

Characteristics of and trends in subgroups of prisoner suicides in England and Wales

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Background. The suicide rate is higher in prisoners compared with the general population. The aim was to describe the characteristics of and longitudinal trends in prisoner suicides in England and Wales.

Method. A case series was ascertained from the Safer Custody and Offender Policy Group at the Ministry of Justice and included a 9-year (1999–2007) national census of prisoner suicides. Questionnaires were completed by prison staff on sociodemographic, custodial, clinical and service-level characteristics of the suicides.

Results. There was a fall in the number of prison suicides and a decline in the proportion of young prisoner (18–20 years) suicides over time. Females were over-represented. Upward trends were found in prisoners with a history of violence and with previous mental health service contact. A downward trend was found in those with a primary psychiatric diagnosis of drug dependence. Drug dependence was found to be significant in explaining suicides within the first week of custody.

Conclusions. The findings provide an important insight to aid a target set in the *National Suicide Prevention Strategy in England* to reduce suicides in the prisoner population by 20% and highlight an important area for policy development in mental health services. Examining trends identified subgroups that may require improved mental healthcare and recognized those that appeared to be having their treatment needs more adequately met. Evidence suggests that targeted suicide prevention strategies for subgroups of prisoners are required.

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Introduction

Prisoners are at high risk of suicide (Department of Health, 2002), with an increased prevalence of risk factors such as mental illness, drug/alcohol problems and social adversity (Birmingham *et al.* 1996; Singleton *et al.* 1998; Fazel & Danesh, 2002; Social Exclusion Unit, 2002). Studies have described the characteristics of prisoner suicides and identified risk factors (Fazel *et al.* 2008; Humber, 2009) with some describing trends and reporting rates in particular subgroups (Snow *et al.* 2002; Fazel *et al.* 2005; Bird, 2008*a,b*; Fazel & Benning, 2009; Brooker *et al.* 2010).

This study examines a large 9-year national census of prison suicides in England and Wales, describing sociodemographic, clinical, behavioural and service-level characteristics. It expands upon a 2-year national census of prison suicides (Shaw *et al.* 2004) to include

a further 7 years highlighting characteristics of subgroups, examining important longitudinal trends and providing evidence to inform the government target of achieving a reduction in suicides in the high-risk prisoner population (Department of Health, 2002) to allow for the development of a more targeted prevention strategy.

Method

Definitions

It is conventional in suicide research to include most or all open verdicts (Linsley *et al.* 2001), but misadventures and accidental deaths are included only when there is a way of distinguishing the likely suicides from all other deaths with these verdicts. In studies of suicide in prison, the term 'self-inflicted death' is used. This term includes suicide, accidental, misadventure and open Coroner's verdicts (Paton & Jenkins, 2006). This broader definition is used as the majority of deaths whatever their verdict have a recorded cause of death of hanging or self-strangulation.

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Data collection

When a suicide occurred, the prison informed the Safer Custody and Offender Policy Group (SCOP) at the Ministry of Justice (MOJ). The SCOP informed the Centre for Suicide Prevention and provided details of the suicide, including ethnic group, location, offence type, prison status, sentence length and whether they were being managed under the prisons' self-harm/suicide 'at-risk' system.

Upon notification, the Centre for Suicide Prevention immediately sent two questionnaires to the prison where a death occurred; one to the prison governor and one to prison healthcare staff. Questionnaires were completed by discipline (governors, officers, psychologists) and healthcare staff (doctors, psychiatrists, nurses), with reference to prisoners' discipline and clinical records. Questions included information related to the sociodemographic, custodial, behavioural, clinical and service-level characteristics of the suicides; age, sex, details of the suicide, social visits, participation in education and work, reception medical screening assessment, drug/alcohol misuse, previous self-harm, psychiatric diagnosis, clinical management and healthcare treatment whilst in prison.

Census

The period covered from January 1999 to December 2007 was a 9-year consecutive case series, defined by date of death. Response rates were high from healthcare (94%) and discipline (98%) staff.

Longitudinal trends

The denominator used to examine trends in prisoner suicides and the characteristics of these suicides over time (1999–2007) was the annual prison population (the average total number of prisoners in a given year). Suicides were analysed by variables within socio-demographic, custodial, behavioural and service-level domains.

Statistical methods

All analyses were undertaken with Stata Intercooled software version 9.0 (Stata Corporation, USA).

Population-based normative data for key covariates [female, black and minority ethnic (BME) group, remand status and charged with or convicted of a violent offence] was obtained from the Offender Management and Sentencing Analytical Service (OM-SAS) at the MOJ, for the years from 1999 to 2007, to enable statistical comparisons with the suicide sample to be made. Caution is required in interpreting

these comparisons as age-matched samples have not been used.

For the time trend analysis using Stata, the authors fitted a general linear model with a Poisson error and an appropriate natural log offset (annual prison population). Year was then added as a linear predictor and a significantly improved model-fit provided evidence of a significant trend.

Differences between subgroups of prison suicides and other suicides were compared using bivariate and multivariate analyses performed with χ^2 tests for categorical variables, controlling for age (younger ≤ 30 years/older > 30 years) and sex where appropriate. Multivariate logistic regression analysis was used to examine suicides within 7 days of reception into prison.

Prison population in England and Wales

There are approximately 80 000 people in prison on a daily basis (MOJ, 2010); the majority are male and approximately one-quarter are on remand.

Prison protocols and procedures

Prisons house those serving sentences, awaiting trial (remand) and individuals convicted but awaiting sentence. At reception into prison, all prisoners are interviewed using a standardized health pro forma. Prisoners who are considered to be at risk of self-harm/suicide are placed on an F2052SH (previous)/ACCT (current) document. Once a prisoner is identified as being at risk, this system enables staff to monitor, record and supervise the prisoners according to their specific needs.

Ethical approval

As the cases were deceased, they were exempt from the Data Protection Act (1998). Ethical approval was granted from the Multi-Centre Research Ethic Committee, HM Prison Service and Patient Information Advisory Group at the Department of Health (Section 60 of the Health and Social Care Act, 2001).

Results

There were 766 suicides from January 1999 to December 2007 (Table 1), an average of 85 per year.

Characteristics of prison suicides

Sociodemographic, behavioural and custodial

The median age was 31 (range 15–75) years; 91% were male, giving a male:female ratio of nearly 10:1 (the

Table 1. Characteristics of prisoner suicides in England and Wales from 1999 to 2007 (n=766)

| | Completeness of data (%) | n | % | 95% CI |
|--|--------------------------|-----|----|--------|
| Socio-demographic characteristics | | | | |
| Male | 100 | 696 | 91 | 89–93 |
| Black and minority ethnic group | 100 | 102 | 13 | 11–16 |
| Single (single/divorced/separated/widowed) | 98 | 525 | 70 | 66–73 |
| Clinical characteristics | | | | |
| Any psychiatric diagnosis | 92 | 361 | 51 | 47–55 |
| Primary psychiatric diagnosis | | | | |
| Schizophrenia and other delusional disorders | 92 | 46 | 7 | 5–8 |
| Affective disorders (depressive and bipolar) | 92 | 94 | 13 | 11–16 |
| Alcohol dependence | 92 | 31 | 4 | 3–6 |
| Drug dependence | 92 | 97 | 14 | 11–16 |
| Personality disorder | 92 | 55 | 8 | 6–10 |
| Other | 92 | 157 | 5 | 4–7 |
| A second or third psychiatric diagnosis | 92 | 50 | 22 | 19–25 |
| Previous National Health Service (NHS) psychiatric in-patient admission(s) | 91 | 110 | 16 | 13–19 |
| History of NHS psychiatric contact | 92 | 226 | 32 | 29–36 |
| Behavioural characteristics | | | | |
| History of self-harm | 92 | 342 | 48 | 45–52 |
| History of violence | 92 | 239 | 34 | 30–37 |
| History of alcohol misuse | 90 | 219 | 32 | 28–35 |
| History of drug misuse | 90 | 386 | 56 | 52–59 |
| Charged with or convicted of a violent offence | 100 | 252 | 33 | 30–36 |
| Suicide ≤7 days of reception into prison | 100 | 198 | 26 | 23–29 |
| Suicide ≤28 days of reception into prison | 100 | 357 | 47 | 43–50 |
| Remand status | 100 | 288 | 38 | 34–41 |
| Prison mental health | | | | |
| Prison healthcare in-patient | 100 | 90 | 12 | 9–14 |
| Symptoms of mental health problems at reception | 90 | 380 | 50 | 46–53 |
| Open F2052SH/ACCT 'at-risk' document at the time of death | 100 | 195 | 26 | 22–29 |
| Referred to a psychiatrist during the prison term | 91 | 248 | 36 | 32–39 |
| Transferred to an NHS psychiatric hospital during the prison term | 89 | 17 | 3 | 1–4 |
| Contact with prison healthcare services | | | | |
| Last contact ≤24 hours of death | 90 | 300 | 44 | 40–47 |
| Symptoms of mental health problems at final contact with healthcare staff | 89 | 271 | 40 | 36–43 |

male:female ratio in the prison population as a whole was approximately 17:1 (OM-SAS; MOJ). The lowest ratio of females to males was in young prisoners (aged 18–20 years) at nearly 5:1 (69 male suicides compared to 14 female suicides).

A total of 13% of prison suicides were from a BME group, which was under-representative when compared with the general prison population [13% v. 26%, $\chi^2=41.03$, degrees of freedom (df) = 1, $p < 0.001$].

The majority of suicides occurred in adult male 'local' prisons (479; 63%), located on a prison wing (510; 67%), and in single cell accommodation (523; 70%).

Of those suicides in prison for >28 days (43%), 34% of these did not participate in any activities (such as gym, association or education) and 29% received no social visits during the prison term.

Timing and method

A total of 3% of suicides occurred within 24 h of reception into prison; 26% within 1 week.

In total, 705 (92%) suicides were by hanging and self-strangulation. The most common ligature point was window bars (391, 51%) and the most common ligature was bedding (489, 64%).

Altogether, 38% of prison suicides were on remand, with this status being over-represented when compared with the general prison population as a whole (38% *v.* 19%, $\chi^2 = 98.68$, $df = 1$, $p < 0.001$).

Mental health and risk assessment

In total, 32% of prisoner suicides had a history of National Health Service (NHS) mental health service contact and 16% had previously been admitted as an NHS psychiatric in-patient.

In total, 51% of suicides had at least one psychiatric diagnosis recorded; the most common primary psychiatric diagnoses being drug dependence (14%) and affective disorder (depressive and bipolar) (13%); 48% of suicides had a history of self-harm.

In total, 44% of suicides had an F2052SH/ACCT document opened during the prison term and 58% of these had an open F2052SH/ACCT document at the time of death. Of those prisoners who expressed suicidal ideation on reception into prison (119; 17%), 75% were placed on an F2052SH/ACCT 'at-risk' document.

Subgroups

Females. Between 1999 and 2007, 9% of suicides were female. Females were significantly over-represented in the suicide sample compared with the general prison population (9% *v.* 5%, $\chi^2 = 22.83$, $df = 1$, $p < 0.001$).

High rates of psychopathology in females included histories of self-harm (62%), alcohol misuse (34%) and drug misuse (71%). Previous contact with NHS mental health services (44%) and NHS psychiatric in-patient admissions (25%) were common. The two most common primary psychiatric diagnoses for female prisoners were drug dependence (26%) and personality disorder (16%) with 44% of female suicides having a second or third psychiatric diagnosis. At the time of death, 47% of females were on an F2052SH/ACCT document.

Prisoners with a history of violence and those charged with or convicted of a violent offence. In total, 34% of prison suicides had a history of violence; 33% of prisoners were charged with or convicted of a violent offence, with 12% who were charged with or convicted of murder or manslaughter.

Compared with the other prison suicides when controlling separately for age and sex, those with a history of violence were significantly more likely to have a history of self-harm, previous NHS mental health service contact, been an NHS psychiatric in-patient, have a psychiatric diagnosis, a primary psychiatric diagnosis of personality disorder and been

referred to a psychiatrist during the prison term (Table 2).

Prisoners with a primary psychiatric diagnosis of affective disorder (depressive and bipolar disorder). In total, 13% of prison suicides had a primary psychiatric diagnosis of affective disorder. Of those with an affective disorder, 40% were charged with or convicted of a violent offence, 38% died within 28 days of reception into prison and 73% had a history of self-harm.

In total, 50% of prisoners with an affective disorder reported that they were receiving antidepressant medication at reception into prison and 15% of these did not have this medication prescribed.

At reception into prison, 30% of prisoners with an affective disorder reported thoughts of self-harm/suicide and 45% reported symptoms of depression. Of those prisoners with an affective disorder who expressed suicidal ideation at reception (30%), an F2052SH/ACCT document was opened in 79% of cases; 43% of these prisoners had an open F2052SH/ACCT document at the time of death.

Of prisoners with an affective disorder, 30% were referred to a psychiatrist and/or mental health service or professional at reception into prison.

Prisoners with a primary psychiatric diagnosis of drug dependence (excluding alcohol). In total, 14% of prisoners had a primary psychiatric diagnosis of drug dependence. Of prisoners with drug dependence, 46% had a history of self-harm and 13% were healthcare in-patients at the time of death. Of prisoner suicides with drug dependence, 9% were referred to a psychiatrist during the prison term. In total, 78% of prisoners with drug dependence received an individual drug withdrawal treatment plan at reception and 17% did not have any further contact with healthcare staff after reception. Of those with drug dependence who expressed suicidal ideation at reception into prison (12%), 64% had an F2052SH/ACCT document opened.

Of 22% prisoner suicides considered to be drug dependent (primary or secondary psychiatric diagnosis), 46% died within the first week of prison. Drug-dependent suicides were significantly more likely to occur within 7 days of reception into prison compared with those without drug dependency (66% *v.* 39%, $\chi^2 = 42.59$, $df = 1$, $p < 0.001$).

Suicides within 7 days of reception into prison. To examine the factors associated with suicides within 7 days of reception into prison, variables previously evidenced to be associated with such deaths within this early period were considered (Towl & Crighton, 1998; Shaw et al. 2004; Bird, 2008b; Fazel et al. 2008).

Table 2. Multivariate analysis for suicide by prisoners with a history of violence controlling for sex and age

| Characteristic | Sex and age | History of violence (total = 239, 34%) (%) | No history of violence (total = 467, 66%) (%) | χ^2 | df | <i>p</i> |
|--|---------------|--|--|----------|----|----------|
| History of alcohol misuse | Male | 43 | 26 | 18.59 | 1 | <0.001 |
| | Female | 44 | 26 | – | – | N.S. |
| | ≤30 years | 44 | 25 | 10.35 | 1 | =0.001 |
| | >30 years | 42 | 26 | 9.44 | 1 | =0.001 |
| History of self-harm | Male | 67 | 37 | 51.40 | 1 | <0.001 |
| | Female | 83 | 49 | 5.65 | 1 | 0.008 |
| | ≤30 years | 74 | 35 | 42.98 | 1 | <0.001 |
| | >30 years | 64 | 41 | 17.86 | 1 | <0.001 |
| Previous NHS mental health service contact | Male | 47 | 23 | 37.25 | 1 | <0.001 |
| | Female | 70 | 28 | 8.46 | 1 | 0.002 |
| | ≤30 years | 47 | 19 | 25.23 | 1 | <0.001 |
| | >30 years | 51 | 28 | 19.43 | 1 | <0.001 |
| Previous NHS psychiatric in-patient admissions | Male | 30 | 8 | 53.58 | 1 | <0.001 |
| | Female | 57 | 5 | 17.13 | 1 | <0.001 |
| | ≤30 years | 29 | 3 | 46.15 | 1 | <0.001 |
| | >30 years | 35 | 12 | 27.04 | 1 | <0.001 |
| Psychiatric diagnosis | Male | 61 | 44 | 16.29 | 1 | <0.001 |
| | Female | 91 | 58 | 6.17 | 1 | 0.005 |
| | ≤30 years old | 65 | 46 | 9.92 | 1 | <0.001 |
| | >30 years old | 62 | 43 | 11.69 | 1 | =0.001 |
| Primary psychiatric diagnosis of affective disorder | Male | 19 | 11 | 8.48 | 1 | 0.002 |
| | Female | 4 | 13 | – | – | N.S. |
| | ≤30 years | 11 | 10 | – | – | N.S. |
| | >30 years | 24 | 12 | 7.14 | 1 | 0.004 |
| Primary psychiatric diagnosis of personality disorder | Male | 16 | 3 | 36.31 | 1 | <0.001 |
| | Female | 35 | 5 | 7.08 | 1 | 0.004 |
| | ≤30 years | 23 | 3 | 34.60 | 1 | <0.001 |
| | >30 years | 13 | 3 | 12.91 | 1 | <0.001 |
| A second or third psychiatric diagnosis | Male | 30 | 15 | 17.12 | 1 | <0.001 |
| | Female | 57 | 34 | – | – | N.S. |
| | ≤30 years | 33 | 16 | 11.82 | 1 | <0.001 |
| | >30 years | 32 | 18 | 7.96 | 1 | 0.003 |
| Suicide ≤28 days of reception into prison | Male | 32 | 54 | 21.19 | 1 | <0.001 |
| | Female | 35 | 59 | – | – | N.S. |
| | ≤30 years | 28 | 56 | 21.37 | 1 | 0.01 |
| | >30 years | 36 | 48 | 5.14 | 1 | <0.001 |
| Open F2052SH/ACCT 'at-risk' document at the time of death | Male | 31 | 19 | 10.70 | 1 | =0.001 |
| | Female | 61 | 39 | – | – | N.S. |
| | ≤30 years | 31 | 19 | 4.72 | 1 | 0.02 |
| | >30 years | 36 | 22 | 7.84 | 1 | 0.003 |
| Referral to a psychiatrist during the prison term | Male | 52 | 27 | 38.62 | 1 | 0.004 |
| | Female | 61 | 24 | 6.93 | 1 | <0.001 |
| | ≤30 years | 56 | 23 | 32.77 | 1 | <0.001 |
| | >30 years | 51 | 30 | 14.79 | 1 | <0.001 |

df, Degrees of freedom; NHS, National Health Service.

Table 3. Significant longitudinal trends in prisoner suicides and the characteristics of prisoner suicides in England and Wales from 1999 to 2007 ($n=766$)

| Reference ^a | Improvement in fit p value = | Slope | 95% CI | Year (n) | | | | | | | | | | Total (n) |
|---|-----------------------------------|-------|-----------|--------------|----|----|----|----|----|----|----|----|-----|---------------|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | | | |
| 1 Total number of suicides | 0.02 | 0.97 | 0.94–0.99 | 91 | 81 | 73 | 95 | 94 | 95 | 78 | 67 | 92 | 766 | |
| | | | | Year (%) | | | | | | | | | | Total (%) |
| 2 Young prisoner (18–20 years) | 0.000 | 0.86 | 0.80–0.93 | 14 | 16 | 14 | 13 | 12 | 6 | 13 | 3 | 7 | 11 | |
| 3 Suicide within 7 days of reception into prison | 0.000 | 0.90 | 0.85–0.94 | 35 | 31 | 19 | 32 | 29 | 32 | 19 | 12 | 19 | 26 | |
| 4 Suicide within 28 days of reception into prison | 0.000 | 0.93 | 0.89–0.96 | 51 | 48 | 49 | 56 | 46 | 56 | 42 | 30 | 37 | 47 | |
| 5 Remand status | 0.000 | 0.91 | 0.87–0.95 | 50 | 51 | 33 | 37 | 38 | 35 | 36 | 25 | 32 | 38 | |
| 6 Previous NHS mental health service contact | 0.04 | 1.05 | 1.00–1.10 | 25 | 28 | 31 | 24 | 26 | 29 | 43 | 44 | 42 | 32 | |
| 7 Previous NHS psychiatric in-patient admission(s) | 0.001 | 1.12 | 1.05–1.20 | 2 | 5 | 23 | 16 | 21 | 15 | 16 | 19 | 29 | 16 | |
| 8 History of violence | 0.001 | 1.08 | 1.03–1.13 | 14 | 15 | 44 | 38 | 37 | 29 | 41 | 49 | 45 | 34 | |
| 9 Primary psychiatric diagnosis: drug dependence | 0.000 | 0.77 | 0.71–0.84 | 24 | 20 | 21 | 24 | 8 | 10 | 5 | 5 | 5 | 14 | |

NHS, National Health Service.

^a For the time trend analysis, a general linear model was fitted with a Poisson error and an appropriate natural log offset (annual prison population). Year was then added as a linear predictor and a significantly improved model-fit provided evidence of a significant trend.

Multivariate logistic regression analysis was performed to explain early suicides in prison. The explanatory variables entered into the multivariate model were male, remand status, drug dependence (primary psychiatric diagnosis), mental health problems at reception into prison and an absence of NHS mental health service contact. The final model using 688 observations confirmed the significant influence of the selected variables drug dependence (primary psychiatric diagnosis) [odds ratio (OR)=2.55, $p<0.001$] and being on remand (OR=4.23, $p<0.001$).

Longitudinal trends

There was a significant downward linear trend in the number of suicides in prisons and in the proportion of young prisoner suicides (aged 18–20 years) between 1999 and 2007 (Table 3).

There was a significant downward linear trend in the proportion of suicides who died within 1 week and who died within 28 days of reception into prison (Table 3). There was a decline in the proportion of suicides who were on remand (Table 3).

There was a significant rise in the proportion of suicides with a history of contact with NHS mental health services, in the proportion who had

previously been admitted as an NHS psychiatric in-patient and in the proportion with a history of violence (Table 3).

There was a significant decline in the proportion of suicides with a primary psychiatric diagnosis of drug dependence (Table 3).

There was no change over time in the proportion of suicides who were charged with or convicted of a violent offence, who were on an open F2052SH/ACCT 'at-risk' document at the time of death, who had a primary psychiatric diagnosis of affective disorder or a primary diagnosis of schizophrenia and other delusional disorders.

Discussion

Main findings

Although the prison population has risen in recent years (MOJ, 2010), there was a decline in the number of prison suicides and in the proportion of young prisoner suicides in England and Wales from 1999 to 2007. As the majority of this young prisoner subgroup are male, this finding reflects that found in general population trends, with a decline in young male suicides (Biddle *et al.* 2008).

Subgroups

To highlight subgroups that may be the most important to target to reduce rates of suicide in prison, this discussion will predominately focus on those that have shown an over-representation when compared with the general prison population, have demonstrated an increased trend or 'no change' over time and have been clinically more prevalent within the sample.

Females

Many of the psychiatric characteristics found in female prisoner suicides reflect the high prevalence of psychopathology found in the general female prison population (Singleton *et al.* 1998; Home Office, 2007; Fazel & Benning, 2009). Compared with males, the profiles of female prisoners and the reasons why they offend vary (Wright *et al.* 2007). Female prisoners have been recognized as having different or additional needs (Home Office, 2007) and, although they constitute a small minority of the prison population, they are the subgroup with the fastest growth curve (Rutherford & Taylor, 2004).

Women prisoners have complex needs and are over-represented in prisoner suicides. Recommendations reiterate the need for an urgent review of the individual service needs of female prisoners with exploration and evaluation of more effective models of care (Home Office, 2007; Marzano *et al.* 2010) to ensure targeted suicide prevention strategies.

History of violence

An increase in the proportion of prisoners with a history of violence supports previous studies showing that prisoners who are violent to others can also be violent to themselves and highlighting the association between violence and prison suicide (Shaw *et al.* 2004; Fruehwald *et al.* 2004; Fazel *et al.* 2008; Humber, 2009).

Approximately 70% of those with a history of violence had a history of self-harm and whilst suicidal and violent behaviour are influenced by multiple factors, the common personal characteristics linking the two behaviours may be an underlying propensity for impulsivity, a lack of affect and behavioural disinhibition (Nock & Marzuk, 1999).

Prisoners with a history of violence are undoubtedly a risk to themselves and to others, which is a complex custodial and procedural dilemma. In cases where a prisoner with a historical violence has other risk indicators or markers suggestive of suicide risk, such as previous contact with NHS mental health services or a history of self-harm, there should be close observation and monitoring, with risk assessments made in

response to heightened risk identified. Comprehensive care planning should be in place, with multi-disciplinary teams working to ensure that the complex needs of such prisoners are addressed.

Primary psychiatric diagnosis of affective disorder (depressive and bipolar disorder)

The second most prevalent primary psychiatric diagnosis in prisoner suicides was affective disorder. Findings revealed that there appeared to be inadequate mental healthcare for the treatment of those with an affective disorder presenting with high clinical need. This supports previous research, which recommended that further investment is required to help prevent suicide in high-risk prisoners' who have an affective disorder and significant clinical need (Marzano *et al.* 2010; Rivlin *et al.* 2010).

Initiatives for improving mental health services for prisoners have recently been introduced, including mental health in-reach services (Steel *et al.* 2007). However, limited resources, environmental constraints, difficulties in ensuring continuity of care and wide variations in local practice have meant that prison mental health services have been criticized as inadequate (Brooker *et al.* 2008). Recently, there have been developments in improving prisoners' access to psychological therapy, although these initiatives are still in their infancy (Department of Health, 2009).

For those entering prison with an affective disorder, a comprehensive pathway to care should include having information provided by the relevant external NHS Trust, assessment by a suitably qualified health-care professional as soon as possible after entry into prison, receipt of the continuation of appropriate treatment and a pharmacological treatment plan and having a regular review of their mental health needs post-reception, including regular assessment of risk of suicide.

Primary psychiatric diagnosis of drug dependence (excluding alcohol)

There was a downward trend in the proportion of prison suicides with a primary psychiatric diagnosis of drug dependence. During early stages of custody, a prisoner's propensity to suicide may be influenced by the effects of withdrawing from drugs and/or alcohol (Crighton & Towl, 1998). Substance misuse and dependence has been recognized as one of the greatest health problems in the prison population (Gore, 1999; Bird, 2008*b*) and there has been recent investment in drug treatment services within the prison estate (PricewaterhouseCoopers, 2007). The misuse of drugs/alcohol can affect a prisoner's risk of suicide in various ways (Davis & Muscat, 1993) and

targeted drug treatment strategies have tackled particular clinical needs in drug-dependent prisoners, which may have impacted on the downward trend seen in this subgroup.

Compared to other suicides, drug-dependent suicides were significantly more likely to occur within 7 days of reception, suggesting that these deaths may be closely related to the period of withdrawal, when prisoners are receiving a detoxification plan or immediately post-detoxification. Findings revealed that having a primary diagnosis of drug dependence was significantly important in explaining early suicides in custody, supporting previous literature (Towl & Crighton, 1998; Shaw *et al.* 2004; Bird, 2008*b*).

Pathways to care for those who are drug dependent should be comprehensive, with clinical assessment and monitoring of psychosocial risk factors in such prisoners seen as a priority for suicide prevention (Jenkins, 2007). Prisoners withdrawing from drugs should receive a pharmacological treatment plan and an early mental health assessment, including an assessment of suicide risk. Prisoners with co-morbid mental illness and/or with a history of self-harm should be assessed early post-reception. All prisoners with drug dependence and suicidal ideation at reception or any stage in their custodial stay should have an ACCT document opened.

Risk assessment

Of those prisoners who expressed suicidal ideation on reception into prison, one-quarter were not placed on an F2052SH/ACCT 'at-risk' document. Reception screening is an important target for prevention in terms of suicide risk assessment and management (Daigle *et al.* 2007; Konrad *et al.* 2007). Once risk has been identified (Lekka *et al.* 2006), adequate measures, such as being placed under observation or a multi-disciplinary care planning system of risk management, need to be implemented. A mental health professional should assess the prisoner as soon as possible to identify clinical need and make any appropriate specialist mental health referrals (Dahle *et al.* 2005; Daigle *et al.* 2007). Prison staff should ensure that all those expressing suicidal ideation at reception or at any stage during their custodial stay should have an ACCT opened.

There was no change over time in the number of suicides who had an open F2052SH/ACCT document at the time of death. As the proportion of those on an 'at-risk' document remained constant over the study period, it is important to consider why and also how effective the system in place is to manage vulnerable individuals, including which aspects of this procedure are effective in improving the management of 'at-risk'

prisoners and what barriers exist that can impinge on the effectiveness of this process (Daigle *et al.* 2007; Konrad *et al.* 2007; Humber *et al.* 2011; Safer Custody News, 2010). Further research to investigate what works and which part of the process is effective in managing risk for those subject to the 'at-risk' system of care is recommended.

Over half of all suicides were never monitored under an 'at-risk' system during the prison term, suggesting that the detection and identification of those 'at-risk' of self-harm/suicide needs further improvement.

It is recommended that a comprehensive assessment should be conducted when an ACCT document is open and when it has been closed, including the consideration of self-harm/suicide risk in the future. Staff should ensure that there is an awareness of self-harm/suicide 'at risk' experiences or events for prisoners, both inside and outside prison, such as a prisoner receiving no social visits, being given a lengthy sentence and having family/social problems. Improvements are required in circumstances when prisoners are at heightened levels of risk, with contingency plans for such instances. A 'risk signature' should be identified for prisoners subject to ACCT and, if such risk factors are still present, the ACCT document should not be closed.

Comparison with other studies

Supporting findings from national and international studies, this study reiterates the characteristics associated with increased risk of suicide in jails, prisons and other penal institutions. This includes being on remand, charged with or convicted of a violent offence, located in single cell accommodation, having a history of self-harm, having a history of drug and/or alcohol misuse and having a psychiatric diagnosis (Hayes & Rowan, 1988; Dalton, 1999; Wobeser *et al.* 2002; Fruehwald *et al.* 2004; Shaw *et al.* 2004; Daniel & Fleming, 2006; Fazel *et al.* 2008; Patterson & Hughes, 2008; Humber, 2009; Hayes, 2010).

Future work

The identification of subgroups and trends in such groups over time has suggested the need for developing targeted strategies for prison suicide prevention. Currently, there is no overall care pathway and planning for individuals who enter prison with various social and clinical needs (Durcan, 2006). It is recommended that future work and strategies within the prison estate to aid suicide prevention need to tackle prisoners' health and social problems as both have a

considerable impact on their ability to cope with life in prison, pre- and post-release.

Prison release is an important time for care pathways (including health and social needs) to be seamless as it is a high-risk period for suicide (Pratt *et al.* 2006) and for drug-related deaths in those with drug dependence.

Greater funding is required to address the need for transition periods to be strengthened, including effective information-sharing and communication between agencies within the Criminal Justice System, health and social care services, from entry into prison to long after release and resettlement.

Methodological limitations

There are a number of methodological limitations inherent in this type of study. The results are descriptive and, without the presence of control subjects, it cannot be identified with any certainty how the suicide sample differs from the general prison population, nor what the risk factors for suicide in prison are. In approximately 10% of census cases, information on variables was missing or unknown.

It is possible that the proportion with psychiatric morbidity was under-reported. Caution is required when examining the findings on trends as they may be reflective of changes in documenting and administrative practices and the prison population in general over the years studied. Longitudinal changes may be due to 'normal fluctuations' and, over a longer time period, these significant changes may disappear.

Psychiatric diagnoses of prisoners were obtained from prisoners' clinical records. Mental health problems may not have been formally identified or recognized by staff. Indeed, it has been found that approximately three-quarters of prisoners had an undetected mental health problem (Birmingham *et al.* 1996) and there may have been substantial hidden psychiatric morbidity within the prisoner suicides. In addition, clinical judgement as to the psychiatric diagnosis that the respondent believed to be accurate was required. The psychiatric diagnosis may have changed over time in the clinical record and the diagnosis eventually recorded may have been subject to bias, depending on who completed the questionnaire. Diagnostic changes may have occurred during this time period and comparing, for example, drug dependence diagnoses with the general prisoner population over the study period would help to ascertain if a trend was meaningful.

Comparisons with normative data, that is, the prison population statistics obtained from the OM-SAS, are considered to be reliable and valid, although the samples used were not controlled for age.

Clinical implications and recommendations

The clinical implications from these findings have enabled the formulation of some specific recommendations for prison mental healthcare. In general terms, if suicide prevention in prisons in England and Wales is to be effective, the mental healthcare for all prisoners requires improvement.

As prisoners are a generally high-risk population, with a large proportion of this vulnerable group having the characteristics associated with increased suicide risk, the identification of those at highest risk of suicide is a complex task. The findings of this study suggest that certain subgroups are apparent within the prisoner suicide sample, including female prisoners, those with a psychiatric illness, those who have been identified as being at risk of self-harm/suicide and those with a history of violence.

Longitudinal trends in subgroups of prison suicides suggest key areas that have been targeted, addressed and improved within the prison service, with prisoner treatment needs being met, and those that require further input, improvement and investment.

The care of different subgroups of prisoners should be optimized with consideration given to their specific needs, together with improved information exchange, assessment, including suicide risk assessment, and the formulation of a treatment plan.

Note

Supplementary information accompanies this paper on the Journal's website (<http://journals.cambridge.psm>).

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Declaration of Interest

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