinch		Yes
Inverness Raigmore		Yes
Kinlochleven	Yes	
Kyle of Lochalsh	Yes	
Lybster and Dunbeath	Yes	
Milton, Kildary and Balintore	Yes	Yes
Muir of Ord	Yes	
Nairn	Yes	
Portree and North East Skye	Yes	
Tain	Yes	
Thurso	Yes	
Wick	Yes	Yes

Key:

SEP: Socio Economic Performance Index (James Hutton Institute)

SIMD: Scottish Index of Multiple Deprivation (Scottish Government)

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