



# The National Confidential Inquiry into Suicide and Homicide by People with Mental Illness

**ANNUAL REPORT: England, Wales, and Scotland**

**JULY 2011**

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## ACKNOWLEDGEMENTS

The Inquiry would like to acknowledge the assistance it has received from individuals throughout the NHS, government departments and other organisations, including: the Department of Health, the Home Office, the Ministry of Justice, the Office for National Statistics, the Scottish Government, the General Register Office for Scotland, the Scottish Government Justice Directorate and the Scottish Crown Office.

Responsibility for the analysis and interpretation of the data provided from government offices rests with the National Confidential Inquiry into Suicide and Homicide by People with Mental Illness and not with the original data provider.



## PRESENTATION OF FINDINGS

In this report, findings are presented for England, Wales, and Scotland, for:

- Suicide
- Homicide

Findings for the Sudden Unexplained Deaths study are presented for England and Wales only.

A separate report on suicide and homicide in Northern Ireland was published in June 2011. The report is accessible on our website: [www.manchester.ac.uk/nci](http://www.manchester.ac.uk/nci).

## England and Wales

### Method of data collection

The method of data collection for suicide, homicide, and sudden unexplained death is similar in England and Wales.

### Suicide

The report covers deaths by suicide for the period January 1997 to December 2008. Information on all general population suicides (i.e. deaths by intentional self-harm and deaths from undetermined intent) by individuals aged 10 and over is collected from the Office for National Statistics (ONS).<sup>1</sup>

### Homicide

The report covers people convicted of homicide, presented by year of conviction between January 1997 and December 2007. The Inquiry is notified of all convictions for homicide by the Home Office Research Development Statistics branch.<sup>2</sup> Identification of mental illness in non-patients relies on psychiatrists preparing a report for the court, which the Inquiry then obtain.

General population homicide conviction figures in sections 1.2 and 2.2 are provided for the period of the report as context for our data on homicides by people with mental illness. A full analysis of homicide offences recorded by police in England and Wales was published by the Home Office in January 2011.<sup>3</sup>

### Sudden unexplained death

This report covers sudden unexplained death (SUD) in psychiatric in-patients for the period March 1999 to December 2007. Data on all patient deaths within psychiatric and learning disabilities in-patient hospitals in England are provided by Hospital Episode Statistics (HES)<sup>4</sup>, previously the NHS-Wide Clearing Service. For Wales, data are provided by Health Solutions Wales (HSW).<sup>5</sup> During the report period the number of in-patient deaths notified to the Inquiry for England was 5,025 and in Wales 596.

A detailed description of data collection methods in England and Wales is available in previous reports: *Annual Report* (2009, 2010)<sup>6,7</sup>, and *Avoidable Deaths* (2006)<sup>8</sup>, which are accessible on our website [www.manchester.ac.uk/nci](http://www.manchester.ac.uk/nci).



## Data completeness

Data completeness for patient suicides is 98% in the report period. Completeness is lower in the final year reported (91% for England, 92% for Wales), reflecting the time required to process the data. For patient homicides, data completeness is 98% in England and 99% in Wales in the report period. Completeness was 98% in the final year reported for England.

For the final year of the suicide and homicide analysis we therefore estimate the final number of cases based on data completeness in previous years. Projected figures are based on the average annual return of Inquiry questionnaires, i.e. adjusted to an assumed final figure of 98% for both suicide and homicide. For homicide in Wales, numbers are too small to calculate projected figures. For sudden unexplained deaths, actual figures are shown, including those in the final year.

## Scotland

### Method of data collection

#### Suicide

This report covers deaths by suicide for the period January 1998 to December 2008. Information on all general population suicides (as defined in England and Wales) is collected from the General Register Office for Scotland (GROS).<sup>9</sup>

#### Homicide

This report covers homicide convictions, presented by year of conviction between January 1998 and December 2008. Information is collected from the Scottish Government Justice Directorate, with additional data obtained from the Scottish Crown Office. Identification of mental illness in non-patients relies on psychiatrists preparing a report for the court, which the Inquiry then obtain.

General population homicide conviction figures in section 3.2 are provided for the period of the report as context for our data on homicides by people with mental illness. A full analysis of homicide offences recorded by police in Scotland was published by the Scottish Government in December 2010.<sup>10</sup>

A detailed description of data collection methods in Scotland are described in a previous report for Scotland, *Lessons for Mental Health Care in Scotland*<sup>11</sup>, accessible on our website [www.manchester.ac.uk/nci](http://www.manchester.ac.uk/nci).

## Data completeness

Data completeness for patient suicides is 98% in the report period. Completeness is lower in the final year reported (95%), reflecting the time required to process the data. For patient homicide, data completeness is 99% in the report period; completeness is lower in the final year reported (89%).

As in England and Wales, for the final year of the suicide and homicide analysis we therefore estimate the final number of cases based on data completeness in previous years. Projected figures are based on the average annual return of Inquiry questionnaires, i.e. adjusted to an assumed final figure of 98% complete for suicide and 99% complete for homicide.



## Analysis

The following section describes how data were analysed in this report, for England, Wales, and Scotland.

### Trends over time

To examine for statistically significant time trends, trend tests were carried out using categorical data methods in Stata v11.<sup>12</sup> Poisson models were fitted with the number of suicides or homicides per year as the outcome and year as a linear predictor. For rates, general population per year was the exposure. Within the patient sample, the exposure was the total number of suicides or homicides per year. For each model, the likelihood-ratio-test p-value and the predictor (and 95% confidence intervals) for year were examined.

### Rates of suicide and homicide

General population and patient rates for suicide were calculated using mid-year population estimates (age 10 and over) as a denominator obtained from ONS and GROS. These were also used to calculate rates for suicide by Strategic Health Authority (England), Health Board (Scotland) and Health Authority area (Wales). The Health Board rates in Scotland reflect the new health area boundaries that came into place

on 1 April 2006. Mid-year population estimates obtained from GROS have been revised for the period 2002 to 2008 only. Rates are therefore reported for this time period only. Rates of suicide in Wales are shown by Health Authority (HA) area, which were the health boundaries in place up to 2003. Data corresponding to the new Health Boards (HB) (in place 1 October 2009) are unavailable for earlier years of data. However, the names of the new HBs that correspond to the old HA areas are also shown.

General population and Strategic Health Authority rates were also calculated for homicide (England only).

Discrepancies may arise between Inquiry national numbers and rates and those presented by the ONS, the National Mental Health Development Unit (NMH DU)<sup>13</sup>, and the Scottish Public Health Observatory website<sup>14</sup> due to differences in measurement described in *Avoidable Deaths*<sup>8</sup> and *Lessons for Mental Health Care in Scotland*.<sup>11</sup> The main reason for the difference in our general population rates compared to those published on the Scottish Public Health Observatory website is that the Inquiry rates are crude rates based upon the number in the general population aged 10 and

over. The GROS calculates rates based on the whole population (including those aged under 10) which means the denominator is bigger and the resulting rates are lower. The GROS also calculates its rates based on European age-standardised population data (to adjust for differences in age structure across countries). Further details can be found in the report *Lessons for Mental Health Care in Scotland* (page 27).<sup>11</sup>

In addition to general population suicide rates, the Mental Health Minimum Dataset (MHMD)<sup>15</sup> was used to ascertain rates of suicide in those in contact with NHS mental health services in England. Rates of suicide (for England only based on clinical denominators from the MHMD) were calculated for the years that currently overlap with Inquiry data (2004-2008) (see section 1.1.2, Figure 7). During this period there was an average of 1,162,047 people in contact with NHS mental health services in England.

The Inquiry database is dynamic. Changes in annual figures will occur subject to further information received from coroners or as a result of additional court hearings, e.g. following a successful appeal against a homicide conviction.



## 1. ENGLAND

### 1.1 SUICIDE

Between 1997-2008, the Inquiry was notified of 56,091 deaths in the general population that were recorded as suicide or undetermined. These are referred to as suicides throughout the report.

#### 1.1.1 Suicide in the general population

- There was an overall fall in the number and rate of suicides despite an increase in 2008 (Table 1; Figure 1). This fall (and the 2008 increase) was seen in both males and females.
- Rates fell in all age-groups particularly in those aged under 25, and 65 and over (Figure 2).

Table 1: Number of suicides in the general population, by sex

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	3798	4006	3749	3564	3442	3439	3427	3426	3308	3183	3203	3414
Female	1255	1257	1260	1255	1154	1187	1226	1241	1150	1021	1010	1116
Total	5053	5263	5009	4819	4596	4626	4653	4667	4458	4204	4213	4530





Figure 1: Rates of suicide in the general population, by sex

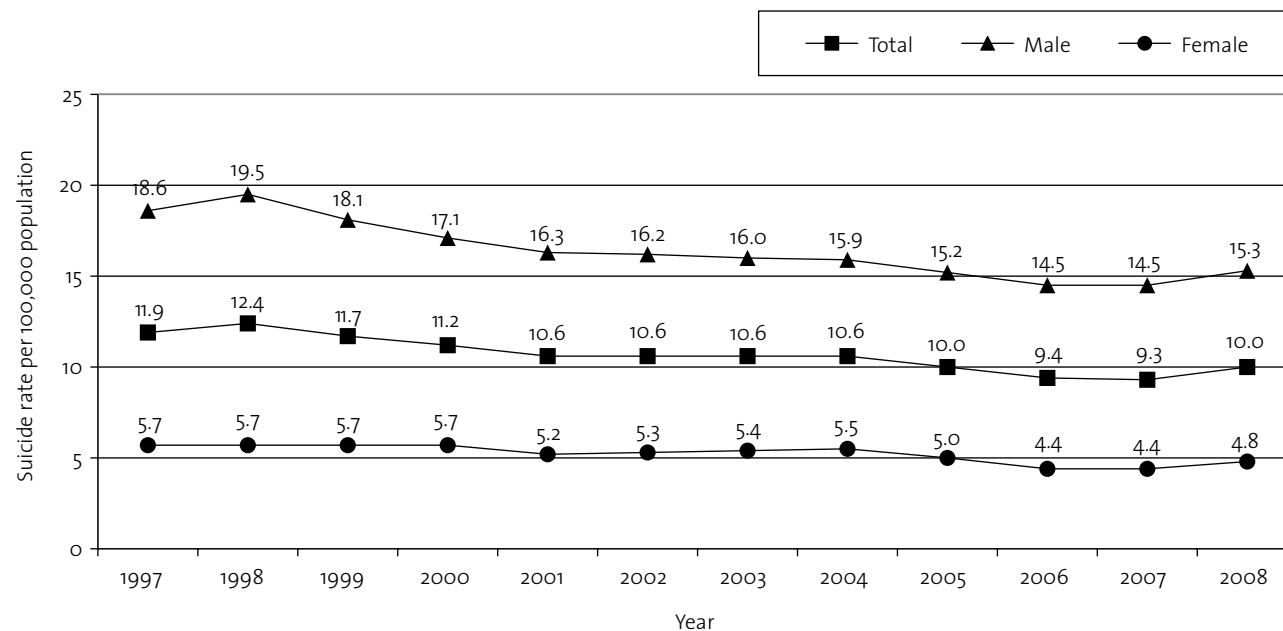
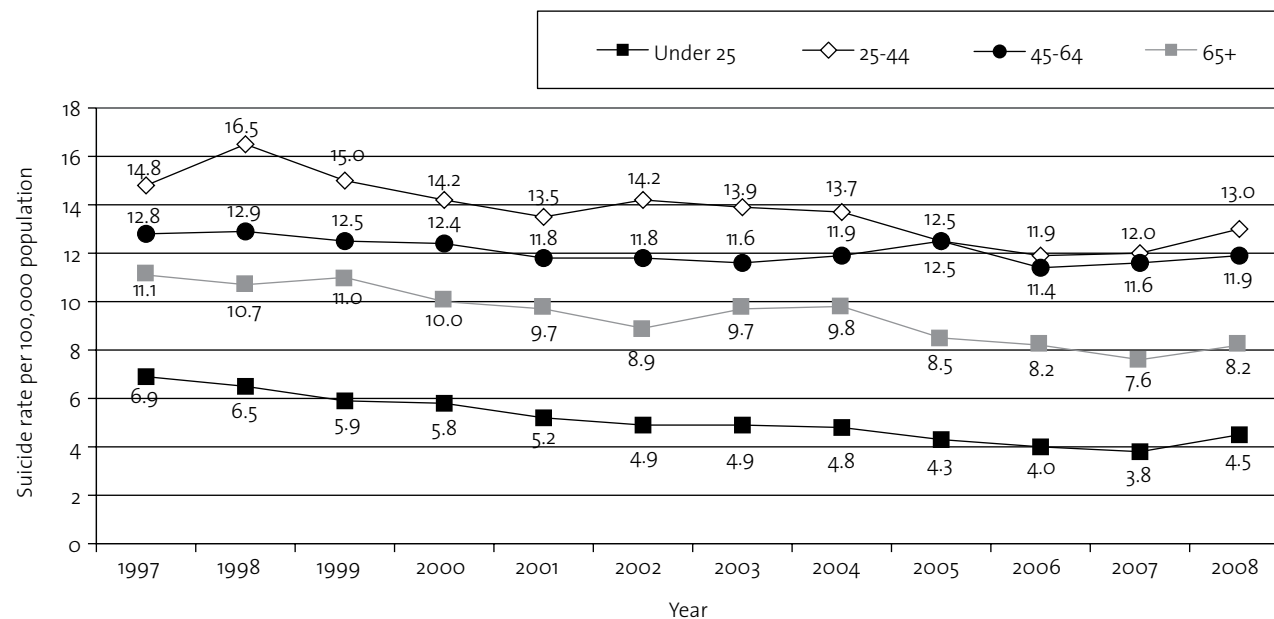


Figure 2: Rates of suicide in the general population, by age-group



### Variation in suicide by Strategic Health Authority (SHA)

- There was some variation in suicide rates by SHA of residence at the time of death (2006-2008). The highest rate of suicide was in the North West, at 10.8 per 100,000 population, and the lowest in London and South Central, at 8.7 per 100,000 population (Figure 3).
- The rate of suicide within each SHA decreased over the report period. The greatest falls in the rate of suicide were seen in London, Yorkshire and the Humber, and the North East (Figure 4). East Midlands, the South West, and the South East Coast showed the smallest falls.



Figure 3: Rate of suicide, by Strategic Health Authority  
(average rate 2006-2008)

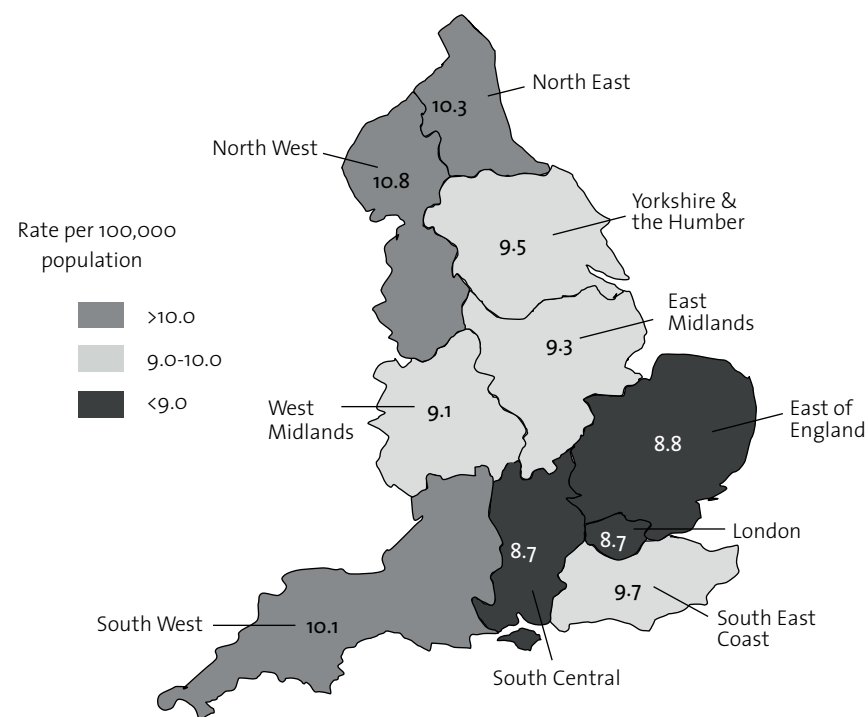
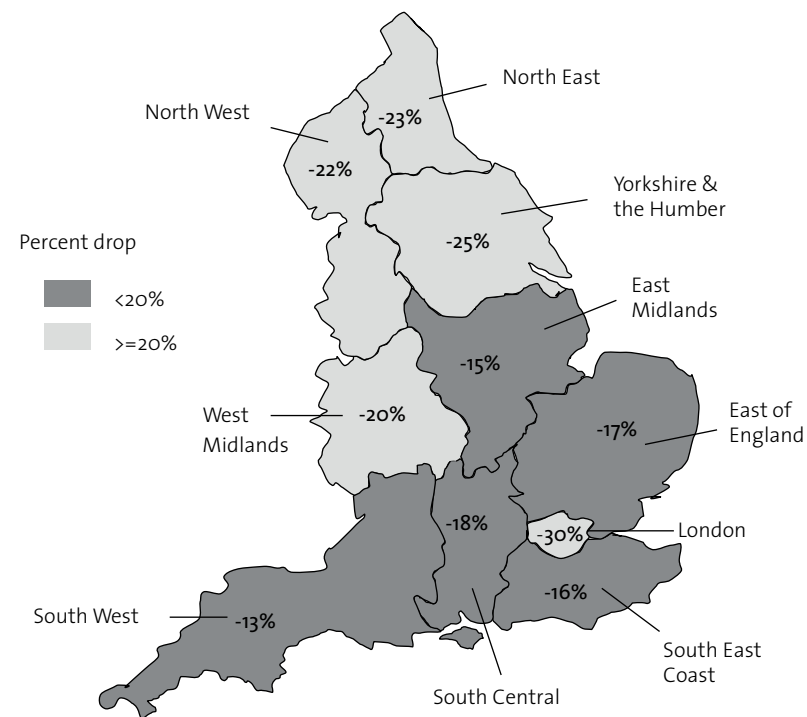


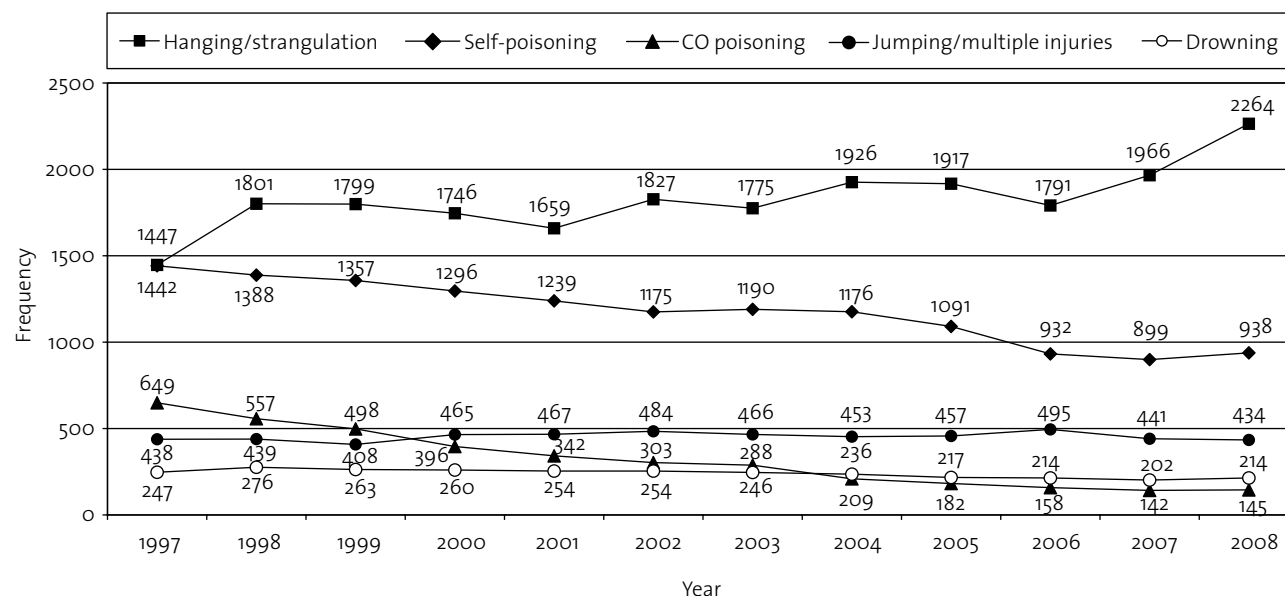
Figure 4: Change in the rate of suicide from 1997-1999 to  
2006-2008, by Strategic Health Authority



## Method of suicide

- The most common methods of suicide were hanging/strangulation (referred to as hanging in the remainder of this report), self-poisoning (overdose) and jumping/multiple injuries (mainly jumping from a height or being struck by a train).
- Over the report period there were changes in method of suicide (Figure 5). Suicide deaths by hanging increased, as did deaths by cutting/stabbing (from an average of 78 in 1997-1998 to 116 in 2007-2008). Deaths by self-poisoning, carbon monoxide (CO) poisoning, and drowning decreased, as did deaths by firearms (from an average of 114 in 1997-1998 to 87 in 2007-2008).

Figure 5: Suicide in the general population: cause of death



## 1.1.2 Patient suicide

### Patient suicide: numbers and rates

- During 1997-2008, 14,654 suicides (26% of general population suicides) were identified as patient suicides, i.e. the person had been in contact with mental health services in the 12 months prior to death. This represented an average of 1,221 patient suicides per year.
- There was a decrease in the number and rate of patient suicide using a general population denominator (Table 2; Figure 6). The rise in 2008 was of a similar size to the 2008 rise in general population suicides.

- There was also a decrease in the rate of suicide between 2004-2008 when patient numbers rather than general population figures were used as the denominator (Figure 7).
- The number of patient suicides decreased overall in those aged 44 and younger, but increased in those aged 45-64 (Figure 8).

**Table 2: Number of patient suicides, by sex**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	793	842	826	823	845	834	800	864	792	729	742	799
Female	411	415	433	430	416	416	456	451	482	377	366	397
Total	1204	1257	1259	1253	1261	1250	1256	1315	1274	1106	1108	1196



Figure 6: Rates of patient suicide, by sex

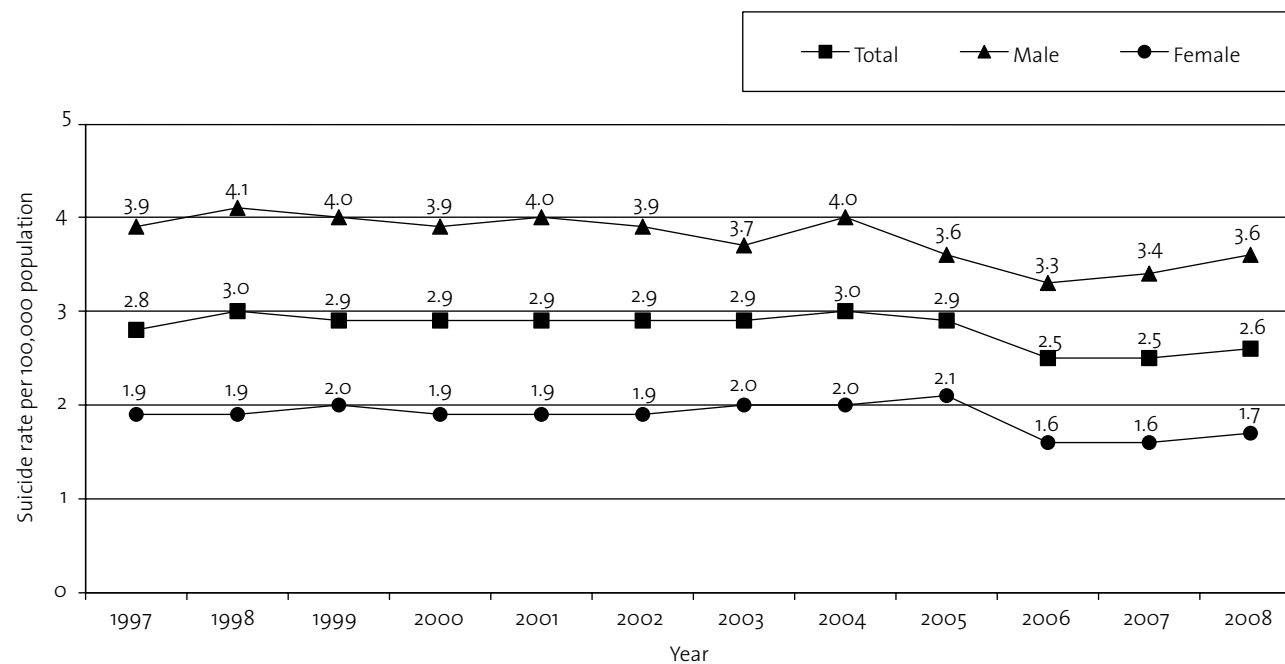
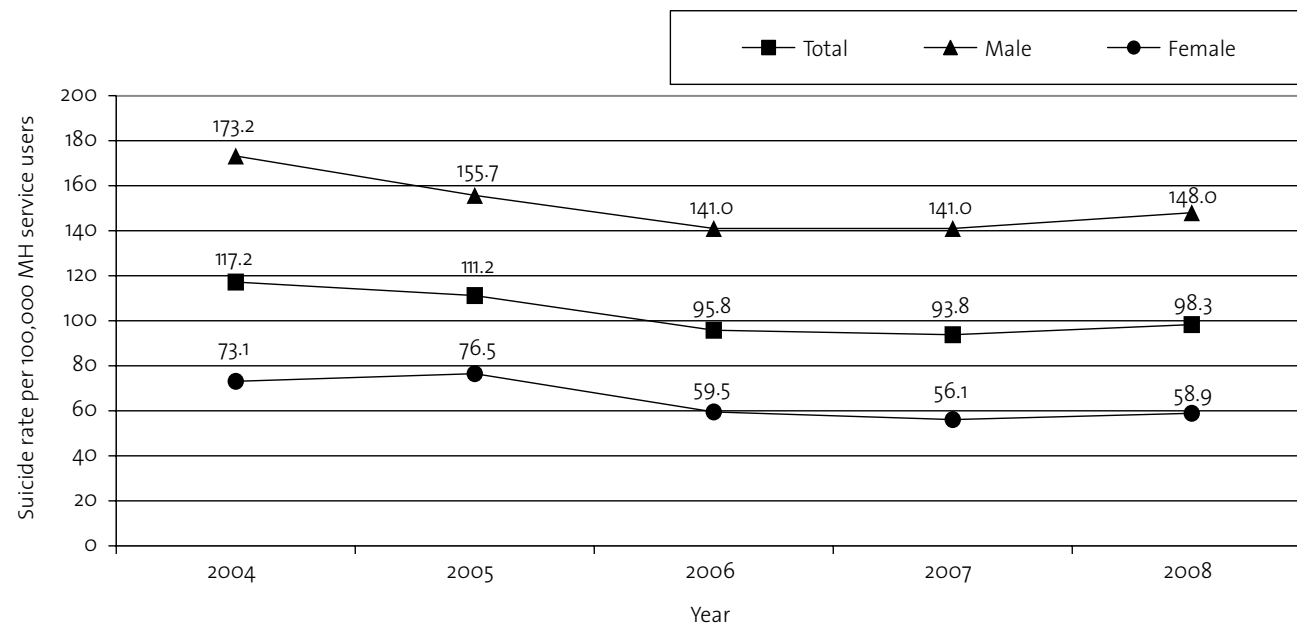


Figure 7: Rates of suicide per 100,000 mental health service users †

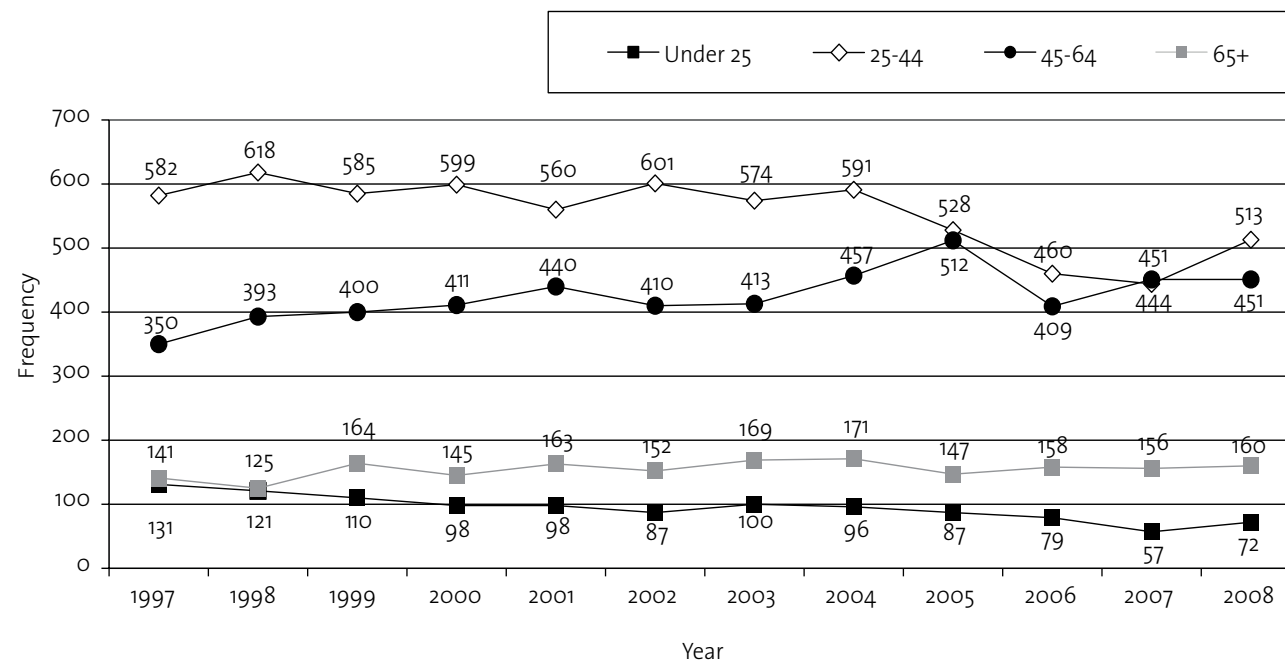


† The Mental Health Minimum Dataset was used to calculate rates for the available years (2004-2008).





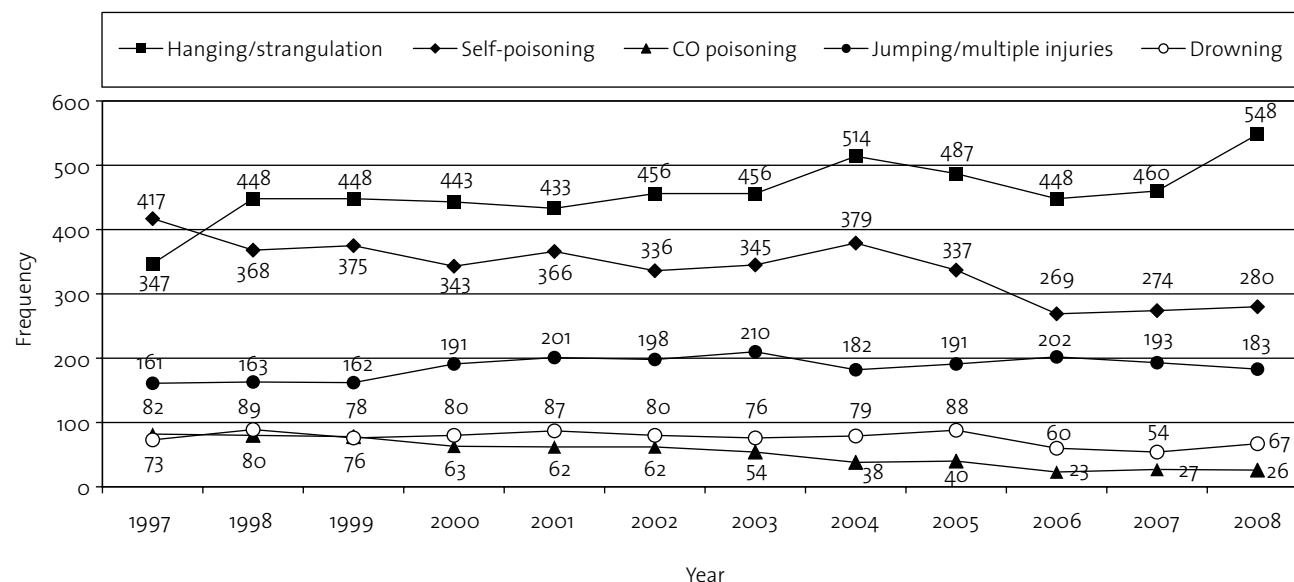
Figure 8: Number of patient suicides, by age-group



## Method of suicide by patients

- The most common methods of suicide by patients were hanging, self-poisoning, and jumping/multiple injuries.
- The number of deaths by self-poisoning, carbon monoxide (CO) poisoning, and drowning decreased (Figure 9). An upward trend occurred in hanging, jumping/multiple injuries, and cutting/stabbing (from an average of 18 deaths in 1997-1998 to 30 deaths in 2007-2008). Figures for firearms remained stable.

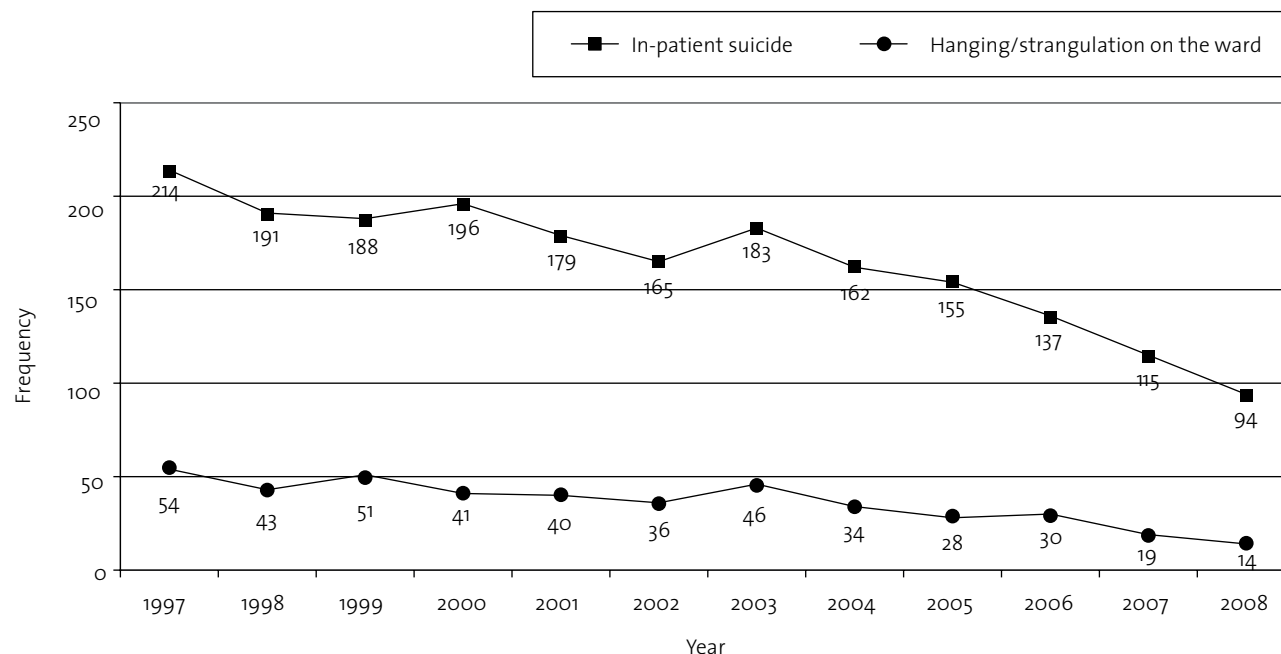
Figure 9: Patient suicide: cause of death



## In-patient suicide

- There were 1,972 in-patient deaths by suicide during the report period, 13% of patient cases, an average of 164 deaths per year.
- From 1997, there was a 56% fall in the number of in-patients dying by suicide (Figure 10). A reduction in the rate of in-patient suicide has previously been found<sup>16</sup> (i.e. taking into account admission figures).
- The number of patients who died on the ward by hanging fell by 74% (Figure 10).
- In 2008 there were just 13 confirmed hanging deaths on mental health wards (we estimated that this figure will rise to 14 once data collection is complete – see Figure 10). The ligature points in 11 of these related to doors or windows; in 5 cases a belt was used as the ligature.

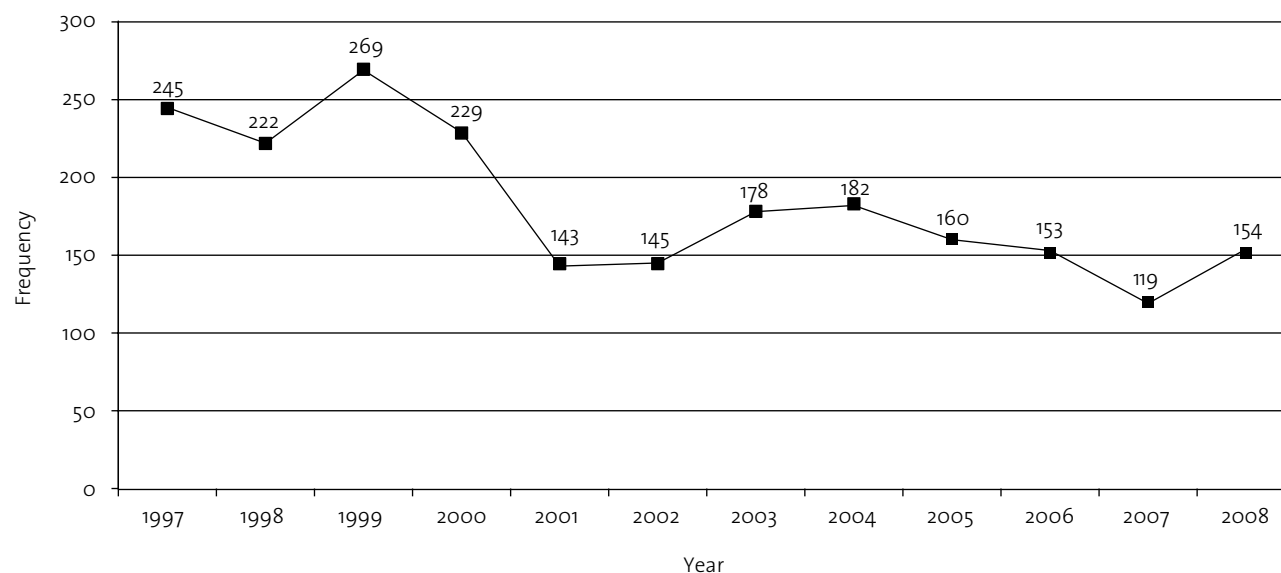
Figure 10: Patient suicide: number of mental health in-patients; number who died by hanging/strangulation on the ward



## Treatment refusal

- There were 2,188 suicides in which the patient was known to have refused drug treatment in the month before death, 17% of the total sample, an average of 182 deaths per year.
- There was an overall fall in the number of suicides in patients who refused treatment (Figure 11), though figures in the most recent years were relatively stable.

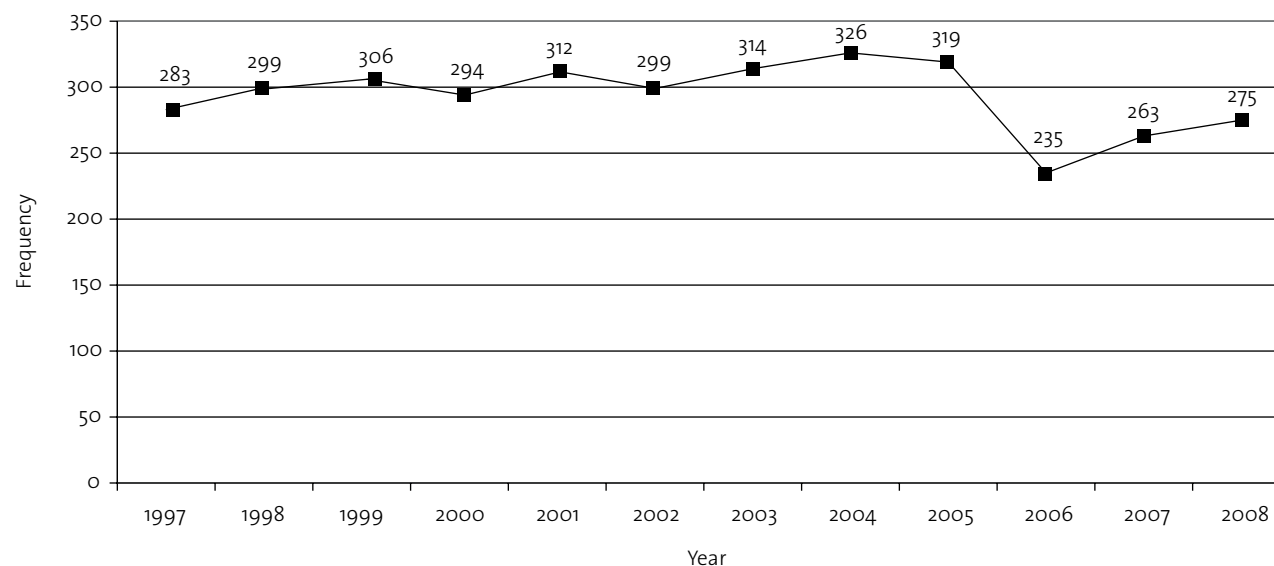
Figure 11: Patient suicide: number of patients who refused drug treatment



## Missed contact

- There were 3,505 suicides by people who missed their final service contact, 28% of the total sample, an average of 292 deaths per year.
- There was no overall trend in the number of suicides in patients who missed their last appointment with services (Figure 12), though figures for 2006-2008 were slightly lower than for previous years.

Figure 12: Patient suicide: number of patients who missed their last appointment with services



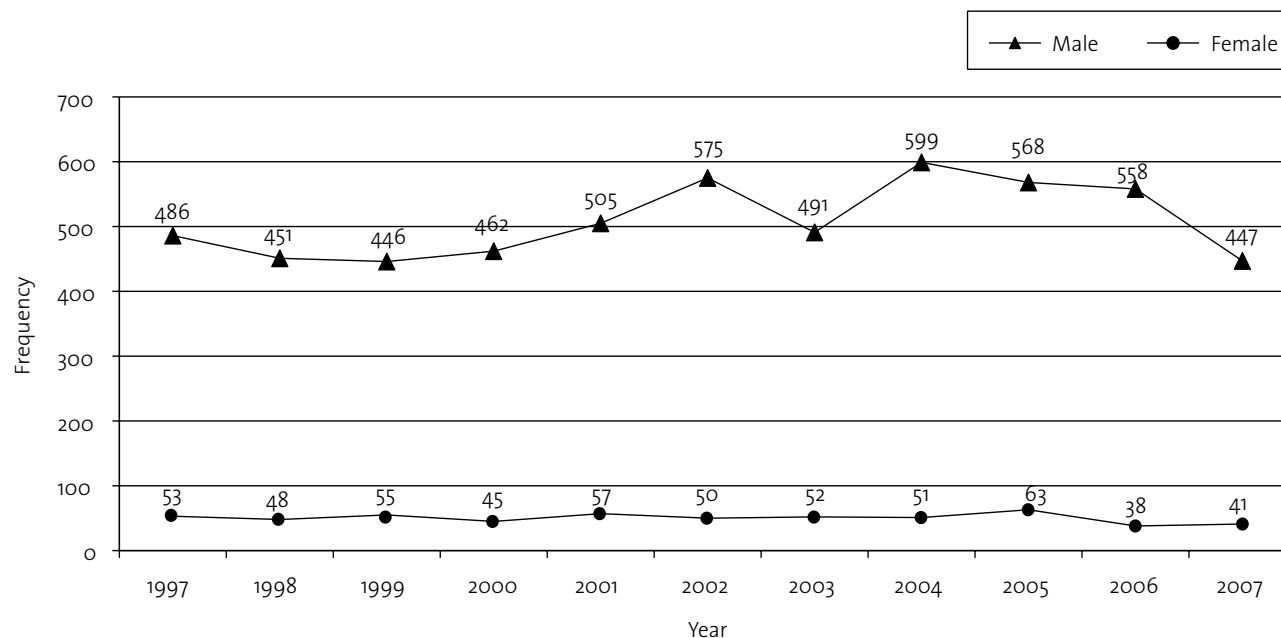
## 1.2 HOMICIDE

The Inquiry was notified by Home Office Statistics of 6,141 homicide convictions in the report period, 1997-2007. A psychiatric report was obtained on 2,881 (47%) homicide perpetrators.

### 1.2.1 Homicide in the general population

- The annual number of homicide convictions in the general population is shown in Figure 13. These figures are provided as context for our data on homicides by people with mental illness. More recent homicide statistics are published by the Home Office.<sup>3</sup>
- There was a fall in the number of general population homicides in 2007, a decrease of 18% from the previous year.
- The most common method of homicide was the use of a sharp instrument (39%); this increased over the report period.

Figure 13: Number of homicides in the general population, by sex of perpetrator



### Variation in homicide by Strategic Health Authority (SHA)

- There was some variation in homicide rates by SHA of residence at the time of the offence (2005-2007). The highest rate of homicide was in London, and the lowest in South East Coast (Figure 14).
- Four SHAs experienced a rise in homicide from 1997-1999 to 2005-2007 (Figure 15). The largest rise was in London.



Figure 14: Rate of perpetrators convicted of homicide, by Strategic Health Authority (average rate 2005-2007)

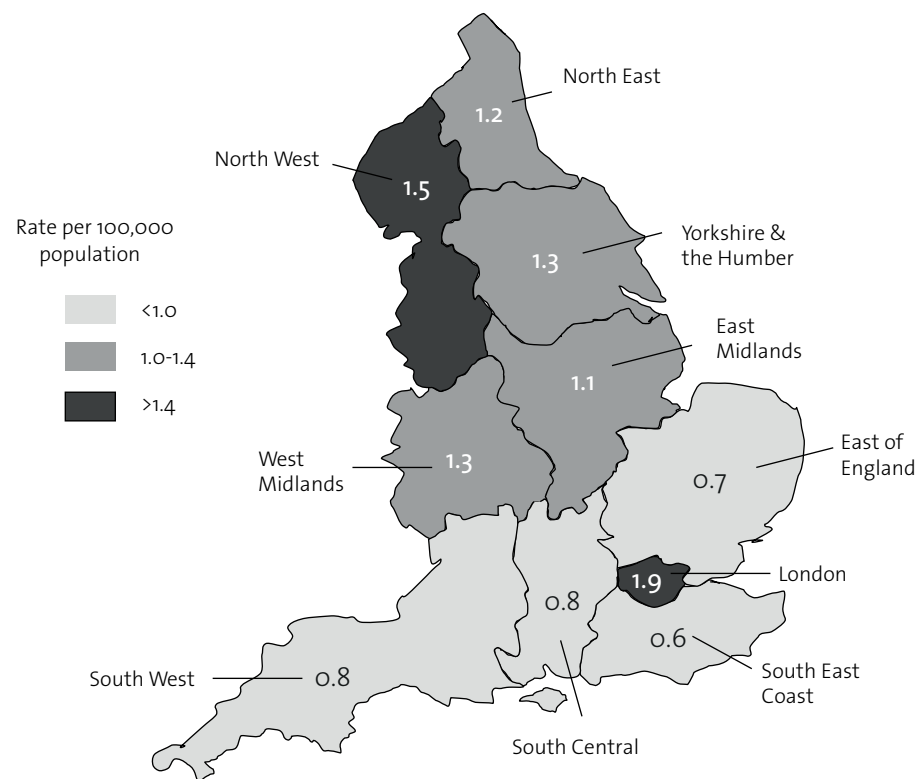
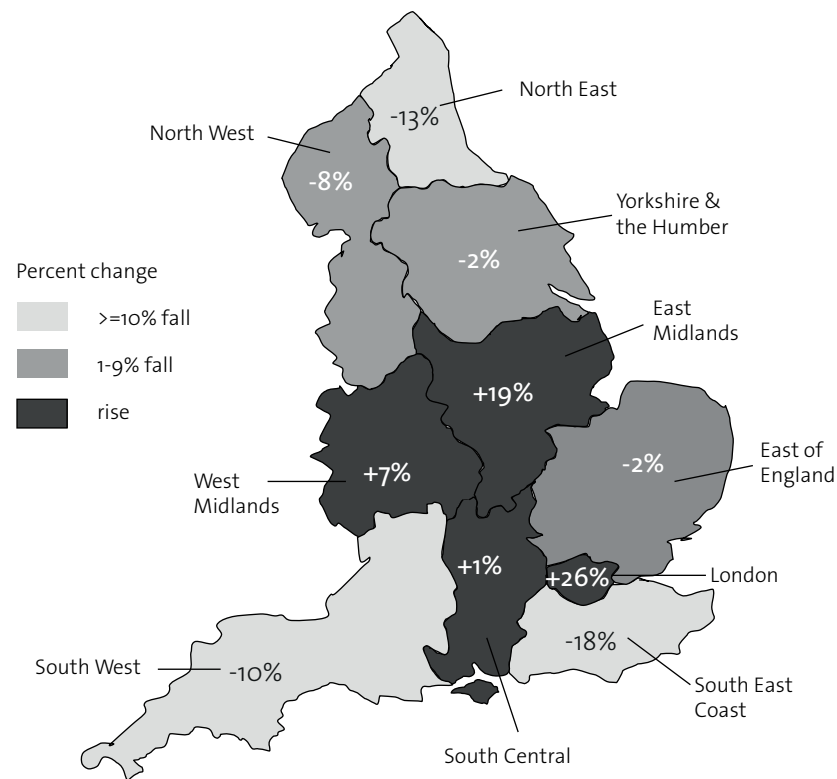


Figure 15: Change in the rate of perpetrators convicted of homicide from 1997-1999 to 2005-2007, by Strategic Health Authority



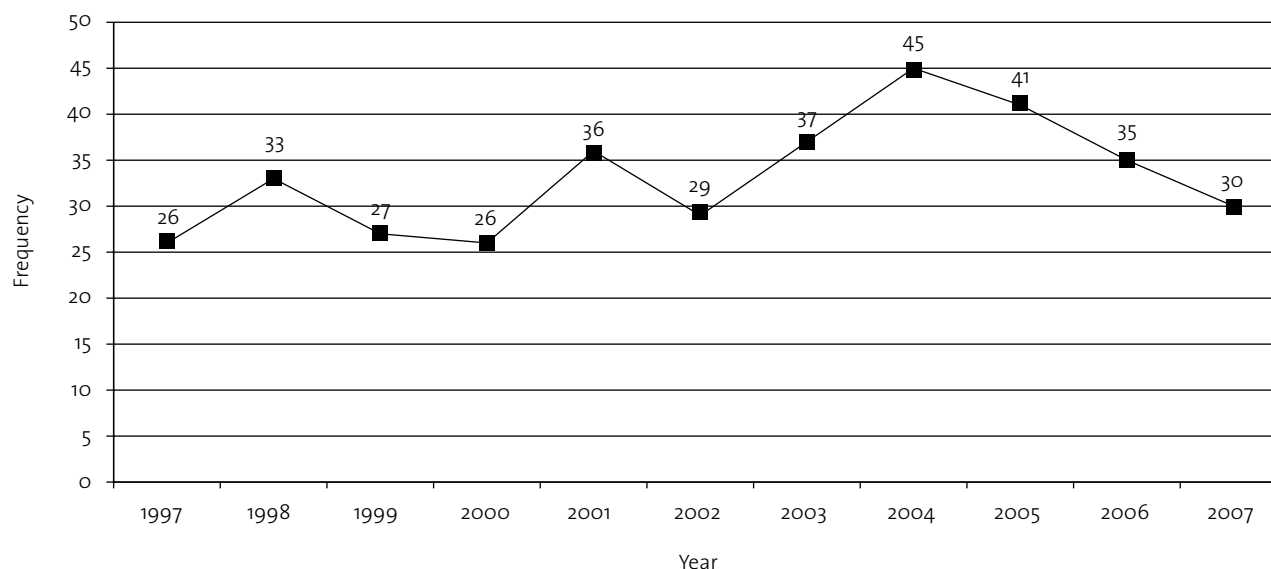


## 1.2.2 Homicide by mentally ill people in the general population

### Homicide by people with schizophrenia

- There were 364 homicides by people with schizophrenia (based on lifetime history) over the 11-year report period, 6% of the total sample, an average of 33 per year.
- There was no significant overall trend in the number of homicides by people with schizophrenia over the report period (Figure 16); substantial fluctuations occurred.
- The numbers fell from 2004 but the most recent figure for 2007 was consistent with the numbers earlier in the report period, and it is too early to identify a definite downward trend.

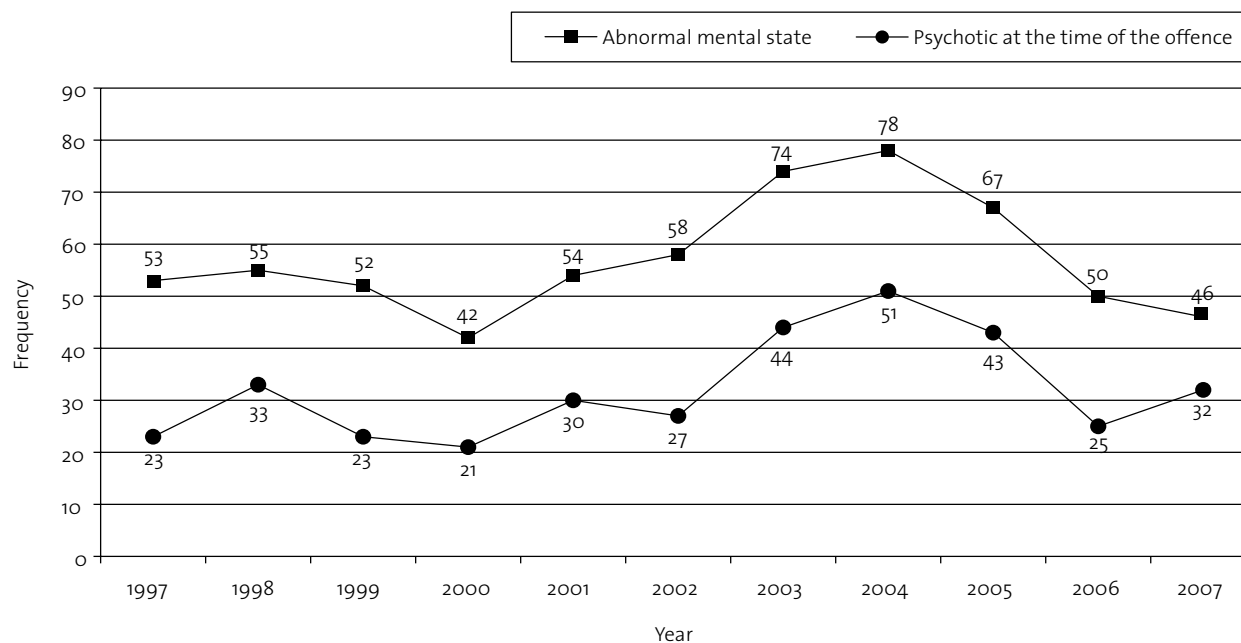
Figure 16: Perpetrators with a primary diagnosis of schizophrenia (lifetime history)



## Perpetrators who were mentally ill at the time of the homicide

- The overall number of people with an abnormal mental state at the time of the homicide was 628, 10% of the total sample, an average of 57 per year.
- Three hundred and fifty-one were psychotic at the time of the offence, 6% of the total sample, an average of 32 per year.
- We previously reported a rise in homicides by people with symptoms of mental illness and symptoms of psychosis in England and Wales.<sup>6</sup> However, for England, data from 2004 onwards suggested that these increases have reversed for those of abnormal mental state at the time of the homicide (Figure 17).

Figure 17: Perpetrators with mental illness at the time of the homicide



### 1.2.3 Patient homicide

- During 1997-2007, 627 people convicted of homicide (10% of the total sample) were identified as patients, i.e. the person had been in contact with mental health services in the 12 months prior to the offence, an average of 57 homicides per year.
- The figures fluctuated over the report period. Although an overall increase in the number of patient homicides was found, peaking in 2006, the number fell over the last year by 24% to a level observed in earlier years (Figure 18).
- Over the 11-year report period, the number of patient homicides increased in those aged 25-44 (Figure 19). However, the abrupt fall in 2007 suggests that this trend may not be continuing.

Figure 18: Number of patient homicides, by sex of perpetrator

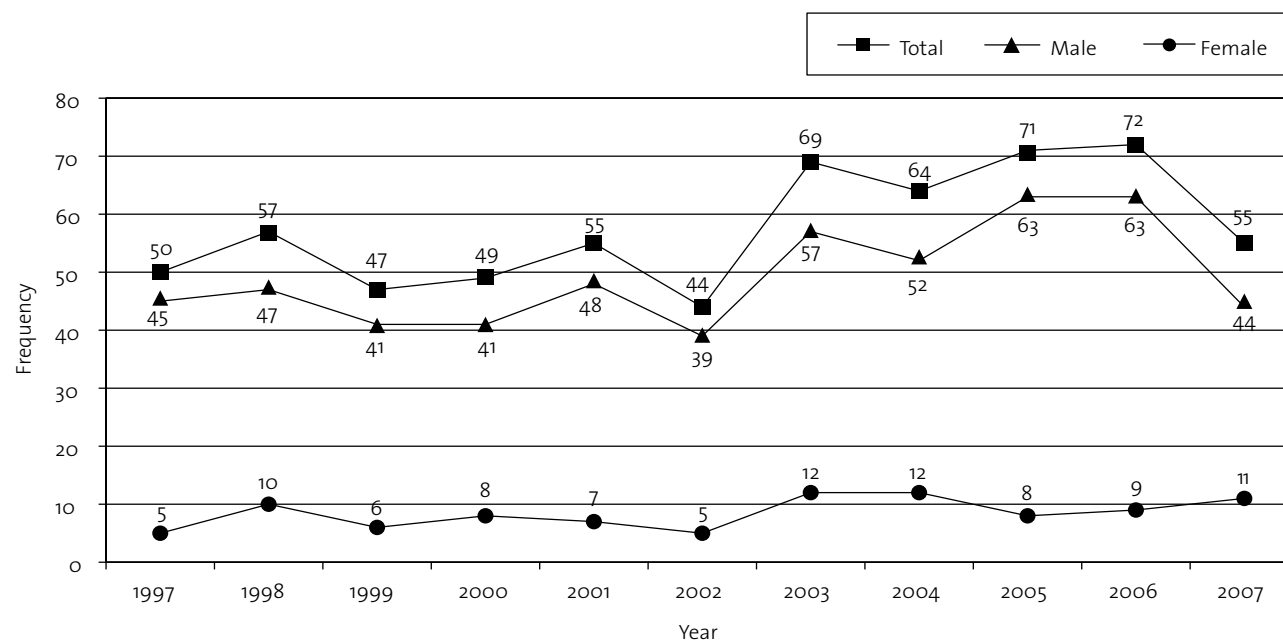
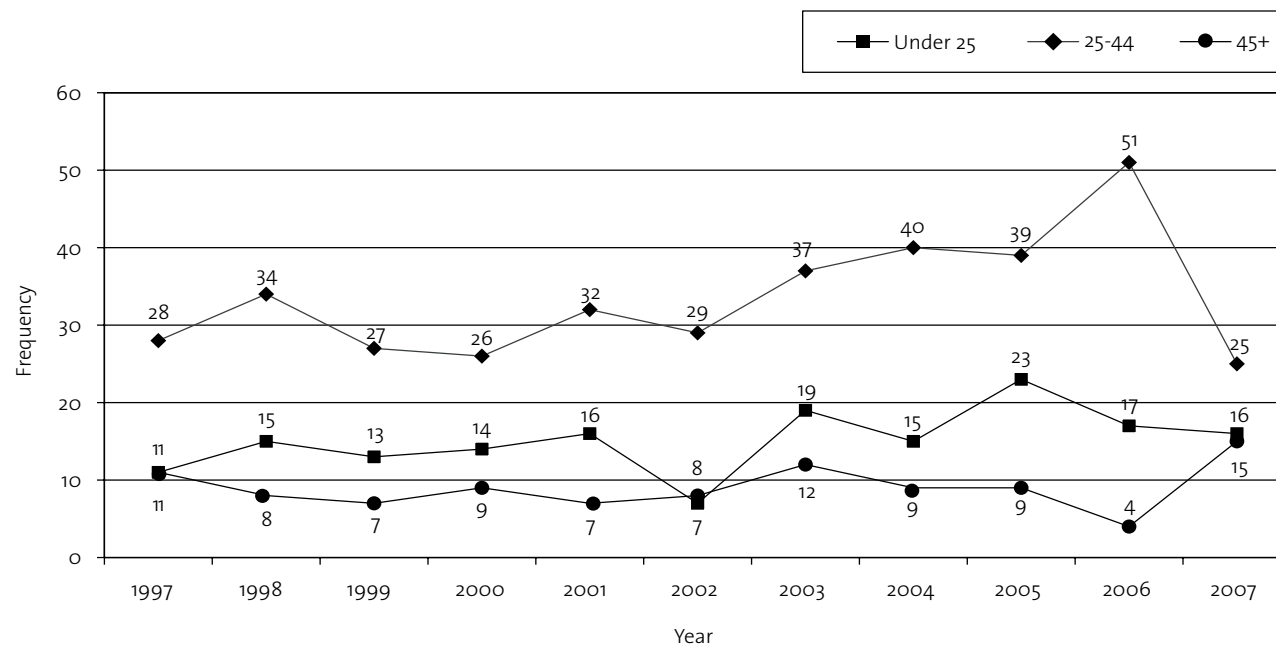


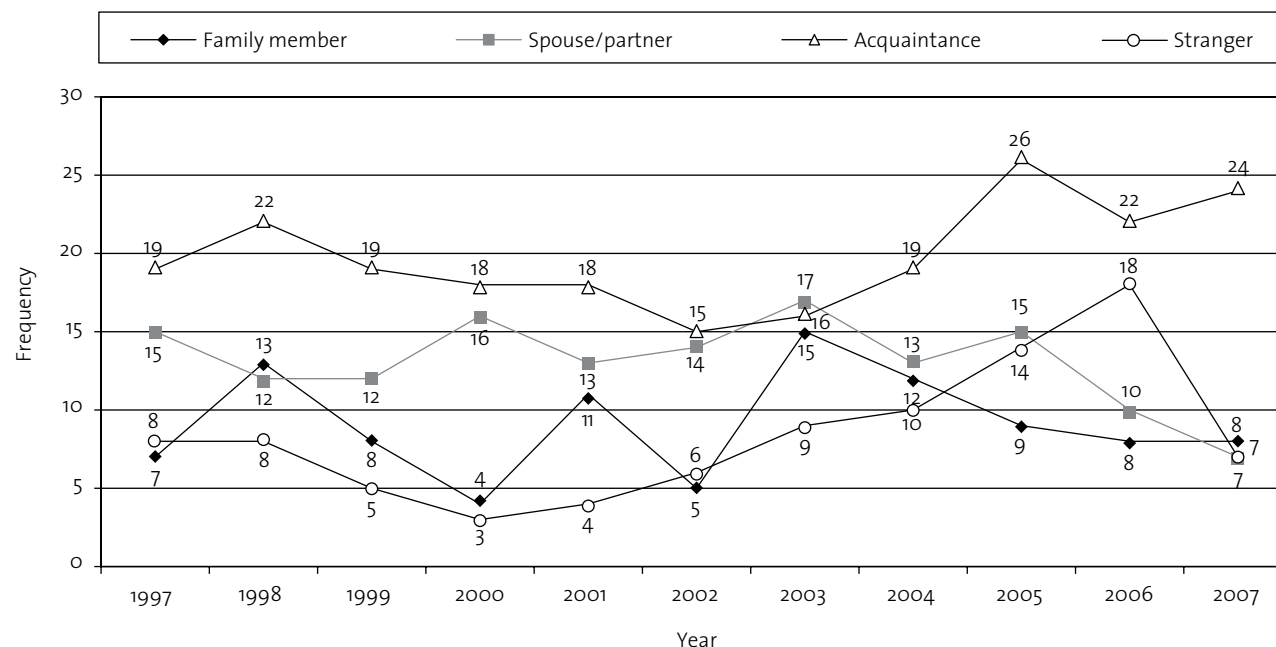
Figure 19: Number of patient homicides, by age-group



## Relationship of victim to perpetrator: patient homicide

- The relationship of victim to perpetrator is shown in Figure 20.
- There were 91 stranger homicides by patients (17%), an average of 8 per year.
- Despite an overall increase in stranger homicide by patients over the 11 years reported, the number fell in 2007 (by 61%). This recent decrease is consistent with the numbers observed at the beginning of the report period.
- The victims for male patients were most likely to be acquaintances whereas females most commonly killed family members or spouses/partners.

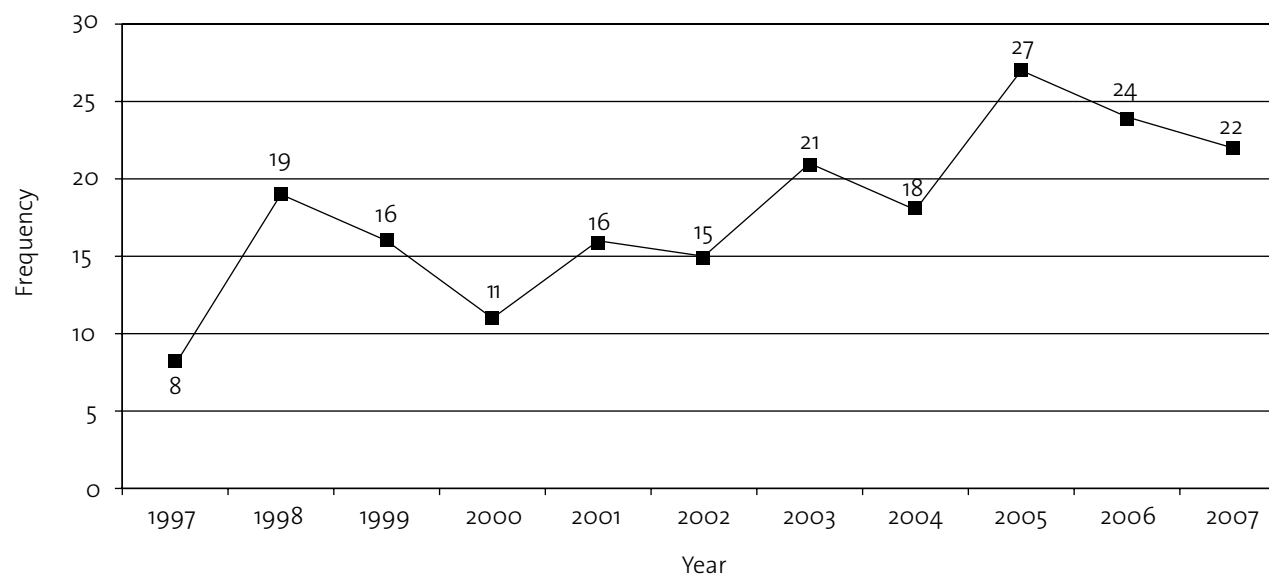
Figure 20: Patient homicide: relationship of victim to perpetrator



## Diagnosis

- Of the patients who committed homicide, 195 (31%) had been diagnosed with schizophrenia, an average of 18 per year (Figure 21).
- There was an increase in the number of homicides by patients with schizophrenia but not an increase in the total number of homicides by people with schizophrenia (see page 25). In other words, a higher proportion were recent patients. Schizophrenia was the commonest diagnosis.

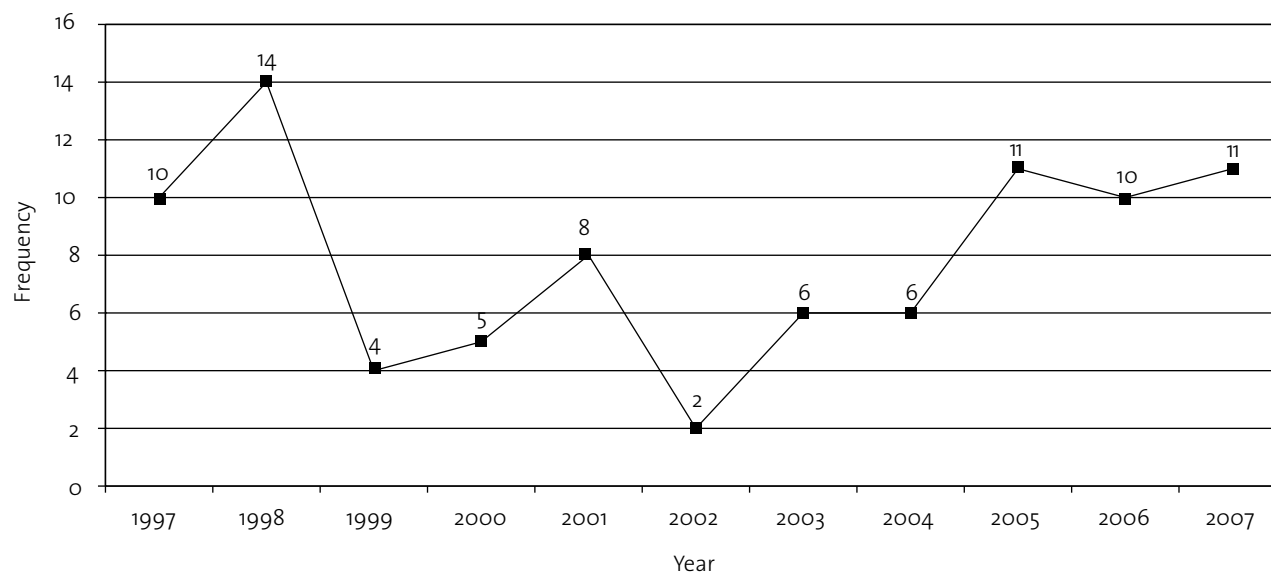
Figure 21: Patient homicide: number of patients with schizophrenia



## Treatment refusal

- There were 86 patients (16%) known to have refused drug treatment in the month before the homicide, an average of 8 per year.
- The numbers fluctuated over the report period, with an increase in the number of cases from 2002. However, over the 11-year period no overall trend was found (Figure 22).

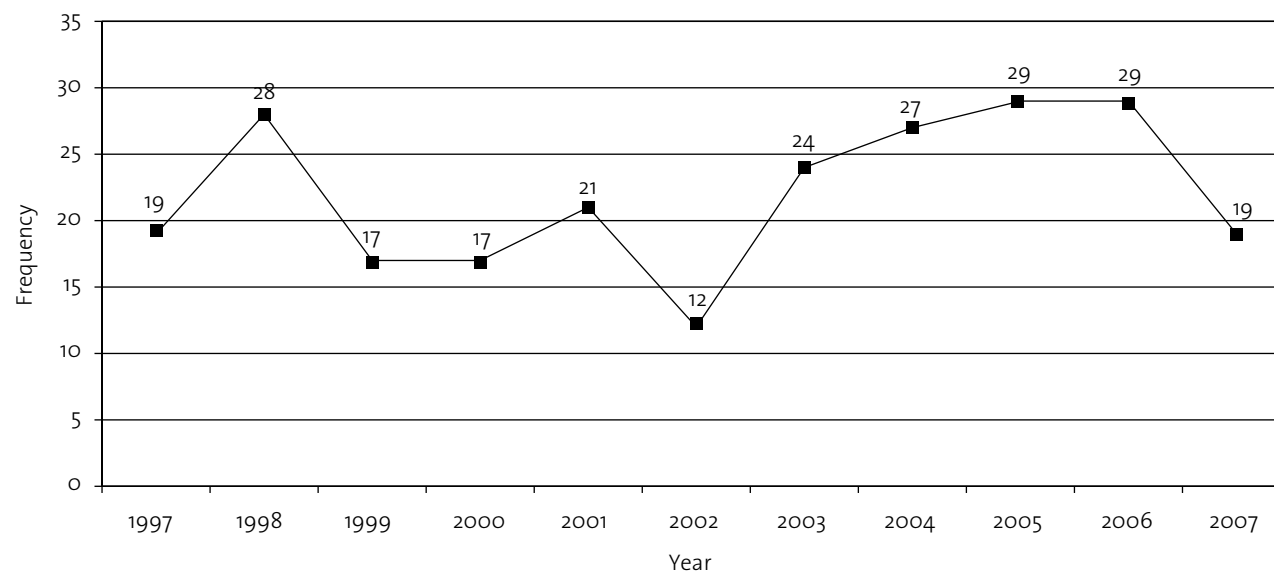
Figure 22: Patient homicide: number of patients who refused drug treatment



## Missed contact

- Two hundred and forty patients (41%) missed their last appointment with services before the homicide occurred, an average of 22 per year.
- There was a sharp fall in 2007 (34%) in the number of cases who missed their last appointment, but no overall trend was found (Figure 23).

Figure 23: Patient homicide: number of patients who missed their last appointment with services





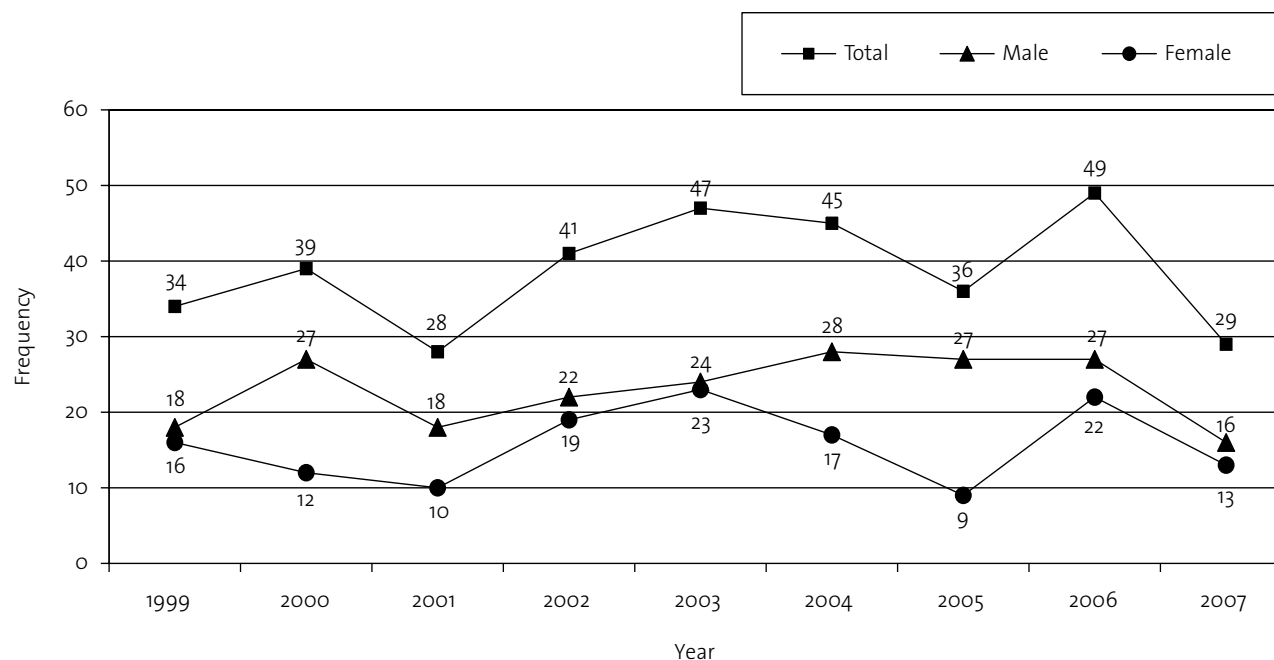
### 1.3 Sudden unexplained death in mental health in-patients (SUD)

- There were 348 SUD cases over the report period, an average of 39 per year (Figure 24).
- Numbers fluctuated and no trends were found.

#### Sudden unexplained death and patient ethnicity

- SUD in patients from a black and minority ethnic group showed no clear pattern over time (Table 3). The number of cases varied from 1-6 per year.
- The number of post-restraint deaths varied from 1-4 per year (Table 4). Of the total 14 post-restraint deaths, 2 were patients from an ethnic minority.
- We do not know whether restraint caused these deaths.

Figure 24: Sudden unexplained death: number, by sex



Note: Data collection began 1st March 1999. Actual figures shown.



**Table 3: Sudden unexplained death: number, by ethnicity**

	1999	2000	2001	2002	2003	2004	2005	2006	2007
White	30	37	23	34	42	38	32	44	25
Black & minority ethnic group	4	1	5	6	4	6	4	5	3
Unknown ethnicity	0	1	0	1	1	1	0	0	1

Note: Data collection began 1st March 1999. Actual figures shown.

**Table 4: Number of all deaths within 24 hours of restraint, by ethnicity**

	2002	2003	2004	2005	2006	2007
White	1	1	1	2	2	3
Black & minority ethnic group	1	0	1	0	0	0
Not stated	0	0	1	0	0	1

Note: Data collection on restraint in all deaths began in 2002.



## 2. WALES

### 2.1 SUICIDE

Between 1997-2008, the Inquiry was notified of 3,916 deaths in the general population that were recorded as suicide or undetermined. These are referred to as suicides throughout the report.

#### 2.1.1 Suicide in the general population

- There was an overall fall in the number and rate of suicides (Table 5; Figure 25). This fall was seen in both males and females.
- Rates fell in those aged under 45 only (Figure 26).

Table 5: Number of suicides in the general population, by sex

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	246	294	274	257	251	257	291	238	245	227	234	222
Female	93	82	63	73	75	72	82	74	70	65	60	71
Total	339	376	337	330	326	329	373	312	315	292	294	293



Figure 25: Rates of suicide in the general population, by sex

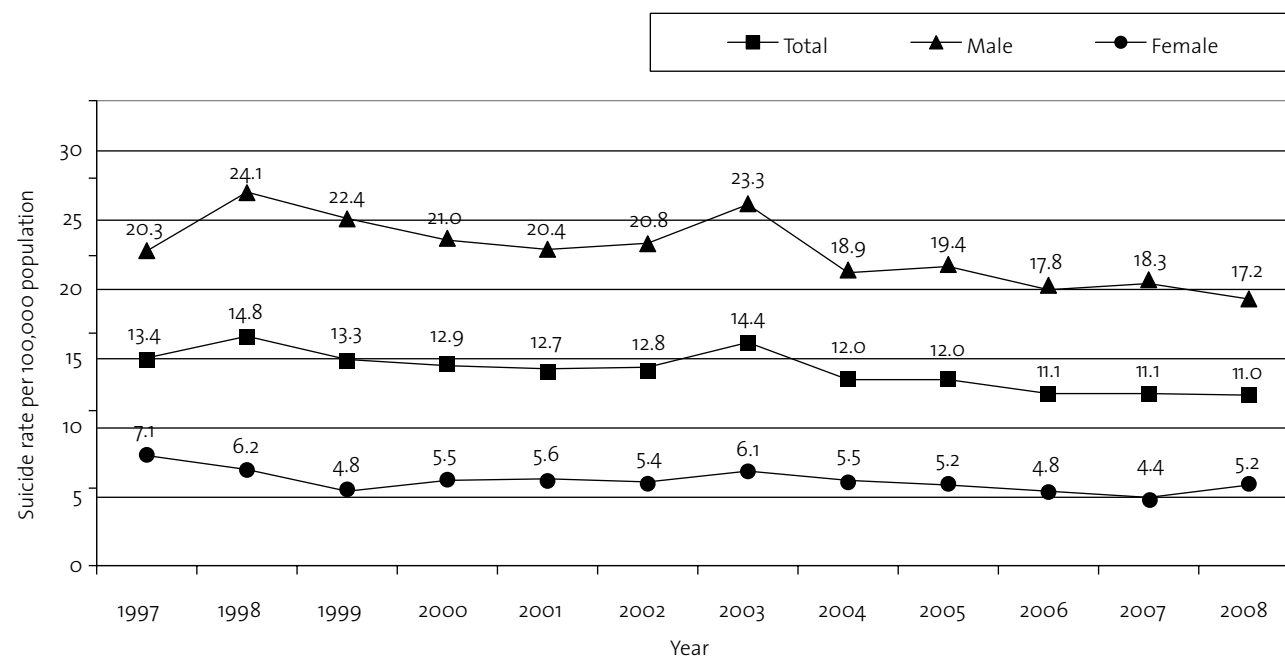
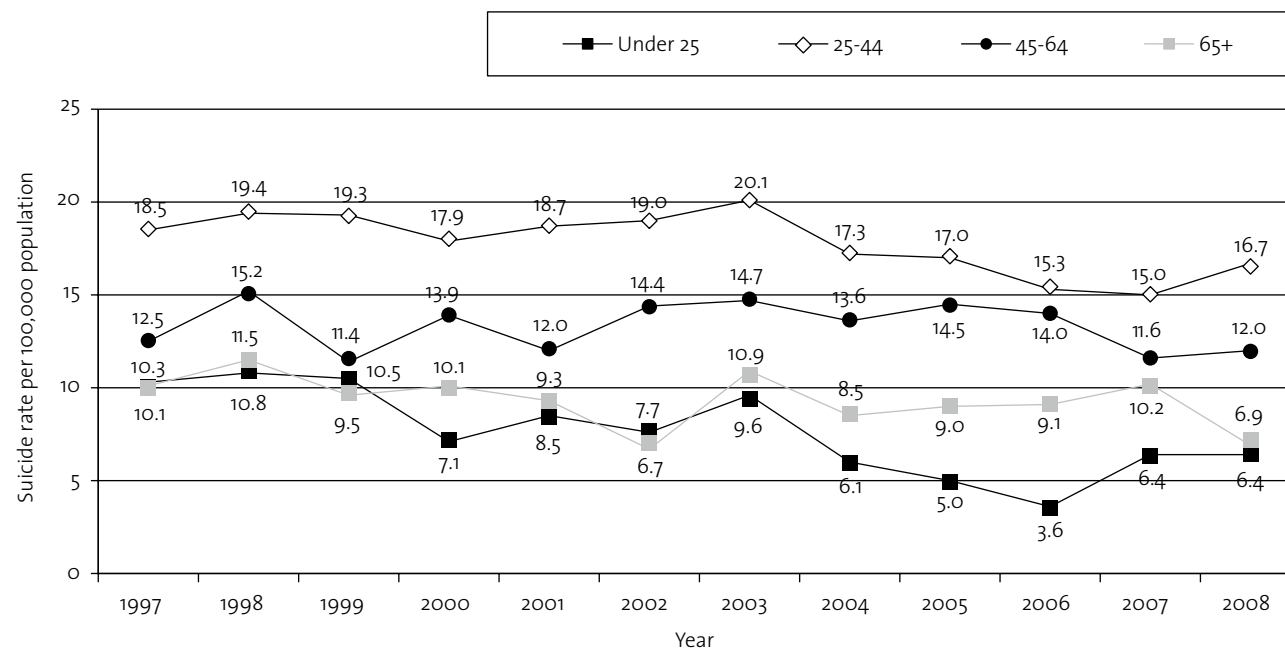


Figure 26: Rates of suicide in the general population, by age-group



### Variation in suicide by Health Authority

- There was some variation in suicide rates by Health Authority of residence at the time of death (2006-2008). The highest rate of suicide was in West Glamorgan, at 12.5 per 100,000 population, and the lowest in Gwent at 8.5 per 100,000 population (Figure 27).
- The rate of suicide within each Health Authority decreased over the report period. The greatest falls in the rate of suicide were seen in Gwent and Dyfed-Powys (Figure 28). North Wales showed the smallest fall.



Figure 27: Rate of suicide, by Health Authority boundaries  
(average rate 2006-2008)

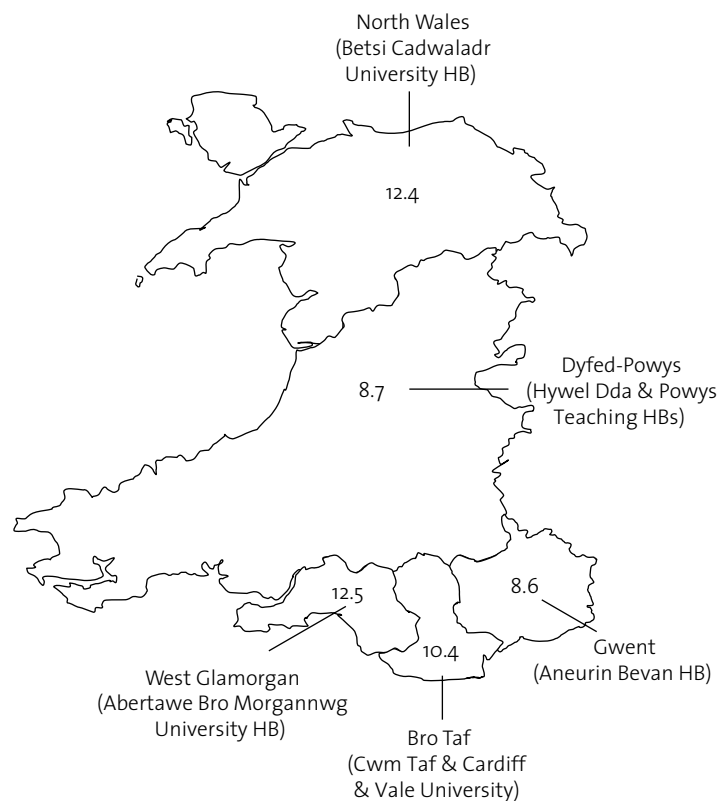
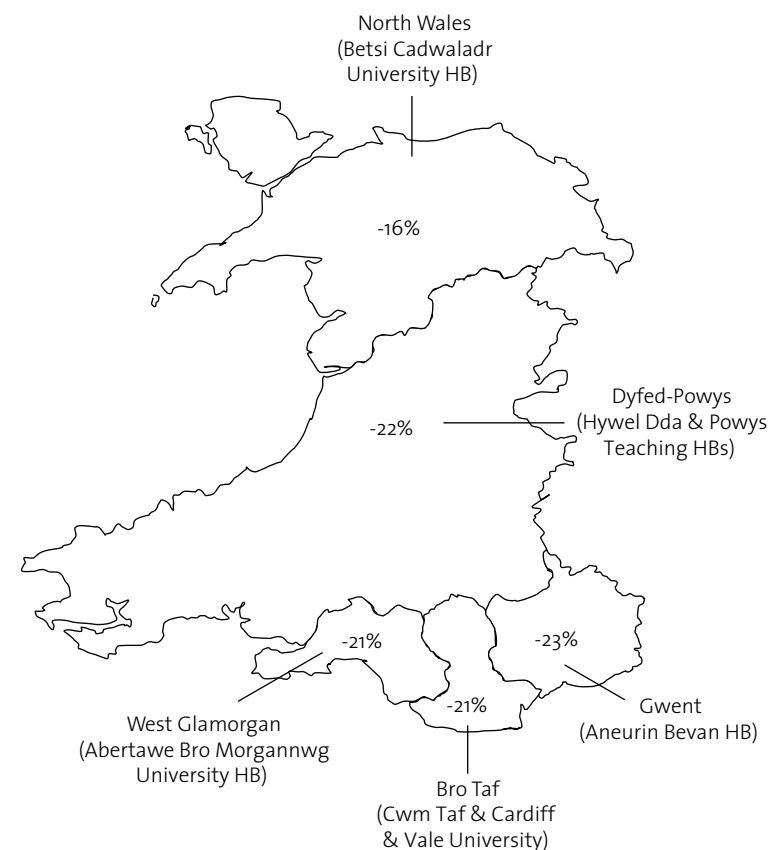


Figure 28: Change in the rate of suicide from 1997-1999 to  
2006-2008, by Health Authority boundaries



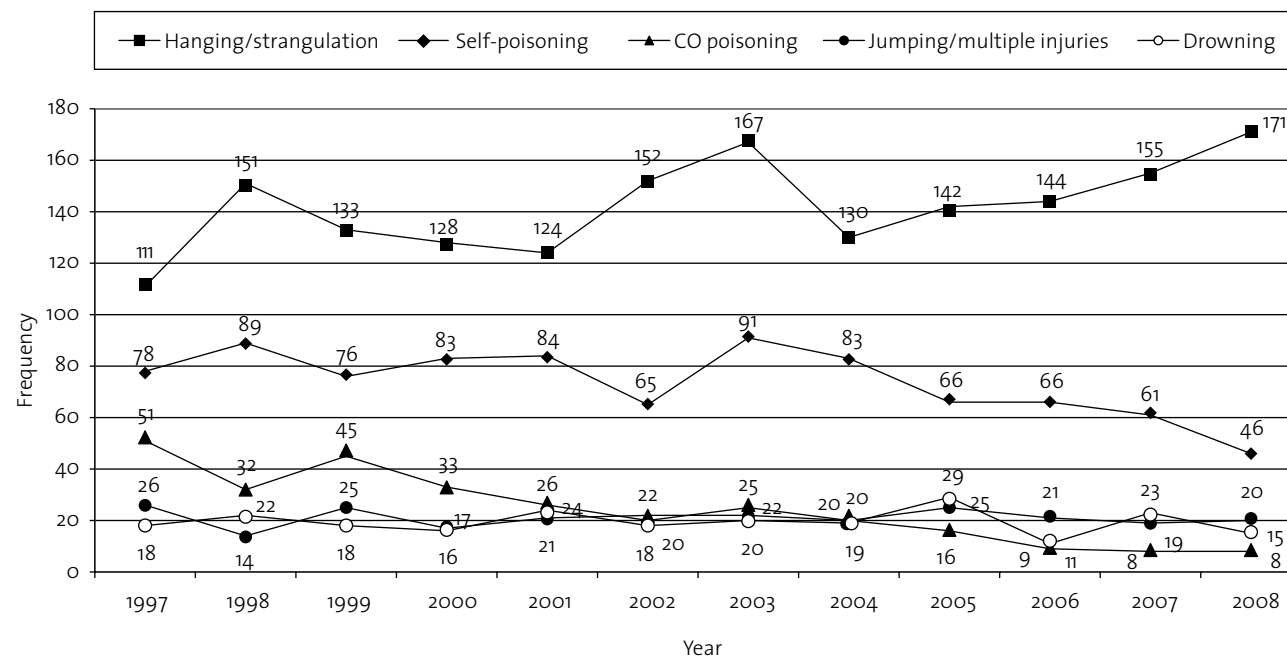
Note: These figures show rates and percentage change by Health Authority (HA) boundaries that were in place up to 2003. The names of the new Health Boards (HB) (as of 1 October 2009) that correspond to the old HA boundaries are shown in parentheses.



## Method of suicide

- The most common methods of suicide were hanging/strangulation (referred to as hanging in the remainder of this report), self-poisoning (overdose) and carbon monoxide (CO) poisoning.
- Over the report period there were changes in method of suicide (Figure 29). Suicide deaths by hanging increased, whilst deaths by self-poisoning and carbon monoxide poisoning decreased. Figures for other methods remained stable.

Figure 29: Suicide in the general population: cause of death





## 2.1.2 Patient suicide

### Patient suicide: numbers and rates

- During 1997-2008, 913 suicides (23% of general population suicides) were identified as patient suicides, i.e. the person had been in contact with mental health services in the 12 months prior to death. This represented an average of 76 patient suicides per year.

- There was a decrease in the number and rate of suicide using a general population denominator (Table 6; Figure 30).
- The number of patient suicides decreased in those aged under 25, and in those aged 65 and over (Figure 31).

Table 6: Number of patient suicides, by sex

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	37	59	67	66	63	51	54	45	59	38	47	38
Female	30	29	25	17	22	25	30	27	30	21	22	14
Total	67	88	92	83	85	76	84	72	89	59	69	52



Figure 30: Rates of patient suicide, by sex

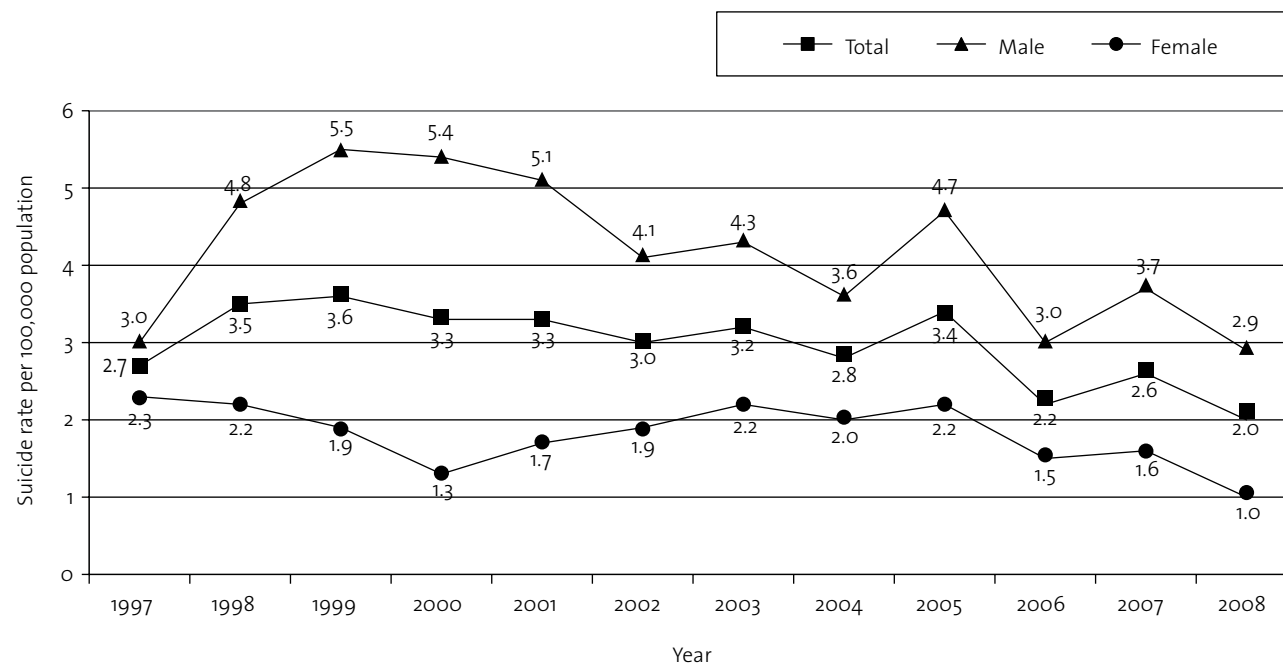
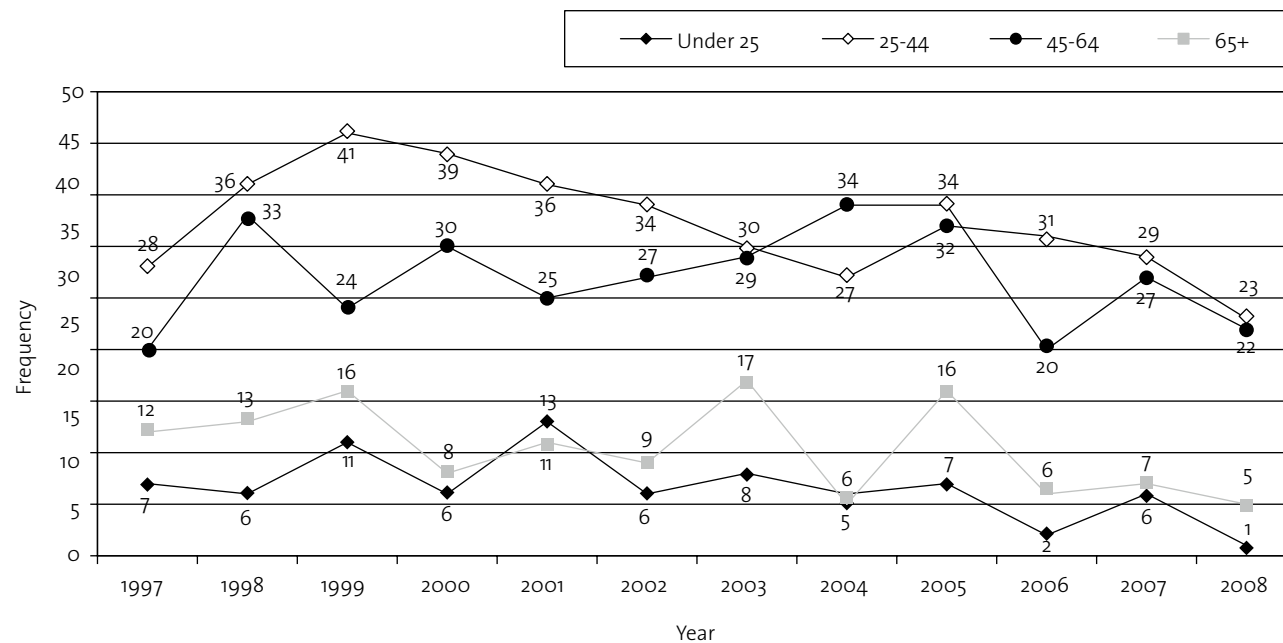


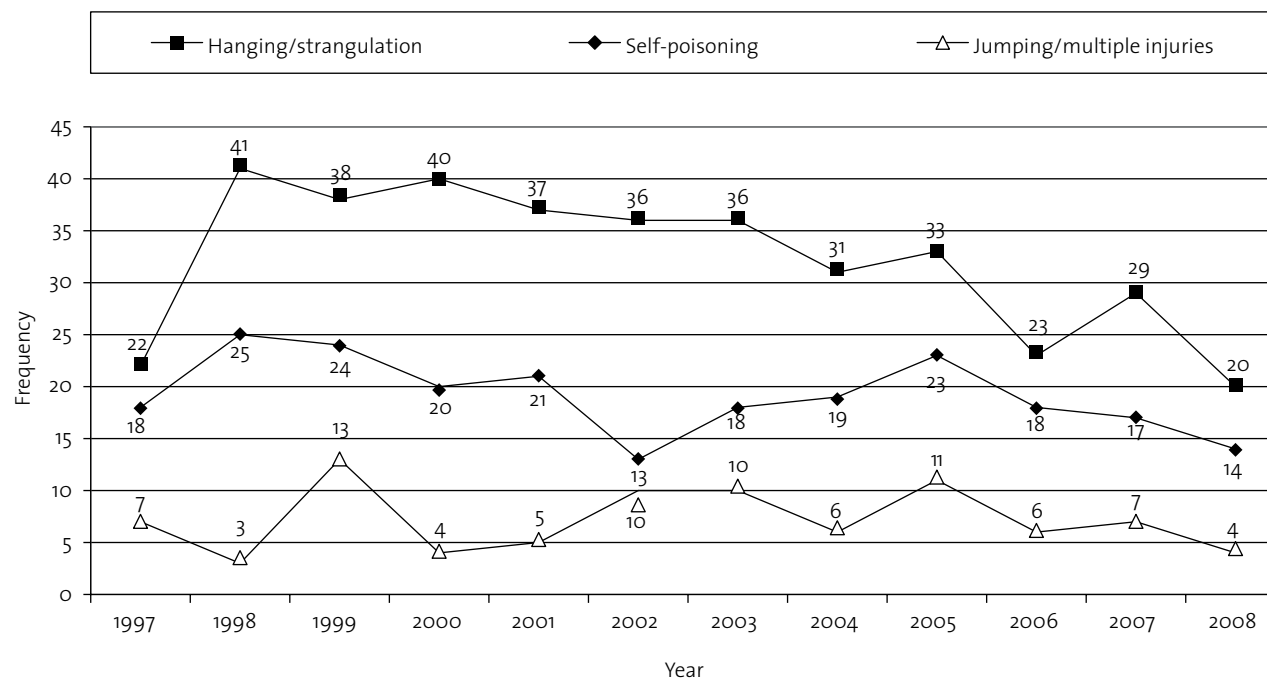
Figure 31: Number of patient suicides, by age-group



## Method of suicide by patients

- The most common methods of suicide by patients were hanging and self-poisoning.
- The number of deaths by hanging decreased (Figure 32). Figures for other methods remained stable.

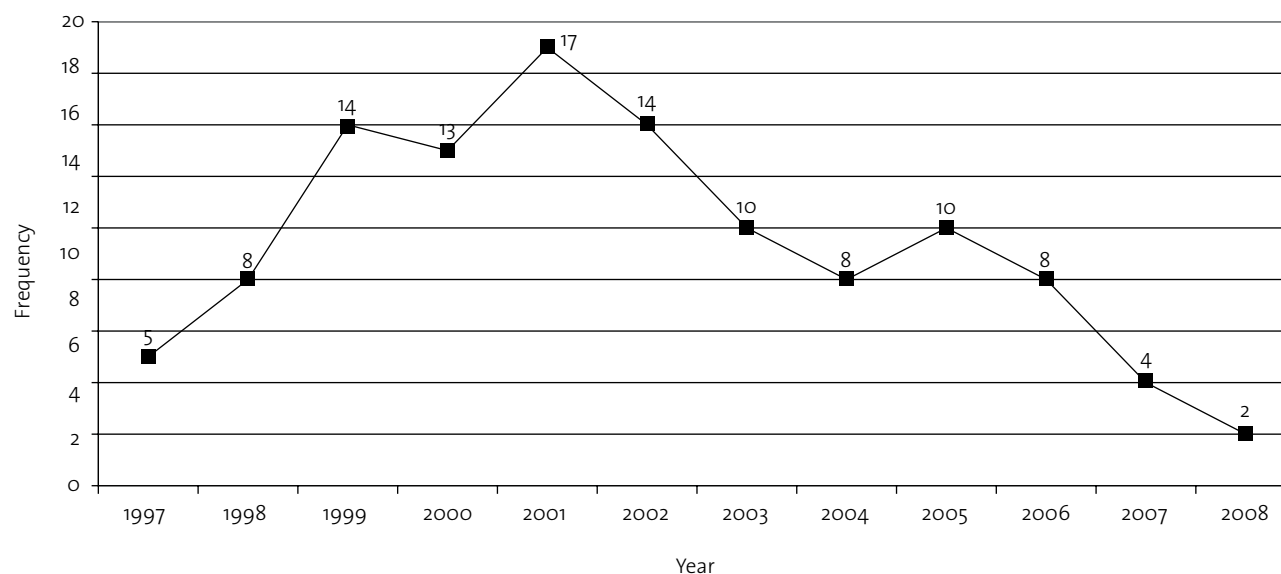
Figure 32: Patient suicide: cause of death



## In-patient suicide

- There were 113 in-patient deaths by suicide during the report period, 12% of patient cases, an average of 9 deaths per year.
- The number of in-patient suicides peaked in 2001, after which there was a steady fall (Figure 33).
- There were 27 patients who died on the ward by hanging over the 12-year period; this number fluctuated from 0 to 6 cases per year.

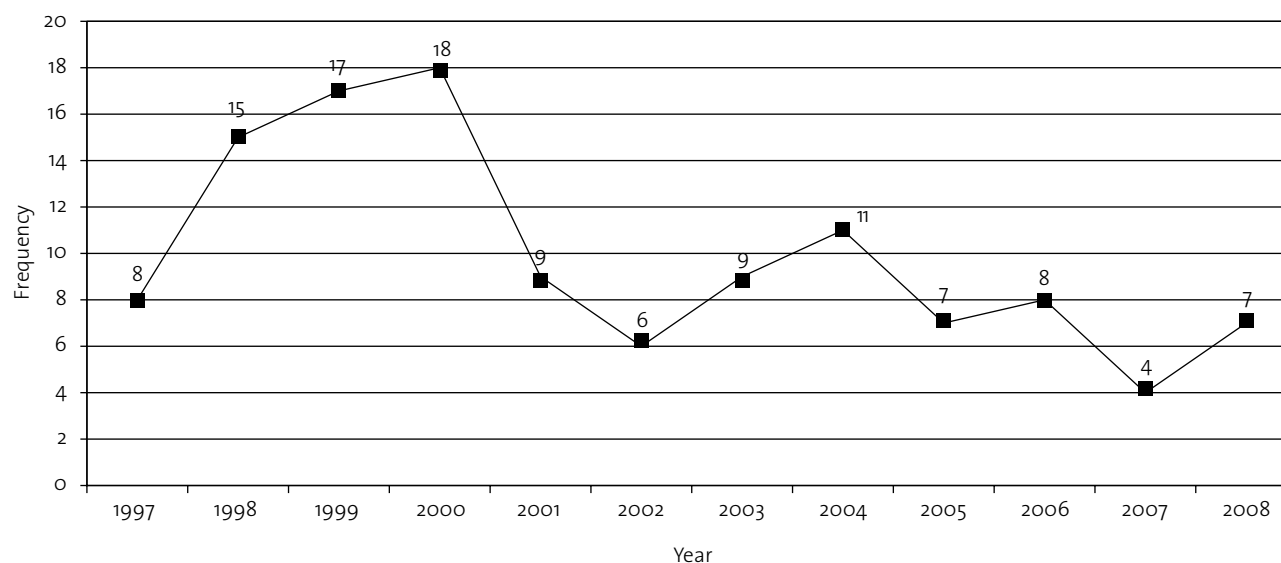
Figure 33: Patient suicide: number of mental health in-patients



## Treatment refusal

- There were 119 suicides in which the patient was known to have refused drug treatment in the month before death, 15% of the total sample, an average of 10 deaths per year.
- There was an overall fall in the number of suicides in patients who refused treatment (Figure 34).

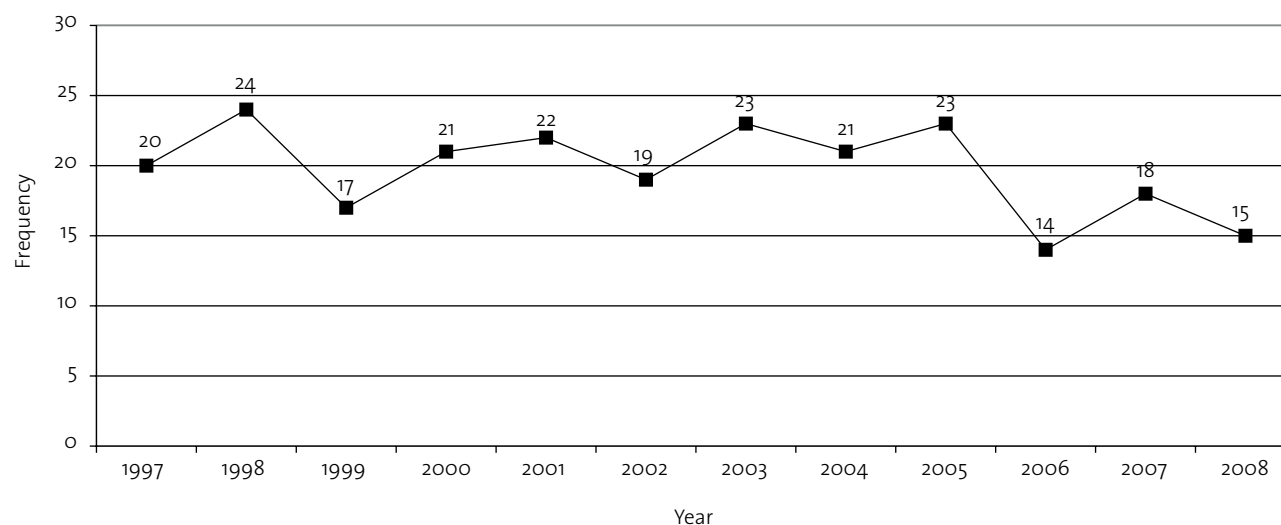
Figure 34: Patient suicide: number of patients who refused drug treatment



## Missed contact

- There were 236 suicides by people who missed their last appointment with services, 30% of the total sample, an average of 20 deaths per year.
- There was no overall trend in the number of suicides in patients who missed their final service contact, although numbers fell in the last 3 years (Figure 35).

Figure 35: Patient suicide: number of patients who missed their last appointment with services



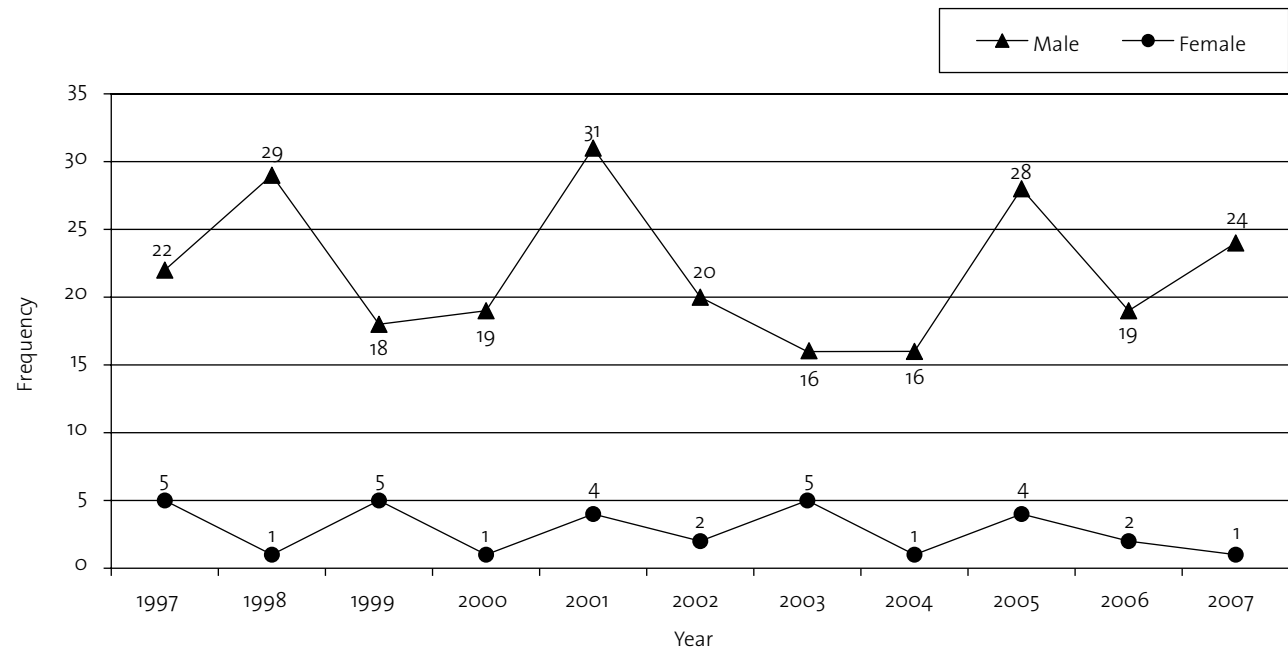
## 2.2 HOMICIDE

The Inquiry was notified by Home Office Statistics of 273 homicide convictions in the report period 1997-2007. A psychiatric report was obtained on 154 (56%) homicide perpetrators.

### 2.2.1 Homicide in the general population

- The number of homicide convictions in the general population is shown in Figure 36. These figures are provided as context for our data on homicides by people with mental illness. More recent homicide statistics are published by the Home Office.<sup>3</sup>
- The most common method of homicide was the use of a sharp instrument (38%).

Figure 36: Number of homicides in the general population, by sex of perpetrator



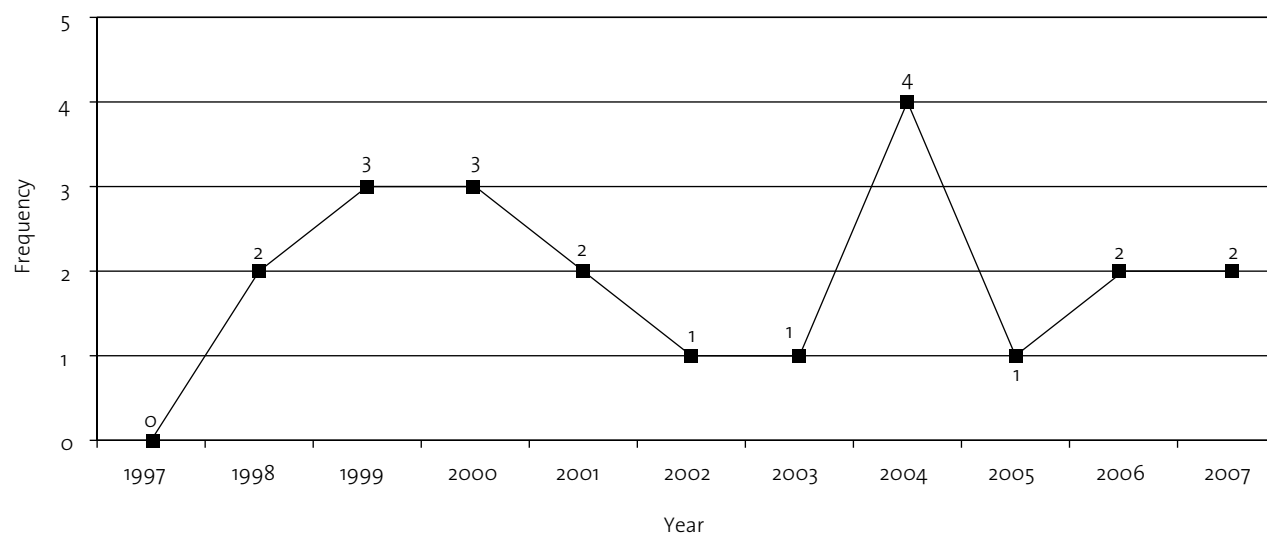


## 2.2.2 Homicide by mentally ill people in the general population

### Homicide by people with schizophrenia

- There were 21 homicides by people with schizophrenia (based on lifetime history), 8% of the total sample, an average of 2 homicides annually (Figure 37).
- These figures, and others in this section, are too small to identify a trend.

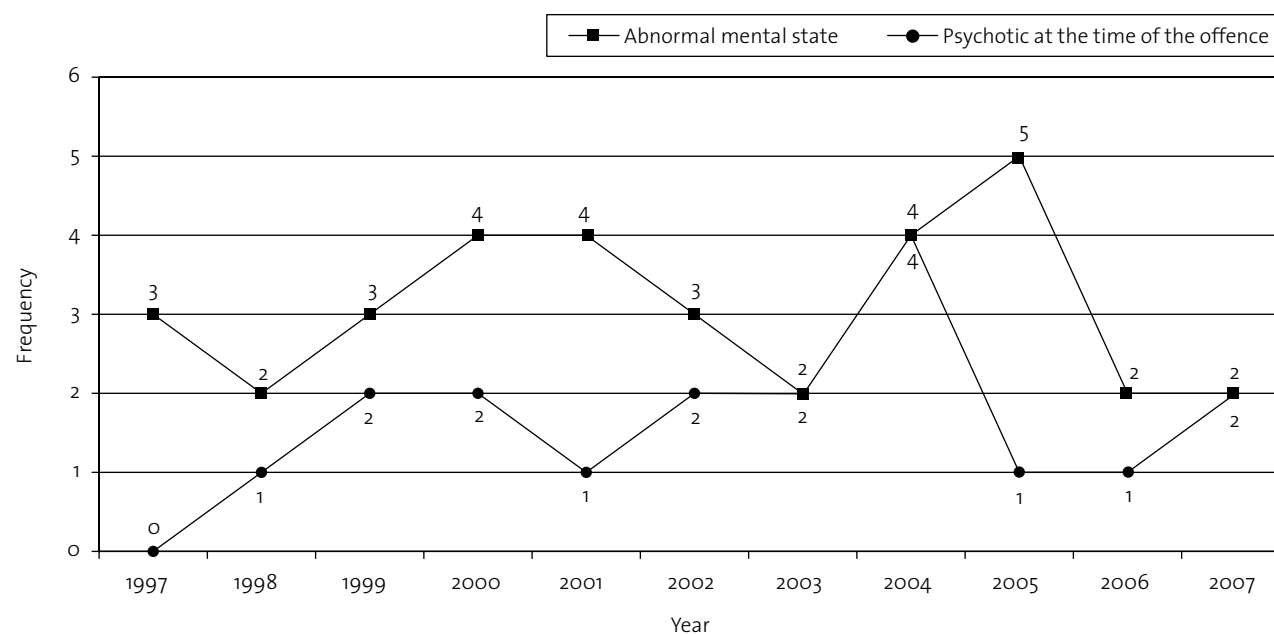
Figure 37: Perpetrators with a primary diagnosis of schizophrenia (lifetime history)



## Perpetrators who were mentally ill at the time of the homicide

- Thirty-four people had an abnormal mental state at the time of the homicide, 12% of the total sample, an average of 3 per year.
- Eighteen (7% of the total sample) had symptoms of psychosis at the time of the offence, an average of 1-2 per year (Figure 38).

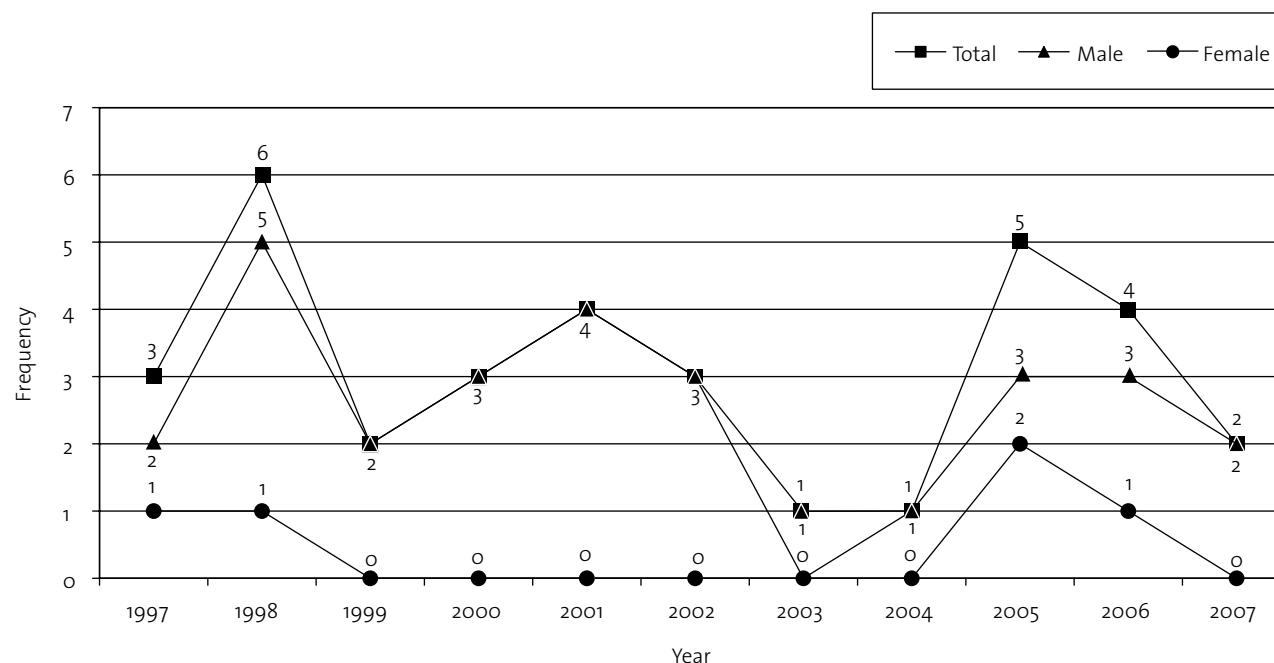
Figure 38: Perpetrators with mental illness at the time of the homicide



### 2.2.3 Patient homicide

- During 1997-2007, 34 people convicted of homicide (12% of the total sample) were identified as patients, i.e. the person had been in contact with mental health services in the 12 months prior to the offence, an average of 3 per year.
- The number of cases fluctuated (Figure 39). In this section the numbers were too small to examine trends over time.

Figure 39: Patient homicide: number, by sex of perpetrator



### Relationship of victim to perpetrator: patient homicide

- Victims were most commonly an acquaintance (13, 39%), followed by a spouse/partner or ex-spouse/partner (12, 36%), and a family member (6, 18%).
- Of the patients who committed homicide, 2 (6%) killed a stranger.

### Diagnosis

- Eleven patients (33%) diagnosed with schizophrenia committed homicide, an average of 1 per year.
- Schizophrenia was the commonest diagnosis.

### Treatment refusal

- Seven patients (23%) were known to have refused drug treatment in the month before the homicide, an average of 1 per year.

### Missed contact

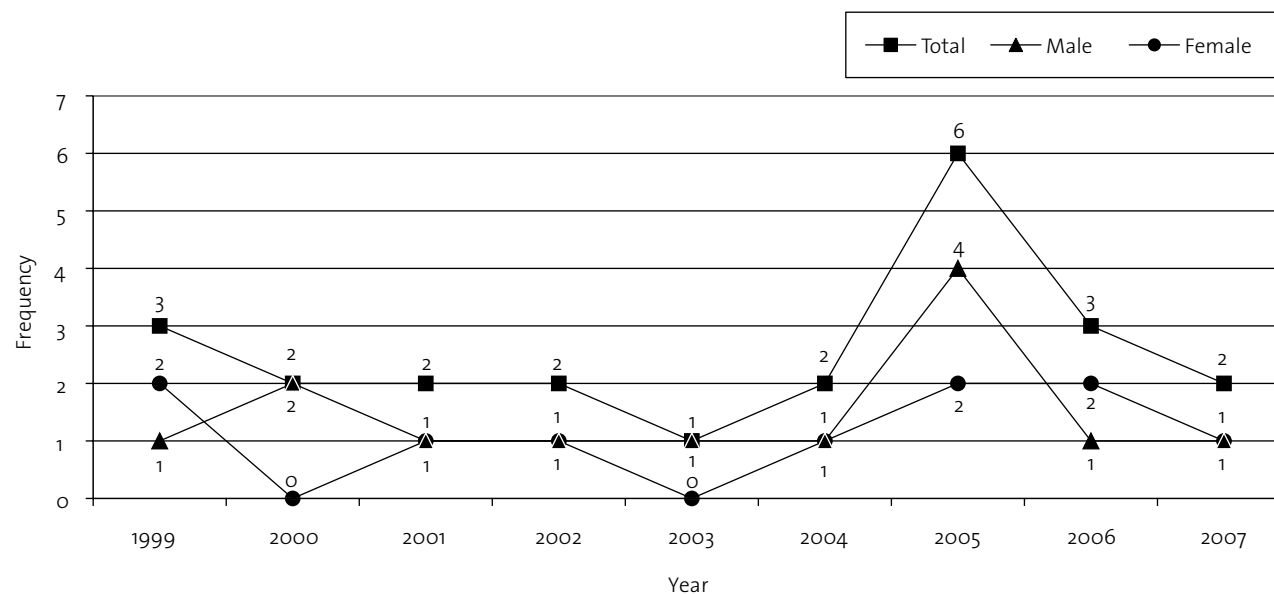
- Fourteen patients (42%) missed their last appointment with services before the homicide, an average of 1 per year.



## 2.3 Sudden unexplained death in mental health in-patients (SUD)

- There were 23 SUD cases over the report period, an average of 2-3 per year (Figure 40).
- Numbers fluctuated and no trends were found.
- No patients were from a black and minority ethnic group.
- There was one post-restraint death, reported in 2006. We do not know whether restraint caused this death.

Figure 40: Sudden unexplained death: number, by sex



Note: Data collection began 1st March 1999. Actual figures shown.



### 3. SCOTLAND

#### 3.1 SUICIDE

Between 1998-2008, the Inquiry was notified of 9,279 deaths in the general population that were recorded as suicide or undetermined. These are referred to as suicides throughout the report.

##### 3.1.1 Suicide in the general population

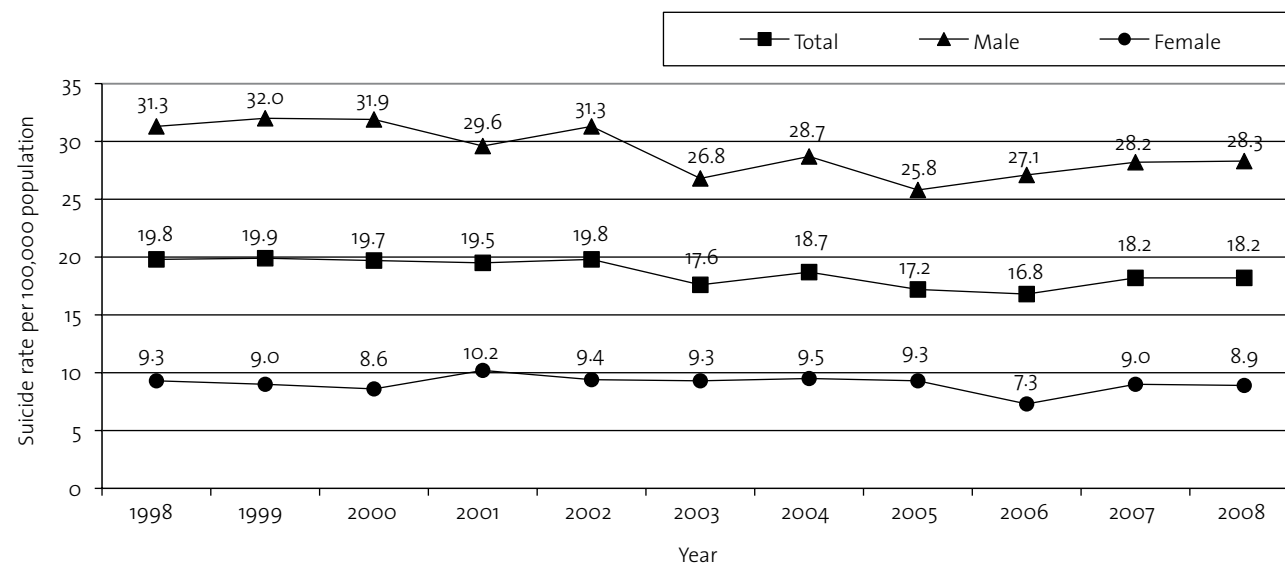
- There was an overall fall in the number and rate of suicides (Table 7; Figure 41).
- This fall was seen overall and in males but not females.
- However, there was a rise in the number of male suicides from 2005 (Table 7).
- Rates fell in those aged under 25, and 65 and over (Figure 42).

Table 7: Number of suicides in the general population, by sex

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	665	679	679	633	670	576	620	560	594	622	628
Female	218	210	202	240	220	218	224	220	174	214	213
Total	883	889	881	873	890	794	844	780	768	836	841



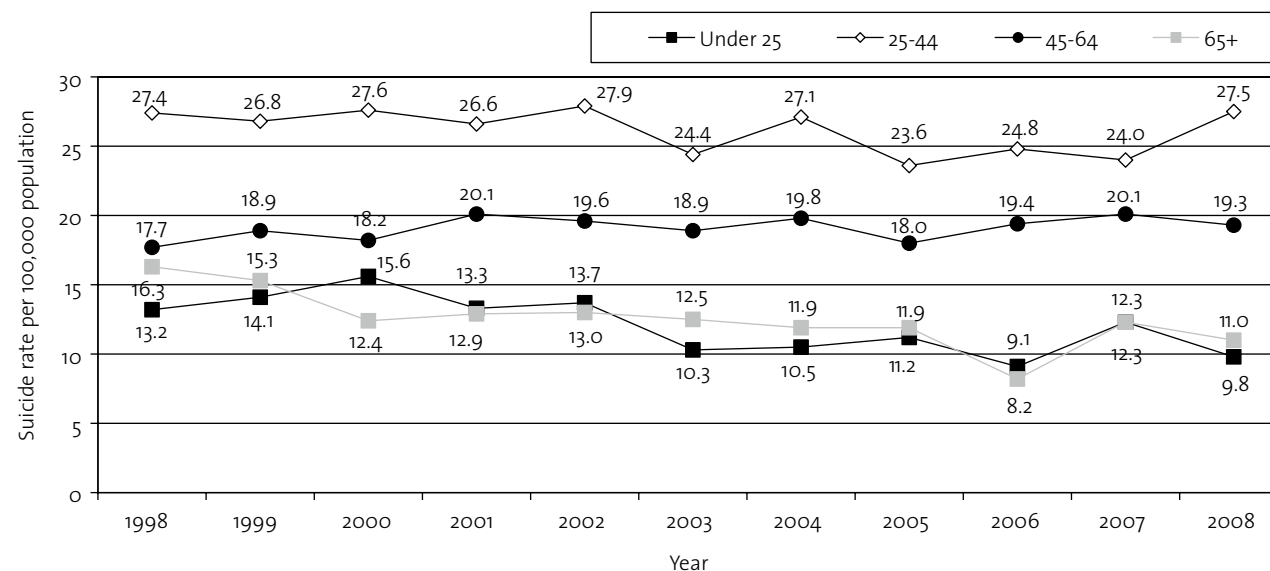
Figure 41: Rates of suicide in the general population, by sex



Note: See page 7 for rate calculations.



Figure 42: Rates of suicide in the general population, by age-group



Note: See page 7 for rate calculations.





### Variation in suicide by Health Board

- There was some variation in suicide rates by Health Board of residence at the time of death (2006-2008). The highest rate of suicide was in the Western Isles, at 25.4 per 100,000 population but the small numbers there make it difficult to compare with other Health Boards, and the lowest in Forth Valley at 13.2 per 100,000 population (Figure 43).
- The greatest falls in the rate of suicide were seen in Forth Valley, Grampian, and Highland (Figure 44). The Western Isles and Dumfries and Galloway showed the greatest increases.



Figure 43: Rate of suicide, by Health Board  
(average rate 2006-2008)

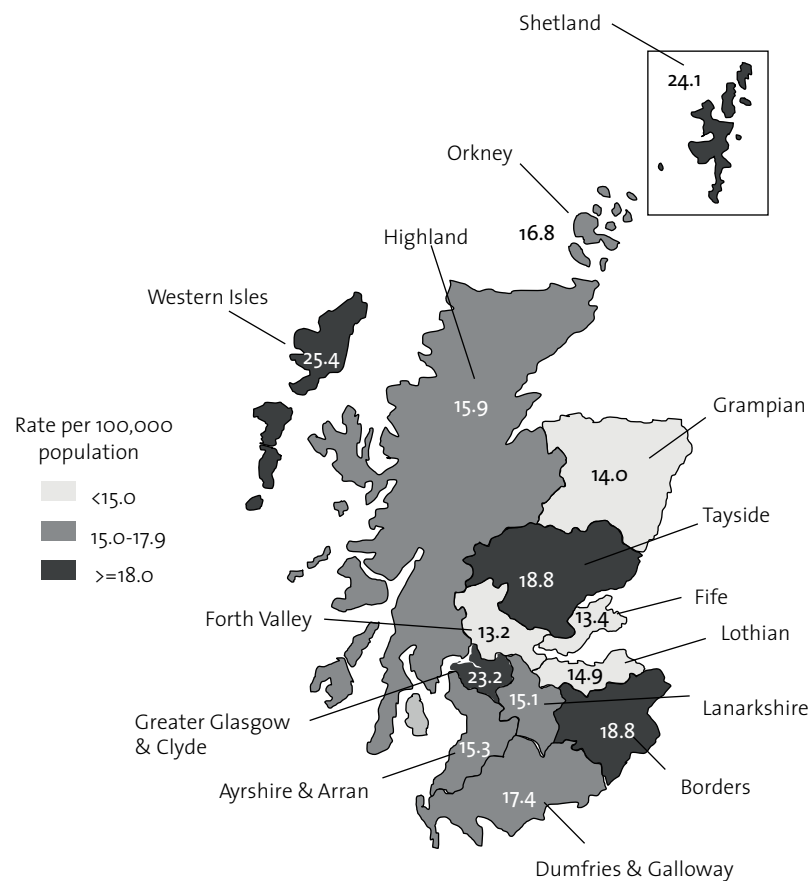
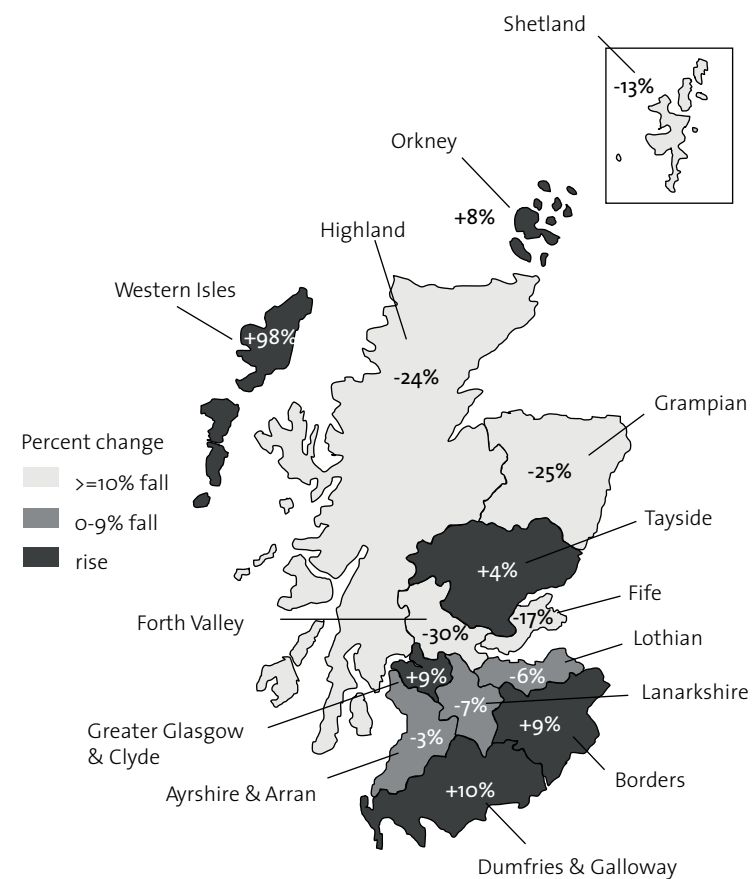


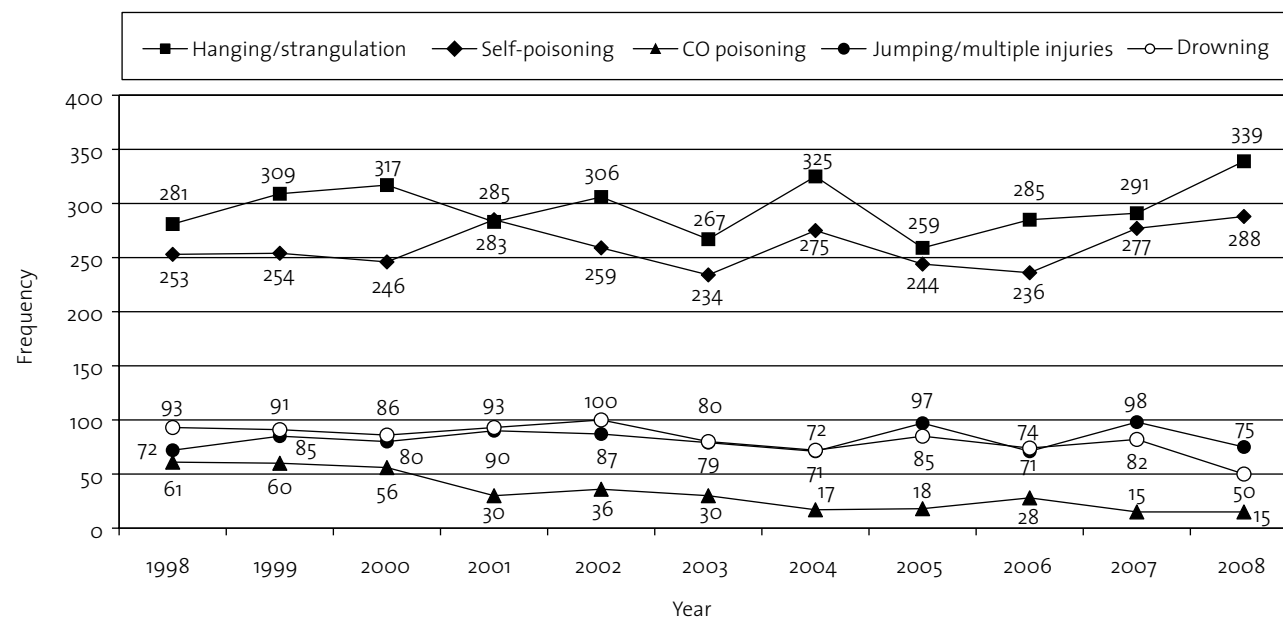
Figure 44: Change in the rate of suicide from 2002-2004  
to 2006-2008, by Health Board



## Method of suicide

- The most common methods of suicide were hanging/strangulation (referred to as hanging in the remainder of this report), self-poisoning (overdose), jumping/multiple injuries (mainly jumping from a height or being struck by a train), and drowning.
- Over the report period, there were changes in method of suicide (Figure 45). The proportion of suicides by self-poisoning and hanging increased. The number of suicide deaths by carbon monoxide (CO) poisoning, drowning, and firearms decreased. Other suicide methods remained stable.

Figure 45: Suicide in the general population: cause of death



### 3.1.2 Patient suicide

#### Patient suicide: numbers and rates

- During 1998-2008, 2,536 suicides (27% of general population suicides) were identified as patient suicides, i.e. the person had been in contact with mental health services in the 12 months prior to death. This represented an average of 230 patient suicides per year.
- Whilst the number of patient suicides increased over the report period, the rate of suicide using a general population denominator remained stable (Table 8; Figure 46).
- The number of patient suicides increased in those aged between 45 and 64, but remained stable in all other age-groups (Figure 47).

**Table 8: Number of patient suicides, by sex**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	144	147	148	142	164	164	161	135	136	178	164
Female	65	71	60	96	74	82	89	83	72	100	68
Total	209	218	208	238	238	246	250	218	208	278	232



Figure 46: Rates of patient suicide, by sex

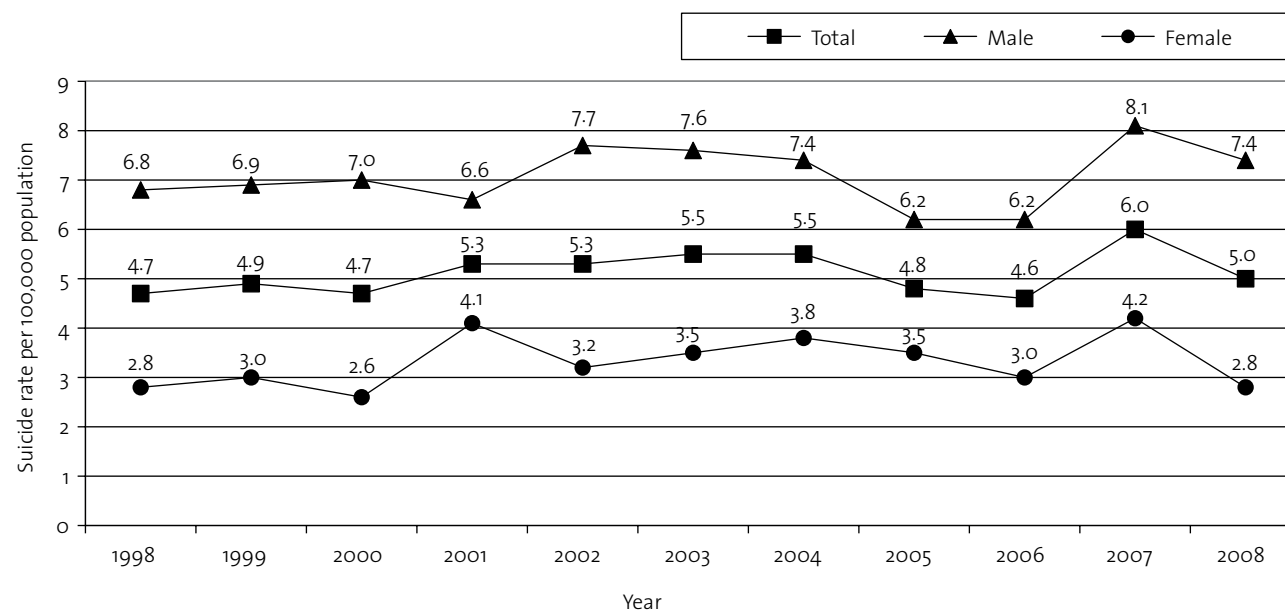
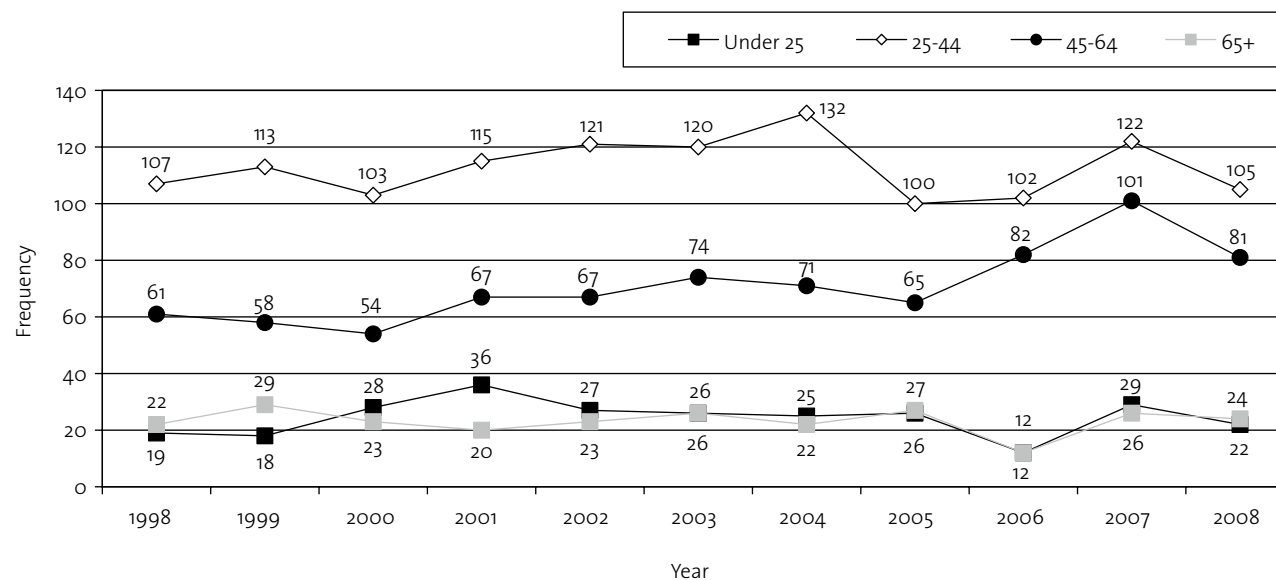


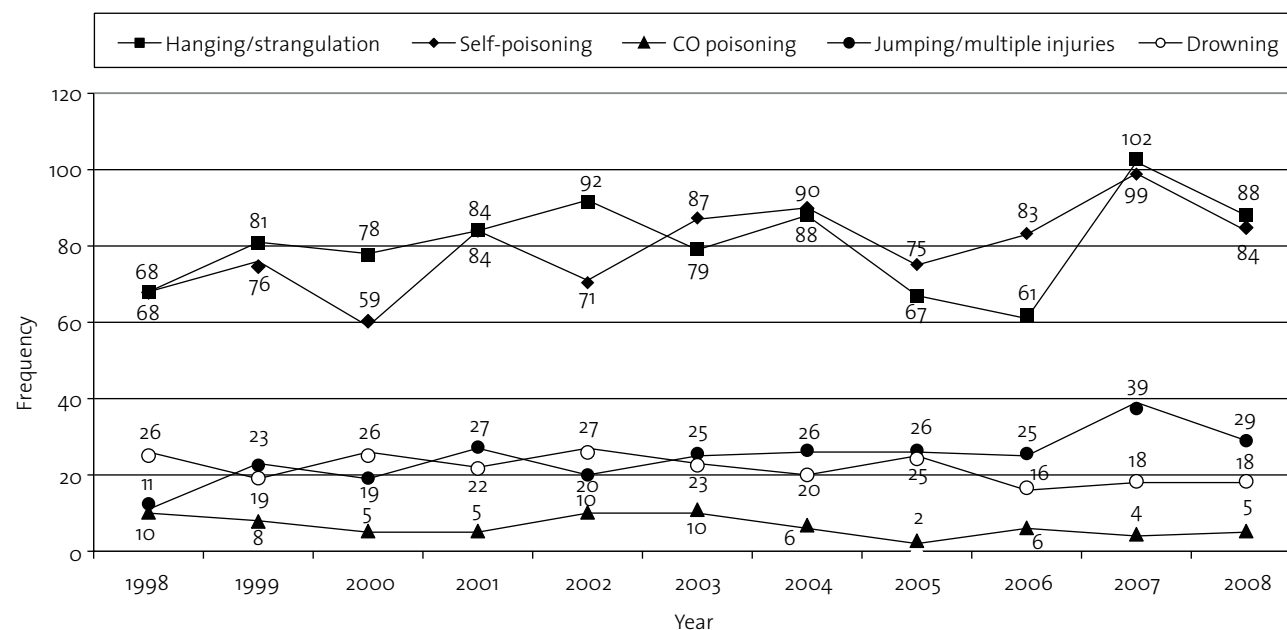
Figure 47: Number of patient suicides, by age-group



## Method of suicide by patients

- The most common methods of suicide by patients were hanging and self-poisoning.
- The number of deaths by self-poisoning and jumping/multiple injuries increased (Figure 48). A downward trend occurred in deaths by firearms. Figures for hanging, carbon monoxide (CO) poisoning, drowning, and cutting/stabbing remained stable.

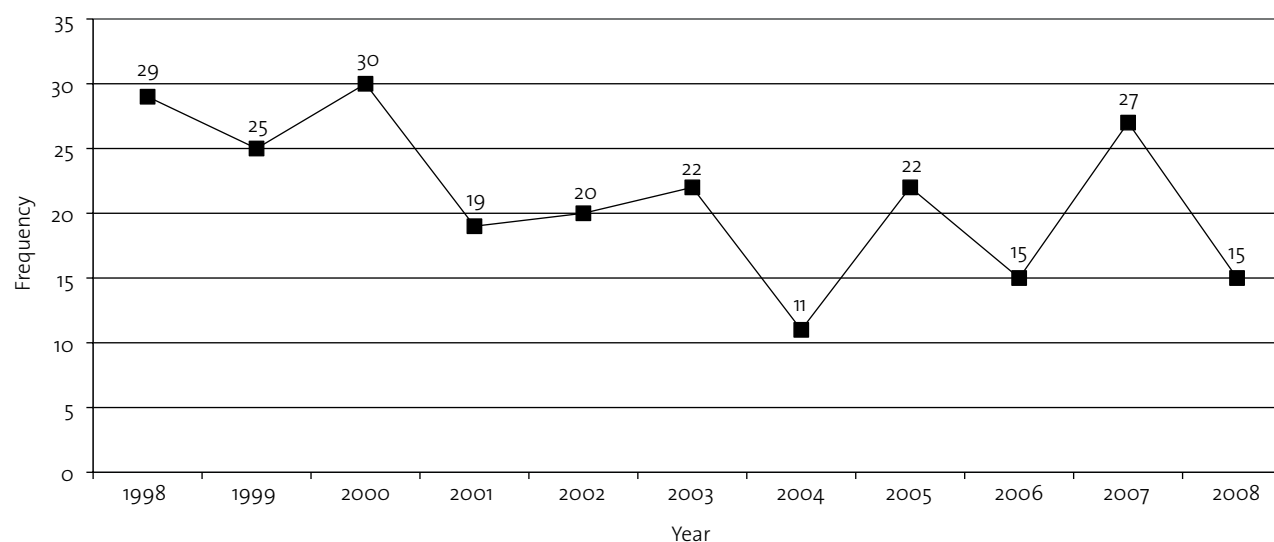
Figure 48: Patient suicide: cause of death



## In-patient suicide

- There were 235 in-patient deaths by suicide during the report period, 9% of patient cases, an average of 21 deaths per year.
- From 1998 there was an overall fall in numbers (Figure 49).
- Over the 11-year period, there were 47 patients who died on the ward by hanging; this number fluctuated from 1 to 7 cases per year.
- The ligature points in 13 of these related to doors or windows; in 16 cases a belt was used as the ligature.

Figure 49: Patient suicide: number of mental health in-patients

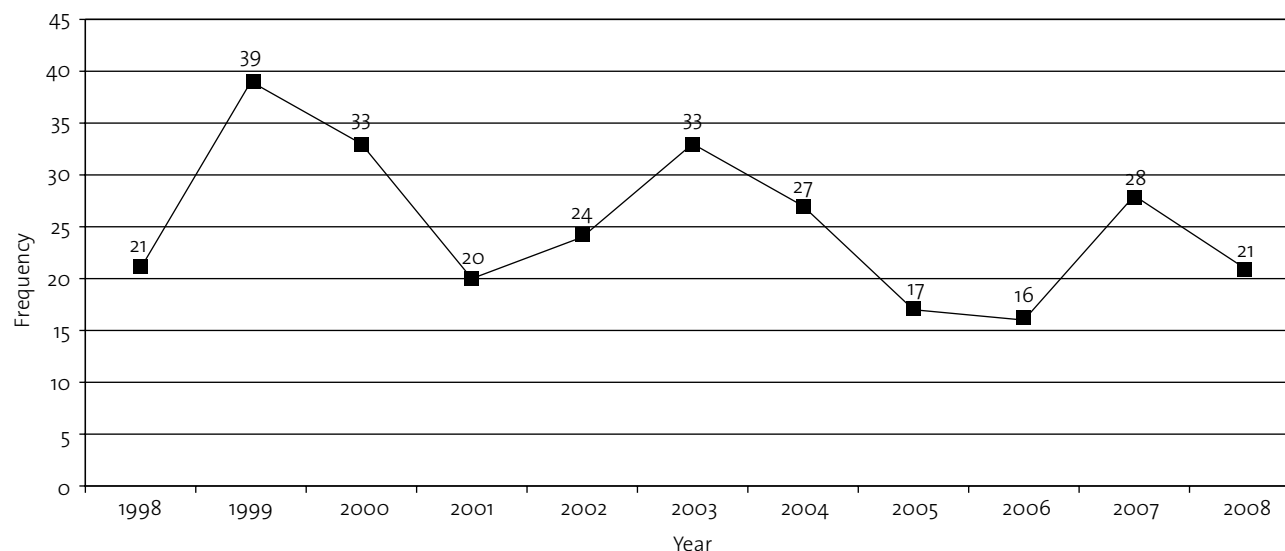




## Treatment refusal

- There were 278 suicides in which the patient was known to have refused drug treatment in the month before death, 13% of the total sample, an average of 25 deaths per year.
- There was an overall fall in the number of suicides in patients who refused drug treatment from 1999 (Figure 50).

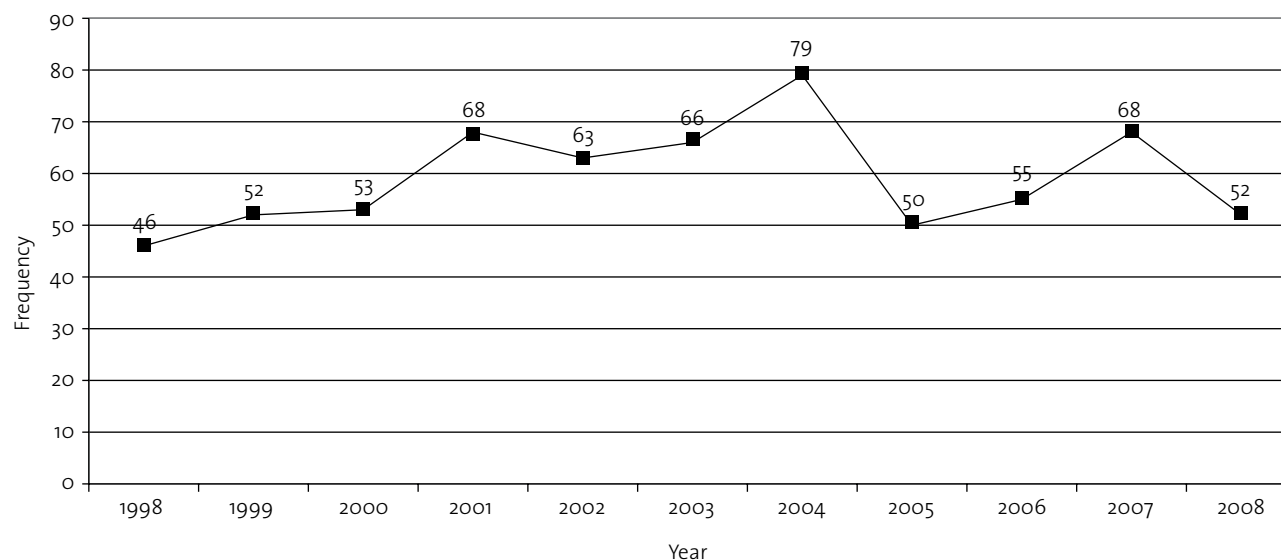
Figure 50: Patient suicide: number of patients who refused drug treatment



## Missed contact

- There were 650 suicides by people who missed their last appointment with services, 29% of the total sample, an average of 59 deaths per year.
- There was no overall trend in the number of suicides in patients who missed their final service contact (Figure 51).

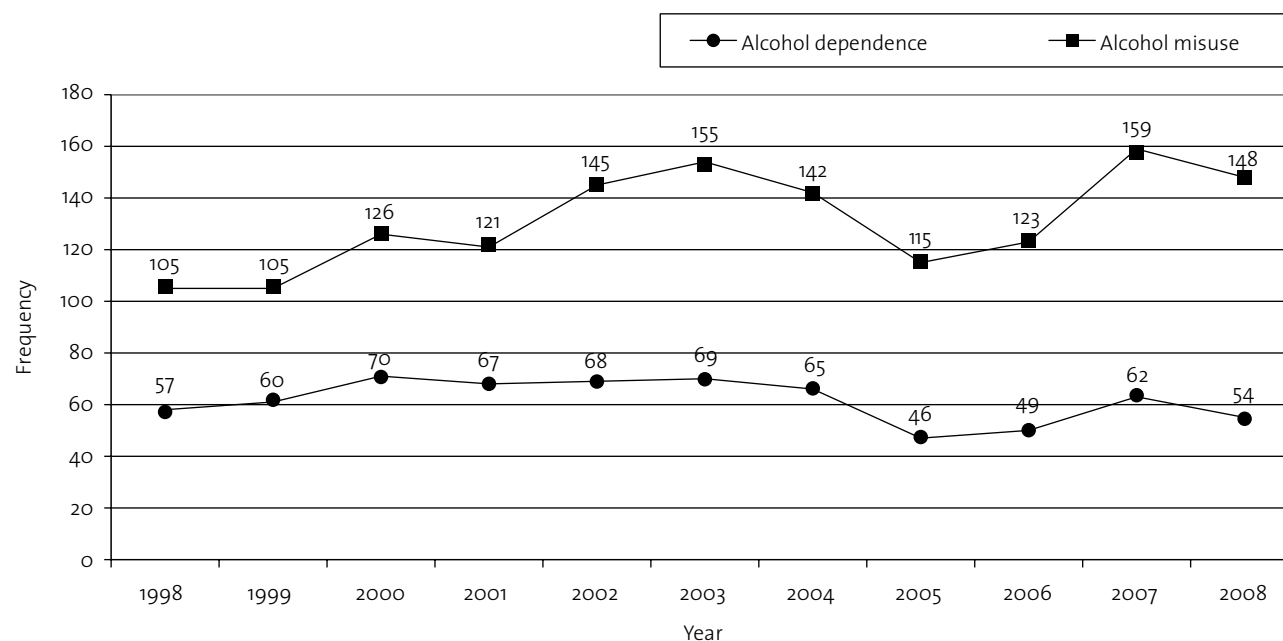
Figure 51: Patient suicide: number of patients who missed their last appointment with services



## Alcohol dependence and misuse

- There were 665 suicides by patients with a diagnosis (primary, secondary or tertiary) of alcohol dependence, 26% of the total sample, an average of 60 deaths per year.
- 1,439 suicides were by patients with a history of alcohol misuse, 58% of the total sample, an average of 131 deaths per year.
- Whilst the number of suicides in patients with alcohol dependence remained stable over the report period, there was an increase in the number with alcohol misuse (Figure 52).

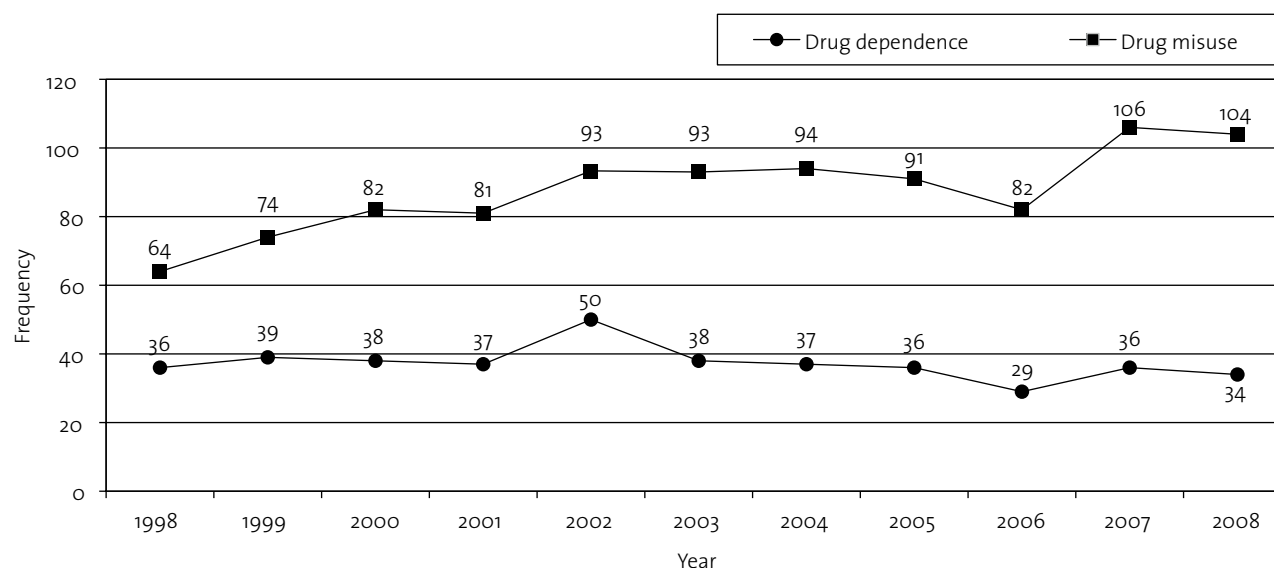
Figure 52: Patient suicide: number of patients with a diagnosis of alcohol dependence or a history of misuse



## Drug dependence and misuse

- There were 409 suicides by patients with a diagnosis (primary, secondary or tertiary) of drug dependence, 16% of the total sample, an average of 37 deaths per year.
- 961 suicides were by patients with a history of drug misuse, 39% of the total sample, an average of 87 deaths per year.
- Whilst the number of suicides in patients with drug dependence remained stable over the report period, there was an increase in the number with drug misuse (Figure 53).

Figure 53: Patient suicide: number of patients with a diagnosis of drug dependence or a history of misuse



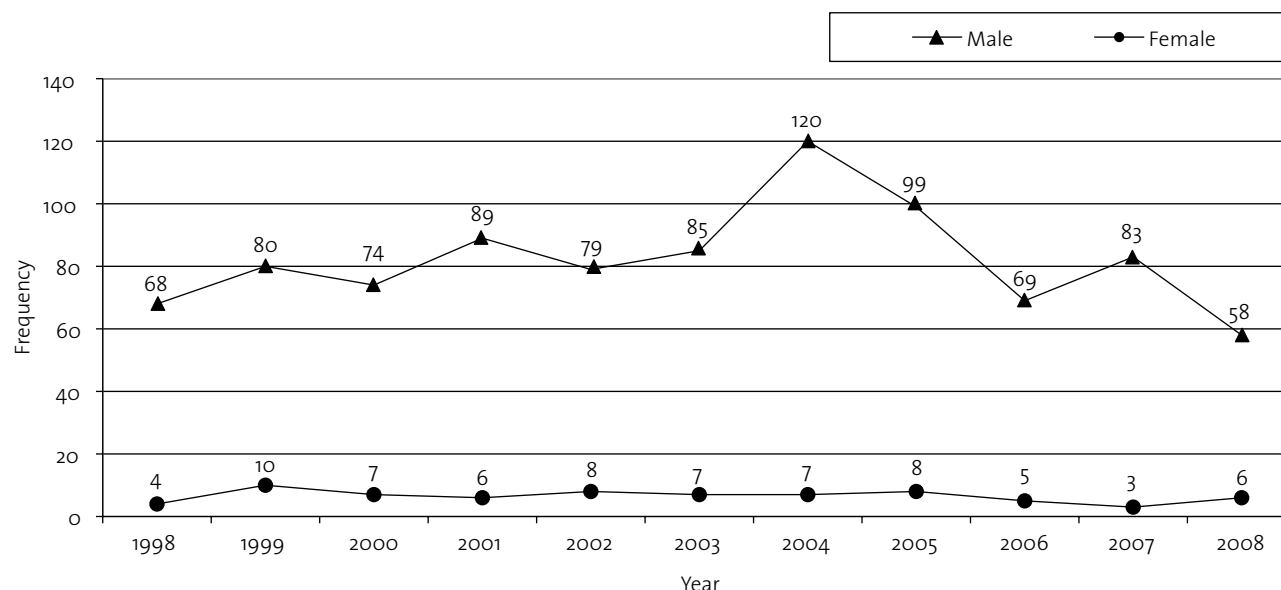
## 3.2 HOMICIDE

The Inquiry was notified by the Scottish Government Justice Directorate of 975 homicide convictions in the report period, 1998-2008. A psychiatric report was obtained on 768 (79%) homicide perpetrators.

### 3.2.1 Homicide in the general population

- The number of homicide convictions in the general population is shown in Figure 54. These figures are provided as context for our data on homicides by people with mental illness. More recent homicide statistics are published by The Scottish Government.<sup>10</sup>
- There was a fall in the number of general population homicides in 2008, a decrease of 26% from the previous year. The number of homicides in 2008 was the lowest recorded over the report period.
- From 2004 the numbers of homicides fell, however there was no trend over the report period.
- The most common method of homicide was the use of a sharp instrument (54%).

Figure 54: Number of homicides in the general population, by sex of perpetrator

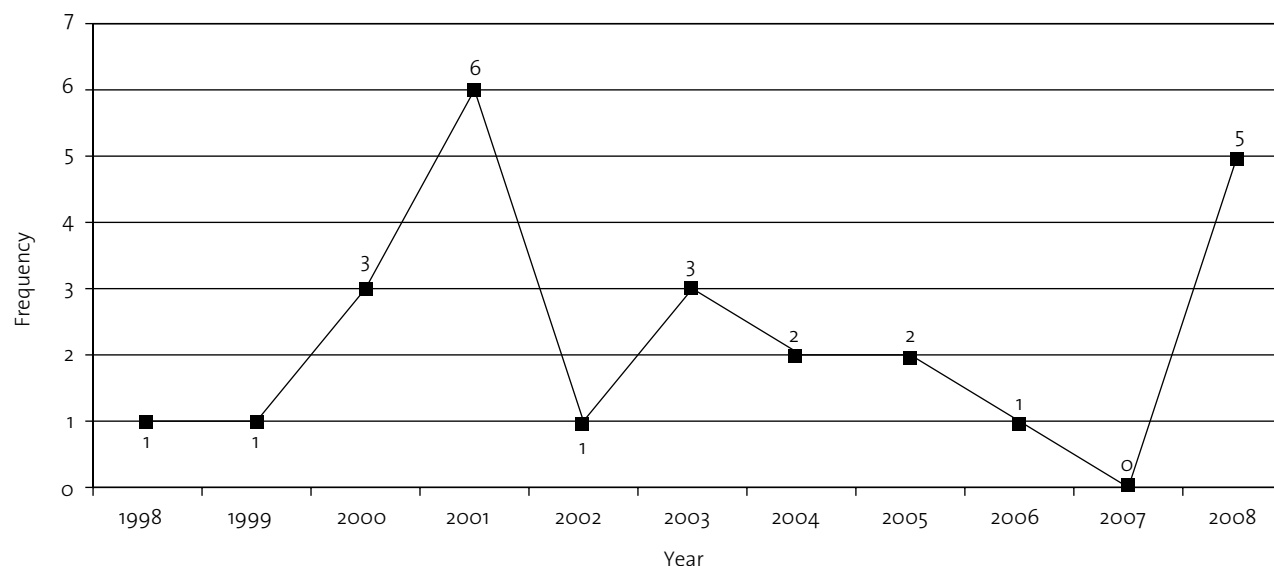


### 3.2.2 Homicide by mentally ill people in the general population

#### Homicide by people with schizophrenia

- There were 24 homicides by people with schizophrenia (based on lifetime history), 2% of the total sample, an average of 2 per year (Figure 55).
- The numbers in this and related sections were small, and no overall trends were found.

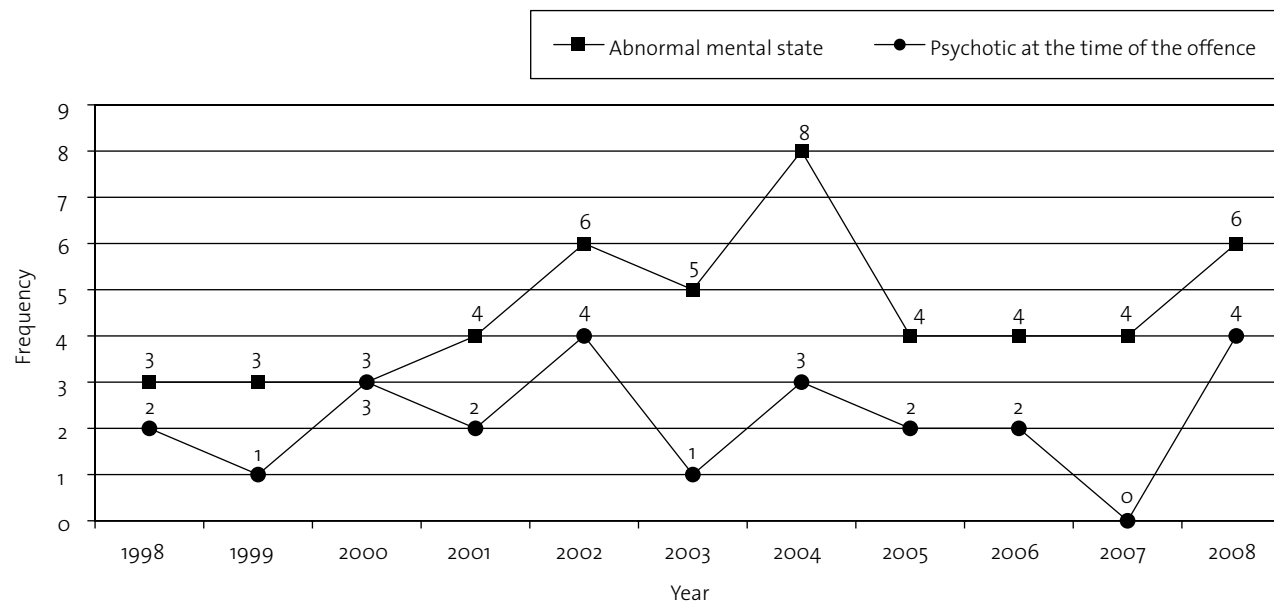
Figure 55: Perpetrators with a primary diagnosis of schizophrenia (lifetime history)



### Perpetrators who were mentally ill at the time of the homicide

- Fifty people had an abnormal mental state at the time of the offence, 5% of the total sample, an average of between 4 and 5 per year (Figure 56).
- Twenty-four people (2% of the total sample) had symptoms of psychosis at the time of the offence, an average of 2 per year.

Figure 56: Perpetrators with mental illness at the time of the homicide



### Homicide perpetrators with a diagnosis of alcohol and drug dependence

- Over the report period, 157 people convicted of homicide had a diagnosis (primary, secondary or tertiary) of alcohol dependence, 16% of the total sample, an average of 14 per year.
- Annual figures for alcohol dependence fluctuated over the report period (Figure 57).
- One hundred and fifty-two people were diagnosed (primary, secondary or tertiary) with drug dependence, 16% of the total sample, an average of 14 per year.
- Annual figures for drug dependence fluctuated but fell from 2004 (Figure 58).

Figure 57: Number of homicides with a diagnosis of alcohol dependence

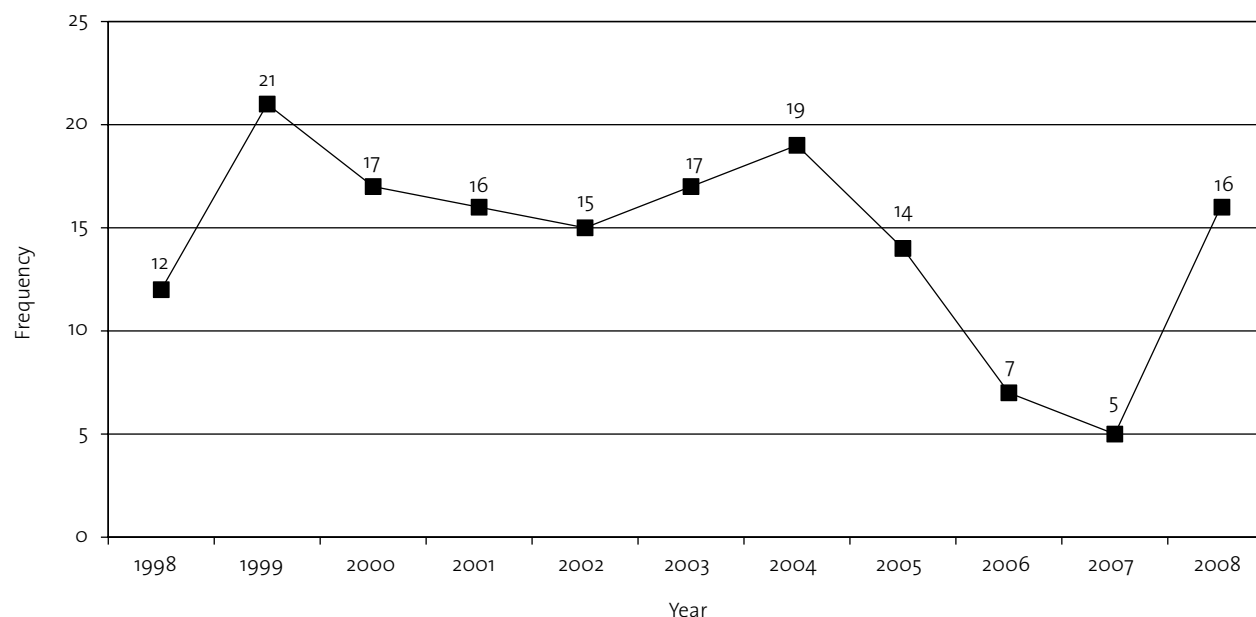
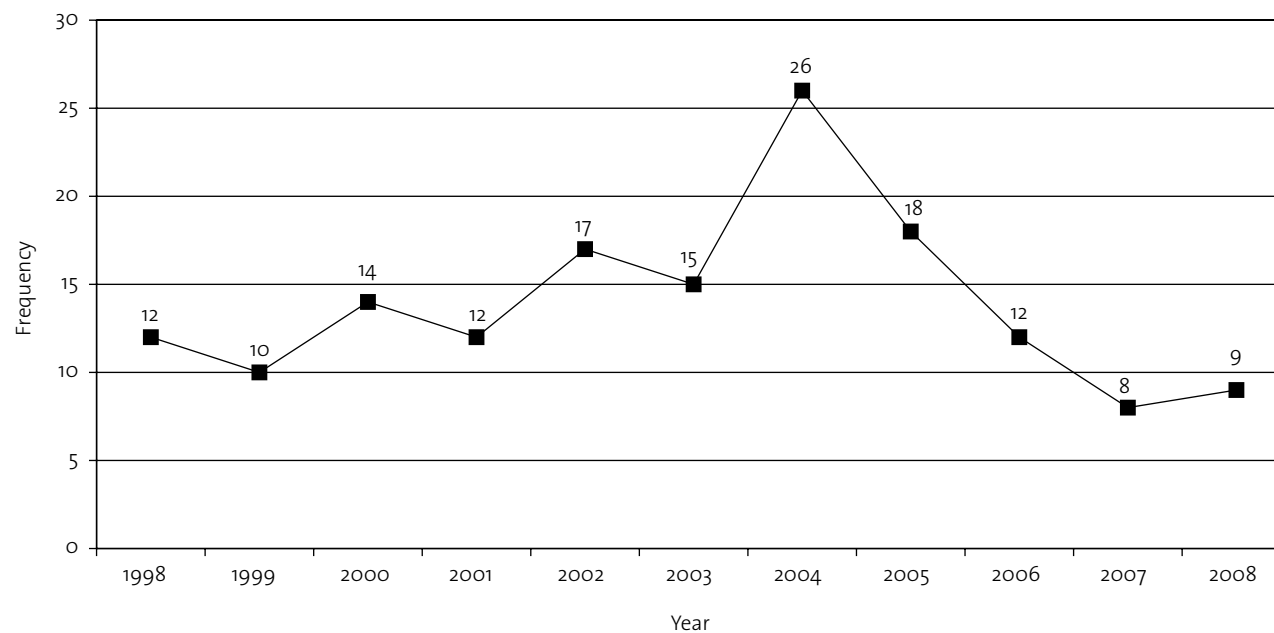




Figure 58: Number of homicides with a diagnosis of drug dependence



### 3.2.3 Patient homicide

- During 1998-2008, 133 people convicted of homicide (14% of the total sample) were identified as patients, i.e. the person had been in contact with mental health services in the 12 months prior to the offence. This was an average of 12 patient homicides per year.
- The numbers fluctuated over the period of the report, but no trend was found (Figure 59).
- The number of patient homicides decreased in those aged 25-44 (Figure 60). This fell substantially from 2004.

Figure 59: Number of patient homicides, by sex of perpetrator

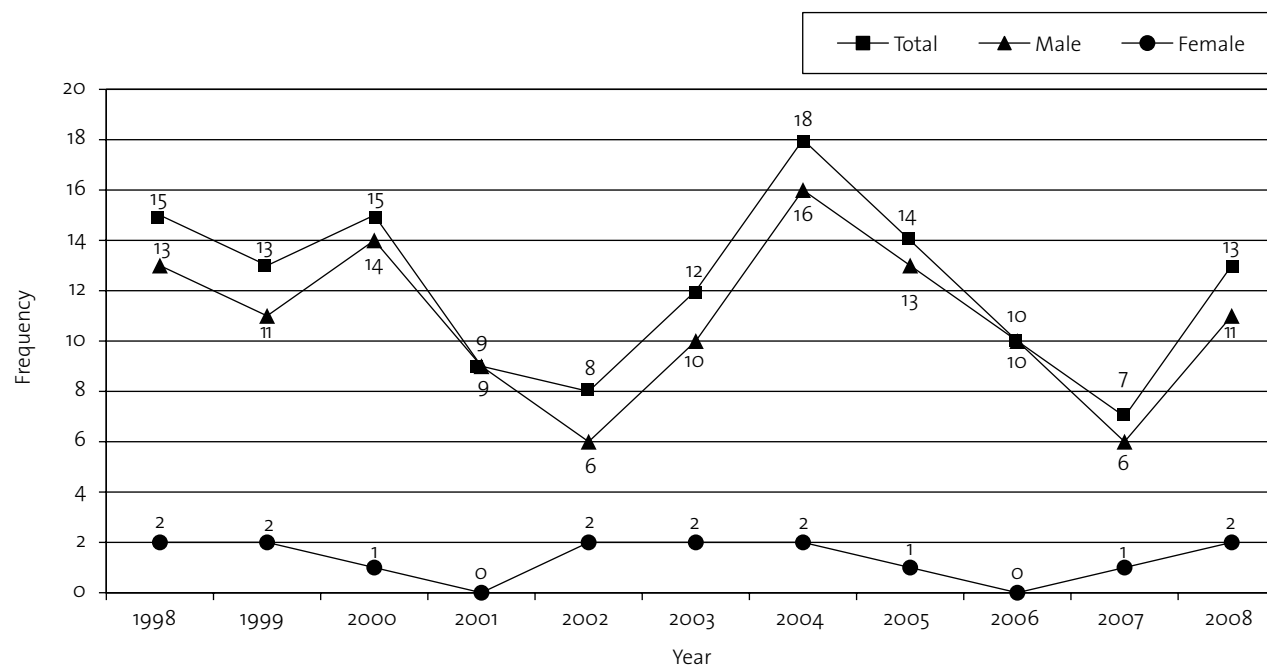
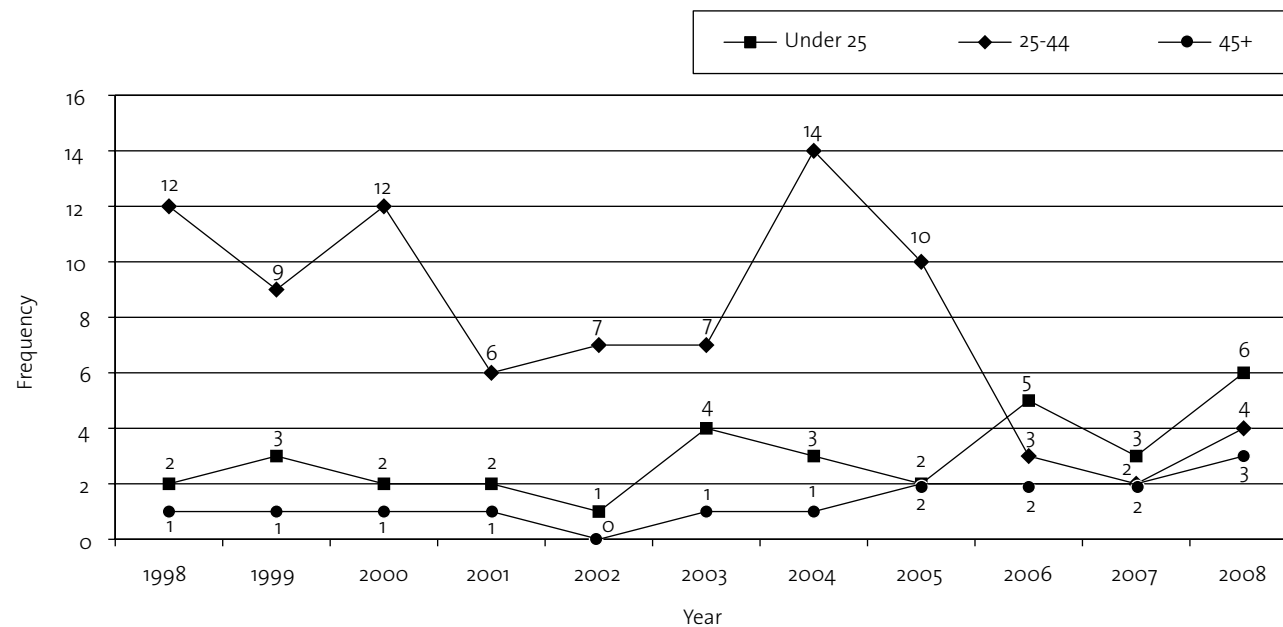


Figure 6o: Number of patient homicides, by age-group



### Relationship of victim to perpetrator: patient homicide

- The number of stranger homicides perpetrated by patients fluctuated over the report period, and ranged from 5 in 1998 to 1 in 2008.
- The victims for male patients were most likely to be acquaintances whereas females most commonly killed spouses/partners.

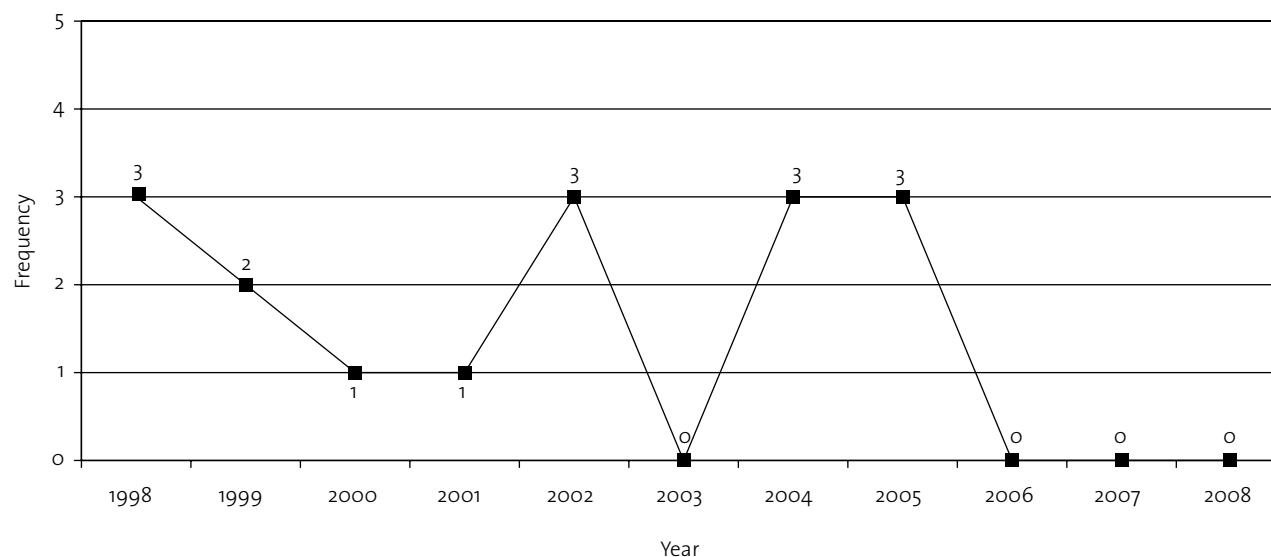
### Diagnosis

- Fifteen patients (11%) who committed homicide had a diagnosis of schizophrenia, an average of 1 per year.
- Drug dependence (36, 27%) was the commonest primary diagnosis, followed by alcohol dependence (32, 24%).
- No trend was found in the number of patients with a primary diagnosis of alcohol or drug dependence.

### Treatment refusal

- Sixteen patients (14%) were known to have refused drug treatment in the month before the homicide, an average of between 1 and 2 per year (Figure 61).
- The numbers fluctuated over the report period; no trends were found.

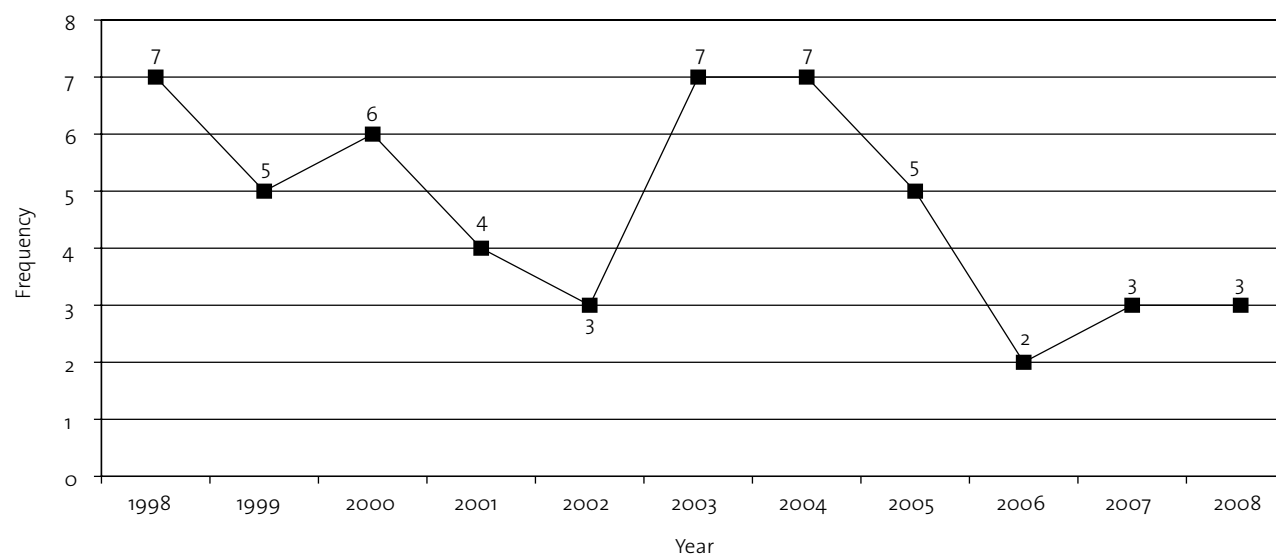
Figure 61: Patient homicide: number of patients who refused drug treatment



### Missed contact

- Fifty-two people (41%) had missed their last appointment with services before the offence, an average of 5 per year (Figure 62).
- Numbers were small and no overall trend was found.

Figure 62: Patient homicide: number of patients who missed their last appointment with services



## 4. UK COMPARISONS

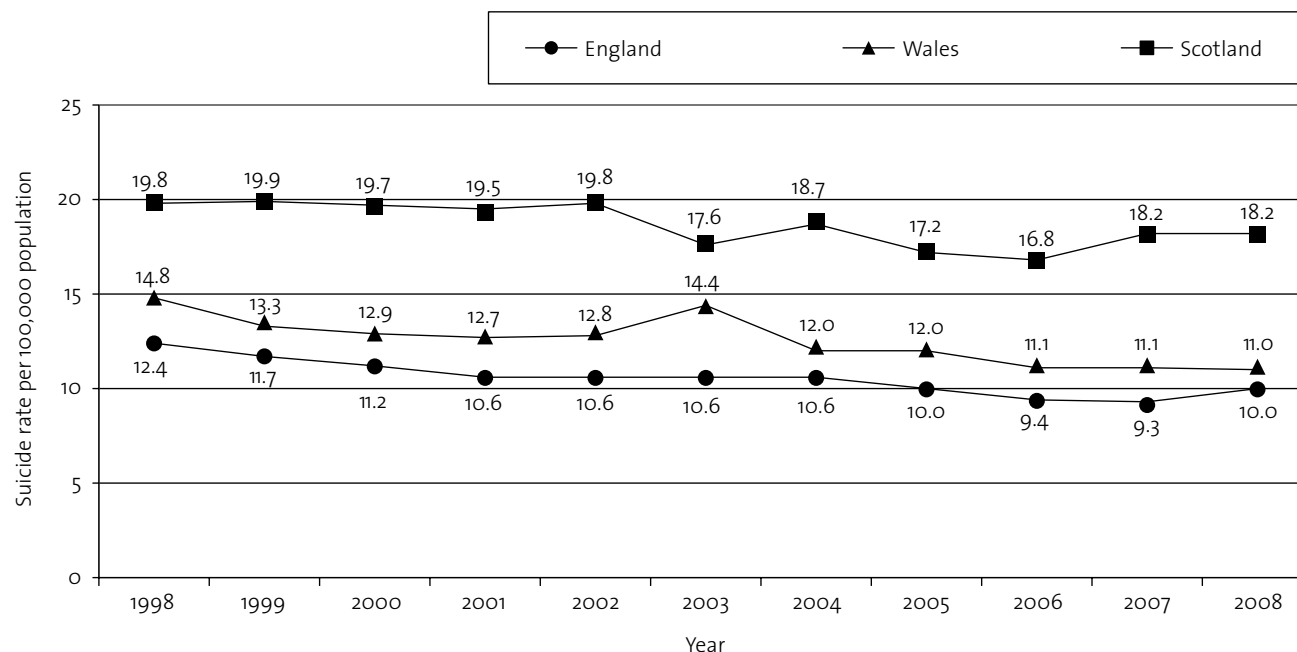
Comparisons between general population and patient suicides and homicides in England, Wales, and Scotland are described below. For the purpose of direct comparisons with Scotland, suicide data in England and Wales for the year 1997 were excluded.

### 4.1 SUICIDE

#### Suicide rates in the general population

- Rates were highest in Scotland; lowest in England (Figure 63).
- In all three countries the rate of suicide fell during the period of study but there were recent rises in Scotland and England (see page 7 for rate calculations).
- In all countries the rates were greatest in the youngest age-groups. Rates in Scotland were highest at all ages up to 85 years (Figure 64).
- Hanging increased in all three countries. In Scotland there was an increase in suicides by self-poisoning from 2005, whilst in England the number fell (Figure 65).

Figure 63: Suicide rates in the general population, by country



Note: See page 7 for rate calculations.



Figure 64: Suicide rates in the general population, by age-group and country

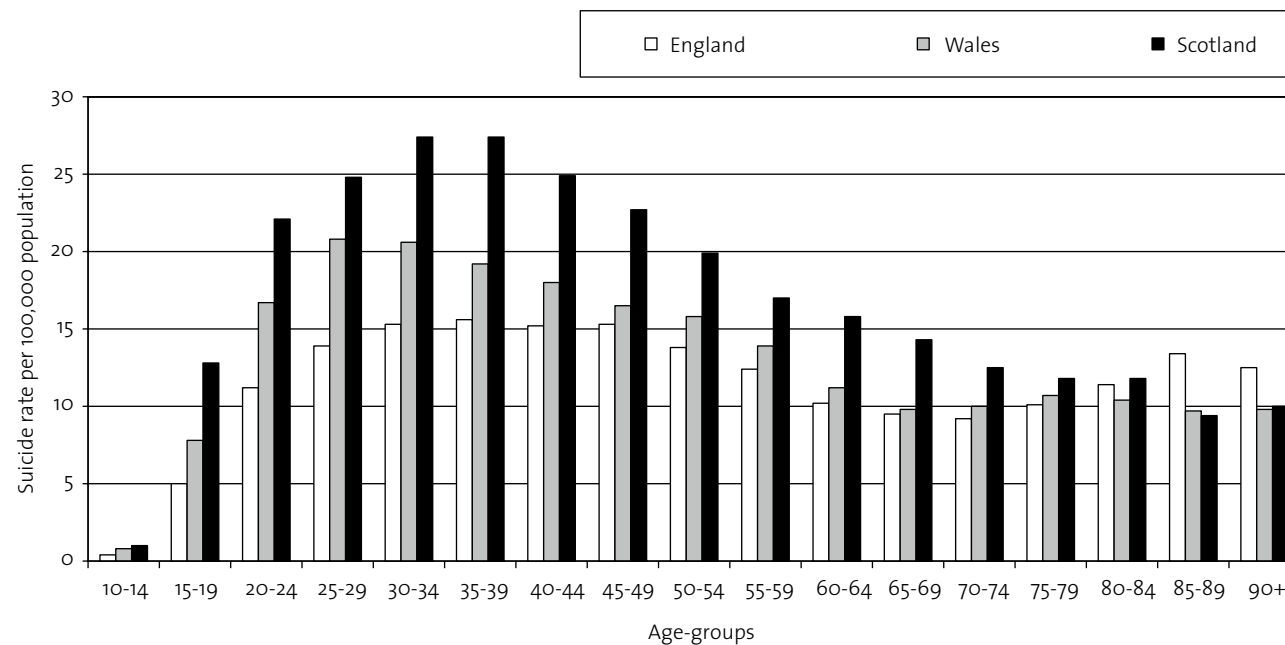
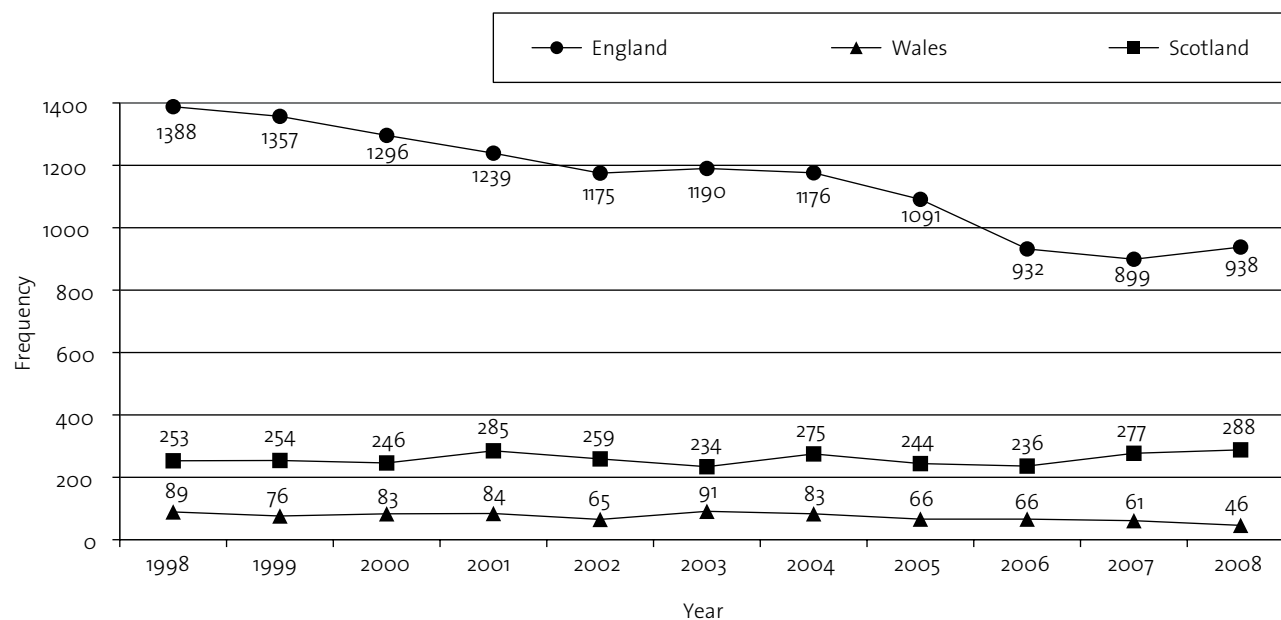


Figure 65: Number of suicides in the general population, by self-poisoning and country





## Patient suicide

- Patient suicide rates per 100,000 general population were highest in Scotland but similar in England and Wales (Figure 66).
- In England and Wales the rate of patient suicide fell, whilst in Scotland it remained stable.
- In Scotland there was an increase in patient suicides by self-poisoning, whilst in England the number fell (Figure 67). These changes reflect the use of analgesics in overdose. In Wales, there was a fall in the number of patient suicides by hanging.

Figure 66: Patient suicide rates, by country

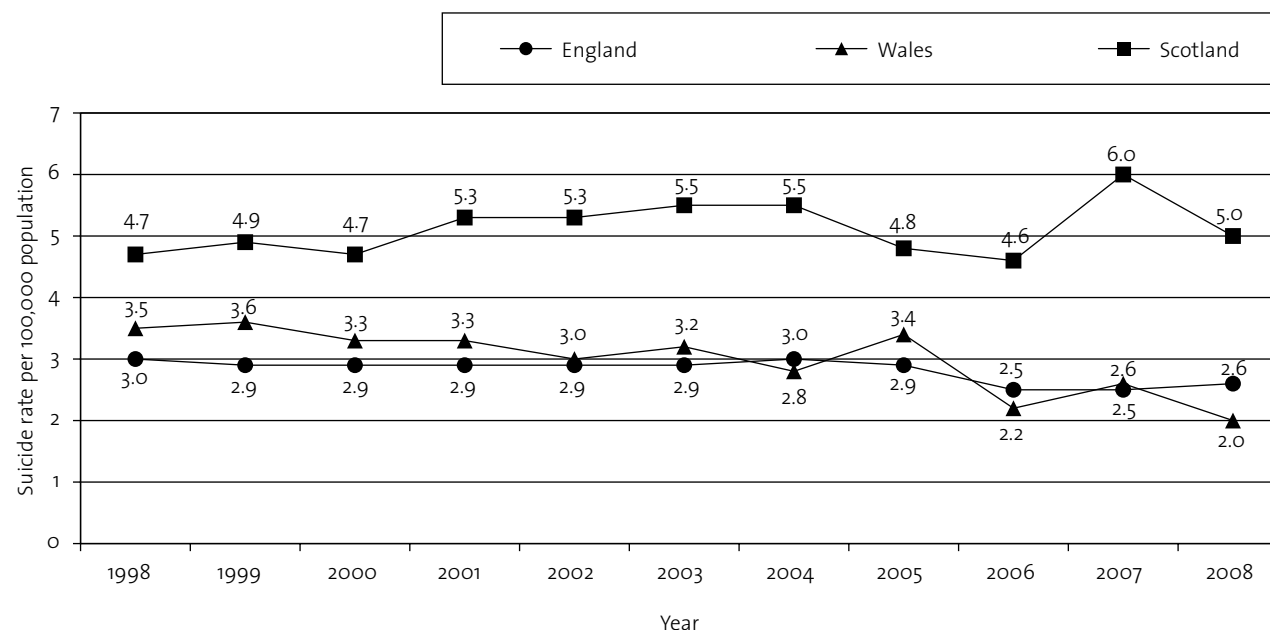
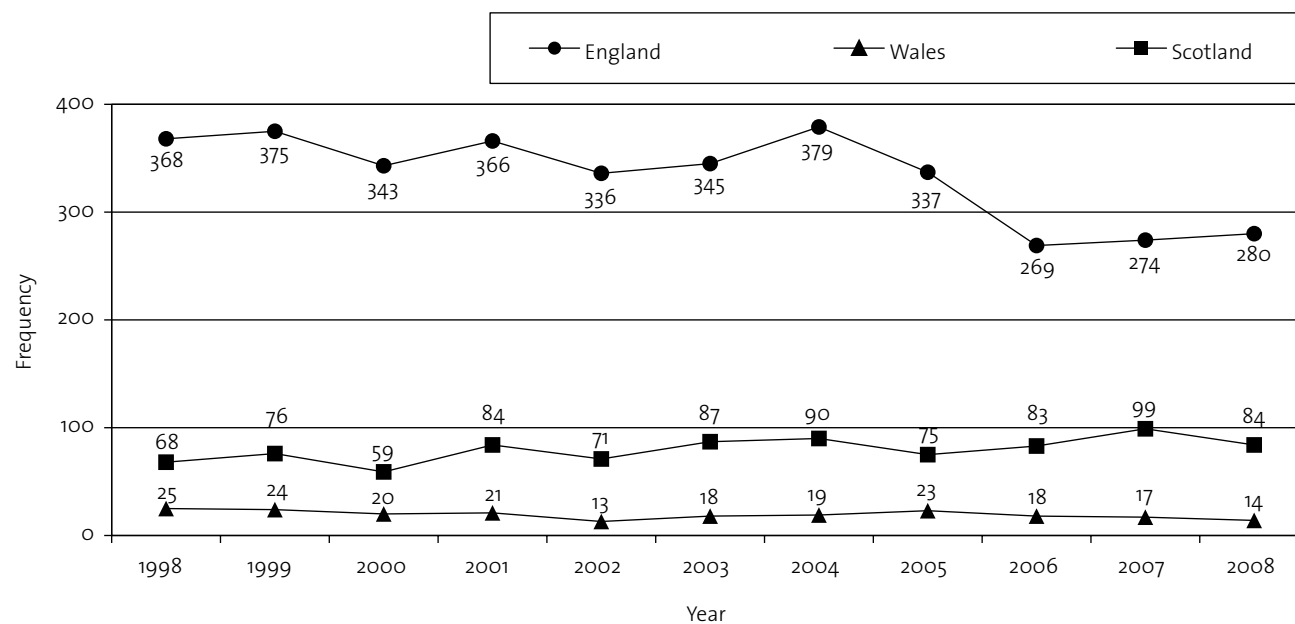


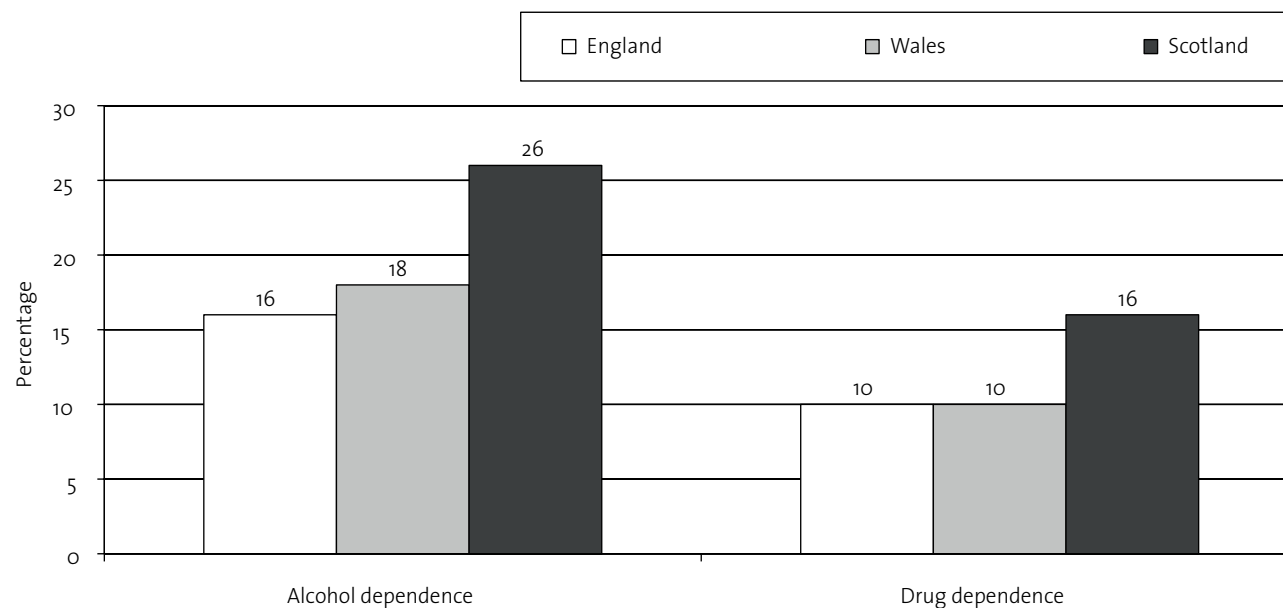
Figure 67: Patient suicide: number of patients who died by self-poisoning, by country



## Alcohol and drugs

- Scotland had a higher proportion of patient suicides with a diagnosis (primary, secondary or tertiary) of alcohol or drug dependence compared to England and Wales (Figure 68; see additional data in Section 3.1.2).

Figure 68: Patient suicide: proportion of patients with alcohol or drug dependence, by country



## 4.2 HOMICIDE

We compared homicide characteristics between England, Wales, and Scotland. The comparison samples were 11-year periods, 1997 to 2007 for England and Wales and 1998 to 2008 for Scotland.

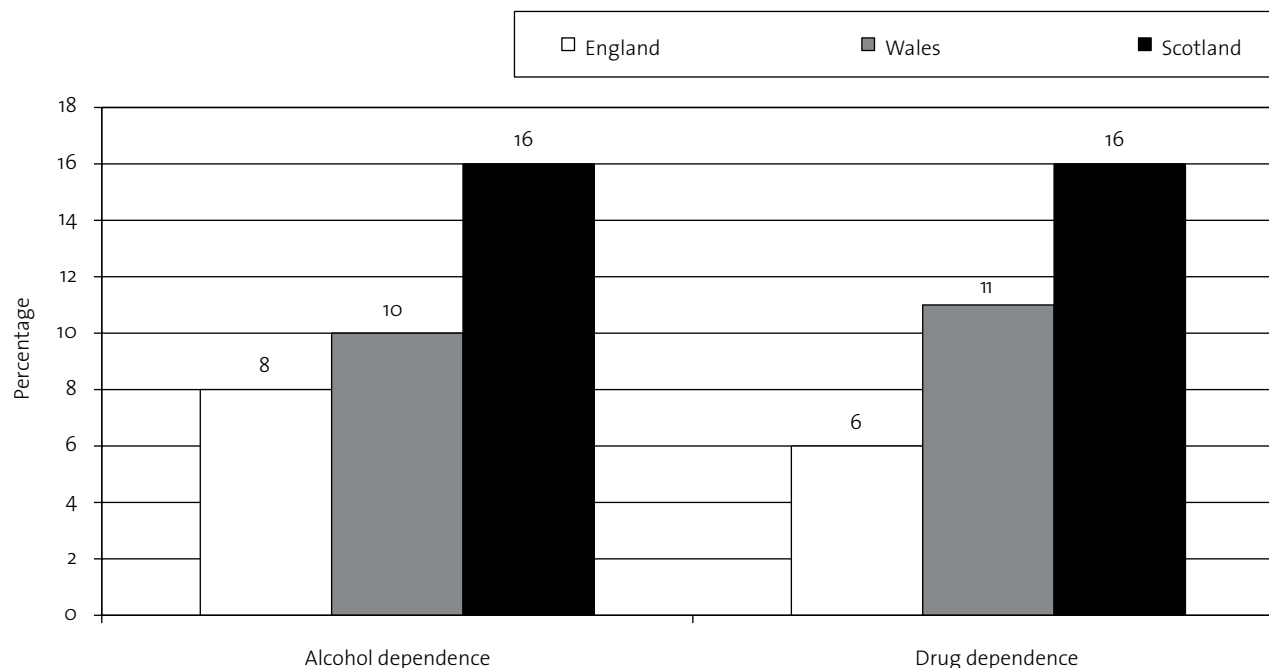
### General population homicide

- There was an 18% decrease in the number of homicides in England in 2007, and a fall of 26% in Scotland in 2008. No similar pattern was observed in Wales.

### Alcohol and drug dependence and misuse

- More perpetrators in Scotland had a diagnosis (primary, secondary or tertiary) of alcohol dependence than in England or Wales (Figure 69).
- Drug dependence (primary, secondary or tertiary) was more common in Scotland than in England or Wales (Figure 69). It was also more common in Wales than England. In addition, drug misuse was more common in Scotland than in England or Wales.

Figure 69: General population homicide: proportion with alcohol or drug dependence, by country



## Homicide by mentally ill people in the general population

- In England, the number of people with schizophrenia, an abnormal mental state at the time of the offence, and symptoms of psychosis fell in the most recent years of the report (2004-2007). This is consistent with the fall in homicide in the general population. However, it is too early to identify a definite downward trend. We will examine additional data for the period 1997-2007 for the possible explanations for this apparent decrease in homicide by people with mental illness.
- In Scotland, despite a fall in general population homicide the same pattern of decline was not observed in people with mental illness committing homicide. No overall trend was found.
- The numbers were too small to examine trends for Wales.

## Patient homicide

- Although there was an increase in patient homicide in England over the report period, there was a sharp decline in 2007. It is too early to comment on whether this decrease will continue, and therefore this change should be interpreted with caution.



## 5. RECENT PUBLICATIONS FROM THE INQUIRY

**A full list of Inquiry reports and publications can be found on the Inquiry website:**

**<http://www.manchester.ac.uk/nci> - Academic publications**

Rodway C, Norrington-Moore V, While D, Hunt IM, Flynn S, Swinson N, Roscoe A, Appleby L, Shaw J. A population-based study of juvenile perpetrators of homicide in England and Wales. *Journal of Adolescence* (2011) 34: 19-28.

Hunt IM, Windfuhr K, Swinson N, Shaw J, Appleby L, Kapur N. Electroconvulsive therapy and suicide among the mentally ill in England: a national clinical survey. *Psychiatry Research* (2011) 187: 145-149.

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Flynn S, Abel KM, While D, Mehta H, Shaw J. Mental illness, gender and homicide: a population-based descriptive study. *Psychiatry Research* (2011) 185: 368-375.

Voshaar R, Kapur N, Bickley H, Williams A, Purandare N. Suicide in later life: a comparison between cases with early-onset and late-onset depression. *Journal of Affective Disorders* (2011) doi:10.1016/j.jad.2011.02.008.

Williams A, While D, Windfuhr K, Bickley H, Hunt IM, Shaw J, Appleby L, Kapur N. Birthday blues? The association between birthdays and suicide in England and Wales, 1997-2006. *Crisis: The Journal of Crisis Intervention and Suicide Prevention* (2011) 32: 134-142.

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Hunt IM, Swinson N, Palmer B, Turnbull P, Cooper J, Kapur N, Appleby L. Method of suicide in the mentally ill: a national clinical survey. *Suicide and Life Threatening Behavior* (2010) 40: 22-34.

Windfuhr K, Bickley H, While D, Williams A, Hunt IM, Appleby L, Kapur N. Nonresident suicides in England: a national study. *Suicide and Life Threatening Behavior* (2010) 40: 151-158.

Da Cruz D, Pearson A, Saini P, Miles C, While D, Swinson N, Williams A, Shaw J, Appleby L, Kapur N. Emergency department contact prior to suicide in mental health patients. *Emergency Medicine Journal* (2010). doi:10.1136/emj.2009.081869.

Kapur N, Clements C, Bateman N, Foex B, Mackway-Jones K, Huxtable R, Gunnell D, Hawton K. Self-poisoning suicide deaths in England: could improved medical management contribute to suicide prevention? *Quarterly Journal of Medicine* (2010) 103: 765-775.



Kapur N, Clements C, Bateman N, Foex B, Mackway-Jones K, Huxtable R, Gunnell D, Hawton K. Advance directives and suicidal behaviour. *British Medical Journal* (2010) 341, c4557

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## FUNDING

The National Confidential Inquiry into Suicide and Homicide is based at the University of Manchester and is funded by the National Patient Safety Agency (England and Wales) and the Scottish Government.

