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Estimating the prevalence of opiate use in Ireland and the implications for the criminal justice system

Catherine Comiskey, National University of Ireland

Jamie Saris, National University of Ireland

Julian Pugh, Stewarts Hospital, Dublin

Abstract Drawing upon innovative research methods this article provides the first Irish estimates of opiate use based entirely on non-medical data. These estimates are based on the report *Baseline Findings from the ROSIE Study* by Comiskey and Cox (2005), commissioned in 2002 by the Irish Government's National Advisory Committee on Drugs (NACD). In order to place these estimates in context we first provide a background to the probation and welfare service in Ireland; we then provide a picture of known opiate use to date; and finally we introduce the methods we used to provide new results on the prevalence of opiate users in Ireland.

Keywords drugs, Ireland, NACD, opiate use

Since the formation of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) in 1993 in Lisbon as the central source of information on drugs and drug addiction in Europe, western industrialized nations of the European Union have gathered together to provide best practice guidelines for the monitoring, evaluation and prevalence estimation of drug use and in particular opiate drug use (EMCDDA, 1997b). This is not only a European phenomenon. The United Nations have formulated an International Drug Control Programme and have highlighted how research has been held back by the clandestine nature of the drugs trade on whose hidden population data is inevitably partial and of poor quality. Given these limitations it is encouraging to note the emergence of the EMCDDA annual reports, which include tables of treated drug use. One-off estimates of national and local prevalence have also been produced for a majority

of existing member states (EMCDDA, 1997a, 1997c, 1997d). In addition Interpol within the Drug Sub directorate acts as a centre for the collection, collation, analysis and dissemination of drug-related information. However, the emphasis has been on enumerating treated opiate users and estimating possible numbers who may present for treatment in the future. Little or no prevalence estimates of general opiate use based on crime data have been produced and no emphasis has been placed on providing a methodology upon which to base these estimates. There are some exceptions to this – for example Choi and Comiskey (2003) recently produced the first opiate prevalence estimates in Western Australia based on police crime statistics.

Background to the Probation and Welfare Service in Ireland

The Probation and Welfare Service in Ireland, whilst not a drug treatment agency per se, plays a major role in relation to addressing drug-related problems in the criminal justice system. This is undertaken in partnership with agencies from the voluntary and statutory sector and is underpinned by the National Drug Strategy 2001–2008 (Department of Tourism, Sport and Recreation, 2001). This strategy is currently subject to a mid-term review. During 1998 the Probation and Welfare Service undertook a survey of the 2183 offenders subject to supervision and discovered that 56.39 per cent had a history of drug use (Probation and Welfare Service, 1999). Only 43.61 per cent of the cohort had no known history of drug abuse and 82.6 per cent of those with a known history had used drugs in the previous 10 months.

The Probation and Welfare Service is also part of an inter-departmental initiative, between the departments of health and justice, in supporting a pilot drug court programme (Butler, 2002). Whilst initial outcome research of the programme has been undertaken, a full cost benefit analysis of this programme has yet to determine its efficiency (Farrell, 2002).

The main process by which the Probation and Welfare Service is used by the courts is via the use of supervision during deferment of sentence rather than the use of probation orders. There is an argument to suggest that supervision during deferment of sentence has been an effective way of addressing offenders with drug use problems over many years. This form of disposal involves the court hearing the evidence, finding the charges proved and postponing sentencing on the condition that the offender responds to probation officer supervision. The officer is required to produce a report on a specified date to inform the court of what progress has been made. Indeed, an offender may be subject to several adjournments before a final decision is made by the sentencer. This type of supervision is used in both the district and circuit courts and an offender can be brought back to court if they fail to comply with any conditions. This practice, which has no legislative basis, allows courts to regularly review sentences whilst holding a sword of Damocles over the offender, in terms of the possibility of a custodial sentence, for offenders who do not display sufficient co-operation under supervision. This

form of supervision, whereby offenders are brought back to court for progress reports, can also have a motivating influence and promote change. In 2002, there were around 4100 persons under supervision in the community, compared to a daily average of around 3200 prisoners in custody. In 2002 there were 11,860 committals to the Irish Prison Service (17 prisons).

Drug use in Ireland is being tackled in a comprehensive and concerted way via national policy, partnership working and crosscutting initiatives (Boyle, 1999; Whelan et al., 2003). The establishment of drug task forces in areas of high need has resulted in integrated working within particular geographical areas to address problems associated with drug use, social inclusion and homelessness. During January 2005 the health services in Ireland were re-organized in order to streamline overall effective service management and delivery (Department of Health and Children, 2003). Within prisons an effective co-ordinating structure is being developed. A multidisciplinary case management system is being piloted using the concepts of shared care planning and integrated care pathways to ensure the continuity of transitional care services. In this way needs-based assessments and continuity of service provision can be delivered. Effective case management is associated with better treatment outcomes and a reduction in recidivism rates. In this way problems associated with fragmentation of services, relapse and recidivism can be minimized (Kothari et al., 2002; Pugh, 2004).

Successful efforts to address drug treatment demand in the community has allowed the continuity of methadone maintenance between the community and prison to be achieved, and has resulted in an ever-increasing number of prisoners subject to this form of intervention. It is thought that the use of a public health model of drug treatment has positively impacted upon the prevalence of blood-borne diseases and reduced offending behaviour in the community and in prison. It has also resulted in a change in judicial attitudes from that of an abstinence approach to one that appreciates the chronic relapsing nature of addiction and the role of substitution. However, there are still major areas of social policy conflict, between the health and justice departments – for example the latter does not allow the use of bleach tablets or syringe/needle exchanges within prisons and the negative impact of this on blood-borne viruses is discussed in detail in Allwright et al. (2000) and Long et al. (2001).

Background to drug use and estimating prevalence of opiate use in Ireland

Over the past 10 years there have been considerable advances in the provision of health care services to drug users. Despite these advances, government policy and planning continue to be troubled by the uncertainty of the extent of hidden drug use and associated crime. Within the national and international medical and scientific press many questions on the nature and extent of the prevalence of drug use have been addressed. O'Higgins (1996), in a five-year review of drug use in the greater Dublin area, found that the numbers seeking treatment for the first time had almost doubled from 624 in 1990 to 1150 in 1994. In addition, the mean

age over the five-year period was seen to decrease from 25.2 years in 1990 to 23.8 years in 1994. The review also finds that the most commonly used primary drug is heroin, with over 82 per cent of those attending treatment citing it as their primary drug of misuse. Similarly, in a national report of treated drug misuse, Moran et al. (1997) found that 4865 contacts (not necessarily different individuals) received treatment in 1996 in the eight Irish Health Boards. Of these, 3839 or 79 per cent stated that opiates were their main drug of misuse. In addition, 96 per cent of these clients were between 15 and 39 years old. More recently, the Drug Misuse Research Division (DMRD, 2002) notes that between the years 1996 and 1999 the numbers in treatment in the Eastern Regional Health Area of Ireland rose from 4283 to 5380. This region continues to have the overwhelming majority of opiate users in treatment. These reports indicate the increase in the demand and the provision of treatment services within this eastern region and also that opiates continue to be main drugs of use. More recent figures indicate that the use of cocaine is increasing both within this population and with users outside of the eastern region (Long et al., 2004).

Early treatment figures and the distribution of ages and numbers are also reflected in police statistics. Keogh (1997) found that opiates represented 93 per cent of those records in Dublin police stations where drugs were noted. In 1996 the Assistant Police Commissioner commissioned a study on illicit drug use and related criminal activity in the Dublin Metropolitan Area (DMA). After an extensive search of all police records held at police station level, a database consisting of 4105 individuals identified with drug use was constructed from records from September 1995 to August 1996. The majority of these were male, unemployed and living at home. Males accounted for 3467 (84.46%) of cases and females accounted for 638 (15.54%) of cases. Eighty per cent were in the 15 to 30 years age group, with the youngest user being 12 years and the eldest being 60 years. The principal drugs used were opiates (heroin and methadone) with 3817 (93%) users identified. Not all of these were arrested under the Misuse of Drugs Act (1984). Most were on police record for other crimes, for example, shoplifting, and, while in custody, they asked to see a medical doctor so that methadone could be prescribed. In some cases those on record were found with needle marks on their body. A list of seven reasons why drug users were known to the police is provided in Table 1.

More recently The Garda (Irish Police Force) Opiate Use and Related Criminal Activity in Ireland 2000/2001 study was undertaken to update the earlier research completed in 1997 (Furey and Browne, 2004). The purpose of the study was to examine the linkages between opiate use and acquisitive crime throughout the State. Authors found that a total of 5341 individuals were known to the Garda in 2001 and 2002. Of these 4706 were in the Dublin region, representing a 23 per cent increase on the number identified in the earlier Keogh (1997) report.

In order to assess the size of the hidden opiate-using population in Dublin, Comiskey (2001) conducted the first Irish study, which statistically estimated the prevalence of opiate use in Dublin. An opiate user in this study was defined in a broad context to cover both problematic and non-problematic users. The capture–recapture method, including log-linear modelling, was implemented. Anonymous identification data from three sources was used to obtain population samples.

Table 1 Number of drug users noted in police records in Dublin in 1996

Drug user identified by	*Number of users*	*%*
Admission	2098	51
Paraphernalia	501	12
Custody methadone	473	12
Possession	407	10
Physical signs	285	7
Other	190	5
Treatment	151	4
Total	4105	100

Source: Keogh (1997)

Using data on location of residence, prevalence was estimated for different locations of the city. In addition, an age-based prevalence estimate of male and female opiate drug users was provided.

Results of prevalence estimates in Comiskey (2001) ranged from 6182 among medical data sources (methadone treatment and hospital discharges) up to approximately 14,000 among three data sources (methadone treatment, hospital discharges and police records). New prevalence estimates for the year 2000, also based on these three data sources, have been published. Kelly et al. (2004) estimated that there were a total of 14,159 opiate users in Ireland in 2000 of which 12,268 were resident in Dublin and that this number increased in 2001 to 14,452 opiate users in Ireland, with 12,456 of these being resident in Dublin. However, all of the estimates to date are based on the capture–recapture method. This method was originally developed to estimate the size of wildlife populations. It involves capturing, tagging and releasing a sample of the population. One then returns to the population and captures another sample. This procedure can be repeated a third time. By counting the number of individuals who were captured only once, the number who were captured twice and the number who were captured three times one can estimate the number who were never captured. The method has been widely developed and applied to epidemiological and drug research using treatment lists, hospital lists and arrest lists as captured samples. However, the method is subject to strict assumptions. One assumption is that each member of the population has an equal chance of being captured. Clearly with police samples or lists this assumption is questionable as young male drug users may be more likely to be arrested than, say, older females. However the method can be adapted to minimize the errors arising from the violations of these assumptions. The EMCDDA endorses the use of the method with three samples and says that this approach provides a prevalence estimate based on a broad definition of opiate user. In addition, for specific planning purposes they recommend that a range of methods and approaches be used to estimate the size of differently defined, hidden populations. These may include, for example, hidden

problematic users who may be in need of medical treatment or users who are involved in crime, or users who may seek methadone treatment.

Within this article we have provided the background to drug prevalence research in Ireland to date. We now present below for the first time, new prevalence estimates based on a network analysis of opiate users and the multiplier method. This method is also endorsed by the EMCDDA and within this article we implement it with arrest data. Depending on which of the many definitions of opiate user comes under the public policy gaze, then, a different population and cluster of social issues becomes relevant. The population wanting treatment, but on waiting lists or falling through bureaucratic cracks, for example, presents different challenges than those who are committing crimes to feed a developing habit. Consequently, we attempt to combine statistical and ethnographic methods in this work in order to better understand the varieties of opiate use and misuse in contemporary Ireland. We report below specifically on the population that has connection to the police and the criminal justice system.

Network analysis/nomination technique and the multiplier method

Frischer (1997) introduces nomination techniques in a European context for the first time and emphasizes the necessity of involving direct contact with samples of drug users who provide access to information on peers. The information obtained is then used to assist in the estimation of prevalence of drug use. Taylor (1997) subsequently notes that nomination estimation is a form of the multiplier method. Continuing with outlining the study methodology and, assuming a clear definition has been established, the estimation procedure involved then requires:

- A benchmark – the total number of the drug-using population who were arrested for drug use at some point during the year in question, e.g. 3000.
- A multiplier – an estimate from some sample survey of the proportion of the drug-using population who were arrested for drug use that year, e.g. 20 per cent or one fifth.

By applying the same benchmark multiplier calculation to these figures the overall drug using population size would be 3000 (1/5) = 3000 $\times$ 5 = 15,000. While this seems simple to estimate, the reality is that the percentage of drug users arrested, i.e. the arrest rate is generally unknown and it is this rate that must be first estimated in order to provide an overall estimate of prevalence.

Ideally, to estimate this rate or ratio we need a random sample of drug users of the type we are interested in. This, too, is difficult to achieve in practice, as we do not possess a full list of drug users. One way of approaching this problem is by so-called 'site sampling', a procedure that selects drug users at one or more geographical locations where they are likely to be found. Following the guidelines and being aware of the limitations as discussed by Taylor (1997), we may generate from this site sampling a random sample which we then term the 'core sample'.

Prevalence results

The National Longitudinal Study to Evaluate Effectiveness of Treatment and Other Intervention Strategies Used in Ireland for Opiate Use was commissioned in 2002 and is known as ROSIE (see www.nuim.ie/rosie). The study is the first prospective longitudinal study of treatment outcomes for opiate users to be conducted in Ireland. It monitors the progress of a cohort of opiate users over a 12-month period. Fifty different services, provided by approximately 40 separate agencies and/or organizations, have participated in ROSIE baseline study recruitment. In addition, study recruitment was undertaken in 30 separate GP surgeries. A total of 404 opiate users were interviewed within approximately one month of treatment intake. The study is designed to evaluate treatment outcomes over a 12-month period with each client being interviewed at intake, at six months and at 12 months. However the data gathered at intake provides detailed information on pre-treatment behaviours and the cohort provides the first comprehensive picture of opiate users across the four strands of drug use and treatment, health and welfare, psychological and social functioning and crime and employment. Within this article we present for the first time the results on pre-treatment crimes committed and arrested for, and we then use this information to provide a multiplier for the subsequent prevalence estimates.

In order to provide multipliers for police data the 404 clients were asked a series of questions about past crimes committed and arrests and the nature of these crimes. These questions provide us with lifetime experiences. At the design stage of the study it was unclear as to how the police statistics were compiled and hence the exact nature of the benchmark was not defined. Given this uncertainty clients were first asked if they had ever been arrested or charged with an offence, and then clients were asked if they had been arrested or charged with an offence in the previous three months.

A summary of responses on crimes arrested for are provided in Tables 2 and 3 below.

We found that 26.5 per cent of those surveyed had been arrested for selling or supplying drugs and that 3.5 per cent of opiate users surveyed said that they were arrested for selling or supplying drugs within the last three months. The Garda crime statistics are produced on a quarterly basis. The most recent statistics available are for the first quarter of 2005; the 2004 statistics, however, match the time frame of the ROSIE study. In addition the statistics for the final quarter of 2004 are also provided along with a comparison for the same time period of the previous year.

From Tables 4 and 5 we may say that approximately 500 individuals were arrested for possession of drugs for sale or supply in any one quarter of 2003 or 2004. We may therefore use this figure as a benchmark to which we can apply our three-monthly multiplier. Using the multiplier method we compute the estimate of the number of opiate users in Ireland in any one quarter of 2004. This estimate is provided in Table 6 below.

Table 2 Crimes ever arrested for

	No		*Yes*		*Excluded*		*Total*	
	N	%	*N*	%	*N*	%	*N*	%
Drug possession	183	45.3	179	44.3	42	10.4	404	100.0
Selling/supplying drugs	234	57.9	107	26.5	63	15.6	404	100.0
Theft from a person	216	53.5	91	22.5	97	24.0	404	100.0
Theft from a house/home	228	56.4	61	15.1	115	28.5	404	100.0
Theft from a shop/ commercial property	171	42.3	158	39.1	75	18.6	404	100.0
Theft from a vehicle	227	56.2	77	19.1	100	24.8	404	100.0
Theft of a vehicle	209	51.7	96	23.8	99	24.5	404	100.0
Other theft	203	50.2	31	7.7	170	42.1	404	100.0
Handling stolen goods	243	60.1	92	22.8	69	17.1	404	100.0
Fraud/forgery/deception	253	62.6	52	12.9	99	24.5	404	100.0
Assault	198	49.0	104	25.7	102	25.2	404	100.0
Criminal damage	191	47.3	114	28.2	99	24.5	404	100.0
Soliciting	250	61.9	8	2.0	146	36.1	404	100.0
Driving under drug influence	288	71.3	24	5.9	92	22.8	404	100.0
Driving under alcohol influence	253	62.6	37	9.2	114	28.2	404	100.0
Breach of the peace	167	41.3	133	32.9	104	25.7	404	100.0
Other	177	43.8	33	8.2	194	48.0	404	100.0

Note: 'Excluded' includes not relevant, clients who chose not to answer, clients who did not know, spoiled responses and data not collected

Discussion

Estimates produced here for 2004 are surprisingly similar to the 2000 and 2001 national prevalence estimates produced by Kelly et al. (2004) using the completely different methodology of capture–recapture. In their work, Kelly et al. derive national estimates of 14,158 and 14,452 opiate users for the years 2000 and 2001 respectively, and for Dublin they estimate 12,268 and 12,456 opiate users for 2000 and 2001 respectively. These Dublin estimates are also very similar to those produced five years earlier for 1996 data. Comiskey (2001), also using the capture–recapture method, estimated that there were approximately 13,500 opiate users in Dublin in 1996.

While there are several limitations to the multiplier method as applied here, these very similar results are encouraging and lead us to believe that the size of the opiate-using population in Ireland is remaining stable. That is not to say that the individuals are unchanged, rather it is more likely that there is a steady input

Table 3 Crimes arrested for in last three months

	No		*Yes*		*Excluded*		*Not relevant*		*Total*	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Drug possession	151	37.4	26	6.4	44	10.9	183	45.3	404	100.0
Selling/supplying drugs	95	23.5	14	3.5	61	15.1	234	57.9	404	100.0
Theft from a person	81	20.0	7	1.7	100	24.8	216	53.5	404	100.0
Theft from a house/ home	68	16.8	4	1.0	104	25.7	228	56.4	404	100.0
Theft from a shop/ commercial property	131	32.4	20	5.0	82	20.3	171	42.3	404	100.0
Theft from a vehicle	82	21.0	2	0.5	80	20.5	227	58.1	391	100.0
Theft of a vehicle	95	23.5	4	1.0	96	23.8	209	51.7	404	100.0
Other theft	46	11.4	4	1.0	151	37.4	203	50.2	404	100.0
Handling stolen goods	243	60.1	92	22.8	69	17.1	0	0.0	404	100.0
Fraud/forgery/ deception	56	13.9	4	1.0	90	22.3	254	62.9	404	100.0
Assault	102	25.2	8	2.0	95	23.5	199	49.3	404	100.0
Criminal damage	104	25.7	11	2.7	98	24.3	191	47.3	404	100.0
Soliciting	30	7.4	3	0.7	121	30.0	250	61.9	404	100.0
Driving under drug influence	27	6.7	3	0.7	85	21.0	289	71.5	404	100.0
Driving under alcohol influence	40	9.9	5	1.2	105	26.0	254	62.9	404	100.0
Breach of the peace	124	30.7	11	2.7	101	25.0	168	41.6	404	100.0
Other	53	13.1	9	2.2	164	40.6	178	44.1	404	100.0

Note: 'Excluded' includes not relevant, clients who chose not to answer, clients who did not know, spoiled responses and data not collected

and output from the drug-using population, and that there is a need to understand and study these drug-using careers in more detail. While the numbers remain stable the dynamics of the population are changing in terms of the individuals who are using opiates and their entry to and exit from this population.

The significant feature from the crime portion of the survey instrument is the relatively large numbers of opiate users who have been charged with some criminal activity, as opposed to the relatively lesser number charged with offences directly related to drugs. This is clearly evident from Table 3. This supports the impression that many police officers have had – that much of the petty crime that they deal with is drugs-related. Nonetheless, despite our best efforts, we still feel that there is a larger population of stable opiate users who never come to the attention of the police. This may then mean that while a lot of crime may be drug-related,

Table 4 Total crime statistics: Ireland 2003 and 2004

Headline crime incidents	*Total 2003*	*Provisional Total 2004*	*Difference*	*%*
Murder	45	36	–9	–20
Manslaughter	7	9	2	29
Rape of female	315	380	65	21
Rape Section 4	55	67	12	22
Unlawful carnal knowledge	95	89	–6	–6
Aggravated sexual assault	11	14	3	27
Sexual assault	1449	1046	–403	–28
False imprisonment	53	45	–8	–15
Abduction	44	30	–14	–32
Assault causing harm	3926	3873	–53	–1
Theft from the person	6669	5749	–920	–14
Theft from MPV (Multiple Person Vehicle)	12,972	13,292	320	2
Theft from shop	15,679	14,726	–953	–6
Theft of pedal cycle	474	512	38	8
Theft (other)	20,291	19,379	–912	–4
Burglary	25,160	24,475	–685	–3
Aggravated burglary	332	286	–46	–14
Robbery of establishment/institution	1026	1078	52	5
Robbery of cash/goods in transit	54	62	8	15
Robbery from the person	1714	1479	–235	–14
Arson	1440	1534	94	7
Possession of drugs for supply or sale	2302	2161	–141	–6
Possession of firearms	374	360	–14	–4
Discharge of firearms	210	290	80	38
Other headline incidents	8663	8046	–617	–7
Total	103,360	99,018	–4342	–4

there are also likely to be a lot of drug users not involved in crime; therefore, some caution should be exercised before making strong links that all drugs users are heavily involved in crime.

Finally, our work also suggests that criminality and opiate use needs to be understood as a longitudinal phenomenon. Evidence from street-level ethnographers, at least in the USA, for example, strongly suggests that older users are much more careful to avoid police entanglements than their younger counterparts (Fleisher, 1995). Aspects of this picture are recognizable to us, but there seem to be differences as well. This 'career' aspect of use in Ireland (that is, how an individual's tolerance of risk influences his or her decisions about what drugs are used, in what circumstances) is in pressing need of further study. Unfortunately it was beyond the scope of this study to capture this data and the career path of a drug user and how this impacts on crime has not been addressed here. However, we

Table 5 Quarterly crime statistics: Ireland fourth quarter 2003 and 2004

Headline crime incidents	*Fourth quarter 2003*	*Fourth quarter 2004*	*Difference*	*%*
Murder	9	10	1	11
Manslaughter	0	0	0	0
Rape of female	57	54	–3	–5
Rape section 4	10	21	11	110
Unlawful carnal knowledge	31	11	–20	–65
Aggravated sexual assault	3	0	–3	–100
Sexual assault	162	143	–19	–12
False imprisonment	8	7	–1	–13
Abduction	6	4	–2	–33
Assault causing harm	841	890	49	6
Theft from the person	1607	1314	–293	–18
Theft from MPV	2857	2994	137	5
Theft from shop	4047	3911	–136	–3
Theft of pedal cycle	92	144	52	57
Theft (other)	4483	4433	–50	–1
Burglary	6542	6101	–441	–7
Aggravated burglary	83	72	–11	–13
Robbery of establishment/institution	224	320	96	43
Robbery of cash/goods in transit	11	17	6	55
Robbery from the person	1607	1314	–293	–18
Arson	376	377	1	0
Possession of drugs for supply or sale	505	542	37	7
Possession of firearms	91	63	–28	–31
Discharge of firearms	57	69	12	21
Other headline incidents	1936	1842	–94	–5
Total	24,434	23,628	–806	–3

Table 6 Prevalence estimates for opiate use in Ireland in 2004

Definition of estimate	*National estimate 2004*
Number of opiate users estimated from crime statistics	Benchmark = 500, Multiplier = 1/0.035 Estimate = 14,286 opiate users

have provided the first estimates in Ireland at a national level of the numbers of opiate users involved in crime.

Our qualitative work, though, anecdotally suggests that the younger end of opiate users are likely to present even more challenges to the professional services than the cohorts before them. These challenges look to be increasing poly-drug use, more chaotic lives, and arguably, a society-wide sense that 'certain populations have problems'; all tend to work against any easy solutions to their issues. Thus, absolute numbers of individuals' use of heroin can remain stable (as they seem to have over the course of the past few years) or even decline, while public policy issues relating to heroin use become more numerous and complex. To date estimates have been motivated by treatment planning and not police purposes. These estimates can only be the first step in assisting the planning and provision of criminal justice services. Far more research is needed on a dynamic model of the drug-using career path, various types of criminal activity, and how prison, treatment and ill health impacts on crime rates.

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Catherine Comiskey is a Lecturer and Principal Investigator of the ROSIE Project at the Mathematics Department, National University of Ireland, Maynooth, Co. Kildare, Ireland. *Tel*: +353 1 7083994.
Email: catherine.comiskey@nuim.ie

Jamie Saris is a Senior Lecturer at the Anthropology Department, National University of Ireland, Maynooth, Co. Kildare, Ireland. *Tel*: +353 1 7083983.
Email: ajamie.saris@nuim.ie

Julian Pugh is a Prison Drug Coordinator, Health Service Executive, Stewarts Hospital, Palmerstown, Dublin 20, Ireland. *Tel*: +353 86 8299201. *Email*: julian.pugh@mailf.hse.ie