

# Factors influencing coroners' verdicts: an analysis of verdicts given in 12 coroners' districts to researcher-defined suicides in England in 2005

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## ABSTRACT

**Background** To investigate the variation between coroners in the verdicts given to deaths thought by researchers to be probable suicides and analyse factors associated with the coroners' verdict.

**Methods** Data were collected from 12 English coroner districts on all deaths in 2005 given a suicide, open, accidental or narrative verdict where suicide was considered a possibility. The data were reviewed by three experienced suicide researchers. Regression models were used to investigate factors associated with the coroners' verdict.

**Results** The researchers classified 593 deaths as suicide, of which 385 (65.4%) received a suicide verdict from the coroner. There was marked variation between coroner districts in the verdicts they gave. The suicide method was associated strongly with the coroners' verdict; deaths from poisoning and drowning were the least likely to be given suicide verdicts. The other factors strongly associated with a coroner's verdict of suicide were: whether a note was left, age over 60 years and being married or widowed compared with being single.

**Conclusion** Coroners vary considerably in the verdicts they give to individuals who probably died by suicide. This may compromise the usefulness of suicide statistics for assessing area differences in rates for public health surveillance.

**Keywords** cause of death, classification methods, coroner's verdicts, mortality, risk factors, suicide

## Introduction

Globally, suicide is an important cause of premature mortality.<sup>1</sup> In order to decrease the burden of suicide on society, robust suicide prevention strategies, underpinned by good quality suicide statistics, are essential.

In England and Wales, suicide statistics are based on deaths where the underlying cause of death is coded by the Office for National Statistics (ONS) as intentional self-harm or an injury/poisoning of undetermined intent. Several studies have shown that most injuries and poisonings of undetermined intent are self-inflicted deaths, where coroners have judged that there was insufficient evidence to conclude that the deceased intended to kill themselves.<sup>2,3</sup> The current law requires that the coroner is sure 'beyond reasonable doubt'

that the person intended to kill themselves, equivalent to the burden of proof for a criminal act, despite the fact that suicide was decriminalized in 1961 in the UK.

<sup>†</sup>D.G., K.H. and N.K. were joint senior investigators of the research programme for which data reported in this paper were collected.

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Studies have shown that coroners may differ in their interpretation of evidence, perhaps influenced by their personal beliefs and attitudes.<sup>4</sup> Several studies have investigated the social and clinical characteristics that are associated with a coroner giving a verdict of suicide versus other verdicts. Characteristics influencing coroners' decisions include: age of the deceased,<sup>5,6</sup> method used,<sup>6-9</sup> history of a mental disorder<sup>7</sup> and whether a suicide note was left.<sup>5,6</sup>

Clinicians and researchers generally adopt a more liberal definition of suicide than that used by coroners, namely that the balance of probabilities indicates that the person intended to take their life. Relatively few studies have investigated factors influencing coroners' choice of verdict amongst deaths thought by clinicians to be likely suicides<sup>7</sup> previous studies of this issue have been based on a single coroner's practice<sup>8-10</sup> or have investigated specific methods of suicide only, e.g. rail suicides.<sup>7</sup> We investigated (i) the variation between coroners in their choice of verdicts for research-defined suicides and (ii) the socio-demographic and clinical characteristics of researcher-defined suicides receiving a suicide verdict compared with other verdicts. Our findings should provide a better understanding of factors influencing coroners' decision-making and the potential biases of using statistics based on deaths assigned a suicide verdict alone.

## Methods

### Data

The methodology for data collection in this study has been described previously.<sup>11</sup> In brief, our study was based on a sample of 12 of the 107 coroners' districts in England. These comprised the three jurisdictions where the collaborating research centres are based (the cities of Bristol, Oxford and Manchester) and a random sample of nine further jurisdictions within 90-min travel time of each of these three centres. This produced a mix of urban and rural jurisdictions, broadly representative of coroners' districts in England.

Each jurisdiction is served by one coroner, who has a deputy and one or more assistant deputies. Variations between jurisdictions, therefore, reflect the decision-making of several individuals.<sup>12</sup>

In each jurisdiction the coroners' electronic databases or inquest files were searched for all deaths which occurred in 2005 which received a suicide, open, narrative or accident/misadventure verdict. An open verdict is given where the coroner judges that there is insufficient evidence for any other specific verdict; a narrative verdict is a brief conclusion setting out the facts surrounding the death and explaining the reasons for the decision.<sup>12</sup> We excluded all deaths that

occurred outside the UK or where the deceased was <10 years of age,<sup>13</sup> deaths where the cause was clearly not suicide, e.g. industrial disease, slip on a pavement and accident/misadventure verdicts where the cause of death was a vehicular accident or poisoning by only a drug of abuse, unless there was any evidence in their records of current or past emotional distress.

After the exclusions listed above, the remaining deaths given open, accident/misadventure or narrative verdicts were defined as 'possible suicides'. These possible suicides included ~50% of all open verdict deaths and <10% of deaths given accident/misadventure verdicts.<sup>11</sup> This elimination of almost half of all open verdict deaths is consistent with the observation that many such deaths are not coded as 'undetermined intent' deaths by ONS.<sup>3</sup> Due to the high level of proof required for a coroner to give a suicide verdict, deaths given a suicide verdict by the coroner were automatically included in the data set as 'researcher-defined suicides' and not reviewed further.

We abstracted the following information from the coroners' records: gender, age, ethnicity, marital status, employment status, living circumstances, coroner's verdict, primary psychiatric diagnosis at the time of death, previous episode of self-harm, method of suicide, contact with psychiatric services, whether a suicide note was left and the level of alcohol in post-mortem blood samples.

Vignettes of up to 800 words in length, based on information recorded in coroners' inquest records and witness statements, were written by a team of seven researchers (including three of the co-authors of this paper, O.B., S.S., J.C.) for all possible suicide cases (given open/accident/narrative verdicts), describing in detail relevant history and the circumstances leading up to and surrounding the death.

Three clinical members of the research team (D.G., K.H. and N.K.), with considerable experience in suicide research, read the vignettes and other data recorded about the possible suicides, blind to the identity of the coroner, the verdict assigned and the identity of the deceased. They then independently rated the likelihood of suicide as high, moderate, low or unclear. Where the researchers disagreed a consensus was reached with the aid of a pre-agreed protocol as to whether a case was a suicide or not. All cases allocated a high or moderate score were included in our sample, together with those given suicide verdicts by the coroner, as 'researcher-defined suicides'.

### Data analysis

The data collected were cleaned, coded and analysed using Stata version 11.2 for Windows (StataCorp 2009).

**Table 1** Verdict given to researcher-defined suicides by the coroner in each of the 12 coroners' districts (%)

Coroners' district	Verdict				Total (100%)	Suicide and open combined (%) <sup>b</sup>
	Suicide <sup>a</sup>	Open	Accident or misadventure	Narrative		
1	71 (67.0)	10 (9.4)	24 (22.6)	1 (0.9)	106	81 (76.4)
2	40 (60.6)	19 (28.8)	2 (3.0)	5 (7.6)	66	59 (89.4)
3	15 (83.3)	3 (16.7)	0 (0.0)	0 (0.0)	18	18 (100.0)
4	6 (28.6)	11 (52.4)	3 (14.3)	1 (4.8)	21	17 (81.0)
5	21 (84.0)	2 (8.0)	2 (8.0)	0 (0.0)	25	23 (92.0)
6	15 (78.9)	2 (10.5)	2 (10.5)	0 (0.0)	19	17 (89.5)
7	26 (39.4)	22 (33.3)	3 (4.5)	15 (22.7)	66	48 (72.7)
8	32 (69.6)	12 (26.1)	1 (2.2)	1 (2.2)	46	44 (95.7)
9	32 (72.7)	8 (18.2)	4 (9.1)	0 (0.0)	44	40 (90.9)
10	42 (75.0)	10 (17.9)	3 (5.4)	1 (1.8)	56	52 (92.9)
11	45 (83.3)	7 (13.0)	2 (3.7)	0 (0.0)	54	52 (96.3)
12	43 (59.7)	20 (27.8)	8 (11.1)	1 (1.4)	72	63 (87.5)
Total	388 (65.4)	126 (21.2)	54 (9.1)	25 (4.2)	593 (100)	–

<sup>a</sup>Test of heterogeneity between coroners' districts in the proportion of researcher-defined suicides given a coroners' verdict of suicide:  $\chi^2 = 53.48$ ,  $P$ -value  $\leq 0.0001$ .

<sup>b</sup>Test of heterogeneity between coroners' districts in the proportion of researcher-defined suicides given an open or suicide verdict:  $\chi^2 = 31.82$ ,  $P$ -value  $\leq 0.0001$ .

For all researcher-defined suicides we used logistic regression models to investigate the association of demographic and clinical factors with the assignment of a verdict of suicide by the coroner versus a non-suicide verdict (open, accident/misadventure, narrative). Previous research has shown that there is considerable variability in how coroners apply different types of verdicts,<sup>7</sup> and that the methods of suicide used by the deceased influence the choice of verdict given.<sup>7</sup> We therefore repeated the analysis, controlling for coroner's district and method of suicide to examine the impact of the remaining variables on the likelihood of receiving a suicide verdict versus an alternative verdict.

## Results

There were 593 researcher-defined suicides; these included 388 (65.4%) judged as suicide by the coroners, while the remaining cases were given open ( $n = 126$ , 21.2%), accident/misadventure ( $n = 54$ , 9.1%) or narrative ( $n = 25$ , 4.2%) verdicts. There was considerable variation in the types of verdict given to researcher-defined suicides across the 12 coroners' districts; the median proportion of researcher-defined suicides given a verdict of suicide was 71.2% (range 28.6–84.0%), for open verdicts 18.1% (8.0–52.4%), for accident/misadventure verdict: 6.7% (0.0–22.6%) and for narrative verdicts 1.2% (0.0–22.7%) (Table 1). National suicide

statistics for England are based on deaths coded as suicide or deaths of undetermined intent (~50% of open verdicts) in acknowledgement that many of the latter deaths are suicide<sup>3</sup> and so we also assessed between coroner variability in relation to the proportion of researcher-defined suicides given suicide or open verdicts. Combining suicide and open verdicts (final column, Table 1) led to a reduction in coroner variability IN THE PROPORTION OF RESEARCHER DEFINED SUICIDES GIVEN A SUICIDE VERDICT from 28.6–84.0% to 72.7–100% (for suicides and open verdicts combined); nevertheless there remained substantial statistical evidence [ $\chi^2 31.82$  (df 11)  $P < 0.0001$ ] of differences between coroners' districts in their use of verdicts other than suicide or 'open' for researcher-defined suicides. Indeed in 2 of the 12 coroners' districts (areas 1 and 7, Table 1) suicide rates are likely to have been underestimated by at least 20%, even when they are based on deaths receiving suicide and open verdicts.

The demographic and clinical characteristics of the researcher-defined suicides are shown in Table 2. The ratio of male-to-female researcher-defined suicides is 3.2:1. The median age of death was 41.5 years (range 12–93) for males and 44.5 years (range 12–86) for females. The most common method used by males was hanging (51.1%), whereas for females it was poisoning (45.4%).

Over half of all suicides had previously self-harmed. A higher proportion of females than males had had contact with

**Table 2** Demographics of the researcher-defined suicide study population in 12 coroners' districts in 2005 (*N* = 593)

Variable		Male ( <i>n</i> = 452), <i>n</i> (76.2%)	Female ( <i>n</i> = 141), <i>n</i> (23.8%)
Age ( <i>n</i> = 593)	Median	41.5 (range 12–93)	44.5 (range 12–86)
Coroner's verdict ( <i>n</i> = 593) <sup>a</sup>	Suicide	307 (67.9)	81 (51.5)
	Open	87 (19.3)	39 (27.7)
	Accident/misadventure <sup>a</sup>	37 (8.2)	17 (12.1)
	Narrative	21 (4.7)	4 (2.8)
Method of suicide ( <i>n</i> = 593)	Hanging/suffocation	231 (51.1)	45 (31.9)
	Poisoning	94 (20.8)	64 (45.4)
	Gas poisoning (mainly car exhaust gas)	25 (5.5)	3 (2.1)
	Jumping from building onto rail or vehicular	52 (11.5)	12 (8.5)
	Drowning	16 (3.5)	8 (5.7)
	Firearms, cutting, stabbing, fire, electrocution, hypothermia or other	34 (7.5)	9 (6.4)
	Ethnicity ( <i>n</i> = 488)	White	352 (94.6)
Other		20 (5.4)	4 (3.5)
Marital status ( <i>n</i> = 591)	Single	215 (47.8)	47 (33.3)
	Married	133 (29.6)	43 (30.5)
	Widowed	21 (4.7)	16 (11.4)
	Divorced	74 (16.4)	35 (24.8)
	Other	7 (1.6)	0 (0.0)
Employment status at the time of death ( <i>n</i> = 572)	Unemployed	141 (32.3)	33 (24.4)
	Employed	179 (41.0)	38 (28.2)
	Retired	74 (16.9)	29 (21.5)
	Other	43 (9.8)	35 (25.9)
Living circumstances on the day of suicide ( <i>n</i> = 565)	Lives alone	167 (38.8)	52 (38.5)
	With family/partner	191 (44.4)	65 (48.2)
	With others (e.g. friends)	21 (4.9)	5 (3.7)
	In patient, psychiatric hospital	12 (2.8)	9 (6.7)
	In patient, general hospital	2 (0.5)	0 (0.0)
	Other	34 (7.9)	4 (3.0)
	No fixed abode	3 (0.7)	0 (0.0)
Was a note left ( <i>n</i> = 582)	Yes	168 (37.8)	51 (37.0)
	No	276 (62.2)	87 (63.0)
Was deceased suffering a psychiatric disorder ( <i>n</i> = 521)	Yes	224 (57.1)	108 (83.7)
	No	76 (19.4)	9 (7.0)
	Probably	92 (23.5)	12 (9.3)
Primary psychiatric diagnosis at the time of death ( <i>n</i> = 461)	Schizophrenia and other delusional disorder	33 (9.8)	10 (8.1)
	Affective disorder	216 (64.1)	85 (68.6)
	Anxiety disorder	7 (2.1)	3 (2.4)
	Alcohol dependence	24 (7.1)	10 (8.1)
	Drug dependence	17 (5.0)	2 (1.6)
	Other psychiatric diagnosis	14 (4.2)	10 (8.1)
	No mental disorder	26 (7.7)	4 (3.2)
Previous self-harm or suicide attempt ( <i>n</i> = 525)	One or more	189 (48.1)	90 (68.2)
	None	204 (51.9)	42 (31.8)
Did deceased ever have contact with psychiatric services ( <i>n</i> = 513)	Yes	209 (54.3)	95 (74.2)
	No	176 (45.7)	33 (25.8)

Continued

Table 2 Continued

Variable		Male (n = 452), n (76.2%)	Female (n = 141), n (23.8%)
Time since last contact with psychiatric services (n = 285)	At the time of death	98 (22.4)	55 (41.4)
	During last year	47 (10.8)	25 (18.8)
	> 1 year	52 (11.9)	8 (6.0)
	No contact	240 (54.9)	45 (33.8)
Was alcohol consumed (n = 453)	Yes	153 (44.4)	38 (35.2)
	No	192 (55.6)	70 (64.8)
Alcohol level detected (n = 229)	<20 mg/100 ml	46 (23.7)	11 (31.4)
	20–49 mg/100 ml	21 (10.8)	5 (14.3)
	50–79 mg/100 ml	11 (5.7)	4 (11.4)
	80–149 mg/100 ml	34 (17.5)	3 (8.6)
	> 150 mg/100 ml	82 (42.3)	12 (34.3)

<sup>a</sup>Please note all deaths in this category are researcher-defined suicides. Division only describes how the coroner defined the death.

<sup>b</sup>Accident and misadventure are two separate types of verdict but for this analysis they have been combined.

psychiatric services (54.3% of men versus 74.2% of women). Out of the 453 individuals for whom data were available, alcohol was consumed as part of the suicidal act in 44.4% of male cases and 35.2% of female cases.

### Factors associated with suicide verdicts

Method of suicide was strongly associated with the verdict given. Compared with those who used hanging/suffocation (80.1% of whom received suicide verdicts), those who drowned (25% received suicide verdicts); used poisons (41.8%) or died by jumping (54.7%) were less likely to receive a suicide verdict.

In the multivariable models (Table 3) controlling for coroners' district and method the factors most strongly associated with receiving a suicide verdict from the coroner were: suicide note [odds ratio (OR) 9.95; 95% confidence intervals (CI) 5.71, 17.36]; being married (OR 2.01; 95% CI 1.22, 3.31) or widowed (OR 2.69; 95% CI 1.11, 6.52) compared with being single; increasing age (OR 3.20 in those aged >60 years compared to <30 years) and last contact with psychiatric services being over a year ago compared with contact at the time of death (OR 2.02; 95% CI 0.92, 4.42). Gender was not associated with the likelihood of receiving a suicide verdict.

Other factors that were associated with receiving a verdict other than suicide were history of alcohol dependency (OR 0.28; 95% CI 0.12, 0.67), high blood alcohol level detected ( $\geq 150$  mg/100 ml compared with <20 mg/100 ml) (OR 0.27; 95% CI 0.10, 0.74), history of drug dependency (OR 0.28; 95% CI 0.09, 0.86), contact with psychiatric services within the last year of life compared with contact at the time of death (OR 0.52; 95% CI 0.26, 1.04). In additional analysis (not shown) we controlled for marital status as well as

coroners' district and method to investigate the effect this had on the association with age. The OR for those aged  $\geq 60$  years decreased from 3.20 to 2.77 (95% CI 1.17, 6.55).

We investigated whether the variation in use of different verdicts between coroners' districts could be explained by the characteristics of the deaths in their areas. In a subset of cases with complete data on method, gender, age, marital status, employment status, living circumstances, suicide note, psychiatric disorder and past self-harm, we found there was still considerable variability between coroners' districts in the verdicts they gave even after controlling for these variables (LRT 178.08,  $P$ -value < 0.0001).

## Discussion

### Main finding of this study

This is the largest study we are aware of examining the factors which may influence the choice of verdict given by English coroners. There was marked variability in the verdicts given to researcher-defined suicides in different coroner's districts, even when the suicide and open verdicts in this study were combined to reflect ONS's practice in estimating suicide rates.

Key influences on the coroners' choice of verdict were whether a note was left, marital status, advancing age and if the deceased had been in contact with psychiatric services more than a year before their death. Methods used also strongly influenced the verdict given, with poisoning, jumping and drowning all less likely to receive a verdict of suicide than other verdicts. This means that figures for suicides which involve these methods of death are likely to be underestimates.

**Table 3** Results for the multivariable logistic regression for all researcher-defined suicides, the comparison of the binary verdict of suicide versus another verdict against various variables, while adjusting for coroners' district and method of death

Variable	Sample size (variable total)	OR unadjusted (95% confidence intervals)	OR controlling for method and coroners' district (95% CI) <sup>a</sup>	$\chi^2$ (from likelihood ratio test); P-value
Method of death	(593)			–
Hanging/suffocation	276	1.00		
Poisoning	158	0.18 (0.12, 0.28)		
Jumping, any kind	64	0.30 (0.17, 0.53)		
Gas poisoning (mainly car exhaust gas)	28	3.24 (0.75, 14.0)		
Drowning	24	0.08 (0.03, 0.22)		
Other	43	0.94 (0.43, 2.08)		
Gender	(593)			
Female	141	1.00	1.00	0.2
Male	452	1.57 (1.06, 2.31)	1.11 (0.70, 1.78)	$P = 0.654$
Age at death (years)	(593)			
<29.9	108	1.00	1.00	21.72
30–39.9	171	1.10 (0.66, 1.84)	1.03 (0.56, 1.90)	Value for trend
40–59.9	268	1.53 (0.95, 2.50)	1.59 (0.90, 2.84)	$P \leq 0.0001$
>60	120	1.68 (0.95, 2.95)	3.20 (1.59, 6.44)	
Ethnicity	(488)			
White	464	1.00	1.00	0.19
Other	24	0.73 (0.32, 1.68)	0.80 (0.30, 2.16)	$P = 0.664$
Marital status	(591)			
Single	262	1.00	1.00	14.34
Married	176	1.80 (1.19, 2.74)	2.01 (1.22, 3.31)	$P = 0.006$
Widowed	37	1.51 (0.71, 3.18)	2.69 (1.11, 6.52)	
Divorced	109	1.01 (0.64, 1.61)	1.20 (0.69, 2.08)	
Other	7	0.48 (0.10, 2.18)	0.26 (0.05, 1.38)	
Employment status	(572)			
Unemployed	174	1.00	1.00	3.13
Employed	217	1.72 (1.13, 2.63)	1.22 (0.75, 2.00)	$P = 0.372$
Retired	103	1.30 (0.79, 2.17)	1.59 (0.87, 2.89)	
Other	78	0.87 (0.51, 1.50)	0.93 (0.49, 1.78)	
Living circumstances on the day of suicide	(565)			
Lives alone	219	1.00	1.00	9.57
With family/partner	256	0.97 (0.66, 1.42)	0.72 (0.45, 1.15)	$P = 0.048$
With others	26	0.58 (0.26, 1.33)	0.32 (0.12, 0.83)	
In patient, psychiatric hospital	21	1.60 (0.56, 4.54)	1.48 (0.42, 5.17)	
Other	43	0.69 (0.34, 1.39)	0.45 (0.20, 1.00)	
Note left	(582)			
No	363	1.00	1.00	86.45
Yes	219	7.06 (4.47, 11.17)	9.95 (5.71, 17.36)	$P \leq 0.0001$
Suffering a psychiatric disorder	(521)			
No	85	1.00	1.00	3.09
Yes	332	0.56 (0.33, 0.96)	0.64 (0.34, 1.18)	$P = 0.213$
Probably	104	0.90 (0.47, 1.73)	0.94 (0.43, 2.01)	

Continued

Table 3 Continued

Variable	Sample size (variable total)	OR unadjusted (95% confidence intervals)	OR controlling for method and coroners' district (95% CI) <sup>a</sup>	$\chi^2$ (from likelihood ratio test); P-value
Primary psychiatric diagnosis	(461)			
Affective disorder	301	1.00	1.00	18.28
Schizophrenia other delusional disorder	43	0.64 (0.33, 1.24)	1.26 (0.56, 2.83)	$P = 0.006$
Anxiety disorder	10	0.98 (0.25, 3.87)	1.87 (0.31, 11.19)	
Alcohol dependence	34	0.22 (0.11, 0.48)	0.28 (0.12, 0.67)	
Drug dependence	19	0.31 (0.12, 0.78)	0.28 (0.09, 0.86)	
Other psychiatric diagnosis	24	0.42 (0.18, 0.97)	0.63 (0.23, 1.71)	
No mental disorder	30	0.42 (0.20, 0.90)	0.37 (0.15, 0.93)	
Previous self-harm	(525)			
None	246	1.00	1.00	1.28
One or more	279	1.17 (0.82, 1.68)	1.28 (0.84, 1.96)	$P = 0.258$
Contact with psychiatric services	(513)			
No	209	1.00	1.00	0.96
Yes	304	0.69 (0.48, 1.01)	0.80 (0.52, 1.25)	$P = 0.328$
When in contact with psychiatric services	(570)			
At the time of death	153	1.00	1.00	10.40
During last year	77	0.55 (0.31, 0.96)	0.52 (0.26, 1.04)	$P = 0.016$
> 1 year	60	1.59 (0.82, 3.07)	2.02 (0.92, 4.42)	
Not known	285	1.25 (0.83, 1.89)	1.18 (0.73, 1.92)	
Was alcohol consumed	(453)			
No	262	1.00	1.00	0.95
Yes	191	0.81 (0.55, 1.20)	0.79 (0.50, 1.26)	$P = 0.329$
Alcohol level detected	(229)			
<20 mg/100ml	57	1.00	1.00	8.74
20–49 mg/100 ml	26	1.41 (0.53, 3.80)	1.06 (0.30, 3.77)	value for trend
50–79 mg/100 ml	15	1.73 (0.49, 6.11)	0.72 (0.13, 4.00)	$P = 0.003$
80–149 mg/100 ml	37	1.16 (0.49, 2.74)	0.46 (0.15, 1.46)	
≥ 150 mg/100 ml	94	0.89 (0.45, 1.74)	0.27 (0.10, 0.74)	

<sup>a</sup>Adjusted for coroners' district and method of death.

The presence of a suicide note increases the odds of a suicide verdict, as reported in other studies,<sup>5,6</sup> it is noteworthy, however, that 26 (12%) of the individuals who left a suicide note did not receive a suicide verdict. This could be because the coroner did not believe the deceased was in a state of mind that they understood the full consequences of their actions, or that the suicide note was unclear as to the individual's intent.

Being married was also associated with an increased chance of a suicide verdict, which is in broad agreement with some,<sup>14</sup> but not all studies.<sup>6</sup> This finding could be because the spouse of the deceased may be available to inform the coroner of the deceased's personal circumstances and state of mind. However, the odds of receiving a suicide verdict were lower for those living with family or a partner.

We were surprised to find no association in the odds of receiving a suicide verdict with a previous episode of self-

harm or suicide attempt, as a history of previous self-harm is strongly associated with suicide risk.<sup>15–17</sup>

In other studies previous psychiatric contact was not predictive of whether an individual received a suicide verdict.<sup>5,6,18</sup> The decrease in the odds of a suicide verdict when the deceased has had contact with psychiatric services within the last year, as seen in our study, could be because the coroner supposes that an individual who is in regular contact with psychiatric services is acutely unwell and may not fully be aware of the consequences of their actions.

While knowledge of whether the deceased consumed alcohol or not was not related to a suicide verdict,<sup>5</sup> the odds of a suicide verdict decrease with increased blood alcohol level. This difference could be because an individual who is grossly intoxicated is less likely to understand the consequences of their act as well as being at risk of accidentally

drowning/falling and therefore will be more likely to receive a verdict other than suicide.<sup>6</sup>

### What is already known on this topic

While many of our findings are broadly in keeping with the suicide literature,<sup>5–10,14</sup> they also help extend knowledge about some characteristics influencing coroners' verdicts. For example, while the history of mental disorder is known to contribute to a suicide verdict,<sup>6,9</sup> we have found that only individuals who had last been in contact with psychiatric services over a year before their death were more likely to receive a suicide verdict. Those who had a more recent contact were more likely to receive a verdict other than suicide (see above). We also found that variations between coroners' district persist after controlling for the characteristics of the cases they assess.

### What this study adds

The implications of this study are that in districts where coroners give a high proportion of narrative or accidental verdicts then the incidence of suicide could be underestimated, in some cases by >20%. As a result, such districts may neglect suicide as a priority. A recent development that may have an impact on the verdicts reported by coroners is the appointment of a Chief Coroner for England and Wales in September 2012. One of the roles expected of the Chief Coroner is to set national standards for coroners and to produce a new set of inquest rules. How this will affect consistency of practice remains to be seen. However, consideration of dispensing with the criminal standard of proof required in suicide cases in favour of a balance of probabilities of intent and the use of narrative verdicts and the impact on the reporting of suicide statistics are matters that are being addressed by the Chief Coroner.

### Limitations of this study

There are three main limitations of this analysis. First, we only examined a single year 'snap shot'. Secondly, just as coroners differ in their views about the likelihood that a death was suicide, so too may clinicians; we tried to limit this by blinding reviewers to the coroners' verdicts and by ensuring all deaths were independently reviewed by three clinicians who discussed differences of opinion to reach a consensus. Lastly, cases which were given a suicide verdict by coroners were automatically included within the study without review, as a high level of proof is required in order for a suicide verdict to be assigned, we believe that the number of false positives is likely to have been small.

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