NACD
National Advisory Committee on Drugs

ROSIE
Research Outcome Study in Ireland
Evaluating Drug Treatment Effectiveness

Findings 6

A SUMMARY OF 3-YEAR OUTCOMES

INTRODUCTION

The Research Outcome Study in Ireland (ROSIE) is the first national, prospective, longitudinal, multi-site drug treatment outcome study in the country. The National Advisory Committee on Drugs (NACD) commissioned this research in 2002 as required by the National Drugs Strategy Action 99. The aim of the study was to recruit and follow opiate users entering treatment over a period of time, documenting the changes observed. The contract was awarded to Dr. Catherine Comiskey and NUI Maynooth in 2002.

The study recruited 404 opiate users entering treatment. Outcomes at 3-years for drug use, involvement in crime, injecting-related behaviour, physical and mental health, among others, are presented in this paper. Statistically significant differences are given emphasis in this document.

CONTENTS

KEY MESSAGES

(Only statistically significant reductions are noted below, figures rounded)

- 404 opiate users were recruited at treatment intake: 97% (n=392) were located at 3-years and 88% (n=357) successfully completed their final interview.
- 1.5% (n=6) of the study population had died at the 3-year follow-up interview stage.
- 69% (n=246) were in some form of drug treatment at 3-years.
- 29% (n=105) were abstinent from all illegal drugs at 3-years.
- Heroin use reduced from 77% at intake to 46% at 3-years.
- Significant reductions were observed for other drug use at 3-years.
- Injecting drug use (heroin) reduced from 42% at intake to 25% at 3-years.
- Injecting drug use (cocaine) reduced from 21% at intake to 10% at 3-years.
- Selling or dealing drugs reduced from 30% at intake to 13% at 3-years.
- Significant improvements in physical and mental health symptoms were observed.

Authors: Dr Catherine Comiskey, Paul Kelly and Dr Robert Stapleton

SUMMARY ALL OUTCOMES

DRUG USE OUTCOMES

- **Heroin use:** There was a reduction in the overall percentage of individuals reporting heroin use, from 76.9% at intake to 46.2% at 3-years follow-up. The frequency of heroin use was significantly reduced from 40.1 days in the last 90 days at treatment at intake, to 20.7 days at 3-years. The amount of heroin used also reduced significantly between intake (0.6g) and 3-years (0.2g).
- **Other drug use:** Reductions in the reported use of all target drugs, non-prescribed methadone, non-prescribed benzodiazepines, cocaine (including crack), cannabis and alcohol were seen at 3-years.
  - Reported use of cannabis reduced significantly from 64.1% at treatment intake to 48.9% at 3-years.
  - Reported use of cocaine (including crack) reduced significantly from 48.3% at treatment intake to 22.5% at 3-years.
  - Reported use of non-prescribed benzodiazepines reduced significantly from 44.3% at treatment intake to 31.7% at 3-year follow-up.
  - Reported use of non-prescribed methadone reduced significantly from 40.6% at treatment intake to 13.8% at 3-years.
  - Reported use of alcohol reduced significantly from 53.8% at treatment intake to 44.2% at 3-years.
  - Reductions in the frequency (mean days) of use of all target drugs were observed between intake and 3-years.
  - The overall percentage of individuals reporting polydrug use[1] decreased significantly from 76.2% at treatment intake to 46.5% at 3-years.
- **Drug abstinence:** A significant increase in the percentage of individuals reporting abstinence from all drugs (excluding alcohol and prescribed methadone) was observed between intake (9.3%) and 3-years (29.4%).

INVOLVEMENT IN CRIME OUTCOMES

- Within the 12 crime variables measured, there were significant reductions in the proportion of participants reporting involvement in 10 of the 12 categories of crime between intake and 3-years.

RISK BEHAVIOUR OUTCOMES

- Significant improvements were evident in the proportions injecting any drug, the number of days injecting any drug, and the number of times injecting any drug on a typical drug-taking day in the last three months, between intake and 3-years.
- At treatment intake, participants reported low rates of borrowing and lending of used injecting equipment. There were no significant changes in these behaviours at 3-years.
- There were no significant changes in overdose rates.

PHYSICAL AND MENTAL HEALTH OUTCOMES

- A significant reduction in five of the ten physical health symptoms was observed between intake and 3-years.
- No significant reductions were observed in any of the five anxiety symptoms between intake and 3-years.
- A significant reduction in three of the five depressive symptoms was observed between intake and 3-years.

TREATMENT STATUS

- 68.9% were in some form of treatment at 3-years.

EMPLOYMENT AND TRAINING

- Proportions currently working, employed at some time in the last three months, and on a training course over the last six months all increased significantly between intake and 3-years.
- The proportion who described themselves as usually not working fell significantly between intake and 3-years.

ACCOMMODATION

- The proportion living in the family home decreased significantly between intake and 3-years, while the proportion owning their own house or flat, or in rental accommodation, increased significantly between intake and 3-years.
- The proportion in a drug treatment residence decreased significantly between intake and 3-years.
- The proportion in insecure accommodation (including participants living in hostels, shelters, B&B's or with no fixed abode) decreased significantly between intake and 3-years.

CONTACT WITH SERVICES

- Contact with two of the four health services increased significantly between intake and 3-years.
- Of the four social support services investigated, use of two of the services, one regarding employment, training or education and the other regarding housing, increased significantly between intake and 3-years.

1 The definition of polydrug use is concurrent drug use, meaning at least two substances are used during the same time period (NACD, 2007). We define polydrug use as the use of two or more illegal substances in the last 90 days, the time period for which drug use data was collected.

Authors: Dr Catherine Comiskey, Paul Kelly and Dr Robert Stapleton

METHODOLOGY

1. STUDY DESIGN

ROSI*E* is a longitudinal observational study, which follows participants from the point of commencing a new treatment episode (treatment intake) and monitors progress at time anchored points; at intake, then at 1-year and 3-years after treatment intake. Between September 2003 and July 2004, the ROSI*E* study recruited 404 opiate users. The majority entered one of three index treatments: methadone maintenance/reduction (53.2%, n=215), structured detoxification (20%, n=81) and abstinence-based treatment (20.3%, n=82) and the remainder were recruited from needle-exchanges (6.4%, n=26). These modalities were part of the tender brief from the NACD as they were considered to represent the most widely implemented interventions for opiate users in Ireland.

The 404 ROSI*E* study participants were recruited from both inpatient (hospitals, residential programmes and prisons) and outpatient settings (community-based clinics, health board clinics and GP's). Participants had to be over 18 years, commencing a new treatment episode, prepared to consent to the tracking/follow-up procedures, and willing to provide locator information. Treatment agencies participating in the study were purposively (not randomly) sampled to reflect drug treatment in Ireland, and the known geographical spread of provision and range of services. In total, 44 agencies providing approximately 54 services located in rural, urban and inner-city areas of Ireland were involved in the study. In addition, a Research Advisory Group was established by the NACD to support and monitor the research project.

Participants were interviewed at the three time periods using a pre-prepared interview schedule, which examined key outcome measures including:

- Drug use (drug type, frequency, and quantity of drug use);
- General health (a 10-point physical and mental health assessment);
- Social functioning (employment, accommodation, involvement in crime);
- Harm (injecting behaviour & experience of overdose); and
- Mortality (participant/contact feedback and checking non followed-up participants against the General Death Register).

In addition to a lifetime measure, measures were taken for behaviours in the 90 days preceding interviews, except for injecting related risk behaviour variables where use in the last 30 days was used. Individuals were asked about their use of 16 substances. This document focuses on the seven most frequently reported problem drugs – referred to as target drugs (heroin, non-prescribed methadone, non-prescribed benzodiazepines, cocaine powder, crack cocaine, cannabis and alcohol)[2] and reports changes in use patterns at 3-years.

For more detailed information on lifetime use and use at intake, see Cox & Comiskey (2007) and the baseline ROSI*E* report (http://www.nacd.ie/publications/treatment_rosie_summary.html).

2. FOLLOW-UP

Follow-up of participants was assisted by the provision of at least four contacts (locator information) for each person (including a drug treatment contact, family member, GP & others). A small remuneration was provided at 1-year and at 3-year follow-up to acknowledge the ongoing participation of the individual in the study.

As a result of extensive tracking efforts, 97% of all original participants were located at 3-year follow-up (n=392) and 88% (n=357) of participants successfully completed interviews. This is an improvement on the 12-month follow-up where 75% (n=305) of the original cohort completed full interviews. At 3-years, a total of 3.5% (n=14) of participants did not wish to be interviewed, 3% (n=12) were not located and 1.5% (n=6) of participants were deceased, with 0.2% (n=1) in a coma. 3.5% (n=14) were located but not interviewed and of these participants, four individuals were living in another country and eight individuals were on a methadone programme. None of these individuals were in prison.

The follow-up rate in the study for participants who were interviewed and the location rate for those who were either located or interviewed at the 3-year follow-up time point exceeded all international standards achieved to date and completely reversed the usual trend of decreasing follow-up rates as time progresses.

Within ROSI*E*, the 3-year mortality rate was 1.5% (95% C.I.[3] : 0.5% - 3.2%). Six of the 404 participants died between the start of recruitment in September 2003 and the end of 3-year follow-up interview period in July 2007. Two of these deaths occurred within the 1-year follow-up period. The mortality rate for the population (2/404) at 1-year was 0.5% (95% C.I.: 0.06% - 1.78%).

3. STUDY LIMITATIONS

1. Although the findings presented here highlight positive outcomes for study participants, they do not indicate a direct causal relationship between the treatment received and the outcomes observed.
2. The study did not randomly allocate participants to treatment settings/modality or employ a control group (drug users with similar profile not attending the index treatment).
3. Any individual behaviour change is the result of the interaction of three factors, the person, the environment and the intervention, all of which can influence outcomes but which could not be controlled for in this study.

2 In some instances, where appropriate, data with respect to cocaine powder and crack cocaine were combined for analysis.

3 C.I.: Confidence Interval.

4. UNDERSTANDING THIS PAPER

The reader should be aware that the data presented in this paper include all valid responses provided by the cohorts who completed the intake and the 3-year follow-up interviews, while the statistical comparisons are made on matched data or dependent pairs, i.e., only individuals who provided valid answers to each question at each of the two time points under comparison were included in analysis. Missing data were handled by excluding the cases from the particular analysis[4]. In terms of presenting statistical comparisons, data presented with an asterisk(*) subscript are statistically significant. Changes in all categorical variables were analysed using the McNemar test. Paired sample t-tests were performed when comparing sample means at two time points. Statistical significance can only be stated when tests have been carried out on the data to establish the degree of confidence with which it can be inferred that the differences in the observed findings are true and not due to sampling or other error. This is reported at a 5% level of probability, that is, a p-value of 0.05 or less is used for statistical significance.

Readers will observe some data changes from previous publications for intake numbers because the data are paired. As more people were interviewed at 3-years than at 1-year the baseline numbers at intake may differ for the various categories under observation.

International drug treatment outcome studies typically measure levels of drug use, health, crime, mortality and social functioning variables to monitor the impact of treatments for problem drug use (see e.g. Gossop *et al*, 2002; Gossop *et al*, 2003; Hubbard *et al*, 2003; Darke *et al*, 2006; Schifano, 2006; Teesson *et al*, 2006).

Within this findings paper, in order to keep tables of data clear and easy to read, changes from intake to 3-years for males and for females are not reported. Details on the effects of gender on outcomes observed at 3-years will be presented in the forthcoming Findings on predictors of outcomes. In addition gender is also addressed within Findings on polydrug use.

4 The percentage totals presented in Tables 1-15 are calculated on the basis of valid responses.

DRUG USE OUTCOMES

There are a variety of different ways drug use outcomes can be measured. Analysis was carried out to examine changes in:

- The percentage of individuals reporting the use of each drug type.
- Drug using frequency (mean number of drug-using days over the previous 90 days).
- Average quantity of each drug consumed on a typical drug-using day.
- Drug abstinence rates.

THE PERCENTAGE OF INDIVIDUALS REPORTING THE USE OF EACH DRUG TYPE

Table 1 shows the proportions using each target drug as reported at treatment intake and at 3-year follow-up. Reductions in the proportions using each drug, proportions using alcohol and proportions engaging in polydrug use between treatment intake and 3-year follow-up were all found to be significant.

Table 1: Drug use at treatment intake and 3-years

Drug use in last 90 days	Intake		3-years	
	%	n	%	n
Heroin	76.9	306	46.2*	165
Cannabis	64.1	243	48.9*	174
Cocaine (including crack)	48.3	195	22.5*	80
[1]Benzodiazepines	44.3	174	31.7*	113
[2]Methadone	40.6	162	13.8*	49
Alcohol	53.8	204	44.2*	157
[3]Polydrug use	76.2	308	46.5*	166

[1] *Refers to non-prescribed benzodiazepines.*
[2] *Refers to non-prescribed methadone.*
[3] *Polydrug use defined as using two or more illegal drugs in the last 90 days.*
* *denotes statistical significance.*

Table 2 displays the mean number of days on which each drug was used as reported at treatment intake and at 3-years. Analysis revealed significant reductions in the mean days used between treatment intake and 3-year follow-up.

Table 2: Drug using days at treatment intake and 3-years

Mean days used in last 90 days	Intake	3-years
	Mean (s.d.)	Mean (s.d.)
Heroin	40.1 (35.8)	20.7 (32.8) *
Cannabis	39.0 (40.1)	25.1 (36.1) *
[1]Benzodiazepines	15.5 (29.1)	9.4 (22.8) *
[2]Methadone	11.6 (23.2)	2.6 (10.8) *
Cocaine (including crack)	8.7 (18.9)	3.6 (12.8) *
Alcohol	13.3 (23.7)	10.9 (22.5) *

[1] *Refers to non-prescribed benzodiazepines.*
[2] *Refers to non-prescribed methadone.*
* *denotes statistical significance.*

Table 3 illustrates the mean quantity of each drug that was consumed on a typical using day as reported at treatment intake and 3-year follow-up. Analysis revealed a significant reduction in the average quantity of all drugs consumed between treatment intake and 3-years, with the exception of benzodiazepines.

Table 3: Mean quantity of drugs consumed at treatment intake and 3-years

Mean amounts used per day in last 90 days	Intake	3-years
	Mean (s.d.)	Mean (s.d.)
Heroin (grams)	0.6 (0.8)	0.2 (0.4) *
Cannabis (joints)	7.7 (16.5)	3.7 (11.1) *
Cocaine excluding crack (grams)	0.9 (2.4)	0.3 (0.8) *
[1]Benzodiazepines (mg)	41.9 (105.5)	39.9 (136.8)
[2]Methadone (ml)	23.3 (37.7)	9.1 (29.6) *
Alcohol (units)	9.1 (15.2)	5.8 (9.9) *

[1] *Refers to non-prescribed benzodiazepines.*
[2] *Refers to non-prescribed methadone.*
* *denotes statistical significance.*
Crack cocaine was excluded due to inconsistency in how the data was reported.
These cost figures are based on:
Heroin: 1 bag costing €20 and containing on average 0.113g at treatment intake, 1 bag containing on average 0.1g costing €20 at 3-years.
Cocaine: 1 gram costing €110 at treatment intake, the same quantity costing €70 at 3-years.
Cannabis: 1 ounce costing €110 at treatment intake, the same quantity costing €198.45 at 3-years (or a joint costing approximately 39c at treatment intake, and approximately 70c at 3-years).
Source: Costs advised through private communication (O'Brien, An Garda Síochána).

Table 4 shows the proportions that were drug free (not using any illegal drugs) as reported at treatment intake and at 3-year follow-up. A significant increase in the proportions that were drug free is evident between treatment intake and 3-years. Some opiate using clients were drug free at intake as they were recruited within the abstinence treatment modality.

Table 4: Drug free at treatment intake and 3-years

Drug free in last 90 days	Intake		3-years	
	%	n	%	n
Drug free (not using any illicit drug)	9.3	37	29.4*	105

** denotes statistical significance.*

MORTALITY RATE

Of the 404 study participants recruited at intake, six had died by the time of the 3-year follow-up interview. This gives a mortality rate for the ROSI*E* study population at 3-year follow-up of 1.5% (95% C.I.: 0.5% - 3.2%)[5]. All of the deceased were male and ranged in age between twenty-six and fifty-two years. There was no single common cause of death amongst these participants. Two participants died from a drug overdose, two died as a result of a brain haemorrhage, one died in a road traffic crash and one participant was murdered. In terms of treatment modality, three of the deceased were recruited in the methadone modality, two were recruited in the detoxification modality and one was recruited in the needle-exchange modality.

INVOLVEMENT IN CRIME

Table 5 presents the proportion of individuals reporting participation in each category of crime at treatment intake and 3-year follow-up. Between intake and 3-years, a significant reduction in the proportion committing each type of crime, with the exception of theft from a vehicle and criminal damage, was observed.

Table 5: Crimes committed at treatment intake and 3-years

Crime committed in the last 90 days	Intake		3-years	
	%	n	%	n
Selling/supply drugs	30.0	109	12.6*	45
Theft from a person	10.8	39	1.7*	6
Theft from house/home	6.3	23	3.1*	11
Theft from shop/ commercial property	17.5	63	7.6*	27
Theft from a vehicle	6.1	22	3.7	13
Theft of a vehicle	6.0	22	1.7*	6
Handling stolen goods	25.3	91	10.4*	37
Fraud/forgery/deception	11.2	40	2.8*	10
Assault	8.1	29	2.8*	10
Criminal damage	7.2	26	3.1	11
Soliciting	3.9	14	0.6*	2
Breach of the peace	6.7	24	2.5*	9

** denotes statistical significance.*

5 Two of the six deaths occurred within the 1-year follow-up period. The mortality rate for the population (2/404) at 1-year was 0.5% (95% C.I.: 0.06% - 1.78%).

INJECTING-RELATED RISK BEHAVIOUR

Table 6 shows injecting drug use in the last 90 days as reported at treatment intake and at 3-year follow-up. Analysis shows significant reductions in the proportions injecting any drug, injecting heroin, injecting cocaine, and injecting benzodiazepines from treatment intake to 3-years.

Table 6: Injecting drug use at treatment intake and 3-years

	Intake		3-years	
In the last 30 days	%	n	%	n
Injected any drug	44.0	177	27.5*	98
Injected heroin	41.6	168	25.3*	90
Injected cocaine powder	21.3	86	9.6*	34
Injected benzodiazepines	12.9	52	4.5*	16

* *denotes statistical significance.*

Table 7 displays the mean number of days injected and the mean number of times injected per day as reported at treatment intake and at 3-year follow-up. Analysis revealed significant reductions in both the mean number of days and the mean number of times injecting per day between intake and 3-years.

Table 7: Mean days/times injecting at treatment intake and 3-years

	Intake	3-years
In the last 30 days	Mean (s.d.)	Mean (s.d.)
Days injected	20.4 (32.2)	10.8 (25.9) *
Times injected on typical day	1.7 (3.7)	0.8 (1.8) *

* *denotes statistical significance.*

Table 8 presents data on injecting-related risk behaviour as reported at treatment intake and 3-years. At intake, a low proportion of participants reported injecting-related risk behaviour (i.e. the borrowing/lending of used injecting equipment). No significant changes were observed between treatment intake and 3-year follow-up for any injecting-related risk behaviour.

Table 8: Injecting-related risk behaviour at treatment intake and 3-years

	Intake		3-years	
In the last 30 days	%	n	%	n
Borrowed used needle/ syringe	5.6	21	3.4	12
Lent used needle/syringe	4.6	17	3.4	12
Re-used own needle/ syringe	15.7	52	16.0	55
Used filter/spoons after someone else	4.8	17	4.8	17

OVERDOSE

Table 9 presents data on overdoses within the last three months as reported at treatment intake and 3-years. The proportions did not change significantly between intake and 3-years.

Table 9: Overdose at treatment intake and 3-years

	Intake		3-years	
In the last 90 days	%	n	%	n
Overdose	6.6	26	6.2	22

PHYSICAL AND MENTAL HEALTH OUTCOMES

Table 10 presents data on physical health symptoms experienced over the last 90 days as reported at treatment intake and at 3-years. Analysis revealed a significant decrease in proportions experiencing five symptoms (poor appetite, nausea/feeling sick, joint/bone pains, muscle pains, tremors/shakes) between treatment intake and 3-years.

Table 10: Number and proportion experiencing physical health symptoms at treatment intake and 3-years

Symptoms experienced over last 90 days	Intake		3-years	
	%	n	%	n
Poor appetite	71.7	269	55.6*	194
Tiredness/fatigue	71.5	268	68.5	239
Nausea/feeling sick	39.8	148	32.6*	114
Stomach pains	39.8	148	36.5	127
Difficulty breathing	28.2	105	30.2	105
Chest pains	22.7	85	21.3	74
Joint/bone pains	36.0	135	27.3*	95
Muscle pains	32.7	122	22.0*	77
Numbness/tingling	22.6	84	27.4	95
Tremors/shakes	28.7	105	22.9*	80

** denotes statistical significance.*

Table 11 presents data on mental health symptoms experienced over the last 90 days as reported at treatment intake and 3-years. Analysis revealed no significant differences in proportions experiencing any of the five anxiety symptoms between intake to treatment and 3-year follow-up.

In terms of depressive symptoms, there was a significant reduction in the proportions feeling hopeless about the future, feeling lonely and having thoughts of ending their lives between intake and 3-years.

Table 11: Number and proportion experiencing mental health symptoms at treatment intake and 3-years

Symptoms experienced over last 90 days	Intake		3-years	
	%	n	%	n
Anxiety symptoms				
Feeling tense	65.2	234	67.3	231
Suddenly scared for no reason	35.6	129	35.3	122
Feeling fearful	42.3	149	47.4	163
Nervousness or shakiness inside	42.6	153	41.6	143
Spells of terror or panic	24.5	90	23.3	80
Depression symptoms				
Feeling hopeless about the future	55.8	196	49.0*	169
Feeling of worthlessness	52.8	188	48.0	165
Feeling no interest in things	57.4	206	55.8	192
Feeling lonely	57.4	202	48.1*	165
Thoughts of ending own life	25.4	88	18.8*	65

** denotes statistical significance.*

TREATMENT STATUS

Table 12 shows the 3-year treatment status of participants.

Table 12: Current treatment status of participants at 3-years

Current treatment status	%	n
In treatment at 3-years	68.9	246
Of those in treatment, proportion in methadone modality at 3-years	86.2	212

EMPLOYMENT, TRAINING AND ACCOMMODATION

Table 13 presents the proportions of individuals on training courses, currently employed, usually not working in the last three months, and employed at some time in the last three months as reported at treatment intake and 3-year follow-up. Analysis revealed a significant increase in the proportion of clients undertaking training courses over the last six months, currently employed, and employed at some point in the last three months between intake and 3-years. Finally, there was a significant reduction in the proportion of clients who were usually unemployed over the last three months between intake and 3-years.

Table 13: Employment and training at treatment intake and 3-years

	Intake		3-years	
	%	n	%	n
Training courses over last six months	15.6	63	32.8*	117
Currently employed	16.0	64	28.7*	102
Employed at some point in last three months	21.3	84	30.1*	107
[1]Not working	42.9	171	30.5*	109

[1] *Refers to participants' usual occupations over the last three months i.e. what their employment status was for most of the time.*

** denotes statistical significance.*

Table 14 shows participants' accommodation during the previous three months as reported at treatment intake and 3-year follow-up. Analysis revealed a significant decrease in the proportion of participants who were taking up accommodation in the family home, drug treatment residences, and living in insecure tenure between intake and 3-years. These reductions were mirrored by significant increases in the proportion of candidates in their own house/ flat or rental accommodation.

Table 14: Accommodation at treatment intake and 3-years

[1]*Accommodation over last 90 days*	Intake		3-years	
	%	n	%	n
Family home	46.8	182	31.7*	113
Drug treatment residence	30.2	120	2.0*	7
Own house/flat or rental accommodation	33.8	134	49.0*	175
Prison	12.4	49	9.5	34
[2]Insecure tenure	10.2	40	8.4	30
[3]Homeless	14.7	58	11.2*	40

[1] *Categories are not mutually exclusive.*

[2] *Insecure tenure refers to staying in home of friends.*

[3] *Homeless includes participants living in hostels, shelters, B&B's or with no fixed abode.*

** denotes statistical significance.*

SERVICE CONTACT

Table 15 presents the medical and social support service contact for participants as reported at treatment intake and 3-year follow-up. Significant increases in the proportion attending a hospital and staying overnight, and the proportion visiting an out-patient department or receiving community treatment were evident between intake and 3-years.

In terms of social support service usage, significant increases were noted for both the proportions having contact about employment, training or education and the proportions having contact about housing issues between intake and 3-years.

Table 15: Contact with services at treatment intake and 3-years

Services received in last 90 days	Intake		3-years	
	%	n	%	n
Attended hospital and stayed overnight	8.7	34	15.7*	56
Attended Accident and Emergency	17.4	67	23.0	82
Visited a GP	33.6	124	39.2	140
Visited an out-patient department/received community treatment	12.7	49	20.4*	73
Social support contacts in last 90 days				
Had contact with social services	6.4	25	9.8	35
Had contact about employment, training or education	10.4	37	32.2*	115
Had contact about social welfare	31.1	115	27.5	98
Had contact about housing issues	14.7	55	26.9*	96

** denotes statistical significance.*

CONCLUSIONS

Follow-up and interview rates of 97% and 88.4% respectively, obtained at 3-years from the full cohort of 404 recruited, were exceptionally high by international standards. In comparison, the National Treatment Outcome Research Study (NTORS) in England and Wales decided at 4-5 years to select a stratified random sub-sample of 650 participants from a sample frame of 894 individuals extracted from the full original cohort of 1077 recruits. Despite the use of this smaller sub-sample, the follow-up interview rate attained was 76.3% (496/650) (Gossop *et al*, 2003). ROS*IE* follow-up rates were also high in comparison with the Australian Treatment Outcome Study (ATOS), who achieved a follow-up interview rate of 76% (469/615) at 2-years (Darke *et al*, 2006). The achievement of a follow-up rate that is considerably higher than the international standard provides researchers with greater confidence in the final results observed for the ROS*IE* cohort at 3-years.

Mortality rates within ROS*IE* were low in comparison with NTORS. Within NTORS at 4-years, 4.9% of those recruited are known to have died (Gossop *et al*, 2002). This was 6 times higher than the aged matched annual mortality rate of 1.2% within the general population. Within NTORS the majority (68%) of deaths were associated with drug overdoses. Within ROS*IE*, two of the six deaths (33%) within the 3-year follow-up period were known to be as a result of an overdose. Other international drug treatment studies include the Italian VEdeTTE study; a heroin users' treatment outcome study with a recruited population of 10,454 individuals. After 18 months, there had been 100 deaths and after 30 months, there were 189 deaths out of a population of 10,258. This corresponds to a death rate of 12.0% (Schifano, 2006). The USA drug abuse treatment outcome study (DATOS) observed a 1-year mortality rate of 1.5% of the located population and a 5-year mortality rate of 7% of the located population (Hubbard *et al*, 2003). Due to study design and methodological differences, it is not appropriate to directly compare the mortality rates across these studies. However, they do provide an international context within which the ROS*IE* mortality rate data can be viewed.

Authors: Dr Catherine Comiskey, Paul Kelly and Dr Robert Stapleton

CONCLUSIONS (continued)

Results observed within the drug outcome measures were very encouraging. Reductions in the proportions using a range of target drugs were observed between intake and 3-years. Similar results were observed in both NTORS and ATOS. However, in addition, ROS*IE* observed significant reductions in the proportion reporting the use of alcohol from intake to 3-years. Within NTORS there were no statistically significant changes in alcohol use among either methadone or residential patients in either frequency or quantity consumed on a typical drinking day (Gossop *et al*, 2003). Similarly, no statistically significant changes in alcohol use were observed in ATOS (Darke *et al*, 2006). In contrast, within the ROS*IE* study the proportions of both frequency and quantity of alcohol used decreased significantly between intake and 3-years.

With regard to cocaine use, NTORS observed that outcomes for crack cocaine were not significantly different from intake (Gossop *et al*, 2003). In contrast ROS*IE* had significant reductions in the the reported use of both cocaine powder and crack cocaine from intake to 3-years. Furthermore, the proportion of ROS*IE* participants using benzodiazepines at 3-years was significantly lower than the proportion using at intake.

Finally, abstinence rates reported at 3-years by the ROS*IE* study were encouraging. Rates of abstinence from all illegal drugs increased significantly from intake to 3-years. NTORS abstinence rates are not directly comparable, as the authors report abstinence rates for methadone and residential treatment clients separately, while abstinence rates are computed for six target drugs only, and do not include cannabis. Within NTORS, 25.7% of those recruited within methadone were abstinent from the six drugs; heroin, non-prescribed methadone, non-prescribed benzodiazepines, crack cocaine and amphetamines at 4-5 years and 38% of those recruited within residential programs were abstinent from these six drugs at 4-5 years (Gossop *et al*, 2003). In comparison, within ROS*IE*, 42.9% of the followed-up cohort reported abstinence from these six particular target drugs at 3-years.

With regard to crime outcomes, the ROS*IE* study reflected the outcomes observed in both NTORS and ATOS with significant reductions in crime observed at 3-years.

In terms of health, the ROS*IE* study outcomes varied and no clear picture of health was observed, although at 3-years, significant reductions were observed in five of the 10 physical health symptoms measured. Within ATOS, significant improvements in health outcomes at 1-year were reported (Teesson *et al*, 2006), while NTORS reports reductions in mental health symptoms after 1-year among both residential and methadone patients. However authors note that among methadone patients there was an increase in symptoms between two and four/five years. Nonetheless, symptoms were still lower than intake levels (Gossop *et al*, 2003). None of the proportions in the ROS*IE* cohort experiencing the five anxiety symptoms decreased between intake and 3-years. There were however reductions observed in the proportions experiencing three of the five depressive symptoms in the same time period.

Overall, results indicate that in Ireland treatment for opiate use has a positive and sustaining effect, not only on drug use but on alcohol use, drug related crime and on social functioning variables. In addition, results on outcomes are not only comparable with other international outcome studies, but in some cases are better, particularly in terms of drug abstinence rates and the use of alcohol. However, while this is very encouraging, results also indicate that there is a clear need for more targeted, detailed research on long term physical and mental health outcomes for opiate users in treatment in Ireland.

REFERENCES

Cox, G., & Comiskey, C. C. (2007). Characteristics of opiate users presenting for a new treatment episode: Baseline data from the national drug treatment outcome study in Ireland (ROSI*E*). *Drugs – Education, Prevention and Policy, 14(3), 217-230.*

Darke, S., Williamson, A., Ross, J. and Teesson, M. (2006). Reductions in heroin use are not associated with increases in other drug use: 2-year findings from the Australian Treatment Outcome Study. *Drug and Alcohol Dependence, 84, 201-205.*

Gossop, M., Duncan, S., Treacy, S. and Marsden, J. (2002). A prospective study of mortality among drug misusers during a 4-year period after seeking treatment. *Addiction, 97(1), 39-47.*

Gossop, M., Marsden, J., Stewart, D and Kidd, T. (2003). The National Treatment Outcome Research Study (NTORS): 4-5 year follow-up results. *Addiction, 98, 291-303.*

Hubbard, R.L., Craddock, S. G. and Anderson, J. (2003). Overview of 5-year outcomes in the drug abuse treatment outcome studies (DATOS). *Journal of Substance Abuse Treatment, 25, 125-134.*

National Advisory Committee on Drugs (NACD) & Drug and Alcohol Information and Research Unit (DAIRU) (2007). Drug Use in Ireland and Northern Ireland: 2002/2003 Drug Prevalence Survey: Polydrug use Results: Bulletin 5. *NACD, Dublin.*

Schifano, P. (2006). Treatment demand and drug related deaths: results and hints from the VEdeTTE study. *Presentation to EMCDDA 2006 Annual Expert Meeting, Lisbon. Available from: http://www.emcdda.europa.eu/attachements.cfm*

Teesson, M., Ross, J., Darke, S., Lynskey, M., Ali, R., Ritter, A. and Cooke, R. (2006). *Drug and Alcohol Dependence, 83(2), 174-180.*

ACKNOWLEDGEMENTS

The authors would sincerely like to thank all those who gave of their time to the ROSI*E* study and made it possible, the 404 clients, their family members and friends, the many service providers, all ROSI*E* project staff throughout the duration of the research, the members of the National Advisory Committee on Drugs, its Treatment Sub-committee and the Research Advisory Group. Thanks also to Dr. Emma White for her assistance in editing this paper.

Contact details

Mairéad Lyons
National Advisory Committee on Drugs
3rd Floor
Shelbourne House
Shelbourne Road
Ballsbridge
Dublin 4
Tel: + 353 1 667 0760
Email: info@nacd.ie
Web: www.nacd.ie

Dr Catherine Comiskey
ROSI*E* Project
Mathematics Department
National University of Ireland
Maynooth
Co Kildare

Tel: + 353 1 708 3352
Email: ccomiske@tcd.ie
Web: www.nuim.ie/rosie

ISBN 978-1-4064-2206-1

ISBN: 978-1-4064-2206-1

National Development Plan 2007 - 2013

National Advisory Committee on Drugs

NUI MAYNOOTH
Ollscoil na hÉireann Má Nuad