Prevention of suicide and self-harm: Research briefing

1st Edition: May 2014
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Introduction

This briefing paper provides an overview of current research knowledge on the epidemiology of suicide and non-fatal self-harm ('suicidal behaviour') in Scotland, factors that make societies and individuals more or less at risk of suicide and self-harm, and effective interventions to prevent, and reduce socio-economic inequalities in, suicidal behaviour.

Evidence-informed policy and practice draw on available research evidence, combined with organisational, theoretical, experiential and policy knowledge. This briefing paper aims to support Scottish suicide prevention policy and practice by utilising Scottish data on suicidal behaviour, international epidemiological evidence and reviews of international effectiveness evidence. Further details of the sources used, and the caveats associated with these sources, are included in each section.

Key messages

Suicide and non-fatal self-harm in Scotland

Data on suicide in Scotland are routinely collected and analysed by the National Records of Scotland (NRS) and the Scottish Public Health Observatory (ScotPHO). A programme of work, using data collated in the Scottish Suicide Information Database (ScotSID), is being undertaken in order to enhance understanding of risk and protective factors for suicide in Scotland. Limited data are routinely collected about self-harm; as a result, we have a less clear picture of the epidemiology and aetiology of self-harm in Scotland.

Suicide rates in Scotland have reduced by 18% over the last ten years. Scotland’s suicide rate is no longer the highest in the UK and the difference in rates between Scotland and England is less pronounced than it has been previously. The downward trend in suicide rates in Scotland is in contrast to the rest of the UK, which has seen an overall increase in suicide rates. Possible reasons for the more favourable trend in Scotland include: a robust national suicide prevention strategy and action plan (Choose Life); focus of effort on improving the quality and effectiveness of preventive interventions; support and improved outcomes for people with depression and alcohol dependency; improved follow-up after discharge from psychiatric care; fall in alcohol-related deaths; demographic (cohort) effects; and lower than expected rise in unemployment (although at the same time there have been offsetting declines in real wage levels, incomes for low-paid workers and productivity).

Inequalities in suicide and self-harm

Suicide and self-harm continue to be major public health issues in Scotland. There are also marked inequalities in both suicide and self-harm. In Scotland suicide rates are four times higher in areas of greatest deprivation compared with areas of least deprivation and rates of suicide increase as area level deprivation increases.
Data linking self-harm and deprivation are not available for Scotland; however, data from England suggest there is a strong association between socio-economic deprivation and self-harm, especially among males.

The incidence of suicide in Scotland is **three times higher among males** than females and is highest among men aged 35–54 years and women aged 45–54 years. In contrast, the incidence of self-harm is higher among females and among young adults; gender differences reduce with age.

The lifetime risk of suicide and self-harm is much higher than the general population for those with a psychiatric diagnosis or substance misuse disorder, those in custody and people who experience extensive physical and sexual violence or abuse.

Little research was identified about actions to reduce inequalities in suicide and self-harm. Evidence from the broader literature on health inequalities suggests that interventions which address social and environmental determinants of health using legislative and fiscal policies, as well as income maximisation and universal provision of services and social protection in proportion to need, have the greatest potential to reduce health inequalities. Structural and legislative interventions, in particular those which address socio-economic deprivation, unemployment and alcohol use, may therefore contribute to a reduction in inequalities in suicide. Developing social connectedness and community resilience, alongside addressing the causes of adversity, may also mitigate to some extent against social and economic adversity.

The broader evidence base would also suggest that disadvantaged and vulnerable groups at increased risk of suicide (e.g. those in areas of socio-economic deprivation, currently unemployed, diagnosed with a psychiatric or substance misuse disorders, in custody or having experienced abuse and violence) may need to be targeted with more intensive and tailored support than more advantaged groups.

**Societal risk factors**

**Socio-economic deprivation** and unemployment are risk factors for both suicide and self-harm. Structural interventions (such as the maintenance of social security safety nets and active labour market programmes) which address these fundamental risk factors may reduce the incidence of suicide and self-harm and potentially reduce inequalities in suicide.

Substance misuse is a key risk factor for suicide and self-harm; actions to address substance misuse are likely to have a positive impact on rates of suicide and self-harm. While there is limited evidence to date about the impact of population interventions, such as measures to reduce the affordability of alcohol, on reducing rates of suicide or self-harm, the effectiveness of public health interventions more generally to reduce alcohol consumption nationally has been demonstrated.

**The availability of, and access to, lethal methods** are associated with increased risk of suicide. There is evidence that interventions at a national or local level which reduce access to methods, in particular through legislation (for example, on guns,
carrying knives, availability and packaging of pharmacological agents) and changes in the physical environment (such as bridge barriers and platform screens) are likely to be effective in reducing rates of suicide.

There is some evidence that national implementation of media guidance (both printed and digital) on suicide may be associated with a reduction in suicide rates. However, further monitoring and evaluation of the impact of such guidance would add to the evidence base.

Communities

Social fragmentation and disconnectedness are associated with increased levels of suicide incidence. There is an emerging evidence base to suggest that building community-level resilience is a useful component of suicide prevention strategies. There is a good rationale and emerging evidence to suggest that increasing social connectedness – between individuals, within families and between individuals and community organisations – may be an effective way of building individual and community resilience and mitigating, to some extent, against the effects of economic and social adversity.

Individuals

Adverse life events, including child abuse and gender-based violence, play an important role in the development of both suicidal behaviour and self-harm. National action which addresses the identification and care of those who have been subject to, or continue to experience the effects of, childhood abuse and gender-based violence is likely to have a positive impact on rates of self-harm.

Mental ill-health and previous suicide attempts are strongly associated with both suicide and self-harm. Many of those who die by suicide have been in recent contact with primary care health services. There is some evidence to suggest that education for general practitioners and/or care management approaches to depression, in addition to usual care, may have a positive impact on suicide rates. Further evaluations of the impact of primary care interventions on suicidal behaviour would help to develop the evidence base.

Gatekeeper training (training professional and laypersons who have regular contact with people at elevated risk of suicide in recognising those at risk and making appropriate interventions) has been shown to improve knowledge and attitudes about suicide among those in contact with people at risk of suicide, as well as skills in supporting those at risk. There is some evidence to suggest gatekeeper training, as part of a multi-faceted suicide prevention programme, may impact on suicide rates; however, further research is needed to confirm this.

Suicide prevention efforts for children and young people have focused on schools-based programmes for both the general population and those at risk. There is some evidence that these programmes have a positive impact on knowledge, attitudes and skills, but there is little evidence to date of impact on suicidal behaviour.
There is a clear need to improve the experience of care for those who have self-harmed. Further training for health and social care staff has been recommended by the National Institute for Health and Care Excellence (NICE). Evaluations of self-harm training initiatives to date have been poorly implemented. A robust evaluation framework for these training initiatives, which includes service-based outcome measures, would improve understanding of the impact of training.

There is some evidence that psychological interventions (such as cognitive-behavioural therapy and problem-solving psychotherapy) can reduce repeated self-harm and are cost effective. There is less convincing evidence of the effectiveness of psychosocial interventions, such as postcard follow-up and emergency cards; these require further evaluation.

Suicide and self-harm are both complex behaviours, resulting from an interaction of risk and protective factors which vary across the lifecourse. As a result, it is likely that a range of preventative actions and interventions will be needed. There is a lack of robust evaluations of national comprehensive suicide prevention strategies. Incorporating evaluations, with clear and standardised outcome measures, at the outset of all new initiatives would contribute to our understanding of effective preventative measures.
Definitions

Suicide is death resulting from an intentional, self-inflicted act.

Suicidal behaviour comprises both completed suicide attempts and acts of self-harm that do not have a fatal outcome, but which have suicidal intent.

Non-fatal self-harm is self-poisoning or self-injury irrespective of motivation or extent of suicide intent (excluding accidents, substance misuse and eating disorders).

Non-fatal self-harm is not necessarily an attempt at suicide. The causes of self-harm are many and complex; however, self-harm is commonly understood as a behavioural response to, or reflection of, emotional or psychological distress. It can be a means of coping with painful emotional feelings and a perceived loss of control with a view to preserving, rather than ending, life. This briefing differentiates, where possible, between suicide and self-harm, and between non-fatal self-harm with suicidal intent and non-fatal self-harm without suicidal intent.
1 How do we measure and report on suicide and self-harm in Scotland?

1.1 Suicide

In Scotland the suicide rate is measured and reported annually, using the National Records of Scotland classification of ‘probable suicides’. These include deaths by intentional self-harm and deaths of ‘undetermined intent’.

In 2011 the classification of deaths was amended in Scotland in line with changes in World Health Organization coding rules. The new coding rules classify drug abuse deaths due to acute intoxication, previously classified under mental and behavioural disorders due to psychoactive substance use, as poisoning. Where the intent is undetermined, these are recorded as death by undetermined intent and included in the suicide statistics.

The suicide rate in Scotland continues to be calculated using the old coding rules as well as the new coding rules in order that temporal trends within the country can be examined on a like-for-like basis.

Rates and trends for suicide in Scotland are routinely reported through the Scottish Public Health Observatory (ScotPHO) website. In 2009 the Scottish Suicide Information Database (ScotSID) was established. A programme of work, using the ScotSID, collates and analyses Scottish suicide data to enhance our understanding of key risk factors for suicide. A report is produced annually.

1.2 Non-fatal self-harm

There is limited measurement of non-fatal self-harm in Scotland. Since 2008, the Scottish Health Survey has asked a sub-sample of respondents about self-harm in the nurse interview. Data on hospital attendance or admission for self-harm are not routinely analysed or published.
What is the level of suicide in Scotland?

2.1 Introduction

This briefing uses Scottish suicide data prepared by NHS Information Services Division (ISD) and published by ScotPHO and ScotSID. Suicide rates for 2011 and 2012, calculated using the old coding for undetermined deaths, are cited here.

2.2 Incidence and recent trends

In 2012, 762 deaths were classified as suicide in Scotland using the old coding method. This equates to a European age-sex standardised rate for persons of 14.0 suicide deaths per 100,000 population.

In 2002, the Scottish Government introduced a target to reduce suicide by 20% between 2000–2002 and 2011–2013. By 2010–2012, an 18% decrease in the suicide rate has been achieved (from 17.4/100,000 to 14.3/100,000). The reduction was greater for men (from 26.7/100,000 to 21.3/100,000 [-20%]) than for women (from 8.1/100,000 to 7.3/100,000 [-10%]). *

2.3 Gender and age differences

The ratio of male to female suicides is approximately three to one. The suicide rate in 2012 was 19.8 per 100,000 males and 7.1 per 100,000 females (using the old coding rules). Trends in suicide have varied differentially for males and females over the last 30 years. The male suicide rate increased to the early 1990s, then levelled off, and has decreased since the early 2000s. In contrast, the female suicide rate has gradually declined over the last 30 years (see Figure 1).

In 2010–2012 the rate of suicide was highest among males aged 35–44 years and females aged 45–54 (see Figures 2 and 3). The age-related pattern of suicide rates have changed over the last 20 years. Crude suicide rates among both males and females aged 35–44 years and 45–54 years and among younger women (aged 15–24 years) have increased since 1990–1992, while rates in the other age groups have declined.

* These rates are based on a three-year period.
Figure 1: Intentional self-harm and events of undetermined intent death rates (European age-standardised rates [EASRs]), Scotland, 1981–2012*

Source: National Records of Scotland
* 2011 and 2012 data presented used previous coding conventions to allow for consistent comparisons over time (further details on page 7, section 1.1)

Figure 2: Intentional self-harm and events of undetermined intent crude death rates, Scotland, by age group, males, 1990–1992 and 2010–12*

Source: National Records of Scotland
* 2011 and 2012 data presented used previous coding conventions to allow for consistent comparisons over time (further details on page 7, section 1.1)
**Figure 3:** Intentional self-harm and events of undetermined intent crude death rates, Scotland, by age group, females, 1990–1992 and 2010–12*

![Graph showing age-specific crude rate per 100,000 population for different age groups and time periods.](image)

*Source: National Records of Scotland
* 2011 and 2012 data presented used previous coding conventions to allow for consistent comparisons over time (further details on page 7, section 1.1)

### 2.4 Socio-economic deprivation

There is a marked socio-economic inequality in suicide rates in Scotland. In 2008–2012, the European age standardised suicide rate in the most deprived decile was 28.9 per 100,000 population, double the Scottish average (14.6 per 100,000) and four times the rate of those living in the most affluent decile (6.6 per 100,000), illustrating a clear gap in suicide risk between those living in the least and most deprived areas. Suicide rates also increase with increasing area-level socio-economic deprivation, showing a clear social gradient (see Figure 4). A similar trend is observed for both men and women.
Figure 4: European age-sex standardised rates per 100,000 population (95% confidence intervals): deaths caused by intentional self-harm and events of undetermined intent by SIMD decile, 2008–12, Scotland*

Source: National Records of Scotland

* 2011 and 2012 data presented used previous coding conventions to allow for consistent comparisons over time
SIMD 2009 (version 2) was used for analysis for 2003–07 and SIMD 2012 was used for 2008–12, using the most relevant SIMD release for the period

2.5 How does Scotland compare?

Over the period 2001–06, Scotland’s suicide rate was 79% higher than the suicide rate in England and the highest of all the countries of the UK. In 2011, Scotland had a higher suicide rate than England, but the difference was less pronounced, and Northern Ireland was the UK country with the highest suicide rate. Variations in death coding practices between the countries of the UK are likely to account for some (but only a small part) of these differences.

Suicide trends in the UK over the first decade of the 21st century were relatively stable, although with some fluctuations. Since 2001, there has been an overall increase of just over 1 per 100,000 males and a decrease of less than 1 per 100,000 females. By contrast, in Scotland over the same period there has been a more marked decrease among males (4.6 per 100,000) and a similar decrease among females (less than 1 per 100,000 females). This trend is noteworthy, not only because it is contrary to that found in the rest of the UK and across Europe more generally, but also because it occurred during a time of economic crisis when suicide incidence would be expected to rise. There is no definitive research evidence to explain why Scotland is ‘bucking the trend’. Possible candidate explanations, which require empirical testing, include: a robust national suicide prevention strategy and action plan (Choose Life); focus of effort on improving the quality and effectiveness...
of preventive interventions; support and improved outcomes for people with depression and alcohol dependency; improved follow-up after discharge from psychiatric care; fall in alcohol-related deaths; demographic (cohort) effects; and lower than expected rise in unemployment (although at the same time there have been offsetting declines in real wage levels, incomes for low-paid workers and productivity).

Over the last 30 years the suicide rate in Scotland has been consistently lower than the average across the 53 countries of the WHO European Region. Compared to the suicide rate in the 27 members states of the European Union (EU27), the suicide rate in Scotland was lower during the period 1980–1997, thereafter fluctuating around the EU27 average (higher in 1998–2002, 2004 and 2008–2010; lower in 2003, 2005–2007).
3 What is the level of non-fatal self-harm in Scotland?

3.1 Introduction

It is difficult to provide a clear picture of the extent of non-fatal self-harm (with or without suicidal intent) in Scotland. Data on hospital admissions are collected but not routinely published, and there have been few community-based surveys.

This briefing uses self-harm data from the Scottish Health Survey, as well as the findings from a Scottish survey on self-harm among secondary school children in Scotland.\(^7\) In addition, ISD undertook an analysis of hospital admissions for self-harm in Scotland between 2010 and 2012 for this briefing.

3.2 Prevalence and incidence

In the Scottish Health Survey (SHeS) 2010/11, 5% of adults reported having attempted suicide at some point in their life, and 2% of adults reported that they had ever deliberately harmed themselves without suicidal intent.\(^8\)

Based on a survey conducted in 2006/07, the lifetime prevalence rate of self-harm among Scottish school children aged 15–16 years (n=2008) is 13.8%.\(^7\) This rate is similar to that reported for other countries, including England, Ireland and Australia.\(^9\)

Over the period 2010–2012 the average annual rate (incidence) of hospital-treated self-harm in Scotland per 100,000 population aged 15+ years was higher among females (309 per 100,000) than among males (257 per 100,000) (see Figure 5).
3.3 Age and gender variations

In the SHeS 2010/2011, 4% of men reported ever having made a suicide attempt, compared with 6% of women. Levels of self-harm were similar for men and women (SHeS).⁸

Data from SHeS 2010/2011 show that lifetime prevalence of suicide attempts and self-harm was higher among younger and mid-aged adults than among older adults. This is consistent with patterning by age and sex found in England.¹⁰

Among Scottish schoolchildren aged 15–16 years, lifetime prevalence of self-harm is higher among girls (19.9%) than boys (6.9%).⁷ Again, this is consistent with patterning by age and sex found in other countries.⁹

With respect to hospital-treated self-harm in Scotland (2010–12), the incidence among females was inversely related to age, with the highest rate among 15–24 year olds (573/100,000) and lowest rate among those aged 65+ years (42/100,000) (see Figure 5).

Among males, the highest rates were found in the 25–34 and 35–44 age groups (421/100,000 and 404/100,000, respectively), thereafter declining with age (lowest rate among those aged 65+ years [44/100,000]). The largest difference between males and females was found in the 15–24 age group. Gender differences in other age groups were negligible (see Figure 5).
3.4 Socio-economic deprivation

There is consistent evidence of socio-economic inequalities in self-harm. A number of studies using English data found a strong linear association between area level socio-economic deprivation and self-harm for both males and females. At an individual level, self-harm is more common among those in the lower socio-economic groups compared with the highest socio-economic group (as measured by equalised household income). However, recent data on the relationship between self-harm and deprivation in Scotland are not available.
4 What do we know about factors influencing suicide and self-harm?

4.1 Introduction

In this section we draw on the findings of epidemiological studies to provide an overview of some of the key societal and individual risk and protective factors for suicide and self-harm. These are illustrated in Figure 6. Some are common to both behaviours, while others are specific to suicide or self-harm. It is likely that a combination of different factors contribute to risk and that these vary across the lifecourse. The aetiology of suicide and self-harm is complex and currently there are no definitive models of causal mechanisms/pathways for these behaviours.

The most important aetiological factors for suicidal behaviour in Scotland have yet to be established. One of the longer-term purposes of establishing ScotSID is to improve our understanding of key risk and protective factors for suicide and self-harm in the Scottish context. For the present, we rely on findings from the international literature, including the UK.

The evidence used in this report is drawn largely from international reviews of epidemiological studies. These reviews synthesise the best epidemiological evidence about particular risk factors using systematic and transparent processes. They are, however, limited by the nature and number of studies available. Where reviews were not available, we highlight the findings of other epidemiological studies and recognise the limitations of single studies. Much of the available research has focused on risk factors and there is less review-level evidence that identifies potential protective factors. As a consequence, we draw on narrative reviews and plausible theory in our discussion of protective factors.

4.2 Methodological considerations

The evidence about risk and protective factors is drawn from a range of different types of epidemiological studies and there are caveats associated with different study designs.

- **Ecological studies** focus on populations rather than individuals. They are used to compare populations in different geographic areas with different social, economic or cultural characteristics (such as suicide rates in different regions or countries), or the same population at different time periods (such as suicide rates pre- and post-recession). These studies are useful in highlighting potential societal risk factors; however, conclusions about associations at a population level do not necessarily hold for individuals in the same population. Drawing conclusions about individuals from ecological studies is a well-known error (the ‘ecological fallacy’). Further details about this can be found in the Appendix (page 50).

- The evidence base for individual risk and protective factors is developed using individual-level cross-sectional or longitudinal observational studies. Longitudinal
studies provide the best evidence that risk factors have a causal role in suicide or self-harm. In some research areas (such as childhood abuse), however, primary studies tend to use a cross-sectional design and are therefore unable to reach definitive conclusions about causality.

- Some studies (both ecological and individual) looking at the relationship between particular risk or protective factors and suicide and self-harm fail to take into account the influence of other variables on this relationship or to recognise that there is a strong association between some risk factors (one risk factor may be a proxy measure for another). This can result in the over-or under-estimation of the importance of particular risk factors. This is known as model misspecification; further technical details can be found in the Appendix (page 50).

- Epidemiological research in self-harm does not always distinguish between (risk and protective factors for) first episodes of self-harm versus repetition of self-harm or repeated self-harm and suicide.
Figure 6: Illustrative model of risk and protective factors for suicidal behaviour*

* For further details of risk and protective factors see sections 4.3 and 4.4 (pages 19–27).

Source: adapted from US Strategy for Suicide Prevention (2012)
4.3 Risk factors

4.3.1 What makes societies and communities more at risk?

Socio-economic deprivation and poverty

Previous UK research has demonstrated a strong association between area-level incidence of suicide and (hospital-treated) self-harm, on the one hand, and socio-economic deprivation, on the other.\textsuperscript{11, 13–16} However, a systematic review of the literature\textsuperscript{17} produces a more mixed picture, at least with respect to completed suicide (the review excluded consideration of non-fatal suicidal behaviour). Among 221 analyses (covering North America, Europe, Australia, New Zealand and Asia) reported in 86 retrieved papers, more than half (55\%) found no statistically significant association between the socio-economic characteristics of a region and suicide, while 32\% reported a significant and inverse relationship (i.e. areas of lower socio-economic position tended to have higher suicide incidence) and 14\% a significant and direct relationship (i.e. areas of lower socio-economic position tended to have lower suicide incidence). Among significant analyses, 70\% showed an inverse relationship and 30\% showed a direct relationship.

Unemployment and economic recession

Economic recession is associated with a rise in suicide rates in middle and high income countries. For example, the 2008–09 economic crisis in Europe was associated with significant rises in suicide in many European countries and in the USA. During and following the global economic recession that started in 2008 there was a significant rise in suicides in many European countries.\textsuperscript{18} In Greece, a country particularly severely affected by the recession, suicides rose by almost 60\%\textsuperscript{19} and increases in suicide attempts were also reported,\textsuperscript{20} while in England there have been approximately a thousand more suicides than would have been expected based on historical trends.\textsuperscript{21} The 2008–10 recession also resulted in a sharp rise in suicides in the US and an estimated 4,750 excess suicide deaths.\textsuperscript{22} In an analysis of the impact of the 2008 global economic recession on suicide in 53 countries, Chang and colleagues\textsuperscript{23} found higher than expected suicide incidence in many countries in Europe and in the USA, most notably among men and young people. There was an association between the rise in suicides and the extent of increased unemployment; the effect was greatest in countries with relatively low levels of unemployment before the crisis.

Although most research on the effect of recession on suicide rates has been conducted in high income countries, the authors of a review on the effect of economic crises on mortality in less affluent countries also concluded that increased suicide rates are associated with recession.\textsuperscript{24}

Population alcohol consumption

The association between alcohol consumption and suicide rates has been explored in several empirical studies, typically by means of time series analysis. Overall, the evidence suggests that higher alcohol consumption is associated with higher suicide
rates, but there are many ‘deviant cases’ found in the literature. While a positive alcohol consumption-suicide relationship is particularly evident in countries where the drinking pattern involves a high frequency of intoxication (such as Sweden, Norway and Russia), the alcohol effect has been shown to be weak (for example, in Portugal) or non-existent (Spain and Italy) in countries which are not characterised by high frequency of intoxication. Additionally, no significant association between alcohol and suicide has been uncovered in the UK or Ireland, countries with a relatively high intoxication frequency; and in Hungary, a 30% decline in suicide over the period 1984–1998 occurred in spite of a 25% rise in official estimates of alcohol dependence rates and a six-fold increase in unemployment. According to Sher, these inconsistent results indicate that suicide incidence is influenced by many socio-cultural and environmental factors, and that caution needs to be exercised when generalising findings from studies conducted in one country to other countries.

Studies from Canada and the USA have found gender differences in the alcohol effect, with a greater alcohol effect per litre for women (7% per litre) compared with men (4% per litre). There is also evidence to suggest that there is a beverage specific effect, with most studies suggesting that spirit consumption is more closely related to suicide.

Two potential mechanisms for the relationship between alcohol consumption and suicide have been proposed: first, that social and mental health problems are caused by chronic abuse of alcohol; and, second, that acute intoxication acts as a trigger among those who have suicidal thoughts or intentions.

Availability of and access to lethal methods of suicide

There are major differences in the international patterning of suicide methods and suicide rates and compelling evidence that these differences are associated with differential availability and lethality of specific methods. Poisoning by pesticide is common in many Asian countries and in Latin America, while poisoning by drugs is common in Nordic countries and the UK. Hanging is the preferred method of suicide in eastern Europe, as is firearm suicide in the USA and jumping from a high place in cities and urban societies such as Hong Kong. There is some evidence that reducing access to means (for example, through the use of bridge barriers) is associated with a decrease in the suicide rate, while increasing access to means is associated with an increase in the suicide rate. Restricting access to lethal methods of suicide is, therefore, recognised as an important population strategy for suicide prevention (see section 5.3 page 30).

Social fragmentation and disconnectedness

Area-level social fragmentation has been defined as a paucity of local social ties and institutions which, according to Durkheimian theory, should result in lower levels of social integration and, therefore, to a higher risk of suicide. Congdon’s original index of social fragmentation was based on aggregate measures of single-person households, private renting, married adults and high residential mobility in the UK. Ecological analyses based on UK data have provided evidence of an association between area-level social fragmentation and suicide rates, and found that neighbourhood social fragmentation accounted for more of the small-area variation
in suicide than neighbourhood-level socio-economic deprivation.\textsuperscript{14,16,33,34} Collings et al.,\textsuperscript{35} however, uncovered no clear evidence of an association of neighbourhood fragmentation with suicide in New Zealand, after controlling for other individual-level variables and neighbourhood deprivation.

**Media reporting**

The style of media reporting about suicide is associated with the occurrence of actual suicide in the community.\textsuperscript{36} There are several possible mechanisms that might explain such an effect, including: contagion (a concept derived from the study of infectious diseases, whereby exposure to the suicide or suicidal behaviour of one or more persons influences others to complete or attempt suicide); imitation (defined as engagement in behaviour after observation of a similar behaviour in others); and modelling (or observational learning).

Features of news stories which increase the likelihood of contagious or copycat suicidal behaviour include: provision of excessive detail about method; glamorising or romanticising the death; and prominent and sensational coverage (see Samaritans guidelines\textsuperscript{37}).

**Suicide clusters**

Suicide clusters have been defined as ‘a group of suicides or suicide attempts, or both, that occur closer together in time and space than would normally be expected in a given community’.\textsuperscript{38} Suicide clusters have been reported in psychiatric hospitals, prisons, schools and military commands as well as the general population. However, it is difficult to draw clear conclusions about the extent of clustering due to the methodological limitations (including reporting biases) and heterogeneity of primary studies. The authors of two recent reviews\textsuperscript{39,40} conclude that suicide clusters are generally rare and recommend the implementation of general suicide prevention strategies and prevention of index suicide cases.

**4.3.2 What makes individuals more at risk?**

Individual-level epidemiological evidence highlights several broad areas of risk factors for suicide: life experiences and relationships; mental health problems; substance misuse; previous self-harm, intent and means of harm; physical illness and impairment; contact with criminal justice system; socio-demographic factors; and personality and psychological factors.

**Life experiences and relationships**

Adverse life experiences are associated with an increased risk of suicidal behaviour in two main ways.

First, severe *life events* often precede, and are significantly associated with, suicidal behaviour. The nature of these life events varies across the lifecourse. Difficulties with relationships and social isolation are the most common precipitating life events among adolescents.\textsuperscript{41} Among adults, precipitating life events include marital separations, family conflict, employment problems and unemployment, moving
house and financial problems. Among older adults, there is some evidence that impaired health or reduced physical ability and difficult family relationships are associated with risk of suicide.

Second, there is an association between adverse experiences across the lifecourse and suicidal behaviour. Childhood experiences of adversity, including abuse, parental psychopathology, parental discord and parent-child relationships, as well as gender-based violence, play an important aetiological role in suicide and self-harm.

There is evidence from systematic reviews of cross-sectional studies and one prospective study that a history of childhood sexual abuse is a risk factor for self-harm. While there is some evidence that physical and emotional neglect are associated with self-harm, it is difficult to draw firm conclusions from the limited research available. A further aspect of childhood adversity is bullying. There is evidence from one systematic review that being bullied as a child, and being involved in bullying, is associated with increased levels of suicidal behaviour and self-harm in children and young people, though there may be differences between males and females. (There has been only limited research to date on cyber-bullying.)

It is likely that the association between childhood abuse and self-harm is mediated by the impact of abuse on psychological health. The strength of association may also be influenced by the severity of the abuse and there may be gender differences in the role of sexual abuse in predicting suicide attempts in young people. It should be noted that many studies in this area use a cross-sectional, retrospective design and are therefore subject to recall bias.

In terms of the family environment, there is evidence from one systematic review that parental psychopathology and a family history of suicide is associated with increased risk of suicidal behaviour. Studies of children in residential and foster care indicate that they are at higher risk of self-harm; however, the research is too limited to draw strong conclusions. It is likely that this increased risk is due to exposure to adverse childhood experiences.

The childhood adversity factors noted above are common to the development of mood disorders, substance misuse and suicidal behaviour that continue into adulthood. These factors are also known to increase risk of other social and health outcomes in young people, including juvenile crime and other mental health problems.

There is a strong association between experience of violence and abuse more generally and suicidal behaviour, particularly amongst women. A recent report revealed that a quarter of the English population has experienced violence and abuse in their lives and that people with this experience were at least five times more likely than those with little such experience to have attempted to take their own lives. Among those with experience of ‘extensive physical and sexual’ violence or abuse the risk of attempted suicide was 15 times higher; 1 in 25 had made a suicide attempt in the last year. Self-harming behaviour, without suicidal intent, was also very strongly associated with experience of violence and abuse. More than half
(56%) of people in the ‘extensive physical and sexual violence and abuse’ group had self-harmed, compared with 10% of people with little experience of violence and abuse. The report noted that women were more likely to be in every group characterised by abuse and violence.

**Mental health problems**

The majority (86-97%) of those who die by suicide have a diagnosed or undiagnosed mental health problem at the time of death. The lifetime risk of suicide is estimated to be around 4–5% among those with mood disorders, schizophrenia and borderline personality disorder, and 10–15% in people with bipolar disorder.

Psychiatric diagnosis is also a risk factor for self-harm. A significant minority (varying from study to study) of those presenting at Accident and Emergency with self-harm meet the criteria for at least one psychiatric disorder. A recent review found good evidence to suggest that depressive symptoms and schizophrenia and related symptoms are important risk factor for repeated self-harm.

While mental ill-health is a major risk factor for suicidal behaviour, it is important to note that the majority of people who have a mental health problem do not attempt or complete suicide or engage in self-harm. Other individual and societal risk factors interact with mental ill-health to elevate the risk of engaging in suicidal behaviour.

**Substance misuse**

Individuals with substance misuse disorders, including those with alcohol use disorders and severe specific drug use disorders, are at elevated risk of suicidal behaviour. A meta-analysis suggests that those identified through treatment avenues are at about 10 times greater risk for suicide compared to the general population.

Substance misuse is also a risk factor for self-harm. Estimates suggest that up to 50% of those attending Accident and Emergency for treatment for episodes of self-harm have been drinking and 25% of those who self-harm also drink at harmful levels. Men who self-harm are more likely than women to use drugs or alcohol.

Substance misuse frequently occurs in conjunction with mental ill-health (comorbidity).

**Previous self-harm, intent and means of harm**

In a recent review, previous self-harm was identified as a risk factor for suicide and repeated self-harm. Intent to die or to escape discovery is also associated with a higher risk of suicide following an episode of self-harm and this association remains after taking into account the presence/absence of psychiatric disorder. There is mixed evidence, however, as to whether intent to die/planning is associated with repeated self-harm. More violent means of self-harm are associated with increased risk of suicide following an episode of self-harm and repeated self-harm.
Physical illness and impairment

Physical illness and functional impairment significantly increase suicide risk across the lifecourse. Increased suicide risk has been found among those suffering from severe (and often enduring) physical illness, including cancer (little evidence of differences in level of risk by site or type of cancer), neurological disorders, multiple sclerosis, Huntington’s chorea, epilepsy (risk varies in relation to type and severity of the condition), stroke and AIDS. Among those aged over 65 years, serious physical illnesses, especially visual impairment, neurological disease and cancers, have been shown to be independently associated with suicide among males.

There is mixed evidence that physical health problems constitute a risk factor for suicide following an episode of self-harm. Findings vary depending on whether other factors have been taken into account.

Contact with criminal justice system

The risk of suicide in prisoners is estimated to be three times higher than in the general population. In terms of suicidal ideation and attempt, the risk is estimated, in a UK study, to be 7.5 times higher in individuals detained on remand (pre-trial) compared with the general population, while the risk of suicide attempt in prisoners was estimated at six times that of their general population peers. Studies including female prisoners also show elevated risks of suicidal behaviour and self-harm. Prisoners in the first weeks of incarceration, as well as those serving very long sentences, are at highest risk. A population-based cohort study showed that recently released prisoners in England are at a much greater risk of suicide than the general population, especially in the first few weeks after release. In Scotland, the risk of death by suicide among men who had been in prison was reported to be 3.5 times higher than in the general population and for women who had been in prison 11.4 times higher than the general population. The risk of suicide in recently released prisoners is approaching that seen in discharged psychiatric patients.

An English study estimated the annual prevalence rate for self-harm in custody to be 5-6% among males and 20–24% among females. This study examined, for the first time, clustering of self-harm among prisoners and found evidence of a ‘substantial’ clustering effect. This is in contrast to clustering of suicide in prisons where considerably lower imitation rates (1–11%) have been found.

Socio-demographic factors

- **Age and gender:** there are both gender and age differences in rates of suicide. In Scotland (as in the rest of the UK), males are at greater risk of suicide than females, and suicide rates are higher for both men and women in their mid-years (35–54 years). Across the UK in 2011, the highest male:female suicide ratio was found in the 30–44 age group. Rates of self-harm are higher among young people, particularly women though gender differences in the incidence of self-harm decrease with age.
• **Marital status**: the incidence of suicide and self-harm is higher among those who live alone, are divorced or are single. However, other variables are not always taken into account when examining the influence of marital status.\(^\text{42,43}\)

• **Unemployment and socio-economic status**: unemployment is associated with an increased risk of suicide and self-harm. The odds ratio for suicide and suicidal behaviour for those who are unemployed ranges between 3 and 29. This range may be due to the extent to which studies account for potential mediating factors such as mental illness.\(^\text{42,43,50}\) Individual measures of socio-economic status are also associated with both suicide and self-harm. Those in lower socio-economic groups have an increased risk of suicide, suicide attempts and self-harm. The strength of this relationship may be reduced when other factors, such as mental illness, are taken into account.\(^\text{1,11,42,43}\)

• **Sexual orientation**: Recent reviews suggest that those who identify themselves as gay, lesbian or bisexual have a greater risk of suicidal ideation and suicide attempts.\(^\text{41,43,59}\) There is a two-fold increased risk of suicide attempts in the preceding year in both men and women, and a four-fold excess in lifetime risk of suicide attempts in gay and bisexual men.\(^\text{59}\)

• **Ethnicity**: The association between ethnicity and suicidal behaviour is complicated. While some studies suggest that South Asian women have an elevated risk of self-harm, other research suggests that women who identify themselves as Black African-Caribbean and Black Other are at greater risk compared with South Asian or White women. These differences may be due to the different populations and geographical areas included in the studies.\(^\text{43}\)

**Psychological and personality factors**

Hopelessness, neuroticism, extroversion, impulsiveness, aggression, anger, irritability, hostility and anxiety have been shown to be associated with an increased risk of suicidal behaviour; and poor problem-solving is associated with an increased risk of suicide attempt and self-harm. It is likely that the importance of these factors varies across the lifecourse.\(^\text{41,42,50}\)

### 4.4 Protective factors

#### 4.4.1 Introduction

Only a minority of those exposed to the risk factors for suicide and self-harm go on to engage in these behaviours. Models of resilience have been used to understand which factors may protect against suicide risk and the mechanisms involved. Developing resilience can help individuals and communities deal with adverse circumstances but must run alongside actions to address the underlying causes of adversity, including income inequality, high rates of unemployment, deprivation, social fragmentation and childhood and gender-based violence and abuse.
Resilience, defined as ‘patterns of positive adaptation in the context of risk or adversity’, comprises community, family and individual resources. Much of the research to date has looked at resilience in young people. While the evidence base is somewhat limited (the quality and design of studies are variable and, therefore, the results should be interpreted with caution), there is emerging evidence about key potential protective factors.

4.4.2 Community resources

Social connectedness has been defined as ‘the degree to which a person or group is socially close, interrelated, or shares resources with other persons or groups. This definition encompasses the nature and quality of connections both within and between multiple levels of the social ecology, including between individuals; between individuals and their families to community organizations; and among community organizations and social institutions’ (CDC nd).

Social connectedness between people and community organisations, such as school, work and places of worship, is potentially protective against suicidal behaviour in vulnerable populations. While only limited research has been conducted about the impact of connectedness to community organisations in reducing suicidal behaviour, several potential mechanisms have been described. Strong connections with community organisations can result in an increased sense of belonging to a group and an increased sense of self-worth. These connections also potentially provide access to a greater pool of support at times of stress or adversity. In addition ‘the community’ has a greater sense of responsibility for others and is more likely to mobilise support for experiences of distress or hardship, enable better access to helping resources and contribute to a reduction in some of the barriers to accessing help, such as access, cost, transportation and stigma. There is some evidence that schools which are supportive and provide access to healthcare professionals may be protective against suicidal thoughts and behaviour among vulnerable adolescents.

There is research evidence that religion serves as a protective factor against suicide (positive association), although studies have also found negative and mixed associations. Empirical support is available for several explanations as to why religion might be protective, including: religious integration (volume of shared religious beliefs and practices); religious commitment (adherence to a few life-saving beliefs); religious networks (social support derived from interaction with fellow believers); and moral community (individual-level suicidality is shaped by the level of national religiosity).

4.4.3 Relationships and family resources

Close and supportive relationships can play an important role in protecting against suicide. Supportive relationships contribute to adaptive coping and help-seeking in response to stress and also reduce maladaptive coping, such as self-harm and suicidal behaviour. There is evidence from a large number of studies to show that measures of social integration, such as number of friends, high social contact and low social isolation/loneliness, are protective against suicide.
Connectedness within the family is also protective against suicide behaviour. There is some evidence that, among children and adolescents, good parental relationships and bonding can be protective against suicide risk. Among adults, being a mother and having children at home, as well as marriage and same sex partnerships, can be protective against suicide.\textsuperscript{42,43,50}

4.4.4 Individual resources

There is evidence to suggest that individual resources can protect against suicide behaviour. Problem-solving skills may be protective against repeated suicidal behaviour; and coping skills and optimism may be protective against suicidal behaviours among those at high-risk or experiencing high levels of stress.\textsuperscript{42,43,50}
5 What actions are likely to be effective in reducing suicide?

5.1 Introduction

This section considers what actions are likely to be effective in reducing population suicide rates and highlights those actions that may reduce inequalities in suicide.

A review of reviews published by the World Health Organization in 2012 identified 34 suicide prevention interventions which have been evaluated. Fewer than half of these interventions had a direct focus on primary prevention and none of the studies addressed the issue of inequalities in suicide. In section 5.3 (page 30) we draw on this and other reviews and summarise the evidence of effectiveness of the main suicide prevention actions (see Box 1). In section 5.4 (page 39) we consider those actions that may potentially reduce inequalities in suicide. There is little research which specifically considers the impact of actions on inequalities in suicide. We therefore draw on the work of Macintyre, the Strategic Review of Health inequalities in England post 2010 and work undertaken by NHS Health Scotland as well as observational data and primary research focusing specifically on suicide.

Box 1: Suicide prevention strategies (adapted from Guo and Scott 2012)

<table>
<thead>
<tr>
<th>Focus</th>
<th>Actions and interventions</th>
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<tbody>
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<td>Society</td>
<td>Social protection</td>
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<td></td>
<td>Restricting availability and access to lethal means</td>
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<td></td>
<td>Reducing affordability of alcohol</td>
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<td>Improved media reporting</td>
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<td>Public education campaigns</td>
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<td>National suicide prevention programmes</td>
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<td>Community</td>
<td>Building community resilience and connectedness</td>
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<td>Individuals</td>
<td>Gatekeeper training</td>
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<td>Screening</td>
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<td>Primary care interventions</td>
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<td>Assistance to family/friends of high-risk individuals</td>
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<td></td>
<td>Postvention</td>
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<td>Specific populations</td>
<td>School-based suicide prevention programmes</td>
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<td>Prison-based prevention programmes</td>
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<td>Drug misuse programmes</td>
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5.2 Methodological considerations

Systematic reviews and reviews of reviews synthesise the best available research using a systematic and transparent process which reduces bias and provides reliable evidence about the effectiveness of interventions. However, there are some limitations associated with these reviews.

- The value of review-level evidence is constrained by the availability of good quality primary outcome studies. Many interventions intended to reduce or prevent suicidal behaviour have not been evaluated, or have not been evaluated to a sufficiently high level of quality, to be included in systematic reviews. As a consequence, in some instances the evidence is ‘limited’ and is only drawn from a small number of studies. The absence of evidence about a particular intervention should not be interpreted as evidence that it is ineffective.

- Evaluations of suicide and self-harm prevention interventions have used a range of outcome measures. These are either primary outcome measures (such as completed suicide, suicide attempts or suicidal ideation) or intermediate (or secondary) outcomes (such as knowledge, attitudes, skills and help-seeking behaviour). Studies evaluating the impact of interventions on suicidal behaviour are less common but have the potential to provide the strongest evidence.

- It is difficult to determine the effectiveness of interventions which form part of a broader, multi-component prevention programme. Further, depending on the nature of the study design, it can be difficult to distinguish the effects of national programmes from ‘natural’ temporal trends in the incidence of suicide and/or self-harm.

- Suicide is a relatively rare outcome event; therefore, individual level studies using a prospective design have difficulty in recruiting sufficiently large samples to detect statistically significant difference or change.

- Many of the studies included in the reviews were undertaken outside the UK, often in different health, social and cultural systems. The extent to which the findings from non-UK studies are transferable or generalisable to the Scottish cultural, social and economic context is open to question.
5.3 Actions to prevent suicide

The following section summarises the evidence of effectiveness for actions to reduce suicide.

5.3.1 Focusing on societies

Income, employment and work

As has been suggested, high rates of suicide in the population are associated with high levels of socio-economic deprivation and high rates of unemployment. These societal risk factors are also associated with increased rates of mental health problems more generally.66

There is body of evidence concerning the relationship between social protection and suicide rates. Recent analyses of European data found that in countries with stronger welfare safety nets there was little change in health inequalities and a decline in suicide rates during periods of economic recession and increased unemployment rates. One explanation for this is that ‘social benefits and services broadly remained and buffered against the structural pressures towards widening inequality in health’.67 (p.8)

Active labour market programmes that keep and reintegrate workers in jobs could mitigate against some of the adverse health effects, including suicide, of economic downturns, as highlighted in section 4.3.1 (page 19). An ecological study examining the association between unemployment and suicide rates in the EU found that, in countries where there were strong social protection policies, the suicide rate did not increase with increased unemployment. A spend of $10 per person per year on active labour market programmes supporting people to stay in employment, helping them to cope with the negative impacts of employment and regain employment quickly, was found to reduce the impact of unemployment. Where this spend was greater than $190 per person per year, increases in unemployment had no adverse effects on suicide rates.68 Other forms of social protection may also play a role. A recent European study found that investment in family support programmes ameliorated the effects of unemployment on suicide rates. For every US$100 per person spent on family support programmes (for example, support for the costs of children and parental leave) there was a 0.2% reduction in the effect of unemployment on suicide rates.68

Restricting availability and access to lethal means

There is review-level evidence that restricting access to suicidal means is effective in reducing cause-specific suicide rates. Restricting access to pharmacological agents (through legislation on availability and packaging) is associated with a reduction in rates of suicide in the general population. Similarly, changes to the carbon monoxide content of domestic gas resulted in a reduction in deaths due to carbon monoxide, though there were mixed results for the impact of catalytic converters on suicide rates.69–71
There is also evidence that legislation restricting access to firearms potentially reduces rates of cause-specific suicides. Yip et al.\textsuperscript{31} conclude that ‘\textit{restriction of access to a specific suicide method can have a widespread effect when the method is highly lethal and common, and the means restriction is supported by the community}’ [emphasis added].

It is less clear if restricting means of access results in reduced overall suicide rates, as method substitution has not been analysed in all studies. Where ecological studies are used, it is difficult to rule out the influence of concurrent (downward) temporal trends in suicide. According to Yip et al.,\textsuperscript{31} the empirical evidence demonstrates that restriction of one method of suicide does not inevitably lead to method substitution (a compensating increase in the use of other methods), as shown by the decline in total suicide numbers following the detoxification of domestic gas in the UK in the 1970s. Similarly the emergence of a new method (e.g., domestic gas in the UK in the first half of the 20\textsuperscript{th} century, or the burning of charcoal in confined spaces to generate toxic amounts of carbon monoxide in Hong Kong in the late 1990s) does not necessarily result in a substantial decline in the use of long-available means (e.g., self-poisoning). When individuals do seek other methods, they are often less lethal and associated with fewer deaths (lower case fatality). The extent of method substitution varies between regions and is associated with individual characteristics, such as age and sex.\textsuperscript{31}

A recent systematic review found that restricting access to suicide locations of concern (‘hotspots’ where there is an excess of jumping or falling) through, for example, the use of bridge barriers, blocking access to roads and platform screening, can be effective in reducing suicides at those locations. The authors concluded that this does not lead to method substitution and can, therefore, contribute to an overall reduction in suicide rates. It is thought that restricting access ‘buys time’ for those who are acting on impulse or who are ambivalent about taking their lives.\textsuperscript{69}

Priority should be given to the methods that are most commonly used in a specific country. In Scotland, hanging, strangulation and suffocation are the most common methods of suicide (44\%), followed by poisoning (32\%), jumping from high places (9\%) and drowning or submersion (6\%). Among men, the most common method is hanging, strangulation and suffocation, while among women the most common method is poisoning.\textsuperscript{2} Reducing the use of hanging in the community is a major challenge, given the ubiquity of materials that can be fashioned into a noose. As noted by Yip et al: ‘Hanging, jumping from heights (particularly from individuals’ own apartments or houses), and fatal shooting with firearms in countries with relatively non-restrictive gun laws … cannot be readily restricted’.\textsuperscript{31} (p.2397)

**Control of alcohol prices and availability**

As has been noted (see section 4.3, page 19), there is an association between alcohol use and suicide rates at a population level, particularly in countries where there are drinking patterns which involve a high frequency of intoxication. Therefore, tackling drinking behaviour may contribute to reducing suicide rates. In the former USSR and Iceland there was a decline in suicide rates during periods of restricted
access to alcohol. However, the extent to which reduced suicide rates can be attributed to reduced access to alcohol is unclear.\textsuperscript{70}

There is evidence that policies to increase the cost of harmful substances, including alcohol, are an effective measure in reducing alcohol consumption, particularly for young people, binge drinkers and harmful drinkers.\textsuperscript{72,73,97} A recent review concluded that alcohol tax and price policies are inversely associated with alcohol-related disease and injury rates.\textsuperscript{74} The review included a small number of studies which examined the effects of alcohol tax and price policies on suicide rates among youths and adults. The evidence for an inverse relation with reduced suicide rates was mixed. The authors suggest that the results for suicide are likely to be underestimates due to poor measures of alcohol involvement in completed suicides and the fact that, in comparison with many other alcohol-related health outcomes (such as alcohol cirrhosis and delirium tremens), suicide is not solely attributable to alcohol.\textsuperscript{74}

**Improving media reporting**

While there is review-level evidence that media reporting can influence suicide,\textsuperscript{36} there has been limited research on the impact of implementing suicide media guidelines on suicide rates. Two studies have showed a coincident reduction in suicide rates during periods of reduced media coverage. The first examined a media blackout in 1967–68 due to a newspaper strike and found a reduction in suicide rates compared with similar periods in the four previous years. The second examined the impact of a campaign to decrease media coverage of suicides on the subway in Vienna and found a significant decrease in subway suicides.\textsuperscript{70} These studies were observational and the results may have been confounded by a prevailing downward trend in suicide rates in the localities. There are no studies that have evaluated the implementation of national guidelines on reporting suicide.

The Royal College of Psychiatry has recently highlighted the increasing numbers of internet sites which present glamorised portrayals of suicide and self-harm, and recommends monitoring of these sites. As yet there are no data on the number and impact of these websites.\textsuperscript{75}

**National suicide prevention programmes**

‘National suicide prevention programmes are aimed at single or complex targets, and are initiated nation-wide by governmental bodies, in contrast to several isolated program initiatives in delineated parts of the country … [T]he national strategies are integrative suicide prevention activities initiated by governmental bodies, but … they can be co-ordinated and implemented on different administrative levels, i.e. on the county level, community level or nation-wide.’\textsuperscript{76}

Comprehensive national suicide prevention programmes have been implemented in at least 17 European countries (including the four nations of the UK), the USA, Canada, Australia, New Zealand, Japan and South Korea. Only one systematic evaluation of their effectiveness using cross-national data has been published. Matsubayashi and Ueda examined the impact of national suicide prevention programmes on suicide rates (overall, by gender and by age group) over the period
1980–2004 in 21 developed (OECD) countries. Their analysis showed that, after controlling for three sets of confounders (national political features, national macroeconomic characteristics and national socio-demographic characteristics), the overall suicide rate decreased after national suicide prevention programmes were introduced. National programmes appeared to be most effective in preventing suicides among males, the elderly and young populations. By contrast, the suicide rates of females and of working-age groups, regardless of gender, did not seem to be responsive to the introduction of national programmes.77

Public education campaigns

National public education campaigns, aimed at increasing awareness of suicide and help seeking, are commonly used as a public health intervention. However, no good quality evaluations of suicide prevention campaigns in terms of their impact on suicidal behaviour were identified in a systematic review.78 Public education campaigns targeting a reduction in depression or mental illness have been subjected to more evaluation and there is review-level evidence that these have a modest effect on attitudes about the causes and treatment of depression.70 There is no evidence, however, of an impact in terms of reduction in suicidal behaviour or intermediate outcomes, such as increased help-seeking or decrease in use of antidepressants.70

5.3.2 Community interventions

Building community resilience and social connectedness

There is emerging evidence that promoting social connectedness may be an effective component of suicide prevention strategies. A number of multi-faceted suicide prevention programmes including a social connectedness component have been identified which have been shown to have an impact on suicidal thoughts and behaviour. The US Air Force suicide prevention programme, which resulted in a 33% risk reduction in suicide, included strengthening social support and increasing opportunities for help-seeking; and a multi-faceted suicide prevention programme for American Indian youths in America, which included neighbourhood volunteers identifying and connecting with at-risk youth, was associated with a reduction in the number of suicide gestures and attempts over a 15-year period.60

Similarly an evaluation of a community-based programme in Japan with older adults experiencing depression, which included encouraging social connectedness with others in the community, reported a reduction in the rate ratio of suicides, especially among women. Increasing social connectedness has also been used in postvention (see section 5.3.3, page 34). In one study, letters were sent over a period of two years to individuals who failed to engage in services following discharge from hospital for suicide or depression. The findings suggested that those in the contact group had lower rates of suicide over the first two years post-discharge.60

Not all social connections have a positive impact on health: there can be potential unintended negative consequences. There is evidence that having too many dependants can result in role overload and contribute to distress. In addition, social
connectedness can lead to negative social or normative influences, for example, in the case of suicide pacts and gangs. 

5.3.3 Individuals

The majority of those who die by suicide have a mental health problem at time of death (see section 4.3.2, page 21). A substantial minority will have been in contact with mental health services in the year prior to death \(^{79}\) and a greater proportion will have been in contact with primary care (see below). \(^{80,81}\) Strategies and interventions to improve access to, and the quality of care for, those at higher risk of suicide are therefore important aspects of a suicide prevention programme.

Gatekeeper training

In this context, gatekeepers are community members who come into regular contact with an individual or family in crisis and at elevated risk of suicide. These include hospital and primary care healthcare staff and those not involved in healthcare, for example, clergy, recreational staff, police, those employed in institutional services such as schools, prisons and the military, as well as the general public. Gatekeeper training is intended to help gatekeepers identify those at risk, make an appropriate intervention and refer them for other intervention (treatment), if required.

There is review-level evidence that gatekeeper training in a variety of contexts across the lifecourse (including schools, the military and the community) is effective in improving intermediate outcomes, such as increased skills and knowledge about suicide and improved attitudes towards suicide. \(^{82}\) Less research has been undertaken examining the impact of gatekeeper training on suicide and self-harm. There is some review-level evidence that multi-faceted suicide prevention programmes which include gatekeeper training can be effective in reducing suicide incidence. The extent to which gatekeeper training specifically contributed to the reductions in suicidal behaviour is, however, difficult to ascertain, given the multi-faceted nature of the programmes. \(^{70,82}\)

Improving the recognition and treatment of depression and suicide risk in primary care

Primary care staff constitute an important group of gatekeepers. Estimates suggest that, in a typical cohort of completed suicides, nearly half (45%) will have had contact with a primary care provider in the month before death; the proportion rises to over three-quarters (77%) in the year before death. Among those aged 55 years and over, the levels of contact with primary care before death is even higher. \(^{80}\) An English study of general practice consultations in the year before suicide among patients in current, or recent, contact with secondary mental health services found that 91% (n = 224) consulted their GP on at least one occasion in the year before death. \(^{81}\) GPs have also identified the need for more training in the recognition and management of depression and suicide. \(^{82}\)
There is mixed review-level evidence about the effectiveness of training programmes for GPs in the recognition of depression and assessment of suicide risk in terms of improved detection and treatment rates. A number of studies found no impact on suicide behaviour or ideation, and a review by Gilbody and colleagues concluded that physician education is only effective as part of a multi-faceted suicide prevention programme.82 Mann and colleagues, however, suggested that physician education was one of the most promising suicide prevention interventions. They cited evidence from Sweden (the Gotland Study) that primary care education is associated with a decline in suicide rates; from Hungary and Japan where physician education was combined with a community outreach campaign; and from Germany where primary care training was combined with gatekeeper training in the general population.70 Given that physician education is part of a package of interventions in some of these studies; its unique contribution to suicide reduction is unclear.82

Primary care physician education has been combined with other interventions to improve recognition and management of depression, suicidal ideation and attempts. Interventions include nurse case management, collaborative care and quality improvement initiatives.

There is review-level evidence, from two randomised controlled studies with older adults, that primary care collaborative strategies are effective in reducing suicidal ideation and depression. The findings showed a reduction in suicide ideation in the treatment group compared with treatment as usual over 24 months; however, in one study this difference was not statistically significant.70,71,78,83 There is limited review-level evidence from one study which suggest that a quality improvement initiative was associated with a decrease in suicide attempts among an adolescent population compared with the control group. However, this difference was not statistically significant due to the low base rate.70

**Screening**

As in other areas of medicine, the value of screening for suicide risk in primary care is hotly disputed. One concern is that asking questions about suicidal thoughts and past self-harm will trigger a suicidal act. But there is no evidence that this is the case.84 A randomised controlled trial85 failed to uncover any iatrogenic effects of administering a screening questionnaire that asked high school students about suicide. In fact, being asked about suicidal thoughts or behaviours appears to have been beneficial for students with depressive symptoms or previous suicide attempts.

Wintersteen86 notes that ‘several health organizations and policy statements have called for suicide screening in primary care’. They conducted a study to determine whether brief standardised screening for suicide risk in paediatric primary care practices would increase detection rates of suicidal youth, maintain increased detection and referral rates, and be replicated in other practices. They concluded that standardised screening for suicide risk in primary care can detect youth with suicidal ideation and prompt a referral to a behavioural healthcare centre before a fatal or serious suicide attempt is made. An observational study87 evaluated primary care (computerised) screening, triage and referral process for youth with suicidal ideation. The authors concluded that primary care is a feasible setting to screen for suicidality in this age group, and to link those at risk with mental health services.
On the other hand, a review by the US Preventive Services Task Force (USPSTF) concluded in 2004 that ‘the evidence is insufficient to recommend for or against routine screening by primary care clinicians to detect suicide risk in the general population’. No evidence was found that screening for suicide risk reduces suicide attempts or mortality. There was limited evidence on the accuracy of screening tools to identify suicide risk in primary care, including those at high risk. There was insufficient evidence that treatment of those at high risk reduces suicide attempts or mortality. No studies were found that directly address the harms of screening and treatment for suicide risk. Thus, it was not possible to assess the balance of benefits and harms of screening for suicide risk in primary care.88,89

Supporting families and friends of high risk individuals

Family and friends contact helplines out of concern for their relatives and friends who are experiencing mental health problems or are at risk of suicide. One randomised trial investigated the impact of four interventions providing assistance to family/friends of men at high risk for suicide or suicide attempts. Interventions included: information session; information session plus telephone follow up; rapid referral; and telephone support counselling. A significant reduction in suicide attempts post-intervention was observed but the study was methodologically weak: the analysis did not differentiate between the four interventions and no control group was used.71

Postvention

Postvention includes a wide range of interventions which target individuals and groups recently bereaved by suicide. The aim is to support individuals through the grieving process in order to reduce the likelihood of suicidal contagion and clusters. These interventions are most often in schools, with families or in the community.90

School-based postventions include: supportive counselling for close friends of the deceased; whole school educational interventions including psychological debriefing; and crisis training for school staff (gatekeeper training). There is some evidence that gatekeeper training in schools is effective in increasing knowledge among staff. However, there is limited research on the impact of these interventions on suicidal behaviour. One case study reported a ‘negative effect’ of a psychological debriefing-type programme in terms of the number of suicides and suicidal gestures. However, due to the poor quality of this study the review authors suggest the findings should be treated with caution.90

Family-focused postvention programmes target a range of populations recently bereaved by suicide, such as widows, parents and children. Groups are facilitated by a range of personnel, and programme duration and intensity vary. Evaluations have largely reported on short-term and long-term improvements in depression, psychological symptoms and grief. None of the studies examined the impact on suicide, suicide attempts or suicidal ideation. There is some review-level evidence that groups offering intensive support and social groups can be effective in reducing psychological symptoms and that social groups can be effective in improving social adjustment. There is also review-level evidence that group treatment for parents can reduce emotional distress, though the findings vary for mothers and fathers, and that
bereavement groups for children and adolescents can reduce anxiety and depression.\textsuperscript{90}

There is limited review-level evidence about the effectiveness of community-based suicide postvention. A programme including media guidance and information campaigns developed in response to suicides on the subway in Vienna was associated with a reduction in the suicide rate (see section 5.3.1, page 30). The results may, however, have been confounded by a prevailing downward trend in suicide rates in the localities where the intervention was implemented.

A number of postvention strategies specifically aim to contain cluster suicides among young people. These include: development of a community response plan; educational/psychological debriefings; providing both individual and group counselling to affected peers; screening of high risk individuals; responsible media reporting of the suicide cluster; and promotion of healthy recovery within the community to prevent future suicides. These interventions have not been extensively evaluated.\textsuperscript{91}

There is evidence that a significant minority of young people continues to experience symptoms of post-traumatic stress disorder and high levels of grief up to six months after a suicide cluster has occurred. The need for long-term prevention strategies, including gatekeeper training, has been identified.\textsuperscript{91}

**Enhancing individual resilience**

A few studies have evaluated interventions which promote coping skills with a view to enhancing resilience. There is some review-level evidence that skills-based school programmes targeted at adolescents at high risk may be effective in enhancing control, problem solving, self-esteem and social networks.\textsuperscript{62} Among older adults there is limited review-level evidence to suggest that group work (based on cognitive-behavioural strategies) to assist those experiencing problems adjusting to early retirement and psychotherapeutic groups (focusing on improving social functioning and skills among those at risk of suicide) may be effective in enhancing protective factors.\textsuperscript{83}

**5.3.4 Specific populations**

**Substance misuse**

Substance misuse is an important risk factor for suicide, self-harm and repeated self-harm and population level actions have been described previously (see section 5.3.1, page 30). However, many of those at risk of suicide and self-harm are likely to be in contact with services. Services, therefore, provide a good opportunity to engage with people and tackle their substance misuse problem. Due to a high level of co-morbidity between substance misuse and depression, it is important also to address depression among those who misuse alcohol and drugs.

There is insufficient review-level evidence to draw any conclusions about the impact of drug and alcohol misuse programmes on suicide. Three evaluations examining the impact of drug misuse interventions on suicidal behaviour or suicidal ideation
were identified by Leitner et al (2008): treatment with fluoxetine; a ‘programme of aftercare for alcoholic patients know to self-harm’; and an ‘unspecified drug misuse treatment’. None of the evaluations reported positive outcomes in terms of either suicidal behaviour or ideation.78

A study identified by Shekelle et al comparing rates of suicide among veterans in the US entering residential or outpatient substance abuse treatment programmes found a lower rate of suicide during treatment for those in residential treatment, but no difference between the groups after treatment.71

There is a body of evidence about the range of population and early interventions which are effective in reducing levels of alcohol use. This is available in the Alcohol Outcome Framework produced by NHS Health Scotland.92

Criminal justice system

There are insufficient data from the evidence reviewed about suicide prevention programmes in the criminal justice system. Only one evaluation of a suicide prevention programme for offenders was identified. This prison-based study evaluated the impact of providing intermediate care (which the authors describe as similar to a psychiatric admission) and found a reduction in the number of attempted suicides.78

School-based programmes

A range of school-based programmes has been implemented, including curriculum-based programmes for whole schools, whole school programmes focused on behaviour change and programmes for high-risk adolescents. Many of these programmes were conducted and evaluated in the USA; therefore, applicability to the Scottish context is questionable.

Curriculum-based programmes are founded on the premise that students are more likely than adults to identify suicide risk among their peers. They aim to increase awareness among teenagers of the warning signs for suicide and the sources of available support. There is review-level evidence that these types of programmes improve knowledge, skills and attitudes and, potentially, help-seeking behaviour. There has, however, been limited evaluation of the impact of these programmes on suicidal behaviour. Two studies assessed the impact of curriculum-based programmes on suicide attempts and found some evidence of a reduction compared with a control group; however, there have been no studies evaluating the impact on suicide rates.82,93,94 There is also some review-level evidence that school programmes based on behaviour change and coping can have a positive impact on suicide tendencies and coping.62,95

There is some review-level evidence that programmes working with adolescents at high risk, using a skills training and social support approach, may be effective in reducing risk factors and improving protective factors for suicide.62

Potential unintended and adverse consequences of school-based suicide prevention programmes have been highlighted in the literature. There is some evidence to
suggest that young men are less likely to encourage friends to seek help following school suicide prevention programmes and there is also concern that these programmes may ‘normalise’ suicidal behaviour. Other research suggests that there is evidence of improved knowledge about suicide and help-seeking and no evidence of adverse effects. Further research is needed to understand this issue.\textsuperscript{62,93,95}

5.4 Addressing inequalities in suicide in Scotland

‘It is important to note a distinction between two questions: \textit{does it work to improve health? And does it work to reduce health inequalities}? An intervention which, in general works (e.g. dental health education) might have no effect \textit{on health inequalities} if all SES groups benefit equally; increase them if the rich benefit more; and reduce them if the poor benefit more.’\textsuperscript{63}

Current data shows marked inequalities in suicide in Scotland, both in terms of the gap between the most and least deprived communities and the social gradient. The socio-demographic group with the highest rate of suicide in Scotland is men in their ‘middle years’ (35–54) who are socio-economically disadvantaged. Other populations with a significantly increased risk of suicide include those with a psychiatric diagnosis, prisoners and people with substance misuse disorder.

While there is clear recognition internationally of inequalities in suicide, we found limited research examining the impact of actions and policies in terms of reducing these inequalities. In the absence of direct evidence we draw on the broader literature on health inequalities to consider which actions may be potentially effective in reducing inequalities in suicide.

Recent commentaries on health inequalities identify the causal significance of the unequal distribution of wealth, power and resources in society, which affects opportunities for obtaining good quality work, education, housing and other resources, which in turn shape individual experiences and health throughout life. In order to address health inequalities, actions are need to redress these imbalances, address the wider environmental influences and mitigate against health inequalities at the level of the individual.\textsuperscript{65}

In her paper for the Scottish Government Ministerial Task on Health Inequalities Sally Macintyre\textsuperscript{63} outlined the characteristics of actions which are most and least likely to be effective in reducing health inequalities (see Boxes 2 and 3). In summary, actions that avoid reliance on opt-in, maximise income and provide the greatest provision for those with the greatest need within a universal service (proportionate universalism) are likely to be the most effective in reducing health inequalities. A recent review of the evidence found these principles are still applicable and are a useful guide to planning and designing interventions to address health inequalities.\textsuperscript{65}
**Box 2:** Characteristics of policies more likely to be effective in reducing inequalities in health (adapted from Macintyre63)

- Structural changes in the environment (e.g. installing affordable heating in damp cold houses)
- Legislative and regulatory controls (e.g. drink driving legislation)
- Fiscal policies (e.g. increase price of tobacco and alcohol products)
- Income support (e.g. tax and benefit systems, professional welfare rights advice in health care settings)
- Reducing price barriers (e.g. free prescriptions, smoking cessation therapies)
- Improving accessibility of services (e.g. improving transport links)
- Prioritising disadvantaged groups (e.g. fuel poor, rough sleepers and homeless people)
- Offering intensive support (e.g. systematic, tailored and intensive approaches involving face to face or group work, home visiting, good quality pre-school day care)
- Starting young (e.g. pre-school daycare)

**Box 3:** Characteristics of interventions that are less effective in reducing inequalities in health (adapted from Macintyre63)

- Information-based campaigns (mass media information campaigns)
- Written materials (pamphlets, food labelling)
- Campaigns reliant on people taking the initiative to opt in
- Campaigns/messages designed for the whole population
- Whole school health education approaches (e.g. school based anti-smoking and alcohol programmes)
- Approaches which involve significant price or other barriers
- Housing or regeneration programmes that raise housing costs

Drawing on these principles, recent reviews of actions to reduce health inequalities and the epidemiological literature on suicide, a number of actions emerge which may contribute to reducing inequalities in suicide.
Income support

The epidemiological evidence in sections 4.3.1 and 4.3.2 (pages 19–25) highlights that suicide is disproportionately experienced by those in areas of most deprivation, those who are unemployed and those with low income. Reducing inequalities in income, both through employment and through taxes and benefits, and creating a fairer tax and benefit system are important guiding principles of reducing health inequalities. Furthermore, the Marmot review calls for the creation of fair employment and work for all. This includes the availability of good jobs and reducing long-term unemployment across the social gradient.

It is likely, therefore, that interventions to address low income and increase employment could have an impact on socio-economic inequalities in suicide. For example, there is review-level evidence that welfare advice interventions in primary care settings can result in financial gain (and improved income) and in short-term improvements in depression, both factors associated with increased risk of suicide. In addition, there is emerging evidence that social protection schemes, such as active labour market programmes, may mitigate against some of the adverse health effects, including rates of suicide, of economic recessions.

Fiscal policies

The broader evidence on health inequalities suggests that fiscal policies to increase the price of harmful substances is an important principle in reducing health inequalities. There is good evidence, for example, that policies to decrease the affordability of alcohol can reduce alcohol consumption and alcohol-related harm and can potentially reduce health inequalities.

As has been highlighted, there is an association between population alcohol consumption and suicide and some evidence to suggest that policies and practices to reduce alcohol consumption may reduce the incidence of suicide (see section 4.3.1, page 19, and section 5.3.1, page 30). It is plausible that fiscal policies to reduce the affordability of alcohol could reduce inequalities in suicide.

Developing social connectedness and community resilience

In their recent review of what works to address health inequalities, Beeston et al note: ‘Marmot argues that the evidence about the relationship between social and community capital and health is growing stronger. Communities living with multiple deprivations can often have higher than average levels of stress, isolation and depression. Social isolation can lead to increased risk of premature death, while reconnection through social networks and participation can improve mental health inequalities’.

As has been highlighted in section 5.3.2 (page 33), there is emerging evidence that social connectedness may be an effective component of suicide prevention strategies. And there is potential that interventions to increase social connectedness in communities will reduce inequalities in both mental health and suicide.
However, interventions to increase social connectedness should be seen as additional, and not as alternative, to addressing the fundamental causes of adversity in communities and societies.

Prioritising disadvantaged groups

The broader evidence base on health inequalities suggests that more intensive support is needed for disadvantaged groups. The epidemiological evidence outlined in section 4.3.2 (page 21) demonstrates, for example, that those who are unemployed, those who have mental health problems and substance misuse disorders, and those who are in custody are at greater risk of suicide. It is likely, therefore, that focusing suicide prevention activities on these and other disadvantaged groups will potentially have a greater impact on health inequalities.
6 What actions are likely to be effective in reducing self-harm?

6.1 Introduction

The National Collaborating Centre for Mental Health (NCCMH) was commissioned by the National Institute for Health and Care Excellence (NICE) to review the evidence and develop guidance for the short- and long-term management of self-harm. The focus of this work is on secondary prevention; however, their guidance on the short-term physical and psychological management of self-harm provides some indication of interventions and approaches which might be included in a primary prevention strategy. This briefing draws primarily on the reviews undertaken for the development of this guidance.\textsuperscript{43,98}

6.2 Primary prevention

The interventions proposed by NCCMH are not derived from a systematic review of the evidence and are not formal recommendations; however, many are consistent with the evidence outlined in this briefing.\textsuperscript{98} These are:

- addressing the social and individual risk factors associated with increased risk in self-harm, including actions at a national level targeting socio-economic conditions (poverty, unemployment and poor housing), alcohol and substance misuse, and mental illness

- greater service provision for the detection, protection and support for people (especially women) who have experienced or continue to experience childhood sexual abuse, physical abuse and domestic violence

- further development of training for healthcare professionals to improve their response to those who have been abused and who subsequently self-harm

- efforts to reduce the availability of means and to develop prescribed medication which is less toxic and, therefore, safer in overdose

- examination of levels of prescribing of psychotropic drugs and the relationship with self-poisoning

- considering the introduction of safety warnings on over-the-counter medication (this measure could aid suicide, however, and therefore needs to be considered very carefully)

- examination of the portrayal of self-harm in the media and the role it may play in developing cultural norms relating to self-harm.
6.3 Secondary prevention of self-harm

Much of the research on the secondary prevention of self-harm has focused on the training of healthcare staff with a view to improving service provision for those who self-harm, and psychological and psychosocial interventions to prevent repeated self-harm.

6.3.1 Training of health and social care staff

A review of qualitative research examining the views of service users, carers and service providers, conducted by the NCCMH, identified a clear need for improved training of staff engaged with service users who self-harm. The review found that service users have a largely negative view of, and poor access to, services, and experience a range of difficulties in their communication and relationships with care professionals. Many parents report feeling excluded from care planning and treatment relating to their children and highlight the lack of continuity of care. Further information about suicidal behaviour and managing self-harm in young people, parenting and dealing with self-harm were seen as important by carers. Support networks and other forms of social support were also felt to be important by service users, parents and carers. However, one case study highlighted the potential for voluntary support groups and websites to be destructive if not well monitored and managed. The review also concluded that staff attitudes were largely negative and that working with this client group has a significant emotional and psychological impact on staff.

A review was also undertaken of studies evaluating the impact of training programmes on self-harm for professions in general health, mental health and Accident and Emergency settings. It specifically looked at programmes which focused on improving knowledge, skills and attitudes relating to self-harm and recognising the emotional impact of working with those who self-harm. The quality of the evidence reviewed was not strong: few studies used a control group, most used self-report rather than objective and independent outcome measures, and follow-up was short-term. The results should, therefore, be viewed with caution.

There is evidence that training programmes which focus on improving knowledge and understanding of self-harm may have a positive impact on self-reported knowledge, skills and attitudes across the three staff groups. They may also have a positive effect on the psychological impact of working with people who self-harm or complete suicide. Given the variability in the content and delivery of training, it is difficult to draw conclusions about which components of the training were most effective.

Although there is no objective evidence that training has an impact on practice, the review of research on service users’ and carers’ experience of care suggests that training remains a key issue. As a result, NICE made recommendations about training for staff working with those who self-harm.

6.3.2 Service provision

A systematic review of the effectiveness of psychological therapies was undertaken by the NCCMH as part of the NICE guidance on the long-term management of self-
harm. Studies evaluating the effectiveness of interventions to treat people with borderline personality disorders were excluded from the review, though a summary of this evidence is available in the guidance.43

A meta-analysis of 10 studies provided evidence that psychological interventions (cognitive-behavioural therapy, problem-solving and psychodynamic psychotherapy delivered at home or in an outpatient setting) can reduce repetition of self-harm compared with treatment as usual. It should be noted that there was significant between-study heterogeneity: treatments varied in duration and were provided by different therapists in different settings; client populations varied; and full details of client psychopathology and history of self-harm were not always available. A narrative review of single studies comparing different treatment modalities (such as interpersonal problem-solving skills training and brief problem-solving therapy; inpatient therapy and insight-orientated therapy; general hospital admission and discharge; and long-term and short-term therapy) found insufficient evidence of differences in repeated self-harm between treatment types.43

Other studies compared case management; supported contact (in low and middle income countries); GP letters; and intensive input combined with community care with treatment as usual, and found no evidence of a reduction in repetition of self-harm. The authors warn that caution should be applied in drawing conclusions from these results due to the problems associated with single studies.43

There was limited evidence from one randomised control trial that having access to the same therapist (in hospital and as an outpatient) can result in a reduction in self-harm compared with having a different therapist. A further single trial found some evidence that enhancing compliance, by visiting clients not attending outpatient appointments, may reduce repetition of self-harm after 12 months. However, the authors caution against drawing conclusions based on single studies.43

A NICE evidence update identified additional studies which investigated the impact of an assertive outreach programme, problem-solving therapy, and an Outreach, Problem Solving, Adherence and Continuity (OPAC) intervention compared with treatment as usual. The findings from these studies suggest that problem-solving therapy may be more effective than standard care for those presenting with recurrent self-harm and that an OPAC intervention has potential to reduce repeated suicide attempts at 12-month follow up.99

A review of the effectiveness of interventions for children and young people in terms of repetition of self-harm found no evidence that interventions such as cognitive behavioural therapy, home-based family interventions and group psychotherapy are more effective than usual care. No specific recommendations were made in NICE Clinical Guidance 133 for the treatment of self-harm among adolescents.43 An evidence update by the NCCMH identified two additional systematic reviews, which concluded that there was insufficient evidence about the effectiveness of interventions for suicide and self-harm among adolescents.99
6.3.3 Psychosocial interventions

Four psychosocial interventions (intensive treatments, emergency cards, telephone support and postcards) were identified in the review. However, NICE concluded that there is insufficient evidence to determine whether these interventions reduce repeated self-harm.43

Intensive interventions

Intensive treatments involve staff engaging with clients as soon as possible after their suicide attempt and developing a tailored intervention involving both psychological and pharmacological interventions. Two studies found no evidence that the intervention group had lower rates of repeated self-harm or suicide rates than treatment as usual. There was some evidence, however, that those provided with intensive interventions attended more intervention sessions.43

Emergency cards

Emergency cards are provided to clients following episodes of self-harm in order to encourage them to contact professionals when experiencing problems. Two studies with clients who self-harm through drug overdose compared emergency cards versus treatment as usual and reported a non-significant reduction in self-harm in the treatment group, but gave limited information on the impact on suicide.43

Telephone follow-up

Telephone contact by the therapist over the period of the intervention, in addition to usual treatment, has been compared with usual treatment. Two studies examined the impact in terms of repeated self-harm, suicide and attendance for treatment; however, there was insufficient evidence to draw any clear conclusions.43

Postcard interventions

In these interventions, staff send a series of postcards to clients following an episode of self-harm as a means of maintaining contact with clients. Evaluation studies looked at the impact in terms of repetition of self-harm. While the postcard intervention has not been shown to reduce the prevalence of repeated self-harm at 12 months, there is some evidence of a reduction in the total number of repeat admissions in the intervention group.43 A more recent study from Tehran suggests that the postcard intervention may have a positive impact in terms of reducing suicide ideation and suicide attempts. However, the application of this study to the UK context is questionable given the differences in cultural and healthcare provision between the two countries.69

6.4 Addressing inequalities in self-harm in Scotland

Non-fatal self-harm comprises a range of behaviours, with multiple and diverse manifestations and causes. Self-harm can be intended to result in death but is often
an emotional response to, or reflection of, emotional or psychological distress without suicidal intent. We currently have little information about socio-economic inequalities in self-harm in Scotland, although there is evidence from elsewhere to suggest that this behaviour is socio-economically patterned in a way that is similar to that found for suicide. Given the heterogeneity of self-harm and the limited evidence about effective primary prevention strategies for self-harm, there is a need to further explore which interventions may be effective in reducing inequalities in self-harm in Scotland. The principles described in section 5.4 (page 39) provide a useful starting point for this exploration.
7 Conclusions

Suicide and self-harm continue to be major public health issues in Scotland, though suicide rates have reduced by 18% over the last 10 years. This downward trend is in contrast to the other nations in the UK which have seen an overall increase. The reasons for this difference are unclear. While data about suicide are routinely collected and analysed, this is not the case for self-harm; as a consequence we do not have a clear picture of current rates or trends. A programme of work collating and analysing data on self-harm would facilitate the development a clearer picture of the epidemiology and aetiology of self-harm in Scotland.

Suicide and self-harm are complex behaviours which result from an interaction of causal factors at the societal, community and individual levels. These are likely to vary across the lifecourse. In addition to societal factors (such as socio-economic deprivation and unemployment), mental health problems, previous suicide attempts and substance misuse are strongly associated with both suicide and self-harm. Adverse life events, including child abuse and lack of social support, play an important role in the development of both suicidal behaviour and self-harm. Work taken forward using ScotSID will aid understanding of the risk and protective factors for suicide in Scotland.

Both suicide and self-harm are socially patterned and unequally distributed, disproportionately affecting those in lower socio-economic groups and those living in areas of socio-economic deprivation. In addition men are at three times greater risk of suicide than women. Those with a psychiatric diagnosis, substance misuse disorder, are in custody and those who experience physical and sexual violence and abuse are among the groups which are at increased risk of both suicide and self-harm. While there is considerable evidence describing these inequalities, less is known about which actions may reduce them.

The broader evidence about actions which are more likely to reduce health inequalities suggests that actions which address social and environmental determinants of health using legislative and fiscal policies, income maximisation and universal provision of services and social protection in proportion to need have the greatest potential. Some of the structural suicide prevention interventions, in particular those that address socio-economic deprivation, unemployment and alcohol use, may also contribute to a reduction in inequalities in suicide rates. In addition, evidence suggests that suicide prevention activities need to be targeted at more vulnerable and disadvantaged groups who are at greatest risk of suicide and may need more intensive and tailored support than more advantaged groups.

Developing social connectedness and community resilience, alongside actions to address the fundamental cause of adversity, emerge as potentially important components of suicide prevention strategies and may mitigate against the effects of social and economic adversity. Currently there is limited evidence which specifically examines the impact of improved social connectedness on suicide; however, there is potential to apply learning from other areas of health.
The effectiveness of a national suicide prevention strategy to reduce population suicide and self-harm is likely to be increased where it incorporates a range of actions at multiple levels, and is intended to enhance protective factors as well as reduce risk factors.

There is evidence that structural interventions, such as restricting the availability of and access to means of suicide, are likely to be effective in reducing suicide rates. However, priority needs to be given to methods that are most commonly used in Scotland. Active labour market programmes and policies to reduce the affordability of alcohol may also reduce suicide rates but there is a need for further development of the evidence base in this area. Media guidance may also be associated with reductions in suicide; however, there is a need for further monitoring and evaluation of the impact of such guidance.

There is evidence that improving access to and care for those at risk of suicide is important. National actions to identify, protect and support those who have experienced, or who continue to experience, the effects of abuse and violence is likely to have a positive impact on rates of self-harm. There is also evidence to suggest that education for general practitioners and care management approaches to depression are potentially effective in reducing suicide. Gatekeeper training has been shown to be effective across a range of settings in terms of improving knowledge and attitudes about suicide as well as enabling gatekeepers to develop the skills to support those at risk. There is some evidence that multifaceted suicide prevention programmes, including gatekeeper training, can reduce suicide rates.

Recent research also suggests that there is a need to improve the experience of care for those who have self-harmed through staff training initiatives. There is some evidence that psychological interventions can reduce repeated self-harm and the National Institute of Care and Clinical Excellence has provided clinical guidance based on this evidence.

It is important to acknowledge the limitations of the evidence base for identifying effective actions to prevent, and reduce inequalities in, suicide and self-harm. There is a continuing need to support and commission primary research on both risk and protective factors and intervention studies. The incorporation of high quality evaluations, with appropriate study designs and standardised outcome measures, into major innovative interventions that are conducted as part of a national suicide prevention programme will contribute to the development of the evidence base.
Appendix

The ‘ecological fallacy’ is an error in the interpretation of statistical data when conclusions are made inappropriately about individuals from aggregate (or population) data. The fallacy assumes that individual members of a group or population have the average characteristics of the group as a whole, which is not necessarily the case. Any association between variables at the group/population level does not necessarily mean that the same association exists for any individual in the group/population.

Model misspecification is a methodological weakness common to both ecological and individual-level designs. This occurs when an analysis incorrectly excludes one or more important explanatory factors. The ‘bias’ is created when the model compensates for the missing factor by over- or under-estimating the effect of one of the other factors. For example, the failure to include mental ill-health (a potent predictor of suicidal behaviour) in analyses of life experiences (such as unemployment) and suicidal behaviour would be likely to result in an over-estimation of the importance of unemployment as a causal factor. There are two main types of variables that, if omitted, have the potential to produce misleading (‘biased’) findings:

- **mediating** variables are part of the causal chain between explanatory (‘independent’) factors and suicidal behaviour. A classic mediating variable in suicide research is mental ill-health.

- **moderating** variables modify the association between an explanatory factor and suicidal behaviour. The more suicidogenic impact of economic recession on men compared to women is evidence that gender moderates the relationship between labour market conditions and suicide.
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