

Trends in drug-related deaths and deaths among drug users in Ireland, 1998 to 2005

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National
Drug-Related
Deaths Index

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Summary

The data presented in this paper describe trends in drug-related deaths in Ireland between 1998 and 2005. The data used for this analysis were obtained from the National Drug-Related Deaths Index (NDRDI) which is maintained by the Alcohol and Drug Research Unit of the Health Research Board. Using four different data sources, the NDRDI has identified deaths which were either directly or indirectly attributable to drug use. This data gives a reliable estimate of the total burden of mortality related to drug use in Ireland. This publication presents the first analysis of such data from the NDRDI.

The main results of the analysis may be summarised as follows:

- A total of 2,442 drug-related deaths recorded between 1998 and 2005 were entered on the NDRDI database. Of these, 1,553 were directly drug-related deaths (poisonings) and 889 were indirectly drug-related deaths (non-poisonings).
- The annual number of deaths by poisoning increased from 178 in 1998 to 232 in 2005.
- The majority of deaths by poisoning were males.
- The majority of deaths by poisoning were in people aged 20 to 40 years.
- Of the 1,553 cases of death by poisoning, 714 (46.0%) were attributable to a single drug or substance. Heroin and unspecified opiates accounted for 159 (22.3%) of the single-drug poisonings, analgesics containing an opiate compound accounted for 85 (11.9%) deaths, and methadone accounted for a further 61 (8.5%) deaths.
- Just over half of all poisonings (839, 54%) were due to polysubstances and the annual proportion was similar in each year of the eight-year period.
- Of the polysubstance deaths, 388 (46.2%) involved polysubstances which included an opiate (mainly heroin or methadone). A further 177 (21.1%) involved polysubstances which included an analgesic containing an opiate compound.

- The number of deaths by poisoning in which cocaine was implicated rose from five in 1998 to 34 in 2005. In total, cocaine was implicated in 100 cases (6.4% of all deaths by poisoning). Of the deaths where cocaine was involved, 29% were due to cocaine alone.
- Prescription medication and over-the-counter medication was implicated in many of the deaths by poisoning. Benzodiazepines played a major role in polysubstance poisonings. In total, benzodiazepines were involved in 30% of deaths by poisoning.
- One-quarter (380, 24.5%) of all deaths by poisoning involved alcohol in conjunction with another drug or substance. This is an underestimation of the total number of such deaths as cases of poisoning by alcohol alone are not included in this analysis.
- In the eight-year period, there were 33 deaths in which the use of solvents was implicated. These deaths occurred mainly in young people aged under 19 years.
- In the years 2003 to 2005, the number of deaths by poisoning that occurred outside Dublin surpassed the number of deaths by poisoning in Dublin (city and county).
- The number of deaths indirectly related to drug use and/or substance use increased over the period, from 64 in 1998 to 168 in 2005. This reflects the increasing numbers of people in the population who are consuming drugs, taking risks, developing dependencies, or who have developed other illnesses associated with drug use.

Glossary

Drugs of dependence or abuse: Opiates (including heroin, methadone, morphine, codeine), stimulants (including cocaine, ecstasy), cannabis, hallucinogens (including LSD), alone or in combination. Cases involving dependence or abuse of licit drugs such as benzodiazepines, steroids and licit opiates either alone or in combination with any other drug are included where information on dependence or abuse was available.

Drug users: Individuals who have a history of drug dependency or of non-dependent abuse of drugs and/or other substances.

Median: The median is the value at the mid-point in a sequence of numerical values ranged in ascending or descending order. It is defined as the value above or below which half of the values lie. Unlike the mean (average), the median is not influenced by extreme values (or outliers). For example, in the case of five drug users aged 22, 23, 24 and 46 years respectively, the median (middle value) is 24 years, whereas the mean is 27.8 years. While both the median and the mean describe the central value of the data, the median is more useful in this case because the mean is influenced by the one older person in this example.

Non-poisonings: Deaths in individuals with a history of drug dependency or non-dependent abuse of drugs (ascertained from toxicology results, Central Treatment List, medical or coronial records) whether or not the use of the drug was directly implicated in the death.

Other substances include solvents, fungi, fruit, insecticides and herbicides.

Poisonings: Deaths in individuals directly due to the toxic affect of the consumption of a drug(s) and/or other substance(s). Deaths arising from adverse reactions to prescribed medication are not included in the NDRDI.

Polysubstance cases are those that had two or more drugs or substances implicated in their cause of death.

Solvents: Breathable chemical vapours that are intentionally inhaled because of the chemicals' mind-altering effects. Solvents include glue, fuel, aerosols or gas.

Unspecified Opiates: Post-mortem toxicology cannot always distinguish the actual opiate substance and therefore some drugs have to be classified as an unspecified opiate-type drug.

Acronyms

ADRU	Alcohol and Drug Research Unit
AIDS	Acquired Immune Deficiency Syndrome
CTL	Central Treatment List
CSO	Central Statistics Office
DTF	Drugs Task Force
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
ESRI	Economic and Social Research Institute
FSN	Family Support Network
HIPE	Hospital In-Patient Enquiry scheme
HIV	Human Immunodeficiency Virus
HRB	Health Research Board
ICD	International Classification of Diseases
LDTF	Local Drugs Task Force
LSD	Lysergic acid diethylamide
NDRDI	National Drug-Related Deaths Index
RTFA	Regional Task Force Area
WHO	World Health Organization

In the case of data presented by region, this paper refers to the areas covered by the regional drugs task forces (RDTFs), together with the local drugs task forces (LDTFs) within their boundaries, as follows:

		Area included
ECRDTF	East Coast Regional Drugs Task Force (DTF)	South-east Dublin city and county and East Wicklow, including the two local drugs task force (LDTF) areas within these boundaries
MRDTF	Midland Regional DTF	Counties Laois, Longford, Offaly and Westmeath
MWRDTF	Mid West Regional DTF	Counties Clare and Limerick, and North Tipperary
NDRDTF	North Dublin City and County Regional DTF	North Dublin city and county, including the five LDTF areas within these boundaries
NERDTF	North Eastern Regional DTF	Counties Cavan, Louth, Meath and Monaghan
NWRDTF	North West Regional DTF	Counties Donegal, Leitrim and Sligo, and north-west Cavan
SERDTF	South East Regional DTF	Counties Carlow, Kilkenny, Waterford and Wexford, and South Tipperary,
SRDTF	Southern Regional DTF	Counties Cork and Kerry, including the Cork LDTF area
SWRDTF	South Western Regional DTF	South-west Dublin, West Wicklow and County Kildare, including the six LDTF areas within these boundaries
WRDTF	Western Regional DTF	Counties Galway, Mayo and Roscommon

Introduction

The National Drug-Related Deaths Index (NDRDI) is an epidemiological database which records cases of death by drugs and alcohol poisoning, and deaths among drug users and among alcoholics in Ireland. The NDRDI is maintained by the Alcohol and Drug Research Unit (ADRU) of the Health Research Board (HRB). It is jointly funded by the Department of Health and Children and the Department of Justice, Equality and Law Reform.

The NDRDI was established in September 2005 to comply with Action 67 of the current National Drugs Strategy.¹ The aim of this action was to put in place a system for recording drug-related deaths to enable the State to respond in a timely manner, with accurate data, on drug-related deaths and deaths among drug users.

Measurement of drug-related deaths and deaths among drug users is one of the key indicators used to measure the consequences of problem drug use in Europe. The NDRDI enables accurate reporting of this key data to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). The EMCDDA has recommended that all EU member states establish a special register to record these deaths.

Illicit drugs are involved in many cases of drug-related death; however, licit (prescribed) drugs are also frequently involved in such deaths (alone or in conjunction with an illicit drug).^{2,3}

Alcohol has been reported as the third most detrimental risk factor for ill health and premature death in Europe.⁴ The NDRDI has recorded data on alcohol-related deaths, deaths among alcoholics, and deaths from alcohol-related diseases for 2004 and 2005. An analysis of these data is not presented in this paper.

Background

Drug use can lead to premature death from a range of different causes.⁵ Many deaths are caused by poisoning (both intentional and unintentional), where the death is directly attributable to the consumption of drugs (alone or in combination with other substances). This type of death is often defined as a directly drug-related death. For the purpose of this paper, this type of death will be referred to as a **poisoning**.

Deaths among drug users (whether dependent or non-dependent) are often indirectly attributed to the consequences of their drug use. This type of death is often defined as an indirectly drug-related death. For the purpose of this paper, this type of death will be referred to as a **non-poisoning**. There is wide variation in the causes of death in such cases:

- Infection with HIV due to sharing of drug paraphernalia and subsequent death due to an AIDS-related illness is an example of an indirectly drug-related death.
- High rates of depression have been recorded among illicit drug users, and studies have shown that they are at greater risk of suicide than the population who do not use illicit drugs.⁵ Suicide deaths among illicit drug users that are not due to poisoning are recorded as indirectly drug-related deaths. However, the contribution of a history of drug use in this type of death is frequently not available, leading to an under-recording of the total number of indirectly drug-related deaths in the population.
- Actions taken while under the influence of drugs can lead to death, frequently as a result of accidents caused by impaired judgement or exacerbation of risky behaviours.⁵

- In the case of some deaths, evidence of drug misuse may be an incidental finding on post-mortem.
- Finally, in some cases of indirectly drug-related death, the deceased was neither poisoned nor had misused drugs, but was the victim of violence (e.g. road traffic accident, drug crime, etc) as a result of the drug use of another individual. In line with international practice, these deaths are not recorded by the NDRDI.

Calculation of mortality figures for both poisonings and non-poisonings provides an estimate of the total burden of mortality related to drug use in Ireland.

Previous data

The EMCDDA has developed a standardised method of extracting drug-related mortality data from various sources in all EU member states.⁶ This method involves the collection of information on drug-related deaths according to specific categories, using the International Classification of Diseases (ICD) to enable international comparisons.⁷ The ICD codes required varies depending on whether a country provides data from a General Mortality Register (GMR) or from a Special Register. Special Registers are usually maintained by the police or forensic services of a country and not all countries have a Special Register. The NDRDI can be considered a Special Register.

To date, information on drug-related deaths in Ireland has been provided by the GMR, which is maintained by the Central Statistics Office (CSO). However, these data were felt to be an under-recording.⁸ A study in 2001 found that the annual numbers of opiate-related deaths recorded by the Dublin coroners were consistently higher than those reported by the GMR.⁹ Deaths as an indirect result of drug use have not been systematically documented and have only been assessed in a number of small-scale studies in Dublin city and county.⁸ Families of substance users in Dublin (through the Family Support Network [FSN]) have advocated for some years for the development of a mechanism to accurately measure the extent of premature death among drug users.

Aim of the NDRDI

The aim of the NDRDI is to ensure complete (90%) and accurate (95%) reporting of drug- and alcohol-related deaths, and deaths among drug users and among alcoholics, in order to allow the State to respond in a timely manner with accurate data on such deaths.

The objectives of the NDRDI are:

- To provide accurate information on drug- and alcohol-related deaths and deaths among drug users and among alcoholics;
- To assist in identifying and prioritising areas for intervention and prevention, and to measure the effects of such interventions.

Methods

The data-collection tool was developed from those used in previous research and from tools developed by the EMCDDA.⁸ Data were collected retrospectively for each of the eight years between 1998 and 2005.

Data collected includes:

- demographic details
- socio-economic information
- history of drug and/or alcohol dependence or non-dependent abuse of drugs
- risk factors e.g. history of injecting, imprisonment
- drug and/or alcohol treatment history
- details about the death itself:
 - toxicology
 - cause of death.

Data sources

In order to ensure a complete and accurate database, it is necessary to use data from several sources: the Coroner Service, the acute hospital sector through the Hospital In-Patient Enquiry scheme (HIPE), the Central Treatment List (CTL), the GMR and through the community via the FSN.

The Coroner Service

The primary objective of the Coroner Service in Ireland is to establish, following public investigation, the cause of death (including how the person died) in cases of sudden or unexpected death.¹⁰ In Ireland, a coroner has all the same absolute privileges as a judge. To establish the cause of death, the coroner can instigate further inquiries, such as ordering a post-mortem and, if necessary, an inquest. If the results of the post-mortem and any other tests establish the cause of death as being natural, the coroner can then issue a certificate to the Registrar of Births, Deaths and Marriages, enabling them to issue a death certificate.

If the cause of death cannot be ascertained following a post-mortem, the coroner can order an inquest. An inquest must be held for all deaths that occur in a violent or unnatural manner, for all sudden deaths as well as those of an unknown cause. An inquest is concerned with establishing the facts of the death, rather than determining the innocence or guilt of any third party. Once the inquest has been completed, the final outcome is a matter of public record.

NDRDI researchers collected data on site from the 48 current coroner districts countrywide, and entered it into the database on laptops secured by encryption. The time between date of death and conclusion of inquest varies from case to case.¹¹ This means that information on some deaths which occurred between 1998 and 2005 could not be obtained from the coroners. The database will be updated as and when this information becomes available. As a result, figures may change over time but numbers are likely to be small.

The Hospital In-Patient Enquiry scheme

The Economic and Social Research Institute (ESRI) manages the HIPE scheme in Ireland. HIPE is a computer-based health information system designed to collect medical and administrative data on discharges and deaths in acute general hospitals. Each HIPE discharge record represents one episode of care. Information is not recorded on cases that attend accident and emergency units for treatment but are not admitted as in-patients (these deaths come under the remit of the Coroner Service). This data source has never previously been used to examine drug-related deaths or deaths among drug users.

Sixty acute general hospitals participate in the HIPE scheme. The estimated coverage of cases discharged from the hospitals participating in the scheme was approximately 95.5% between 1999 and 2004.¹² The ICD codes used by HIPE changed over the reporting period (from ICD9 CM to ICD10 AM), which may have led to some small differences in classification.

An automated programme was developed by the HIPE information technology department of the ESRI to extract the required information from the HIPE database on cases that died in hospital and had the appropriate NDRDI ICD codes. All hospitals attached to HIPE, with the exception of the Royal Victoria Eye and Ear Hospital, provided data which the NDRDI researchers downloaded on site.

The Central Treatment List

The CTL was established under Statutory Instrument No 225 following the *Report of the Methadone Treatment Services Review Group 1998*.¹³ This list is administered by the Drug Treatment Centre Board on behalf of the Health Service Executive and is a complete register of all patients receiving methadone (for treatment of opiate misuse) in Ireland. These data can provide information on deaths among people with a history of opiate dependence. The data on all deaths reported to CTL staff between 1 January 1998 and 31 December 2005 were sent electronically in a secure format to the NDRDI.

The General Mortality Register

The Registrar of Births, Deaths and Marriages formally records all notified deaths in Ireland. Using this data, the CSO then categorises each death and the underlying cause of death using ICD codes, and returns this information to the GMR. If the gardaí investigate a death on behalf of the Coroner Service, they also provide supplementary information to the CSO related to the death (Form 104). For each death, only one underlying cause of death and only one external cause, which describes the circumstances under which the death occurred, are recorded. The main disadvantage of this method is that contributory factors, such as drug use, may not be recorded. Data are sent electronically from the CSO to the NDRDI.

The Family Support Network

The FSN was established in 2000 by the CityWide Drugs Crisis Campaign. It consists of national representatives of family support groups, individual family members and those working directly with the families of drug users. The FSN can submit information on drug-related deaths. This information is given voluntarily by family members to personnel from the Network, who then forward the information to the NDRDI. Informed consent is required prior to data collection. The FSN data collection is still in its pilot phase and did not contribute to this round of analysis.

Ethical approval

Ethical approval for the NDRDI was obtained from the HRB ethics committee and from ethics committees covering each individual acute hospital providing HIPE data. Approval for the use of CTL data was obtained from the Methadone Prescribing Protocol Implementation Committee. All work was carried out in accordance with IEA/European Epidemiology Group guideline document.¹⁴

Case matching

Cases from the coroners' files, HIPE, GMR and CTL were matched to avoid duplication and to enhance the amount of information available on each case. Cases could be matched on a selection of variables including name, gender, county of residence, date of birth and date of death. Cases from the coroners, CTL or HIPE did not need to have a match in order to be included in the database. Named data was not available from the GMR, so as to avoid duplication and over-estimation of the number of cases, GMR cases with no match were not included in this analysis.

Types of cases included in the NDRDI

Poisonings: Deaths in individuals directly due to the toxic effect of the consumption of a drug(s) and/or other substance(s). Other terms used to describe death as a result of excessive consumption include overdose, directly drug-related death, drug-induced death and acute drug death. Deaths arising from adverse reactions to prescribed medication are not included in the NDRDI.

Non-poisonings: Deaths in individuals with a history of drug dependency or non-dependent abuse of drugs (ascertained from toxicology results, CTL, medical or coronial records), irrespective of whether the use of the drug was directly implicated in the death, e.g. cardiac events after cocaine use.

Analysis

This is the first analysis of the NDRDI data. Between 1998 and 2005, 2,442 drug-related deaths and deaths among drug users met the criteria for inclusion in the NDRDI. The cases were obtained from four data sources, and 1,402 (57.4%) occurred in more than one source.

Overall, the number of deaths increased between 1998 and 2005. In 2003, there was a notable decrease, but numbers increased again in 2004 and 2005. Of the 2,442 deaths, 1,553 (63.6%) were due to poisoning (Table 1).

Table 1 Poisonings and non-poisonings by year of death, 1998 to 2005 (N = 2,442)

	1998	1999	2000	2001	2002	2003	2004	2005
All deaths	242	271	261	276	336	296	360	400
Poisonings (n = 1553)	178	187	182	175	210	184	205	232
Non-poisonings (n = 889)	64	84	79	101	126	112	155	168

Directly drug-related deaths (poisonings)

The number of deaths by poisoning increased from 178 in 1998 to 232 in 2005, although numbers fluctuated over the reporting period (Table 1).

The majority of deaths were male (67.1%, 1,042) (Figure 1).

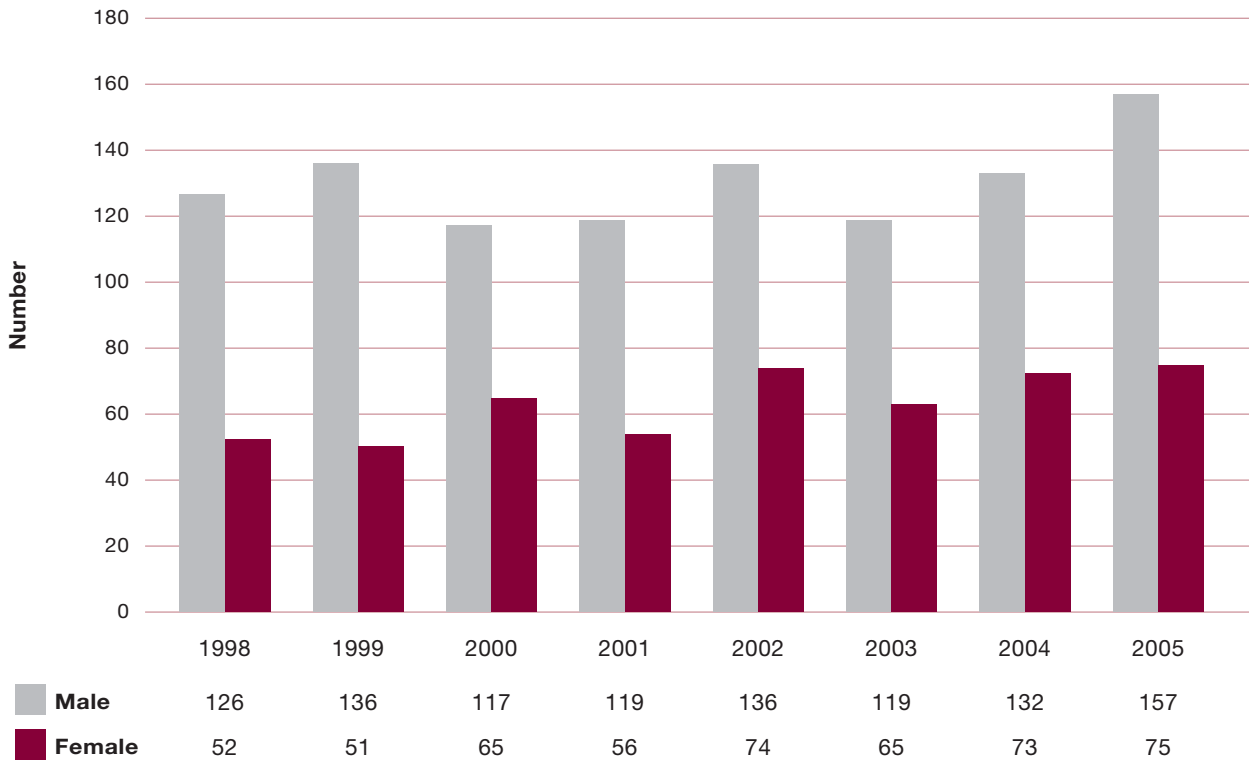


Figure 1 Poisonings by gender and by year, 1998 to 2005 (N = 1,553)

Over half the cases (53.8%, 836) were aged between 20 and 40 years at the time of death (Figure 2).

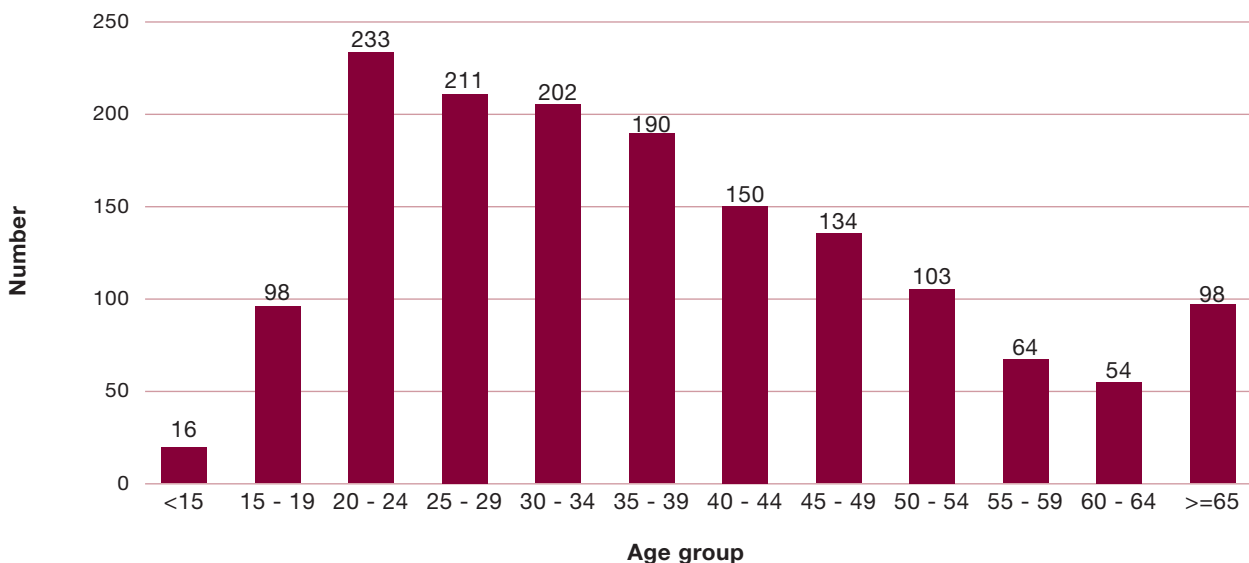


Figure 2 Poisonings by age group, 1998 to 2005 (n = 1,553)

Overall, the median age at the time of death was 38 years. In general, males were younger than females (Table 2).

Table 2 Poisoning, by median age and by gender, 1998 to 2005 (N =1,553)

	1998	1999	2000	2001	2002	2003	2004	2005
	Median age in years							
All deaths	38	36	38	37	37	38	39	38
Range*	19–69	17–69	17–69	20–64	18–64	18–68	20–70	17–64
Male	35	33	35	38	36	37	35	35
Female	44	42	42	36	39	41	47	42

* Age range presented is the 5TH to 95TH percentile (90% of cases are included within this range)

Drugs involved in deaths by poisoning

Of the 1,553 deaths by poisoning recorded between 1998 and 2005, 714 (46.0%) were attributable to a single drug. Over the eight-year period, the annual percentages of single-drug poisonings and polysubstance poisonings were similar (Table 3).

Table 3 Single-drug and polysubstance deaths by poisoning, 1998 to 2005 (N = 1,553)

	1998	1999	2000	2001	2002	2003	2004	2005
Single-drug poisoning (n = 714)	78 (43.8)	91 (48.7)	81 (44.5)	87 (49.7)	93 (44.3)	84 (45.7)	90 (43.9)	110 (47.4)
Polysubstance poisoning (n = 839)	100 (56.2)	96 (51.3)	101 (55.5)	88 (50.3)	117 (55.7)	100 (54.3)	115 (56.1)	122 (52.6)
Total	178	187	182	175	210	184	205	232

Of the 714 cases of death due to a single drug, heroin and unspecified opiates accounted for 159 (22.3%), analgesics containing an opiate compound accounted for 85 (11.9%) and methadone alone accounted for a further 61 (8.5%).

Fifty-four per cent of deaths by poisoning (839) were attributable to two or more drugs and/or substances. Of these, 388 (46.2%) were attributable to the use of an opiate (mainly heroin and/or methadone) in conjunction with at least one other drug or substance. A further 21% (177) were attributable to polysubstances which included an analgesic containing an opiate compound.

Table 4 presents all drugs and other substances implicated in cases of death by poisoning (both single and polysubstance). Heroin was recorded as one of the drugs implicated in 20% of cases, while other opiates (including analgesics containing an opiate compound) were implicated in 23% of cases. Benzodiazepines were implicated in 30% of deaths. Poisoning by benzodiazepines occurred almost always in conjunction with another drug or substance. Alcohol in conjunction with another drug was implicated in one-quarter of deaths (24.5%).

The number of poisoning deaths where cocaine was implicated, alone or with another drug, increased steadily from five in 1998 to 34 in 2005. In the eight-year period, cocaine was involved in 100 (6.4%) deaths by poisoning. Of these, 29 (29.0%) were due to cocaine alone. Heroin and/or methadone were often associated with cocaine in cases of polysubstance poisoning.

Table 4 Drugs involved in deaths by poisoning, 1998 to 2005 (N = 1,553)

	1998	1999	2000	2001	2002	2003	2004	2005	Total	%
All deaths*	178	187	182	175	210	184	205	232	1553	100
Heroin	29	48	37	47	46	28	29	44	308	19.8
Methadone	43	37	40	27	39	33	40	42	301	19.4
Other opiates†	39	35	45	54	46	48	64	60	391	23.3
Cocaine	5	5	5	8	14	10	19	34	100	6.4
MDMA	4	8	8	6	10	11	12	10	69	4.4
Benzodiazepines	78	72	73	55	70	60	76	71	555	29.9
Alcohol‡	35	43	38	38	56	48	63	59	380	24.5
Antidepressants	32	34	41	39	47	44	51	49	337	19.3
Other prescription drugs§	38	36	35	19	33	37	41	34	273	15.8
Non-opiate analgesics	12	17	11	16	16	11	12	20	115	7.1
Insecticides and herbicides	6	6	3	7	5	8	2	5	42	2.7
Solvents	3	5	3	3	6	3	2	8	33	2.1
Other **	5	6	7	2	10	3	5	6	44	2.8

* Numbers and percentages in columns may differ from totals shown as individual cases may have more than one drug or substance involved in their death

† Other opiates includes unspecified opiates and analgesics containing an opiate compound

‡ Alcohol is only recorded when it contributes to a polysubstance death

§ Other prescription drugs includes non-benzodiazepine sedatives, anti-psychotics, cardiac and all other types of medication including over-the-counter medication

** Other includes barbiturates, other amphetamines, hallucinogens, cannabis and other chemicals

The annual number of deaths due to solvents varied slightly over the eight-year period. Most of these deaths occurred in young people: almost one-third (10) were aged between 11 and 14 years, and 42% (14) were aged between 15 and 19 years.

The greatest increase in deaths by poisoning was outside Dublin, where the annual number has increased from 69 in 1998 to 119 in 2005 (Figure 3). In 2003, the number of cases reported outside Dublin surpassed the number reported in Dublin (city and county). The types of drug influencing the increase were benzodiazepines and other opiates and, to a lesser extent, heroin, methadone and cocaine.

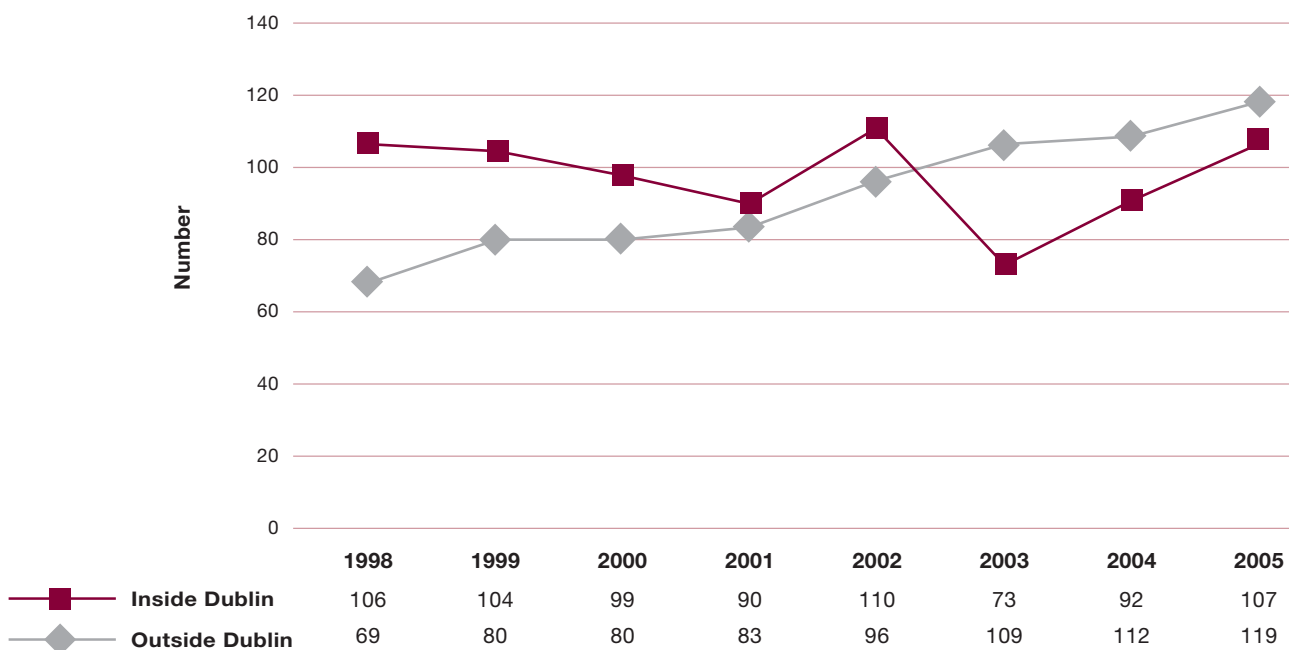


Figure 3 Poisonings by place of residence, 1998 to 2005 (N = 1,529)

To compare the increase in the number of poisonings over time and to account for changes in the population, an aggregated death rate per 100,000 population (aged 15–64 years) in the Regional Drugs Task Force (RDTF) areas was calculated for the years 1998 to 2001 and for the years 2002 to 2005 (Figure 4). Overall, the national rate increased from 6.4 per 100,000 in the period 1998 to 2001 to 6.8 in the period 2002 to 2005. The rate increased between the two periods in all RDTF areas apart from the WRDTF, SWRDTF and NDRDTF.

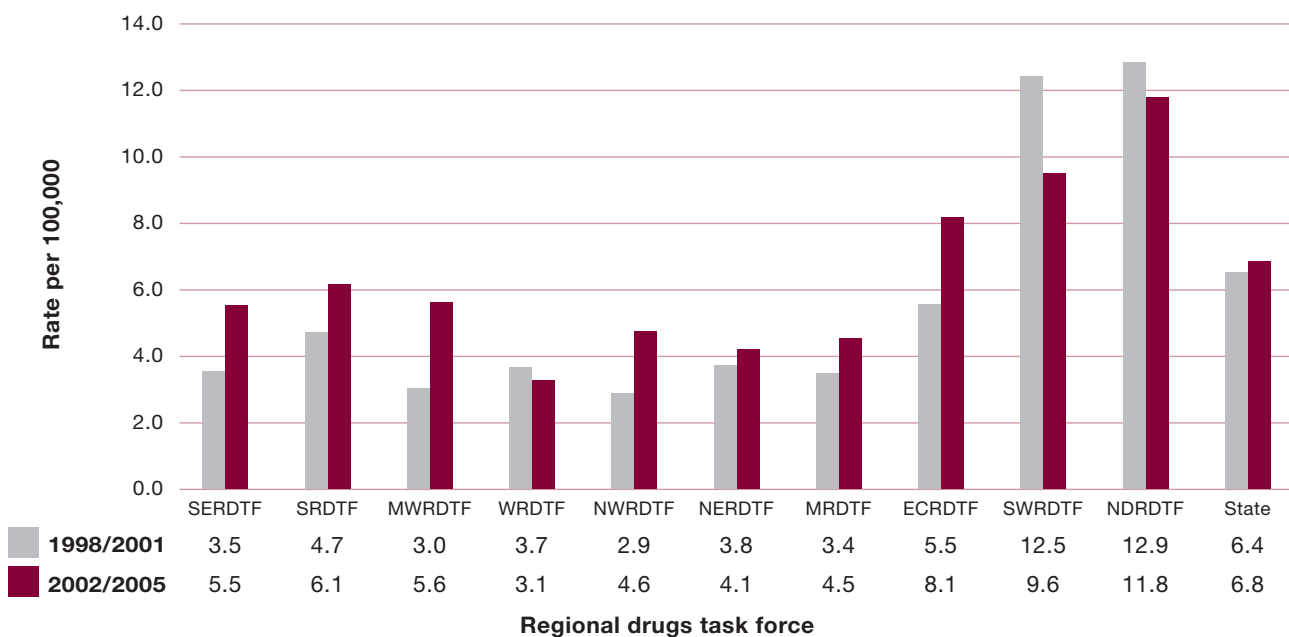


Figure 4 Rates of death by poisoning per 100,000 population (aged 15–64 years), by RDTF area, aggregated for the years 1998 to 2001 and 2002 to 2005 (N = 1,397)

Indirectly drug-related deaths (non-poisonings)

There were 889 non-poisoning deaths between 1998 and 2005 recorded by the NDRDI. The number of deaths due to non-poisoning increased steadily over the period, with small declines in 2000 and 2003 (Table 5).

Table 5 Non-poisonings by year of death, 1998 to 2005 (N = 889)

	1998	1999	2000	2001	2002	2003	2004	2005
Non-poisonings	64	84	79	101	126	112	155	168

The majority of these cases were male (744, 83.7%) (Table 6).

Table 6 Non-poisonings by gender, 1998 to 2005 (N = 889)

	1998	1999	2000	2001	2002	2003	2004	2005
Male (n = 744)	53	69	64	86	90	92	144	146
Female (n = 145)	11	15	15	15	36	20	11	22

Figure 5 shows that the majority of cases (602, 67.9%) were aged between 20 and 40 years.

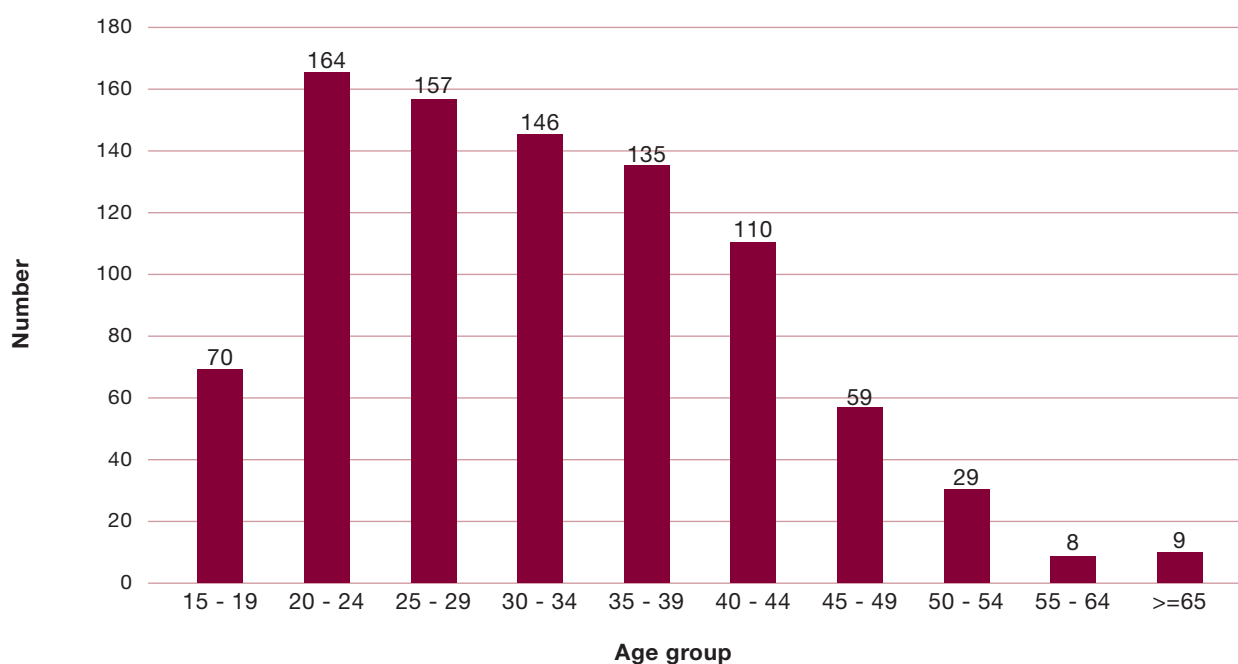


Figure 5 Non-poisonings by age group, 1998 to 2005 (N = 887)

Overall, the median age of non-poisoning deaths was 31 years. The difference in median age between the genders fluctuated over the period (Table 7).

Table 7 Non-poisonings by median age and gender, 1998 to 2005 (N = 887)

	1998	1999	2000	2001	2002	2003	2004	2005
Median age in years								
All deaths	30	32	30	28	31	33	31	33
Range*	18–49	18–47	18–50	17–52	20–50	20–54	19–48	19–52
Male	28	31	32	30	30	34	31	32
Female	33	35	23	25	33	31	30	35

* Age range presented is the 5th to 95th percentile (90% of cases are included within this range).

The number of non-poisonings in Dublin (city and county) increased steadily over the reporting period, more than doubling from 44 in 1998 to 107 in 2005 (Figure 6). Causes of death for non-poisoning cases are not presented in this paper but will be presented in a future publication.

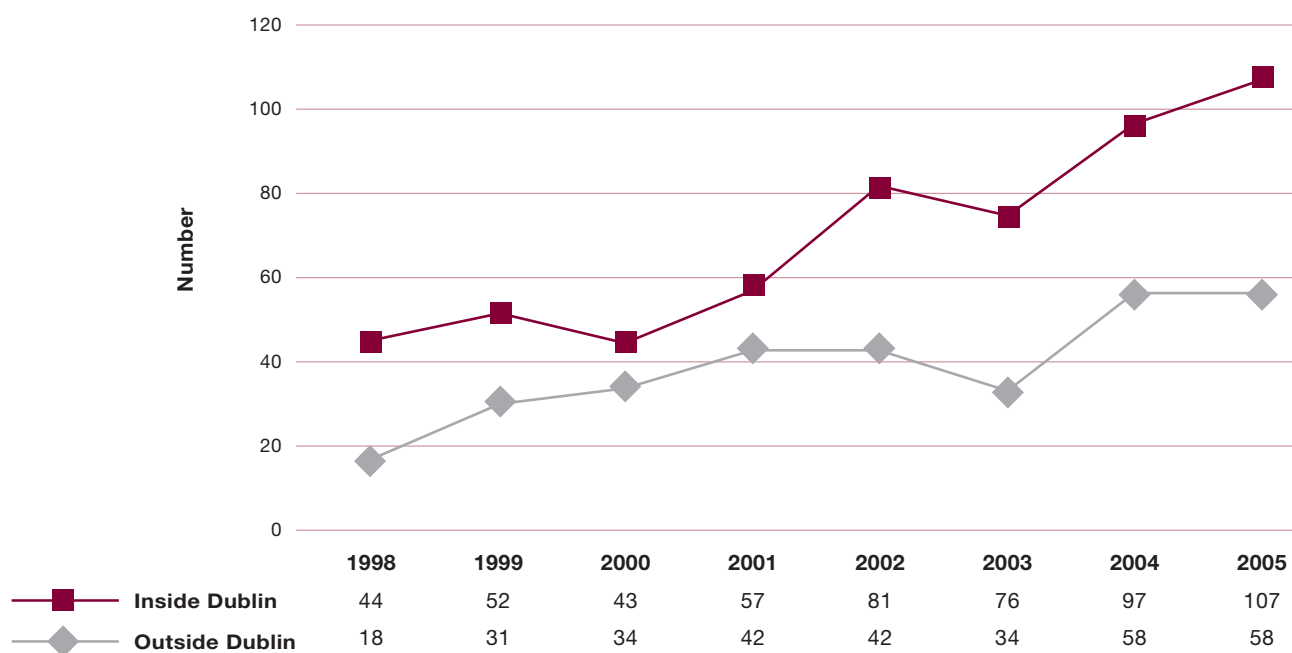


Figure 6 Non-poisonings by place of residence, 1998 to 2005 (N = 874)

To compare the increase in the number of non-poisonings over time and to account for changes in the population, an aggregated death rate per 100,000 population (aged 15–64 years) in the RDTF areas was calculated for the years 1998 to 2001 and for the years 2002 to 2005 (Figure 7). Overall, the national rate increased from 2.9 per 100,000 in the period 1998 to 2001 to 4.6 in the period 2002 to 2005. The rate increased between the two periods in all RDTF areas.

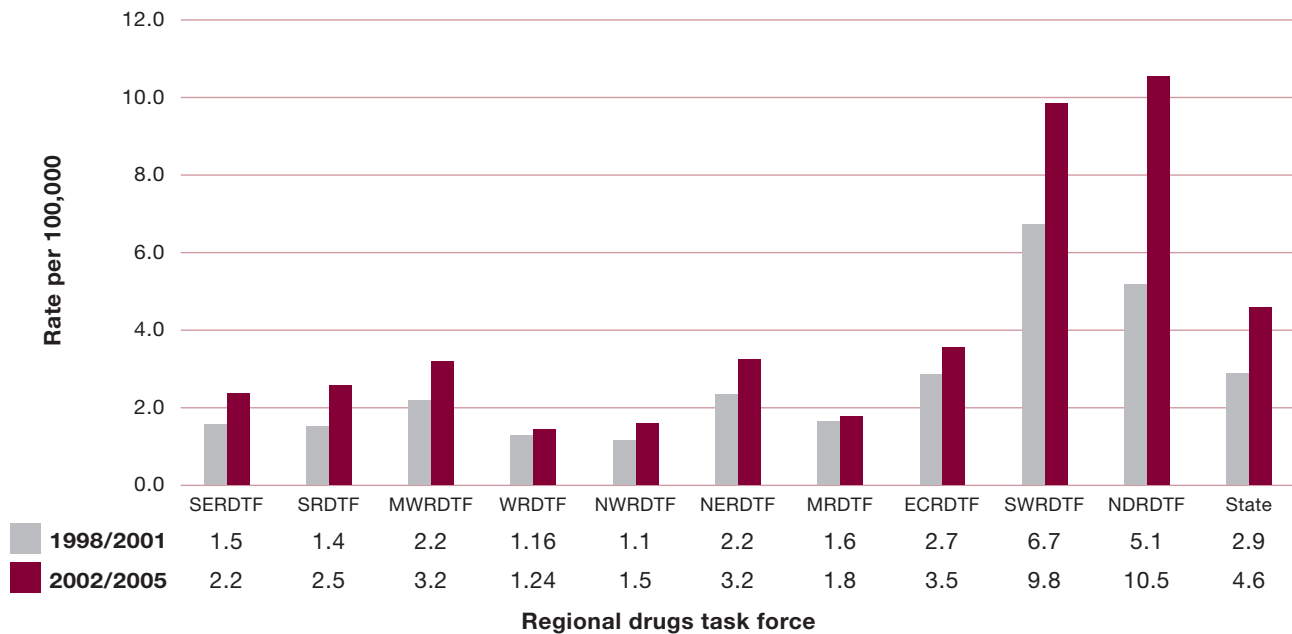


Figure 7 Rates of non-poisoning deaths per 100,000 population (aged 15–64 years), by RDTF area, aggregated for the years 1998 to 2001 and 2002 to 2005 (N = 805)

Conclusions

This is the first report from the NDRDI and the first time that both directly and indirectly drug-related deaths have been calculated to provide a reliable estimate of the total burden of mortality related to drug use in Ireland. This will equip the State to respond in a timely manner, with accurate data, on drug-related deaths and deaths among drug users. These results can also help inform the next national drugs strategy, while the data can provide a baseline to monitor related actions.

In order to improve the quality of the information in the NDRDI, it is important that the recommendations made in the review of the Coroner Service are implemented.¹⁰ This would assist with the standardisation of the information available from the coroners, including history of drug and alcohol treatment, imprisonment and prescribed medication. Another important recommendation is the more timely processing of toxicology samples.

Heroin and other opiates, including methadone and opiate analgesia, continue to be mainly responsible for deaths by poisoning.

The data from the NDRDI clearly show the impact of polysubstance use (of both illicit and licit drugs). National data show that polysubstance use is increasing among people who misuse drugs.^{15,16} However, deaths due to polysubstances are not a recent occurrence, and were seen consistently over the period 1998 to 2005.

Overall, alcohol (in conjunction with one or more other drugs or substances) was implicated in a quarter of deaths by poisoning. This is an underestimation of the total number of such deaths because deaths due to alcohol poisoning alone are not included in this analysis.

The number of deaths due to cocaine, alone or in conjunction with another drug, has risen continuously over the reporting period as its use has become more prevalent in the population.^{15, 17}

Prescription and over-the-counter medication is implicated in many poisoning deaths. Specifically, benzodiazepines, often in conjunction with an illicit substance, have been implicated in more deaths than any other drug. Currently, only small numbers of individuals are presenting for treatment for problem benzodiazepine use¹⁵ but the impact of this type of drug needs to be addressed within treatment and prevention services.

The majority of cases of death by poisoning were males. This reflects international trends.⁵

The majority of cases of death by poisoning were aged between 20 and 40 years, again reflecting international trends.^{5,18} Deaths due to solvents were the exception, with over 70% occurring in those aged 19 years or under. Strategies need to be developed to address this specific risk among young people.

A decrease in the number of deaths by poisoning was recorded in 2003. This trend was observed elsewhere in Europe. It may possibly be linked to the effect of the war in Afghanistan on the supply of opium to Europe during that period. A decrease in the number of prosecutions for drug possession in Ireland were also noted for that year.¹⁹

Since 2003, the annual number of deaths by poisoning outside Dublin has surpassed the number reported in Dublin (city and country). This illustrates clearly that drug use is now a nationwide issue, compared with previous years when it was largely limited to the Dublin region.

Calculating non-poisoning deaths allows, for the first time, the illustration of the total burden of mortality related to drug use in Ireland. This may be an underestimation of the true figures as history of drug use is not always available. The trend in non-poisonings shows a rise in almost every year of the reporting period. This reflects the increasing numbers in the population consuming drugs, taking risks and developing dependencies and other illnesses associated with drug use. The quality of the data recorded by the NDRDI will allow for further analysis of causes of death in non-poisonings.

The number of deaths as a result of poisoning indicates that the most significant response required is a strategy to address overdoses, including actions to deal with overdose cases in a proactive manner at all levels including family, community, health services, gardaí and government.

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Acknowledgements

The authors would like to express sincere thanks to all those who contribute to the NDRDI. Their cooperation is very much appreciated and valued.

The Coroner Service

Mr John I Cannon	Dr John R Madden
Mr Terence F Casey	Mr Hugh J Magee
Dr Tony Casey	Mr Ronan Maguire
Dr Val Costello	Mr Brian J Mahon
Dr Louis BD Courtney	Dr Eoin Maughan
Dr Myra Cullinane	Dr Denis McCauley
Professor Denis A Cusack	Mr John McNamara
Dr Niall Donohue	Dr Desmond Moran
Dr Brendan M Doyle	Mr Paul Morris
Dr Brian Farrell	Ms Margaret Mulrine
Dr Eleanor Fitzgerald	Mr James A Murphy
Dr Mary P Flanagan	Mr Brendan M Nix
Dr Kieran Geraghty	Dr Sean M Nixon
Mr John P Goff	Mr Eamon O'Brien
Dr Diarmuid Hegarty	Mr Frank O'Connell
Mr Rory M Hogan	Mr Eugene O'Connor
Dr Wilfred Hoover	Mr Patrick A O'Connor
Dr Richard Joyce	Mr P Desmond O'Connor
Mr Joseph P Kelly	Ms Isobel O'Dea
Dr Michael Kennedy	Mr John TD O'Dwyer
Mr John Lacy	Dr Joseph O'Keeffe
Mr Cathal Louth	Dr Martin J Watter
Ms Helen Lucey	The late Dr Colm G Quigley
Dr Ciaran MacLoughlin	

We thank all the support staff attached to the Coroners Service for facilitating data collection. We would like to especially mention Dr Brian Farrell and all Staff attached to the Dublin City Coroner's Office.

ESRI

Professor Miriam Wiley, Ms Deirdre Murphy, Ms Jacqui Curley and Mr Brian McCarthy

We would like to thank all the HIPE staff in the following hospitals:

Beaumont Hospital, Dublin	Our Lady of Lourdes Hospital, Drogheda
Cappagh National Orthopaedic Hospital	Our Lady's County and Surgical Hospital, Cashel
Cherry Orchard Hospital, Dublin	Our Lady's Hospice, Harold's Cross, Dublin
Coombe Women's Hospital, Dublin	Our Lady's Hospital for Sick Children, Crumlin
Cork University Hospital	Our Lady's Hospital, Navan
Ennis General Hospital	Peamount Hospital, Dublin
Erinville Maternity Hospital, Cork	Portiuncula Hospital, Ballinasloe
Cavan General Hospital	Regional Maternity Hospital, Limerick
Incorporated Orthopaedic Hospital of Ireland, Clontarf	Roscommon County Hospital
James Connolly Memorial Hospital, Dublin	Rotunda Hospital, Dublin
Kerry General Hospital	Sligo General Hospital
Letterkenny General Hospital	South Infirmary-Victoria Hospital, Cork
Lourdes Regional Orthopaedic Hospital, Kilkenny	South Tipperary General Hospital
Louth County Hospital	St Columcille's Hospital, Loughlinstown
Mallow General Hospital	St Finbarr's Maternity Hospital, Cork
Mater Misericordiae Hospital, Dublin	St James's Hospital, Dublin
Mater Private Hospital, Dublin	St John's Hospital, Limerick
Mayo General Hospital	St Joseph's General Hospital, Nenagh
Mercy University Hospital, Cork	St Luke's General Hospital, Kilkenny
Merlin Park Regional Hospital, Galway	St Luke's Hospital, Rathgar, Dublin
Midland Regional Hospital, Mullingar	St Mary's Orthopaedic Hospital, Cork
Midland Regional Hospital, Portlaoise	St Michael's Hospital, Dun Laoghaire
Midland Regional Hospital, Tullamore	St Vincent's Private Hospital, Dublin
Midwestern Regional Hospital Limerick	St Vincent's University Hospital, Dublin
Midwestern Regional Orthopaedic Hospital, Limerick	The Adelaide and Meath Hospital Dublin incorporating the National Children's Hospital, Tallaght
Monaghan General Hospital	The Children's University Hospital, Temple Street
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Central Statistics Office

Mr Joseph Keating

The Irish Prison Service

Dr Enda Dooley

We thank Mr John Corkery, International Centre for Drug Policy, St George's, University of London, UK and Dr Julian Vincente, EMCDDA, Lisbon, Portugal for reviewing the document. We would also like to thank Ms Anna May Harkin, Department of Health and Children for her comments on an earlier version of this paper. In addition, we would like to give special thanks to Ms Lorraine Coleman for collecting the data, Ms Joan Moore for editing and Ms Mairea Nelson for proofreading.

