HRB Overview Series

Suicide, attempted suicide and prevention in Ireland and elsewhere

7

Improving people's health through research and information

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Dermot Walsh

Health Research Board

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Copies of this publication can be obtained from:

Administrative Assistant
Mental Health Research Unit
Health Research Board
Knockmaun House
42–47 Lower Mount Street
Dublin 2
t (01) 2345 000
f (01) 6612 214
e mhru@hrb.ie

An electronic copy is available at:
www.hrb.ie

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Our information systems

The HRB is responsible for managing five national information systems. These systems ensure that valid and reliable data are available for analysis, dissemination and service planning. Data from these systems are used to inform policy and practice in the areas of alcohol and drug use, disability and mental health.

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1 Abstract

Suicide has been ubiquitous in time and place. It has been proscribed by tradition, culture and legislation. More recently it has been decriminalised almost everywhere. Historically suicide has been underreported by a factor of three in Ireland until comparatively recently. During recent decades under-reporting has greatly diminished so that there has been a rapprochement between official and clinical rates. Because of earlier under-reporting it is impossible to say whether the number of suicides has increased in Ireland. Nevertheless it is plausible to suggest that there have been long waves of suicide change over the past 150 years in this country. Suicide rates rose until the First World War and then underwent a period of decline until 1970 when a moderate but steady increase occurred which greatly accelerated from 1990 to 2001 and then declined by an estimated 14% in 2006. However it is too soon to claim that this decline represents a trend and it should be interpreted with caution. The late twentieth century increase, whether apparent or real, has particularly involved young males. Suicides in males aged 15–34 increased from 11.6% of all violent, accidental and poisoning deaths in 1980 to 44.2% in 2003. Suicide rates in Ireland's elderly have fallen and are now among the lowest world wide, particularly for women. Female rates in Ireland are one third to one quarter those of males. Irish suicide rates are low in European comparison for both sexes. However, the rate of increase of suicide in young Irish males has been greater than in other European countries. The possible impact of recent social and economic change in Ireland in increasing suicide in young males is unclear as is the reason for the recent decrease in rates, assuming this to be sustained. It is estimated that generally one in six suicides is alcohol-related. Alcohol consumption and abuse have trebled in Ireland over a period contemporaneous with the increase in suicide confirming that the long waves of change in these two parameters usually coincide. There is evidence that deliberate self-harm has increased in Ireland recently. There have been a number of reports in Ireland and elsewhere making recommendations on actions to reduce suicide and deliberate self-harm. Most are politically convenient but scientifically fallible. Generally they rely on generic improvement in social, educational and medical provision but are short on specifics, not surprising given the lack of evidence for any single intervention. The one measure with potential for influence, the reduction of alcohol consumption through mechanisms recommended by a national task force, remains largely unimplemented.

1.1 Introduction

This paper presents an historical review of suicide, its frequency, the societal attitudes that shaped response to it and the consequences of this in legal and administrative terms. It examines the mechanisms of data acquisition and the quality of data. It reviews available data on suicide and deliberate self-harm in Ireland over an extended time frame and in international perspective and attempts to establish temporal trends. A broad and brief review of the feasibility of suicide prevention follows and the utility of intervention processes in preventing self-harm recurrence is briefly discussed.

2 A short history of suicide

2.1 Always with us

"Io fei giubbetto a me delle mie case"
Dante Alighieri. L'inferno, Canto X111.

Suicide has always been with us. Dante reminds us of this in his graphic quote from L'Inferno shown above, which describes how a man in 13th century Florence made a gibbet of his house by hanging himself in it. All leading authorities, historians mostly, are agreed on this, (Anderson 1987; MacDonald and Murphy 1993; and Murray 1998). 'In every age of the world, and in the history of every country, we find instances more or less numerous of men and women who, preferring the dim uncertainty of the future to the painful realities of the present, have sought relief from all their troubles by suddenly terminating their own existence' (Westcott 1885). Apart from Westcott and Forbes Winslow who wrote a chapter in the English language in 1839, later to become a book, the nineteenth century classics were *Il Suicidio* by Enrico Morselli, Professor of Psychological Medicine in Turin, written in 1879 and *Le Suicide* by the French sociologist Emile Durkheim published in 1897, motivated by the suicide of a fellow student.

2.2 Famous people

History is replete with accounts of famous persons who killed themselves. A short list from antiquity includes Ajax in the Trojan war in 1184 BC, Lucretia in 509 BC, Empedocles into Mount Etna in 435 BC, Demosthenes in 325 BC, Zeno in 264 BC, Hannibal in 183 BC, Ptolemy in 50 BC, Brutus because of his betrayal of Julius Caesar and because of him his wife Portia, Cassius, Mark Anthony and Cleopatra, all first century BC, Nero in AD 68, Seneca in AD 65, Cato the younger in 46AD and many in mythology such as Lavinia, Pyramus Thisbe and Dido deserted by Aeneas. Suicide was common in renaissance Italy as Dante reminds us and Boccaccio confirms. Modern times take us to Castlereagh, Vincent Van Gogh, Piotr Tchaikowsky, Virginia Woolf, Sylvia Plath, Adolf Hitler and numerous prominent figures in politics and power, in literature and the arts. Castlereagh's psychotic depression was recognised by some of his peers who took some ineffectual steps to have him watched but in vain. Not everyone regretted his demise, thus Byron;

Oh, Castlereagh! Thou art a patriot now;
Cato died for his country, so didst thou;
He perished rather than see Rome enslaved,
Thou cuttest thy throat that England might be saved!
So Castlereagh has cut his throat! – the worst
Of this is that his own was not the first.
So he has cut his throat at last! He? Who?
The man who cut his country's long ago.

Posterity will ne'er survey
A nobler grave than this:

Here lie the bones of Castlereagh:
Stop, traveller, and piss.

Another whose suicide was not averted despite preventive action was Wagner's fan, Ludwig the Second of Bavaria. In 1886, having being deposed as King on grounds of insanity and interned in Berg Castle, he drowned himself in Starnberg Lake dragging his psychiatrist, who was accompanying him for preventive reasons, to both their deaths.

2.3 Medieval England and later

Looking at suicide from a historical perspective from earlier periods we in Ireland, in the absence of native data, rely on those from England and to a lesser degree from France and elsewhere.

'Suicide was a terrible crime in Tudor and Stuart England. Self-killing was a species of murder, a felony in criminal law and a desperate sin in the eyes of the church. To be a self-murderer, or to be judged guilty of felonious suicide, one had to be sane' (Murray 1998). It is of interest that in late medieval England self-killing was a felony but if it could be shown that the deceased was mentally ill then the death was regarded as accidental rather than felonious on the basis that the deceased was unable to form a specific intent to take his or her own life (Seabourne and Seabourne 2001).

In England the goods and chattels of a suicide or those of his family were distrained to the King. A similar confiscation of the suicide's goods applied in France and Germany. It was therefore in the King's interest to become aware of suicides. If however the suicide was shown to be 'in frenzy' then the suicide was not a felony and the family was entitled to hold on to the deceased's goods. The notification to the King was via the King's Bench and, according to MacDonald and Murphy (1993), of 9,467 cases of felo de se or suicide between 1485 and 1659, 156 were non compos mentis.

Of 1,977 suicides reported to King's Bench from 1600 to 1714, 522 were non compos mentis. The King's Bench was a mechanism for getting hold of the chattels of suicides. The method of report was through local coroners, officials who were elected by local suffrage. This appears to go back to the late twelfth century and information from coroners' inquests was returned to the Eyre, a judicial and administrative inquiry that was sent out to English counties from the twelfth to the fourteenth centuries. Eyre records are preserved in the Public Record Office (England and Wales) and they, like any other source, such as coroners' or church records are incomplete. MacDonald and Murphy (1993) again 'The rates of suicide that can be calculated from the inquisitions in King's Bench records are undoubtedly much lower than they would be if all missing records could be found. The preposterously low figures, never rising above 4.22 per 100,000 and averaging around 2 per 100,000 can tell us nothing at all about the health or illness of Tudor and Stuart society. Even the long-term rise and fall in deaths reported to the central government over the centuries was determined mainly by the vigilance and laxity of the Crown's efforts to supervise coroners and by cultural change. These are painful conclusions arrived at after thousands of hours of effort. They demonstrate why a Durkheimian history of suicide in early modern England will probably never be written. Total

scepticism, however, raises some problems as well. In some years blighted by harvest failure and low wages – 1574, 1587 and 1597 to 1600, for example – the suicide rate shot up. It would be mulish not to believe that there was a connection between the hardship that the poor were experiencing and the rise in the number of suicides'.

After 1640 the reporting of suicides to the central government stopped almost altogether. It is impossible to construct a meaningful suicide rate for any part of England in the early eighteenth century, let alone for the whole country. The bills indicate that there was an increase every year from 1660 to 1735 followed by a decline to the last years of the eighteenth century. These bills were completed by parish clerks. However, and despite these shortcomings, in general terms commentators believed that there was an increase in English suicide around 1600.

2.4 How frequent

There have been differences in views as to the frequency of suicide, even to the possibility of attempting to measure its incidence. MacDonald and Murphy (1993) believe that no reliance can be placed on suicide statistics and that it is not worth attempting to analyse them because of their unreliability. However of another of their historian contemporaries they comment, 'Anderson is a realist, aware of the faults implicit in official statistics on suicide but convinced that the faults are not so great as to invalidate them altogether' while Anderson herself (1987) admits that their weakness lies in 'variable definitions, official processes, unevenness in efficiency and concealment – the real scale of suicide is as uncertain in the present as it was in the past'. Nonetheless, undeterred by these difficulties, Anderson calculated average suicide rates for Victorian and Edwardian England and Wales per million as follows:

Table 2.1 England and Wales. Average decennial suicide rates per million 1861–1910 by sex

Years	Males	Females
1861–1870	93	34
1871–1880	107	35
1881–1890	118	37
1891–1900	137	44
1901–1910	138	49

Source: Anderson O (1987). *Suicide in Victorian and Edwardian England*. Clarendon Press: Oxford.

Anderson adds 'by 1901 to 1910 not only did suicide account for more than twice the proportion of deaths for which it had been responsible in the 1860s, but its maximum toll was being levied where its demographic and economic significance was greatest, upon young adults. In that decade one of every 36 deaths among men aged between 25 and 44 was from suicide'.

2.5 Attitudes to suicide

The issue of suicide was approached from three traditions, of religion, philosophy and law and in general terms suicide has been reprobated in all ages and in all places with some exceptions.

Plato, dying in 347 BC, was of the opinion that suicide was 'not lawful'. In Plato's *Phaedo*, Phaedo and his friends went to Socrates urging him to escape rather than undergo a death sentence. Discussing suicide with him from a moral point of view Aristotle, Plato's pupil, thought that suicide was running away. The cynics, Diogenes among them, did not condemn suicide and the stoics, Cicero and others, perhaps influenced by Greek writings seeing suicide as a sign of rational freedom, were accepting of it. Seneca, for example, recommended suicide to avoid incurable disease 'because it interfered with every thing that made life worth living'. Pliny reports in one of his letters an account of a Roman suicide to illustrate the point. However, other Greek schools of thought exemplified by Pythagoras condemned suicide. In the early Christian church, certain sects such as the Donatists frequently suicided can suicide be used as a verb? To reap the rewards promised in eternity. However this liberal view was short-lived. The neo-Platonist, Julian the Apostate AD 332–363, condemned suicide as did Roman law as exemplified by Justinian, emperor 526–575. Canon law deriving from the Canons of Auxerre in the later sixth century and that of Toledo in 693 condemned suicide. In the old Testament, Solomon and Saul both spoke of suicide and early biblical commentators were of the view that suicide was wrong as did the Greek Origen, 185–254; St Jerome, 390; and the Eastern Church fathers. However the most explicit statement of this time was by St. Augustine of Hippo 354–430, in the *City of God* books 1 and 12. St. Augustine wrote a lot about suicide ultimately condemning it, this the most definitive statement of the Christian church up to this time.

Early medieval attitudes were shaped by the *Vulgate* of the fourth century which was a synthesis of the 72 bible books, including the *Apocrypha*, for the common people which dealt with suicide in a condemnatory fashion. There was, in like manner the *Glossa Ordinaria*, influential up to this time, being a medieval Cochrane Library, or meta analysis of moral issues. However for the literate and for religion at least, the most influential document of this time was that of the *Summa Theologica*, appearing in 1272, by the Dominican Thomas Aquinas who was canonised in 1323. Pope John XX11, in exile in Avignon and pope from 1316 to 1324 said of attempted suicides that they should be cut off from the Church and sacraments and reinstated only after a period of repentance. Attitudes in cultures other than Christian were dependent more on oral tradition and transmission than the written word. Jewish attitudes were generally negative despite Massada in 70 AD and although the Koran, like the Bible never stated in outright terms that a person should not kill himself, the Hadith, as tradition, held that suicide was condemned by custom and by all right-minded people. However there are different interpretations of the Koran in differing Muslim regions and some would maintain that the Koran expressly forbids killing oneself (Ali 2000). There is a tradition that Mahomet himself had been tempted to suicide even though he condemned it (the issue of suicide bombings is another matter). In India the Brahams practiced suttee where a widow immolates herself on her husband's funeral pyre, although Sanskrit was condemnatory. Egyptian papyri record suicides but the moral

position was unclear although generally accepting and understanding.

According to Murray (1998) from the sixth century onwards the Church authorities or members compiled catalogues of moral and social offences. Collectively these became known as 'penitentials' (McNeil and Gamer 1938) and are believed to have emanated from Ireland and Wales and thereafter spread to the rest of Europe having had their origins mostly in monasteries, although disseminating to secular clergy. As far as suicide was concerned it seems that there was not much coverage, for being dead, the suicide could not do penance – not in this world at least. Another to discourse on the subject was Theodore, Archbishop of Canterbury from 608 to 690, a teacher who, inter alia, had a large number of Irish students. In one of his publications a chapter is devoted to suicide and in it there is a clear recognition that insanity may be so that 'if a man is vexed by the devil and can do nothing but run hither and thither and kills himself' or 'takes leave of his wits or through insanity kills himself', Mass and prayers may be said for him. If however he kills himself of his own free will no Masses may be said for him – a clear recognition that suicides may be mentally ill as well as not being so. Shortly after Theodore, Irish penitentials issued in Latin towards the end of the eighth century a penitential from the monastery at Tallaght, near Dublin, in old Irish, the vernacular. It had this to say of suicide. 'Anyone who kills himself while insane, prayers are said for him, and alms are given for his soul, if he was previously pious. If anyone has killed himself in despair or for any other cause, he must be left to the judgement of God, for men dare not offer prayers for him – that is Mass – unless it be some other prayer, and almsgiving to the poor and miserable'. It is unclear whether despair that was psychotically determined was regarded as insanity.

In the post-medieval era negative orientations towards suicide generally persisted. However in the sixteenth century both Erasmus and St. Thomas More excused suicide in circumstances of great suffering, as did Shakespeare in his depiction of no less than 14 suicides in his plays. There was a softening of condemnation, at least in some circles, during the eighteenth century enlightenment, the Age of Reason and the romantic movement, exemplified by the writings of Hume, Rousseau, Byron, Keats, Shelley, Goethe, Chateaubriand and Lamartine and the death of Chatterton, the poet. However, general reprobation persisted and was enshrined so that suicide as well as attempted suicide became crimes. How this distaste for suicide was manifested in different cultures is well documented. Suicides' bodies were dragged along the ground before being thrown into rivers, burnt, beheaded, staked, hung up as at the Five Lamps at Ballybough in Dublin, and because a suicide's house was 'infected' it was burnt in some cultures. These attitudes were sanctioned by criminal law in the following centuries and it was only in the first half of the twentieth century that suicide and attempted suicide were decriminalised in England and Wales and not until 1993 in Ireland, although the Code Napoleon had decriminalised suicide in France in 1810.

2.6 Why persons killed themselves

The reasons for persons killing themselves ranged from dishonour or avoiding it, to despair. Thus Lucrezia killed herself in defence of her chastity and Roman virgins did away with themselves to

avoid rape and dishonour at the hands of the invading Goths in fifth century Rome as did Cato the younger, for the cause of Roman liberty. Socrates took his life to avoid penalty and the Hebrews at Masada in 70 AD immolated themselves by the sword to the last man rather than be slain by the Roman conquerors. Then there were the Christian martyrs, some embracing death for the glory of God. Starving oneself to death in pursuit of a cause was exemplified by the deaths of Saul and Solomon. Terence MacSwiney, mayor of Cork, in a different time and for a different cause was another hunger-striker whose death was commented upon in *The Ethics of Hunger Striking* by an anonymous Catholic priest who concluded that McSwiney's hunger strike 'having been undertaken for the common good of his country… is free from all moral fault… on the principles of Catholic theology he may be considered as having acted on the highest plane of Christian charity and patriotism' (a Catholic priest 1920). There are other and more recent examples in Irish history.

The suicide of Judas may be considered another example of controversy surrounding self- death and its grip on the public imagination, figuring prominently in paintings such as the Giotto fresco in the Arena Chapel in Padua and in architecture such as the capitals at Autun, Vezelay and in the tympanum of the west door of Rouen cathedral. But the cause of the death of Judas is controversial and Matthew is the only evangelist to give suicide to Judas while the Acts of the Apostles (probably by St. Luke the evangelist) does not, even though both were written between 60 and 100 AD. According to an Anglo-Norman account from the tenth century, our own St. Brendan in his voyages in the sixth century came to a fiery island which he identified as hell and, similarly to Dante in his *Inferno*, saw Judas within, paying the price of his treachery. But Judas's punishment in these scenarios was not for his suicide but for his betrayal. There have been traditions, in the minority perhaps, that other players in the same Christian drama, Pilate and Herod, both killed themselves.

Undoubtedly many persons who kill themselves have been suffering from incurable, unpleasant and recurrent physical or mental illness and to them, and perhaps in the eyes of others, their death is a happy release, moral and religious considerations aside. We can readily understand that a person suffering from an illness such as schizophrenia with all that entails in terms of subjective experiences of a horrendous nature, tortured by abusive voices, deprived of the faculty of normal reasoning, the realisation that unpleasant treatments have not alleviated his lot, despite public perception of him as 'insane' makes a thoroughly understandable decision to end his worldly misery.

3 The ascertainment of suicide in Ireland

3.1 The ascertainment of suicide in Ireland

In Ireland the office of coroner may have existed at the time of the Norman invasion, but in any case was certainly functioning in the thirteenth century (Otway-Ruthven, 1968). From very early on the coroner's duties involved holding inquests on sudden deaths (Farrell, 2000). Coroners' records for Dublin city from 1736 onwards were preserved in the Public Records Office in Dublin but nearly all of those prior to 1900 were destroyed by fire during the civil war. However records for some individual counties survive at the National Archive from as far back as 1852. Civil registration of deaths as a statutory function began in 1864. There are thus two sources open to those seeking to establish trends in long-term incidence of suicide in Ireland, firstly coroners' records from some counties from the mid-nineteenth century onwards and from Dublin city from the beginning of the twentieth century and secondly Registrar General's data from 1864.

In broad general terms the coroner is the person who investigates a death likely to be suicidal and the coroner's general functions and responsibilities are laid out in the Coroners Act 1962. Additionally the procedures applicable for the registration of a death in Ireland are set out in the Civil Registration Act 2004 which was commenced on 5 December 2005.

Any person may report a death to a coroner when a person is found dead. In practice however notification usually comes from a doctor or a garda. Deaths occurring at home or in other places of residence must be reported to the coroner in cases where the deceased was not attended by a doctor during the last illness or not seen and treated by a doctor within one month prior to the date of death, when the death is sudden and unexpected, where it is the result of accident, suicide or homicide or where the cause of death is unknown or uncertain. In the case of sudden, violent or unexplained death (including deaths due to suicide) there is a legal responsibility on the doctor, registrar of deaths, funeral undertaker, householder and every person in charge of any institution or premises (including a hospital) in which the deceased was residing at the time of death, to report the death to the coroner or to a garda not below the rank of sergeant. In addition any person may notify the coroner of such a death. Separately all deaths occurring in mental hospitals or of persons in garda custody or in prison must be reported to the coroner. In addition deaths of children in care and of persons dying from certain occupational diseases must also be notified.

Where a death certificate is not forthcoming the coroner will request a pathologist, acting as the coroner's agent, to carry out a post-mortem examination. If the results of that examination determine that the cause of death was natural, and there is no need to hold an inquest, a Coroner's Certificate will issue to the Registrar of Deaths who will then register the death and issue a death certificate. In other circumstances (such as when the post mortem reveals, on the contrary, that the death was otherwise than from natural causes) the coroner, having considered a report from the investigating garda on the identification of the body and on the circumstances of death, will hold an inquest, with or without a jury at his or her discretion depending on the wider implications of the circumstances of death. The coroner may hear witnesses on oath. Finally the coroner completes a Record of Verdict that he or she signs and which must also be signed by the foreman of the jury where there has been

a jury. The coroner is legally obliged to preserve the Record of Verdict. In effect the Verdict states the identity of the deceased, the date, place and circumstances of death and then indicates whether the death was accidental, homicidal, suicidal or undetermined whether accidental or not. The purpose of the inquest is, therefore, to determine the identity of the deceased (established by the investigating garda and presented on Form C71) and when, where and how the death occurred without consideration of issues of civil or criminal liability. Having done so the coroner will issue a Coroner's Certificate when the inquest is concluded or adjourned, issue a death certificate to the Registrar, enabling the death to be registered and send a copy to the CSO for the purposes of compiling their quarterly summary and annual report on vital statistics.

The Criminal Law (Suicide) Act 1993, decriminalised suicide in Ireland. Up till then a coroner was unjustified in bringing in a verdict of suicide because of the restriction on a verdict impacting on issues of criminal liability and accordingly a person could not be implicated in the crime of suicide by which he killed himself. Interestingly, proceedings were brought in two pre-1993 cases by relatives because they felt that verdicts were illegal on this ground. In other instances where a coroner returned a suicide verdict, relatives, dissatisfied with such a verdict have appealed to higher courts and have had suicide verdicts set aside (one after an interval of 18 years).

Following the post-mortem examination the diseased is buried or cremated although it is not mandatory that a death certificate be presented to the undertaker before disposal. In theory therefore a person can be buried or cremated without being either certified or registered as dead. However recommendations from the working group reviewing the coroner service in Ireland (Department of Justice, Equality and Law Reform 2000) included that funeral directors obtain death certificates or clearance from coroners to proceed with burial or cremation.

There are 48 coroners and 48 deputy coroners in Ireland; all except the Dublin City coroner are part-time and a large proportion temporary. They must be barristers, solicitors or doctors (a recent recommendation in England and Wales is that where a coroner is a doctor, that person should also hold legal qualifications). Currently there is an equal divide between legal and medical personnel. The working group recommended that there should be a change in coroners' jurisdiction to extend coroners' powers to enquire into the circumstances of death, that there be a statutory requirement to order a post-mortem when the death is deemed to be unnatural, that suicide should be returned when it has been established beyond reasonable doubt that the deceased took his or her own life and that where a person is dissatisfied with a verdict there should be the right of application for review by the Attorney General and that a review board be set up for this purpose. These recommendations, or some of them, are included in a bill recently before the Oireacthais. Interestingly the group commented on the lack of consistent criteria for reaching a verdict and noted that an inquest jury should be able to make recommendations of a general character designed to prevent further fatalities. It also recommended that gardai on being informed of an unnatural, violent or unexplained death should by law be required to notify the coroner of that death. It felt that the coroner should be allowed to go beyond simply recording the proximate cause of death. Formerly,

simple statements such as 'self administered' or 'self-enacted' were used in the cases of suicidal deaths until a judgement in 1991 that the use of such wording was tantamount to a suicide verdict. Further grounds of criticism have been that currently a coroner can only hear two medical witnesses and that the penalty for non-appearance of a witness is so trivial as to be no deterrent.

The legal ingredients of suicide are that the deceased alone (interesting in the context of assisted suicide) committed the action that led to his or her death and intended that that act should have had that consequence. Thus the essential requirement is that of intent (beyond reasonable doubt and not simply on the balance of probabilities) at the time of that act as indicated, for example, by the presence of a suicide note, provided that it is not a forgery. It is of interest historically that when there has been an interval between the commission of the act and death, the Church saw fit to suspend the ban on the deceased being buried in consecrated ground if the deceased had repented the act between its commission and his eventual death. Perhaps the most striking example of this dispensation has been the burial of one of the greatest architects of the Roman baroque, Francesco Borromini, which allowed him to be buried beside his distinguished fellow architect Carlo Maderno in the church of San Giovanni dei Fiorentini in Rome. More prosaically but no less tragically, and more recently until its banning, the same phenomenon of delayed death and subsequent retraction of intent with accompanying remorse was sometimes observed in suicide by paraquat ingestion, a slowly acting poison.

Concerns surrounding the investigation and certifying of deaths in England and Wales have led to a document entitled the Coroner and Death Certification Service (Secretary of State for the Home Department 2004) and more recently a draft bill for improving death investigation (Secretary for State for Constitutional Affairs 2006). Among the proposals are that there be fewer but more full-time coroners and that there be narrative reports of the cause of deaths rather than 'short-form' verdicts to provide an adequate explanation of the cause of death. However the bill has been criticised for limiting the coroner's function to finding 'who the deceased was, and when, where and by what means he came by his death' to the detriment of more extensive powers with a capacity to elicit facts bearing on prevention. Another criticism was that there is no requirement that coroners' post-mortems should be carried out exclusively by pathologists let alone by forensic pathologists (Baker, 2006).

Because of the difficulty of compiling suicide statistics from data based on coroners' death certificates, a form to be used by the investigating garda in each coroner's case was introduced by the Central Statistics Office (CSO) in 1967. Designated Form 104, this form requests the investigating garda to give his or her opinion as to whether they think the death was suicidal or not. It is then returned to the CSO to assist in coding in conjunction with the coroner's death certificate. Unfortunately forms are neither completed nor returned in a proportion of cases.

3.2 Gaps in ascertainment

In broad general terms the legal ingredients of suicide are twofold as outlined above and here repeated. The first requirement is that the deceased was responsible for the action that led to his or her death and secondly that the deceased intended that that action should have had that consequence. In such circumstances according to a Supreme Court ruling of 1998 a coroner must record a suicide verdict. In all other circumstances a coroner must return an 'open' verdict. For coroners' purposes the evidence placed before the court must fulfil these two criteria beyond reasonable doubt. By contrast most suicide researchers seeking to establish the incidence of clinical as distinct from legal suicide, will be content with evidence that indicates that death was suicidal 'on the balance of probabilities'. They will be impressed, in addition to evidence of intent and the nature of the act, by such ancillary considerations as the existence of mental illness, prior suicide attempts and any expressed declaration of intent. Obviously the ideal is that both views might coalesce and there is evidence of increasing rapprochement between the two sets of considerations, the legal and the clinical, in this country in recent years.

There are a number of reasons why suicides may not be recorded. Firstly a medical practitioner may certify a death as natural when in fact it is not, either deliberately as an act of concealment, or unknowingly, when a death that is intentional appears to be accidental or from natural causes. We have no knowledge as to the extent of either eventuality. Secondly the information submitted to CSO may be insufficiently accurate to code the death. In such circumstances deaths by suicide may be returned either as death undetermined or, less frequently, as accidental. Thirdly, deaths of persons normally resident in the jurisdiction but occurring outside and recorded in that other jurisdiction will not appear in Irish statistics. This of course could be the case in the rare instances of assisted suicide of Irish residents. Contrariwise deaths of non-residents in this country, occurring here, will inflate Irish suicide statistics although these can be discounted. In any case the residence qualification needs definition. Fourthly, suicidal deaths occurring in one year may not appear in that year's statistics but rather in the year in which the death was registered. The CSO Vital Statistics quarterly returns and yearly summaries record registered deaths whereas the annual reports return deaths actually occurring in that year. Each year there is a number of late registrations of deaths which may date back several years, such as for example when an inquest is for legal reasons delayed. For example in 2003 there were 13 registrations of suicidal deaths extending back over many years. Deaths that have not been registered within a year of occurrence can only be registered by the Registrar General. In 2003 there were 444 deaths returned as suicide in the yearly summary as given in the report for the last quarter of that year but the number returned in the annual report was 497 representing an increase of 12%. Fifthly, apparently accidental deaths may in fact have been suicidal without any evidence to indicate otherwise, notably in the case of motorcar accidents involving one person only. Unsurprisingly there is no evidence on the frequency of this occurrence in this jurisdiction. Finally, a number of persons 'go missing' each year and while most of these eventually re-appear, some do not and it is possible that some of them have killed themselves either in this country or in another.

There has always been the suspicion that in Ireland, as in many other jurisdictions, official suicide rates, for cultural or legal reasons, have underrepresented deaths that, clinically, on the basis of probabilities, should have been classified as suicide. Furthermore, under-reporting of suicidal deaths may have been particularly the case in the early years of death registration as was the case with deaths generally. In addition, later on, suicidal deaths were likely to have been classified as undetermined whether accidentally or purposely inflicted, provision for whose classification was first made in 1968. Prior to the existence of this category, doubtful deaths were classified as accidental and with the introduction of the undetermined category the number of accidental deaths greatly declined suggesting that a considerable number of suicidal deaths prior to 1968 were misclassified as accidental (McCarthy and Walsh 1975). In recent times the number of undetermined deaths relative to deaths classified as suicide has greatly declined. In 1968 the number of CSO suicidal deaths was 71 and those returned as undetermined as 87. In 2003 the respective figures were 497 and 87.

4 The under-reporting of suicide in Ireland

The first attempt to compare clinical suicide with official suicide in this country was carried out over a ten-year period in Dublin in the 1950s and 1960s. McCarthy and Walsh (1966) confirmed that at that time under-reporting was considerable. From this and further studies (McCarthy and Walsh 1975; Brugha and Walsh 1978) it was concluded that official suicide rates should be increased by a factor of three to arrive at a 'true' clinical rate on the 'balance of probabilities'. It should be borne in mind that all three studies dealt with the Dublin area and that it can be reasonably hypothesised that because of stigma and for other social and cultural reasons, under-reporting may have been greater in rural Ireland than in the metropolis. An examination of coroner's records from the first decade of the twentieth century, 1900–1904, and a comparison with those of 1964 to 1968 concluded that the extent of under-reporting did not differ between the two quiquinnea (Brugha and Walsh 1978). Applying three as the under-reporting ratio to the official male suicide death rate of 2.1 per 100,000 population and female of 0.7 for the period 1864–1868 we derive clinical rates of 6.3 and 2.1 respectively. The mean clinical rate (again applying an under-reporting factor of three) for the five years 1900–1904 was 8.0 per 100,000 population with rates fluctuating from 4.8 to 11.5 and for the quinquennium 1904–1908 official rates of 5.3 per 100,000 males and 1.9 females, become clinical rates of 15.9 and 5.7 respectively, compared with a mean rate of about 9 for England and Wales 1901–1910 as detailed above by Anderson (1987). Thereafter clinically estimated rates rose to reach a sustained peak of 12 deaths per 100,000 in the period 1910–1914 to decline, but only for males, similarly to psychiatric admission and resident rates during the years of the Great War, 1914–1918 (Walsh and Daly 2004). Thereafter rates rose again to reach a peak of 4.6 (official) or 13.8 (using the multiplier of 3 for under-reporting) for males and 1.4 and 4.2 for women. From then on rates declined so that by the early 1960s official rates had reached 3.1 (clinically 9.3) for males and 1.0 (clinically 3.0) for females. By the 1960s a falling rate among the elderly was apparent whereas rates among the young had begun the ascension that has been such a prominent feature of contemporary suicide mortality, particularly for males.

By 1976 official suicide deaths at all ages had more than doubled over 1968, by 142% from 71 to 172 and for those aged under 35 by 194% from 18 to 53. It should be recalled that the category of undetermined death was introduced in 1968 and that a large number of deaths formerly classified as accidental were then transferred to this newly-created categorisation. However numbers returned as undetermined increased only from 158 to 191 from 1968 to 1974. It was the general belief that most deaths classified as undetermined were in fact suicidal (and subsequent coding practise seems to confirm this) for both genders, all ages and for all causes of death (Walsh 1978). A clinical ascertainment of suicide in one Irish county for 1978 to 1987 based on coroners' records concluded that the reported official increase was 'real' and that since the introduction of Garda Form 104 in 1967, although not completed in some instances, official figures approximated clinical estimates (Walsh *et al*. 1990). A further comparison of clinical and coroner suicide in the same county, Kildare, from 1988 to 1992, found that suicide had doubled since the earlier investigation but identified little difference between the coroners' and clinical rates (Walsh *et al*. 1995). A later study in the same county but by different authors broadly confirmed the earlier Kildare findings (McGovern and Cusack 2004). The authors concluded that official rates, at least for this county, reflected reasonably

accurately the 'real' situation. However a report from another county, Mayo, found that there was in that county a 35% shortfall in official on clinical rates (Connolly and Cullen 1999). Similarly in County Galway in a single year a combination of clinical and pathological assessment reported a rate of 13.1 compared to an official rate for the county of 5.8 (Clarke-Finnegan and Fahy 1983).

5 Suicide in Ireland from 1976

5.1 Suicide in Ireland from 1976

The increase in official numbers and rates from 1976 to 1998 has been continuous, particularly from 1989 to 1998 during which time numbers almost doubled from 278 deaths to 514. This increase has been mainly in males (from 213 deaths to 433), particularly in males aged 15–29 whose deaths rose from 63 to 172 almost equally in the three constituent age groups 15–19, 20–24 and 25–29. By contrast the female increase, 1989–1998, was from 65 to 81, this latter being an atypically low number given that the 1997 figure was 92 and that of 1999, 92. In the female age group 15–29 the rise was from 12 to 21. Male suicide deaths aged 15–29 comprised 22.3% of all male suicides in 1980, a proportion that by 1998 had risen to 39.7%. By contrast there has been a much smaller increase, 1980–2001, in female suicide deaths. In 1980 46% of male deaths were over 45; by 2003 this figure had fallen to 32%. In 1980 52% of female suicides were over 45; in 2003, this was 43%. From 1980 to 2002 a sharply declining number of deaths has been attributed to the undetermined category, down from 84 to 50, a decline of 40%, constituting 28% of suicide and accidental deaths combined in 1980, but just 10% in 2002, to rise to 81 in 2004.

Between 1998 and 2006 suicide numbers fell 20% from 514 to 409 and from a rate of 14.1 to a rate of 9.6. For males only, the decline has been of 115 deaths from 433 to 318 (26.5%) a decline in rates from 24.0 to 15.0. However in this time females numbers increased 12% from 81 to 91 and in rates from 4.3 to 4.4. In the age group 0–34 the decline was from 246 to 189 or 23% and from a rate of 12.0 to 9.9. At age 35 and over there was a fall from 268 to 220 or of 18% and from a rate of 16.6 to 10.8. At age 65 and over numbers rose slightly from 23, a rate of 5.6, to 30, a rate of 6.2.

If the 66 deaths of undetermined intent in 2006 are added to those recorded as suicide then the number in 2006 rises to 475 a rate of 11.2. These figures for 2006 derive from the yearly summary on vital statistics but are likely to increase with the publication of the annual report for that year. It is necessary to point out that the annual reports contain information on deaths cross-classified by age and sex and method of death which is unavailable in the yearly summaries. However the annual reports appear some two years later than the yearly summaries. Hence the discrepancies by year of some of the information presented. Because of the small numbers involved, particularly for females, it is unwise to draw any conclusions concerning trends in such short-run data nevertheless, there is a clear downward trend from the peak year of 1998. It should be borne in mind that the 1998 rates are based on the 1996 Census of Population and as the population undoubtedly increased between these years they show some degree of inflation.

The latest annual report dates to 2004 and shows that in that year hanging accounted for 58% of deaths, drowning for 16% and poisoning for 12%. The 2006 annual report of Irish Water Safety recorded 131 deaths by drowning for that year of which it claims 63 were of suicide with the unexpected gender count of 34 males and 29 females, while accidental drowning had 45 males and only 8 females with deaths of undetermined intention at 12 for males and 3 for females.

If the assumption is made that all undetermined deaths (now called deaths of undetermined intent)

are in fact suicidal then with 81 such deaths in 2004 the number of putative suicides for that year comes to 574 which, based on the 2006 population, equates to 13.6 deaths per 100,000. Of these undetermined deaths 60 were male and 21 females and under half (excluding 2 who were under age 5), 25 were between the ages of 15 and 34. Half (38) of undetermined deaths were due to poisoning, 16 to drowning and 5 to hanging. Of the deaths due to poisoning 38 were by liquid substances, 28 male and 10 female, of which 7 were due to alcohol. One supposes that alcohol figured prominently among causes of undetermined death but that in some such cases coroners are likely to have decided that the intoxication resulted in an impairment of the capacity to formulate intent and hence were more likely to return an 'open' verdict rather than one of suicide. Overall the number of undetermined deaths in the late 1970s and early 2000s has been very similar to those of the 1980s. However in the interim of these years numbers had dipped from 1980 with 84 to fewer than 15 in three years of the mid 1990s (10 in 1995) to climb back to the 80s by 2003. These rises and falls do not mirror in any recognisable way variations in suicide numbers, and the reasons for these wide variations do not relate to the method of dying and therefore remain obscure.

5.2 Suicide in psychiatric inpatient care

There have always been suicides in mental hospitals and these have been detailed in the annual reports of the Inspectors of Lunacy and the Inspectors of Mental Hospitals. In the nineteenth and twentieth centuries annual numbers varied from one to six; for example there were three in 1866, four in 1867, three in 1923, one in 1930, four in 1932, three in 1941 and six in 1956. This compares with 17 in 2003 (Report of the Inspector of Mental Hospitals 2003) at a time when hospitals had become more open, in terms of the granting of parole together with an increase in the unauthorised taking of it, with the result that half of suicides of patients 'on the books' involved persons officially or unofficially on leave rather than in the hospital. In general terms the rates of suicide in psychiatric inpatients has kept pace with that in the general population (Corcoran and Walsh 1999). This coherence with general population rates has been confirmed by a similar study of inpatient suicide in England with rates, as in the general population, declining in a short time frame (Kapur *et al*. 2006).

5.3 Suicide in Ireland 1868–2006 – a resume

Walsh (1976) surveyed official suicide incidence from 1864 onwards as reported in the Registrar General's Reports. The broad conclusions of this examination were that mortality from suicide increased during the last quarter of the nineteenth century and the first decades of the twentieth, apart from a decline in male deaths during 1914–18, co-incident with a decline in mental hospital admission and residence rates during this period (Walsh and Daly, 2004). Suicide rates rose again in the 1920s to reach a peak in the mid 1930s. From then onwards a long period of decline began over the next 35 years or so. Since then a period of considerable increase began in the middle 1960s and continued up to 1998 followed by a decline of an estimated 14% by 2006. At all times male rates have exceeded female by a factor of three and this proportionality has not changed. In the early years, 1868 to 1964 rates rose with age with the highest rates being in those aged 65 and over, as

was generally the case in most other countries. From the late 1960s onwards rates in the elderly began to decline and were shortly overtaken by rising rates in the 15–24 age group, particularly for males.

5.4 Accidents, poisoning and violent (APV) deaths and suicide

It is instructive to examine the contribution that suicide and self-inflicted death have made to deaths from accidents, poisoning and violence (APV) (E codes 800–999 – external causes) over time. It has been possible to do this from 1969 when there were 1,366 such deaths of which 52 (3.8%) were attributed to suicide. By 1980 there were 1,713 APV deaths of which 216 (12.6%) were suicide and in 1990 there were 334 suicides or 22.2% of 1,502 APV deaths. In 2006 there were 1,439 APV deaths of which 409 (28%) were of suicide and intentional self-harm. There has been therefore an almost seven-fold increase in the proportion of APV deaths now attributed to suicide. Undoubtedly some of this change is due to misclassification of some suicides in the earlier years as accidental, but nevertheless suicidal deaths have increased at a far greater rate than deaths from other APV deaths. For example if suicides are removed from the 1969 and 2003 APV numbers these become respectively 1,284 and 1,104, an actual fall of 180 or almost 10%.

Focussing on younger persons over time in Table 5.1 we see the contribution that suicide and self-inflicted injury has made to APV deaths.

Table 5.1 Ireland 1978–2003. Numbers of accidental, poisoning and violent (APV) deaths and those from suicide by gender and selected ages

		1978		1991		2003	
		15–24	25–34	15–24	25–34	15–24	25–34
APV	Male	213	161	221	175	212	208
	Female	45	37	40	36	52	38
Suicide	Male	18	26	61	69	96	72
	Female	7	13	4	15	16	19

The numbers of APV deaths (including suicide) has remained virtually unchanged from 1978 to 2004 in the age group 15-24 but increased in males in the older group of 25–34 from 161 in 1978 to 208 in 2003 but showed an increase of only one in females with the male to female ratio remaining more or less the same at five to one. On the other hand suicide in both age groups combined increased from 44 to 168 in males and from 20 to 35 in females from 1978 t0 2003. The male to female suicide ratio in these age groups increased from just over 2 to1 to almost 6 to1 over these years. From 1978 to 2003 male deaths from APV causes other than suicide in both age groups combined decreased from 330 to 252.

The proportion that suicide contributed to APV deaths increased from 14.0% in 1978 to 42.3% in 2003. Looking at males only aged 15–34, the increase was from 11.2% to 44.5%. Of course the greater misclassification of suicide to accidental death in 1978 underestimates the contribution of suicide deaths to APV in 1978. Nevertheless it is interesting that a balance is maintained over the time period and posits the question as to whether suicide deaths in males have not now substituted for other forms of APV deaths in this age group.

6 Deaths of young males

6.1 Deaths of young males

Because of the impact that young male suicide mortality has recently been making it is worth looking at young male mortality from all causes over a considerable time period. Table 6.1 sets out the mortality experience of males aged 15–34 from 1864 to 2000. From 1864–1870 to 2000 the male death rate in all three age groups fell by over 600%. By far the greatest part of this decline took place in the earlier years with comparatively little change from 1951–1960 to 2004. What role suicide played in these changes we can only speculate, but the circumstantial evidence suggests a rise in Ireland as in England and Wales up to and including the first decade of the twentieth century so that one is justified in assuming that reduction in suicide as a cause of death, if it occurred at all, is unlikely to have contributed to the reduction to the same extent as that from other causes such as tuberculosis etc. (Table 6.1). On the other hand the rise in deaths from 1980 to 2000 of 184 incorporates an increase of 147 suicide deaths in males of 15–34 over these 20 years.

Table 6.1 Ireland 1864–2000. Male deaths ages 15–34. Numbers and rates per 100,000 population. Averages 1864–1870, 1951–1960 and for individual years 1980 and 2000

	15–19	20–24	25–34	Totals
1864–1870				
Numbers	904	1,330	2,212	4,446
Rates	4.22	7.07	8.24	
1951–1960				
Numbers	102	121	312	535
Rates	0.82	1.26	1.8	
1980				
Numbers	130	144	248	522
Rates	0.79	1.04	1.04	
2000				
Numbers	146	205	355	706
Rates	0.69	0.99	1.01	

The reasons why Irish young men but not young women have increasingly killed themselves from 1980 to 1998 remain speculative. Kelleher and Daly (1990) have invoked Durkheim in attributing an increase in anomie as exhibited by an increase in crime, illegitimacy, alcoholism, falling marriage rates, a rise in marriage separation and an increase in unemployment. While some of these indices undoubtedly reflect greatly changed Irish mores, others are more debatable; unemployment has greatly diminished and the concept of illegitimacy is as invalid practically as it is legislatively with almost one third of births now occurring to co-habiting couples. Why increased secularisation of Irish society should differentially increase suicide in young males remains to be explained. As explanation one can invoke greater young male vulnerability to stress and greater uncertainty as to life's purposes and goals and an inability to discern and achieve meaningful objectives resulting in lowering of self-

esteem and self-worth. Additionally young males may have greater awareness and less tolerance of failure as evidenced along such as parameters as educational achievement where girls increasingly outshine boys. However, as with all speculations, understanding is not much advanced as these considerations are not unique to Irish male youth. In truth we are as unable satisfactorily to answer why young male suicide rose to 1998 as to explain why it has been falling since.

6.2 The economic cost of suicide

The economic cost of suicide has been estimated by Kennelly, Evans and O'Shea (2005) on the basis of calculated direct, indirect and human costs. Obviously, because of their greater numbers, these costs are contributed to more by males than females and are augmented by the fact that almost 40% of male suicide mortality occurs under age 35. Because many of those who died by suicide suffered from mental illness and may have continued to do so had they not died prematurely it must be assumed that their output, productively, would have been impaired by their mental illness and therefore some discounting of the indirect costs must be assumed. The authors have taken this into account but probably insufficiently so. Notwithstanding, their cost estimate of the problem to this country is of the order of 835,662,918 euro in 2002. They not unreasonably conclude that in the face of such costs, expenditure on suicide prevention measures can be justified – provided, of course that such programmes are effective – an issue to be addressed later.

7 Irish suicide rates in international perspective

7.1 Rates at all ages and by gender

Table 7.1 sets out international suicide rates from World Health Organisation (WHO) data for years around 2001 for all ages and for those age groups of most interest to us. This comparison assumes a uniform and reliable assessment of suicide across nations, a dubious assumption but the only basis of comparison available across such a wide range of countries. It should also be borne in mind that because of the decline in Ireland 1998–2006 some of the relativities of Ireland with other countries may have changed.

In a comparison of 37 countries, including virtually all those of Europe, and of the US, Canada, Australia, New Zealand, Ireland's male rate in 2001 (21.4 per 100,000) ranked joint 19th with Denmark, the range being from Lithuania with rates of 77.2 per 100,000 to Greece at 5.3. Generally speaking the European countries represented divide themselves into the high rate Eastern European countries and the lower Western European. It is of interest that among those of Western Europe, only Austria, Belgium, France and Switzerland had higher rates than Ireland. England and Wales, Germany, Italy, Netherlands, Northern Ireland, Portugal, Scotland, Spain and Sweden all had lower rates which, in the case of England and Wales at 9.9, was substantially less than Ireland's.

In the case of females the following was the position. Ireland was the 30th (with a rate of 4.1) with only England and Wales, Greece, Italy, Northern Ireland, Romania, Spain, Portugal and the United States having lower rates.

Overall then Ireland's males performed poorly having one of the highest rates of suicide in Western European countries, the highest of English-speaking countries and the highest of predominantly Catholic countries, with Spain, Italy and Portugal at lower rates. On the other hand Irish females performed much better with one of the lowest rates of all 37 countries but still had higher rates than those traditionally largely Catholic, such as Italy, Spain and Portugal.

7.2 Age-related rates – youth and the elderly

Dealing with the same 37 countries Irish males aged 15–24 fared badly ranking 7th highest (27.4) with only Estonia, Finland, Kazakhstan, Lithuania, New Zealand, the Russian Federation and the Ukraine ranking higher. As far as 15–24 aged females were concerned Ireland (4.5) fared somewhat better, ranking 14th. Nevertheless Irish rates were higher than those of Denmark, England and Wales (three times higher), France, Germany, Italy, the Netherlands, Northern Ireland, Portugal and Spain and therefore the highest in Western Europe.

In the oldest age group, males aged 75 and over, only Greece, Scotland and Northern Ireland ranked lower than Ireland (12.7). The highest rate in this male age group was 144.7 for Slovenia and, in Western Europe, France (86.6). In 2001 Northern Ireland recorded no female suicide in persons aged 75 and over. Northern Ireland apart, Ireland came in lowest of all at 1.7, with Hungary coming highest at 37.4 and, in Western Europe, Switzerland with 23.9.

For males aged 65–74 Ireland at 17.9, ranked 30th, higher however than England and Wales, Scotland and Northern Ireland. The highest rates in this age group for males was 82.7 (Kazakhstan) and, in Western Europe, Austria at 49.1. For females aged 65–74 and over Ireland's position in the league table was spectacularly better than most, coming together with Greece as lowest of all at 0.8 when the highest rate was 23.1 (Croatia) and in Western Europe, Switzerland (17.9).

In summary then Ireland's male rates were high in the context of Western Europe and particularly so in relation to England and Wales. Irish female rates while relatively lower in global comparison were still high in the context of Western Europe and particularly so compared to Northern Ireland and to England and Wales. Ireland's rates were notably raised, comparatively, in young males and to a lesser extent in young females. In older persons, those aged 65–74 and those 75 and over Ireland fared much better with lower ranking than most other countries, particularly for females. However in males aged 65–74, Ireland's rates were twice those of England and Wales.

Given that in all countries (except perhaps China) male rates exceed female rates many times, it is worth exploring the extent to which this is true by calculating male/female ratios. This has been done and generally the higher the rate for both genders the higher the ratio. Thus ratios around six to one are apparent for eastern European countries such as Poland, Kazakhstan, the Russian Federation and Ukraine. The outlier however is the low suicide country, Greece. Ireland has the highest ratio of all Western European countries at 5.2 to 1, followed by Northern Ireland at 5.1. England and Wales comes in at 3.6 and most other Western European countries weigh in at between 2–3 to 1.

Table 7.1 Suicide in 2001 by country, age and sex. Rates per 100,000 population

Country	Gender	All ages	15–24	65–74	75 and over
Australia	Male	20.1	20.7	19.2	26.3
	Female	5.3	4.8	4.8	5.8
Austria	Male	27.3	20.6	49.1	80.6
	Female	9.8	3.8	15.4	22.7
Bulgaria	Male	24.7	11.1	44.8	84.0
	Female	8.9	4.6	16.0	33.9
Belgium (1997)	Male	31.2	19.2	35.5	86.8
	Female	11.4	5.4	13.6	15.6
Canada (2000)	Male	18.4	20.2	16.9	22.7
	Female	5.2	5.5	4.9	2.8
Croatia	Male	30.8	17.8	63.9	92.1
	Female	9.8	3.0	23.1	25.0
Czech Republic	Male	26.0	17.2	33.9	74.5
	Female	6.3	2.6	11.4	14.8
Denmark (1999)	Male	21.4	12.5	34.0	46.6
	Female	7.4	2.3	12.6	10.9

Table 7.1 Suicide in 2001 by country, age and sex. Rates per 100,000 population (*continued*)

Country	Gender	All ages	15–24	65–74	75 and over
England & Wales	Male	9.9	7.7	9.5	13.2
	Female	2.7	1.4	2.5	4.3
Estonia	Male	50.1	35.1	51.0	60.9
	Female	11.7	6.1	15.9	44.3
Finland	Male	36.8	27.7	36.7	40.4
	Female	10.2	6.8	9.8	9.7
France (2000)	Male	27.9	12.1	42.6	86.6
	Female	9.5	3.6	15.1	17.7
Germany	Male	20.4	12.4	29.0	60.9
	Female	7.0	2.7	10.8	18.2
Greece	Male	5.3	3.0	8.3	9.3
	Female	0.9	0.3	0.8	2.2
Hungary	Male	47.1	17.7	68.1	134.4
	Female	13.0	4.3	22.9	37.4
Ireland	Male	21.4	27.4	19.1	12.7
	Female	4.1	4.5	0.8	1.7
Italy	Male	11.1	6.6	17.9	32.4
	Female	3.3	1.3	5.7	5.9
Kazakhstan	Male	52.3	48.3	82.7	62.2
	Female	8.5	11.8	14.6	22.7
Latvia	Male	52.7	25.1	62.2	67.2
	Female	10.8	3.6	16.8	28.2
Lithuania	Male	77.2	46.2	80.6	107.4
	Female	15.0	7.2	19.7	30.2
Netherlands	Male	12.7	7.3	14.1	25.7
	Female	5.7	3.4	9.2	8.6
New Zealand	Male	19.8	30.4	20.7	20.7
	Female	4.2	5.7	1.5	3.2
Northern Ireland	Male	14.4	24.7	16.2	8.3
	Female	2.8	1.7	5.9	0.0
Norway	Male	18.4	22.1	23.7	30.0
	Female	6.0	7.6	4.6	3.2
Poland	Male	26.7	19.3	33.8	27.8
	Female	4.3	2.4	6.3	5.0
Portugal	Male	11.8	5.6	21.9	49.1
	Female	3.3	1.1	6.4	9.2
Romania	Male	20.8	10.2	26.4	28.5
	Female	3.9	1.8	7.9	8.3
Russian Federation	Male	71.7	60.1	96.7	83.2
	Female	11.8	9.4	17.6	27.4
Scotland	Male	18.1	22.0	11.5	9.5
	Female	6.4	6.4	5.7	3.4

Table 7.1 Suicide in 2001 by country, age and sex. Rates per 100,000 population (*continued*)

Country	Gender	All ages	15–24	65–74	75 and over
Slovakia	Male	22.6	14.1	38.5	42.6
	Female	4.9	2.0	7.5	9.6
Slovenia	Male	47.1	24.5	81.0	144.7
	Female	12.0	7.2	21.1	30.4
Spain	Male	12.2	6.7	20.9	41.6
	Female	3.7	1.4	6.7	8.5
Sweden	Male	18.9	11.2	29.5	42.2
	Female	8.1	3.6	9.4	12.7
Switzerland (2000)	Male	27.8	18.5	43.5	82.3
	Female	10.8	4.9	17.9	23.9
TYK Macedonia	Male	10.3	5.3	21.8	34.1
	Female	4.5	2.5	14.4	11.4
Ukraine	Male	48.7	28.6	77.0	69.8
	Female	8.4	4.0	15.4	20.3
USA (2000)	Male	17.1	17.0	22.7	42.4
	Female	4.0	3.0	4.0	4.0
Yugoslavia	Male	21.6	9.6		
	Female	9.2	3.6		

Source: World Health Organisation (2001). *World Health Report*. World Health Organisation: Geneva.

In this list of suicide rates published in 2003 by WHO for 100 countries of which 33 were in Europe and for which 2001 data were used for Ireland, Irish male rates came 33rd highest in the world and 26th in Europe while Irish female rates rated 42nd world wide and 27th in Europe. Overall there are large variations in the reported rates of suicide in the European region. They vary 10 fold in young females and 40 fold among young males, with very different trends in different countries, ranging from a 40% decrease to an 80% increase over a period as short as 15 years. How accurately these rates and their changes represent the real situation in a region where the processes of establishing cause of death are unstandardised and arrived at by discrepant legal and other mechanisms is anyone's guess.

More recent data from 2005 dealing with the 25 countries of the enlarged EU place Ireland 17th at 12.4 deaths per 100,000 population at all ages where the range was from 42.0 for Lithuania and where the English and Welsh rate was half that of Ireland. Age standardised rates for males in the 27 countries of the enlarged EU place Irish male death rates for the most recent years available well below the average of 18.8 per 100,000 and the average of the EU 12 country rate of 16.6. Indeed of the 27 only Greece, Malta, Spain, UK and Norway returned lower rates. For women an Irish rate of 3.1 registers lower than the average for both the EU 27 country rate of 5.2 and the EU 12 country rate of 5.1. Indeed of the 27 countries only Greece at 1.3 returned a lower rate. The latest Irish male rate of 9.6 without undetermined deaths, and 11.2 assuming that all undetermined were suicide, improves Ireland's position vis-a-vis the other countries, provided always of course that similar downward trends have not taken place in them also.

8 What are the correlates of suicide?

8.1 Suicide and mental illness

There has been a long-standing tradition that everyone who kills him or herself must be mentally ill, at least in the French nineteenth century medical tradition as dictated by Esquirol (1838) and upheld by Falret and Bourdin. However in England in *A Manual of Psychological Medicine*, 4th edition in 1879, Bucknill and Tuke allowed 'it cannot be disputed that suicide may be done in a perfectly healthy sate of mind'. More recently the claim is made that 80% of those who kill themselves suffer from a definable and identifiable psychiatric illness by the criteria of the 4th edition of Diagnostic and Statistical Manual (DSM4) of the American Psychiatric Association (Cole and Glass 2005) even though it has been claimed that most suicides today are not known to mental health services (Turner 2006). However the reality is that we do not know what proportion of suicides were mentally ill, although we can to some extent determine the number in psychiatric care, or of those who previously received it, even though these proportions differ from survey to survey. Concerning the state of mind of those not in care we must remain in the dark since one cannot carry out a clinical examination on the deceased, nor, other than by posthumous reconstruction of the deceased's state of mind derived from relatives' accounts and other sources, arrive at any accurate diagnostic assessment of the deceased's clinical condition at or immediately preceding the suicidal act. And the shortcomings of such methodology are only too evident.

Among persons suffering from mental illness those most at risk are those suffering from a diagnosed depression, although an unknown quantity of depression may be undiagnosed. It has been stated that up to 15% of unipolar depression patients eventually kill themselves (Cipriani *et al*. 2005). Since we know that in Ireland there are over 2,000 first admissions of depressive disorders to psychiatric units and hospitals yearly (2,016 in 2005) we may assume that these are the severest cases because they have been hospitalised, then the annual death rate from this disorder alone should be, matching one year with another, 210 or half of all current suicidal deaths in any one year. Among those hospitalised some might be presumed to have had their depression satisfactorily treated, at least in the short term. But 4,519 readmissions for depressive disorders in 2005 hardly supports this contention and is in line with the treatment-resistant nature of depression so that less than 30% remit with current treatments (Menza 2006). We can infer from the much greater re-admission than first admission rates that most depression (and schizophrenia too) is either an intractable or recurrent condition or both and that treatment, at least as far as recurrence is concerned, is only partially effective or is not being appropriately applied. The fact that there is heightened risk during inpatient care and shortly after discharge further supports these conclusions.

It may be of course that the depressed persons who kill themselves are not those, or are only partly those, who are hospitalised and that the major contribution to suicide from the depressed may come from those with acute onset depression, particularly among the young exposed to acute stress, never hospitalised nor having had any psychiatric contact. Because of the absence in this country of a unique personal identifier it is not possible to link individuals undergoing psychiatric treatment with their subsequent suicide other than on a local and anecdotal basis, although of the Dublin suicide

series of 282 from 1954 to 1963 (McCarthy and Walsh 1966) one third (93) had experienced a known psychiatric hospitalisation. In the later Kildare series (Walsh *et al*. 1995) half were known to have had previous psychiatric service contact and in both series one half had a prior medical, but not psychiatric, contact within one month prior to death, a proportion which may not be true, currently, of younger persons.

As to the mechanism triggering suicide in depression, while genetic factors are held to account for as much as 40% of the liability to depression (Kendler and Prescott 1999), there is substantial evidence that stressful life events have an aetiological relevance to the onset of depressive illness. For example the odds ratio of an individual exposed to an adverse life event developing depression as against a control individual not so exposed is 12 (Hettema *et al*. 2005). The extent to which exposure to stressful life events is itself inherited is becoming increasingly apparent (Kendler *et al*. 1993). It is therefore clear that the genetic and environmental interaction is a two-way process, but what is puzzling as far as suicide is concerned is that while the heritability of depression in women is higher than in men (Kendler *et al*. 2006), even if the genetic mechanisms involved may differ between the genders and environmental adversity no less so, male suicides are far commoner than female thus weakening the link between depression and suicide.

It is likely that whatever genetic mechanism underlies depression, be it specific or as is more likely non-specific, this is not of itself sufficient to explain why one depressed individual over another is more likely to take his or her own life. The likelihood of there being a 'suicide gene' is scientifically implausible (but see Fanous *et al*., awaiting publication) whatever about there being genetic mechanisms related to more generic characteristics such as 'risk-taking behaviours' arising from inherited personality traits (Torgersen *et al*. 2000, Brezo *et al*. 2006), themselves difficult to identify as risk factors. For instance Abbar *et al*. (2001) have postulated that a genetic variant of the tryptophan hydroxylase gene may be a susceptibility gene for a phenotype combining suicidal behaviour, mood disorder and impulsive aggression and two later contributions to the subject have recently been reviewed by Gershon (2007).

What explanation is there for the recent increase in suicide, particularly in young males over the low rate (if this in fact has been the case) in Ireland in the mid 20th century? Has there been increased exposure to adverse life events, which seems unlikely, or has the threshold for the subjective perception of what constitutes adversity changed and the capacity to cope with such negative experiences diminished? In other words are there factors, unidentified so far, some of which were and are restraining and protective and others which were and are precipitatory and initiatory in changing measure over time and which have intermediary links between mental state and capacity to deal with adversity, other than by suicidal behaviour, at the same level of psychological distress? What evidence, if any, have we that depression has increased in young men coincident with their recent increase in suicide? Unfortunately our evidence is limited to inpatient data. Looking at first admission data for manic depressive disorders, the category embracing depression together with mania, in the earlier National Psychiatric Inpatient Reporting System (NPIRS) annual reports

and depressive disorders in the later reports, we find that in 1970 first admission rates for manic depressive psychosis were already quite high in the are groups 20–24 and 25–34 relative to rates in older males and that the equivalent relativities were no different in 2005 despite the differential increase in suicide in these younger males over this time period. This would seem to imply that the new young male suicides are not among those with a prior hospitalisation. A further discrepancy between hospitalisation and suicide is the fact that female depression hospitalisation rates were and still are higher than male.

The lifetime incidence of suicide in schizophrenia has classically been taken as 10% and confirmed by an Irish cohort follow-up study of schizophrenia patients (Finnerty *et al*. 2002), but Palmer *et al*. (2005) have contested this as too high and suggested the lower figure of 5%. Since there are about 700 first admissions for the condition in Ireland each year (695 in 2005), we can expect, year on year, 70 deaths from this condition. Another group making a substantial contribution to suicide is that of substance abusers and persons with severe antisocial and borderline personality disorders, as it is alleged that 'personality disorders are estimated to be present in more than 30% of individuals who die by suicide' (Oldham 2006). Finally there are those who kill themselves because of physical disability and impairment and those with these difficulties who rely on assisted suicide, miniscule so far in numbers, but likely to increase. In addition, particularly in young men, there is a group who do not seem to suffer from mental illness, at least as far as their proximates are concerned who so often report that the suicide of their relative or peer came 'out of the blue'.

8.2 Suicide and social class

It is generally the case that suicide is higher in lower social classes and in areas of socioeconomic deprivation (Hawton *et al*. 2001, Gunnell *et al*. 1995) and socially deprived areas. There is abundant evidence in this jurisdiction that the incidence and prevalence of mental illness is similarly higher in such groups (Daly and Walsh 2003). Differences between urban and rural rates in Ireland have been explored with a suggestion of higher rural age-standardised rates (Walsh 1976).

Gunnell *et al*. (2003) reviewing suicide in England and Wales between 1950 and 1998 point out that, similar to Ireland, rates doubled in males under age 45 and declined in older males and females. Specifically male rates in those aged 25–34 rose from about 8 per 100,000 in 1950 to about 17 per 100,000 in 1998 and from 4 in the age group 15–24 in 1950 to 9 per 100,000 in 1998. Irish rates in the age group 15–24 rose from 7 deaths per 100,000 in 1952 to a rate of 21.4 in 2001. Average annual Irish rates for the years 1996–2000 in the 25–29 age group were 41.6 and in the group 30–34, 31.2. The authors in explanation of these changes invoked concomitant socio-economic change, such as declining social integration, rises in divorce, unemployment and substance abuse, the decline of marriage and increases in income inequality. However the explanatory power of these variables breaks down when it is seen that they have had little effect on female rates, unless one postulates a specific gender male susceptibility to suicide in the face of changing socio-economic factors. In the Irish context some of these factors such as employment and divorce are hardly

relevant over the period under consideration, although others such as substance abuse increases are equally important in both jurisdictions. Gunnell *et al*. (2003) in the same paper have reviewed the reported relationship between risk factors (excluding mental illness) over a wide range of factors and apart from 'low socio-economic position/poverty' and 'social fragmentation' found only inconsistent relationships.

8.3 Alcohol and suicide

One of the most striking features of contemporary Irish life has been the rise in alcohol consumption to the extent that in Europe, per capita alcohol consumption in Ireland was second only to that of Luxembourg in Europe – a country which had suicide rates of 23.9 for males and 10.7 for females in 2001 compared to Ireland's 21.4.4 and 4.8 (2001). England and Wales with suicide rates (2001) of 9.9 for males and 2.7 for females had an alcohol consumption that was only three quarters that of Ireland. A rank ordering of countries in relation to rates of suicide and overall alcohol consumption is supplied as an appendix. There is poor general correlation between the two. However there are two contaminants in this exercise; the first is that alcohol consumption is not stratified by age and gender, and secondly by type of drinking. Irish data record a very high proportion of binge drinking among young persons and this may be a catalyst to suicide – there is evidence that blood alcohol levels of those who kill themselves in Ireland are raised in a substantial proportion of cases (Bedford *et al*. 2006). While binge drinking, as the term is now used, refers to considerable intake on a single occasion and may be held to be more a factor in young than in older suicides, a drinking career in older dependent persons may also be related to suicide but in a different fashion. And of course the differential effects of such drinking patterns may have different consequences for suicide in different cultures. Overall however best estimates suggest that one out of every six suicides is alcohol-determined and this ratio increases greatly when young males only are considered (Anderson and Baumberg 2006).

8.4 The effect of demography and migration

Irish demography underwent substantial changes during the twentieth century. The early and mid points of the century were characterised by high mortality and high out-migration. For example, of those born in Ireland between 1927 and 1976 – 3.2 million – only 2 million were alive and living in Ireland by 1991; three out of eight of that generation had died young, either in infancy or later in their teens or twenties, because of diseases from which mortality has now greatly diminished or disappeared altogether such as tuberculosis, particularly among those born in the late 1920s or 1930s. And two out of every five who survived these hazards emigrated in search of work. However the most dramatic decline in death rates in young persons in the entire period from 1864 onwards was between 1941 and 1950 and 1951 and 1960 when death rates in the age groups 15–19, 20–24 and 25–34 declined by a factor of between 2 and 3 for both males and females and then remained static.

Because in the past high out-migration characterised our nation, a true estimate of 'suicide in the Irish' could only be based on a birth cohort or serial birth cohorts of those who stayed and those who went excluding transient emigrants. Obviously the differential environment as well as social class effects would have to be taken into account in any such studies. There is some evidence to suggest that those who emigrated were more likely to die by suicide than those who stayed at home.

Among older persons remaining at home, and now in later life, there were low suicide mortalities in international comparison, therefore we can postulate a protective effect inherent to this cohort of persons and persisting with them from earlier ages up to later life. On the other hand if higher rates can be substantiated in emigrants of the same birth cohort, then it can be maintained that protective elements, whatever they may have been, have been lost in the emigrant process, perhaps because of the psychic trauma associated with adapting to a new recipient environment (Leavey 1999). These findings appear to be confirmed by high rates of ill-health among the Irish in Britain, even in second generation immigrants, including a 53% higher suicide rate than among the indigenous population (Harding and Balarajan 1996), although it must be added that these rates are uncontrolled for social class and other factors. Alternatively it can be argued that the personality characteristics of those who migrated, as distinct from those who stayed, included greater vulnerability to suicidal behaviour. As a corollary one might argue that in a situation of low out-migration, such as at present, we retain such persons with the resulting increase in youth suicide which we have recently been experiencing. And now as a recipient nation of immigration we may experience high suicide rates among those coming to our shores from Eastern Europe, importing high suicide rates indigenous in their countries of origin, further aggravated by the stress of migration and assimilation.

8.5 Deliberate self-harm (DSH)

The phenomenon of deliberate self-harm (DSH) has been increasing as far as data allow comparisons to be made and has different, but overlapping epidemiology to completed suicide. The first systematic attempt to determine the extent and characteristics of the phenomenon in this country date back to 1962 when McCarthy and Walsh (1965) carried out a survey in the 10 acute general hospitals that then served the Dublin area, followed by more limited surveys (Corbett *et al*. 1974) and an international comparison (Walsh *et al*. 1984). Since then and much more recently surveys based in general hospital accident and emergency departments in 39 general hospitals, and with the ambition to extend coverage to all acute hospitals in the State, have been reported (National Suicide Research Foundation 2003). Of course DSH not presenting to acute hospitals is not covered, whether this is in the community or in other settings such as psychiatric units and hospitals. This endeavour is being carried out by the National Suicide Research Foundation and is referred to as the National Parasuicide Registry, despite being limited to hospital attending self-harmers. From its coverage it calculates a DSH rate of 177 per 100,000 total male population and 241 for women in 2003 contrasted with a combined rate for 2005 of 198. In fact there has been a slight decline in numbers since 2001 which may be an artefact of coverage. An increase over 2002 is recorded for both genders but it is unclear whether this is due to increased coverage year on year. There are

considerable variations from region to region, which raise the suspicion that these may be artefacts of variations of proportions coming to hospitals possibly because of geographic factors. Females 15–19 had highest rates whereas rates were greatest in the age group 20–24 for men. Unlike other jurisdictions male rates were almost the equal of those for females. In numerical terms there were 9,839 DSH events by 7,825 persons recorded from the data sources reporting. Over 90% were by either drug overdose or cutting. Surprisingly, depending on health board, up to 70% of these were hospitalised raising questions concerning bed usage and service organisation.

9 Prevention of suicide

Because of the world wide burden of suicide in personal, familial and economic terms with a global toll of almost one million deaths per year as estimated by WHO (2001), suicide prevention figures prominently in the national health programmes of most developed nations. It is recognised as a priority by WHO which recently reviewed national suicide prevention programmes and strategies (WHO 2002). Despite these aspirations there is disagreement about the value and effectiveness of preventive efforts, since most of what is promulgated as prevention is nonspecific and, when specific, poorly evidence-based. And as Diego Le Leo (2002) has pointed out in relation to preventive programmes 'the conflict between political convenience and scientific adequacy in suicide prevention is usually resolved in favour of the former'. Such questioning is based on the extreme complexity of the roots of suicide and the realisation that some of them are based in cultural mores that are poorly understood and mutable over time. Coupled with this is the practical reality that suicide is rare and its so-called 'risk factors' common. Finally although the end-point, suicide, is clear enough the diversity of causes is so great as to ensure that any search for generic solutions is futile.

There is in the Regional Gallery of Sicily in Palermo two small pictures by Vincenzo of Pavia presenting details of the life of Saint Giacomo. One of these shows the saint cutting the rope suspending a would-be suicide from hanging. Unfortunately the saint's intervention in this problem was limited to this specific instance of suicide prevention. Suicide prevention has had a long history even if not couched in specific terms. Mostly until the nineteenth century prevention was indirectly effected through moral reprobation; the sinfulness of the act, later to become translated into criminal law, was the ostensible deterrent. The consideration for the family, the distraint of possessions and public shame were there for all to see. Were these successful as preventive measures? We do not know. In nineteenth century Britain the first person of official status to express concern about the problem of suicide specifically was the celebrated physician William Farr who had trained with Esquirol in Paris around 1830 and was doubtless influenced by him to turn some of his attention to the problem. However, back in England, Farr, having no specific remedy to champion, like his successors of today, could only advocate in general terms. The anti-suicide policies, if that was what they were, which he and others advocated were the fostering of healthy minds in healthy bodies and the regulation of the mind facilitated by the provision of recreational playgrounds and less publicity for detailed and dramatic accounts of suicide together with the creation of an environment from which all tempting facilities to suicide had as far a possible been removed. In 1841 Farr urged that suicidal deaths by poison could be reduced if poisons used for medicinal purposes were made available only by medical prescription. Legislation to this effect eventually followed. Later, measures were taken in London to enclose the viewing platform of the Monument, and the posting of police at situations along the Thames notorious for the frequency with which they attracted suicides. Not to be outdone, but in a later century, we at home caged in our own Nelson's Pillar in Dublin and suggested that the banks of the River Suck should be walled off following a spate of suicides from the nearby psychiatric hospital at Ballinasloe.

In London, and elsewhere in England, those who attempted suicide but did not succeed made frequent appearances in the magistrate's court as detailed by Anderson (1987). Most were remanded

to prison where they were seen by prison chaplains and prison medical officers who made reports for the courts. Those deemed to be insane, and they were the minority, were sent on to asylums. Most however were released after a period of observation in prison. These suicide attempters, usually female, acted in a background of general misery, of poverty, debt, disease, prostitution and drink. In this sense suicide and its attempts could be perceived in a wider social background of multiple social pathology. The Church of England Temperance Society set up agents at police courts to induce those who appeared there to take a pledge to give up drink, just as on a national basis here in Ireland the Capuchin Father Matthew had embarked on a similar but national crusade. Later and more successfully, the jesuit Father Cullen, through the Pioneer Total Abstinence Society, although not specifically if at all concerned with the problem of suicide embarked on a similar abstinence campaign. Data from the 1901 national population census of residents enumerated in the Central Inebriate Reformatory in Ennis show how prevalent attempted suicide was in the 'habitual drunkards' making up the clientele of that institution.

While all these efforts were generically based, a widespread acceptance of suicide as a distinct and separate social problem led to a more specific response initiated by the Salvation Army and its leader, General Booth, through the setting up of anti-suicide bureaux, the first of which opened for business in Victoria Street, London in 1907 to be followed soon after by provincial offices in England thus ante-dating the Samaritans by a significant period. The bureaux preoccupation with suicide was, as its title indicated, specific and did not tie it in with more general miseries. The bureaux encouraged all who had suicidal thoughts and feelings to contact it. The clientele that came to the bureaux was very different from that appearing at the magistrates' courts following suicide attempts. For one thing, while the majority of the latter were female, young males predominated at the bureaux which were staffed by Salvation Army officers.

Did the bureaux have any preventive value? At least one practitioner was unconvinced. Dr. W. Wynn Westcott, an assistant coroner in North London asserted that of the cases of completed suicide at which he had officiated, only a small minority could have been helped by the London bureau had they chosen to consult it. In the latter half of the twentieth century the establishment of the Samaritans as a reference and help point, mostly by telephone, for those in distress and 'suicidal' renewed hope that such an approach would help reduce suicide and attempts. The effectiveness of the Samaritan endeavour has never been evidence-supported, not that this invalidates the enthusiasm and endeavours of those who answer the telephones on a 24 hour basis. An evaluation of comparative suicide (but not attempts) between neighbouring and similar towns, one with a Samaritan branch, and the other without, was equivocal (Jennings *et al*. 1978) and the establishment of the Samaritans in Ireland around 1970 coincides with the period of apparent increase in suicide in this country – but then the difficulties of such comparisons is bedevilled by the natural history of suicide.

Because of the high profile given to death by suicide and the prominent media coverage of apparent increase in suicidal deaths, particularly in young males, suicide prevention has found its adherents in Ireland as elsewhere. A National Task Force on Suicide in its Report of 1998 made about 200

recommendations of a very generic nature extending across many functional systems of health, education and the wider community. Later in that year the Chief Executive Officers of the Health Boards established the National Suicide Review Group as recommended by the Report. This group funded a number of research projects in the field. It was disbanded when the National Office of Suicide Prevention was set up in 2005. Among other activities this body has advocated the placement of psychiatric nurses in accident and emergency departments to respond to deliberate self harm presentations – a resource deployment that clearly requires critical evaluation. And national suicide prevention programmes have become the fashion in many countries, such as England and Wales, Scotland and Finland among others. It is natural that there should be concerns that the problem be addressed. This sentiment is constantly aired in the public press and accusations that 'the government is not doing enough' are frequent. However none of the correspondents has indicated what should be done beyond a vague aspiration that more money should be spent on 'mental health' and mental health services, without stipulating whether or how this will bring down suicide rates – the evidence that it might do so is not convincing (Spurgeon 2005).

'There is no single intervention or approach that will, in itself, adequately challenge the problem of suicide in Ireland' admits Reach Out (2005), a joint production/programme of the Health Service Executive, the National Suicide Review Group and the Department of Health and Children, in putting forward a National Strategy for Action on Suicide Prevention 2005–2014. The strategy covers much the same ground as the 1998 report and perhaps, presciently, claims that 'due to the inter-play of factors that influence the suicide rate, a direct cause and effect relationship between prevention programmes and a change in the overall population rate is virtually impossible to establish'.

More recently still, in July 2006, the Joint Committee on Health and Children of the Houses of the Oireachtais issued a report on the High Level of Suicide in Irish Society following hearing oral evidence over several sittings from many of the main interested parties on the subject, and asked that 'immediate action be taken to implement' its recommendations. There are 33 of these and the estimated cost of implementing them runs to over 60,000,000 euro, almost one tenth of the entire mental health budget for 2005. It should be noted too that the cost estimations appear to be speculative rather than accurately derived and that programmes costing over 30,000,000 euro must undergo a full cost-benefit analysis according to the Department of Finance. Leaving this aside one is struck that many of the recommendations echo those of the earlier groups, the National Task Force and Reach Out. Many concern training and education of various groups allied to 'health promotion', some to administrative and organisational matters within the health structures and others are of general applicability and desirable for other reasons, such as increasing the quantum of inpatient psychiatric beds for children and adolescents, but have no specific application to suicide prevention per se. Others relate to providing for those bereaved by suicide. The one possible evidence-based recommendation relates to the full implementation of the recommendations of the National Strategic Task Force on Alcohol. Useful but hardly novel is the recommendation of establishing a system of national enquiry into all suicidal and undetermined deaths as advocated some years ago by the Inspector of Mental Hospitals (1998). As always, the impression is hard to dismiss that where there is

no specifically evidence-based intervention the practice as exemplified by these three reports is to be over-inclusive in relation to a raft of social and other issues. Notwithstanding the joint committee is sufficiently confident to imply that if its recommendations were implemented the overall suicide rate would fall by 20% by 2016.

We are told that suicide prevention programmes need 'to integrate a variety of approaches' and 'should be based on sound evidence rather than on idealistic thinking' (Hawton and van Heeringen 2000). But what approaches and what evidence? Indeed the textbook on suicide and attempted suicide, from which these quotes are taken, does not even attempt to confront the issue globally but resorts to compartmentalising the problem in separate groups. Thus the first recommendation is restricting access to the main methods of suicide. This, too, is the first recommendation of a recent WHO European Ministerial Conference (2005) and one of those of the Joint Committee Report. Given that hanging and drowning accounted between them for over 70% of Irish suicides from 1997 to 2001 this is hardly encouraging. In the past in Ireland, as in England, the toxic properties of 'town' gas were utilised as a common method of suicide. The detoxification of this domestic gas, it was claimed, led to a reduction of 30% in suicide rates (Kreitman, 1976). Coal gas carried a lethal 20% carbon monoxide which was progressively reduced in Ireland beginning in 1961 before the abandonment of centralised supplies of domestic gas altogether in the following years. Whatever about England, there is no evidence that its elimination had any impact on suicide in Ireland – as always there were other methods (Walsh 1976).

In the chapter in the same textbook dealing with suicide prevention in schools it is admitted that 'there is no evidence that a purely educational or didactic approach leads depressed or suicidal teens to reveal their ideation or seek treatment, nor do they significantly alter the permissive and positive attitudes towards suicide that are held by disturbed youth' and 'when one considers the uncritical enthusiasm with which some researchers and clinicians approach suicide prevention… it is quite evident that there is a lack of understanding of the low base rate of suicide and the impossibility of ever demonstrating scientifically that the intervention would be effective' (Goldney 2000). A Canadian Task Force on Preventive Health Care (2003) dealing with the prevention of suicide concluded that 'Studies evaluating suicide prevention in school-based intervention programs, community-based intervention centres, or hospital-based intensive follow-up situations have shown that none reduced the incidence of suicide significantly'.

The Health Development Agency of the National Health Service (NHS) of England and Wales reviewed Youth Suicide Prevention (Crowley *et al*. 2004). Of five reviews of curriculum-based youth suicide prevention programmes it was said 'Insufficient evidence was found to recommend universal school-based programmes, or programmes applied to high-risk groups and/or behaviours'. Two reviews of interventions targeting family-risk factors had no effect on suicide. Four reviews examining programmes targeting at-risk groups found lack of evidence from studies with suicide as an outcome. There was no current evidence for the effectiveness of crisis hotlines. There was insufficient current evidence to recommend pharmacological interventions with the possible exception of

SSRIs (second generation anti-depressants) for young people with mental illness. However the climate of acceptability for SSRI administration to adolescents is now highly fraught; indeed the drugs themselves have become suspects in precipitating suicide. There was limited evidence for dialectical behavioural and cognitive therapy in their impacts on self-harm – 'we cannot say that any intervention provides strong evidence of effectiveness'.

Prevention can be based on individuals at high risk or on whole communities. In relation to individuals the usual strategy is to identify individuals who by their known medical and/or socio-demographic characteristics are known from epidemiological studies to be at 'high risk'. These include those who have previously carried out a DSH event, those with a history of depression, schizophrenia, the elderly living alone, those recently bereaved, persons whose marriage or partnership arrangement has recently broken down, those with chronic physical illness, those abusing alcohol or other drugs or those with a combination of these factors. The trouble is that suicide is still, despite recent increases, a rare event and the risk factors are all common – 'there is no single, readily identifiable, high risk population that constitutes a sizeable proportion of overall suicides and yet represents a small, easily targeted group' (Gunnell and Frankel 1994). Furthermore within the individual risk groups prediction as to which individual will die by suicide is notoriously imprecise. Take for example the case of young persons, given that this is the group where risk has increased most in recent years. Thus in Ireland in 2000, 109 of 641,522 persons in the age group 15–24 killed themselves. In individual prevention terms the task would have been to identify the 0.16% of this age group who subsequently died by suicide.

Let's take another high risk group, persons suffering from depression which it is claimed has a life-time incidence of 15% and a suicide incidence of 10%. Given that there are currently over 60,000 births in this country annually this equates to 9,000 persons from each year's birth cohort becoming ill with depression at some time during their life-time and 900 of them killing themselves year on year. Another group highly vulnerable is those with schizophrenia. Given an annual incidence of 15 per 100,000 for schizophrenia which equates to over 600 new cases a year and with a lifetime suicide incidence of 10%, year on year this equates to 60 suicide deaths per year. This reasoning would allocate 660 deaths from these two causes alone per year exceeding by almost 200 the actual number of suicides here per year and bringing into question the percentage estimates of suicide in these two conditions usually quoted. Now the task is to identify within these groups those who will kill themselves.

Whereas measures of incidence and prevalence for these two conditions and the incidence of suicide among them can be stated with some degree of accuracy the same cannot be said of two other conditions which undoubtedly make substantial contributions to suicide, substance abuse and certain personality disorders either individually or in association (comorbidity). And of the approximate 10,000 individuals who yearly attend A&E departments following DSH, which will be the 2% who die by suicide. And what of the remainder, the silent majority, particularly among young males, who carry no known risk factors and who may contribute more suicides than those with acknowledged risk

factors – how are these to be identified? So, is individual identification a lost cause? Not entirely. Any experienced clinician can, with some degree of confidence identify a small (and there's the rub) set of individuals who because of the severity, frequency, recurrence and character of symptoms and their non-response to treatment and intervention are particularly at risk but of course there is a world of difference between identification and prevention. The limitations of individual psychopharmacological interventions are exemplified by the failure of ever-increasing prescription of antidepressants to lead to a decline in suicide in Ireland. Notwithstanding Bertolote *et al*. (2003) have claimed that improved treatment, if it were known and available, of three major conditions – schizophrenia, depression and alcohol-related disorders – would reduce suicide by 20.5%.

And what about community prevention or general population strategies as they are also known? The same textbook quoted above concludes that these broader community or even governmental approaches 'have considerable face validity and there is some evidence to support their efficacy, particularly in regard to availability of means'. Unfortunately general perorations such as that suicide can be reduced by improving health and social services rest on no secure foundation. Generally half of suicides have never been in contact with psychiatric services and only a minority of those who have ever had contact with mental health services have seen a psychiatrist in the month before suicide. Neither is there evidence that increasing resources available to psychiatric services impact on suicide levels (Lewis *et al*. 1994). Emphasis on improving general practitioners' capacity to identify the suicidal individual is not particularly helpful given that each general practitioner is likely to see a suicide once in every five years. Over-identification of 'depression' as distinct from transitory unhappiness, so dear to the pharmaceutical industry anxious to extend the boundaries of disease and to create new disease entities, represents a serious down-side to over-enthusiastic case-finding (Dyer 2006).

Much has been made of a prevention effort in Gotland, an island community in Sweden, in which the main preventive thrust was educating general practitioners to identify and prescribe for depression. Claims were made for a cause and effect relationship between the initiative and a small decline in suicide in a population of less than 60,000 and where numbers of deaths were in any case small (Rihmer *et al*. 1995). In 1987 Finland launched a national suicide prevention strategy which ended in 1997. During this time male rates rose to 1990 and then declined but only to 32 per 100,000 while female rates remained unchanged. 'No-one knows whether the Finnish prevention model – or any other suicide prevention program – was truly effective' (Hendin 2004). 'Although there have been some interesting programs, we should be extraordinarily honest and say that basically right now we don't know how to prevent suicide and the reason is because we don't have the scientific knowledge base' (Kleinman 2004).

Nor is it evident how this knowledge is to be acquired. There is an additional problem about these programmes structured to identify and prescribe for 'undiagnosed depression' that a stereotype of transitory unhappiness be elevated to the status of illness and lead to exposure to the non-negligible side-effects of medication. While the Finnish suicide prevention programme may not have resulted in

any sure-fire prevention measures, it clearly raised international awareness of the public implications of suicide. It inspired more than 10 other countries to follow its lead, including the United Kingdom, Ireland, Australia and all of the Scandinavian countries. Nonetheless a recent review of suicide prevention programmes (Bertolote 2004) commented unencouragingly 'With almost a century of preventive efforts there should be enough data to evaluate their efficacy. Should any of these several efforts have demonstrated an unquestionable and universal superiority over others it would already have been widely adopted. In reality what we find is proponents of a variety of preventive programmes and theories trying – without much success – to convince others of the superiority of their own'. A recent systematic review of suicide prevention strategies was marginally more positive and concluded that 'Physician education in depression and treatment and restricting access to lethal methods reduce suicide rates. Other interventions need more evidence of efficacy (Mann *et al*. 2005).

The National Suicide Prevention Strategy for England published in April 2002 and reviewed in 2004 (Department of Health 2005) seeks to reduce death from suicide and undetermined injury by one fifth by 2010. It sets out the number of deaths in a number of high-risk groups and details the number that it aspires to reduce in each group. These are persons who are or have recently been in contact with mental health services, suicides in the year following self-harm, young males, prisoners and those in high-risk occupational groups.

Leaving aside the issue that many of these high-risk groups overlap and that the cumulative numerical reduction is therefore far from being the total that the report envisages, let us examine the means by which this reduction is to be brought about. It will happen by promoting mental well-being in the wider population, reducing the availability and lethality of suicide methods (on the railways and by jumping from high places) and it enumerates the impact of curtailing each availability, by improving reporting of suicidal behaviour in the media, by promoting research. Once again one is flooded with a range of broad, nonspecific measures for which the preventive evidence base is slight and reminded of Farr, over a century ago. In fairness Farr believed that the wearing of beards by men was a disincentive to their cutting their throats – he wore one himself.

Since 1997 there has been a confidential inquiry into suicide and homicide by people with mental illness in England and Wales. The most recent report, Avoidable Deaths (University of Manchester 2006) surveys 6,367 cases of suicide by mental health patients from April 2000 to December 2004, constituting 27% of suicide in this jurisdiction during this time. Forty-nine percent of the deceased had been in contact with mental health services within the previous week including 19% in the previous 24 hours. Seventeen percent were inpatients, including 3% who were on one-to-one observation. Fifteen per cent occurred within a week of discharge and 225 before their first follow-up appointment. There was a considerable discrepancy between the responsible clinicians and the investigators as to the proportion of these suicides that were preventable with clinicians estimating 19% and the investigators 41%. These latter estimated further that 18% were 'most preventable'. Whether this group incorporated most of the clinicians' 19% is unclear. On prevention the writers of the report are somewhat admonitory. They regretted that clinicians regarded 81% of deaths as not

preventable and state 'It is time to change the widespread view that individual deaths are inevitable – such a view is bound to discourage staff from taking steps to improve safety'. Over the time of the inquiry there was no overall fall in suicides by patients taking anti-depressants.

If mental illness is associated with 80% or even 50% of suicide then clearly the recognition and early and adequate treatment of mental illness is central to any prevention policy. As to the quantitive adequacy of psychiatric services to bring this about it is worth pointing out that there is roughly the same number of psychiatrists per head of population in Ireland as England and Wales, a higher proportion of psychiatric nurses but fewer social workers and psychologists in Ireland and that Ireland had over the decade prior to 2000 twice the number of psychiatric beds and twice the number of psychiatric admissions than in England. Whether this amounts to better psychiatric services is, of course, another matter.

Because of the level of alcohol consumption in Ireland and in particular the prevalence of binge drinking among Ireland's young, of whom males aged 15–29 are the most worrying sources of suicide, and its anecdotal relevance to both suicide and DSH, it is worth some little consideration here. The role of alcohol in precipitating suicide has been referred to earlier. Alcohol has been estimated to account for one sixth of all suicides both in young and older persons (Anderson and Baumberg 2006). Indeed the confidential inquiry in England and Wales already referred to found that in 27% of suicides 'dual diagnosis' or comorbidity of mental illness and substance abuse was a factor. Some objective information on the role of alcohol in Irish suicides comes from a post-mortem study which found raised levels in over 50% of suicides in the North East of the country recently (Bedford *et al*. 2006). The prevention of alcohol-related problems has been exhaustively dealt with by Walsh and Walsh (1981), Walsh (1982), Davies and Walsh (1983) and more recently the World Health Organisation (2003, 2004) and in Ireland by the Report of the Strategic Task Force on Alcohol (Department of Health and Children 2004).

The measures that work and those that don't have clearly been delineated. Price control has been high on the list of effective measures, but the difficulties of further using price as an element of consumption control are the already high taxation levels of alcohol in this country, among the highest in the EU, with concomitant concern that further increases would be inflationary. The utility of market forces as a control measure in Ireland have been reviewed but need updating by Walsh (1989). Availability control, once a potent factor in the Irish scene, has now little effect with alcohol on and off premises being available virtually throughout the 24 hours and the reluctance to enforce existing legislation in age-control is well documented. The lack of advertising control other than on a voluntary code basis dictated by the drinks industry is glaring, in contrast to a country such as France where television advertising is forbidden and no graphic content can feature in other media. Alcohol consumption has progressively halved in France and is now below Irish levels through the application of the Loi Evin defining such preventive measures (Craplet 2005).

Higher levels of blood alcohol are legally permitted in Ireland for driving than anywhere else in Europe

except the UK and poor enforcement of existing legislation reflects a situation where young males, as in suicide, contribute disproportionally to mortality. These shortcomings are products of lack of a coherent and comprehensive national policy on alcohol-related problems. A powerful trade and political lobby and government's unwillingness to confront them, gives little optimism for action in these sectors. This is disappointing in suicide prevention where so little evidence-based preventive measures exist and when the one with most likely impact, as far as young persons are concerned, is ignored. It should be noted however that there is some evidence in international comparisons that the higher the consumption level the weaker the influence of alcohol on suicide (Norstrom 1995) and that suicide rates in Ireland were until recently disproportionately higher relative to alcohol consumption than in England and Wales where alcohol consumption rates are little lower but suicide rates in young males substantially less.

10 Prevention of deliberate self-harm (DSH)

In relation to the prevention of DSH repeats there has been a considerable investment in this country in allocating psychiatric nurses to A&E departments to follow-up DSHs for purposes that have never been clearly articulated and the outcome of which is equally unclear and may even be counterproductive. Cognitive behavioural approaches to improve problem solving, on the basis that when one cannot solve a problem one resorts to DSH, have also been invoked but only on selected populations of DSHs with exclusion criteria which preclude those most at risk for repeat and ultimate suicide (the psychotic, personality disorders, substance abusers) or when using less selective inclusion criteria, have been equivocal or of short-term follow-up (Tyrer *et al*. 2003).

To date, experimental treatments that involve more intensive aftercare have not proved to be more successful than standard care in reducing repetition rates among adolescent suicide attempters, demonstrating that more is not necessarily better. Attempts to reduce repetition of self-harm and eventual suicide have been largely unsuccessful (Gunnell and Frankel 2004). For example systematic reviews of psychological and pharmacological treatments for deliberate self-harm concluded as is so often the case, 'insufficient numbers of patients in nearly all trials limit the conclusions that can be reached. Larger trials are badly needed' (Hawton *et al*. 2005) and, in very similar vein, relating to the psychological and/or educational interventions for the prevention of depression in children and adolescents – 'although the results are encouraging we recommend that further research be undertaken to confirm these results using better study design before the introduction of depression programmes in the future' (Merry *et al*. 2005). Burns *et al*. (2005) were less encouraging – 'the evidence base for treatments designed to reduce the repetition of self-harm in adolescents and young adults is very limited'. Of course the difficulties and limitations are obvious – for one thing most suicides in young persons occur after school age unless of course whatever benefit accrues form these programmes persists well beyond school age, an assumption for which we have no evidence.

11 Conclusions

- All historical sources concur that suicide has been ubiquitous in place and time.
- People take their own lives for a multitude of reasons.
- A proportion of persons who suicide have significant mental illness.
- Suicide was for centuries reprobated by culture, religion and legislation but has now been almost globally decriminalised.
- There has been considerable under-reporting of suicide in official records in Ireland from 1864 until about 1980 and the rate of under-reporting had been relatively constant.
- Under-reporting may have been as high as a factor of three.
- Because of under-reporting it is not possible definitively to say whether in the long-term, 1864–2006, Irish suicides rates have risen.
- What evidence there is suggests that there have been long-term wave changes in Irish rates with increases from 1864 to 1914 then a decline until the 1920s followed by an increase to reach a peak in 1934–1938 succeeded by a decline until 1968, a moderate but steady increase until 1989 followed by a greatly accelerated rise from then until 1998 when a summit may have been reached and then a slow decline of 14% from 2001 to 2006.
- The late twentieth century increase (whether apparent or real) has predominantly involved males at all ages , except over 65, but particularly males aged under 35.
- Suicides in males aged 15–34 have increased from being 11.6% of all accidental, poisoning and violent deaths in 1980 to 44.2% in 2003 and have in part replaced other such deaths.
- Suicide rates in Ireland's elderly have fallen and are now among the lowest world wide, particularly for women.
- In keeping with universal international experience (with the possible exception of China) Irish males suicide rates are and always have been three to four times greater than those of females.
- Irish suicide rates for both males and females are low in European comparison.
- The recorded increase in Irish rates over the later decades of the twentieth century has been greater than in other European countries because of increased suicide rates in young males.
- The last quarter of the twentieth century in Ireland has been a period of great cultural, social and economic change equalising Ireland with most of our near European neighbours. The relationship of these changes to suicide increases in young males is unclear.
- The general demographic features of Irish suicide differ from those of other European countries in having a disproportionate number of male suicides in younger age-groups and lower rates in the elderly.
- Increased suicide rates among the hospitalised mentally ill have reflected increasing rates in the community.

- At least one in six suicides is alcohol-related.
- There has been an estimated fall in the Irish suicide rate of 14% from 2001 to 2006. This is evident in young males but has also occurred, though to lesser degree, in older males. However it is premature to claim that this represents a trend.
- The reason for the recent suicide rate decline, should it be sustained, is no more apparent than is that of the earlier increase.
- There is evidence that rates of deliberate self-harm have increased in recent years.
- Alcohol consumption and abuse which facilitate both completed suicide and deliberate self-harm have trebled in Ireland over the last half century and have shown the same 'long wave' changes as suicide rates.
- There are no unequivocal evidence-based measures to reduce suicide or repeat DSH other than reducing alcohol consumption by young persons.
- The understandable wish 'to do something' about the problem of suicide has led to a flurry of activity, little of it evidence sustainable but most of it politically acceptable.
- There is little will to progress the preventive measure with most potential to impact on youth suicide, the implementation of the recommendations of the Strategic Task Force on Alcohol.

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Appendices

Appendix A: Europe. Suicide rates per 100,000 population and per capita alcohol consumption in litres. Ranking.

	Suicide					Alcohol Consumption		
Country	**Year**	**Males**	**Rank**	**Females**	**Rank**	**Year**	**Litres per head**	**Rank**
Luxembourg	2002	28.6	12	10.2	14.6	2003	6	1
Ireland	2000	20.3	18	4.3	11.4	2001	23	4
United Kingdom	1999	11.8	26	3.3	9.3	2003	26	12
Finland	2002	32.3	9	10.2	9.3	2003	6	12
France	1999	26.1	15	9.4	9.9	2003	9	8
Belgium	1997	31.2	10	11.4	8.9	2003	5	14
Germany	2000	20.4	18	7.0	10.7	2003	17	5
Denmark	1999	21.4	17	7.4	9.8	2003	16	10
Sweden	2001	18.8	19	8.1	5.6	2003	15	22
Norway	2001	18.4	20	6.0	4.8	2003	20	24
Iceland	1999	17.3	21	5.1	5.5	2003	21	23
Spain	2000	13.1	22	4.0	10.0	2003	24	9
Portugal	2000	8.5	25	2.0	9.4	2003	27	11
Italy	2000	10.9	24	3.5	7.6	2003	25	20
Austria	2002	30.5	11	8.7	10.5	2003	14	7
Switzerland	2000	27.8	13	10.8	9.4	2003	8	11
Greece	1999	5.7	27	1.6	7.7	2003	28	18
Netherlands	2000	12.7	23	6.2	7.8	2003	19	17
Russian Federation	2002	69.3	2	11.9	8.9	2003	3	14
Latvia	2002	48.4	6	11.8	8.4	2003	4	16
Lithuania	2002	80.7	1	13.1	10.2	2003	1	8
Estonia	2002	47.7	7	9.8	7.7	2002	10	18
Hungary	2002	45.5	8	12.2	11.6	2003	2	3
Czech Republic	2001	26.0	16	6.3	13.7	2003	18	2
Poland	2001	26.7	14	4.3	6.7	2003	22	21
Ukraine	2000	52.1	4	10.0	4.0	2002	13	26
Belarus	2001	60.3	3	9.3	4.8	2002	12	24
Kazakhstan	2002	50.2	5	8.8	2.6	2002	11	27

Appendix B: Recent publications in the Health Research Board Series

HRB Research Series

Ward M, Tedstone Doherty D and Moran R (2007) *It's good to talk: distress disclosure and psychological wellbeing*. HRB Research Series 1. Dublin: Health Research Board.

Tedstone Doherty D, Moran R, Kartalova-O'Doherty Y and Walsh D (2007) *HRB national psychological wellbeing and distress survey: baseline results*. HRB Research Series 2. Dublin: Health Research Board.

Daly A, Tedstone Doherty D and Walsh D (2007) *Re-admissions to Irish psychiatric units and hospitals 2001–2005*. HRB Research Series 3. Dublin: Health Research Board.

HRB Statistics Series

Tedstone Doherty D, Walsh D, Moran R and Bannon F (2007) *High support community residences census 2006*. HRB Statistics Series 1. Dublin: Health Research Board.

Kelly F, Kelly C and Craig S (2007) *Annual report of the National Intellectual Disability Database Committee 2007*. HRB Statistics Series 2. Dublin: Health Research Board.

O'Donovan M-A, Doyle A and Craig S (2007) *National Physical and Sensory Disability Database Committee annual report 2007*. HRB Statistics Series 3. Dublin: Health Research Board.

Daly A, Walsh D and Moran R (2007) *Activities of Irish Psychiatric Units and Hospitals 2006*. HRB Statistics Series 4. Dublin: Health Research Board.

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